DEPARTMENT OF THE ARMY
WALTER REED ARMY MEDICAL CENTER
WALTER REED HEALTH CARE SYSTEM
WASHINGTON, DC 20307-5001

July 29, 1998

REPLY TO
ATTENTION OF

Preventive Medicine Services

Nuclear Regulatory Commission, Region I
Division of Nuclear Material Safety
475 Alendale Road
King of Prussia, Pennsylvania 19406-1415

Medical Licensing Division :

In compliance with the "Timeliness Rule," the Health Physics Office of Walter Reed Army Medical Center, NRC Byproduct Materials License 08-01738-02, will cease all NRC license operations for one wing of the leased Gillette Building in Rockville, MD. In May 1999 the lease will be terminated and the rooms will be turned back over to the owner. NRC licensed activities will continue in the other wing of this building, so a license amendment is not required. The anticipated completion of the decommissioning survey of this wing is April 1999.

The decommissioning of the Gillette building has begun with a historical records investigation. The documentation for the final surveys of all radioisotope use facilities will include meter surveys, swipe surveys, and a historical review of all facilities. The meter surveys will search for any radiological contamination. The swipe surveys will consist of surveying the floor and walls up to 5 feet for removable contamination. The swipes will be processed in both a gamma counter and liquid scintillation counter. We will take additional samples in areas where dust could collect such as light fixtures, or equipment that would remain in the buildings. Permanent records of the decommissioning surveys will be maintained in the Health Physics Office files.

For additional information regarding this decommissioning plan, please contact Colonel William B. Johnson, Chief, Health Physics Office or Captain Arthur R. Morton, Chief, Operations Branch, Health Physics Office, Preventive Medicine Services, at (202) 356-0058.

Sincerely,

William B. Johnson
Colonel, U.S. Army
Radiation Protection Officer

2/79

AUG - 3 1998

APPENDIX A

MEDICAL BROAD-SCOPE INSPECTION RECORD

Region I

Inspection record No. 99-01 License No. 08-01738-02

Licensee (Name and Address): Docket No. 030-01317

Army
Walter Reed Army Medical Ctr.
Washington DC 20307-5001

Licensee Contact: William Johnson Telephone No. _____

Priority: 1 Program Code: 2110

Date of Last Inspection: 2/11-13/98
Date of This Inspection: ~~3/16/99~~ 3/16 – 18/99

Type of Inspection:
( ) Announced
(✓) Routine
( ) Initial
(✓) Unannounced
( ) Special

Next Inspection Date 11/2000 ( ) Normal ( ) Reduced (✓) Extended

Justification for change in normal inspection frequency: (2) clear inspections

Summary of Findings and Actions:

(✓) No violations cited, clear U.S. Nuclear Regulatory Commission (NRC) Form 591 or regional letter issued
( ) Non-cited violations
( ) Violation(s), Form 591 issued
( ) Violation(s), regional letter issued
( ) Followup on previous violations

Inspector(s) Thomas K. Thompson (Sign Name) Date 3/29/99

Thomas K. Thompson (Print Name)

Approved M. Shanbaky (Sign Name) Date 3/30/99

M. SHANBAKY (Print Name)

2/80

RI Receipt Date: 06/03/98

PART I-LICENSE, INSPEC . . N, INCIDENT/EVENT, AND ENFOR IENT HISTORY

1. AMENDMENTS AND PROGRAM CHANGES:
[License amendments issued since last inspection; program changes (including major changes in facilities, activities, procedures, or personnel) noted in the license]

AMENDMENT #	DATE	SUBJECT
71	6/9/98	Add new RSC Chairman Colonel Yancy Phillips

2. INSPECTION AND ENFORCEMENT HISTORY:
(Unresolved issues; previous and repeat violations; Confirmatory Action Letters; and orders)

2/11-13/98 clear

3. INCIDENT/EVENT HISTORY:
(List any incidents, recordable events, or misadministrations reported to NRC since the last inspection. Citing "None" indicates that regional event logs, event files, and the licensing file have no evidence of any incidents or events since the last inspection.)

* P-32 contam. 1/26/99
License has also been following several incidence of personnel entering I-131 pt rooms who were not authorized. Custodial & nutritionist. The licensee identified the individuals & provided training.

PART II - INSPECTION DOCUMENTATION

References that correspond to each inspection documentation topic are in Inspection Procedure 87119, Appendix B, "Medical Broad-Scope Inspection References."

The inspection documentation part is to be used by the inspector to assist with the performance of the inspection. Note that all areas indicated in this part are not required to be addressed during each inspection. However, for those areas not covered during the inspection, a notation ("Not Reviewed" or "Not Applicable") should be made in each section where applicable.

All areas covered during the inspection should be documented in sufficient detail to describe what activities and procedures were observed and/or demonstrated. In addition, the types of records that were reviewed and the time periods covered by those records should be noted. If the licensee demonstrated any practices at your request, describe those demonstrations. The observations and demonstrations you describe in this report, along with measurements and some records review, should substantiate your inspection findings. Attach copies of all licensee documents and records needed to support violations.

1. ORGANIZATION AND SCOPE OF PROGRAM:
(Management organization; authorities and responsibilities; Radiation Safety Officer (RSO), Radiation Safety Committee (RSC) chairman and members; administrative controls, procedures, and management policies; authorized locations of use; type, quantity and frequency of byproduct material use; staff size; mobile nuclear medicine service; limited distribution of pharmaceuticals; and research involving human subjects)

3 officer HP's
3 Civilian HP's
5 HP Tech's
~43 active Principle Users
6 Brachy pts. in 98'
Prostate implants major brachy area. Using Pd 103.

1 Generator/wk
Fort Meade - Drug Testing lab uses I-125 kits - minimum use - Not inspected
Gillette Bldg - being decommissioned in Imai little activity

2. MANAGEMENT OVERSIGHT:
[Management support to radiation safety; RSC, RSO; and program audits, including as low as is reasonably achievable (ALARA) reviews]

RSC Meeting Minutes reviewed
11/25/98
9/2/98
6/4/98
3/98

1 - new PI in 1998. Reviewed application submitted to RSC. OK

3. FACILITIES:
[Facilities as described; uses; control of access; engineering controls,(e.g., ventilation, hoods, filters, etc); irradiators and survey instrument calibrators; maintenance by authorized persons]

Visited Forest Glen facility and Armex Labs.
Labs in Bldg 500 no longer use byproduct material
All materials were removed except 35 in liq scint. counter.
They await decommissioning survey clearance. Then these use areas will be removed.

* Gillette - being decommissioned no use
13 Taft Court — limited # of labs using P-32 & S-35 - active
Bldg 40 - WRAIR
41 - HP Offices
54 - Pathology AFIP

4. EQUIPMENT AND INSTRUMENTATION:
(Dose calibrator; instrumentation for assaying alpha- and beta- radionuclides; generators; syringes and vials; survey instruments; 10 CFR Part 21 procedures; and special equipment and instrumentation) All survey instruments checked on Lab Tours were Calibrated as required.

See back page

Capintec 35R normal use Constancy
30 UC not used 6/25/98 one except for Trage Constancy chk - commenting
6/26 same used settings check
6/29 same on Moly Channel reading
7/9 same obtained was 9284.61 o/o
Manually entered 136.90 mCi Should have been 1.36 mCi

Linearity
3/1/99
~~1/22/97~~ 10/26/98 1/13/98
8/26/98
6/2/98

Accuracy
2/22/99
6/98

Xe-133
Xenomatic 3000
has charcoal Trap + alarm, Alarm chk 1/mth

5. MATERIAL RECEIPT, USE, CONTROL, AND TRANSFER:
(Materials and uses authorized; use of radiopharmaceuticals; security and control of licensed materials; and procedures for receipt and transfer of licensed material)

(2) 2-3 Co Generators received per wk from Nuc Med Pharmacy DuPont

Individual Investigators order materials, however, all materials are received & checked against inventory by RSO personnel

N - eye applicators - stored Forest Glen
CC - old irradiator - stored at Forest Glen
O.4A.A - Brachy Sources
R - no longer possessed
U - Source not used - stored in Bldg 41
A.A. - Instr. calib. - no longer has, disposed

X - only 1.54E-3 mCi not 1 Ci
B.B - Contry stds. - Bldg 41

Capintec 30 not used for pt doses in 98'. Used only to train students.

Constancy

Q/A 91.54 reading should have been 1.4 mCi was entered as 0.12

No violation noted for errors >10% on Capintec 30 because it is not used for pts. dose assay. Suggested to Licensee that they should, however, ~~put~~ make a record indicating what occurred when these errors are made on daily constancy chks, because the Licensee stated they would use the Capintec 30 for backup if their primary unit failed.

6. THERAPIES:
(Safety precautions; postings; contamination control; stay times; surveys; release criteria of patients and rooms)

~ 27yr I-131 in pts.
dedicated rooms used
Interviewed custodi workers about
trng. Worker was aware he should not go in
therapy room but didn't specifically recall trng. session.
1 Sr-89 10/14/98 Brachy Rooms 6562

QM

chked 9 written directives, all ok
8 I-131
1 Sr-89

Brachy

* Cs-137 9/3/98

3/19/98 Ir-192 ? Need written Directive - ~~Not~~ - not caught on audit * other record has equiv. info.
Cook

Cs-137 2/19/98 ok written Directive ok

Jones Cs-137 ? - ~~didn't look at this - file could not be located.~~

Cs-137 pt on 3/4/98
Info on in+out log.

1) # sources removed
2) Pts. name
3) date sources removed
4) date sources returned
5) # sources returned

missing load date

Reviewed I-131 pt. survey records + bioassay data.
All ok.

7. QUALITY MANAGEMENT PROGRAM (GMP) AND MISADMINISTRATIONS:
(QMP - written directives, implementation, reviews, and records; misadministrations - identification, notifications, reports, and records)

100% QM review is done by Nuclear Pharmacist, 100% review is also done of Brachy administrations

8. AREA RADIATION SURVEYS AND CONTAMINATION CONTROL:
(Radiation and contamination surveys; air sampling; leak tests; inventories; handling of radioactive materials; protective clothing; dosimetry; records; and public doses)

Checked daily surveys in Nuc Med. area - ok
Checked I-131 & Brachy pt. area surveys - ok
Checked survey records in individual labs during facility tour. In all cases survey records were complete.

9. TRAINING AND INSTRUCTIONS TO WORKERS:
(Interviews and observations of routine work; staff knowledge of all routine activities; 10 CFR Part 20 requirements; therapy training and postulated emergency situations; supervision by authorized users; retraining and periodic training programs; training of ancillary personnel such as housekeeping, security, and maintenance; adequacy of training and instruction)

98'

1 - new author. reviewed 9/4/98

10. RADIATION PROTECTION:
[Radiation protection program with ALARA provisions (worker and general public external and internal exposure control; effluent control); external and internal dosimetry program; exposure evaluations; dose records and reports; and patient release]

Release for I-131 pts.
Conditional Release
<33 mCi
unconditional
<7 mCi

11. RADIOACTIVE WASTE MANAGEMENT:
(Disposal; effluent pathways and control; storage areas; transfer; packaging, control, and tracking procedures; equipment incinerators, hoods, vents, and compactors; and records)

All rad waste picked up & taken to Forest Glenn for compaction & stg for decay or shipped as rad waste to Barnwell. RSO does this. Waste compactor has ventillation & air sampling is taken of effluent each use.

12. DECOMMISSIONING:
(Records of radiological conditions; decommissioning plan/schedule; notification requirements; cost estimates; funding methods; financial assurance; and Timeliness Rule requirements)

Licensee is in process of decommission several bldgs. & moving operations to the new facility at Forest Glenn

* Bldg. 40 - plans being formed to decommission & move operations to Bldg 503 at Forest Glenn. May not occur for ~ 1-2 yrs.
Bldg 500 & 506, & 508 are in process of being decommiss.

13. TRANSPORTATION:
(Quantities and types of licensed material shipped; packaging design requirements; HAZMAT communication procedures; unit dose return; return of sources; procedures for monitoring radiation and contamination levels of packages; HAZMAT training; and records and reports)

Last shipment 3/1/99 (rad waste)
Reviewed shipment records randomly selected for m' 98'. All ok.

14. NOTIFICATIONS AND REPORTS:
(Theft; loss; incidents; overexposures; change in RSO, authorized user, or nuclear pharmacist; and radiation exposure reports to individuals)

(2) incidence of contam. (1) 1/99 P-32
(2) 2/11 S-35

15. POSTING AND LABELING:
(Notices; license documents; regulations; bulletins and generic information; posting of radiation areas; and labeling of containers of licensed material)

Appropriate posting and labeling noted in Laboratories & waste stg areas.

16. INDEPENDENT AND CONFIRMATORY MEASUREMENTS:
(Areas surveyed; comparison of data with licensee's results and regulations; and instrument type and calibration date)

Surveyed waste stg area Forest Glen <2mR/hr
Nuc. medicine Lab
Brachy source stg rm.

17. VIOLATIONS, NON-CITED VIOLATIONS (NCVs); AND OTHER SAFETY ISSUES:
(State requirement and how and when licensee violated the requirement. For NCVs, indicate why the violation was not cited. Attach copies of all licensee documents needed to support violations.)

1) Do not review everything
2) Visited most labs but not Taft Court

1) Daily constancy failing to note >10% error. not cited because device is not used.
2) (1) lab 50-60 uG P-32 unsecured but licensee is taking action. Material was locked in refrig but lock + chain could be bypassed.
3) Reviewed P-32 incident in Jan 99
4) Brachy therapy ~~records~~ source use records should be filled out in their entirety

Facilities visited Oldg 40 41 Forest Glen 54
Did not visit Taft Court

T

18. PERSONNEL CONTACTED:
[Identify licensee personnel contacted during the inspection (including those individuals contacted by telephone).] Col. Johnson - RSO
Anna Rodriguez - PI for Nuc Medicine
Cpt. John Thomas - Pharmacist
Cpt Arthur Morton - Chief
David Burton - Chief, Rad. Materials Control Branch
Wilfred Sewchand - ~~Oncologist~~ Clinical Physicist

Use the following identification symbols:
Individual(s) present at entrance meeting
* Individual(s) present at exit meeting

19. PERFORMANCE EVALUATION FACTORS (PEFs):

A.	Lack of senior management involvement with the radiation safety program and/or RSO oversight		( ) Y (✓) N
B.	RSO too busy with other assignments		( ) Y (✓) N
C.	Insufficient staffing		( ) Y (✓) N
D.	RSC fails to meet or functions inadequately	( ) N/A	( ) Y (✓) N
E.	Inadequate consulting services or inadequate audits conducted	( ) N/A	( ) Y (✓) N

Remarks (consider the above assessment and/or other pertinent PEFs with regard to the licensee's oversight of the radiation safety program):

21. Special Conditions or Issues:
(Special license conditions; year-2000 effects of computer software)

None

PENDIX A - ATTACHMENT A
DECOMMISSIONING TIMELINESS INSPECTION ATTACHMENT

Licensee: Walter Reed Med. Ctr.

Date of Inspection: 3/16-18/99

1. COMPLIANCE WITH DECOMMISSIONING TIMELINESS RULE
(NOTE: Repeat the answers given in Section 12 of the main body of the inspection record. The issues in subsequent sections are dependent on the answers to these questions.)

A. License to conduct a *principal activity* has expired or been revoked. ( ) Y (✓) N

B. Licensee has made a decision to permanently cease *principal activities*, at the entire site, or any separate buildings, or any outdoor areas, including inactive burial grounds. (✓) Y ( ) N

C. A 24-month duration has passed in which no *principal activities* have been conducted under the license at the site, or at any separate buildings, or any outdoor areas, including inactive burial grounds. ( ) Y (✓) N

D. If "Yes" to either A or B or C above:

(1) Identify Site/Bldg/Area: Letter to NRC dated 12/12/97

(2) Date of occurrence of A, B, or C: " "

2. NOTIFICATION REQUIREMENTS

A. Licensee has provided written notification to U.S. Nuclear Regulatory Commission (NRC) within 60 days of the occurrence of 1.A., 1.B., or 1.C., above. (✓) Y ( ) N

If "Yes," date of notification: Letter dated 12/12/97

B. If the licensee is requesting to delay initiation of the decommissioning process, the licensee has provided written notification to NRC within 30 days of occurrence of 1.A., 1.B., or 1.C.,above ( ) N/A ( ) Y (✓) N

If "Yes," date of notification: _____

Basis for Findings:

3. DECOMMISSIONING PLAN/SCHEDULE REQUIREMENTS

A. Licensee is required to submit a decommissioning plan per 10 CFR 30.36(g), 40.42(g), 70.38(g), or 10 CFR Part 72? ( ) Y (✓) N

If "No" to 3.A., answer the following items B. - F.:

B. The decommissioning work scope is covered by current license conditions. (✓) Y ( ) N

C. Decommissioning has been initiated within 60 days of notification to NRC, or NRC has granted a delay. ( ) Y ( ) N

Done historical review
Done characterization survey

D. If licensee has initiated decommissioning, give date the decommissioning was initiated:

Initiation date: Summer 98'

E. If decommissioning has been completed, it was completed within 24 months of notification of NRC. (✓) N/A ( ) Y ( ) N

F. If decommissioning is still scheduled to be completed, it is on schedule to be completed within 24 months of notification of NRC. ( ) N/A ( ) Y (✓) N

Basis for Findings: ~~may~~ will need delay Ltr. w. may not happen within 2 yrs. from this inspection.

If "Yes" to 3.A., answer the following items G. - J.:

G. The decommissioning plan has been submitted to NRC within 12 months of notification ( ) Y ( ) N

If "Yes," date of submittal: See 12/12/97 Letter

If NRC approved, date of NRC approval: 1/14/98

H. Has the licensee submitted an alternative schedule request? ( ) Y (✓) N

If "Yes," date of submittal: _____

~~asked Licensee to Sed request for Delay.~~ Letter 12/9 indicates: decom not till 99

I. If decommissioning has been completed, it was completed within 24 months after approval of the decommissioning plan (✓) N/A ( ) Y ( ) N

J. If decommissioning is still scheduled to be completed, it is on schedule to be completed within 24 months after approval of the decommissioning plan.

NRC should send letter granting Delay.

( ) N/A (✓) Y ( ) N

Basis for Findings: The new bldg. at Forest Glen will not be completed until later in 1999. The ~~Fal~~ decommissn of other bldgs will not be complete until 1-2 yrs. after

Violations identified, if any:

APPENDIX B

MEDICAL BROAD-SCOPE INSPECTION REFERENCES*

1. ORGANIZATION AND SCOPE OF PROGRAM

10 CFR 35.6	Provisions for research involving human subjects.
10 CFR 35.29	Administrative requirements - mobile nuclear medicine service.
10 CFR 35.80	Technical requirements - mobile nuclear medicine service.

License application and applicable license conditions.

2. MANAGEMENT OVERSIGHT

A. Radiation Safety Committee

10 CFR 33.13	Requirements for issuance of a Type A specific license of broad scope
10 CFR 35.22	Radiation safety committee.
10 CFR 35.23	Statements of authority and responsibilities.
10 CFR 35.31	Radiation safety program changes.

Applicable license conditions.

B. Radiation Safety Officer

10 CFR 35.21	Radiation safety officer.
10 CFR 35.23	Statements of authority and responsibilities.
10 CFR 35.900	Radiation safety officer.

C. Audits, Reviews, or Inspections

10 CFR 35.22	Radiation safety committee.
10 CFR 20.1101	Radiation protection programs.
10 CFR 20.2102	Records of radiation protection programs.

Applicable license conditions.

D. ALARA

10 CFR 35.20	Radiation protection programs.

E. Authorized Users

10 CFR 35.11	License required.
10 CFR 35.13	License amendments.
10 CFR 35.25	Supervision.

Applicable license conditions.

* These references correspond to the sections of IP 87119, Part II of Appendix A, the "Medical Broad-Scope Inspection Record ."

3. FACILITIES

A. Access Control

10 CFR 20.1601 Control of access to high-radiation areas.
10 CFR 20.1602 Control of access to very high-radiation areas.
Applicable license conditions.

B. Engineering Controls

10 CFR 20.1701 Use of process or other engineering controls.
10 CFR 20.1702 Use of other controls
10 CFR 35.90 Storage of volatile gases.
10 CFR 35.205 Control of aerosols and gases.
Applicable license conditions.

4. EQUIPMENT AND INSTRUMENTATION

A. Dose Calibrators - Photon-emitting radionuclides

10 CFR 35.50 Possession, use, calibration, and check of dose calibrators.
Applicable license conditions.

B. Instrumentation- Alpha- or beta-emitting radionuclides

10 CFR 35.52 Possession, use, calibration, and check of instruments to measure dosages of alpha- or beta-emitting radionuclides.
Applicable license conditions.

C. Generators

10 CFR 35.204 Permissible molybdenum-99 concentrations.

D. Syringes and Vials

10 CFR 35.60 Syringe shields and labels.
10 CFR 35.61 Vial shields and labels.

E. Survey Instruments

1. Possession

10 CFR 35.120 Posession of survey instrument.
10 CFR 35.220 Possesion of survey instruments.
10 CFR 35.320 Possession of survey instruments.
10 CFR 35.520 Availability of survey instrument.
Applicable license conditions.

2. Calibration

10 CFR 35.51 Calibration and check of survey instruments.

F. Safety Component Defects

10 CFR 21.21 Notification of failure to comply or existence of a defect and its evaluation.

5. MATERIAL USE, C TROL, AND TRANSFER

A. Authorized Uses

10 CFR 31.11	General license for use of byproduct material for certain in-vitro clinical or laboratory testing.
10 CFR 35.53	Measurement of dosages of unsealed byproduct material for medical use.
10 CFR 35.100	Use of unsealed byproduct material for uptake, dilution, and excretion studies.
10 CFR 35.200	Use of unsealed byproduct material for imaging and localization studies.
10 CFR 35.204	Permissible molybdenum-99 concentrations.
10 CFR 35.300	Use of unsealed byproduct material for therapeutic administration.
10 CFR 35.400	Use of sources for brachytherapy.
10 CFR 35.500	Use of sealed sources for diagnosis.

B. Security and Control

10 CFR 20.1003	Definitions (restricted area and unrestricted area).
10 CFR 20.1801	Security of stored material.
10 CFR 20.1802	Control of material not in storage.

C. Receipt and Transfer of Licensed Material

10 CFR 20.1906	Procedures for receiving and opening packages.
10 CFR 20.1501	General.
10 CFR 20.2103	Records of surveys.
10 CFR 30.41	Transfer of byproduct material.
10 CFR 30.51	Records.

6. THERAPIES

10 CFR 35.75	Release of patients or human research subjects containing radiopharmaceuticals or permanent implants.
10 CFR 35.315	Safety precautions.

Applicable license conditions.

7. QUALITY MANAGEMENT PROGRAM AND MISADMINISTRATIONS

10 CFR 35.2	Definitions (misadministration and recordable events).
10 CFR 35.32	Quality management program.
10 CFR 35.33	Notifications, reports, and records of misadministrations.

8. AREA RADIATION SURVEYS AND CONTAMINATION CONTROL

A. Area Surveys

10 CFR 2.01301	Dose limits for individual members of the public.
10 CFR 20.1302	Compliance with dose limits for individual members of the public.
10 CFR 20.1501	General.
10 CFR 20.2103	Records of surveys.
10 CFR 20.2107	Records of dose to individual members of the public.
10 CFR 35.70	Surveys for contamination and ambient radiation exposure rate.

Applicable license conditions.

B. Leak Tests and Inventories

10 CFR 35.59	Requirements for possession of sealed sources and brachytherapy sources.

Applicable license conditions.

9. TRAINING AND INSTRUCTIONS TO WORKERS

A. General

10 CFR 19.12	Instruction to workers.

Knowledge of 10 CFR Part 20 radiation protection procedures and requirements.

B. Specific

10 CFR 35.900	Radiation Safety Officer.
10 CFR 35.901	Training for experienced Radiation Safety Officer.
10 CFR 35.910	Training for uptake, dilution, and excretion studies.
10 CFR 35.920	Training for imaging and localization studies.
10 CFR 35.930	Training for therapeutic use of unsealed byproduct material.
10 CFR 35.932	Training for treatment of hyperthyroidism.
10 CFR 35.934	Training for treatment of thyroid carcinoma.
10 CFR 35.950	Training for use of sealed sources for diagnosis.
10 CFR 35.970	Training for experienced authorized users.
10 CFR 35.971	Physician training in a three month program.
10 CFR 35.972	Recentness of training.
10 CFR 35.980	Training for an authorized nuclear pharmacist.
10 CFR 35.981	Training for experienced nuclear pharmacists.

C. Therapy Training

10 CFR 35.310	Safety instruction.
10 CFR 35.59	Requirements for possession of sealed sources and brachytherapy sources.

D. Supervision

10 CFR 35.25	Supervision.

10. RADIATION PROTECTION

A. General

IP 83822	Radiation Protection.

B. Radiation Protection Program

1. Exposure evaluation

10 CFR 20.1501	General.

2. Programs

10 CFR 20.1101	Radiation protection programs.
10 CFR 35.20	ALARA program.

C. Dosimetry

1. Dose Limits

10 CFR 20.1201	Occupational dose limits for adults.
10 CFR 20.1202	Compliance with requirements for summation of external and internal doses.
10 CFR 20.1207	Occupational dose limits for minors.
10 CFR 20.1208	Doses to an embryo/fetus.

2. External

10 CFR 20.1203	Determination of external dose from airborne radioactive material.
10 CFR 20.1501	Dosimetry processing.
10 CFR 20.1502	Conditions requiring individual monitoring of external and internal occupational dose.

Applicable license conditions.

3. Internal

10 CFR 20.1204	Determination of internal exposure.
10 CFR 20.1502	Conditions requiring individual monitoring of external and internal occupational dose.
10 CFR 20, Subpart H	Respiratory protection and controls to restrict internal exposure in restricted areas.
10 CFR 35.205	Control of aerosols and gases.
10 CFR 35.315	Safety precautions - radiopharmaceutical therapy.

D. Records

10 CFR 20.2102	Records of radiation protection programs.
10 CFR 20.2103	Records of surveys.
10 CFR 20.2104	Determination of prior occupational dose.
10 CFR 20.2106	Records of individual monitoring results.

E. Patient Release

10 CFR 35.75	Release of patients or human research subjects containing radiopharmaceuticals or permanent implants.

11. RADIOACTIVE WASTE MANAGEMENT

A. Disposal

10 CFR 35.92	Decay in storage.
10 CFR 20.1904	Labeling containers.
10 CFR 20.2001	General waste disposal requirements.
10 CFR 20.2005	Disposal of specific waste
10 CFR 20.2103	Records of surveys.
10 CFR 20.2108	Records of waste disposal.

B. Effluents

1. General

2. Release into sanitary sewer

10 CFR 20.2003 Disposal by release into sanitary sewerage.
Applicable license conditions.

3. Release to septic tanks

10 CFR 20.1003 Definitions (sanitary sewerage).
10 CFR Part 20, App. B, Table 2 Limits.

4. Incineration of waste

10 CFR 20.2004 Treatment or disposal by incineration.

5. Control of air effluents and ashes

10 CFR 20.1201 Occupational dose limits for adults.
10 CFR 20.1301 Dose limits for individual members of the public.
10 CFR 20.1501 General.
10 CFR 20.1701 Use of process and other engineering controls.
Applicable license conditions

C. Waste Management

1. General

10 CFR 20.2001 General requirements.
IP 84850 Radioactive Waste Management - Inspection of Waste Generator Requirements of 10 CFR Part 20 and 10 CFR Part 61

2. Waste compacted

Applicable license conditions.

3. Waste storage areas

10 CFR 20.1801 Security of stored material.
10 CFR 20.1902 Posting requirements.
10 CFR 20.1904 Labeling containers.
Applicable license conditions.

4. Packaging, Control, and Tracking

10 CFR Part 20, Appendix F Requirements for low-level waste transfer for disposal at land disposal facilities and manifests.
10 CFR 20.2006 Transfer for disposal and manifests.
10 CFR 61.55 Waste classification.
10 CFR 61.56 Waste characterization.

5. Transfer

2. Release into sanitary sewer

10 CFR 20.2003	Disposal by release into sanitary sewerage.

Applicable license conditions.

3. Release to septic tanks

10 CFR 20.1003	Definitions (sanitary sewerage).
10 CFR Part 20, App. B, Table 2	Limits.

4. Incineration of waste

10 CFR 20.2004	Treatment or disposal by incineration.

5. Control of air effluents and ashes

10 CFR 20.1201	Occupational dose limits for adults.
10 CFR 20.1301	Dose limits for individual members of the public.
10 CFR 20.1501	General.
10 CFR 20.1701	Use of process and other engineering controls.

Applicable license conditions

C. Waste Management

1. General

10 CFR 20.2001	General requirements.
IP 84850	Radioactive Waste Management - Inspection of Waste Generator Requirements of 10 CFR Part 20 and 10 CFR Part 61

2. Waste compacted

Applicable license conditions.

3. Waste storage areas

10 CFR 20.1801	Security of stored material.
10 CFR 20.1902	Posting requirements.
10 CFR 20.1904	Labeling containers.

Applicable license conditions.

4. Packaging, Control, and Tracking

10 CFR Part 20, Appendix F	Requirements for low-level waste transfer for disposal at land disposal facilities and manifests.
10 CFR 20.2006	Transfer for disposal and manifests.
10 CFR 61.55	Waste classification.
10 CFR 61.56	Waste characterization.

5. Transfer

10 CFR Part 20, Appendix F	Requirements for low-level waste transfer for disposal at land disposal facilities and manifests.
10 CFR 20.2001	General requirements.
10 CFR 20.2006	Transfer for disposal and manifests.
10 CFR 30.41	Transfer of byproduct material

6. Records

10 CFR 20.2103	Records of surveys.
10 CFR 20.2108	Records of waste disposal.

12. DECOMMISSIONING

10 CFR 30.35	Financial assurance and record-keeping for decommissioning.
10 CFR 30.36	Expiration and termination of licenses and decommissioning of sites and separate buildings or outdoor areas.
IMC 2602	Decommissioning Inspection Program for Fuel Cycle Facilities and Materials Licensees.
IP 87104	Decommissioning Inspection Procedure for Materials Licensees.
IMC 2605	Decommissioning Procedures for Fuel Cycle and Materials Licensees.
NUREG/BR-0241	NMSS Handbook for Decommissioning Fuel Cycle and Materials Licensees.

13. TRANSPORTATION

A. General

NRC Charts	Hazard Communication for Class 7 (Radioactive) Materials.
10 CFR 71.5	Transportation of licensed material.
TI 2515/133	Implementation of Revised 49 CFR Parts 100-179 and 10 CFR Part 71.

B. Shippers - Requirements for Shipments and Packaging

1. General Requirements

49 CFR Part 173, Subpart I	Class 7, radioactive material.
49 CFR 173.24	General requirements for packagings and packages.
49 CFR 173.448	General transportation requirements.
49 CFR 173.435	Table of A_1 and A_2 values for radionuclides.

2. Transport Quantities

10 CFR 71.4	Definitions of quantities.

a. All quantities

10 CFR 71.4	Definitions of quantities.
49 CFR 173.410	General design requirements.
49 CFR 173.441	Radiation level limitations.
49 CFR 173.443	Contamination control.
49 CFR 173.475	Quality control requirements prior to each shipment of Class 7 (radioactive) materials.

9 CFR 173.476	Approval of spec... form Class 7 (radioactive) materials.

b. Limited quantities

49 CFR 173.421	Excepted packages for limited quantities of Class 7 (radioactive) materials.
49 CFR 173.422	Additional requirements for excepted packages containing Class 7 (radioactive) materials.

c. Type A quantities

49 CFR 173.412	Additional design requirements for Type A packages.
49 CFR 173.415	Authorized Type A packages.
49 CFR 178.350	Specification 7A; general packaging, Type A .

d. Type B quantities

IP 86740, Section 2	Inspection of transportation activities.

e. LSA material and SCO

49 CFR 173.403	Definitions.
49 CFR 173.427	Transport requirements for low specific activity (LSA) Class 7 (radioactive) materials and surface contaminated objects (SCO).

3. HAZMAT Communication Requirements

49 CFR 172.200-205	Shipping papers.
49 CFR 172.300-338	Marking packages.
49 CFR 172.400-450	Labeling packages.
49 CFR 172.500-560	Placarding vehicles.
49 CFR 172.600-604	Emergency response information and guidance.

C. HAZMAT Training

49 CFR 172.702	Applicability and responsibility for training and testing.
49 CFR 172.704	Training requirements.

D. Transportation by Public Highway

49 CFR 171.15	Immediate notice of certain hazardous materials incidents.
49 CFR 171.16	Detailed hazardous materials incident reports.
49 CFR 177.800	Responsibility for compliance and training.
49 CFR 177.816	Driver training.
49 CFR 177.842	Loading and unloading: Class 7 (radioactive) material.

14. NOTIFICATIONS AND REPORTS

10 CFR 19.13	Notifications and reports to individuals.
10 CFR 20.2201	Reports of theft or loss of licensed material.
10 CFR 20.2202	Notification of incidents.
10 CFR 20.2203	Reports of exposures, radiation levels, and concentrations of radioactive material exceeding the constraints or limits.
10 CFR 30.50	Reporting requirements.
10 CFR 35.14	Notifications (RSO, authorized users, and nuclear pharmacists).

15. POSTING AND LABELING

10 CFR 19.11	Posting of notices to workers.
10 CFR 20.1902	Posting requirements.
10 CFR 20.1903	Exemptions to posting requirements.
10 CFR 20.1904	Labeling containers.
10 CFR 20.1905	Exemptions to labeling requirements.
10 CFR 21.6	Posting requirements.

16. INDEPENDENT AND CONFIRMATORY MEASUREMENTS

No references.

17. VIOLATIONS, NON-CITED VIOLATIONS AND OTHER SAFETY ISSUES

NUREG/BR-0195, Rev.1	NRC Enforcement Manual.
NUREG-1600	General Statement of Policy and Procedures for NRC Enforcement Actions.

18. PERSONNEL CONTACTED

No references.

19. PERFORMANCE EVALUATION FACTORS

IP 87101 Performance Evaluation Factors.

END

Bldg 40
Rm
Lindler - 2058

Total inventory as of 2/22/99 250 uCi

P-32
~50-60 uCi

C-14
4 uCi

H-3
5 mCi

Rm 3067 Bldg 40

Ca-45 use 1-2 mCi stock
<10 uCi handled

100 X Appendix C
10 uCi

Exit Meeting.

18 MAR 99

NAME / Title	ORG / DEPT	
CPT Arthur Morton, C, HPO Operations	WRAMC, HPO	
CPT JUSTIN HARTWIGS, HPO		
David Burton	C, RMC Branch	WRAMC, HPO
Nancy Phillips	DCCS	WRAMC
MAJ Brian Goldsmith	C. Radiation Oncology	WRAMC
CPT JOHN D. THOMAS	NUCLEAR PHARMACY	WRAMC
LTC ROBERT MASSEY	NUCLEAR PHARMACY	WRAMC
Wilfred SEWRHARD	RADIATION ONCOLOGY	WRAMC
COL WILLIAM B JOHNSON	C, HPO/RPO	WRAMC
Dr. Zongmei Sheng		AFIP
Thomas K. Thompson	USNRC	

1998 Occupational Radiation Exposure Walter Reed Army Medical Center, Washington, DC						
			Average Radiation Dose (millirem)			
Organization/Section	N	N>0	EXTREMITY	SKIN	EYE	TEDE
Walter Reed	516	170	319	102	102	46
Cardiology	52	40	414	218	236	64
Medical Maintenance	23	6	NA	24	35	43
Endocrinology	2	0	0	0	0	0
Gastroenterology	28	2	13	7	5	14
Health Physics	15	6	128	20	21	22
Radiology Physicians	25	15	587	62	55	41
Special Procedures	14	13	39	328	356	100
Imaging Section Radiology	7	1	NA	17	19	25
X-ray Technologists	53	7	NA	77	103	55
Nuclear Medicine	31	23	519	98	97	104
Radiation Oncology	32	7	159	26	12	14
Urology	32	14	151	31	23	13
Ward 65 (Implants)	26	7	NA	22	9	9
Ward 75 (Oblations)	45	5	NA	20	14	16
Speech Pathology	8	0	NA	0	0	0
Research Workers	106	21	274	53	49	32
Veterinary Medicine	15	3	168	36	43	70

RADIATION DOSES (millirem) 1998 WRAMC for all Workers				
	SKIN	EYE	TEDE	FINGER
n	516	516	516	328
n>0	170	161	128	82
min value	4	4	1	12
max value	3222	3316	601	3876
sum (d)	17261	16476	5837	26151
avg dose	102	102	46	319

Cardiology 1998 Radiation Doses (millirem)				
	SKIN	EYE	TEDE	FINGER
n	52	52	52	54
n>0	40	36	31	5
min value	4	4	0	31
max value	928	964	316	1516
sum (d)	8701	8510	1974	2069
avg dose	218	236	64	414

Medical Maintenance 1998 Radiation Doses (millirem)				
	SKIN	EYE	TEDE	FINGER
n	23	23	23	NA
n>0	6	6	6	NA
min value	7	7	7	NA
max value	36	101	145	NA
sum (d)	144	209	257	NA
avg dose	24	35	43	NA

Endocrinology 1998 Radiation Doses (millirem)				
	SKIN	EYE	TEDE	FINGER
n	2	2	2	1
n>0	0	0	0	0
min value	0	0	0	0
max value	0	0	0	0
sum (d)	0	0	0	0
avg dose	0	0	0	0

Gastro 1998 Radiation Doses (millirem)				
	SKIN	EYE	TEDE	FINGER
n	28	28	28	28
n>0	2	1	1	2
min value	5	5	14	12
max value	8	5	14	13
sum (d)	13	5	14	25
avg dose	7	5	14	13

HEALTH PHYSICS 1998 Radiation Doses (millirem)				
	SKIN	EYE	TEDE	FINGER
n	15	15	15	12
n>0	6	6	6	1
min value	4	4	4	128
max value	92	98	101	128
sum (d)	122	128	131	128
avg dose	20	21	22	128

NUCLEAR MEDICINE Radiation Doses (millirem)				
	SKIN	EYE	TEDE	FINGER
n	31	31	31	29
n>0	23	23	22	20
min value	4	4	4	12
max value	332	346	346	2435
sum (d)	2260	2237	2294	10373
avg dose	98	97	104	519

RADIATION ONCOLOGY Radiation Doses (millirem)				
	SKIN	EYE	TEDE	FINGER
n	32	32	32	12
n>0	7	7	5	7
min value	4	4	4	12
max value	79	48	43	718
sum (d)	185	86	70	1115
avg dose	26	12	14	159

SPECIAL PROCEDURES Radiation Doses (millirem)				
	SKIN	EYE	TEDE	FINGER
n	14	14	14	14
n>0	13	12	8	3
min value	4	4	4	12
max value	3222	3316	601	91
sum (d)	4264	4268	799	118
avg dose	328	356	100	39

WARD 65 (Implants) Radiation Doses (millirem)				
	SKIN	EYE	TEDE	FINGER
n	26	26	26	NA
n>0	7	7	5	NA
min value	4	4	4	NA
max value	55	11	11	NA
sum (d)	154	61	44	NA
avg dose	22	9	9	NA

WARD 75 (Oblations) Radiation Doses (millirem)				
	SKIN	EYE	TEDE	FINGER
n	45	45	45	NA
n>0	5	5	4	NA
min value	8	6	8	NA
max value	40	31	32	NA
sum (d)	102	70	65	NA
avg dose	20	14	16	NA

RADIOLOGY PHYSICIANS Radiation Doses (millirem)				
	SKIN	EYE	TEDE	FINGER
n	25	25	25	21
n>0	15	13	7	8
min value	11	7	1	13
max value	221	232	128	3876
sum (d)	924	712	284	4698
avg dose	62	55	41	587

UROLOGY Radiation Doses (millirem)				
	SKIN	EYE	TEDE	FINGER
n	32	32	32	32
n>0	14	13	5	7
min value	11	7	1	13
max value	102	103	41	380
sum (d)	439	301	64	1057
avg dose	31	23	13	151

RESEARCH WORKERS Radiation Doses (millirem)				
	SKIN	EYE	TEDE	FINGER
n	106	106	106	101
n>0	21	21	19	19
min value	4	4	5	13
max value	272	345	327	1287
sum (d)	1105	1021	607	5199
avg dose	53	49	32	274

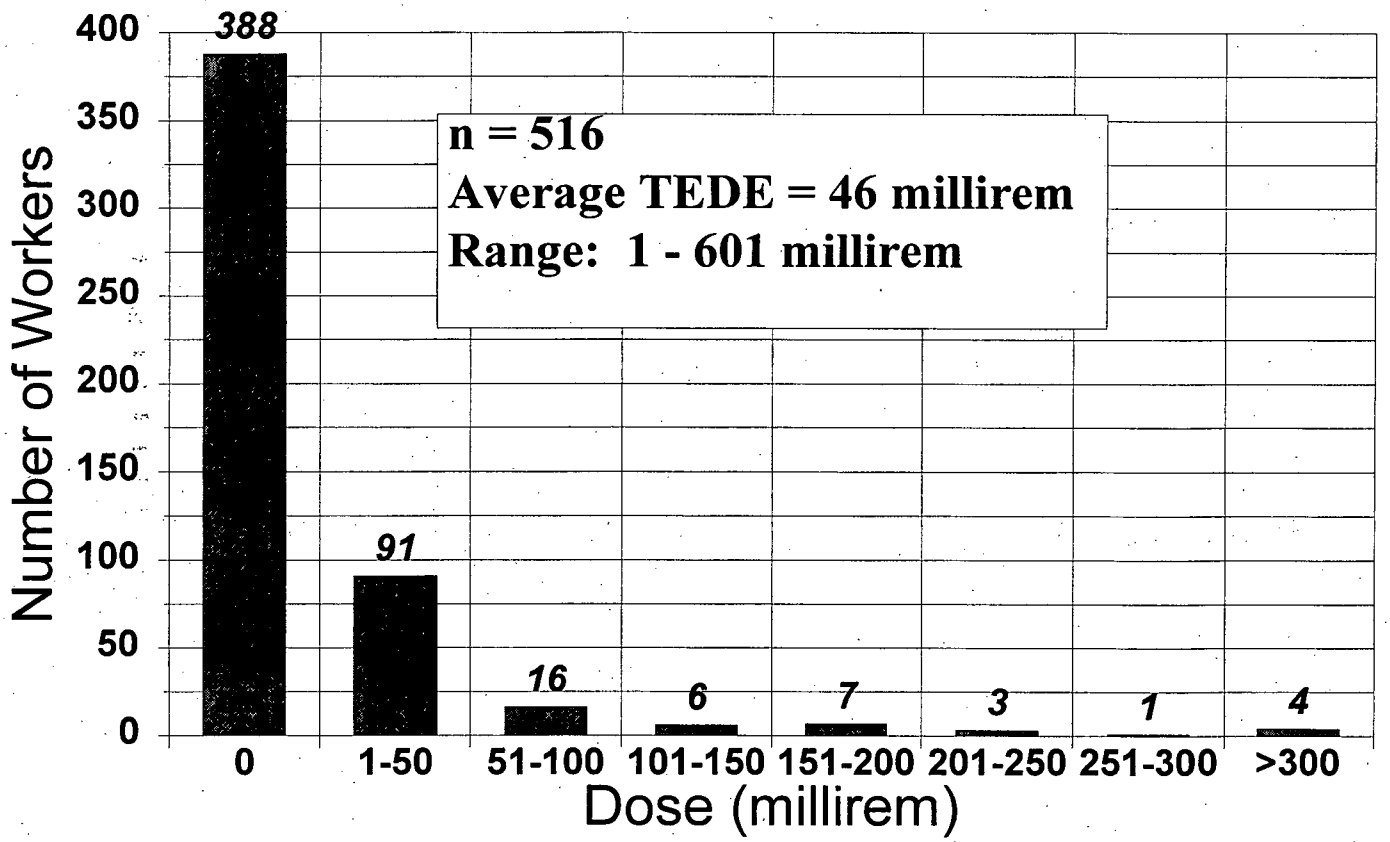
IMAGING (CT/Mammo) Radiation Doses (millirem)				
	SKIN	EYE	TEDE	FINGER
n	7	7	7	NA
n>0	1	1	1	NA
min value	17	19	25	NA
max value	17	19	25	NA
sum (d)	17	19	25	NA
avg dose	17	19	25	NA

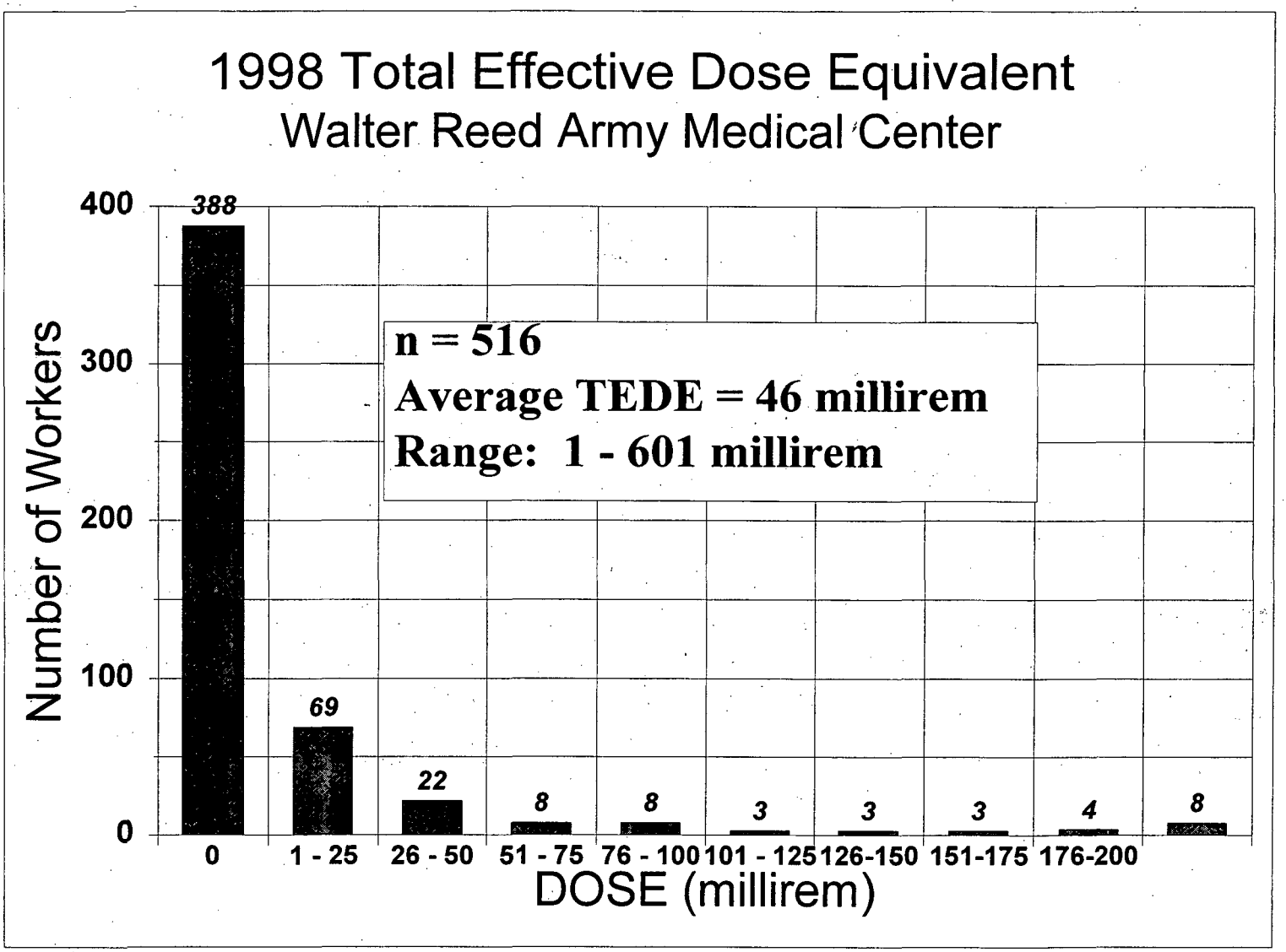
X-RAY TECHNOLOGISTS Radiation Doses (millirem)				
	SKIN	EYE	TEDE	FINGER
n	53	53	53	NA
n>0	7	7	6	NA
min value	12	16	21	NA
max value	316	425	213	NA
sum (d)	539	724	329	NA
avg dose	77	103	55	NA

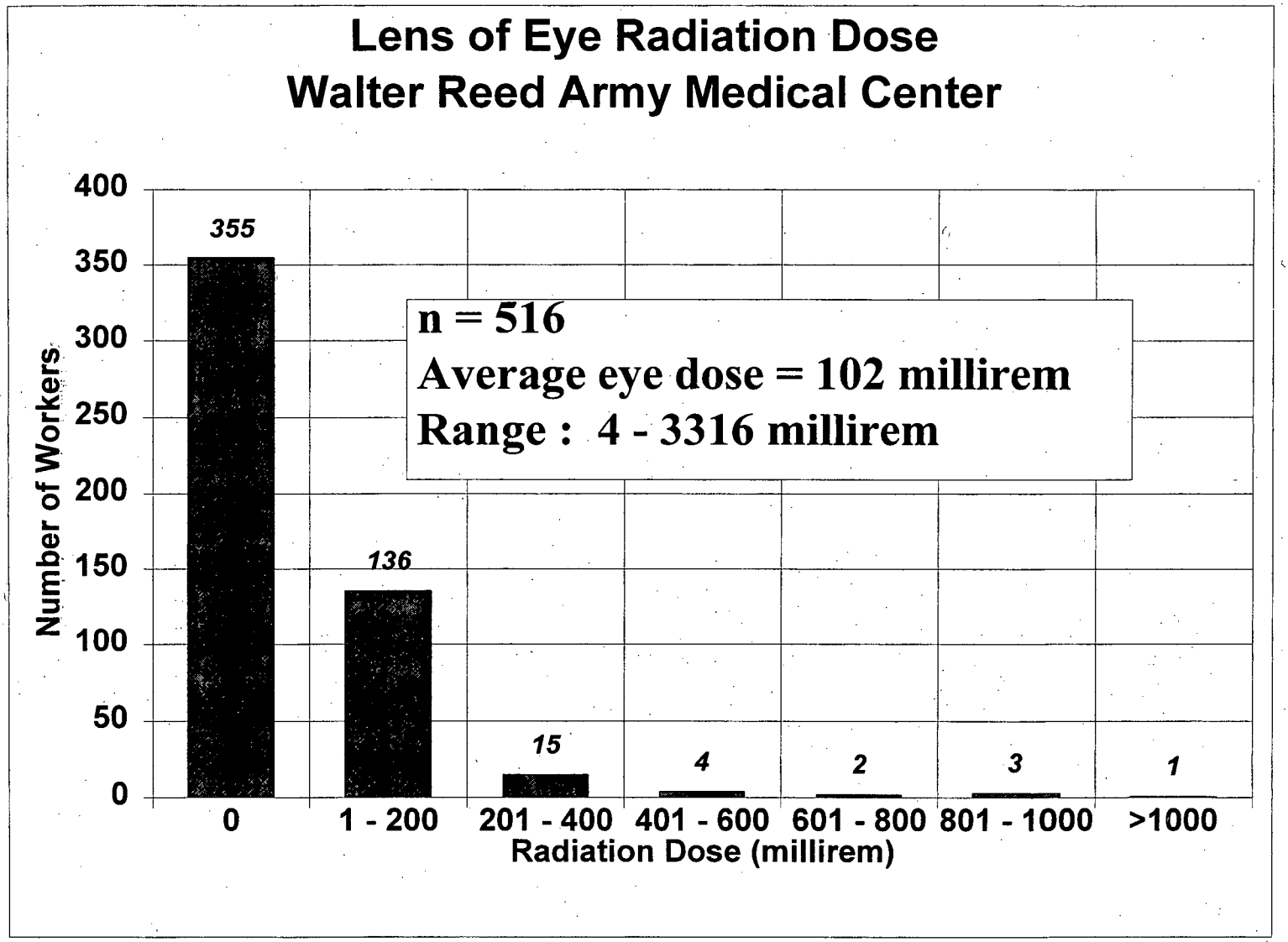
SPEECH PATHOLOGY Radiation Doses (millirem)				
	SKIN	EYE	TEDE	FINGER
n	8	8	8	NA
n>0	0	0	0	NA
min value	0	0	0	NA
max value	0	0	0	NA
sum (d)	0	0	0	NA
avg dose	0	0	0	NA

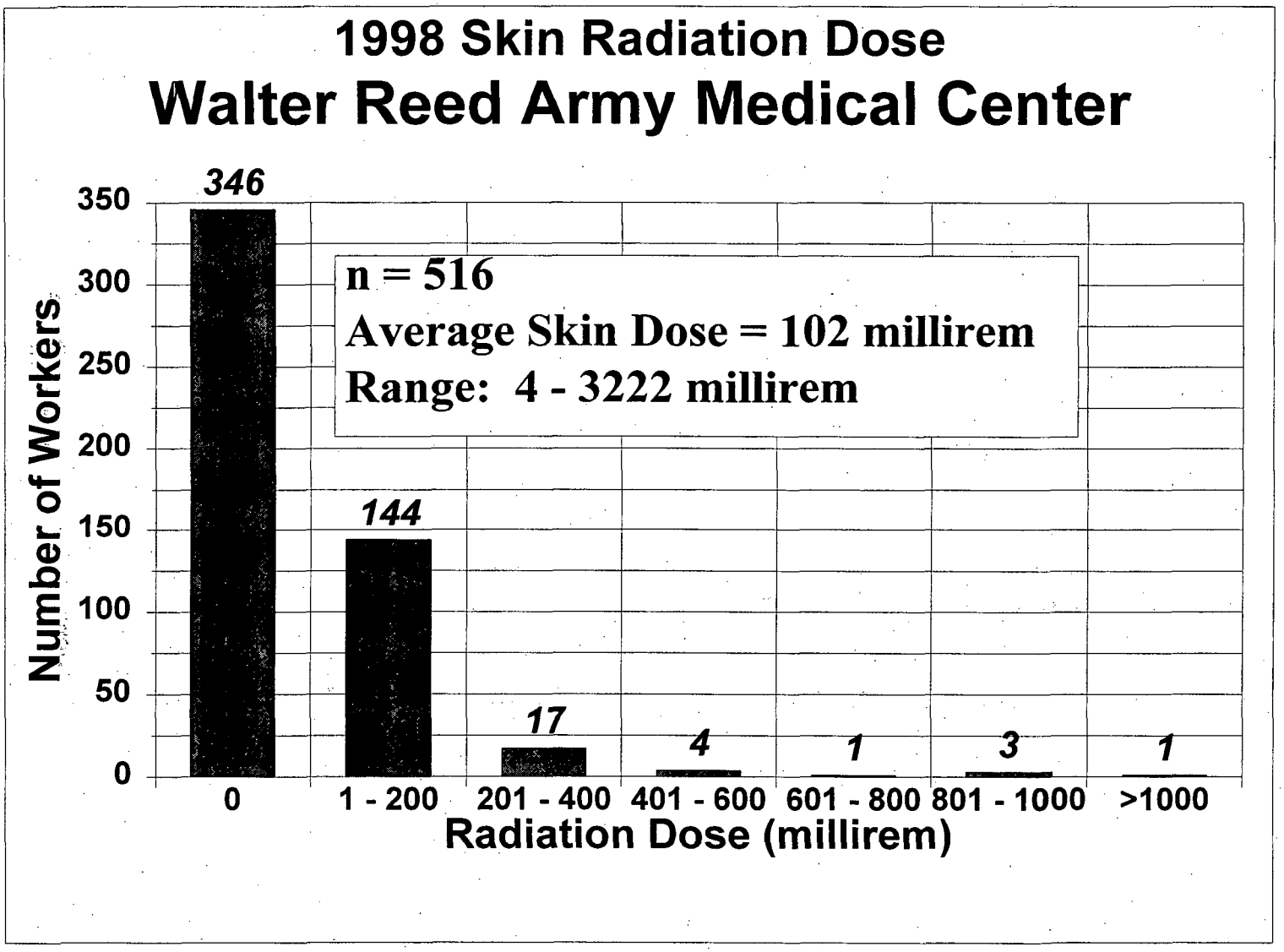
VETERINARY MEDICINE Radiation Doses (millirem)				
	SKIN	EYE	TEDE	FINGER
n	15	15	15	15
n>0	3	3	2	6
min value	41	59	59	32
max value	57	60	81	380
sum (d)	107	129	140	1011
avg dose	36	43	70	168

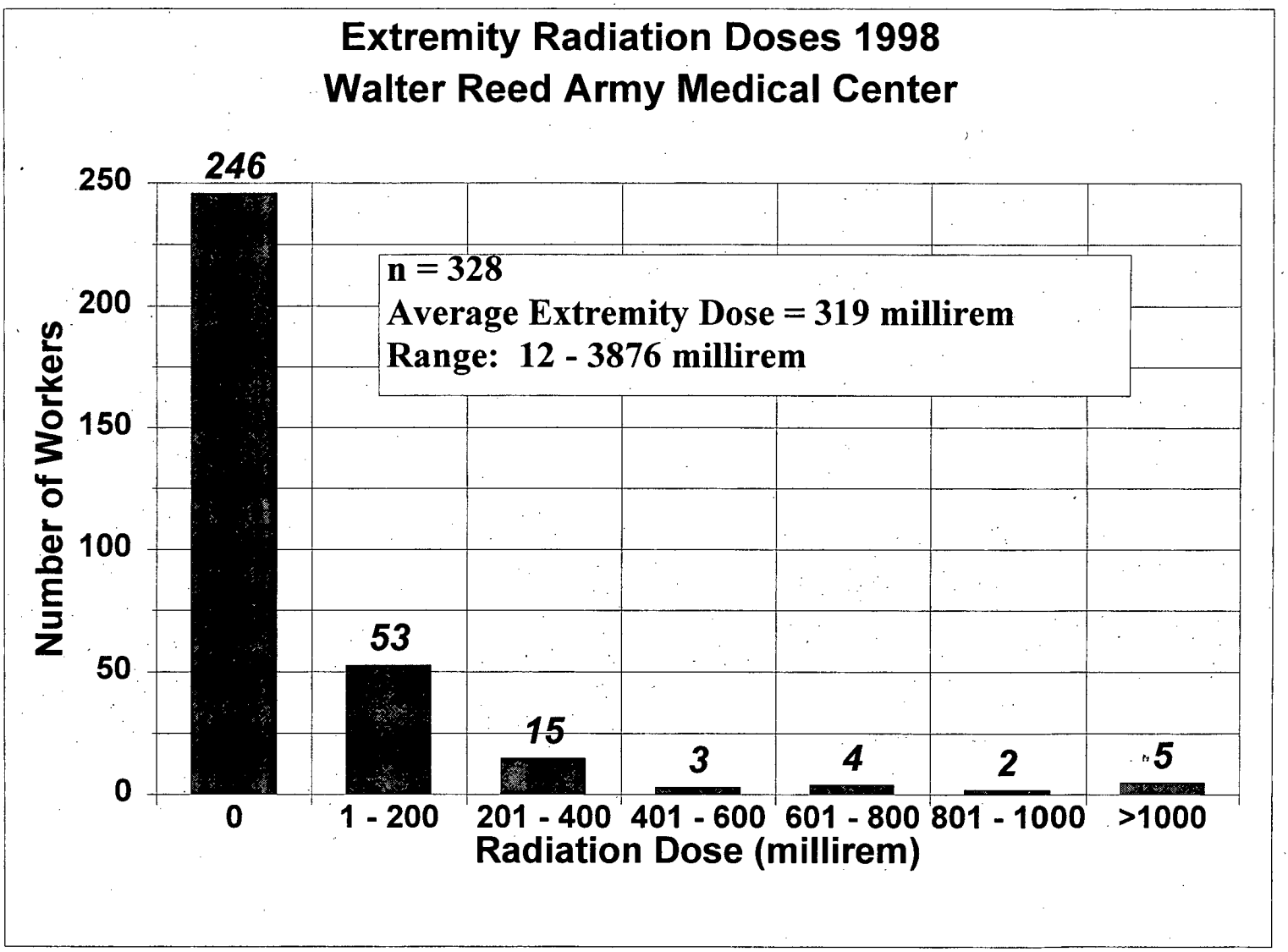
1998 Total Effective Dose Equivalent
Walter Reed Army Medical Center




1998 Total Effective Dose Equivalent
Walter Reed Army Medical Center
n = 516
Average TEDE = 46 millirem
Range: 1 - 601 millirem
Number of Workers
400
300
200
100
0
388
69
22
8
8
3
3
3
4
8
0
1 - 25
26 - 50
51 - 75
76 - 100
101 - 125
126-150
151-175
176-200
DOSE (millirem)


Lens of Eye Radiation Dose
Walter Reed Army Medical Center
n = 516
Average eye dose = 102 millirem
Range : 4 - 3316 millirem
Number of Workers
400
350
300
250
200
150
100
50
0
355
136
15
4
2
3
1
0
1 - 200
201 - 400
401 - 600
601 - 800
801 - 1000
>1000
Radiation Dose (millirem)


1998 Skin Radiation Dose
Walter Reed Army Medical Center
n = 516
Average Skin Dose = 102 millirem
Range: 4 - 3222 millirem
346
144
17
4
1
3
1
350
300
250
200
150
100
50
0
Number of Workers
0
1 - 200
201 - 400
401 - 600
601 - 800
801 - 1000
>1000
Radiation Dose (millirem)


Extremity Radiation Doses 1998
Walter Reed Army Medical Center
n = 328
Average Extremity Dose = 319 millirem
Range: 12 - 3876 millirem
Number of Workers
250
200
150
100
50
0
246
53
15
3
4
2
5
0
1 - 200
201 - 400
401 - 600
601 - 800
801 - 1000
>1000
Radiation Dose (millirem)

1998 Occupation Radiation Dose Data Distributions for Walter Reed Army Medical Center

--- TEDE ----------	
--x axis-- Dose mR	--y axis--- frequency
0	388
1-50	91
51-100	16
101-150	6
151-200	7
201-250	3
251-300	1
>300	4

-------- SKIN ----------	
--x axis-- Dose mR	--y axis--- frequency
0	346
1 - 200	144
201 - 400	17
401 - 600	4
601 - 800	1
801 - 100	3
>1000	1

-------- EYE ----------	
--x axis-- Dose mR	--y axis--- frequency
0	355
1 - 200	136
201 - 400	15
401 - 600	4
601 - 800	2
801 - 100	3
>1000	1

---- EXTREMITY	
--x axis-- Dose mR	--y axis--- frequency
0	246
1 - 200	53
201 - 400	15
401 - 600	3
601 - 800	4
801 - 100	2
>1000	5

NRC FORM 464 Part I
(6-1998)

U.S. NUCLEAR REGULATORY COMMISSION

RESPONSE TO FREEDOM OF INFORMATION ACT (FOIA) / PRIVACY ACT (PA) REQUEST

FOIA/PA	RESPONSE NUMBER
2006-0238	10

RESPONSE TYPE ☐ FINAL ☑ PARTIAL

REQUESTER: Michele Driscoll

DATE: JAN - 3 2007

PART I. -- INFORMATION RELEASED

- ☐ No additional agency records subject to the request have been located.
- ☐ Requested records are available through another public distribution program. See Comments section.
- ☐ APPENDICES: Agency records subject to the request that are identified in the listed appendices are already available for public inspection and copying at the NRC Public Document Room.
- ☑ APPENDICES: II — Agency records subject to the request that are identified in the listed appendices are being made available for public inspection and copying at the NRC Public Document Room.
- ☐ Enclosed is information on how you may obtain access to and the charges for copying records located at the NRC Public Document Room, 11555 Rockville Pike, Rockville, MD 20852-2738.
- ☑ APPENDICES: II — Agency records subject to the request are enclosed.
- ☐ Records subject to the request that contain information originated by or of interest to another Federal agency have been referred to that agency (see comments section) for a disclosure determination and direct response to you.
- ☑ We are continuing to process your request.
- ☐ See Comments.

PART I.A -- FEES

AMOUNT *: $

* See comments for details

- ☐ You will be billed by NRC for the amount listed.
- ☐ You will receive a refund for the amount listed.
- ☐ None. Minimum fee threshold not met.
- ☐ Fees waived.

PART I.B -- INFORMATION NOT LOCATED OR WITHHELD FROM DISCLOSURE

- ☐ No agency records subject to the request have been located.
- ☑ Certain information in the requested records is being withheld from disclosure pursuant to the exemptions described in and for the reasons stated in Part II.
- ☑ This determination may be appealed within 30 days by writing to the FOIA/PA Officer, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001. Clearly state on the envelope and in the letter that it is a "FOIA/PA Appeal."

PART I.C COMMENTS (Use attached Comments continuation page if required)

The incoming request is in ADAMS located at Acession No. ML061840443.

SIGNATURE - FREEDOM OF INFORMATION ACT AND PRIVACY ACT OFFICER

Russell A. Nichols

NRC FORM 464 Part II (3-2006) U.S. NUCLEAR REGULATORY COMMISSION

RESPONSE TO FREEDOM OF INFORMATION ACT (FOIA) / PRIVACY ACT (PA) REQUEST

FOIA/PA 2006-0238

DATE JAN - 3 2007

PART II.A -- APPLICABLE EXEMPTIONS

APPENDICES II

Records subject to the request that are described in the enclosed Appendices are being withheld in their entirety or in part under the Exemption No.(s) of the PA and/or the FOIA as indicated below (5 U.S.C. 552a and/or 5 U.S.C. 552(b)).

- [ ] Exemption 1: The withheld information is properly classified pursuant to Executive Order 12958.
- [ ] Exemption 2: The withheld information relates solely to the internal personnel rules and procedures of NRC.
- [ ] Exemption 3: The withheld information is specifically exempted from public disclosure by statute indicated.
  - [ ] Sections 141-145 of the Atomic Energy Act, which prohibits the disclosure of Restricted Data or Formerly Restricted Data (42 U.S.C. 2161-2165).
  - [ ] Section 147 of the Atomic Energy Act, which prohibits the disclosure of Unclassified Safeguards Information (42 U.S.C. 2167).
  - [ ] 41 U.S.C., Section 253b, subsection (m)(1), prohibits the disclosure of contractor proposals in the possession and control of an executive agency to any person under section 552 of Title 5, U.S.C. (the FOIA), except when incorporated into the contract between the agency and the submitter of the proposal.
- [ ] Exemption 4: The withheld information is a trade secret or commercial or financial information that is being withheld for the reason(s) indicated.
  - [ ] The information is considered to be confidential business (proprietary) information.
  - [ ] The information is considered to be proprietary because it concerns a licensee's or applicant's physical protection or material control and accounting program for special nuclear material pursuant to 10 CFR 2.390(d)(1).
  - [ ] The information was submitted by a foreign source and received in confidence pursuant to 10 CFR 2.390(d)(2).
- [ ] Exemption 5: The withheld information consists of interagency or intraagency records that are not available through discovery during litigation. Applicable privileges:
  - [ ] Deliberative process: Disclosure of predecisional information would tend to inhibit the open and frank exchange of ideas essential to the deliberative process. Where records are withheld in their entirety, the facts are inextricably intertwined with the predecisional information. There also are no reasonably segregable factual portions because the release of the facts would permit an indirect inquiry into the predecisional process of the agency.
  - [ ] Attorney work-product privilege. (Documents prepared by an attorney in contemplation of litigation)
  - [ ] Attorney-client privilege. (Confidential communications between an attorney and his/her client)
- [x] Exemption 6: The withheld information is exempted from public disclosure because its disclosure would result in a clearly unwarranted invasion of personal privacy.
- [ ] Exemption 7: The withheld information consists of records compiled for law enforcement purposes and is being withheld for the reason(s) indicated.
  - [ ] (A) Disclosure could reasonably be expected to interfere with an enforcement proceeding (e.g., it would reveal the scope, direction, and focus of enforcement efforts, and thus could possibly allow recipients to take action to shield potential wrongdoing or a violation of NRC requirements from investigators).
  - [ ] (C) Disclosure would constitute an unwarranted invasion of personal privacy.
  - [ ] (D) The information consists of names of individuals and other information the disclosure of which could reasonably be expected to reveal identities of confidential sources.
  - [ ] (E) Disclosure would reveal techniques and procedures for law enforcement investigations or prosecutions, or guidelines that could reasonably be expected to risk circumvention of the law.
  - [ ] (F) Disclosure could reasonably be expected to endanger the life or physical safety of an individual.
- [x] OTHER (Specify)

EX. 2: Disclosure would risk circumvention of a legal requirement.

PART II.B -- DENYING OFFICIALS

Pursuant to 10 CFR 9.25(g), 9.25(h), and/or 9.65(b) of the U.S. Nuclear Regulatory Commission regulations, it has been determined that the information withheld is exempt from production or disclosure, and that its production or disclosure is contrary to the public interest. The person responsible for the denial are those officials identified below as denying officials and the FOIA/PA Officer for any denials that may be appealed to the Executive Director for Operations (EDO).

DENYING OFFICIAL	TITLE/OFFICE	RECORDS DENIED	APPELLATE OFFICIAL		
			EDO	SECY	IG
Samuel J. Colllins	**Regional Administrator, Region 1**	**Appendix II**	✓		

Appeal must be made in writing within 30 days of receipt of this response. Appeals should be mailed to the FOIA/Privacy Act Officer, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, for action by the appropriate appellate official(s). You should clearly state on the envelope and letter that it is a "FOIA/PA Appeal."

Re: FOIA/PA-2006-0238

APPENDIX II
RECORDS BEING WITHHELD IN PART

License No. 08-01738-03

NO.	DATE	DESCRIPTION/(PAGE COUNT))/EXEMPTIONS
1.	11/02/2000	Army, Dept. of the, License Amendment 26, Control No. 128757. (6 pages) / Exemption 2
2.	10/15/2001	Army, Dept. of the, Renewal Application dtd 10/15/01. (53 pages) / Exemption 2 & 6
3.	11/07/2001	Army, Dept. of the, Issuance of License Renewal, dtd 11/07/01, MC #130465. (8 pages) / Exemption 2
4.	08/08/2002	Army, Department of the, Amendment 28 dated 8/8/2002, Control No. 131860. (4 pages) / Exemption 2

License No. 29-01022-11

5.	08/01/1973	Ltr from P. Baldino of Department of the Army to US Atomic Energy Commission, regarding application for USAEC Byproduct Material License (64 pages) EX. 6
6.	01/29/1976	Ltr from D. Taras of Department of the Army to USNRC, regarding designated Radiation Protection Officer at US Army Electronics Command, Fort Manmouth, NJ (4 pages) EX. 6

License No. 29-01022-08

7.	10/30/1979	Letter from Bernard Savaiko, Army, to USNRC regarding notification of film badge exposure. (12 pages) / Exemption 6
8.	04/24/1972	U.S. Atomic Energy Commission Byproduct Material License, License No. 29-01022-08 (2 pages) / Exemption 2
9.	01/08/1979	USNRC Materials License No.29-01022-08, Amendment No. 10 (3 pages) / Exemption 2
10.	06/13/1979	Memorandum from R. McClintock of USNRC to J. Sutherland of USNRC, regarding Request for Assist Inspection U.S. Departmetn of the Army at Lexington-Blue Grass Depot Activity (License No. 29-01022-08) (15 pages) / Exemption 2
11.	02/11/1981	Ltr from D. Taras of the Department of the Army to USNRC, regarding Radiac Calibrator (64 pages) / Exemption 2
12.	07/27/1981	USNRC Materials License No.29-01022-08, Amendment No. 13 (1 page) / Exemption 2

License No. 29-01022-08

13.	05/25/1984	Application for renewal of License 29-01022-08,authorizing use of Sr-90. (403 pages) / Exemption 2
14.	12/18/1986	Forwards application for new license, consolidating Licenses 29-01022-08,29-01022-11,SMB-1300,SNM-1327,SNM-1896,SNM -1900 & SUB-1150 & adding four addl sources as listed. W/o encl. (2 pages) / Exemption 2

License No. 29-01022-10

15.	09/24/1987	Undated application for renewal of License 29-01022-10, authorizing possession of 13,000 Ci Co-60 for radiation detection instrumentation R&D & basis & applied R&D technologies. Supporting info encl. (48 pages) / Exemption 6

License No. SMB-1183

16.	09/01/1981	Procedure ERADCOM-R 385-1, "Safety Radiological Protection Program." (48 pages) / Exemption 6
17.	03/15/1982	Procedure AR 10-14/DLAR 1000.28, "Medical Svcs Control & Recording Procedures for Exposure to Ionizing Radiation & Radioactive Matls." (41 pages) / Exemption 6

NRC Form 374A (5-84) U.S. NUCLEAR REGULATORY COMMISSION

License number: 08-01738-02

Docket or Reference number: 030-01317

Amendment No. 53

MATERIALS LICENSE
SUPPLEMENTARY SHEET

Department of the Army
Walter Reed Army Medical Center
(WRAMC)
Washington, D.C. 20307-5001

In accordance with application dated March 18, 1985, License Number 08-01738-02 is amended as follows:

Items 6., 7., 8., and 9. are amended to read:

6. Byproduct, source, and/or special nuclear material	7. Chemical and/or physical form	8. Maximum amount that licensee may possess at any one time under this license
A. Any byproduct material with Atomic Nos. 3-83, inclusive, except Iodine 129 and Strontium 90	A. Any	A. 400 millicuries of each except: Iodine 131 2 curies Xenon 133 2 curies Krypton 85 1 curie Gold 198 1 curie Phosphorus 32 2 curies Carbon 14 2 curies Iodine 125 1 curie Iridium 192 1 curie Chromium 51 750 millicuries total not to exceed 26 curies
B. Hydrogen 3	B. Any	B. 5 curies
C. Molybdenum 99	C. Molybdenum 99/ Technetium 99 Generators	C. 23 curies
D. Technetium 99m	D. Any	D. 5 curies
E. Strontium 90	E. Sealed sources	E. 500 millicuries
F. Cesium 137	F. [ ] sealed sources	F. [ ]
G. Gadolinium 153	G. Sealed sources	G. 2 curies
~~H. Cesium 137~~	H. [ ] sealed source	H. [ ]
I. Cesium 137	I. Sealed sources	I. [ ]
J. Cobalt 60	J. Sealed sources	J. 500 millicuries
K. Americium 241	K. Any	K. 100 microcuries
L. Americium 241	L. [ ] sealed source	L. [ ]
M. Nickel 63	M. Sealed sources and foils	M. 1 curie
N. Iodine 129	N. Sealed sources	N. 1 curie
O. Iodine 125	O. Sealed sources (Norland Inst. Co, Model 178A591A)	O. 400 millicuries
P. Iodine 125	P. Sealed sources (3M Company brand seeds)	P. 500 millicuries
Q. Cesium 137	Q. Sealed sources (3M 6D6C-CA)	Q. 50 millicuries

Information in this record was deleted in accordance with the Freedom of Information Act, exemptions 2
FOIA 2006-0338

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ML10

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License number: 08-01738-02
Docket or Reference number: 030-01317
Amendment No. 53

(6., 7., and 8. continued)

6. Byproduct, source, and/or special nuclear material	7. Chemical and/or physical form	8. Maximum amount that licensee may possess at any one time under this license
R. Americium 241	R. Sealed sources	R. 200 millicuries
S. Thorium	S. Any	S. 5 kilograms
T. Uranium	T. Natural Uranium	T. 50 kilograms
U. Uranium	U. Uranium depleted in U-235	U. 400 kilograms
V. Iodine 125	V. Sealed sources (AECL Models C235 or C324, or Amersham Corp Model IMC.P2)	V. 2 sources, not to exceed 300 millicuries each

9. Authorized use

A. through G. Medical research, diagnosis and therapy, including research and development as defined in 10 CFR 30.4(q) and human use as defined in 10 CFR 35.3(a).
H. In an [illegible] for calibration of instruments.
I. through N. Research and development as defined in 10 CFR 30.4(q).
O. and P. Medical research, diagnosis and therapy, including human use as defined in 10 CFR 35.3(a).
Q. Instrument calibration.
R. Standards and reference sources.
S. and T. Teaching and laboratory research.
U. Shielding.
V. Medical research; diagnosis including human use or defined in 10 CFR 35.3(a).

Conditions 12. is amended to read:

12. A. Licensed material shall be used by, or under the supervision of, individuals designated by the WRAMC Radiation Control Committee.

B. The use of licensed material in or on humans shall be by a physician as defined in 10 CFR 35.3(b).

C. Physicians designated to use licensed material in or on humans shall meet the training and experience criteria established in Appendix A of Regulatory Guide 10.8 (Revision 1), dated October 1980.

For the U.S. Nuclear Regulatory Commission

Date JUN 03 1985

By Original Signed By: Jenny M. Johansen
Nuclear Materials Safety and Safeguards Branch, Region I
King of Prussia, Pennsylvania 19406

Ex 2

NRC Form 374A (5-84)

U.S. NUCLEAR REGULATORY COMMISSION

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License number: 08-01738-02

Docket or Reference number: 030-01317

Amendment No. 54

"OFFICIAL RECORD COPY"

Department of the Army
Walter Reed Army Medical Center
(WRAMC)
Washington, D.C. 20307-5001

In accordance with application dated July 15, 1985, License Number 08-01738-02 is amended as follows:

Items 6., 7., 8. and 9. are amended to read:

6. Byproduct, source, and/or special nuclear material	7. Chemical and/or physical form	8. Maximum amount that licensee may possess at any one time under this license
A. Any byproduct material with Atomic Nos. 3-83, inclusive, except Iodine 129 and Strontium 90	A. Any	A. 400 millicuries of each except: Iodine 131 2 curies Xenon 133 2 curies Krypton 85 1 curie Gold 198 1 curie Phosphorus 32 2 curies Carbon 14 2 curies Iodine 125 1 curie Iridium 192 1 curie Chromium 51 750 millicuries total not to exceed 26 curies
B. Hydrogen 3	B. Any	B. 5 curies
C. Molybdenum 99	C. Molybdenum 99/ Technetium 99 Generators	C. 23 curies
D. Technetium 99m	D. Any	D. 5 curies
E. Strontium 90	E. Sealed sources	E. 500 millicuries
F. Cesium 137	F. [redacted] sealed sources	F. [redacted]
G. Gadolinium 153	G. Sealed sources	G. 2 curies
H. Cesium 137	H. [redacted] sealed source	H. [redacted]
I. Cesium 137	I. Sealed sources	I. [redacted]
J. Cobalt 60	J. Sealed sources	J. 500 millicuries
K. Americium 241	K. Any	K. 100 microcuries
L. Americium 241	L. [redacted] sealed source	L. [redacted]
M. Nickel 63	M. Sealed sources and foils	M. 1 curie
N. Iodine 129	N. Sealed sources	N. 1 curie
O. Iodine 125	O. Sealed sources (Norland Inst. Co, Model 178A591A)	O. 400 millicuries
P. Iodine 125	P. Sealed sources (3M Company brand seeds)	P. 500 millicuries
Q. Cesium 137	Q. Sealed sources (3M 6D6C-CA)	Q. 50 millicuries

K/K/2

Information in this record was deleted in accordance with the Freedom of Information Act, exemptions 2

2006-0238

Ex 2

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License number 08-01738-02

Docket or Reference number 030-01317

Amendment No. 54

MATERIALS LICENSE
SUPPLEMENTARY SHEET

(6., 7. and 8. continued)

6. Byproduct, source, and/or special nuclear material	7. Chemical and/or physical form	8. Maximum amount that licensee may possess at any one time under this license
R. Americium 241	R. Sealed sources	R. 200 millicuries
S. Thorium	S. Any	S. 5 kilograms
T. Uranium	T. Natural Uranium	T. 50 kilograms
U. Uranium	U. Uranium depleted in U-235	U. 400 kilograms
V. Iodine 125	V. Sealed sources (AECL Models C235 or C324, or Amersham Corp Model IMC.P2)	V. 4 sources, not to exceed 300 millicuries each

9. Authorized use

A. through G. Medical research, diagnosis and therapy, including research and development as defined in 10 CFR 30.4(q) and human use as defined in 10 CFR 35.3(a).
H. In an [ ] for calibration of instruments.
I. through N. Research and development as defined in 10 CFR 30.4(q).
O. through P. Medical research, diagnosis and therapy, including human use as defined in 10 CFR 35.3(a).
Q. Instrument calibration.
R. Standards and reference sources.
S. through T. Teaching and laboratory research.
U. Shielding.
V. Medical research; diagnosis including human use as defined in 10 CFR 35.3(a).

For the U.S. Nuclear Regulatory Commission

Date SEP 06 1985

By Original Signed By: Laurence F. Friedman, Ph.D.

Nuclear Materials Safety and Safeguards Branch, Region I
King of Prussia, Pennsylvania 19406

E2

030-01317

DEPARTMENT OF THE ARMY
WALTER REED ARMY MEDICAL CENTER
WASHINGTON, D.C. 20307-5001

REPLY TO
ATTENTION OF:

HSHL-HP (385-11m)

08 MAY 1987

SUBJECT: Renewal of US Nuclear Regulatory Commission License No. 08-01738-02

THRU: Commander
US Army Health Services Command
ATTN: HSCL-P
Fort Sam Houston, TX 78234-6000

HQDA (DASG-PSP-E)
5111 Leesburg Pike
Falls Church, VA 22041-3258

TO: Director
Office of Nuclear Materials Safety and Safeguards
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

1. Enclosed is the application for renewal of USNRC License No. 08-01738-02 for Walter Reed Army Medical Center. The subject license is due to expire 31 July, 1987.

2. Request that the License be amended to incorporate the following changes to Form NRC-313M:

a. Item 5., "Radiation Safety Officer". MAJ Gerald M. Connock was appointed as Radiation Protection Officer for Walter Reed Army Medical Center (WRAMC) October 1985. An outline of his training and experience is attached as enclosure Tab A.

b. Item 6b., "Radioactive Material for Uses Not Listed in Item 6a."

ELEMENT AND MASS NUMBER	CHEMICAL FORM	MAX NO.mCi	PURPOSE
SULFUR - 35	ANY	1000	Medical research and development as defined in Section 30.4 Title 10, Code of Federal Regulations, Part 3 and Human Use as defined in Section 35.3 Title 10, Code of Federal Regulations, Part Part 35

Information in this record was deleted in accordance with the Freedom of Information Act, exemptions 2
FOIA- 2006-0238

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This request increases the current possession limit from 400 to 1000 millicuries Sulfur-35. Addition of this increase to the sum of the ratios of each quantity of radionuclide listed on the current license, in forms other than sealed sources or special form, divided by its quantity specified in the Schedule of Limiting Possession Limits, NUREG - 0767 equals 0.90. Consequently, there continues to be no requirement for submittal of a Contingency Plan.

c. Item 7, "Medical Isotope Committee". The regulation number WRAMC Regulation 15-4, "Boards, Commissions and Committees" is changed to WRAMC Regulation 40-92. The composition of the Radiation Control Committee (RCC) remains aligned with 10 CFR 35.22. A copy of the amended Tab 7, current membership, and curriculum vitae for each member is attached as enclosure Tab B.

d. Item 8, "Training and Experience". Tab 8, HSWP-QHP Memo No. 9, "Procedures for Obtaining Authorization to Use Radioactive Material" is replaced by WRAMC Regulation 40-10, "Medical Service-Health Physics," Chapter 3, "Authorization to Use Radioactive Material". A copy is attached as enclosure Tab C. "Application for Authorization to Use Radioactive Material" forms WRAMC 1661-R, 1662-R and 1643 remain unchanged.

e. Item 10, "Calibration of Instruments."

(a) Calibration of Survey Instruments - see enclosurer Tab F.

(b) Revised procedures for performing linearity tests of the dose calibrator were approved by the NRC in Amendment No. 51 to license 08-01738-02 on 22 September 1984.

f. Item 11, "Facilities and Equipment".

(1). The Nuclear Medicine Clinic, listed under Tab 11 moved, with approval of the WRAMC, RCC, from the ground floor to the 7th floor of building 2 in November 1983. The entire clinic is under negative pressure at all times, enclosure Tab G.

(2). The Radiation Therapy Isotope Storage room listed under Tab 11 moved, with approval of the WRAMC, RCC, from room 13, building T-2 to the [redacted] in January 1980, Enclosure G.

g. Items 13 & 14, "Procedures for Ordering and Receiving Radioactive Material" and "Procedures for Safely Opening Packages Containing Radioactive Materials". Tabs 13 & 14, HSWP-QHP Memo number 6, "Procedure for Ordering, Receiving and Safely Opening Packages Containing Radioactive Material" is replaced by "Condition No. 5 for Radioactive Material Authorizations - Procedures for Ordering, Receiving and Safely Opening Packages Containing Radioactive Material", enclosure Tab D.

h. Item 15, "General Rules for Safe Use of Radioactive Material". Tab 15, HSWP-QHP Memo number 5, "General Rules for the Safe Use of Radioactive Material" is replaced by WRAMC Reg. 40-10, Chapter 4 and Condition No. 3, having the same title, enclosure Tabs C & D.

i. Item 16, "Emergency Procedure". Tab 16, HSWP-QHP Memo number 11, "Emergency Procedures" is replaced by Condition No. 6, having the same title, enclosure Tab D.

j. Item 17, "Area Survey Procedures". Tab 17, HSWP-QHP Memo Number 12, "Area Survey Procedures" is replaced by WRAMC Regulation 40-10, Chapter 7, "Radiation Protection Surveys" and Condition No. 2, "Area Survey Procedures", enclosure Tabs C & D.

k. Item 18, "Waste Disposal". Tab 18, HSWP-QHP Memo Number 1, "Radioactive Waste Management and Control" is replaced by WRAMC Regulation 40-10, Chapter 8 and Condition No. 4, "Radioactive Waste", enclosure Tabs C & D.

l. Item 21, "Procedures and Precautions for Use of Radioactive Gases." Tab 21 is revised to reflect current location and procedures, enclosure Tab H.

m. Item 22, "Procedures and Precautions for Use of Radioactive Material in Animals". Tab 22, Annexes C, D, E, and F of HSWP-QHP Memo # 8 have been revised as follows:

(1). Annex C, Walter Reed Army Institute of Research Regulation for "Care and Housing of Laboratory Animals" is replaced by Department of the Army Regulation (AR), 70-18, "Research and Development - The Use of Animals in DoD Programs" enclosure Tab I.

HSHL-HP (385-11m) 08 MAY 1987
SUBJECT: Renewal of US Nuclear Regulatory Commission
License No. 08-01738-02

(2). Annex D, U.S. Army Medical Research Institute of Infectious Diseases (USAMRIID) Standing Operating Procedures (SOP) IRCC #6, "Procedure for Removal of Radioactive Carcasses from USAMRIID Biological Containment", 1 June 1979 is updated to a 24 March 1982 edition, enclosure Tab I.

(3). Annex E, USAMRIID, SOP, "Animal Quality Assurance Program" is is updated to a 1 February 1985 edition, enclosure Tab I.

(4). Annex F, USAMRIID, SOP, "Weekend/Holiday/Nonduty Hour Animal Care" is updated to a 4 December 1985 edition, enclosure Tab I.

n. Item 23, "Procedures and Precautions for Use of Radioactive Material Specified in Item 6b." Tab 23, HSWP-QHP SOP Number 1-3, " Bioassay Program" is updated to a 30 April 1987 edition, enclosure Tab J.

o. Tab 24, HSWP-QHP SOP Number 1-5, "Personnel Dosimetry Service" is replaced by WRAMC Regualtion 40-10, Chapter 5, "Personnel Monitoring" and Condition No. 1, "Personnel Dosimetry," enclosure Tabs C & D.

FOR THE COMMANDER

JOEL T. HIATT
MAJ, MS
Executive Officer

Encl
as

NRC FORM 313M (8-86) 10 CFR 35	U.S. NUCLEAR REGULATORY COMMISSION **APPLICATION FOR MATERIALS LICENSE – MEDICAL**	Approved by OMB 3150-0041 Expires 6-30-89

INSTRUCTIONS – *Complete Items 1 through 26 if this is an initial application or an application for renewal of a license. Use supplemental sheets where necessary. Item 26 must be completed on all applications and signed. Retain one copy. Submit original and one copy of entire application to : Director, Office of Nuclear Materials Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555. Upon approval of this application, the applicant will receive a Materials License. An NRC Materials License is issued in accordance with the general requirements contained in Title 10, Code of Federal Regulations, Part 30, and the Licensee is subject to Title 10, Code of Federal Regulations, Parts 19, 20 and 35 and the license fee provision of Title 10, Code of Federal Regulations, Part 170. The license fee category should be stated in Item 26 and the appropriate fee enclosed.*

1.a. NAME AND MAILING ADDRESS OF APPLICANT *(institution, firm, clinic, physician, etc.)* INCLUDE ZIP CODE

Department of the Army
Walter Reed Army Medical Center
Washington, D.C. 20307-5001

TELEPHONE NO.: AREA CODE (301) 427 5104

1.b. STREET ADDRESS(ES) AT WHICH RADIOACTIVE MATERIAL WILL BE USED *(If different from 1.a.)* INCLUDE ZIP CODE

NO CHANGE

2. PERSON TO CONTACT REGARDING THIS APPLICATION

Gerald M. Connock, MAJ, MS
Health Physics Officer, WRAMC

TELEPHONE NO.: AREA CODE (301) 427 5104

3. THIS IS AN APPLICATION FOR: *(Check appropriate item)*

a. ☐ NEW LICENSE
b. ☐ AMENDMENT TO LICENSE NO.
c. ☒ RENEWAL OF LICENSE NO. 08-01738-02

4. INDIVIDUAL USERS *(Name individuals who will use or directly supervise use of radioactive material. Complete Supplements A and B for each individual.)* Individuals approved by the Radiation Control Committee, Walter Reed Army Medical Center

5. RADIATION SAFETY OFFICER (RSO) *(Name of person designated as radiation safety officer. If other than individual user, complete resume of training and experience as in Supplement A.)* Gerald M. Connock, MAJ, MS, Ref: AR 40-14 and 40-37, The Health Physics Officer will be appointed by the Commanding General, WRAMC, (See Item 7).

6.a. RADIOACTIVE MATERIAL FOR MEDICAL USE NO CHANGE

RADIOACTIVE MATERIAL LISTED IN:	MARK ITEMS DESIRED "X"	MAXIMUM POSSESSION LIMITS (In millicuries)
10 CFR 31.11 FOR IN VITRO STUDIES		
10 CFR 35.100, SCHEDULE A, GROUP I		AS NEEDED
10 CFR 35.100, SCHEDULE A, GROUP II		AS NEEDED
10 CFR 35.100, SCHEDULE A, GROUP III		
10 CFR 35.100, SCHEDULE A, GROUP IV		AS NEEDED
10 CFR 35.100, SCHEDULE A, GROUP V		AS NEEDED
10 CFR 35.100, SCHEDULE A, GROUP VI		

ADDITIONAL ITEMS:	MARK ITEMS DESIRED "X"	MAXIMUM POSSESSION LIMITS (In millicuries)
IODINE-131 AS IODIDE FOR TREATMENT OF HYPERTHYROIDISM		
PHOSPHORUS-32 AS SOLUBLE PHOSPHATE FOR TREATMENT OF POLYCYTHEMIA VERA, LEUKEMIA AND BONE METASTASES		
PHOSPHORUS-32 AS COLLOIDAL CHROMIC PHOSPHATE FOR INTRACAVITARY TREATMENT OF MALIGNANT EFFUSIONS.		
GOLD-198 AS COLLOID FOR INTRA-CAVITARY TREATMENT OF MALIGNANT EFFUSIONS.		
IODINE-131 AS IODIDE FOR TREATMENT OF THYROID CARCINOMA		
XENON-133 AS GAS OR GAS IN SALINE FOR BLOOD FLOW STUDIES AND PULMONARY FUNCTION STUDIES.		

6.b. RADIOACTIVE MATERIAL FOR USES NOT LISTED IN ITEM 6.a. *(Sealed sources up to 3 mCi used for calibration and reference standards are authorized under Section 35.14(d), 10 CFR Part 35, and NEED NOT BE LISTED.)*

ELEMENT AND MASS NUMBER	CHEMICAL AND/OR PHYSICAL FORM	MAXIMUM NUMBER OF MILLICURIES OF EACH FORM	DESCRIBE PURPOSE OF USE
Sulfur-35	Any	1000	Medical research and development as defined in Section 30.4, Title 10, Code of Federal Regulations, Part 3 and Human Use as defined in Section 35.3, Title 10, Code of Federal Regulations, Part 35.

Information in this record was deleted in accordance with the Freedom of Information Act, exemptions 3+6
FOIA Ta 2006-0238

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INFORMATION REQUIRED FOR ITEMS 7 THROUGH 23

For Items 7 through 23, check the appropriate box(es) and submit a detailed description of all the requested information. Begin each item on a separate sheet. Identify the item number and the date of the application in the lower right corner of each page. If you indicate that an appendix to the medical licensing guide will be followed, do not submit the pages, but specify the revision number and date of the referenced guide: Regulatory Guide 10.8 , Rev. _____ Date: _____

7. MEDICAL ISOTOPES COMMITTEE See Encl-Tab B		**15. GENERAL RULES FOR THE SAFE USE OF RADIOACTIVE MATERIAL** *(Check One)* See Encl Tab C, Chpt 4 Tab D, Cond #3	
X	Names and Specialties Attached; and		Appendix G Rules Followed; or
	Duties as in Appendix B; or *(Check One)*	X	Equivalent Rules Attached
X	Equivalent Duties Attached	**16. EMERGENCY PROCEDURES** *(Check One)* See Encl Tab D Cond #6	
8. TRAINING AND EXPERIENCE See Encl-Tab C			Appendix H Procedures Followed; or
	Supplements A & B Attached for Each Individual User; and Chpt 3	X	Equivalent Procedures Attached
	Supplement A Attached for RSO.	**17. AREA SURVEY PROCEDURES** *(Check One)* See Encl Tab C Chpt 7	
9. INSTRUMENTATION *(Check One)*			Appendix I Procedures Followed; or Tab D, Cond#2
	Appendix C Form Attached; or See Encl-Tab E	X	Equivalent Procedures Attached
X	List by Name and Model Number	**18. WASTE DISPOSAL** *(Check One)* See Encl Tab C Chpt 8,	
10. CALIBRATION OF INSTRUMENTS See Encl Tab F			Appendix J Form Attached; or Tab D, Cond #4
X	Appendix D Procedures Followed for Survey Instruments; or *(Check One)*	X	Equivalent Information Attached
	Equivalent Procedures Attached; and	**19. THERAPEUTIC USE OF RADIOPHARMACEUTICALS** *(Check One)* NO CHANGE	
	Appendix D Procedures Followed for Dose Calibrator; or *(Check One)*		Appendix K Procedures Followed; or
X	Equivalent Procedures Attached		Equivalent Procedures Attached
11. FACILITIES AND EQUIPMENT See Encl Tab G		**20. THERAPEUTIC USE OF SEALED SOURCES** No Change	
X	Description and Diagram Attached		Detailed Information Attached; and
12. PERSONNEL TRAINING PROGRAM NO CHANGE			Appendix L Procedures Followed; or *(Check One)*
	Description of Training Attached		Equivalent Procedures Attached
13. PROCEDURES FOR ORDERING AND RECEIVING RADIOACTIVE MATERIAL Cond # 5		**21. PROCEDURES AND PRECAUTIONS FOR USE OF RADIOACTIVE GASES (e.g., Xenon – 133)** See Encl Tab H	
X	Detailed Information Attached See Encl Tab D	X	Detailed Information Attached
14. PROCEDURES FOR SAFELY OPENING PACKAGES CONTAINING RADIOACTIVE MATERIALS *(Check One)* See Encl Tab E / Cond. # 5		**22. PROCEDURES AND PRECAUTIONS FOR USE OF RADIOACTIVE MATERIAL IN ANIMALS** See Encl Tab I	
		X	Detailed Information Attached
	Appendix F Procedures Followed; or	**23. PROCEDURES AND PRECAUTIONS FOR USE OF RADIOACTIVE MATERIAL SPECIFIED IN ITEM 6.b**	
X	Equivalent Procedures Attached	X	Detailed Information Attached See Encl Tab J

24. PERSONNEL MONITORING DEVICES

TYPE (Check appropriate box)			SUPPLIER	EXCHANGE FREQUENCY
a. WHOLE BODY		FILM		
		TLD	NO CHANGE	
		OTHER (Specify)		
b. FINGER		FILM		
		TLD	NO CHANGE	
		OTHER (Specify)		
c. WRIST		FILM		
		TLD	NO CHANGE	
		OTHER (Specify)		

d. OTHER (Specify)

See Enclosure Tab C Chpt 5/Tab D Cond. #1

25. FOR PRIVATE PRACTICE APPLICANTS ONLY

a. HOSPITAL AGREEING TO ACCEPT PATIENTS CONTAINING RADIOACTIVE MATERIAL

NAME OF HOSPITAL

MAILING ADDRESS

CITY | STATE | ZIP CODE

b. ATTACH A COPY OF THE AGREEMENT LETTER SIGNED BY THE HOSPITAL ADMINISTRATOR.

c. WHEN REQUESTING THERAPY PROCEDURES, ATTACH A COPY OF RADIATION SAFETY PRECAUTIONS TO BE TAKEN AND LIST AVAILABLE RADIATION DETECTION INSTRUMENTS.

26. CERTIFICATE

(This item must be completed by applicant)

The applicant and any official executing this certificate on behalf of the applicant named in Item 1a certify that this application is prepared in conformity with Title 10, Code of Federal Regulations, Parts 30 and 35, and that all information contained herein, including any supplements attached hereto, is true and correct to the best of our knowledge and belief.

a. LICENSE FEE REQUIRED *(See Section 170.31, 10 CFR 170)*

(1) LICENSE FEE CATEGORY: 7B

(2) LICENSE FEE ENCLOSED: $ Exception, 10CFR170.11 (a)(5)

b. APPLICANT OR CERTIFYING OFFICIAL *(Signature)*

(1) NAME *(Type of Print)* JOEL T. HIATT, MAJ, MS

(2) TITLE Executive Officer

c. DATE 08 MAY 1987

NRC FORM 313M (8-86)

ITEM 5

TRAINING AND EXPERIENCE OF RADIATION SAFETY OFFICER

TRAINING AND EXPERIENCE OF AUTHORIZED RADIOISOTOPE USERS

1. NAME OF AUTHORIZED USER (Last, First, MI)	2. STATE OR TERRITORY IN WHICH LICENSED: (MD, DDS, DVM, etc.)
CONNOCK, Gerald M.	N/A

RANK/GRADE	ORGANIZATION	ORGANIZATIONAL DIVISION	BLDG./ROOM NO.	WRAMC AUTHORIZATION NO.
MAJ/04	WRAMC	Health Physics Office	Bldg 188,FGS,WRAMC	

3. CERTIFICATION

SPECIALTY BOARD A	CATEGORY B	MONTH AND YEAR CERTIFIED C
N/A	N/A	N/A

4. FORMAL EDUCATION

HIGHEST ACADEMIC DEGREE ATTAINED

	Higher Educational Institutions Attended	Type of Program Pursued and Dates of Attendance	Degree, Diploma or Certificate Received and Date
a.	Univ of CA, Los Angeles	Medical Physics Jan 78 - Dec 79	M.S., Dec 79
b.			
c.			
d.			

5. TRAINING RECEIVED IN BASIS RADIOISOTOPE HANDLING TECHNIQUES

FIELD OF TRAINING A	LOCATION AND DATE(S) OF TRAINING (Include course title if known) B	TYPE AND LENGTH OF TRAINING: LECTURE/ LABORATORY COURSES (Hours) C	TYPE AND LENGTH OF TRAINING: SUPERVISED LABORATORY EXPERIENCE (Hours) D
a. RADIATION PHYSICS AND INSTRUMENTATION	Univ of CA, Los Angeles, CA Jan 78 - Dec 79 Interservice Nuc Wpns Sch Sandia Base, NM Jan 81	30 qtr hrs 24 hrs	2 years
b. RADIATION PROTECTION	UCLA - Jan 78 - Dec 79 INWS, Sandia Base, NM Jan 81 AFRRI, Bethesda,MD May 80	30 qtr hrs 24 hrs 40 hrs	2 years
c. MATHEMATICS PERTAINING TO THE USE AND MEASUREMENT OF RADIOACTIVITY	UCLA - Jan 78 - Dec 79 INWS, Sandia Base, NM Jan 81 AFRRI, Bethesda, MD May 80	30 qtr hrs 24 hrs 40 hrs	2 years
d. RADIATION BIOLOGY	UCLA - Jan 78 - Dec 79 AFRRI, Bethesda, MD May 80	30 qtr hrs 40 hrs	2 years
e. RADIOPHARMACEUTICAL CHEMISTRY	UCLA - Jan 78 - Dec 79	30 qtr hrs	2 years

6. EXPERIENCE WITH RADIATION *(Actual use of Radioisotopes) (Sealed or unsealed source)*

ISOTOPE	MAXIMUM AMOUNT	WHERE EXPERIENCE WAS GAINED	DURATION OF EXPERIENCE	TYPE OF USE
Mo-99 Tc-99m	1 Ci	UCLA	2 years	Nuc Medicine Quality Assurance Experimentation
Cd-109 NA-22 Ba-133 In-113m	))Microcurie)Amounts)	UCLA	2 years	Experimentation
Ga-67	.1 Ci	UCLA	2 years	Nuc Medicine
Co-57	1 mCi	UCLA	2 years	Experimentation
Co-60	400 Ci	UCLA	2 years	Rad Therapy
Cs-137	.1 Ci	UCLA	2 years	Experimentation
I-131	.5 Ci	UCLA	2 years	Nuc Med Therapy & Expiramentation
I-125	.2 Ci	UCLA	2 years	Nuc Medicine
Ir-192	.1 Ci	UCLA	2 years	Rad Therapy

7. EXPERIENCE WITH RADIATION PRODUCING DEVICES *(X-ray, Irradiators, etc.)*

DEVICE	WHERE EXPERIENCE WAS GAINED	DURATION OF EXPERIENCE	TYPE OF USE
X-ray Systems	UCLA	2 years	Survey, Research
X-ray Systems	AHSUSA, Fort Sam Houston,TX	2 weeks	Survey
X-ray Systems	USAMEDDAC Panama	8 months	Survey
Laser	USAEHA, Aberdeen Proving Ground, MD	1 week	Survey
Microwave Ovens	USAEHA, Aberdeen Proving Ground, MD	1 week	Survey

8. CERTIFICATION

I certify that the information provided hereon is true and complete to the best of my knowledge.

1 APR 1984
(Date Signed)

Gerald M. Connock
(Signature of Applicant)

ITEM 7

MEDICAL ISOTOPE COMMITTEE

EXTRACT
DEPARTMENT OF THE ARMY
WALTER REED ARMY MEDICAL CENTER
WASHINGTON, DC 20307-5001

WRAMC Regulation
No. 40-92

4 OCT 1985

Medical Services
PATIENT CARE COMMITTEES, BOARDS AND COUNCILS

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*This regulation supersedes WR 15-4 dated 17 Nov 1981.

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CHAPTER I
GENERAL

1-1 Purpose.

a. This regulation establishes a reference containing all standing committees, boards and councils concerned with patient care at Walter Reed Army Medical Center (WRAMC).

b. This regulation also provides limited basic guidance for each of the standing committees, boards and councils and a listing of applicable references.

1-2 Scope. This regulation applies to all components of the hospital element of WRAMC.

1-3 Intradepartmental Committees. Intradepartmental committees will not be addressed in this regulation unless they are specifically required by regulation. Intradepartmental committees should be addressed at the department level.

1-4 Submission and Approval of Minutes. The format at the Appendix will be utilized for the submission of the minutes of all committees, boards and councils, unless prescribed otherwise by regulation. A summary of the highlights and recommendations of committee minutes (excluding departmental minutes) will be provided by the recorder for inclusion in the agenda of the Quality Assurance Committee or Executive Committee. Summaries should be brief but adequate. In most cases, unless otherwise specified, committee minutes will be submitted through the Quality Assurance Committee to the Executive Committee for approval.

RADIATION CONTROL COMMITTEE

a. Composition

Deputy Commander (Chairman)
Chief, Department of Medicine
Chief, Department of Nursing
Chief, Department of Pathology and Area Lab Services
Chief, Department of Radiology
Chief, Radiation Therapy Service
Chief, Nuclear Medicine Service
Health Physics Officer (RPO)
Senior Nuclear Pharmacist
Assistant Health Physics Officer (alternate RPO) (Recorder)
Director, WRAIR
Radiation Safety Officer, WRAIR
Radiation Protection Officer, AFIP
Radiation Protection Officer, USAMRIID

b. Purpose - To formulate rules and procedures for the safe use of sources of ionizing and non-ionizing radiation; to assure compliance with the regulation and standards of the Nuclear Regulatory Commission, the Office of the Surgeon General, Department of the Army and other regulatory agencies; and to conduct a continuing review of the administrative control procedures.

c. Responsibilities

See items C (1) thru (16), para 3-5, HSC Pam 40-1.

d. Minutes - One copy of the committee minutes will be forwarded (thru D, MAA) to the Executive Committee for approval NLT five (5) working days after the meeting. This copy will remain as part of the Executive Committee minutes. One copy of the minutes will also be included in the "Radioisotopes in Human Use Activities" report, RCS MED-197.

e. Office of Record - Health Physics

f. Frequency - Quarterly or at the call of the chairman.

g. References

(1) AR 40-14, Control and Recording Procedures for Occupational Exposure to Ionizing Radiation

(2) HSC Pam 40-1

(3) JCAH Accreditation Manual for Hospitals, 1985

(4) AR 40-37

HEALTH PHYSICS
WALTER REED ARMY MEDICAL CENTER
WASHINGTON, D.C. 20307-5001

CHANGE No. 1
HSHL-HP
MEMO Number 4

30 April 1987

Organization and Function
Of The
Radiation Control Committee Subcommittees

1. Make the following pen and ink corrections and enter change (Change 1) in the margin opposite the correction; Page 1, Paragraph 1.c., change WRAMC Regulation 15-4, "Health Care Committees" to read WRAMC Regulation 40-92, "Patient Care Committees, Boards, and Councils".

2. Remove Pages B-1 and B-2 and replace with Pages B-1 and B-2.

3. File this change sheet in front of the publication for reference purposes.

Gerald M. Connock
GERALD M. CONNOCK
MAJ, MS
Health Physics Officer

HEALTH PHYSICS
WALTER REED ARMY MEDICAL CENTER
Washington, D.C. 20307

HSHL-HP
MEMO Number 4

19 July 1983

ORGANIZATION AND FUNCTION
OF THE
RADIATION CONTROL COMMITTEE SUBCOMMITTEES

1. REFERENCES

a. Title 10, Chapter 1, Code of Federal Regulations, "Energy - U.S. Nuclear Regulatory Commission Rules and Regulations."

b. WRAMC US NRC License 08-0738-02.

change1 c. WRAMC Regulation ~~15-4~~ 40-92, "~~Health Care Committees.~~" Patient Care Committees, Boards, and Councils."

d. WRAMC Regulation 40-10, "Health Physics."

2. DISCUSSION

Reference a. above stipulates that no individual may receive, acquire, own, possess, use, or transfer radioactive material unless authorized by the Nuclear Regulatory Commission (NRC) via a Specific NRC License. At present, WRAMC possesses a "Specific NRC License of Broad Scope for By-Product Material" that allows WRAMC to utilize certain types and quantities of radioactive material for the purpose specified therein. One of the NRC requirements for possession of the current license stipulates that WRAMC must establish a radiation safety committee that exercises administrative control over the safe use of radioactive materials. In order to fulfill this requirement, WRAMC has established the Radiation Control Committee (RCC) with responsibility and authority for assuring the safe use of ionizing radiation at WRAMC and certain tenant activities. The primary method used by the WRAMC RCC to fulfill its responsibilities for administrative supervision of licensed radioactive materials is via the review process associated with WRAMC Radioactive Material Authorizations applications. RCC safety evaluations of the proposed uses of radioactive material, which take into consideration such matters as the adequacy of facilities and equipment, training and experience of the user, and the operating or handling procedures, are necessary in order for the RCC to accomplish its function and mandatory if WRAMC desires to possess a NRC License for radioactive material.

CONTENTS OF THIS MEMO WERE APPROVED BY THE WRAMC RADIAITON CONTROL COMMITTEE ON 2 JUNE 1983

3. SUBCOMMITTEE PURPOSES, FUNCTIONS AND ORGANIZATION

a. Standing Subcommittee are as follows:

(1) Subcommittee for Human Use of Ionizing Radiation (Annex A)

b. Special Subcommittees

Special subcommittees are appointed by the Radiation Control Committee as required.

c. Membership on Subcommittee

(1) Determined by areas of special competence or training as required by purpose for subcommittee.

(2) Individual are nominated and approved by the Radiation Control Committee at its quarterly meeting. Individuals nominated and approved need not be members of the Radiation Control Committee.

d. Chairperson of Subcommittee

(1) Should be a member of the Radiation Control Committee.

(2) Appointed by the Chairperson, Radiation Control Committee.

e. Meetings of Subcommittees

(1) Time/Frequency: As required.

(2) Quorum: Consists of more than 50% of the designated members of of the subcommittee.

(3) Voting: All designated members of the subcommittee will vote on issues brought before the subcommittee requiring actions. Members with a vested interest in a particular issue will disqualify themselves from voting on that issue.

(4) Reports: At quarterly Radiation Control Committee Meeting.

4. RADIATION MATERIAL AUTHORIZATIONS

The Radioactive Material Authorization Application review process is outlined in Annex B.

WILLIAM E. WOODWARD
LTC, MSC
Health Physics Officer

ANNEXES
A - Subcommittee for Human Use of Ionizing Radiation
B - WRAMC Regulation 40-10, "Health Physics," Chapter 3, "Authorization to Use Radioactive Material."

ANNEX A

SUBCOMMITTEE FOR THE HUMAN USE OF IONIZING RADIATION

1. PURPOSE

a. To review proposals/requests for the human use of ionizing radiation and to recommend approval/disapproval.

b. To give interim approval/disapproval on requests for the human use of ionizing radiation and make recommendations to the RCC.

c. To Consider, make recommendations on, act on all other matters referred to it by the Radiation Control Committee.

2. MEMBERSHIP. The subcommittee for Human Use of Ionizing Radiation shall consist of at least the following six (6) individuals:

a. A person with special competence in health physics and radiation safety.

b. A physician recognized as a specialist in radiation therapy.

c. A physician recognized as a specicalist in nuclear medicine.

d. A person qualified by training and experience to formulate radioactive drugs.

e. A physician with special competence in internal medicine or hematology.

f. A representative of the Judge Advocate's Office.

Additional members may be appointed to the subcommittee in order to achieve sufficient diversity in the membership. These members shall be qualified in various disciplines pertinent to the field of human use of ionizing radiation (e. g. radiation biology, radiation physics, clinical pathology, radiology and endocrinology).

ANNEX B

CHAPTER 3
Authorization to Use Radioactive Material

3-1. GENERAL.

a. The NRC has issued a specific "License of Broad Scope for Byproduct Material" to WRAMC allowing use of specific types and quantities of radioactive material. NRC requirements stipulate that a Radiation Control Committee be established to exercise administrative control over the safe use of radioactive materials. The WRAMC RCC was chartered to meet these requirements.

b. The RCC issues Radioactive Material Authorizations to Principal Users as a means of controlling the use of radioactive material. All users of radioactive material must receive their authorization prior to using the material.

c. Non-human Use Radioactive Material Authorizations are issued for 3 years. Human Use Authorizations are issued for 1 year. Both types of authorizations may be renewed upon request.

d. Individuals possessing more than 1/2 pound of pure natural uranium compounds are required to obtain an authorization.

3-2. APPLICATION PROCEDURE.

a. To obtain, amend, renew or terminate an authorization for use of radioactive material, individuals must submit WRAMC Form 1661-R, "Application for Authorization to Use Radioactive Material - Human Use", or WRAMC Form 1662-R, "Application for Authorization to Use Radioactive Material - Non-human Use". Each Principal User and Co-worker must submit WRAMC Form 1643, "Training and Experience of Authorized Radioisotope Users", with the application. Each physician listed on a Human Use Authorization is required to submit NRC Form 313-M Supplement B, "Preceptor Statement", or a certificate of Board Certification with the application. Protocols describing the use and accountability of radioactive material from the time of receipt until the time of disposal will be submitted with the application. Applications will be submitted to the HPO for review and approval. All applications for human use of radioisotopes will be submitted to the Human Use Subcommittee of the RCC by the HPO for review of physician training and experience.

b. All requested information on the application will be provided. Incomplete applications will be returned, causing a delay in approval.

c. Application for use of gamma cell irradiators must include a copy of the proposed Standing Operating Procedures addressing personnel safety, routine operation and emergency provisions.

3-3. REVIEW PROCEDURES. All applications will be reviewed by the RCC and HPO to insure that individuals meet training and experience requirements, proposed procedures do not violate existing regulations and facilities and equipment are adequate for proposed usage. Applications will be signed by the HPO and returned to applicant. This is considered interim approval until the RCC next meets and officially approves the application.

3-4. TERMINATION OF AUTHORIZATION. An authorization may be terminated by the Principal User, the RCC or the HPO at any time. When an authorization is terminated, the Principal User will ensure that all work areas are cleared by the HPO prior to releasing them for alternate use and coordinate final disposition of unused radionuclides with the Radioactive Materials Control Branch, HPO.

WRAMC RADIATION CONTROL COMMITTEE MEMBERSHIP

TITLE	MEMBER/SIGNATURE
DEPUTY COMMANDER (Chairperson) (576-1394/5)	HASTINGS, James E., COL, MC
CHIEF, DEPARTMENT OF MEDICINE (Member) (576-1205)	HUNT, Keith K., Jr., COL, MC
CHIEF, DEPARTMENT OF NURSING (Member) (576-1870)	ADAMS-ENDER, Clara L., COL, ANC
CHIEF, DEPARTMENT OF PATHOLOGY (Member) (576-1280)	CLARK, Gary B., COL, MC
CHIEF, DEPARTMENT OF RADIOLOGY (Member) (576-1930)	HAGAN, Raoul, COL, MC
CHIEF, RADIATION ONCOLOGY SERVICE (Member) (576-1180)	YUEN, Albert, MAJ, MC
CHIEF, NUCLEAR MEDICINE SERVICE (Member) (576-0168)	VAN NOSTRAND, Douglas, LTC(P), MC
HEALTH PHYSICS OFFICER (Member) (427-5161)	CONNOCK, Gerald M., MAJ, MS
SENIOR NUCLEAR PHARMACIST (Member) (576-0177)	STOOPS, Howard, CPT, MS
ASSISTANT HEALTH PHYSICS OFFICER (Recorder) (427-5104)	HINTENLANG, David E., CPT, MS
DIRECTOR, WRAIR (Member) (576-3551/2/87/3607)	TOP, Franklin H., Jr., COL, MC
RADIATION SAFETY OFFICER, WRAIR (Member) (576-3428)	BASS, Billy G., DAC
RADIATION PROTECTION OFFICER, AFIP (Member) (576-2973/0414)	BUCK, James L., LCDR, USN
RADIATION PROTECTION OFFICER, USAMRIID (Member) (393-1839 X7335)	BECKWITH, William, DAC
ASSISTANT HEALTH PHYSICS OFFICER (ALTERNATE RPO) (427-5107)	BURTON, David W., DAC

OF

COLONEL JAMES EASTMAN HASTINGS, MC

DATE OF BIRTH: [redacted] SSN: [redacted] DATE: 23 Jun 86

MARRIED: [redacted]

CHILDREN: [redacted]

EDUCATIONAL TRAINING:

Amherst College, B.A. [redacted]
New York University School of Medicine, M.D. [redacted]

GRADUATE MEDICAL EDUCATION:

University of Virginia Hospital; Straight Medical Intern, 1961-1962
Vanderbilt University Hospital; Medical Resident, 1962-1964, 1965-1966
Vanderbilt University Hospital; Cardiology Fellowship, 1964-1965
Walter Reed General Hospital; Cardiology Fellowship, 1969-1970

LICENSES AND CERTIFICATIONS:

Licensed to practice medicine, State of Tennessee, 1968
Canal Zone, July 1972
American Board of Internal Medicine, June 1969
American Board of Internal Medicine, Cardiovascular Disease, October 1973
American Board of Internal Medicine, Recertified in Internal Medicine, 1980

TEACHING AND HOSPITAL APPOINTMENTS:

Vanderbilt University; Instructor in Medicine, 1964-1966
University of Panama, Republic of Panama; Special Professor of Medicine, 1974
University of Hawaii; Clinical Professor of Medicine, 1975-1982
University of the Pacific; Adjunct Clinical Professor of Medicine, 1976-1982

PROFESSIONAL SOCIETIES & COMMITTEES:

American Medical Association (Delegate to Convention from Canal Zone) 1974-1976; 1982-present (Alternate Delegate from US Army 1982-1985)
American Heart Association
Canal Zone Heart Association (President, 1973-1974; various committees 1972-1973, 1974-1975)
Canal Zone Cancer Society (Scientific Committee)
Fellow, American College of Physicians (Governor's Committee 1975-1982 for Regional Meeting)
Sixth Pan Asian Congress of Cardiology (Exhibits Committee)
Hawaii Heart Association (Board of Governors, 1976-1978; Research Committee, 1977-1979)
National Board of Medical Examiners, Member of Board 1982-1985
National Library of Medicine, Board of Regents 1982-1985; Chairman of Search Committee for Replacement of Chairman, 1984

Ex 6

CURRICULUM VITAE

NAME: Keith Kellogg Hunt, Jr.

DATE OF RANK: 3 June 1977

RANK: Colonel, Medical Corps

MOS: 60F

SSN: [redacted]

MILITARY SERVICE: 1 July 1962 to present

CURRENT ASSIGNMENT: Chairman, Department of Medicine, Walter Reed Army Medical Center, Washington, DC 20307-5001 (Telephone: 202-576-1205)

BUSINESS ADDRESS: Walter Reed Army Medical Center, Washington, DC 20307-5001

DATE OF BIRTH: [redacted]

PLACE OF BIRTH:

RELIGION:

NAME OF SPOUSE:

DATE MARRIED:

CHILDREN:

HOME ADDRESS:

PROFESSIONAL EDUCATION AND TRAINING

University of Virginia		BA, Psychology
University of Virginia Medical School		MD
Rotating Internship Tripler Army Medical Center Honolulu, Hawaii	Jul 1962 - Jun 1963	
General Practice Residency Walson Army Hospital Fort Dix, New Jersey	Sep 1965 - Aug 1966	
Internal Medicine Residency Walter Reed Army Medical Center Washington, DC	Sep 1966 - Aug 1969	
Pulmonary Fellowship Walter Reed Army Medical Center Washington, DC	Sep 1969 - Aug 1970	

SPECIALTY CERTIFICATION:

American Board of Internal Medicine	23 October 1970
Diplomate in Subspecialty of Pulmonary Disease	17 October 1972
Recertification, American Board of Internal Medicine	29 October 1977

Ex 6

MILITARY SERVICE:

5th General Hospital, Stuttgardt; Staff internist, 1966-1969
Walter Reed Army Medical Center; Cardiology Fellowship to Assistant Chief, Cardiology Service, 1969-1972
USA Elm Canal Zone; Chief of Medicine, Gorgas Hospsital, 1972-1975
Tripler Army Medical Center; Chief of Medicine, 1975-1982
[illegible]
National Defense University; Student (class president), Industrial College of Armed Forces, 1985-1986
Walter Reed Army Medical Center; Deputy Commander for Clinical Services, 1986 to present

PUBLICATIONS:

Hastings, J.E., Friedman, et al, Culture of Human White Blood Cells using Differential Leukocyte Separation. Nature, London 192:1214, 1961

Cheitlin, M. and Hastings, J.E., Indications for Coronary Angiography, Annals of District of Columbia, Summer, 1972

Davia, J.E., Golden, M.S., Price, H.L., Hastings, J.E., and Cheitlin, M.D., Pulmonary Varix, A Diagnostic Pitfall. Circulation XLIX, May 1974

Hastings, J.E., Challenges in Medical Education, US Medicine, 1 August 1983

Bishop, Cannon, Eversmann, Graeter, Hastings, Jernigan, Mathis, Mitchum, Nicola, Roadman, Steely, Thie, Welsh, Wortham, Vela, Zajtchuk, Moscato; Integrating The Civilian Health Care System into Medical Mobilization; NDU press, 1986

PRESENTATIONS:

Canal Zone Heart Association Annual Lecture, November 1972
Annual Hawaii Heart Course in Cardiovascular Nursing Lecture, 1975
University of California Review Course in Internal Medicine Lecture, August 1976, 1977, 1978, 1979, 1980 (presentations)
ACP Regional Meeting, Hawaii--Panel Moderator, 1977, 1978, 1979, 1980, 1981

HONORARIUMS:

House Staff Association, Annual Award to Best Teacher, Gorgas Hospital, 1975
"A" Designator for Professional Competence, Internal Medicine, US Army, 1979
Joint Chiefs of Staff Award for Excellence in Research, N.D.U., June 1986

MILITARY AWARDS:

Army Achievement Medal
Joint Services Commendation Medal
Army Commendation Medal
Meritorious Service Medal with OLC
Legion of Merit

PROFESSIONAL ASSIGNMENTS:

Chairman, Department of Medicine Walter Reed Army Medical Center Washington, DC 20307	1 July 1982 - Present
Associate Chairman, Department of Medicine Uniformed Services University of the Health Sciences Bethesda, Maryland	1 July 1982 - Present
Medical Consultant to the Surgeon General	5 January 1982 - 1 July 1982
Chief, Pulmonary Disease Service Walter Reed Army Medical Center Washington, DC 20307	1 July 1974 - 1 July 1982
Consultant to the Surgeon General in Pulmonary Disease	27 August 1980 - Present
Associate Professor of Medicine Uniformed Services University of the Health Sciences Bethesda, Maryland	14 January 1980
Pulmonary Division Program Coordinator Department of Medicine Uniformed Services University of the Health Sciences Bethesda, Maryland	August 1978 - Present
Clinical Assistant Professor of Medicine Georgetown University Washington, DC	1 July 1977
Chief, Pulmonary and Infectious Disease Service Madigan Army Medical Center Tacoma, Washington	24 August 1970 - 30 June 1974
Director, Clinical Clerkship Program Madigan Army Medical Center Tacoma, Washington	March 1972 - March 1974
Attending Physician Harborview Medical Center Seattle, Washington	October 1971 - June 1974
Battalion Surgeon 27th Infantry Battalion, 25th Infantry Division Schofield Barracks, Hawaii	July 1963 - August 1965

PROFESSIONAL SOCIETIES

Society of Medical Consultants to the Armed Forces (Associate Membership), 20 April 1982
Fellow American College of Physicians, March 1974
Fellow American College of Chest Physicians, October 1973
Maryland Thoracic Society
District of Columbia Thoracic Society
Association of Military Surgeons of the United States

SPECIAL HONORS

Distinguished Military Graduate, ROTC, University of Virginia	
Meritorious Service Medal	11 November 1974
Outstanding Teacher Award - Presented by the Intern Class of 1971, Madigan Army Medical Center	1971
Selected for ACP-MKSAP Faculty, Washington, DC	September 1977
"A" Professional Designator Award, US Army	December 1979
Selected for ACP-MKSAP Faculty, Washington, DC	February 1980
Meritorious Service Medal	4 March 1980
American College of Chest Physicians, Governor for the Army	October 1981-October 19
Army Achievement Medal	28 September 1981
Selected to Order of Military Medical Merit	13 November 1982
Army Commendation Medal	10 January 1984

COMMITTEE ASSIGNMENTS

Chairman, Search Committee for Chairman, Department of Pediatrics, WRAMC	April 1987
Chairman, Steering Committee for WRAMC Ethics Committee	March 1987
Governor's Advisory Council, American College of Physicians	January 1985
Chairman, Patient Care Assessment Committee, WRAMC	October 1984 - present
Chairman, Library Committee, WRAMC	October 1984
Pre-Reviewer for Pulmonary Subspecialty Programs, Residency Review Committee	1983 - present
Member, WRAMC Quality Assurance Committee	February 1983 - presen
Credentials Committee, WRAMC	July 1982 - present
Human Subjects Research Review Board for the Surgeon General US Army	Jan - Jul 1982
Member, Steering Committee of the Section on Clinical Pulmonary Medicine of the American College of Chest Physicians	November 1981
Walter Reed Army Medical Center Steering Committee on Holistic Medicine	1981
Department of Medicine Education Committee, Walter Reed Army Medical Center	December 1978 - presen
Executive Committee, District of Columbia Thoracic Society	July 1976 - June 1977
Education Committee, Walter Reed Army Medical Center	July 1974 - present
Education Committee, Madigan Army Medical Center	Sep 1970 - Jun 1974
Rabies Committee, Madigan Army Medical Center	Sep 1970 - Jun 1974
Infection Committee, Madigan Army Medical Center	Sep 1970 - Jun 1974

PUBLICATIONS

Epstein R, Cole R, Hunt KK. Pleural effusion secondary to pulmonary cryptococcosis. Chest 61:296-298, 1972.

Matthews JI, Molitor JT, Hunt KK. Pyrimethamine-induced leukopenia and thrombocytopenia in a patient with malaria and tropical sprue: Case report. Military Medicine 138:280-283, 1973.

Schwartz MI, Goldman AL, Roycroft DW, Hunt KK. Vascular invasion by chrondrosarcoma simulating pulmonary emboli. Am Rev Resp Dis 106:109-113, 1972.

Epstein RL, Hall RV, Gillespie JT, Hunt KK. Asymptomatic right lower thoracic nodule. Chest 62:741-742, 1972.

Hunt KK, Cole R. Cardiomegaly and pectus excavatum. Chest 64:511-512, 1973.

Hunt KK, Epstein RL. Pulmonary sarcoidosis simulating metastatic malignancy: Case report. Military Medicine 139:552-553, 1974.

Patterson JR, Blaschke TF, Hunt KK, Meffin PJ. Lidocaine blood concentrations during fiberoptic bronchoscopy. Am Rev Resp Dis 112:53-57, 1975.

Hunt KK, Enquist RW, Bowen TE. Multiple pulmonary nodules with central cavitation. Chest 69:529-530, 1976.

Tellis CJ, Hunt KK. Eosinophilic granuloma of the lung. Military Medicine 143:256-262, 1978.

Matthews JI, Torrington KG, Hunt KK. Superior vena cava syndrome. Am Rev Resp Dis 119:683-684, 1979.

Matthews JI, Hooper RG, Hunt KK. Hernia of foramen of Morgagni presenting as pleural mass. Southern Med J 72:1348-1349, 1979.

Beechler CR, Enquist RW, Hunt KK, Ward GW, Knieser MR. Immunofluorescence of transbronchial biopsies in Goodpasture's syndrome. Am Rev Resp Dis 121:869-872, 1980.

Spratling L, Hunt KK, Tellis CJ. Diagnosis of blastomycosis by transbronchial lung biopsy. Military Medicine 146:279-280, 1981.

Derderian SS, Rajagopal KR, Abbrecht P, Bennett LL, Doblar D, Hunt KK. High frequency positive pressure jet ventilation in bilateral bronchopleural fistulae. Critical Care Medicine 10:119-121, 1982.

Matthews JI, Hunt KK. Sarcoidosis - reversal of respiratory failure 21 years after onset of disease. Arch Int Med 144:168-170, 1984.

ABSTRACTS

Ward GW, Hunt KK, Evans R, Hase TS. Immunofluorescent techniques in examination of lung pathology. J Allergy and Clin Immunology 57:218, 1976.

Rajagopal KR, Abbrecht PH, Tellis CJ, Hunt KK. Hypercapnic and flow resistive loading responses in obstructive sleep apnea patients. Am Rev Resp Dis 123(4):188, 1981.

Rajagopal KR, Abbrecht PH, Derderian SS, Bennett LL, Doblar DD, Kahn RC, Ray C, Hunt KK. High frequency ventilation in bilateral broncho-pleural fistula. Am Rev Resp Dis 112(4):67, 1981.

LETTERS AND BOOK REVIEWS

Hunt, KK. The second-strength PPD test. NEJM 28:1326, 1971 (Letter).

Hunt KK. Post-cyclophosphamide pneumonitis. NEJM 287:668-669, 1972 (letter).

Hunt KK. Book review of Respiratory Physiology. Military Medicine 140:116, 1975.

Hunt KK. Book review of Broncho-Pulmonary Immunopathology. Military Medicine 143:178, 1978.

Hooper RG, Tellis CT, Hunt KK. Methodology in transbronchial lung biopsy. Chest 73:130, 1977 (letter).

Hunt KK. Book review of Recent Advances in Respiratory Medicine. Military Medicine 142:886, 1977.

Hunt KK. Book review of Pulmonary Emergencies. Military Medicine 143:551, 1978.

Hunt KK. Book review of Practical Points in Pulmonary Disease. Military Medicine 143:702, 1978.

Hunt KK. Book review of Respiratory Physiology II.Military Medicine 144:66, 1979.

Hunt KK. Book review of Lung Sounds. Military Medicine 144:202, 1979.

Hunt KK. Book review of Status Asthmaticus. Military Medicine 144:332, 1979.

Hunt KK. Book review of Pulmonary Tuberculosis, A Journey Down The Centuries. Military Medicine 144(6):424, 1979.

Hunt KK. Book review of Tuberculosis - Discussions in Patient Management. Military Medicine 144:807, 1979.

Hunt KK. Book review of Selected Papers in Respiratory Therapy. Military Medicine 144:822, 1979.

Hunt KK. Book review of Pulmonary Physiology in Clinical Medicine. Military Medicine 145:846, 1980.

Hunt KK. Book review of Manual of Clinical Problems in Pulmonary Medicine. Military Medicine 146:406, 1981.

Hunt KK. Book review of The Lung: Radiologic-Pathologic Correlations. Military Medicine 146:538, 1981.

Hunt KK. Book review of Obstructive Pulmonary Disease. Military Medicine 147:233, 1982.

Hunt KK. Book review of Clinical Pulmonary Medicine. Military Medicine 147:413, 1982.

Hunt KK. Book review of Manual of Acute Respiratory Care. Military Medicine 147:599, 1982.

Hunt KK. Book review of Pulmonary Diseases. Military Medicine 147:1017, 1982.

Hunt KK. Book review of Pulmonary Emergencies. Military Medicine 148:121, 1983.

Hunt KK. Book review of Problems in Pulmonary Medicine for the Primary Physician. Military Medicine 148:374, 1983.

Hunt KK. Book review of Chest Medicine. Military Medicine A27, 1983.

Hunt KK. Book review of Synopsis of Diseases of the Chest. Military Medicine 149:106, 1984.

CURRICULUM VITAE

NAME: CLARA L. ADAMS-ENDER RANK: Colonel

POSITION: Chief, Department of Nursing
Walter Reed Army Medical Center
Washington, D.C. 20307-5001

PERSONAL HISTORY:

EDUCATION:

INSTITUTION/PLACE	FROM/TO	MAJOR	DEGREE
• Command & General Staff College, Fort Leavenworth, Kansas	1975-1976	Military Art & Science	MMAS
• University of Minnesota Minneapolis, Minnesota		Med-Surg Nursing	MS
• NC Agricultural & Technical State University, Greensboro, North Carolina		Nursing	BS

MILITARY SERVICE SCHOOL	LOCATION	GRADUATION
• US Army War College	Carlisle Barracks, PA	1982
• USAREC Recruiting Commanders' Course	Ft Ben Harrison, IN	1981
• USAREC Recruiting Managers' Course	Ft Ben Harrison, IN	1981
• Personnel Management for Executives	DA Regional Training Center, Europe	1979
• Command & General Staff College	Ft Leavenworth, KS	1976
• Inspector General's Course	HQDA, Washington, DC	1976
• ANC Officer Advanced Course	Academy of Health Sciences, FSHTX	1964

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MILITARY SERVICE SCHOOL	LOCATION	GRADUATION
• Chief Nurses' Orientation Course	Academy of Health Sciences, FSHTX	1974
• Recovery Room & Intensive Care Surgical Nursing Course	Fitzsimons AMC, Denver, CO	1963
• ANC Officer Basic Orientation	Medical Field Service School, FSHTX	1961

PAST ASSIGNMENTS:

ORGANIZATION	LOCATION	POSITION	DATE
• Walter Reed Army Medical Center	Washington, DC	Ch, Dep Nurs	1984-Pres
• US Army Recruiting Command	Ft Sheridan, IL	Ch, ANC Div	1981-1984
• Frankfurt Army Regional Medical Center	Frankfurt, West Germany	Asst Ch and Ch, Dept Nurs	1978-1981
• HQ, Health Services Command	Fort Sam Houston, TX	Inspector General (IG)	1976-1978
• USAMEDDAC, Kimbrough Army Hospital	Fort Meade, MD	Asst Ch, Dept of Nursing	1974-1975
• WRAIN Center, University of Maryland	Washington, DC	Instructor/ Asst Prof	1969-1974
• US Army Medical Trng Cen	Fort Sam Houston, TX	Instructor	1965-1967
• 121st Evac Hospital	ASCOM, Korea	Staff Nurse	1963-1964
• Walson Army Hospital	Fort Dix, NJ	Gen Duty Nurse	1961-1963

ACADEMIC APPOINTMENTS:

Adjunct Assistant Professor	Georgetown Univ School of Nursing, Washington, DC	1985-Pres
Assistant Professor	WRAIN Center, Univ of MD School of Nursing	1971-1974
Instructor	WRAIN Center, Univ of MD School of Nursing	1969-1971

PROFESSIONAL ORGANIZATIONS:

The Retired Officers Association	1986-
Department of Army Speakers Bureau, Public Affairs Office	1986-
National Association for Female Executives, Inc.	1986-Pres
Member, Drug and Alcohol Nurses Assn. (DANA)	1985-Pres
ANA Council of Nursing Administration	1985-Pres
Chairperson, Impaired Nurse Committee, DC Nurses Assn.	1985-Pres
Member, Legislative Committee, DC Nurses Assoc.	1984-Pres
American Nurses' Foundation Century Club	1982-Pres
Retired Army Nurse Corps Association	1981-Pres
American Red Cross Nurse (#33046)	1981-Pres
American Organization of Nurse Executives	1980-Pres
Federal Women's Program	1977-Pres
Association of US Army	1976-Pres
National League for Nursing	1973-Pres
Chi Eta Phi Sorority, Inc.	1972-Pres
Foundation of Thanatology	1970-Pres
Sigma Theta Tau Honor Society	1968-Pres
American Nurses Association	1962-Pres

COMMUNITY ORGANIZATIONS & ACTIVITIES:

PUBLICATIONS:

"Answers to Questions About Army Nurse Recruiting," All Volunteer, February 1984.

"Nurse Salaries", Recruiter Journal, May 1984.

"Identity Crisis and Dilemmas in Ambulatory Health Care Delivery", Medical Bulletin, January/February, 1982.

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PUBLICATIONS:

"Development of Clinical Head Nurses as Managers of Nursing Care", Medical Bulletin, June 1981.

"Department of Nursing Support to Ambulatory Care - Issues, Dilemmas and Proposed Solution", Medical Bulletin, September 1980.

"The Role of the Nurse in the Maintenance and Restoration of Hope", Bereavement: Its Psychosocial Aspects, ed. Schoenberg, et al., New York: Columbia University Press, 1975, (Co-author).

Attitudes Toward Fear of Death and Dying Among Army Officers, Defense Documentation Center, Department of Army Washington, DC 1976.

HONORS:

- Awarded the "A" professional designator by TSG for continued demonstration of exceptional ability in the field of Nursing Administration in June 1985.
- First black ANC Officer to graduate from the US Army War College (USAWC) in 1982.
- First nurse and female to qualify and serve as Senior Marcher for 700 USAREUR soldiers in the four-day, 100-mile Nujmegen March, Nijmegen, Holland in July 1980.
- First nurse, black and female to be awarded the Master of Military Art and Science Degree, CGSC, Fort Leavenworth, Kansas 1976.
- ANC selectee to attend Command & General Staff College (CGSC) in 1975.
- First female in Army to qualify and be awarded the Expert Field Medical Badge in July 1967.
- Secondary zone promotions to Major, Lieutenant Colonel and Colonel.

AWARDS AND DECORATIONS:	YEAR
The World Who's Who of Women	1986
Black Nurse of the Year	1985
Who's Who in American Nursing	1984
Certificate of Achievement - University of MN Distinguished Grad	1984
Roy Wilkins Meritorious Service Award of the NAACP	1983
Meritorious Service Medal w/3OLC	1982
Omega Psi Phi Fraternity's Citizen of the Year	1981
Presidential Sports Award - Backpacking	1980
Meritorious Service Medal w/2OLC	1978
Female Athlete of the Year, CGSC	1976
Meritorious Service Medal	1974
Cum Laude Graduate University of Minnesota	
Personality of the South	1969
Outstanding Young Woman of America	1968
Army Commendation Medal	1967

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CONSULTANT POSITIONS:

- Member, Visiting Committee, Frances Payne Bolton SON, Case Western Reserve University, Cleveland, OH — 1985-Pres
- Nurse Consultant, WRAMC Health Services Region — 1984-Pres
- Specialty Consultant, Medical-Surgical Nursing, 7th MEDCOM — 1978-1981
- Chief Nurse, 32nd Combat Support Hospital, 7th MEDCOM — 1978-1979
- Member of Editorial Board, Foundation of Thanatology — 1970-1978
- Nurse Consultant to Children's TV Workshop, NY
- Consultant to Chief, ANC on Recruitment & Retention of Minority Students in Nursing — 1972-1975

PROFESSIONAL PRESENTATIONS:

SUBJECT/TITLE	AUDIENCE/LOCATION	DATES
"Responsibilities of Nurse Administrators in Staff Education about the Impaired Nurse"	DCNA Conference on Impaired Nurses in the Workplace Washington, D.C.	Nov 1986
"Mentoring Relationships -- Toward Excellence in Nursing Practice	NSNA Mid Year Conference Louisville, KY	Nov 1986
"Pathways to Power"	DC Nurses Association Continuing Education Workshop Washington, D.C.	Nov 1986
"Cultural Diversity in Nursing Practice"	Keynote Speaker Michigan Nurses Association Convention	Oct 1986
"Ethical Issues in Nursing - Allocation of Scarce Resources"	Ethical Issues Workshop George Washington University SON Washington, D.C.	Oct 1986
"Contributions of Federal Women to Defense"	Women's Equality Day Ft. Leavenworth, KS	Aug 1986
"Professional Excellence: A Challenge for Federal Women"	Federal Womens Program Ft. Gordon, GA	Mar 1986
Achieving Excellence - A Challenge for Federally Employed Women	Federal Women's Program CECOM, Ft. Monmouth, NJ	

PROFESSIONAL PRESENTATIONS:

SUBJECT/TITLE	AUDIENCE/LOCATION	DATES
• "Utilizing the Nursing Process in Nursing Management"	Graduate Students, Georgetown University SON, Wash, DC	Feb 1985
• Managing Complex Health Care Systems/Organizations	Graduate Students, Georgetown University SON, Wash, DC	Feb 1985
• Research Paper- "Attitudes Toward Fear of Death and Dying Among Army Officers"	Nurse Educators/Graduate Students, Cal State Univ, Long Beach CA	Mar 1985
• "Challenges of the Army Officer in the year 2000"	Keynote Speaker, ROTC Ball, Morgan State Univ, Balt., MD	May 1985
• Achieving Excellence in Nursing Practice Through the Mentoring Process	Prof Nurses/NAACOG Convention, New Orleans LA	Jun 1985
• "The Role of the Supervisor in Management"	Level I Supervisors Course WRAMC, Wash, DC	Jun 1985
• Getting Ready for Success in Life	Eastern Star Chapter, Waukegan, IL	Mar 1984
• Nursing Career Opportunities in the Army Nurse Corps	Nurse Educators Boston, MA	Mar 1984
• Preparing for Nursing Excellence Towards the Year 2000	Central Carolina Chapter of BNA, Durham, NC	Apr 1984
• Management of Nursing Practice in a Major Medical Center	Nurse Educators, Washington, DC	Jun 1984
• The Army Nurse Corps-- An Opportunity for Excellence in Nursing Practice	Nurse Educators/ Washington, DC	Feb 1983
• What are Qualities for Success in the Workplace?	Chicago Federal Womens Program, Chicago, IL	May 1983
• Marketing the US Army Reserve for ANC Officers	USAR Chief Nurses/ St. Louis, MO	Jun 1983
• ANC Opportunities in the US Army Reserve	Professional Nurses/ Cleveland, OH	Sep 1983
• A Career of Excellence in the Army Nurse Corps	Nurse Educators and Students, Omaha, NE	Nov 1983

PROFESSIONAL PRESENTATIONS:

SUBJECT/TITLE	AUDIENCE/LOCATION	DATES
• Preparation for Excellence in Nursing Practice	Connecticut Student Nurses Association Convention, Danbury, CT	Nov 1983
• Nursing Opportunities in the Army Nurse Corps	Nurse Educators/ San Francisco, CA	Mar 1982
• Ingredients of a Successful Person	Federal Womens Program	May 1982
• Who am I? Where Am I Going?	Nurse Educators/ Washington, DC	Jun 1982
• Implementation of ANC Standards of Nursing Practice	Army Nurse Corps Executives/ HQ 7th MEDCOM, Heidelberg, FRG	Jun 1980
• Identity Crisis and Dilemmas In Ambulatory Health Care Delivery	Ambulatory Patient Care Conf Garmisch, West Germany	Dec 1980

SHORT COURSES, WORKSHOPS AND CONFERENCES:

TITLE	LOCATION	DATE
First National Conference on Alcohol and Drug Abuse Prevention	Washington, DC	1986
Ethical Dilemmas in Nursing Practice for Nurse Executives	Fairfax, VA	1986
Application of Ethical Principles to Nursing Practice	Washington, DC	1986
Army Nurse Corps Professional Development Conference	Washington, DC	1986
Investment in Excellence	Washington, DC	1986
Army Nurse Corps Strategic Planning Conference	Washington, DC	1985
Health Care Professionals Course on Alcoholism (Tri-Service Alcohol Rehabilitation Department)	Bethesda, MD	1985
Negotiating Skills (Amer Mtg Assn)	Washington, DC	1984
Health Services Command Chief Nurse Conference	San Antonio, TX	1984

SHORT CONFERENCES WORKSHOPS AND CONFERENCES:

TITLE	LOCATION	DATE
AMSUS Convention	San Diego, CA	1984
The National Commission on Nursing Recommendations: Challenges and Opportunities Under Prospective Pricing	Chicago, IL	1983
The New Payment Environment and Financial Management for the Nursing Service Administrator	Dallas, TX	1983
Army Nurse Corps Strategic Planning	Leesburg, VA	1983
Army Nurse Corps Strategic Planning	Nashville, TN	1982

SPECIALTY SKILLS

a. Proficiency in German - Moderate
b. Proficiency in Spanish - Beginner
c. [ ]

HOBBIES:

[ ]

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Updated 15 Apr 86

CURRICULUM VITAE

NAME: Gary Bruce Clark, M.D.

DATE/PLACE OF BIRTH:

MARRIED:

SOCIAL SECURITY NUMBER:

HOME ADDRESS:

CURRENT PROFESSIONAL APPOINTMENT:

Chief, Department of Pathology and
Area Laboratory Services
Walter Reed Army Medical Center
Washington, D.C. 20307-5001
(202) 576-1280
21 Oct 1985 - Present

Pathology Consultant
Office of the Surgeon General of the Army
1 Aug 1983 - Present

Clinical Associate Professor
Department of Pathology (Primary)
Department of Military Medicine (Secondary)
Uniformed Services University of the
Health Sciences
Bethesda, Maryland
19 May 1984 - Present

ACADEMIC EDUCATION:

Monroe High School
Monroe, Michigan

Undergraduate:

Bachelor of Science
University of Colorado
Boulder, Colorado

Postgraduate:

Doctor of Medicine
University of Colorado
Denver, Colorado

Master of Public Administration with Special
Elective in National Resources Management
George Washington University
Washington, D.C.

Internship:	Pediatrics Yale-New Haven Hospital New Haven, Connecticut July 1967 - July 1968
Residency:	Pathology (Anatomic/Clinical) Walter Reed Army Medical Center Washington, D.C. July 1971 - July 1975
Fellowship:	Neuropathology Department of Neuropathology Armed Forces Institute of Pathology Washington, D.C. February 1978 - February 1980
Subspecialty Symposia:	Mammalian and Human Medical Genetics Jackson Laboratory Bar Harbor, Maine 23 July - 3 August 1979
MEDICAL LICENSURE:	District of Columbia (No.7307), 1974-Present Colorado (No.20926), 1977-1983
BOARD CERTIFICATION:	American Board of Pathology Anatomic Pathology - May 1978 Clinical Pathology - May 1978 Neuropathology - May 1980

MILITARY HISTORY

Commission:	U.S. Army - Reserve - 14 August 1967 U.S. Army - Regular - 31 January 1980
Rank:	Colonel - 4 August 1980
Occupational Specialty Designation:	A61U, 27 June 1985
Training:	U.S. Army Medical Field Service School Fort Sam Houston, Texas August 1967
	U.S. Army Infantry School (Airborne) Fort Benning, Georgia September 1968
	U.S. Army Special Warfare School Fort Bragg, North Carolina October - December 1968
	Armed Forces Staff College (Class #62) Norfolk, Virginia August 1977 - January 1978

U.S. Army AMEDD Advanced Officers Course
By Correspondence
July 1980 - February 1983

Industrial College of the Armed Forces (Class '85)
Washington, D.C.
August 1984 - June 1985

U.S. Army Flight Surgeons School
Fort Rucker, Alabama
August - September 1985

Awards and Honors:

Purple Heart, November 1969
Bronze Star Medal, February 1970
Bronze Star Medal, First Oak Leaf Cluster February 1970
Bronze Star Medal, Second Oak Leaf Cluster with V Device, May 1970
Air Medal, July 1970
Bronze Star Medal, Third Oak Leaf Cluster September 1970
Silver Star, November 1970
Army Commendation Medal, January 1972
Meritorious Service Medal, November 1977
Humanitarian Service Medal, January 1979
Joint Services Commendation Medal, January 1981
Military Order of Medical Merit, November 1982
Meritorious Service Medal, First Oak Leaf Cluster, July 1983
Meritorious Service Medal, Second Oak Leaf Cluster, September 1984
Joint Chiefs of Staff Award, Industrial College of the Armed Forces, June 1985

Foreign Awards and Honors:

Vietnamese Parachutist Wings, May 1969
Vietnamese Cross of Gallantry with Silver Star, March 1970
Greek Parachutist Wings, April 1971
Danish Parachutist Wings, May 1971

PRIOR PROFESSIONAL APPOINTMENTS:

Orthopedic Orderly
Denver City Hospital
Denver, Colorado
June - September 1960

Research Assistant in Neuroembryology
University of Colorado
Boulder, Colorado
June - September 1961

Research Virologist in Pediatrics
University of Colorado Medical School
Denver, Colorado
(Including three months at National Institute of Infections Disease and Allergy, Bethesda MD)
September 1964 - September 1965

Battalion Surgeon (General Medical Officer)
U.S. Army First Special Forces
5th Special Forces Group
Ban Me Thuot, Republic of Viet Nam
February 1969 - July 1970

Battalion Surgeon (General Medical Officer)
U.S. Army First Special Forces
Special Forces Detachment (Abn), Europe
Bad Toelz, Federal Republic of Germany
July 1970 - July 1971

Chief of Pathology/Chief of Professional Services
Operation New Arrivals, 47th Field Hospital
Fort Chaffee, Arkansas
April - June 1975

Chief of Pathology/Chief of Professional Services
Bassett Army Hospital
Fort Wainwright, Alaska
August 1975 - July 1977

Command Surgeon
Joint Readiness Exercise JACK FROST
172nd Infantry Brigade
Fort Wainwright, Alaska
January 1977

Acting Chairman, Department of Pediatric Pathology
Armed Forces Institute of Pathology
Washington, D.C.
1 July 1979 - 18 February 1980

Registrar, Registry of Pediatric Pathology/Medical Genetics
American Registry of Pathology
Armed Forces Institute of Pathology
Washington, D.C.
1 July 1979 - 18 February 1980

Staff Pathologist, Department of Neuropathology
Armed Forces Institute of Pathology
Washington, D.C. 20306
2 February 1980 - 15 July 1980

Commander
209th General Dispensary
Hanau, Federal Republic of Germany
16 July 1980 - 30 June 1981

Command Surgeon
VII Corps
Stuttgart, Federal Republic of Germany
15 June 1981 - 15 July 1983

Command Surgeon
LOGEX 1981
Fort Pickett, Virginia
7 - 15 August 1981

Blood Bank Consultant
7th Medical Command
Heidelberg, Federal Republic of Germany
23 October 1981 - 15 July 1983

Chairman
Department of Pathology & Area Lab Svcs
Walter Reed Army Medical Center
Washington, D.C. 20307
1 August 1983 - 5 August 1984

PRIOR ACADEMIC APPOINTMENTS:

Instructor in Neuropathology
University of Alaska School of Medicine
Fairbanks, Alaska
August 1976 - August 1977

Assistant Professor of Pathology
Uniformed Services University of
the Health Sciences
Bethesda, Maryland
August 1978 - August 1980

ORGANIZATIONAL MEMBERSHIP:

College of American Pathologists (Fellow)
American Society of Clinical Pathology (Fellow)
American Association of Blood Banks
International Academy of Pathology
Society of Pediatric Pathology
Society of Armed Forces Medical
Laboratory Scientists
Washington Society of Pathologists
Canadian Association of Neuropathologists
American Association of Military Surgeons
Paleopathology Association

ORGANIZATIONAL OFFICES:

American Association of Blood Banks
Inspection and Accreditation Program
Inspector: 1977 - Present
National Membership Committee
Member: 1979 - 1984
Chairman: 1985 - Present

ORGANIZATIONAL OFFICES (cont):

College of American Pathologists
Inspection and Accreditation Program
Inspector: 1980 - Present
First Deputy Commissioner for Overseas Laboratories: January 1982 - July 1983
House of Delegates
Delegate: 1983 - Present

Society of Armed Forces Medical Laboratory Scientists
Board of Directors: August 1983 - Present
Editor of Proceedings of SAFMLS: March 1987 - Present

ELECTED SOCIETIES:

Alpha Epsilon Delta (Pre Med), 1960
Phi Sigma Society (Biological Sciences), 1962
American Alpine Club (Mountaineering), 1981
Pi Alpha Alpha (Public Administration), 1986

PROFESSIONAL PRESENTATIONS:

Course Co-Director (with Dr. Herbert Polesky)
Frozen Blood: Theory and Applications
American Society of Clinical Pathologists
October 1974, Washington, D.C.
May 1975, Las Vegas, Nevada
October 1975, Chicago, Illinois
May 1976, Dallas, Texas

Course Director
Pediatric Pathology for General Pathologists
Armed Forces Institute of Pathology
5 - 9 November 1979

Course Director
Pathology of Genetic Disease
Armed Forces Institute of Pathology
11 - 15 February 1980

Conference Director
VII Corps AMEDD Conference
Stuttgart, Federal Republic of Germany
11 February 1982 (Ist Annual)
11-12 February 1983 (IInd Annual)

PUBLICATIONS:

Abstracts: The Effect of Cortisone on Inflammation in Rabbits; Clark, G.B. and Fulginite, V.; Fed Proc Abstracts, 1965.

Texts: Polesky, H.F.; Clark, G.B.; and Radcliffe, J.H.: Frozen Blood - Theory and Applications, ASCP Workshop Handbook, 1974.

Clark, G.B., LTC; General Pediatric Pathology, Part III (Syllabus); Armed Forces Institute of Pathology, Washington, D.C., 1981.

Journals: 1. Shatsky, S.A.; Alter, W.A.; Evans, D.E.; Armbrustmacher, V. and Clark, G.: Traumatic Distortions of the Primate Head and Chest: Correlation of Biomedical, Radiological and Pathological Data; 18th Stapp Car Crash Cong., 1974.

2. Clark, G.B.: Frozen Blood: Laboratory Techniques and Clinical Utilization; Current Concepts in Pathology; William Beaumont Army Medical Center, 1974.

3. Spees, E.K.; Pool, P; Sullinger, W.O.; Clark, G.B.; Passerti, F.A.; Sperry, D.; Woodbury, M.A.; Amos, D.B.: HLA Genetic Structure of an Eritrean Semitic Group. In Kissmeyer-Nielson, F., Ed.; Histocompatibility Testing, Copenhagen, Munksgaard, p. 213, 1975.

4. Clark, G.B.: Petroleum, Petrochemicals and Health Care: Energy Issues in Health, DHEW Publication No. (HRA)79-14510 (1979).

5. Clark, G.B. and Cline, B.: Impact of Oil Shortage on Medical Plastics; Public Health Reports, May-June 1981.

6. Clark, G.B.: Sick Call by Appointment - One Way to Help a General Dispensary Feel Better; Medical Bulletin, 7th Medical Command, 39:13, 1982.

7. Clark, G.B.: La Medecine dans Les Forces Speciales Americaines; Medecine et Armees 10:229-230, 1982.

8. Spees, E.K.; Clark, G.B.; Smith, M.T.: Are Anencephalic Neonates Suitable as Kidney and Pancreas Donors?; Transplantation Proceedings VOL XVI, No. 1, p. 57-60, Feb 84.

9. Clark, G.B.; Henry, J.M.; McKeever, P.: Correlation of the Histology and Clinical Prognosis of Pilocytic Astrocytomas of the Cerebrum; Cancer 56:1128-1133, 1985.

10. Beaty, J.R.; Brady, R.E.; Clark, G.B.; Coronado, D.A.; Harris, G.S.; Hix, W.M.; Moscato, J.J.; Noll, J.B.; Sandidge, W.M.; Scofield, T.C.; Sholdt, L.L.: Planning for the Mobilization of the Nation's Medical Resources, National Defense University Press, Ft Lesley J. McNair, Washington, D.C., 1985.

11. Rueda Pedraza, M.E.; Heifetz, S.A.; Sesterhenn, I.A.; Clark, G.B.: Correlation of the Histology of Intracranial Teratomas and Antigen Markers for Germ Cell Elements; Perspectives in Pediatric Pathology (accepted for publication for 1986).

12. Clark, G.B.; Spees, E.K., Smith, M.T.: Systemic Pathology of Anencephaly and Allograft Implications (to be submitted).

13. Gaydos, J.C.; Cowan, D.N.; Polk, A.J.; Clark, G.B.; Steward, K.R.; Jones, R.V.; Henry, J.M.: Errors in the Recorded Blood Groups and Types of US Army Soldiers in Europe (to be submitted).

Posters: Henry, J.; Clark, G.B.; McKeever, P.: Cerebral Pilocytic Astrocytoma - A New Entity: IXthInternational Congress on Neuropathology, Vienna, Austria, 5-10 September 82.

CURRICULUM VITAE

NAME: Raoul O. Hagen

DATE AND PLACE OF BIRTH: [ ]

PREMEDICAL EDUCATION: B.A., University of Iowa, [ ]

MEDICAL EDUCATION:

School: M.D., Univ. of Iowa Medical School, [ ]

Internship: Rotating, St. Benedict's Hospital, Odgen, Utah
1 July 1958 - 30 June 1959

Residency: Radiology, Tripler Army Hospital, 1963-1965
Radiology, Walter Reed General Hospital, 1965-1966

MILITARY ASSIGNMENTS:

Clinical Clerk, Letterman General Hospital, July-September 1957.

Army Senior Medical Student Program, Iowa City, Iowa, September 1957-June 1958

General Medical Officer, Prison doctor, Dermatologist, and Flight Surgeon,
Fort Leavenworth, Kansas, 1959-1963

Radiologist and Chief, Radiation Therapy Service, Department of Radiology
Brooke General Hospital, 1967-1968

Chief of Radiology, 93rd Evacuation Hospital, Vietnam
September 1968 - September 1969

Chief, Professional Services, 93rd Evaluation Hospital, Vietnam
1 March - 1 September 1969

Consultant in Radiology, USARV
June-August 1969.

Radiologist, Brooke General Hospital
September 1969 - July 1970

Chief, Department of Radiology, Brooke Army Medical Center
July 1970 - June 1979

Radiology Consultant to Health Services Command
1975 - June 1979

Radiology Consultant to The Surgeon General
January 1978 - July 1982

Chief, Department of Radiology, Tripler Army Medical Center
July 1979 - August 1984

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Chief, Department of Radiology, Walter Reed Army Medical Center
September 1984 - present

Radiology Consultant to The Surgeon General
September 1984 - present

ACADEMIC APPOINTMENTS:

Clinical Instructor, University of Texas Health Science Center, San Antonio
1967

Clinical Assistant Professor, University of Texas Health Science Center,
San Antonio, 1968-1970

Clinical Associate Professor, University of Texas Health Science Center,
San Antonio, 1970-1974

Clinical Professor, University of Texas Health Science Center, San Antonio
1 September 1974 - June 1979

Associate Clinical Professor, University of Hawaii, John A. Burns School of
Medicine, Honolulu, HI, 1982 - 1984

PROFESSIONAL ORGANIZATIONS:

American College of Radiology
Radiological Society of North America
Long Binh Radiological Society

BOARD CERTIFICATION:

American Board of Radiology, December 1967

HONORS:

Prefix "A" in Radiology
Who's Who in Texas
Who's Who in the South and Southwest
Recipient, Magna Cum Laude Award, Radiological Society of North America,
1971, for scientific exhibit
Elected a Fellow, American College of Radiology, 1981

LICENSURE:

Texas
California
Iowa

PUBLICATIONS:

Gastric bezoars: A frequent complication in the postoperative ulcer patient. Radiology, 197:341-344, May 1973.

Carcinoma of the testis: An analysis of 104 patients with germinal tumors of the testis other than seminoma. Cancer, 31:633-640, March 1973.

Scientific exhibit on "Multisystem radiographic analysis of complications in thermally burned patients", Radiological Society of North America, 1971.

CURRICULUM VITAE

NAME: Albert Yuen, M.D.

HOME ADDRESS: [redacted]

OFFICE ADDRESS: Department of Radiation Oncology
Walter Reed Army Medical Center
Washington, D.C. 20307
202-576-1180

BIRTHDAY AND BIRTHPLACE: [redacted]

MARITAL STATUS: [redacted]

SOCIAL SECURITY NUMBER: [redacted]

EDUCATION:

B.S. Materials Engineering
Rensselaer Polytechnic Institute
Troy, New York

M.S. Materials Science
Rensselaer Polytechnic Institute
Troy, New York

Doctor of Medicine
Albany Medical College
Albany, New York

1980-1981 Internship
Brooke Army Medical Center
Fort Sam Houston, Texas

RESIDENCY: 1981-1984 Radiotherapy
M.D. Anderson Hospital and Tumor Institute
Houston, Texas

BOARD CERTIFICATION:

1981 National Board of Medical Examiners
1984 American Board of Radiology in Therapeutic Radiology

CURRENT LICENSE: New York State, No. 153015
Maryland, No. D31759

PROFESSIONAL SOCIETIES:

American College of Radiology
American Society of Therapeutic Radiology and Oncology
American Society of Clinical Oncology
Gilbert H. Fletcher Society
M.D. Anderson Associates

HONORARY SOCIETIES: Tau Beta Pi 1970 (Engineering)
Alpha Sigma Mu 1971 (Materials Science)

PUBLICATIONS: Yuen A, Medina J E, Goepfert H, and Fletcher G H. Management of Stage T3 and T4 Glottic Carcinomas, American Journal of Surgery, 148:467-472, 1984

DOUGLAS VAN NOSTRAND
CURRICULUM VITAE

Date of Birth	[ ]
Place of Birth	

EDUCATION

High School	The Lawrenceville School Lawrenceville, New Jersey 1962-1965
Undergraduate	Duke University, Durham, North Carolina Degree: BS [ ]
Postgraduate	Emory University School of Medicine Atlanta, Georgia Degree: M.D. [ ]
Internship	Wilford Hall Medical Center San Antonio, Texas Internal Medicine Director: Gerald Parker, M.D. 1973-1974
Residency	Wilford Hall Medical Center San Antonio, Texas Internal Medicine Director: Charles Coltman, M.D. 1974-1976
Fellowship	National Naval Medical Center Bethesda, Maryland Nuclear Medicine Director: Peter T. Kirchner, M.D. 1976-1978
Diagnostic Ultrasound Training Program	Thomas Jefferson University Philadelphia, Pa Trainee - 3 month course Director: Barry Goldberg, M.D. 1977

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Douglas Van Nostrand
Curriculum Vitae

BOARD CERTIFICATION

Diplomate of National Board of Medical Examiners:	Number 148723, July 1, 1974
Diplomate of American Board of Internal Medicine:	Number 55825, June 16, 1976
Diplomate of American Board of Nuclear Medicine:	Number 04406, Sept. 30, 1978

PRESENT POSITION

Chief, Division of Nuclear Medicine	Walter Reed Army Medical Center Washington, D.C. July 1980 to present Lt Colonel

APPOINTMENTS

Associate Professor of Clinical Radiology	Department of Radiology and Nuclear Medicine Uniformed Services Univ of Health Sciences Bethesda, Maryland 14 January 1980 to present
Assistant Clinical Professor	Department of Radiology George Washington University Washington, D.C. July 1981 to present

PREVIOUS POSITIONS

Chief, Division of Nuclear Medicine	Malcolm Grow Medical Center Andrews Air Force Base Washington, D.C. June 1978 - June 1980
Chief, Division of Ultrasound	Malcolm Grow Medical Center Andrews Air Force Base Washington, D.C. June 1978 - June 1980
United States Air Force	Commissioned June 1969 (Active Duty from June 1973 to July 1980)
United States Army	Interservice Transfer, July 1980 (Active Duty from July 1980 to present)

Douglas Van Nostrand
Curriculum Vitae

HONORS

United States Air Force Commendation Medal	January 5, 1981
Fellow, American College of Physicians	September 5, 1985
"A" Professional Designator Award, United States Army	September 23, 1986

LICENSES

State of Maryland	Number 321922, March 15, 1978
District of Columbia	Number 12489, October 1980

SOCIETIES

Society of Nuclear Medicine
American College of Physicians
American College of Nuclear Physicians
Radiological Society of North America

SERVICES

Member, Clinical Investigation Committee	1980-1985
Member, Radiation Control Committee	1980-
Chairman, Radiation Human Use Subcommittee	1980-
Member, Radioactive Drug Research Committee	1980-1984
Chairman, Radioactive Drug Research Committee	1984-
Alternate Delegate to the American College of Nuclear Physicians	1983-1985
U. S. Army Delegate to the American College of Nuclear Physicians (ACNP)	1985-
Member, Practice Management and Economics Committee (credentials) of ACNP	1986-

PRESENTATIONS

D. Van Nostrand, M.D., W.R. Janowitz, M.D., D.R. Holmes, M.D., H.A. Cohen, M.D., "Accuracy of Radionuclide Multiple Gated Acquisition (MUGA) in the Assessment of Myocardial Wall Motion."

- World Federation of Nuclear Medicine and Biology, Second International Congress, September 1978.

- Society of Nuclear Medicine, Mid-Eastern Chapter, Eighth Annual Meeting, April 1978.

- American College of Physicians, Society of the Air Force Physicians, February 1978.

- American Heart Association, 51st Scientific Session, October 1978.

D. Van Nostrand, M.D., W.R. Janowitz, M.D., H.R. Adams, M.S., P.T. Kirchner, M.D., "Comparison of Tc-99m Methylene Diphosphonate (MDP) and Tc-99m Pyrophosphate."

- Society of Nuclear Medicine, Mid-Eastern Chapter, Seventh Annual Meeting, March 1977

D. Van Nostrand, M.D., P.J. Murphy, M.D., N. Holland, M.D., C.C. Atkins, M.D., F.H. Gerber, M.D., "Efficacy of Postoperative Bone Scanning in the Management of Breast Carcinoma."

- American College of Physicians, Society of the Air Force Physicians, March 1979.

- Society of Nuclear Medicine, Mid-Eastern Chapter, Ninth Annual Meeting, April 1979.

- American Roentgen Ray Society Annual Meeting
  April 1980.

D. Van Nostrand, M.D., "Gallium Scanning in the Detection of Abdominal Abscesses."

- American College of Surgeons, Spring Surgical Symposim, Walter Reed Army Medical Center and Uniformed Services of Health Sciences
  April 1981.

D. Van Nostrand, M.D., "I-131 Chest Survey and Metastatic Thyroid Carcinoma."

- Walter Reed Radiological Symposium, May 1981.

M.H. Goldman, M.D., N. Ward, M.D., F. Shawl, M.D., D. Van Nostrand, M.D., "Multiple Cardiac Sequellae of Nonpenetrating Chest Trauma: Noninvasive Assessment and Management."

- Army Association of Cardiology, Brooke Army Medical Center, May 1981.

J. Garcia, M.D., D. Van Nostrand, M.D., W.H. Howard, M.D., R.W. Kyle, B.S., "Spectrum of 67-Gallium Renal Activity in Patients with No Evidence of Renal Disease."

- Society of Nuclear Medicine, Mid-Eastern Chapter, Thirteenth Annual Meeting, April 1983.

R.C. Smallridge, M.D., M.H. Goldman, M.D., K. Raines, M.D., D. Van Nostrand, M.D., "Left Ventricular Function in Hyperthyroidism: Studies Using Radionuclide Angiography."

- Army Association of Cardiology, Dwight Eisenhower Army Medical Center, May 1983.

S.J. Raible, M.D., M.S. Schaaf, M.D., W.J. Oetgen, M.D., D. Van Nostrand, M.D., "Acromegaly and the Heart: Evaluation of Cardiac Function by Radionuclide Angiocardiography."

- Thirteenth Annual Session of the Association of Army Cardiology 18-20 April 1984

J.A. Kark, D. Van Nostrand, J.A. Key, et. Al., "Effects of Attitude Hypoxia on Blood Flow in the Spleen and Lungs of Men with Sickle Cell Trait,"

- American Society of Hematology, 26th Annual Meeting 1-4 December 1984

S. Shay, D. Eggli, D. Van Nostrand, L. Johnson, "Gastric Emptying of solid Food in Patients with Gastroesophageal Reflux,"

- Society of Nuclear Medicine 32nd Annual Meeting, 2-5 June 1985

D. Eggli, D. Van Nostrand, "The Role of Radionuclide Imaging in Training Injuries,"

- Training Associated Injuries Workshop, Walter Reed Army Institute of Research, 16-17 July 1985.

M. Schaff, S. Raible, D. Van Nostrand, I. Cohen, W. Oetgen, R. Smallridge, "Radionuclide Evaluation of Cardiac Function in Acromegaly Evidence for an Acromegalic Cardiomyopathy".

-Acromegaly Centennial Symposium, 29 June-1 July 1986.

BOOK REVIEWS

"Nuclear Medicine, Focus on Clinical Diagnosis", Military Medicine, 146:716, 1981.
"Clinical Nuclear Medicine", Military Medicine, 146:876, 1981.
"1982 Yearbook of Nuclear Medicine", Military Medicine, 147:872, 1982.
"Introductory Physics of Nuclear Medicine," Military Medicine, 148: 23, 1984.
"1983 Yearbook of Nuclear Medicine," Military Medicine, 149: 11, 1984.
"Current Topics in Tumor Cell Physiology and Positron-Emission Tomography, "Clin Nuc Med, 10:316, 1985
"1986 Yearbook of Nuclear Medicine, "Military Medicine" in press.

ABSTRACTS/PAPERS/BOOK CHAPTERS

D. Van Nostrand, M.D., W.R. Janowitz, M.D., H.R. Adams, M.S., P.T. Kirchner, M.D., "Comparison of Tc-99m Methylene Diphosphonate (MDP) and Tc-99m Pyrophosphate." Medical Imaging, Abstract, September 1977.

W.R. Janowitz, M.D., D. Van Nostrand, M.D., D.R. Holmes, M.D., Lt Cmdr H. Cohen, "Evaluation of Segmental Left Ventricular Wall Motion by Multiple Gated Radionuclide Angiography", Circulation, Abstract, Vols. 57 and 58, Supplement II, pp II-9, October 1978.

D. Van Nostrand, M.D., W.R. Janowitz, M.D., D.R. Holmes, M.D., H.A. Cohen, M.D., "Evaluation of Segmental Left Ventricular Wall Motion by Multiple Gated Radionuclide Angiography", Catheterization and Cardiovascular Disease, Vol 5, No 3, pp 547-555, 1979.

D. Van Nostrand, M.D., R.C. Smallridge, M.D., "Thyroid Trapping of Technetium-99m During In Vivo Labeling of RBC's", J Nucl Med, 23:1146-1147, 1982.

D. Van Nostrand, M.D., J.H. Corley, R.W. Kyle, R.E. Stotler, "Utility of Selective Spleen Scintigraphy in Clarification of Equivocal Defects on Liver/Spleen Scan", J Nucl Med, 24:559-562, 1983.

S.M. Manier, M.D., D. Van Nostrand, M.D., "From 'Hot Spots' to Superscan;" Clin Nucl Med, 8:624-625, 1983.

S.M. Manier, M.D., D. Van Nostrand, M.D., "Gamut: Super Bone Scan", Semin Nucl Med, 14:46-47, 1984.

J.E. Garcia, M.D., D. Van Nostrand, M.D., W.H. Howard, M.D., R.W. Kyle, B.S., "The Spectrum of Gallium - 67 Renal Activity in Patients with No Evidence of Renal Disease," J Nucl Med, 25:575-580, 1984.

D. Van Nostrand, M.D., "Ascending Aortic Aneurysm", Clin Nucl Med, 9:357, 1984.

S.M. Manier, D. Van Nostrand, R.W. Kyle, "Primer and Atlas for Renal Transplant Scintigraphy, Part I," Clin Nucl Med, 10:52-62, 1985.

S.M. Manier, D. Van Nostrand, R.W. Kyle, "Primer and Atlas for Renal Transplant Scintigraphy, Part II," Clin Nucl Med, 10:118-133, 1985.

D. Van Nostrand, and E.B. Silberstein, "Therapeutic Uses of P-32," In: Nuclear Medicine Annual 1985, edited by L.M. Freeman, H.S. Weissman, Grune and Stratton, New York. pp 285-344, 1985.

J.A. Kark, D. Van Nostrand, J.A. Key, P.G. Tarassoff, J.J. Canik, H.C. Williams, R.C. Reba, D.M. Posey, C.J. Ruehle, and J.R. Burge, "Effects of Altitude Hypoxia on Blood Flow in The Spleen and Lungs of Men with Sickle Cell trait, Blood, 64: Supple 1, pp 49a, 1984. (abstract)

J. Neutze, D. Van Nostrand, W. Major, "Peritoneo-scintigraphy in Detection of Improper Placement of Peritoneal Catheter into Bowel Lumen Prior to Chromic Phosphate P-32 therapy: A Case Report," Clin Nuc Med 10: 777-779, 1985.

S.M. Manier, D. Eggli, P.W. Blue, D. Van Nostrand, "Diffuse Radioiodine Lung Uptake in Miliary Thyroid Carcinoma Metastasis," Clin Nuc Med 10: 872-873, 1985

S. Shay, D. Eggli, D. Van Nostrand, L. Johnson "Gastric Emptying of Solid Food in Patient with Gastroesophageal Reflux," J Nuc Med, 26: pp 71, 1985 (Abstract).

G. Graham, M.D., D. Van Nostrand, M.D., D. Eggli, M.D., J. Neutze, M.D., "Utility of Lateral Imaging in Rectosigmoid Bleeding," Clin Nuc Med, 10:298-299, 1985.

B. W. Booth, M.D., D. Van Nostrand, M.D., and G. M. Graeber, M.D., "Hypertrophic Osteoarthropathy (HPO) and Breast cancer. A Case Report and Review of HPO Associated with Non-Primary Intrathoracic Tumors," in press 1986.

D. Van Nostrand, M.D., J.E. Madewell, M.D., L.M. McNiesh, M.D., R.W. Kyle, B.S. CNMT, D. Sweet, M.D., "Radionuclide Bone Scanning in Giant Cell Tumor," J Nucl Med, Accepted for publication, 1986.

H.R. Terebelo, D.O., D. Van Nostrand, M.D., "Systemic Toxicity from Arteriovenous Shunting of Hepatic Artery Infusion Chemotherapy," Military Medicine 150: 552-554, 1985.

M. Schaaf, M.D., S. Raible, M.D., D. Van Nostrand, M.D., I. Cohen, M.D., W. Oetgen, M.D., R. Smallridge, M.D., "Radionuclide Evaluation of Cardiac Function in Acromegaly: Evidence for an Acromegalic Cardiomyopathy," in press in proceedings of Acromegaly Centennial (Abstract).

D. Van Nostrand, M.D., J. Neutze, M.D., F. Atkins, Ph.D, "Side Effects of 'Rational Dose' Iodine-131 Therapy for Metastatic Well-Differentiated Thyroid Carcinoma," J Nucl Med 27:1519-1527, 1986

D. Van Nostrand, M. D., S. Baum M. D., Eds., "Primers and Atlas of Clinical Nuclear Medicine", J. B. Lippincott Company, Philadelphia, in press, 1987

S. Manier, D. Van Nostrand, M.D., R. Kyle, S. Abreu, M. D. "Renal Transplant Scintigraphy," In: Primers and Atlases of Clinical Nuclear Medicine, Eds., D. Van Nostrand, M. D., S. Baum, M. D., J.B. Lippincott, Co, Philadelphia, in press, 1987.

S. Manier, M.D., D. Van Nostrand, M. D., F. Atkins, Ph.D, S. Y. Wu, M.D., "I-131 Neck and Chest Scintigraphy," Eds., D. Van Nostrand, M.D., S. Baum, M.D., Primers and Atlases of Clincial Nuclear Medicine, J. B. Lippincott, Co., Philadelphia, in press 1987.

CURRICULUM VITAE

for

GERALD M. CONNOCK, M.S.

Date & Place of Birth: [redacted]

Home Address: [redacted]

Home Telephone Number: [redacted]

Office Address: Health Physics Office
Walter Reed Army Medical Center
Washington, DC 20307-5001

Office Telephone Number: (301) 427-5104

Degrees:

M.S. - Medical Physics [redacted]
University of California, Los Angeles
Los Angeles, CA

B.A. - Anthropology [redacted]
University of Florida
Gainesville, FL

Professional Societies: Health Physics Society

Other Education and Training:

1987	Health Physics in Radiation Accidents Course REAC/TS, Oak Ridge Associated Universities Oak Ridge, TN
1986	International Conference on Non-Military Radiation Emergencies American Medical Association Washington, DC
1980 - 1983	USA Command and General Staff Officer Course Non-resident
1982	Laser and Microwave Hazards Workshop US Army Environmental Hygiene Agency Aberdeen Proving Ground, MD
1981	AMEDD Radiation Protection Officers Workshop US Army Environmental Hygiene Agency Aberdeen Proving Ground, MD

Ex 6

CONNOCK, Gerald M. (Continuation of Curriculum Vitae)

1981	US Army Medical X-Ray Survey Techniques Course Academy of Health Sciences, US Army Fort Sam Houston, TX
1981	Nuclear Hazards Training Course Interservice Nuclear Weapons School Sandia Base, NM
1980	Medical Effects of Nuclear Weapons Course Armed Forces Radiobiology Research Institute Bethesda, MD
1977	AMEDD Officer Advanced Course Academy of Health Sciences, US Army Fort Sam Houston, TX
1972	Essential Medical Training for AMEDD Aviators Fort Sam Houston, TX
1972	Rotary Winged Officers Course Fort Rucker, AL
1971	Battalion Surgeons Assistance Course US Army Medical Field Service School Fort Sam Houston, TX
1971	AMEDD Officer Basic Course US Army Medical Field Service School Fort Sam Houston, TX

Chronological Experience:

Oct 1985 - Present

Walter Reed Army Medical Center
Washington, DC 20307-5001
Health Physics Officer
Health Physics Office

Develop, direct and provide health physics services for WRAMC and its supported activities including USAMRIID, Ft. Detrick. Develop, review, and direct Health Physics Training programs. Organize, equip, train and direct the operations of the Radiological Advisory Medical Team. Serve as Executive Agent for the WRAMC Radiation Control Committee and for Nuclear Regulatory Licenses and DA Authorizations for the possession, storage, use and disposal of radioactive material at WRAMC and tenant activities. Provide interpretation and assure compliance with license conditions,

practices. Evaluated Department of the Army operational doctrine pertaining to medical operations in radiation environments, which affected the health of individuals and the environment within which AMEDD facilities and units operated. Further recommended concepts of operations for the employment of AMEDD units in ionizing and nonionizing radiation environments. Represented the command at numerous interservice and civilian meetings addressing ionizing and non-ionizing radiation protection.

Jan 1978 - Dec 1979

University of California, Los Angeles
Medical Physics Division
Student

Studied radiation protection, regulations, radiation biology, medical physics, radiopharmacology, nuclear medicine physics, and radiation therapy. Wrote a thesis dealing with Minimum Object Visibility on X-rays, a comparison between standard and high kilovoltage techniques. In addition, gave in-service physics training on imaging systems to nuclear medicine technologists.

Publications:

"Medical Operations in a Contaminated Environment," Symposium on Mission Accomplishment in an NBC Environment, American Defense Preparedness Association, 1980.

"Minimum Size Object Visibility on X-Rays Taken at 80 kVp and 240 kVp," UCLA, 1979 - (thesis).

federal laws, Army Regulations, and National Standards pertaining to ionizing and non-ionizing radiation. Advise the Commander, WRAMC, as Radiation Protection Officer, on all other matters pertaining to ionizing and nonionizing radiation hazards.

Sep 1984 - Oct 1985

Walter Reed Army Medical Center
Washington, DC 20307-5001
Chief, Operations Branch
Health Physics Office

Apr 1984 - Sep 1984

Walter Reed Army Medical Center
Washington, DC 20307-5001
Assistant Chief, Operations Branch
Health Physics Office

Supervise personnel in conduct of radiation protection surveys for radioisotope laboratories, X-ray units, radiotherapy procedures, emergency response, and shielding evaluations. Provide classes for medical personnel in ionizing radiation protection.

Jul 1983 - Mar 1984

US Army Medical Department Activity Panama
Ancon, Republic of Panama
Alternate Radiation Protection Officer
Health Physics Consultant

Assisted in the performance of radiation protection surveys for radioisotope laboratory, X-ray units, and emergency response. Assisted in the management and monitoring of a radiation film badge program. Provided advice on numerous radiation protection and procedural questions for medical staff and patients. Assisted in the preparation and submission of the renewal of the Department of the Army Radioactive Material Authorization.

Dec 1979 - Jul 1982

Academy of Health Sciences, US Army
Combat Developments and Health Care Studies Directorate
Fort Sam Houston, TX
Nuclear Medical Science Officer

Provided professional consultation and prepared operational concepts for the Commandant and his staff, both medical and non-medical personnel, concerning ionizing and nonionizing

30 August 1985

CURRICULUM VITAE

STOOPS, HOWARD CECIL, RPh

I. PERSONAL:

A.
B.
C.
D.

II. ACADEMIC AND PROFESSIONAL EDUCATION:

Duquesne University, Pittsburgh PA; B.S. Pharmacy

MAR 85 Triservices Nuclear Pharmacy Orientation Course

MAY 85 Safe Use And Handling Of Radioisotopes Course

JUL 85 Nuclear Pharmacy Extended Training Course

AUG 85 Advanced Nuclear Medicine Technologist Training Course

Military Education

JAN 80 - MAR 80 Medical Service Corps Officer Basic Course, Ft. Sam Houston TX

MAR 80 - APR 80 Medical Service Corps Pharmacy Officer Orientation Course Ft. Sam Houston TX

III. PROFESSIONAL LICENSE:

A. Registered Pharmacist, Certificate # RP-030846-L , Pennsylvania State Board of Pharmacy , September 1979

Ex 6

IV. PROFESSIONAL EXPERIENCE;

SEP 1985 to Present	Chief, Nuclear Pharmacy Department, Nuclear Medicine Service, Walter Reed Army Medical Center, Washinton, D.C.
SEP 1984 to SEP 1985	Nuclear Pharmacy Residency Course, Nuclear Medicine Service, Letterman Army Medical Center, Presidio of San Francisco, CA
APR 1982 to AUG 1984:	Chief Sterile Products, Inpatient Pharmacy Service Dwight David Eisenhower Army Medical Center, Ft. Gordon GA.
APR 1980 to MAR 1982:	Staff Pharmacist, Outpatient Pharmacy Service Dwight David Eisenhower Army Medical, Ft. Gordon GA.
SEP 1979 to DEC 1979:	Staff Pharmacist, Eckerds Drug Store Erie, PA

DEPARTMENT OF THE ARMY

CERTIFICATE OF TRAINING

This is to certify that

CPT HOWARD C. STOOPS

has successfully completed

SAFE USE AND HANDLING OF RADIOISOTOPES

29 April – 10 May 1985

AMA Category I Credits Assigned: 66 Hours

Given by Letterman Army Medical Center & Letterman Army Institute of Research
Presidio of San Francisco, California 94129
Cosponsor: The Surgeon General, Department of the Army, Washington, D.C.

Sheldon R. Kiser

SHELDON R. KISER, Ph.D.
Professor of Medical Physics
Program Director, LAMC

DEPARTMENT OF THE ARMY

This is to certify that

HOWARD C. STOOPS

has successfully completed

6F-H19, 18th Annual Triservices Nuclear Pharmacy Orientation Course

Universal Program Number: 185-602-85-02

Continuing Education Credit: 51.25 Contact Hours

11 March to 22 March 1985

Given at Letterman Army Medical Center
Presidio, SF, California 94129-6700

ALFRED W. GILL
LTC, MSC
Continuing Education Coordinator

"Academy of Health Sciences, Pharmacy Branch/, Medicine and Surgery Division, is approved by the American Council on Pharmaceutical Education as a provider of continuing pharmaceutical education."

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DEPARTMENT OF THE ARMY

FRTIFICATE OF TRAINING

This is to certify that

CPT HOWARD C. STOOPS

has successfully completed

NUCLEAR MEDICINE TECHNOLOGY REVIEW COURSE

26 - 30 August 1985

Robert J. Lull MD

ROBERT J. LULL, MD, COL, MC
Chief, Nuclear Medicine Service

en at LETTERMAN ARMY MEDICAL CENTER

DT, 1 OCT 70 EDITION OF 1 JUL 74 WILL BE USED

U.S. GPO: 1983—421-044/9065

CURRICULUM VITAE

for

DAVID E. HINTENLANG, PH.D.

Date & Place of Birth:

Home Address:

Home Telephone Number:

Office Address: Health Physics Office
Walter Reed Army Medical Center
Washington, DC 20307-5001

Office Telephone Number: (301) 427-5107

Degrees:

Ph.D. - Physics [ ]
Brown University
Providence, RI

M.Sc. - Physics [ ]
Brown University
Providence, RI

B.S. - Physics [ ]
Bucknell University
Lewisburg, PA

Other Education and Training:

1987 Nuclear Weapons Orientation Advanced Course
Interservice Nuclear Weapons School
Kirtland Air Force Base, NM 87117

1986 Health Physics in Radiation Accidents Course
Oak Ridge Associated Universities
Oak Ridge, TN 37831-0117

1986 Laser and Microwave Hazards Workshop
US Army Environmental Hygiene Agency
Aberdeen Proving Ground, MD

1985 Health Care Administrator's Logistics Development Course
Walter Reed Army Medical Center
Washington, DC 20307-5001

1985	Medical Effects of Nuclear Weapons Armed Forces Radiobiology Research Institute Bethesda, MD
1985	Nuclear Hazards Training Course Interservice Nuclear Weapons School Kirtland Air Force Base, NM
1985	US Army Medical X-Ray Survey Techniques Course Academy of Health Sciences, US Army Fort Sam Houston, TX
1984	AMEDD Officer Basic Course Academy of Health Sciences, US Army Fort Sam Houston, TX

Experience:

Jan 1985 - Present

Walter Reed Army Medical Center
Washington, DC 20307-5001
Assistant Health Physics Officer
Chief, Technical Services Branch
Health Physics Office

Develop, direct and provide health physics services for WRAMC and all tenant activities. Develop, review, and direct Health Physics Training programs. Organize, equip, train and direct the operations of the Radiological Advisory Medical Team. Serve as first line Executive Agent for the WRAMC Radiation Control Committee to administrate requirements of Nuclear Regulatory Commission Licenses and DA Authorizations for the possession, storage, use and disposal of radioactive material at WRAMC and tenant activities. Provide interpretation and assure compliance with license conditions, Federal Laws, Army Regulations, and National Standards pertaining to ionizing and nonionizing radiation. Advise the Commander, WRAMC, and Radiation Protection Officer, on all other matters pertaining to ionizing and nonionizing radiation hazards.

HINTENLANG, David E. (Continuation of Curriculum Vitae)

Publications:

Hintenlang, David E., and Bray, P. J., "NMR Studies of Boron Sulfide-Based Glasses," Journal of Non-Crystalline Solids, 69, 1985.

Bray, P. J., Hintenlang, D.E., and Mulkern, R. V., "NMR Studies of Fluoride and Fast Ion Conducting Glasses," Journal of Non-Crystalline Solids, 56, 1983.

Bray, P. J., Hintenlang, D. E., Lui, M. L., and Mulkern, "Recent NMR Studies of Oxide, Fluoride and Superionic Conducting Glasses," Glastechnische Berichte, 1983.

Bray, P. J., Lui, M. L., and Hintenlang, D. E., "NMR Studies of Structure and Ion Motion in Glasses," Proceedings for the Third Otto Schott Symposium of Glasses, 1982.

Bray, P.J., Gravina, S. J., Hintenlang, D. E., and Mulkern, R. V., "Nuclear Magnetic Resonance of Glasses," MAGNETIC Resonance Review, to be published.

Professional Membership:

American Physical Society
Sigma Xi
Health Physics Society
(Baltimore-Washington Chapter)
American Association for the Advancement of Science.

CURRICULUM VITAE

NAME IN FULL: Franklin Henry Top, Jr.

RANK, CORPS, COMPONENT: Colonel, Medical Corps, United States Army

SSAN: [redacted]

DOB: [redacted]

DATE ENTERED ACTIVE DUTY: 1 Aug 1966 DATE PRESENT RANK: 10 Dec 1974

TOTAL YEARS MILITARY SERVICE: 20 DATE PERMANENT RANK: 28 Jan 1979

WIFE'S NAME: [redacted]

CHILDREN'S NAME(S): [redacted]

EDUCATION - MILITARY, CIVILIAN, DATE, DEGREE, SCHOOLS:

Yale University, New Haven, CT [redacted] - BS
Yale University, New Haven, CT [redacted] - MD (Cum Laude)
Pediatric Internship, University of Minnesota Hospital 1961-1962
Pediatric Residency, University of Minnesota Hospital 1962-1964
Basic Course, Medical Field Service School, Ft Sam Houston, TX 1966
Army Medical Department (AMEDD) Executive Course 1983

MILITARY ASSIGNMENTS:

Internist, Department of Virus Diseases, Division of Communicable Disease and Immunology, (CD&I), Walter Reed Army Institute of Research (WRAIR), Washington, DC 1966-1968
Assistant Chief, Department of Virus Diseases, Div CD&I, WRAIR 1968-1970
Chief, Department of Virology (SEATO), Bangkok, Thailand 1970-1973
Chief, Pediatric Training Program (SEATO), " " 1972-1973
Deputy Director, US Army Medical Component, (SEATO) 1972-1973
Chief, Department of Virus Diseases, Div CD&I, WRAIR 1973-1976
Director, Division of Communicable Disease and Immunology, WRAIR 1976-1978
Professor of Pediatrics, Uniformed Services University of Health Sciences, Bethesda, Maryland 1978-present
Deputy Director, Walter Reed Army Institute of Research 1979-1981
Commander, US Army Medical Institute of Chemical Defense Aberdeen Proving Ground, Maryland 1981-1983
Director and Commandant, Walter Reed Army Institute of Research 1983-present

Ex 6

MILITARY AWARDS, HONORS, BADGE:

Legion of Merit with Oak Leaf Cluster
Meritorious Service Medal
The Surgeon General's A Prefix

MEMBERSHIP, SCIENTIFIC COMMITTEES:

Member, Microbial and Infectious Disease Advisory Committee, 1976-1980
National Institute of Allergy and Infectious Diseases,
National Institutes of Health, Bethesda, Maryland

PROFESSIONAL SOCIETIES:

Alpha Omega Alpha Honor Medical Society	1960
Certified, American Board of Pediatrics	1966
Society for Pediatric Research	
The American Society of Tropical Medicine and Hygiene	
Infectious Disease Society of America	
American Association of Immunologists	
American Association for the Advancement of Science	
American Medical Association	

MISCELLANEOUS (HOBBIES, SPECIAL INTERESTS): [ ]

PROFESSIONAL INTERESTS:

Over 40 publications in Pediatric infectious diseases, respiratory viruses, arboviruses, and streptococcal infections.

Ex 6

CURRICULUM VITAE

NAME: Billy G. Bass

SSAN: [redacted]

DOB: [redacted]

Present Position:

Director, Instrumentation Division
Walter Reed Army Institute of Research
Washington, D.C. 20307

Telephone: (202) 576-3428

Home Address:

[redacted]

Wife's Name:

[redacted]

Children: [redacted]

Military Service:

U.S. Air Force (1950 - 1954)
Electronic Technician (Radar/microwave)
Maintained microwave and communication equipment

Education Background

University of Maryland overseas (Europe) 1951-1953 (Night courses)

27 Semester hours liberal arts curriculum

North Carolina State College, Raleigh, North Carolina

Bachelor of Nuclear Engineering [redacted] 164 s.h.
Graduate Study, Nuclear Engineer Feb. - June 1958 12 s.h.

University of California at Los Angeles Sept. 1959 - June 1962

Electrical Engineering 15 semester hours (evening)

Ex 6

University of Maryland, College Park, Maryland Sept. 1963 - June 1966

Electrical Engineering and Computer Science 24 semester hours (part time)

George Washington University, Washington, D.C.

Master of Engineering Administration
30 semester hours in the following areas:

Personnel Administration

Contract Administration

Operations Research

Res./Dev. Administration

Law for Engineers

Acounting

Business Administration

Industrial Psychology

George Washington University, Washington, D.C.

Doctor of Science, Electrical Engineering and Computer Science

Major Area of Study: Medical Engineering

Minor Areas of Study: Computer Science
Communication

Electronic Fundamentals, Radar & Microwave Systems

U.S. Air Force Technical Schools 1950 - 1951

Digital Systems Engineering

RCA Institute, Washington, D.C. 1968

Personnel Management for Executives, Williamsburg, VA. (2 weeks) 1978
Decision Making for Executives Seminar, Frederick, MD. (1 week) 1979
Labor Relations in Government Seminar, Washington, D.C. (1 week) 1980
Management and Industrial Relations Seminar, Ga. Tech. (1 week) 1980
Advanced Management, U.S. Army Mgmt. Tng. Act., Washington, D.C. (1 week) 1979
Emerging Trends in Mgmt. Technology, USAMETA, Washington, D.C. (1 week) 1980

Work Experience:

1976 - Present: Director, Instrumentation Division, WRAIR. Manage the design, development, test and evaluation of unique biomedical and clinical research instrumentation systems. Work involves manual as well as microprocessor based instrumentation, electronic, mechanical, acoustical, microwave, millimeter--wave, optical and nuclear components. Use of state-of-the-art electronics and data processing concepts. Manage ionizing radiation facilities for the Institute. Conduct research in radiation dosimetry

1972 - 1976: Chief, Analytical Chemistry Department, Biochemistry Division, WRAIR. Managed operations of analytical laboratories in support of drug abuse research. Operations included atomic absorption spectrometry, mass spectrometry, high performance liquid chromotography and automated clinical instrumentation development laboratory. Managed reference laboratory and quality control program for drug abuse laboratories (commercial contractors). Directed design of automated analytical instrumentation using commercial minicomputers as well as surplus DOD computers from tactical weapon systems (Minuteman ICBM, army artillary fire control computers). Performed contract administration. Managed ionizing radiation facilities. Served as technical/scientific consultant to several private organizations as well as government committees. Planned and directed new research projects in analytical instrumentation and methodology. Lectured to various organizations in nuclear medicine instrumentation, analytical systems and nuclear physics.

1970 - 1972: Chief, Department of Automated Instrumental Analysis, Biochemistry Division, WRAIR. Planned and directed the total dismantlement of the Walter Reed Research Reactor (Nuclear). Managed operation of automated analytical laboratories. Directed research in analytical methodology and instruments for assessment of toxic substances in biological fluids and the study of the metabolism of drugs of abuse in humans. Established mass spectrometry laboratory. Established automated gas chromatography laboratory. Directed design, development, test and evaluation of analytical instrumentation systems. Established laboratory automation system using surplus Department of Defense weapon system computers. Served as contract administrator, lecturer and consultant in nuclear medicine instrumentation and medical electronics.

1967 - 1970: Chief, Department of Nucleonics, Nuclear Medicine Division, WRAIR. Directed operation of research nuclear reactor. Planned and directed multifaceted program of research using a nuclear reactor applied to biomedical problems. Established automated neutron activation analysis laboratory. Developed and implemented quality control procedures and production control procedures for reactor-produced radiopharmaceuticals. Directed design and application of automated analytical instrumentation and state-of-the-art electronics and nuclear physics to biomedical research. Served as contract administrator, lecturer and consultant in nuclear physics and biomedical electronics.

1962 - 1967: Chief, Electronics Section, Nuclear Medicine Division, WRAIR. Supervised and performed design, development, evaluation and testing of state-of-the-art electronic analog and digital devices for use in biomedical research. Design and development of advanced nuclear medicine instrumentation systems (whole body counters, body scanners, radionuclide imaging systems, radiation dosimetry devices, etc.). Planned and implemented program of research in the development and application of advanced nuclear/electronic devices to military medical problems.

1961 - 1962: Adv. Avionics System Designer, Douglas Aircraft Company, Space Division. Avionics system design, test, and evaluation. Instrumentation components evaluation for nuclear rocket program. Wrote test procedures for radiation hardening of electronic circuits and components. Design and evaluation of state-of-the-art electronics for advanced missile and space vehicle production. Performance evaluation of microwave systems, communications and attitude control systems. Wrote specifications for space vehicle hardware. Studied automated test equipment and procedures for space vehicle systems.

1960 - 1961: System Design Engineer. Douglas Aircraft Company. Design, development, test and evaluation of electronic systems for sonic data dnalysis as part of anti-submarine warfare research program. Performed sound propagation studies. Designed closed reel magnetic tape recording system for sonic data reduction and analysis. Performed sensor design evaluations as well as shipboard and aircraft instrument design and evaluation. Wrote specifications for anti-submarine warfare research equipment.

1959 - 1960: Design Engineer. Douglas Aircraft Company. Microwave and avionics system test and evaluation. Airborne radar system design. All attitude indicating system and auto-pilot test and evaluation. Control system analysis. Wrote specifications for avionic system components.

1957 - 1958: Nuclear System Design Engineer, Newport News Shipbuilding and Dry Dock Co. Nuclear power system design and evaluation. Nuclear power plant performance analysis. Wrote technical specifications for nuclear power plant components for shipboard use. Pressurized water reactor power plant component design and evaluation.

Special Qualifications:

Typing - 60 wpm

Digital Computer Programming Languages

BASIC
FORTRAN
PL/1
IBM 360 Assembly
Microprocessor Assembly (8080 - Z80)

Professional Society Membership

IEEE
AAMI

Awards

Department of Army Training Fellowship (1 year, 1972)
Outstanding Performance Award (1964, 1967, 1971, and 1977)
Technical Achievement Award (WRAIR) 1976

PUBLICATIONS

1. Bass, B.G., Effects of Particle Radiation on Selected Electronic Components, Douglas Aircraft Company Report A2-260-S/VE-M295, March 2, 1962.

2. Bass, B.G., New Walter Reed Multiple Crystal Whole Body Counter, San Diego Biomedical Engineering Symposium, 16-18 March 1966.

3. Levri, Elvio A., Runyan, Thomas E., Bass, B.G., Mahin, D.T., Diagnostic Applications of Neutron Activation Analysis in Medicine, Second International Conference on Medical Physics, August 11-15, 1969.

4. Bass, B.G., Ryan, E.L., Gardner, H.B., Mahin, D.T., The Walter Reed Multiple Crystal Whole Body Counter, Second International Conference on Medical Physics, 11-15 August, 1969.

5. Bass, B.G., Plan for the Dismantling of a Research Nuclear Reactor, March, 1970. (Master's Thesis, George Washington University School of Engineering and Applied Science).

6. Bass, B.G., Wisla, S., Miller, V., Health Physics Aspects of Dismantling a Research Nuclear Reactor, Health Physics Annual Meeting, 15 June 1972.

7. Bass, B.G., Holman, E.C., The Walter Reed Research Reactor Dismantling Project, Transactions of American Nuclear Society, Vol. 15, No. 2, Nov. 1972.

8. Bass, B.G., Use of Excess Weapons System Computers in Biomedical Instrumentation, U.S. Army ADP Symposium, 15 Nov. 1972. (Abstract)

9. Khouri, Edward M., Olsson, Ray A., Bedynek, Julius L., and Bass, Billy G., "An Implantable Semiconductor Betaradiation Detector," Am. J. Physiol. 323(1), 1977.

10. Bass, Billy G., "Effects of Supranormal Concentrations of Potassium Ion and Other Vasoactive Drugs on the Visual Evoked Response and Regional Cerebral Blood Flow in the Monkey Brain." Doctoral Dissertation. George Washington University, Washington, D.C., May, 1978.

11. Bass, B.G., Youm, Y., Tremayne, M.D., Groer, J., Lee, J., A Device for Measuring Knee Laxity, 18th Annual Meeting of Association for Advancement of Medical Instrumentation, May, 1983.

12. Martin, Al, Perone, Pat, Bass, B.G., "Management of Peripheral Nerve Injury.", J. of the Irish Colleges of Physicians and Surgeons, Vol. 8, #4, April, 1979, pp 150-151.

CURRICULUM VITAE

Name: James Luther Buck, M.D.

Address: Home:

Work:
Department of Radiologic Pathology
Armed Forces Institute of Pathology
Washington, D.C. 20306-6000 (202-576-2973)

Date of Birth:

Place of Birth:

Education:

B.A. University of Utah, Salt Lake City, Utah

M.D. University of Virginia, Charlottesville, Virginia

Awards and Honors:

1975 Phi Beta Kappa, University of Utah Salt Lake City, Utah

1979 Alpha Omega Alpha, University of Virginia Charlottesville, Virginia

Postdoctoral Training:

Internship and Residency:

1980-1984 Resident, Diagnostic Radiology, Parkland Memorial Hospital, Dallas, Texas

Fellowship:

1983-1984 Resident/Fellow, Nuclear Medicine Parkland Memorial Hospital,

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Certification:

1984	American Board of Radiology (Diagnostic Radiology with Special Competence in Nuclear Radiology)

Academic Appointments:

1981-1984	Instructor in Radiology Southwestern Medical School Dallas, Texas
1984-	Assistant Professor of Radiology Uniformed Services University of Health Sciences Bethesda, Maryland 20814

Hospital Appointments:

1984- 1986	Head, Gastrointestinal Radiology Naval Hospital (NMC NCR) Bethesda, Maryland 20814

Membership and Offices in Professional Societies:

1983	Radiological Society of North America

Publications:

1. Drane WE, Karvelis K, Buck JL, and Silverman EG: The "3-D Effect" of Diffuse Skin Involvement by Mycosis Fungoides on Gallium Imaging. Clin Nucl Med 11:264-265, 1986.

21 April 1987

CURRICULUM VITAE

NAME: William L. Beckwith, Jr.

DATE OF BIRTH:

WIFE:

HOME ADDRESS:

BUSINESS ADDRESS: Health Physics
U.S. Army Medical Research Institute of Infectious Diseases
Fort Detrick, Frederick, Maryland 21701-5011
Telephone: (301) 663-7335

EDUCATION:

1984-CURRENT	Hagerstown Junior College, Hagerstown, Maryland Business Administration/Radiation Science
1971-1972	Frederick Community College, Frederick, Maryland General Studies
1968-1969	Academy Health Sciences, Fort Sam Houston Texas Advanced Laboratory Procedures (52 weeks)
	Fryeburg Academy, Fryeburg, Maine H. S. Diploma

OTHER SCHOOLS OR TRAINING:

MAR-1987	Harvard University, School of Public Health, Boston, MA Occupational & Environmental Radiation Protection
OCT-1986	U.S. Army Environmental Hygeine Agency, Aberdeen, Maryland AMEDD Physics in Military Medicine
JAN-1986	U. of Texas, Health Science Ctr., San Antonio, Texas Radiation Safety Officers Course
SEP-1984	Occupational Safety and Health Administration, Washington, D.C. 600-2 Collateral Duty Course for Other Federal Agencies
MAR-1984	U.S. Army Environmental Hygeine Agency, at Ft Detrick, MD Microwave Ovens Survey Techniques Workshop
FEB-1980	U. of Texas, Health Science Ctr., San Antonio, Texas Basic Radiological Health

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21 April 1987

CURRICULUM VITAE: William L. Beckwith, Jr.

OTHER SCHOOLS OR TRAINING: (continued)

OCT-1979	WRAMC at Fort Detrick, Maryland Introduction to Radiation Principles
NOV-1974	WRAIR at Walter Read Army Medical Center, Washington, D.C. Health Aspects of Radioisotopes
1973	USAMRIID, Fort Detrick, Maryland Ultracentrifugation Symposium
1959	Academy of Health Sciences, Fort Sam Houston, Texas Basic Laboratory Procedures (16 weeks)
1981-1986	American Medical Technologists, Park Ridge, Illinois Continuing Education 20.8 CEUs (208 contact hours)

PROFESSIONAL ORGANIZATIONS:

American Medical Technologists
Tri-State Society of American Medical Technologists
National Committee for Clinical Laboratory Standards

AWARDS AND HONORS:

Phi Theta Kappa National Honor Fraternity
AMT Distinguished Achievement Award 1977
AMT Exceptional Merit Award 1981
AMT Editor's Award for Most Improved Publication 1981
AMT President's Letters of Commendation 1982/1983
Achievement in Editing 1982/1983
Achievement in Writing 1983

CERTIFICATIONS:

AMT Medical Technologist, Jan '70 Revalidated Dec '86
HEW Medical Technologist, Jun '85 Cert. #3120019
HEW MT General Supervisor, Jul '81 Cert. #3120019

PUBLICATIONS:

The United States Army Medical Research Institute of Infectious Diseases, J of AMT, Vol 37, No 1, Jan-Feb '75, pp. 35-36

Reading is Believing, J of AMT, Vol 43, No 5, Sep-Oct '81, p. 270

Communication: What Wondrous Advances We've Made - Or Have We J of AMT, Vol 44, No 1, Jan-Feb 82, pp. 16-17

21 April 1987

CURRICULUM VITAE: William L. Beckwith, Jr.

PUBLICATIONS: (continued)

The Detractors of Our Children, AMT Events, Jan-Feb '85, p. 8

Convention Confession, AMT Events, Mar-Apr '85, p. 44

PROFESSIONAL EXPERIENCE:

1979-CURRENT

Health Physics Technician/Radiation Protection Officer
Health Physics, USAMRIID
Fort Detrick, Frederick, Maryland 21701-5011

Oversee all aspects of the radiation safety program and insure that the Institute is in compliance with NRC license requirements and all rules and regulations from DA to local authority.

1971-1979

Research Laboratory Supervisor
Virology & Rickettsiology Division
USAMRIID
Fort Detrick, Frederick, Maryland 21701-5011

Oversaw the day to day operations of laboratories. Began by setting up P-3 and P-4 labs in new facilities and assisted researchers in instituting research protocols and the like. Responsible for assigning personnel to work units and other administrative tasks to insure a ongoing smooth operation of the divisions missions.

1970-1971

Research Assistant
Bacteriology Division, USAMRIID
Fort Detrick, Frederick, Maryland 21701-5011

Enzyme and subcellular particle alteration examinations to animal host systems when toxins such as Staph enterotoxin B were introduced

1959-1969

Medical Technologist
Verona, Italy; Boston Army Base; Saugus Memorial Hospital; Bamberg, Germany; Frederick Memorial Hospital

Worked in all areas of the clinical laboratory: Blood Bank, Hematology, Serology, Chemistry, Cytology, Bacteriology, Perisitology, Coagulation

CURRICULUM VITAE
FOR
DAVID W. BURTON

Date & Place of Birth: [redacted]

Home Address: [redacted]

Home Telephone Number: [redacted]

Office Address: Health Physics Office
Walter Reed Army Medical Center
Washington, D.C. 20307-5001

Office Telephone Number: (301) 427-5104

Education:

Degree: A.A. - Radiation Science [redacted]
Montgomery Junior College
Rockville, Maryland 20850

Curriculum included Fundamental Atomic and Nuclear Physics, Radiation Instrumentation, Biological Effects of Radiation, Radiation Hazards Evaluation and Control.

Experiences:

Jan 87 - Present. C, Radioactive Material Control Branch
Health Physics Office
Walter Reed Army Medical Center
Washington, D.C. 20307-5001

Serves as Chief, Radioactive Material Control Branch and Alternate Radiation Protection Officer with direct responsibility to recommend, formulate, and execute the policy for life-cycle control of all radioactive material utilized by WRAMC and tenant activities. Responsible for advising the Health Physics Officer and approximately 650 physicians, clinicians, and researchers of all Federal, State and US Army regulations governing the receipt, possession, use, transfer, transport and disposal of all radioactive material permitted to WRAMC by US Nuclear Regulatory Commission (NRC) Licenses and Department of Army Authorizations.

Aug 74 - Jan 87 Radiation Safety Officer
Litton Bionetics, Inc.
5516 Nicholson Lane
Kensington, Maryland 20895

Responsible for entire Radiation Safety Program at Litton Bionetics. This includes all radioactive licensing activities with the State of Maryland. Reviewing, evaluating and approving the safety aspects of all research studies involving radioactive materials. Coordinating the procurement, safe use, and proper disposal, of all radioactive material. Responsible for training of laboratory personnel in the proper handling of radioisotopes. Perform and/or supervise in taking of routine health physics surveys. Administer personnel monitoring program and maintain all attendant records.

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BURTON, David W. (Continuation of Curriculum Vitae)

Jun 73 - May 75

Senior Radiation Technician
Institute for Resource Management
428 Fourth Street
Annapolis, Maryland 21403

Worked as a contract Health Physicist at nuclear power plants in Connecticut, New Jersey, and Tsuruga, Japan. Performed radiation and contamination surveys. Monitored personnel entries into high radiation areas. Worked in counting lab, counting all kinds of contamination surveys and air samples. Read TLD's and kept personnel exposure records.

Apr 70 - Aug 74

Radiation Technician
Armed Forces Radiobiology
Research Institute
NNMC Bethesda, Maryland 20014

Performed all routine monitoring for a 1 MW Triga Reactor, a 50 Mev Linac, a 300,000 Curie Co-60 Irradiation Facility, a Nuclear Medicine Department, and a large hot cell with a pneumatic tube system to the reactor core and remote handling equipment. Duties included initial entries into all exposure rooms, personnel monitoring, environmental sampling and monitoring with remote film stations, radiation and contamination surveys, air samples, instrument calibration, waste disposal, and the attendant record keeping.

Sept 68 - May 69

Laboratory Aide
Montgomery Junior College
Takoma Park, Maryland

Performed basic surveys, isotope inventory, instrument calibration, and quality control for isotope lab.

Organizations:

1975 National Health Physics Society

1980 Baltimore/Washington
Chapter of Health Physics Society

WRAMC REGULATION 40-10

HEALTH PHYSICS

ITEM 8 - TRAINING AND EXPERIENCE

ITEM 15 - GENERAL RULES FOR THE SAFE USE OF RADIOACTIVE MATERIAL

ITEM 17 - AREA SURVEY PROCEDURES

ITEM 18 - WASTE DISPOSAL

ITEM 24 - PERSONNEL MONITORING DEVICES

DEPARTMENT OF THE ARMY
HEADQUARTERS, WALTER REED ARMY MEDICAL CENTER
WASHINGTON, D.C. 20307-5001

WRAMC Regulation
No. 40-10

30 April 1987

Medical Services
HEALTH PHYSICS

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*This regulation supersedes WRAMC Regulation 40-10, 25 May 1983
Approved by the Radiation Control Committee, WRAMC

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CHAPTER 1
General

1-1. PURPOSE. The purpose of this regulation is to supplement applicable Federal, State and Army regulations governing the methods for control of potential health hazards resulting from the procurement, possession, storage, transportation and use of radioactive materials and equipment capable of producing potentially hazardous radiation.

1-2. APPLICABILITY. This regulation is applicable to all activities assigned or attached to WRAMC for Health Physics support. In addition, applicability extends to the following:

a. Military District of Washington units possessing X-Ray producing devices and microwave ovens.

b. The US Army Medical Research Institute of Infectious Diseases, Ft. Detrick, MD for the procurement, storage, use and disposal of radioactive materials.

c. The US Army Institute of Dental Research and the sections of the Department of Pathology, WRAMC located at Ft. Meade, MD.

1-3. REFERENCES. Required publications are listed in the Appendix.

1-4. DEFINITIONS. The following definitions apply to terms used throughout this regulation.

a. Authorization. A formal, Radiation Control Committee (RCC) approved document permitting named individuals to possess and use radioactive materials.

b. Bioassay. The determination of kinds, amounts, concentrations and locations of radioactive materials in the human body. This may be by in-vivo counting (e.g. whole body counting, selected organ counting) or by analysis of materials excreted or removed from the human body.

c. Controlled (restricted) area. Any area to which access is limited for the purpose of protecting persons from exposure to ionizing radiation or radioactive materials.

d. Co-worker. An individual listed on an authorization who possesses qualifications similar to the Principal User.

e. Half-life. Time required for a radioactive substance to lose 50% of its activity by decay. Each radionuclide has a unique half-life.

f. Short Half-life. A half-life of 65 days or less.

g. Long Half-life. A half-life of greater than 65 days.

h. HPO. Health Physics Office.

i. NRC. Nuclear Regulatory Commission.

j. Radiation Worker. An individual whose work is performed in a controlled area and who might be exposed to more than 10% of the radiation exposure standards as a result of employment or duties in a controlled area.

k. Principal User. An individual who possesses adequate training and experience with radioactive materials and bears ultimate responsibility for possession, inventory and implementation of the radiation protection procedures necessary to ensure the safe use of materials specified in the authorization.

l. RCC. Radiation Control Committee.

m. Radiation Protection Survey (Radioactive Materials). The evaluation of various locations to determine existing or potential radiation hazards associated with the use of radioactive materials.

n. Radiation Protection Survey (X-Ray producing devices). An evaluation, under specified conditions, of existing or potential radiation hazards associated with the use of X-Ray producing devices.

o. Radioactive Material. Any material or combination of materials that spontaneously emit ionizing radiations.

p. Radioactive Waste. Surplus items of or containing radioactive material and rendered non-usable because of excess radioactive contamination.

q. Sealed Source. Radioactive materials sealed in an impervious container designed to prevent dispersion under normal use.

r. Shielding Evaluation. An evaluation of the design or modification plans for a fixed radiologic facility to preclude the occurrence of radiation hazards.

s. TLD. Thermoluminescent Dosimeter.

t. Technician. An individual who works under the direct supervision of a Principal User or Co-worker for the purpose of performing certain routine duties associated with the use of materials specified in the authorization.

u. Trainee. An individual who works under the direct supervision of a Principal User or Co-worker for the purpose of obtaining the necessary training and experience to qualify for either status.

CHAPTER 2
Training

2-1. GENERAL. The NRC requires that training be given to any employee who works in or frequents the vicinity of any area controlled by the licensee for protection of individuals from exposure to ionizing radiation. The Commander, WRAMC, has implemented training programs pertaining to the hazards of radiation and the methods for minimizing those hazards for radiation workers and other personnel.

2-2. PROGRAMS.

a. Initial Briefing.

(1) The Principal User is responsible for individuals who work under or are associated with work areas designated on his Authorization for the Use of Radioisotopes. He is required to give and document an initial and annual briefing to those individuals which covers, at a minimum, the following:

(a) WRAMC Notice to Employees

(b) Form NRC-3, Notice to Employees

(c) Title 10, Code of Federal Regulations, Parts 19, 20 and 21

(d) Information concerning the storage, transfer and use of radioisotopes allowed under his authorization

(e) Authorization to Use Radioisotopes (WRAMC Form 1661-R, Application for Authorization to Use Radioactive Material - Human Use and/or WRAMC Form 1662-R, Application for Authorization to Use Radioactive Material - Non-human Use)

(f) Hazards and protective measures associated with isotope usage

(g) Procedures for requesting a report of exposure to radiation

(2) This briefing will be given and acknowledged by signing WRAMC Form 538, Radiation Worker Briefing.

b. Introductory Principles of Radiation Protection Course: This two-day course, given by the staff of the HPO, is designed to complete and reinforce training given by the Principal User. It provides supplementary training, in an academic setting, required for the safe handling of

radioisotopes and protection of individuals from external and internal radiation hazards. It is required that all radiation workers attend this course, as soon as possible, after beginning work at WRAMC. An examination is given at the end of this course. If the student fails the exam it may be retaken, after additional preparation, or the student may elect to retake the course. Subsequent failure requires that the Principal User evaluate the advisability of retaining the individual in a position which requires the handling and use of radioisotopes.

c. Principal User Classes. The senior staff of the HPO conducts periodic classes on selected topics. These topics are based on the need to disseminate current information on license and regulation changes, to correct deficiencies which have been noted and to enhance the professional competency of individuals working in radiation environments. This is mandatory for Principal Users. Co-workers are encouraged to attend.

d. Nursing In-service: Briefings, designed for nursing and para-professional staff who come in contact with patients undergoing therapy with radioisotopes, are presented upon request to the HPO. Specific details on the types of therapy or other procedures are covered.

e. Briefing for Support Personnel: This class is designed for individuals whose duties take them into areas where radioisotopes are used. It familiarizes personnel with signs, placards and color schemes associated with radioactive material, gives a general outline of what radiation and contamination are and sets ground rules for what should and should not be done in these areas.

f. Briefing for Firefighters: This briefing covers methods of designating areas where radioactive materials are used, use of radiation detection instrumentation, notification procedures and procedures for ensuring protection from contamination and internal deposition.

g. Briefing for Military Police/Security Personnel: This class teaches the proper method for receiving, inspecting and storing incoming packages containing radioisotopes and addresses the procedures for dealing with problems such as a damaged container or leaking package.

CHAPTER 3
Authorization to Use Radioactive Material

3-1. GENERAL.

a. The NRC has issued a specific "License of Broad Scope for Byproduct Material" to WRAMC allowing use of specific types and quantities of radioactive material. NRC requirements stipulate that a Radiation Control Committee be established to exercise administrative control over the safe use of radioactive materials. The WRAMC RCC was chartered to meet these requirements.

b. The RCC issues Radioactive Material Authorizations to Principal Users as a means of controlling the use of radioactive material. All users of radioactive material must receive their authorization prior to using the material.

c. Non-human Use Radioactive Material Authorizations are issued for 3 years. Human Use Authorizations are issued for 1 year. Both types of authorizations may be renewed upon request.

d. Individuals possessing more than 1/2 pound of pure natural uranium compounds are required to obtain an authorization.

3-2. APPLICATION PROCEDURE.

a. To obtain, amend, renew or terminate an authorization for use of radioactive material, individuals must submit WRAMC Form 1661-R, "Application for Authorization to Use Radioactive Material - Human Use", or WRAMC Form 1662-R, "Application for Authorization to Use Radioactive Material - Non-human Use". Each Principal User and Co-worker must submit WRAMC Form 1643, "Training and Experience of Authorized Radioisotope Users", with the application. Each physician listed on a Human Use Authorization is required to submit NRC Form 313-M Supplement B, "Preceptor Statement", or a certificate of Board Certification with the application. Protocols describing the use and accountability of radioactive material from the time of receipt until the time of disposal will be submitted with the application. Applications will be submitted to the HPO for review and approval. All applications for human use of radioisotopes will be submitted to the Human Use Subcommittee of the RCC by the HPO for review of physician training and experience.

b. All requested information on the application will be provided. Incomplete applications will be returned, causing a delay in approval.

c. Application for use of gamma cell irradiators must include a copy of the proposed Standing Operating Procedures addressing personnel safety, routine operation and emergency provisions.

3-3. REVIEW PROCEDURES. All applications will be reviewed by the RCC and HPO to insure that individuals meet training and experience requirements, proposed procedures do not violate existing regulations and facilities and equipment are adequate for proposed usage. Applications will be signed by the HPO and returned to applicant. This is considered interim approval until the RCC next meets and officially approves the application.

3-4. TERMINATION OF AUTHORIZATION. An authorization may be terminated by the Principal User, the RCC or the HPO at any time. When an authorization is terminated, the Principal User will ensure that all work areas are cleared by the HPO prior to releasing them for alternate use and coordinate final disposition of unused radionuclides with the Radioactive Materials Control Branch, HPO.

CHAPTER 4
General Rules for the Safe Use of Radioactive Material

4-1. RESPONSIBILITIES. Principal Users of radioactive material are responsible for applying precautions listed in this chapter and insuring their implementation by personnel listed on their Radioactive Material Authorization.

4-2. LABORATORY PRECAUTIONS. General rules for the safe use of radioactive materials include:

a. Wearing of laboratory coats or other removable protective clothing at all times when actively involved in the use of unsealed sources of radioactive material.

b. Wearing disposable gloves at all times while handling radioactive materials except:

(1) those quantities less than those specified by WRAMC general license for use of byproduct material for certain in-vitro clinical or laboratory testing,

(2) when handling totally encapsulated sealed sources of beta or gamma types which are exempt from leak testing requirements,

(3) during the injection of a radiopharmaceutical when the loss of tactile sensation would hinder venipuncture technique resulting in infiltrations requiring repeat studies and increasing patient exposure.

c. Monitoring hands, clothing and work area for contamination after handling unsealed radioactive material:

(1) before leaving the area,

(2) when work is completed.

d. Never eating, drinking, smoking or applying cosmetics in areas where radioactive materials are used or stored.

e. Wearing assigned personnel monitoring device(s) at all times while in areas where radioactive materials are used or stored.

f. Disposing of radioactive waste only in specially designated receptacles.

g. Never pipetting by mouth.

h. Confining radioactive solutions to covered containers plainly identified and labeled with name of compound, radionuclide, date, activity and radiation level.

i. Transporting radioactive materials in appropriately shielded containers.

4-3. NUCLEAR MEDICINE PRECAUTIONS. Additional general rules specifically applicable to preparations and use of radioactive materials for human use include:

a. Using syringe shields for preparation and administration of patient doses except during the actual injection in those patients in which a loss of manual dexterity would result in an increase incident of dose infiltration resulting in increased exposure to the patient from the procedure.

b. Assaying each patient dose in the dose calibrator prior to administration. Doses that differ from the prescribed dose by more than 10% will not be used.

c. Wearing TLD finger badges during elution of generator and preparation, assay and injection of radiopharmaceuticals.

d. Surveying generator, kit preparation and injection areas for contamination at the end of the day; decontaminating when necessary.

4-4. VENTILATION IN RADIATION CONTROLLED AREAS. Procedures resulting in the generation of radioactive aerosols, dusts or gaseous products will be conducted in a hood, iodine box, dry box or other suitable closed system. Radioactive gases or material with radioactive gaseous daughters will be stored in gas tight containers and kept in areas having approved ventilation. For handling low to moderate levels of radioactive materials, the average velocity through openings in the hood will be 100 feet per minute(fpm). For highly toxic or high level radioactive material, the velocity through the opening must be at least 125 fpm but may not exceed 200 fpm.

CHAPTER 5
Personnel Monitoring

5-1. GENERAL.

a. This chapter prescribes procedures and responsibilities for monitoring and recording occupational exposures to ionizing radiation from radiation producing devices and radioactive materials.

b. Each activity receiving personnel dosimetry service from HPO will designate a personnel dosimetry coordinator and alternate to assist HPO in the issue, exchange and collection of dosimetry devices.

c. Application for personnel dosimetry service must be initiated by the individual and submitted on a properly completed DD Form 1952, "Dosimeter Application and Record of Occupational Radiation Exposure", to the HPO. The HPO will evaluate the information on the application and issue appropriate dosimetry or provide written notification that dosimetry is not needed.

d. Assignment of a personnel dosimetry device to an individual does not automatically make him a radiation worker. Occasionally exposed individuals may be monitored to determine need for permanent issue of dosimetry devices.

5-2. FILM BADGES.

a. The whole body badge is the primary dosimetry device used at WRAMC and is the only device legally recognized for whole body dosimetry. Other devices such as TLD may be used to monitor portions of the body or as supplemental dosimeters.

b. A whole body badge will be worn only by the individual to whom it is issued.

c. WRAMC issued dosimetry will not be worn by personnel when occupationally exposed at other facilities.

d. Whole body badges will be worn on the front of the torso. In the event a protective garment, such as a lead apron, is worn the badge will be worn under the protective garment.

5-3. SUPPLEMENTAL MONITORING DEVICES. Additional personnel monitoring devices will be provided when necessary to monitor a portion of the body or to obtain more immediate data. These devices will be worn only by individuals to whom they are issued.

5-4. CARE OF MONITORING DEVICES. When not being worn, personnel monitoring devices will be stored in the designated place and turned in to the personnel dosimetry coordinator during designated exchange periods. Film badges are not

to be worn during non-duty hours or when the individual is examined in medical or dental clinics.

5-5. BIOASSAY.

a. The HPO will designate individuals to participate in the bioassay program. Once so designated, individuals will participate until released, in writing, by the HPO.

b. Individual Responsibilities.

(1) Appearing for measurement at the time, place and frequency required.

(2) Providing required specimen for in-vitro counting.

(3) Informing HPO of changes in working conditions or other factors influencing the type or frequency of bioassay measurement.

5-6. RECORDS.

a. Records of individual radiation exposure are maintained on DD Form 1141, "Record of Occupational Exposure to Ionizing Radiation", or an Automated Dosimetry Report (ADR). The records are kept at the HPO until individuals depart WRAMC or are removed from dosimetry service. Records are then placed in the individual health record. Records may be reviewed at the HPO during normal duty hours.

b. Locator Cards.

(1) DD Forms 1141 or ADR are medical records. Locator cards identifying radiation workers will be furnished by HPO to the medical records section for placement in individual medical records.

(2) Individuals not maintaining medical records at the out-patient medical records section, WRAMC, must bring their records to the HPO to have the locator card inserted.

c. Personnel occupationally exposed at a facility outside the jurisdiction of WRAMC will furnish all exposure information to the HPO.

d. The DD Form 1141 or ADR is covered under the Privacy Act. Therefore a written authorization, signed by the individual must be forwarded to the HPO before occupational exposure information can be released.

5-7. TERMINATION OF PERSONNEL DOSIMETRY. Individuals who wish to terminate personnel dosimetry service for any reason will report to the HPO, Building 188, Forest Glen Section with their medical records during normal duty hours. The individual must provide HPO with the reason for termination and a forwarding address.

CHAPTER 6
Radiation Detection Instruments

6-1. GENERAL. The Health Physics Office will acquire, maintain and provide, to all activities, radiation detection instruments to meet the requirements of NRC licenses issued to WRAMC.

6-2. CALIBRATION. The HPO will ensure that the instruments are calibrated and will maintain calibration records.

6-3. USER RESPONSIBILITIES. The User is responsible for:

a. Security, proper use, and availability of instruments assigned to him/her.

b. Notifying the HPO if an instrument is not functioning properly or is due calibration.

CHAPTER 7
Radiation Protection Surveys

7-1. GENERAL. Periodic radiation protection surveys are required in all areas where radioactive materials are stored or used. Requirements and responsibilities for these surveys at WRAMC are contained in this chapter.

7-2. RESPONSIBILITIES.

a. The HPO is responsible for:

(1) Performing all pre-use surveys, weekly, monthly, quarterly, special and final surveys.

(2) Notifying the Principal Users of any deficiencies or radiological hazards noted during survey.

(3) Performing a resurvey within five (5) workdays of any areas where:

(a) Levels of removable contamination exceed 500 dpm/100 cm^2.

(b) Dose-rates exceed 0.2 mR/hr.

(c) Potentially hazardous situations are noted.

b. The Principal User is responsible for:

(1) Performing daily surveys.

(2) Notifying HPO immediately if contamination levels in excess of 100 cpm or dose-rates in excess of 2mR/hr are discovered during the daily survey.

(3) Notifying HPO immediately of any accidents or unusual incidents involving radioactive materials.

(4) Ensuring that deficiencies noted during radiation protection surveys are corrected.

(5) Ensuring that a pre-use survey has been performed on all areas under their control prior to using or storing radioactive materials.

(6) Ensuring that a final survey has been performed and approved in areas under their control prior to releasing the area for non-radioactive use, maintenance or modification.

CHAPTER 8
Radioactive Waste Management and Control

8-1. RESPONSIBILITIES.

a. The HPO is responsible for ensuring that all radioactive waste is managed, controlled, and disposed of in accordance with accepted directives and guidelines of applicable Army, Federal, and State regulations.

b. Principal Users are responsible for:

(1) Segregating radioactive waste into:

(a) Solid: short half-life.

(b) Solid: long half-life.

(c) Scintillation vials of less than 0.05 microcuries H-3 or C-14 per gram of fluid.

(d) Scintillation vials: short half-life.

(e) Scintillation vials: long half-life.

(f) Aqueous fluid vials: less than 30 ml fluid, short half-life.

(g) Aqueous fluid vials: less than 30 ml fluid, long half-life.

(h) Aqueous fluids: more than 30 ml fluid, by individual radionuclide.

(i) Flammable liquids: by individual radionuclide.

(j) "BACTEC" Vials.

(k) Commercial Radio-Immuno-Assay Kits.

(l) Animal carcasses/animal waste: short half-life.

(m) Animal carcasses/animal waste: long half-life.

(n) Animal carcasses: less than 0.05 microcuries H-3 or C-14 per gram of animal tissue averaged over the entire weight of the animal.

(o) Gas, combustible.

(p) Gas, non-combustible.

(4) Scintillation vials will be packaged separately from other materials. They will be tightly closed and placed in a shipping tray that is labeled with the words "Caution-Radioactive Material". Care must be taken to prevent breakage of the vials while in storage/transport. The trays will be tagged as previously indicated.

(5) All broken glassware, vials, bottles, tubes, pipettes, syringes, needles, and similar items must be packaged in double magenta plastic bags, placed in cardboard boxes and sealed to prevent personal injury. The bags and boxes will be tagged as previously indicated.

(6) Short half-life materials and items contaminated with short half-life materials will be separated from other materials. Radioactive warning labels must be defaced on all vials and materials prior to placing the items in the double magenta plastic bags. The bags will be tagged as previously indicated.

(7) Biological wastes (animal carcasses/animal waste) will be prepared by the user in a manner that allows the waste to be readily packaged in alternating 10-inch layers of waste and packing materials. Prepared biological waste will be placed in double magenta plastic bags and tagged as previously indicated.

8-2. RELEASE OF RADIOACTIVE MATERIAL INTO THE SANITARY SEWAGE SYSTEM.

a. Liquid radioactive waste will not be released into the sanitary sewage system unless prior approval has been included in the WRAMC Radioactive Material Authorization.

b. Other conditions for the disposal of liquid radioactive waste material into the sewage system are:

(1) The total quantity of material released by the user in any one month will not exceed 100 microcuries.

(2) The sink must be conspicuously posted with a sign bearing the Radioactive Caution Symbol and words, "Caution - Radioactive Material Wash Sink", and with a notice to the user that radioactive material discharged through the sink must be readily soluble or dispersible in water.

(3) A record of the identity and activity of radionuclides released will be maintained by the Principal User. This record will be reviewed by HPO for compliance with regulatory limits.

8-3. COLLECTION, LOCAL TRANSPORTATION AND STORAGE OF RADIOACTIVE WASTE.

a. Properly packaged radioactive waste will be brought to centralized collection points in Building 40, Building 2, or other designated locations. Under the supervision of the HPO, waste will be placed in barrels or other

CHAPTER 9
Sealed Source Leak Testing and Accountability

9-1. RESPONSIBILITIES.

a. The HPO is responsible for ensuring and documenting that all sealed sources are acquired, inventoried, leak tested, transferred and disposed of in accordance with applicable requirements.

b. Principal Users are responsible for ensuring and documenting that all sealed sources used to support their operation are specifically permitted by their WRAMC Radioactive Material Authorization and that each source is acquired, inventoried, transferred and disposed of in accordance with the requirements of this chapter.

9-2. ACQUISITION OF SEALED SOURCES. Regardless of curie amount or intended use, the acquisition of each sealed source will be cleared with the HPO prior to any commitment for purchase or receipt. The HPO will determine which Federal regulatory requirements apply to acquisition of the sealed source and provide prospective suppliers with any required certification/NRC license documents.

9-3. INVENTORY OF SEALED SOURCES. A current inventory of all sealed sources will be maintained by the responsible Principal User and the HPO.

a. Each Principal User will maintain an inventory of all sealed sources permitted by their WRAMC Radioactive Material Authorization on DA Form 3862 "Controlled Substances Stock Record". Entries must include the specific item of equipment and/or radioisotope, location of the item, level of activity, applicable NRC or DA authorization number and expiration date. The name of the Principal User or his designated Inventory Officer will be entered. The columnar portion of the form will reflect receipts, transfers, local disposal, and date of the physical inventory. The HPO will conduct periodic inspections to verify and document implementation of this policy.

b. Each accountable sealed source at WRAMC will be assigned a Health Physics control number by the HPO.

c. A record of inventory for each sealed source will be maintained by the HPO.

9-4. TRANSFER/DISPOSAL OF SEALED SOURCES. The transfer/disposal of all sealed sources will be coordinated with the HPO.

a. Individual sealed sources will be transferred only to authorized recipients or licensed disposal sites.

CHAPTER 10
Health Physics Aspects of Patient Care

10-1. GENERAL REQUIREMENTS.

a. It is the responsibility of all personnel who are occupationally exposed to radiation from patients receiving radiotherapy to:

(1) Properly utilize the dosimetry issued to them.

(2) Know and conform to the radiation protection and emergency measures pertaining to their procedures.

b. Radiation safety procedures will not impede emergency medical care, however, a maximum effort will be made to minimize the exposure of individuals performing the treatment.

10-2. RESPONSIBILITIES.

a. The physician performing the procedure will:

(1) Notify the HPO one week prior to the scheduled procedure date and provide the following information:

(a) Patient's name.

(b) The date and time the procedure will be initiated.

(c) Type and approximate length of the procedure.

(d) Isotope activity in milligram equivalent or millicurie amount.

(e) The location (treatment room, O.R. or room on the ward) where the radioactive material will be introduced into the patient.

(f) The room and ward to which the patient will be assigned for the duration of the procedure.

(2) Ensure that there are enough radiation shields available for the procedure.

(3) Ensure that an adequate number of trained support personnel are available during the procedure.

b. The service performing the procedure, Radiation Therapy/Oncology or Nuclear Medicine, will ensure that the physician performing the procedure is listed on the appropriate Human-Use Authorization which covers the procedure and has been authorized by the RCC.

CHAPTER 11
Animals Containing Radioactive Material

11-1. RESPONSIBILITIES.

a. The Principal User is responsible for:

(1) Ensuring that animals containing radioactive material are housed only in cages labeled as containing radioactive material. The labels on the cages will indicate the radioisotope and millicurie amount introduced into each animal.

(2) Ensuring that the cages containing animals which have had radioactive material introduced into them are housed only in rooms which have been approved and posted by the HPO.

(3) Ensuring the HPO and Director of Department of Lab Animals, WRAIR, are notified prior to the commencement or change in procedure of all projects where radioactive material is introduced into laboratory animals.

(4) Notifying the HPO and the Director of Department of Lab Animals, WRAIR, at the termination of studies.

(5) Removing all radioactive material from rooms used exclusively to house animals.

(6) Ensuring that all applicable radiation protection procedures are met.

(7) Notifying the HPO of any unusual occurrences or incidents in which radioactive material is involved.

b. The HPO is responsible for:

(1) Ensuring that rooms and cages used to perform procedures and house animals are properly posted and labeled.

(2) Informing the Principal User and the animal handlers of any special radiation protection procedures to be observed.

CHAPTER 12
X-Ray Producing Devices

12-1. X-RAY PROTECTION SURVEY REQUIREMENTS.

a. A radiation protection evaluation will be made for the planned use of equipment, the location where the equipment will be used and the protective barriers, interlocks and other associated protective devices prior to the procurement of the equipment.

b. An initial radiation protection survey will be performed prior to the routine use of any newly installed, modified or relocated equipment or facility.

c. All x-ray producing devices intended for human-use will have a radiation survey biennially.

d. All x-ray producing devices not intended for human-use will have a radiation survey triennially.

e. A resurvey will be performed after every change in equipment, subsystem, component, workload or operating conditions that might significantly increase the exposure of patients or operating personnel to ionizing radiation.

12-2. RESPONSIBILITIES.

a. The using organization is responsible for:

(1) Ensuring that a shielding evaluation is performed prior to the procurement, installation, modification or relocation of any x-ray producing equipment or facility.

(2) Ensuring that a radiation protection survey is performed prior to the use of any newly installed, modified, or relocated x-ray producing equipment or facility.

(3) Notifying the HPO of any change in equipment, subsystem, component, workload or operating conditions.

(4) Reporting the location of all x-ray producing devices to the HPO.

(5) Ensuring that written procedures are established to provide radiation protection and emergency procedures for each facility.

(6) Preventing the unwarranted exposure of patients or operating personnel to ionizing radiation.

CHAPTER 13
Non-ionizing Radiation Sources

13-1. RESPONSIBILITIES.

a. The HPO is responsible for:

(1) Maintaining an inventory of all microwave sources (to include microwave ovens), high intensity optical sources, LASERS, RF sources, and ultrasound devices at WRAMC.

(2) Performing or coordinating for comprehensive microwave oven surveys.

(3) Requesting support from the U.S. Army Environmental Hygiene Agency to Perform radiation protection surveys of non-ionizing radiation producing devices other than microwave ovens.

b. Department heads and activity chiefs responsible for the operation of non-ionizing radiation producing equipment, to include microwave ovens, are responsible for:

(1) Notifying the HPO of the type of device, manufacturer, model, serial number, Maintenance Management Control Number (MMCN) and location (building and room) of each item of these types of equipment.

(2) Notifying the HPO when a system is received, moved to a new location, or turned in for maintenance or disposal.

(3) Ensuring that SOPs are published, posted, and enforced.

(4) Providing a copy of the SOP for each item to the HPO.

(5) Ensuring that personnel working in the vicinity of this equipment are informed of the potential hazards associated with the radiation produced by the equipment.

(6) Ensuring that a monthly visual inspection of the equipment is performed and documented.

APPENDIX
References

AR 40-5	Preventive Medicine.
AR 40-14	Control and Recording Procedures for Exposure to Ionizing Radiation and Radioactive Materials.
AR 40-37	Licensing and Control of Radioactive Materials for Medical Purposes.
AR 40-46	Control of Health Hazards from Lasers and other High Intensity Optical Sources.
AR 40-61	Medical Logistics Policies and Procedures.
AR 40-66	Medical Record and Quality Assurance Administration.
AR 40-583	Control of Potential Hazards to Health from Microwave and Radio Frequency Radiation.
AR 385-11	Ionizing Radiation Protection (Licensing, Control, Transportation, Disposal, and Radiation Safety).
WR 40-92	Patient Care Committees, Boards and Councils.
TB MED 521	Management and Control of Diagnostic X-Ray, Therapeutic X-Ray, and Gamma Beam Equipment.
TB MED 523	Control of Hazards to Health from Microwave and Radio Frequency Radiation and Ultrasound.
SB 11-206	Personnel Dosimetry Supply and Service for Technical Radiation Exposure Control.
3 CFR 3195-01	Presidential Directive, Radiation Protection Guidance to Federal Agencies for Diagnostic X-Rays.
10 CFR Chap 1	Nuclear Regulatory Commission.
21 CFR Chap 1	Radiological Health.
29 CFR 1910	Occupational Safety and Health Standards.

The proponent of this regulation is The Health Physics Office, WRAMC. Users are invited to send comments and suggested improvements on DA FORM 2028 (Recommended Changes to Publications and Blank Forms) to Commander, WRAMC, ATTN: HSHL-HP, Washington, DC 20307-5001.

FOR THE COMMANDER:

DONALD A. JOHNSON
Colonel, MS
Chief of Staff

OFFICIAL:

JOEL T. HIATT
MAJ, MS
Executive Officer

DISTRIBUTION:
A plus 500 cys to HPO

WRAMC TERMS AND CONDITIONS FOR RADIOACTIVE MATERIAL AUTHORIZATIONS

ITEM 13 - PROCEDURES FOR ORDERING AND RECEIVING RADIOACTIVE MATERIAL

ITEM 14 - PROCEDURES FOR SAFELY OPENING PACKAGES CONTAINING RADIOACTIVE MATERIALS

ITEM 15 - GENERAL RULES FOR THE SAFE USE OF RADIOACTIVE MATERIAL

ITEM 16 - EMERGENCY PROCEDURES

ITEM 17 - AREA SURVEY PROCEDURES

ITEM 18 - WASTE DISPOSAL

GENERAL PROVISIONS
FOR AUTHORIZED USE OF RADIOACTIVE MATERIAL AT
WALTER REED ARMY MEDICAL CENTER

PRINCIPAL USERS FOR **WRAMC RADIOACTIVE MATERIAL AUTHORIZATIONS** ARE RESPONSIBLE FOR COMPLIANCE WITH THE FOLLOWING PROVISIONS:

a. Maintaining occupational, occasional and environmental ionizing radiation exposures as low as is reasonably achievable (ALARA). Current dose limitations are:

FOR OCCUPATIONAL EXPOSURE

Whole Body	5 rems in any one year
Skin	30 rems in any one year
Hands	75 rems in any one year
Forearms	30 rems in any one year
Other organs, tissues and organ systems	15 rems in any one year
Fertile women (with respect to fetus)	0.5 rems in gestation period

FOR OCCASIONALLY EXPOSED INDIVIDUALS OF THE GENERAL PUBLIC

Individual	0.5 rems in any one year
Students (under 18 years)	0.5 rems in any one year

FOR THE GENERAL POPULATION

Suitable sample of the exposed population or the whole exposed population	0.17 rems average per year

b. Obtaining and using proper personnel dosimetry devices in accordance with Condition No. 1 for Radioactive Material Authorizations, "Personnel Dosimetry."

c. Having available and using the following radiation detection and/or collection devices:

TYPE OF INSTRUMENT	NUMBER REQUIRED

d. Performing radiation surveys of authorized work areas in accordance with Condition No. 2 for Radioactive Material Authorizations, "Area Survey Procedures." Surveys for contamination should include not only the work area but also any protective clothing used, the bottoms of shoes, and all potentially exposed areas of the body. The Health Physics Officer will be notified if contamination levels in excess of 1000 dpm/100 cm^2 exist.

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e. Notifying the Health Physics Officer when radiation levels in unrestricted areas exceed 2 millirems in any one hour or 100 millirems in any seven days.

f. Complying with the provisions of Condition No. 3 for Radioactive Material Authorizations, "General Rules for Safe Use of Radioactive Material."

g. Maintaining an inventory of radioactive materials in accordance with AR 40-61.

h. Posting of appropriate radiation warning signs and labels and the removal of warning signs and labels when no longer required.

i. Instructing co-workers, technicians and trainees concerning the safe handling and usage of the radioactive materials listed in this authorization and concerning their responsibilities and rights as occupational radiation workers.

j. Insuring the proper disposal of radioactive materials in accordance with Condition No. 4 for Radioactive Material Authorizations, "Radioactive Waste."

k. Notifying the Health Physics Office promptly of any changes in the use, location or possession of radionuclides from the terms of this authorization.

l. Storage of radioactive materials such that they are secured from unauthorized removal from the place of storage. Materials kept in an unrestricted area must be under the constant surveillance and the immediate control of the principal user or other authorized user.

m. Compliance with applicable provisions of Condition No. 5 for Radioactive Material Authorizations, "Procedures for Ordering, Receiving and Safely Opening Packages Containing Radioactive Material," and in particular insuring that all NRC licensed or DA authorized radioactive materials entering Walter Reed Army Medical Center or its supported activities have either been processed through the Health Physics Office or have been documented by the Health Physics Office as having been received.

n. Insuring that NRC licensed or DA authorized radioactive materials are not transferred to unauthorized users or outside of WRAMC or its supported activities.

o. In the event of an emergency situation, accomplishing the emergency procedures outlined in Condition No. 6 for Radioactive Material Authorizations, "Emergency Procedures."

p. Complying with the applicable provision of Condition No. 7 for Radioactive Material Authorizations, "Requirements for the Use of Radioactive Iodine, Tritium, and Phosphorus-32."

q. Complying with the applicable provisions of Condition No. 8 for Radioactive Material Authorizations, "Ventillation Requirements."

r. Complying with the applicable provisions of Condition No. 9 for Radioactive Material Authorizations, "Gas Chromatograph Requirements."

HEALTH PHYSICS
WALTER REED ARMY MEDICAL CENTER
Washington, D.C. 20307-5001

CONDITION NO. 1

For

RADIOACTIVE MATERIAL AUTHORIZATIONS

PERSONNEL DOSIMETRY

1. PERSONNEL DOSIMETRY ASSIGNMENT LEVELS

An appropriate personnel monitoring device or devices will be assigned to each individual as required by the Health Physics Officer. In addition, other personnel monitoring techniques (e.g., bioassay) will be utilized to evaluate personnel dosimetry as deemed necessary by the Health Physics Officer. Personnel monitoring devices will usually be assigned when individuals could potentially receive in excess of the following levels in a three (3) month period:

Whole Body, head and trunk, active blood forming organs, gonads or lens of the eye	63 millirems
Skin of the whole body (other than hands, wrists, feet or ankles), forearms, and cornea of the eye	375 millirems
Hands and wrists, or feet and ankles	938 millirems
Bone, thyroid, other organs, tissues and organ systems	250 millirems

2. APPLICATION FOR PERSONNEL DOSIMETRY SERVICE

a. Supervisors of individuals who are potentially exposed to occupational radiation doses in excess of the above values must require such individuals to submit an application for Personnel Dosimetry Service (DD Form 1952) to the Health Physics Office, WRAMC, prior to assignment to that work.

b. The procedure and responsibilities for processing the application are as follows:

(1) Individual Application for Personnel Dosimetry Service: The applicant has the responsibility to furnish:

(a) Individual data

(b) Previous occupational exposure history

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(2) Statement of Work Conditions/Environment by Supervisor: The supervisor has the responsibility to furnish:

(a) A statement of types of exposures in worker's environment (e.g., X-ray, neutron, isotope).

(b) A statement that the applicant has been oriented in radiation safety procedures relevant to his/her position by completion and return of WRAMC Form 538

3. USE OF PERSONNEL MONITORING DEVICES

a. When not being worn, the personnel monitoring devices will be stored in the designated place and are turned in to the activity film badge coordinator during the designated exchange periods.

b. Film badges will be worn only by the individual to whom they are issued.

c. WRAMC issued film badges shall not be worn by WRAMC personnel when occupationally exposed at other facilities without the consent of the Health Physics Officer.

d. Whole body film badges will be worn on the front of the torso. In the event a protective garment such as a lead apron is worn, the badge shall be worn under the protective garment.

4. TERMINATION OF PERSONNEL DOSIMETRY SERVICE

The Principal User notifies the Health Physics Office of all department personnel who utilize the personnel dosimetry service.

5. BIOASSAY

a. Individuals who are required to participate in the Bioassay Program due to use of radioactive iodine, tritium, and/or phosphorus-32 will continue participation until released in writing by the Health Physics Officer.

b. The Principal User will assure that personnel required to participate in the Bioassay Program:

(1) Appear for measurement at the time, place and frequency required.

(2) Provide appropriate samples for in-vitro counting.

(3) Inform the Health Physics Officer of changes in working conditions or other factors that would influence the type, or frequency of bioassay measurement.

HEALTH PHYSICS
WALTER REED ARMY MEDICAL CENTER
Washington, D.C. 20012

CONDITION NO. 2

For

RADIOACTIVE MATERIAL AUTHORIZATIONS

AREA SURVEY PROCEDURES

1. All elution, preparation, and injection areas where radionuclides other than Tritium or Carbon-14 are used will be surveyed daily with a low-range thin-window G-M survey meter and decontaminated if necessary.

2. For those areas using Tritium or Carbon-14 only, a series of wipe tests to measure contamination levels will be performed. The method for performing wipe tests will be sufficiently sensitive to detect 100 dpm per 100 cm^2 for the contaminant involved.

3. A permanent record will be kept of all survey results, including negative results. The record will include:

a. Location, date, and type of equipment used.

b. Name of person conducting the survey.

c. Detected contamination levels, keyed to locations on drawing.

d. Corrective action taken in the case of contamination, reduced contamination levels after corrective action, and any appropriate comments.

4. Area will be cleaned if the contamination level exceeds 100 dpm/100 cm^2.

5. The Health Physics Office will be contacted immediately if contamination levels exceed 1000 dpm/100 cm^2.

REVIEWED - No Changes Needed - 13 MAR 1987

HEALTH PHYSICS
WALTER REED ARMY MEDICAL CENTER
Washington, D.C. 20012

CONDITION NO. 3

For

RADIOACTIVE MATERIAL AUTHORIZATIONS

GENERAL RULES FOR THE SAFE USE OF RADIOACTIVE MATERIAL

1. Principal Users of radioactive material at WRAMC are responsible for incorporating all applicable precautions listed in this Condition into their procedures and assuring their implementation by personnel listed on their Radioactive Material Authorization.

SECTION I - LABORATORY PRECAUTIONS

2. Following are general rules for the safe use of radioactive materials:

a. Wear laboratory coats or other protective clothing at all times in areas where radioactive materials are used.

b. Wear disposable gloves at all times while handling radioactive materials.

c. Monitor hands and clothing for contamination after each procedure or before leaving the area.

d. Do not eat, drink, smoke, or apply cosmetics in any area where radioactive material is stored or used.

e. Wear assigned personnel monitoring device(s) at all times while in areas where radioactive materials are used or stored. Whole body monitoring device(s) should be worn at chest or waist level.

f. Dispose of radioactive waste only in specifically designated recepticles.

g. Never pipette by mouth.

h. Confine radioactive solutions in covered containers plainly identified and labeled with name of compound, radionuclide, date activity, and radiation level, if applicable.

i. Always transport radioactive materials in appropriate shielding containers.

REVIEWED - No Changes Needed - 13 MAR 1987

CONDITION NO. 3 FOR RADIOACTIVE MATERIAL AUTHORIZATIONS (GENERAL RULES FOR THE SAFE USE OF RADIOACTIVE MATERIAL)

SECTION II - NUCLEAR MEDICINE PRECAUTIONS

3. Following are additional general rules specifically applicable to preparation and use of radioactive materials for human use.

a. Use syringe shields for preparation of patient doses and administration to patients except in circumstances such as pediatric cases when their use would compromise the patient's well-being.

b. Assay each patient dose in the dose calibrator prior to administration. Do not use any doses that differ from the prescribed dose by more than 10%.

c. Wear TLD finger badges during elution of generator and preparation, assay, and injection of radiopharmaceuticals.

d. Survey Generator, kit preparation, and injection areas for contamination after each procedure or at the end of the day. Decontaminate if necessary.

SECTION III - VENTILATION IN RADIATION CONTROLLED AREAS

4. Procedures resulting in the generation of radioactive aerosols, dusts or gaseous products shall be conducted in a hood, dry box or other suitable closed system. Radioactive gases or material with radioactive gaseous daughters shall be stored in gas tight containers and kept in areas having approved ventilation. For handling low to moderate levels of radioactive materials, the average velocity through openings in the hood shall be 100 fpm. For highly toxic or high-level radioactive material, the velocity through the opening must be raised to an average of 125 - 200 fpm.

HEALTH PHYSICS
WALTER REED ARMY MEDICAL CENTER
Washington, D.C. 20307-5001

CONDITION NO. 4

For

RADIOACTIVE MATERIAL AUTHORIZATIONS

RADIOACTIVE WASTE

1. General. Radioactive waste from Walter Reed Army Medical Center and tenant activities will be controlled, packaged, transported, and disposed of in accordance with AR 385-11, "Ionizing Radiation Protection;" Title 10, Code of Federal Regulations; Title 49, Code of Federal Regulations; Nuclear Regulatory Commission Licenses issued to WRAMC; applicable provisions of State Government requirements for waste disposal sites located within their jurisdiction; and the guidelines delineated herein.

2. Definitions:

a. Radioactive Material: Any material or combination of materials that spontaneously emits gamma rays, X-rays, alpha particles, beta particles, neutrons, or other atomic particles that are capable of producing ions, directly or indirectly by their passage through matter.

b. Radioactive Waste: Surplus items containing radioactive material, property contaminated with radioactive material to the extent that decontamination is economically unsound, and materials that have become contaminated during possession/use of radioactive material.

c. Activity: The number of nuclear transitions (disintegrations) occurring in a given quantity of material per unit time (disintegrations per second); expressed in units of Curies or Becquerels.

d. Specific Activity: Total activity of a given radionuclide per gram of a compound, element, or radioactive nuclide.

e. Curie: The special unit of activity. One curie equals 3.700×10^{10} nuclear transitions per second. (Abbreviated Ci.). Several fractions of the curie are in common usage:

(1) Microcurie: One-millionth of a curie (3.7×10^4 disintegrations per sec.). Abbreviated μCi.

(2) Millicurie: One-thousandth of a curie (3.7×10^7 disintegrations per sec.). Abbreviated mCi.

REVISION 2, effective 13 Apr 87

(3) Picocurie: One-millionth of a microcurie (3.7×10^{-2} disintegrations per second or 2.22 disintegrations per minute). Abbreviated pCi; replaces the term $\mu\mu$ Ci.

f. Becquerel: The special name for the unit of activity. One becquerel equals one nuclear transition per second.

g. Half-life, Radioactive: Time required for a radioactive substance to lose 50 percent of its activity by decay. Each radionuclide has a unique half-life.

h. Short Half-life Radioactive Waste: Radioactive waste containing one or more radionuclides having a radiological half-life of less than 65 days.

i. Long Half-life Radioactive Waste: Radioactive waste containing one or more radionuclides having a radioactive half-life equal to or greater than 65 days.

SECTION I - RADIOACTIVE WASTE CONTROL IN THE LABORATORY/CLINIC

1. Principal Users are responsible for assuring that radioactive waste resulting from the conduct of authorized procedures is controlled in a manner that meets the safety/security measures prescribed by US Army, Federal, and applicable State Regulations. All Users of radioactive materials are responsible for:

a. Segregating their radioactive waste into the categories listed below:

(1) Solid: Short half-life.

(2) Solid: Long half-life.

(3) Scintillation Vials: $\leq$ 0.05 microcuries H-3 or C-14 per gram of fluid.

(4) Scintillation Vials: Short half-life.

(5) Scintillation Vials: Long half-life.

(6) Aqueous Fluid Vials: $\leq$ 30 ml fluid, short half-life.

(7) Aqueous Fluid Vials: $\leq$ 30 ml fluid, long half-life.

(8) Aqueous Fluids: > 30 ml fluid, by individual radionuclide.

(9) Flammable Liquids: > 30 ml fluid, by individual radionuclide.

(10) "BACTEC" Vials.

(11) Commercial Radio-Immuno-Assay Kits.

(12) Animal Carcasses/Animal Waste: Short half-life.

(13) Animal Carcasses/Animal Waste: Long half-life.

(14) Animal Carcasses: $\leq$ 0.05 Microcuries H-3 or C-14 per gram of animal tissue averaged over the entire weight of the animal.

(15) Gas, Combustible.

(16) Gas, Non-combustible.

b. Limiting the non-radioactive waste which is intermixed with radioactive waste to an absolute minimum.

c. Removing or obliterating all "Radioactive Material" labels on non-radioactive vendor shipping packages and on short half-life radioactive waste. Uncontaminated vendor shipping containers may be disposed of in the normal trash by the users. Short half-life waste will be delivered to Health Physics Office (HPO) collection points for subsequent storage, decay, and ultimate disposal in the normal trash when HPO personnel have determined that the waste has reached natural background radiation levels.

d. Storing used Mo-99/Tc-99m generators and other items of equipment containing radioactive material in designated areas only. The radiation labels will be removed on such items only when they reach background radiation levels.

e. Maintaining their inventory of radioactive waste to a practical minimum.

f. Controlling radioactive waste in their work areas to prevent unauthorized disposal by the custodial service. Magenta plastic bags will be used to contain radioactive waste. Magenta bags will not be used for other purposes.

g. Insuring that all radioactive waste is delivered to HPO collection point personnel for ultimate disposal.

h. Marking all radioactive waste containers with the radiation caution symbol and the words "Caution - Radioactive Waste" and/or "Caution -Radioactive Material." Plus "DO NOT EMPTY!"

i. Insuring that radioactive material is not released into the sanitary sewage system without the specific approval of the Health Physics Officer.

j. Insuring that decontamination of reusable equipment is only performed in laboratory sinks that have been authorized via their Radioactive Material Authorization. See Section II for specific requirements concerning this procedure.

CONDITION NO. 4 FOR RADIOACTIVE MATERIAL AUTHORIZATIONS (RADIOACTIVE WASTE)

2. All Users of radioactive materials will package their materials for disposal as follows:

a. Segregate radioactive waste into the categories listed in Paragraph 1a, this section.

b. Solid radioactive wastes shall be placed in double magenta plastic bags or a receptacle lined with double magenta plastic bags. When full, the bags will be taped closed. The bags will be tagged with the User's Authorization number and information concerning the contents, chemical and physical forms of base material, radioisotope(s), activity and waste category.

c. Bulk liquid waste that is retained for disposal shall be collected in plastic bottles or sealed in cans to diminish the breakage hazard. However, liquid waste that will chemically react with plastic and liquid waste containing Tritium should be placed in glass bottles. All bottle caps should be taped prior to placing them in an appropriate radioactive material container. The bottle or can will be marked with the User's Authorization number and information concerning the contents, chemical and physical forms of base material, radioisotope(s), activity, and waste category.

d. Scintillation vials shall be packaged spearately from other materials. They will be tightly closed and placed in a shipping tray that is labeled with the words "Caution - Radioactive Material." Care must be taken to prevent breakage of the vials while in storage/transport. The trays will be tagged as previously indicated.

e. BACTEC Vials shall be packaged separately from other materials. They will be autoclaved, all radiation labels obliterated, placed in a DOT Specification 7A, Type A, 55-gallon steel drum lined with a 4 mil thick magenta plastic bag. These vials will not be opened and care must be taken to prevent breakage. The drum will be tagged with the words "BACTEC VIALS."

f. All broken glassware, vials, bottles, tubes, pipettes, syringes, needles, and similar items must be packaged in double magenta plastic bags and then placed in small cardboard or plastic containers and sealed to prevent personal injury. The bags and the box will be tagged as previously indicated.

g. Radioactive gasses for disposal will not be transferred to the Health Physics Office without the prior coordination with the Radioactive Materials Control Branch.

h. Short half-life materials and items contaminated with short half-life materials shall be separated from other materials, providing there is no chemical or biological hazard involved. Radioactive warning labels must be defaced on all vials and materials prior to placing the items in the double magenta plastic bags. The bags will be tagged as previously indicated.

CONDITION NO. 4 FOR RADIOACTIVE MATERIAL AUTHORIZATIONS (RADIOACTIVE WASTE)

i. Biological wastes (e.g., animal carcasses/animal waste) shall be prepared by the User in a manner that allows the waste to be readily packed in in a 30-gallon drum alternating 10-inch layers of waste and packing materials. Prepared biological waste shall be placed in double magenta plastic bags and tagged as previously indicated.

SECTION II - RELEASE OF RADIOACTIVITY INTO THE SANITARY SEWAGE SYSTEM

1. Liquid waste will be released to the sanitary sewage system in accordance with Title 10, Code of Federal Regulations, Chapter 1, Part 20.303 (i.e., 10 CFR 20).

2. Unless specifically authorized by the Health Physics Office, all releases of radioactive liquid to the sanitary sewerage system will be conducted by the Health Physics Office to assure that the quantity of radioactive material released into the system by combined WRAMC disposal procedures does not exceed the following limits:

a. The quantity of any licensed or other radioactive material released into the system by WRAMC in any one day does not exceed the larger of paragraphs a(1) or (2) below.

(1) The quantity which, if diluted by the average daily quantity of sewage released into the sewer by WRAMC will result in an average concentration equal to the limits specified in Appendix B, Table I, Column 2 of 10 CFR 20 or

(2) Ten times the quantity of such material specified in Appendix C of 10 CFR 20 and

b. The quantity of any licensed or other radioactive material released in any one month, if diluted by the average monthly quantity of water released by WRAMC, will not result in an average concentration exceeding the limits specified in Appendix B, Table I, Column 2 of 10 CFR 20 and

c. The gross quantity of licensed and other radioactive material, excluding hydrogen-3 and carbon-14, released into the sewerage system by WRAMC does not exceed one curie per year. The quantities of hydrogen-3 and carbon-14 released into the sanitary sewerage system may not exceed 5 curies per year for hydrogen-3 and 1 curie per year for carbon-14. Excreta from individuals undergoing medical diagnosis or therapy with radioactive material shall be exempt from any limitations contained in this document.

3. The following policy and procedures apply to all individuals permitted to release radioactive washings into the sanitary sewage system via laboratory sinks:

a. Such release approval must be specifically included in the Principal User's WRAMC Radioactive Material Authorization.

CONDITION NO. 4 FOR RADIOACTIVE MATERIAL AUTHORIZATION (RADIOACTIVE WASTE)

b. The sink through which the material is discharged must be conspicuously posted with a sign bearing the Radiation Caution Symbol and the words, "Caution - Radioactive Material Wash Sink."

c. The sink must be posted with a notice to the User that the radioactive material discharged through the sink must be readily soluble or dispersible in water and does not contain any substance which is hazardous to health or will result in a substantial harm to domestic animals, fish, shellfish or wildlife.

d. A record of the identity and activity of radionuclides released via sink decontamination procedures will be maintained by the Principal User. All releases will be documented in a permanent log maintained for each wash sink. Each release will be documented in the log by date, radionuclide, total activity released and the cumulative activity released within the current calendar quarter. This data will be reviewed by HPO personnel for compliance with regulatory limits and collection of the quarterly activity release value.

e. The material must be essentially neutral (i.e., pH of 6.0 - 8.0).

f. The quantity of any material released by the user in any one month will not exceed 100 microcuries.

SECTION III - COLLECTION, LOCAL TRANSPORTATION AND STORAGE OF RADIOACTIVE WASTE

1. Properly packaged radioactive waste will be brought to centralized collection points in Building 40, Walter Reed Army Institute of Research; Building 2, Walter Reed Army Medical Center; or other designated locations as appropriate. Operational hours for collection points may be ascertained by calling the Health Physics Office. Under the supervision of the Health Physics Office, waste will be placed in barrels or other required containers. Wastes for disposal must be categorized as listed in Section I. Waste that has not been properly separated and tagged will not be accepted. Such waste must be repackaged by the user.

2. Principal Users will assure that packaged radioactive waste delivered to the above noted collection points is kept under constant surveillance until removed by Health Physics personnel to preclude the possibility of loss or theft.

3. All radioactive waste will be transported from the above noted collection points to the Radioactive Material Storage Areas located in Buildings 149-A and 516, Forest Glen Section, WRAMC, for ultimate disposal.

CONDITION NO. 4 FOR RADIOACTIVE MATERIAL AUTHORIZATION (RADIOACTIVE WASTE)

SECTION IV - RADIOACTIVE WASTE DISPOSAL SUPPLIES

1. Items of supply for the containment and packaging of radioactive waste are stocked by the Supply and Administration Branch, Materiel Division, Directorate of Industrial Operations, WRAMC. The stockage items meet U.S. Army and Federal radioactive material packaging requirements for most of the radioactive waste resulting from laboratory and/or clinic procedures at WRAMC, WRAIR and AFIP. However, it should be noted that packaging requirements vary with the particular type, form and curie amount of the radioactive waste. Consequently, all personnel involved with the packaging of radioactive waste should consult the Health Physics Office in order to assure that the available stockage items meet packaging specification requirements for each particular radioactive waste disposal operation.

2. Following are the currently stocked items:

a. DRUM, Steel, DOT Specification 17-H, 30-gallon with gasket and sealing bolt. (Used as shipping container for the transport of radioactive biologicals).

b. DRUM, Steel, DOT Specification 17-H, 55-gallon with gasket and sealing bolt. (Used as a shipping container for the transport of low-level radioactive materials).

c. VERMICULITE, 4 cu ft bags. (Used as an absorbent material for the packaging of biological and liquid radioactive waste) - agricultural, Grade 4.

d. SLAKED LIME (Used to retard spoilage of biological radioactive waste).

e. BAG, Plastic, Magenta, 20" x 15" x 60", 4 mil thickness. (Used as a liner for large waste receptacle).

f. BAG, Plastic, Magenta, 13" x 12" x 24", 2 mil thickness. (Used as a liner for small laboratory radioactive waste receptacle).

g. DIATOMACEOUS EARTH, medium grade (floor dry #85), 2.5 cu ft bag. (Used as an absorbent material for packaging of liquid radioactive waste).

3. Additional items will be stocked or procured as required to meet the provisions of Federal/State regulatory agencies.

4. Principal Users are responsible for funding the costs of materials and supplies used to dispose of radioactive wastes. Although Principal Users will pay for the supplies they stock for use in their particular areas, the Health Physics Office, RMC Branch, will order and pick up the supplies needed to collect and package the radioactive waste received from the Principal Users. All orders placed by the Health Physics Office for radioactive waste disposal supplies for the hospital, WRAIR and AFIP will be funded by Clinical Investigation, Department of Pathology/Laboratory Services, Department of Radiology, WRAIR, or AFIP as appropriate.

HEALTH PHYSICS
WALTER REED ARMY MEDICAL CENTER
Washington, D.C. 20307-5001

CONDITION NO. 5

FOR

RADIOACTIVE MATERIAL AUTHORIZATIONS

PROCEDURES FOR
ORDERING, RECEIVING AND SAFELY OPENING PACKAGES
CONTAINING RADIOACTIVE MATERIAL

1. GENERAL. Radioactive material for Walter Reed Army Medical Center (WRAMC) and tenant activities will be ordered, received and secured in accordance with US Army Regulations, Title 10, Code of Federal Regulations, and the provisions of WRAMC's Nuclear Regulatory Commission License.

2. PRINCIPAL USER'S RESPONSIBILITIES.

a. WRAMC Principal Users are responsible for ordering and receiving radioactive material in accordance with the instructions outlined below.

b. A Principal User may procure only those radioisotopes currently authorized for his use by the WRAMC Radiation Control Committee, subject to the limitations of his authorization.

c. Unless specified prior arrangements have been made with the Health Physics Officer, the maximum quantity which may be ordered at any one time is limited by the maximum activity of that radioisotope which the User is authorized to possess less the amount of activity the User will have on hand at the time the new order is received.

d. Specific prior approval of the Health Physics Officer shall be required before receiving and/or transferring gifts containing radioactive material. This procedure applies to those instances where normal supply channels are not utilized. All gifts will be delivered to one of the locations listed below.

3. ORDERING PROCEDURES.

a. The Principal User shall submit a completed Purchase Request through normal supply channels for the procurement of all radioactive materials.

b. In addition to the information required by WRAMC Procurement Regulations, each purchase request shall contain the following:

CONDITION NO. 5 FOR RADIOACTIVE MATERIAL AUTHORIZATIONS (PROCEDURES FOR ORDERING, RECEIVING AND SAFELY OPENING PACKAGES CONTAINING RADIOACTIVE MATERIAL)

(1) Radionuclide, chemical form, and total activity (Activity is given as microcurie (uCi), millicurie (mCi), or curie (Ci); for natural radioactive materials microgram (ug), milligram (mg), gram (g), or kilogram (kg) may be used; for radium equivalent sources such as Cesium-137 milligram radium equivalent (mg Ra eq) may be used where appropriate).

(2) This notice will be typed after the item description:

RADIOACTIVE MATERIAL
NOTIFY HEALTH PHYSICS OFFICE
PRIOR TO PLACING ORDER
(TELEPHONE NO. 427-5104)

(3) The WRAMC Radioactive Material Authorization Number will be indicated in the "Attention Line" of the "Ship To" address.

(4) Date required or delivery date.

(5) One of the proper shipping addresses designated below:

(a) For items to be delivered by mail:

Health Physics Officer
Bldg 188, Forest Glen Section
Walter Reed Army Medical Center
ATTN: Authorization No. _____
Washington, D.C. 20307-5001

(b) For items to be delivered by all other means:

Health Physics Officer
Bldg 188, 2681 Linden Lane
Forest Glen Section
Walter Reed Army Medical Center
ATTN: Authorization No. _____
Silver Spring, MD 20910

(c) For items destined for USAMRIID, Ft. Detrick, Maryland:
Radiation Protection Officer
US Army Medical Research Institute
of Infectious Diseases
South Loading Dock, Bldg 1425
Fort Detrick
Frederick, Maryland 21701

(d) For any item destined for Andrew Rader Clinic, Ft. Myer, Virginia:

Andrew Rader Army Clinic
Bldg 1425
Fort Myer, Virginia 22211

(e) For any item destined for Army Medical Laboratory, Fort Meade, Maryland:

Radiation Protection Officer
Army Medical Laboratory
Bldg 2490
Fort Meade, Maryland 20755

4. RECEIVING PROCEDURES.

a. All incoming shipments of radioactive material to Walter Reed Army Medical Center will be received by the Health Physics Office during duty hours, or by the Military Police, WRAMC Forest Glen Section during non-duty hours. Shipments to Fort Detrick, Fort Meade or Fort Myer will be delivered to the address shown in paragraph 3. The Health Physics Office must be notified immediately of any shipment delivered to an unapproved address.

b. All incoming packages of radioactive material will be examined for damage immediately upon receipt. Any packages that appear to be wet, punctured, crushed, or otherwise damaged will be considered to be contaminated. Until the Health Physics Office has determined otherwise, do not handle such packages.

c. Incoming radioactive material shipments must be continuously secured against unauthorized removal and the radiation levels adjacent to the secured storage area may not exceed 0.5 mR/hr.

5. SHIPMENT MONITORING & DELIVERY TO AUTHORIZED RECIPIENTS.

a. All shipments of radioactive material must be inspected by the Health Physics Office to insure that the shipment does not exceed the possession limits of the Authorization under which it is ordered. Unauthorized shipments will be returned to vendor when possible, disposed of as radioactive waste, or held until the Principal User obtains an amended Radioactive Material Authorization allowing receipt of the material. Unauthorized shipments will not be held by Health Physics for more than ninety (90) days.

b. Shipments will be delivered to Principal Users by the Health Physics Office after monitoring procedures have been accomplished.

CONDITION NO. 5 FOR RADIOACTIVE MATERIAL AUTHORIZATION (PROCEDURES FOR ORDERING, RECEIVING AND SAFELY OPENING PACKAGES CONTAINING RADIOACTIVE MATERIAL)

6. FINAL SOURCE CONTAINER CHECK. The Principal User is responsible for making a final check of the radioactive materials source container after it is delivered by the Health Physics Office. This check will follow the steps outlined below:

a. Put on gloves.

b. Open outer package (following manufacturer's directions, if supplied) and remove packing slip. Open inner package and verify that the contents are as listed on the packing slip.

c. Check integrity of source container, inspecting for breakage of seals or vials, loss of liquid, discoloration of packaging material, etc.

HEALTH PHYSICS
WALTER REED ARMY MEDICAL CENTER
Washington, D.C. 20012

CONDITION NO. 6

For

RADIOACTIVE MATERIAL AUTHORIZATIONS

EMERGENCY PROCEDURES

1. MINOR SPILLS

a. Notify: Notify persons in the area that a spill has occurred.

b. Prevent the Spread: Cover the spill with absorbent paper.

c. Clean Up: Use disposable gloves and remote handling tongs. Carefully fold the absorbent paper and pad. Insert into a plastic bag and dispose of in the radioactive waste container. Also insert into the plastic bag all other contaminated materials such as disposable gloves.

d. Survey: With a low-range, thin-window G-M survey meter, check the area around the spill, hands, and clothing for contamination.

e. Report: Report incident to the Health Physics Officer.

2. MAJOR SPILLS

a. Clear the Area: Notify all persons not involved in the spill to vacate the room.

b. Prevent the Spread: Cover the spill with absorbent pads, but do not attempt to clean it up. Confine the movement of all personnel potentially contaminated to prevent the spread.

c. Shield the Source. If possible, the spill should be shielded, but only if it can be done without further contamination or without significantly increasing your radiation exposure.

d. Close the Room: Leave the room and lock the door(s) to prevent entry.

e. Call for Help: Notify the Health Physics Officer immediately.

f. Personnel Decontamination: Contaminated clothing should be removed and stored for further evaluation by the Health Physics Officer. If the spill is on the skin, flush thoroughly and then wash with mild soap and lukewarm water.

g. IN CASE OF EMERGENCY: Contact the Health Physics Officer at 427-5107/5104.

REVIEWED - No Changes Needed - 13 MAR 1987

HEALTH PHYSICS
WALTER REED ARMY MEDICAL CENTER
Washington, D.C. 20307-5001

CONDITION NO. 7

For

RADIOACTIVE MATERIAL AUTHORIZATIONS

REQUIREMENTS FOR THE USE OF RADIOACTIVE IODINE, TRITIUM AND PHOSPHORUS-32

SECTION I - GENERAL

1. This condition delineates responsibilities and requirements for utilizing radioactive iodine, tritium and/or phosphorus-32 in amounts of 1.0 millicurie or greater. Principal Users of radioactive material at WRAMC and tenant activities are responsible for incorporating all applicable precautions listed in this condition into their procedures and assuring that all applicable precautions are followed by the personnel listed on their Radioactive Material Authorizations.

SECTION II - RADIOACTIVE IODINE

2. RADIATION SAFETY PRECAUTIONS

a. The general rules for the safe use of radioactive material specified in Condition 3 for Radioactive Material Authorizations will be followed.

b. All laboratory facilities authorized to use radioactive iodine will be equipped with a suitable survey meter. Calibrated survey meters will be provided by the Health Physics Office. The individual user is responsible for conducting a thorough survey of the work area and immediate vicinity upon completion of all procedures involving radioactive iodine.

c. All procedures involving use of 1.0 millicurie or more of radioactive iodine will be performed in an iodination box approved by the Health Physics Office. Procurement of the Iodination Box is the responsibility of the individual department and users. Charcoal filters for the iodination boxes will be exchanged by the Health Physics Office on a periodic basis.

d. Procedures involving less than 1.0 millicurie of radioactive iodine will be performed in ventillation hoods approved by the Health Physics Office. Iodination boxes are not required for these procedures.

e. In the case of therapeutic usage, the radioactive iodine vial will be vented inside an approved iodination box prior to being transported to the patient care area.

CONDITION NO. 7 FOR RADIOACTIVE MATERIAL AUTHORIZATIONS (REQUIREMENTS FOR THE USE OF RADIOACTIVE IODINE, TRITIUM AND PHOSPHORUS-32

f. Nuclear Medicine procedures involving administration of more than 30 millicuries of radioactive iodine will be coordinated with the Health Physics Office at least 2 days in advance of a scheduled treatment.

3. AIR MONITORING REQUIREMENTS

a. The below listed air samples will be collected and evaluated in order to assure personnel safety:

(1) User Breathing Zone: A sample of the air from the vicinity of the user's mouth and nose will be collected throughout each procedure involving volatile radioactive iodine. The user will collect this sample utilizing the equipment and instructions provided by the Health Physics Office. Breathing zone samples will be secured in a container to prevent contamination and turned in to the Health Physics Office for analysis.

(2) Room Air: An air sample that is representative of the air within the room where iodination procedures are conducted will be collected continuously for a period of one week. Installation, removal and analysis of the filter is the responsibility of the Health Physics Office. Users will assure the sample collection system is operational and report duration of all accidental sampling interruption to the Health Physics Office.

(3) Effluent Air: A sample of air that is representative of the air being discharged to the environment by the fume hood used for iodination procedures will be collected continuously for a period of one month. Installation, removal and analysis of these filters is the responsibility of the Health Physics Office. Users will assure the sample collection system is operational and report the duration of all accidental sampling interruptions to the Health Physics Office.

b. The below listed equipment (or its equivalent) will be utilized in the collections of air samples:

(1) Vacuum System: A vacuum pump or an in-house vacuum line capable of maintaining a flow rate of 10 LPM is acceptable. In all cases where an in-house vacuum line is utilized, an additional charcoal impregnated filter will be installed between the vacuum source and the filter used for the same collection.

(2) Collection Filters: A four-inch charcoal filter supplied by the Health Physics Office will be utilized for the collection of air samples.

4. BIOASSAY REQUIREMENTS

a. The Health Physics Office will conduct the bioassay program. Objectives of the program are to:

(1) Indicate whether entry of radionuclides into the body has occurred.

(2) Determine the activity resulting from ingestion or inhalation of radionuclides.

(3) Take appropriate action to find out how, when and why the ingestion or inhalation of radionuclides has taken place so as to curtail the problem and prevent a recurrence.

b. An investigation of the individual's work procedures will be performed when bioassay results indicate the following limits have been exceeded:

Thyroid burden of I-125	0.12 uCi
Thyroid burden of I-131	0.04 uCi

c. Radionuclide work procedures will be curtailed/modified when bioassay results indicate the following limits have been exceeded:

	STOP WORK
Thyroid burden of I-125	0.50 uCi
Thyroid burden of I-131	0.14 uCi

d. Principal user will monitor the amounts of radioisotopes used by personnel working under their authorization and assure their participation in the bioassay program as required.

e. Monitoring for internal deposition of radionuclides will normally be performed under the following circumstances:

(1) When laboratory surveys indicate frequent or gross contamination.

(2) When air sampling indicates levels of airborne contamination exceeding 10% of maximum permissible concentration.

(3) When internal deposition of radioactive material is known or suspected.

(4) When the total amount of I-125 and/or I-131 handled in any three-month period exceeds the value listed below, the using individual will participate in the thyroid uptake bioassay program.

TYPE OF OPERATION	VOLATILE OR DISPERSIBLE	BOUND TO NON-VOLATILE AGENT
Processes in open room or bench with possible escape of iodine from process vessels	.1 mCi	1 mCi
Processes with possible escape of iodine carried out within a fume hood of adequate design face velocity, and performance reliability	1 mCi	10 mCi

CONDITION NO. 7 FOR RADIOACTIVE MATERIAL AUTHORIZATION (REQUIREMENTS FOR THE USE OF RADIOACTIVE IODINE, TRITIUM AND PHOSPHORUS-32

TYPE OF OPERATION	VOLATILE OR DISPERSIBLE	BOUND TO NON-VOLATILE AGENT
Processes carried out within glove boxes, ordinarily closed, but with possible release exposure to contaminated box and box leakage	10 mCi	100 mCi

5. THYROID BLOCKING AGENT REQUIREMENTS:

a. Agents that block the accumulation of radioiodine by the thyroid gland may be permitted for those at risk to the volatization of high specific activity radioiodine used in radioiodination procedures subsequent to a thyroid evaluation and recommendation by the consulting physician in the thyroid clinic that such an agent should be administered.

b. The supervisor of any radiation workers performing radioiodination experiments will advise the radiation workers of the standard safety procedures and monitoring requirements. In addition, the radiation worker will be advised of the possibility of using a thyroid blocking agent prior to the experiment. In the event that the radiation worker agrees to use this additional precaution, the supervisor will send military radiation workers to ASO and civilian radiation workers to the Occupational Health nurse with a request that a medical consultation be arranged at the Nuclear Medicine Thyroid Clinic for medical evaluation of the worker's thyroid relative to the use of a blocking agent.

c. The responsibilities with regard to recommended usage of a thyroid blocking agent are as follows:

(1) Supervisor:

(a) Advise radiation workers of safe procedures, monitoring requirements and bioassay requirements in using radioactive iodine.

(b) Advise radiation workers of potential use of a thyroid blocking agent at the time of a radioiodination experiment.

(c) Complete a sick call slip requesting a consultation at the thyroid clinic for thyroid evaluation with respect to the use of a thyroid blocking agent prior to radioiodination experiments. Active Duty Military must present sick call slip to ASO. Civilians must present sick call slip to Occupational Health nurse.

(2) ASO or Occupational Health Nurse: Arrange for a consultation at the thyroid clinic.

CONDITION NO. 7 FOR RADIOACTIVE MATERIAL AUTHORIZATIONS (REQUIREMENTS FOR THE USE OF RADIOACTIVE IODINE, TRITIUM AND PHOSPHORUS-32

(3) Nuclear Medicine Thyroid Clinic:

(a) Determine the medical advisability of the radiation worker using a thyroid blocking agent and advise the radiation worker as to the advisability/nonadvisability of its use prior to a radioiodination experiment.

(b) Annotate consultation form with:

1. Medical evaluation of thyroid condition.

2. Recommendations regarding use of a thyroid blocking agent to include dose and time to be taken with respect to a radioiodination experiment.

3. Statement indicating that radiation worker has been advised of the hazards of radioactive iodine, the necessity for bioassay and the advisability/nonadvisability of using a thyroid blocking agent.

(c) Supply radiation worker with a prescription (if applicable) to obtain a thyroid blocking agent at WRAMC pharmacy. (Civilian must obtain concurrence from the Occupational Health Clinic in order to have the prescription filled at the WRAMC pharmacy).

(d) Notify Health Physics Office in writing of those personnel who have been reviewed regarding the use of a thyroid blocking agent to be used in conjunction with radioiodination experiments and the recommendations regarding the use of a thyroid blocking agent.

(4) Health Physics:

(a) Maintain a listing of all radiation workers who have been evaluated in the thyroid clinic and recommendations for each worker regarding the use of a thyroid blocking agent.

(b) Notify the radiation worker's supervisor regarding the evaluation and recommendations of the thyroid clinic's physician.

SECTION III - TRITIUM

6. SAFETY PRECAUTIONS

a. The general rules for the safe use of radioactive material specified in Condition No. 3 for Radioactive Material Authorizations will be followed.

b. All procedures involving the use of 10.0 millicuries or more of tritium in one month (1.0 millicurie for processes utilizing nucleoclide precursors) should be performed in ventillation hoods approved by the Health Physics Office.

CONDITION NO. 7 FOR RADIOACTIVE MATERIAL AUTHORIZATIONS (REQUIREMENTS FOR THE USE OF RADIOACTIVE IODINE, TRITIUM AND PHOSPHORUS-32

7. BIOASSAY REQUIREMENTS

a. The Health Physics Office will conduct the bioassay program. Objectives of the program are to:

(1) Indicate when entry of radionuclides into the body has occurred.

(2) Determine the activity resulting from the ingestion or inhalation of radionuclides.

(3) Take appropriate action to find out how, why, and when the ingestion of inhalation of radionuclides has taken place so as to prevent the problem and prevent recurrence.

b. An investigation of the individual's work procedures will be performed when bioassay results indicate the following limit has been exceeded:

Total urine activity 5.00 uCi/1 for H-3

c. Radionuclide work procedures will be curtailed/modified when bioassay results indicate the following limit has been exceeded:

Total urine activity 50.00 uCi/1 for H-3

d. Principal Users will monitor the amounts of radionuclide used by personnel working under their authorizations and assure their participation in the bioassay program as required.

e. Monitoring for internal deposition of radionuclides will normally be performed under the following circumstances:

(1) When laboratory survey indicates frequent or gross contamination.

(2) When internal deposition of radioactive material is known or suspected.

(3) When the total amount of tritium processed by an individual at any one time, or the total amount processed in any one month exceeds the values listed below, the using individual will participate in the bioassay program.

CONDITION NO. 7 FOR RADIOACTIVE MATERIAL AUTHORIZATIONS (REQUIREMENTS FOR THE USE OF RADIOACTIVE IODINE, TRITIUM AND PHOSPHORUS-32

TYPES OF OPERATION	HTO & OTHER TRITIATED COMPOUNDS (Including Nucleotide Precursors	HT OR T_2GAS IN SEALED PROCESS CESS VESSELS	HTO MIXED WITH MORE THAN 10Kg OF INERT H_2O OR OTHER SUBSTANCES
Process in open room or bench, with possible escape of tritium from process vessel.	10 mCi	10 Ci	1 mCi/Kg
Processes with possible escape of tritium carried out within a fume hood of adequate design, face velocity, and performance reliability.	100 mCi	100 Ci	10 mCi/Kg
Processes carried out within glove boxes, ordinarily closed, but with possible release of tritium from process & occasional exposure to contaminated box & box leakage.	1 Ci	1,000 Ci	100 mCi/Kg

SECTION IV - PHOSPHORUS-32

8. RADIATION SAFETY PRECAUTIONS

a. Phosphorus-32 is the highest energy radionuclide commonly encountered in research laboratories and as such requires special care. If millicurie quantities are used, finger dosimeters should be worn. The use of lead-impregnated rubber gloves, is also recommended. The absorption of the B-particles by low-density materials (for example) plexiglas gives rise to relatively high energy bremsstrahlung which may require some lead shielding when quantities of 10 mCi or greater are being handled.

b. Always use remote handling tools. Avoid direct contact with containers of Phosphorus-32.

c. Shield sources of Phosphorus-32 with both low and high density shielding. Low density shielding such as plastic should be utilized as the first layer of shielding.

d. Always use impermeable gloves and safety glasses.

e. The applicable general rules for the safe use of radioactive material specified in Condition No. 3 for Radioactive Material Authorizations will also be followed.

CONDITION NO. 7 FOR RADIOACTIVE MATERIAL AUTHORIZATIONS (REQUIREMENTS FOR THE USE OF RADIOACTIVE IODINE, TRITIUM AND PHOSPHORUS-32

9. BIOASSAY REQUIREMENT

a. The Health Physics Office will conduct the bioassay program. Objectives of the program are to:

(1) Indicate when entry of radionuclides into the body has occurred.

(2) Determine the activity resulting from the ingestion or inhalation of radionuclides.

(3) Take appropriate action to find out how, why, and when the ingestion or inhalation of radionuclides has taken place so as to prevent the problem and prevent reoccurrence.

b. An investigation of the individual's work procedures will be performed when bioassay results indicate the following limit has been exceeded:

Total Urine Activity:	0.06 uCi/day for P-32 (sample taken on day 2)

c. Radionuclide work procedures will be curtailed/modified when bioassay results indicate the following limit has been exceeded:

Total Urine Activity:	0.20 uCi/day for P-32 (sample taken on day 2)

d. Principal Users will monitor the amounts of radionuclides used by personnel working under their authorizations and assure their participation in the bioassay program as required.

e. Monitoring for internal deposition of radionuclides will normally be performed under the following circumstances:

(1) When laboratory survey indicate frequent or gross contamination.

(2) When internal deposition of radioactive material is known or suspected.

(3) When the total amount of Phosphorus-32 processed by an individual at any one time exceeds 25 millicuries the individual will participate in the bioassay program.

HEALTH PHYSICS
WALTER REED ARMY MEDICAL CENTER
Washington, DC 20307

CONDITION No. 8

For

RADIOACTIVE MATERIAL AUTHORIZATIONS

VENTILATION REQUIREMENTS

1. General: Procedures resulting in the generation of radioactive aerosols, dusts or gaseous products shall be conducted in a hood, dry box, iodine box or other suitable closed system. Radioactive gases or material with radioactive gaseous daughters shall be stored in gas tight containers and kept in areas having approved ventilation. For handling low to moderate levels of radioactive material, the average velocity through openings in the hood shall be 100 fpm. For highly toxic or high-level radioactive material, the velocity through the opening will be rasied to an average of 125 - 200 fpm. The ventilation system will be designed to permit air flow in such a direction that any radioactive material picked up by air will flow away from the worker. The air flow should always be from a noncontaminated area toward the contaminated area. Laboratory ventilation will confine the toxic contaminant, exhaust it with suitable duct work and fans, and pass the material through a collector, scrubber or filter as needed before releasing it to the environment. The ventilation system will also provide sufficient air to make up for the amount exhausted.

2. Equipment Design:

a. Hood design

(1) A laboratory hood is a simple enclosure in which work can be carried out without toxic materials escaping. In order to keep the material from escaping the enclosure, sufficient air must be exhasuted to create an indraft through the face of the hood. This indraft must be strong enough to overcome the actions which allow materials to escape.

(2) Instrument checks on the velocity of air entering the hood will be performed under various conditions encountered during actual operations. Checking air flow patterns with a small source of smoke will be performed indicate the presence of crossdrafts that could pull material from the hood.

(3) In general, a hood should be located well away from any doorway where supply air must enter in order to avoid crossdrafts.

(4) During periods when the hood is unattended, it may be practical to use somewhat lower velocities, 75 to 80 fpm. Dual speed fans will permit operation at the higher velocity while the hood is in use and at the lower velocity when it is closed.

REVIEWED - No Changes Needed - 13 March 1987

b. Exhaust System:

(1) The exhaust system is designed to remove the airborne materials which are picked up in the hood. To safely vent the contaminated air, it may need to be filtered, or otherwise treated, before discharge to the environment. Cleaning equipment will be selected with view to the corrosive and toxic materials handled and the varying requirements for removal of radioactive materials.

(2) The duct work inside the building will be under negative pressure. Under these conditions any leakage in the duct system will be into the ducts and the radionuclides will be confined. To accomplish this, the fan must be located at the point where the exhaust leaves the building. Duct work connecting several hoods will have streamlined connections. Branch duct should enter at angles of 30 to 45 degrees in order to permit better passage of air at high velocities. In such mulitiple installations, care should be taken to see that the exhaust system is balanced so that one hood does not provide the bulk of the air for the system.

(3) Velocities of air in ducts should be great enough to maintain minimum transport velocities for the material being conveyed. Usual range of transport velocities for particulate material is 3500 to 4500 fpm.

(4) In hoods where large quantities of water are handled, it is necessary to provide some means of removing the condensation that collects in the duct. When the system is intended to handle corrosive materials, the duct work should be of material resistant to corrosion.

(5) The discharge should be at least five to ten feet above the laboratory roof, located so the fumes will not be carried back into the laboratory or into the air, intake of adjacent buildings.

(6) Clean air must be supplied to replace the air removed by the exhaust system. If adequate air is not supplied to the room, the capacity of the exhaust system and the air velocity at the face of the hood is reduced. If there are multiple exhaust hoods and no makeup air, the airflow may be reversed through a hood that has a smaller fan or is turned off.

3. Proper Use of Hoods:

a. Inspect the hood and insure all components are in proper working conditions. Defective components must be repaired or replaced.

b. Insure the direction of air flow is into the hood.

c. When the hood door must be partially closed to achieve the proper flow rate, assure the hood door is positioned at the proper heights.

d. Keep sources of contamination, vapor, and flames at least six inches inside the hood.

e. Avoid leaning into the hood

3 August 1983

HEALTH PHYSICS
WALTER REED ARMY MEDICAL CENTER
Washington, DC 20307

CONDITION NO. 9

For

RADIOACTIVE MATERIAL AUTHORIZATIONS

GAS CHROMATOGRAPH REQUIREMENTS

1. GENERAL: Some gas chromatograph detectors currently used at WRAMC have a radioactive source as a supply of electrons to effect the detection of gasses according to their molecular weights and holdup times.

a. Tritium Foil Type Detectors: Tritium is usually bound to a copper or stainless steel foil as titanium tritide. The binding agent may begin to break down and allow liberation of tritium at temperatures as low as 150° C. The gas chromatograph units should have a built-in thermocouple to shut the unit off at 220° C since the tritium would probably be entirely evolved at this temperature.

b. ^{226}Ra, ^{210}Pb, ^{90}Sr and ^{63}Ni Type Detectors: Temperatures below 500° C are not sufficient to break down the binding of these metallic isotopes to the detector foils. Therefore, moderately high temperatures are not a consideration in their operation. These sources may, however, be partially exposed when dismantling the detector unit; accordingly, detector units shall not be dismantled without Health Physics approval.

c. Vented Detectors: Some of the detectors are equipped with exit ports for venting potentially contaminated gases. These detectors while in use should be vented to a sink under running water or into an operating Health Physics approved fume hood.

d. Non-Vented Detectors: These detectors have no provisions for control of potentially contaminated exhaust gases and should be used in an operating Health Physics approved fume hood. The gases in these detectors are forced through a rubber leak seal at the end of the cylinder. These detector cylinder caps become highly contaminated on the inside surface and shall not be displaced from their cylinders without Health Physics inspection and approval.

2. RESPONSIBILITIES:

a. The gas chromatograph detector shall be used only by, or under the supervision of, the Principal User. The Principal User is responsible for:

(1) Control, safe operation and security of the gas chromatograph unit.

(2) Training selected individuals in its safe use and operation in accordance with the procedures outlined herein.

REVIEWED - No Changes Needed - 13 March 1987

CONDITION NO. 9 FOR RADIOACTIVE MATERIAL AUTHORIZATIONS - GAS CHROMATOGRAPH REQUIREMENTS (Continued)

(3) Insuring that these instructions, WRAMC Regulation 40-10 and other pertinent documents are available at all times and are complied with.

(4) Promptly reporting any accident that could result in an unsafe condition to the WRAMC Health Physics Officer (427-5107).

b. Individual operators are responsible for:

(1) Operating the unit in a safe manner at all times.

(2) Being familiar with the contents of these instructions, WRAMC Regulation 40-10, and other data as prescribed by the Principal User.

(3) Reporting all accidents or abnormal operating conditions that could result in an unsafe condition or exposure of personnel promptly to the Principal User.

3. EMERGENCY PROCEDURES:

a. In the event of an emergency, the following individuals will be notified after turning the power to the instrument off:

(1) The Principal User.

(2) Health Physics Officer, WRAMC (427-5107).

(3) Charge of Quarters of appropriate building(s).

b. In the event of **FIRE** in the room, the following will be done **immediately:**

(1) Notify the WRAMC Fire Department (Main Section - 576-3317; Forest Glen Section - 427-5317).

(2) Notify the Principal User.

(3) Notify the Health Physics Officer, WRAMC (427-5107).

(4) Notify the Charge of Quarters of appropriate building(s).

(5) The senior individual at the site should clear the area of personnel and attempt to turn off the power to the instrument.

c. Power Failure: In the event of a power failure, no danger exists.

ITEM 9

INSTRUMENTATION

LIST OF RADIATION DETECTION INSTRUMENTS

TYPE	NUMBERS AVAILABLE	RADIATION DETECTION	RANGE	WINDOW THICKNESS (mgm/cm^2)	USE
Eberline 6112	6	beta, gamma	0-1R/hr	30	Surveys
Eberline E 120	10	beta, gamma	0-50mR/hr	30	Lab Surveys
Eberline PAC-ISA	1	gamma	0-2000kcpm	1.5	Monitor
Eberline PAC-ISAGA	2	gama	0-2000kcpm	0.5	Monitor
Eberline PRM-5	1	beta/gamma	N/A	N/A	Monitor
Eberline 140	4	beta,gamma	0-60kcpm	N/A	Monitor
Eberline PRM-5-3	1	beta,gamma	N/A	N/A	Monitor
Eberline PRM-6	3	beta, gamma	0-500cpm	N/A	Survey
Eberline PRS-1 (Rascal)	14	beta, gamma	0-999,999cpm	N/A	Monitor
Eberline RM-16	10	gamma	10^2-10^6cpm	N/A	Monitor
Eberline MS-3	4	beta, gamma	N/A	N/A	Monitor
Eberline PRN-4	1	neutron	0-5kR/hr	N/A	Monitor
Gamma Industries 250B	20	beta, gamma	0-1000mR/hr	30	Survey
Gamma Industries 252B	10	beta, gamma	0-1000mR/hr	30	Survey

TYPE	NUMBERS AVAILABLE	RADIATION DETECTION	RANGE	WINDOW THICKNESS (mgm/cm^2)	USE
Ludlum 2	8	beta, gamma	0-50mR/hr	1.5	Survey
Ludlum 3	172	beta, gamma	0-500mR/hr	30	Survey
Ludlum 3	7	alpha	0-500mR/hr	1.0	Survey
Ludlum 12S	1	gamma	N/A	N/A	Monitor
Ludlum 16S	1	gamma	0-500,000cpm	N/A	Monitor
Ludlum 28	31	gamma	N/A	30	Monitor
Ludlum 2000	1	gamma	N/A	N/A	Monitor
Ludlum 2200	1	gamma	N/A	N/A	Monitor
Victoreen 440	3	gamma	N/A	1.0	Measure
Victoreen 440RF	1	gamma	0-300mR/hr	N/A	Measure
Victoreen 471	10	alpha, beta, gamma	0-1R/hr	$500mg/Cm^2$	Measure
Victoreen 808B	3	gamma	.1mR/hr-100mR/hr	N/A	Measure
Nuclear Data ND660MCA	1	gamma	N/A	N/A	Measure
Nuclear Data ND66	1	gamma	N/A	N/A	Measure
Canberra 2201	1	alpha, beta	N/A	N/A	Measure
Beckman LS-9800	1	beta	N/A	N/A	Measure
Packard AG-5780	1	gamma	N/A	N/A	Measure
Keithly 36150	2	beta, gamma	0-20R/hr	$50mg/Cm^2$	Measure

ITEM 10

CALIBRATION OF INSTRUMENTS

CALIBRATION OF SURVEY INSTRUMENTS

1. Survey instruments will be calibrated at least annually and following repair.

2. Calibration will be performed at two points on each scale. The two points will be approximately 1/3 and 2/3 of full scale. A survey instrument may be considered properly calibrated when the instrument readings are within ± 10% of the calculated or known values for each point checked. Readings with ± 20 are considered acceptable if a calibration chart or graph is prepared and attached to the instrument.

3. Survey instruments will be calibrated by an annually contracted company, whose procedures and sources are approved by the agreement state/NRC.

ITEM 11

FACILITIES AND EQUIPMENT

ITEM 11 - FACILITIES AND EQUIPMENT

1. Facilities

See attached drawings of the Nuclear Medicine Pharmacy, the Radiation Therapy isotope storage room, and a typical laboratory room.

2. Equipment

The following equipment/facilities are available as required:

a. Remote Handling:

(1) Niptongs and griptongs

(2) Atomic Accessories Handling Tool RHT-60

(3) Jaws and vices

(4) Remote forceps

(5) Magnetic handlers

b. Storage Containers:

(1) Steel safes

(2) Lead lined boxes

(3) Steel drums

(4) Lead storage containers

(5) Lead pigs

c. Shielding:

(1) Portable shields

(2) Shielding materials (e.g. sheet lead, plastic sheet, etc.)

d. Instrumentation:

See Item 9 of this application

e. Ventilation Control:

(1) Fume hoods

(2) Fume hoods with ionization boxes

(3) Fume hoods with absolute filter assemblies

DISPOSITION FORM

For use of this form, see AR 340-15; the proponent agency is TAGO.

REFERENCE OR OFFICE SYMBOL	SUBJECT
HSHL-HO	Ventilation Survey, Nuclear Medicine Clinic

TO	FROM	DATE	CMT 1
Health Physics WRAMC	C, OHS	1 May 87	

1. References:

a. Engineer Technical Letter 1110-3-344, Engineering and Design-Interior Mechanical Design Conditions for Army and Airforce Medical Facilities, 4 October 1983.

b. DF, Subject: Ventilation Study, Nuclear Medicine Clinic, 6 April 1987.

2. General:

a. In response to ref. para 1, Mr. Petch, Industrial Hygienist, Occupational Health Section (OHS), Preventive Medicine Services (PMS), Walter Reed Army Medical Center (WRAMC), surveyed the ventilation systems in room [ ] on 9 and 10 April 1987.

b. Equipment used during survey was as follows:

1.	Shortridge Flow Hood	SN 2743	Cal date: 13 Jun 86
2.	Alnor 2600 Anemotherm	SN 1903	Cal date: 17 Jun 87
3.	TSI Anemotherm	SN 4562A	Cal date: 7 Dec 86
4.	MSA Smoke Tubes		

3. Findings and Discussion: Answered in sequence as in ref para 1.

a. Room [ ] (Renal Room) is under negative pressure, as verified by total exhaust measurement and smoke test.

b. Exhaust air from room [ ] exits the NMTF via the exhaust plenum located in area "P" penthouse (southwest corner of roof).

c. Exhaust from room [ ] is not recirculated. Room [ ] has an air exchange rate of 23 air changes per hour on exhaust side. The exhaust fan servicing room [ ] is EA8SW2 which is designed at 14,000CFM. The seventh floor exhaust duct velocity was 2648 CFM.

d. Xenon system when in use exhausts through an internal Xenon trap charcoal filter system and then to room air. Room [ ] air is 100% exhaust.

Ex 2

e. Xenon if released is diluted in a room of approximately 4560 cubic ft, exhausted at a rate of 1750 ft/min for an air exchange rate of 23 air changes per hour.

f. The series of rooms [ ] (Office, Radiopharmacy and Dose Room respectively) are under negative pressure; as verified by total exhaust measurement and smoke tests. See enclosure 1 for calculations.

g. Exhaust air from rooms [ ] exits the NMTF via a dedicated 14 inch diameter duct through a HEPA filter and a dedicated exhaust fan to the exhaust plenum located in area Q penthouse (southeast corner of roof).

h. Exhaust from room [ ] is not recirculated. Rooms [ ] have an air exchange rate of 12 air changes per hour on the exhaust side.

5. Technical Assistance: Contact the undersigned at 427-5338/9 for further information or assistance.

Albert W. Steele

Encl

ALBERT W. STEELE, R.S.
Chief, Occupational Health Section
Preventive Medicine Services

cf:
C, Nuclear Medicine

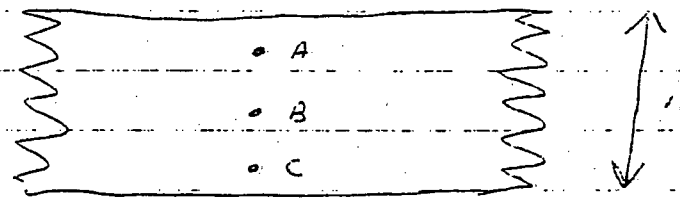
2

1A

EX2

Room [ ] and other areas covered by fan EA 8 SW 2

Pitot traverse of main duct just before fan EA 8 SW 2 (on 7.5 inter floor)



18" x 18" duct

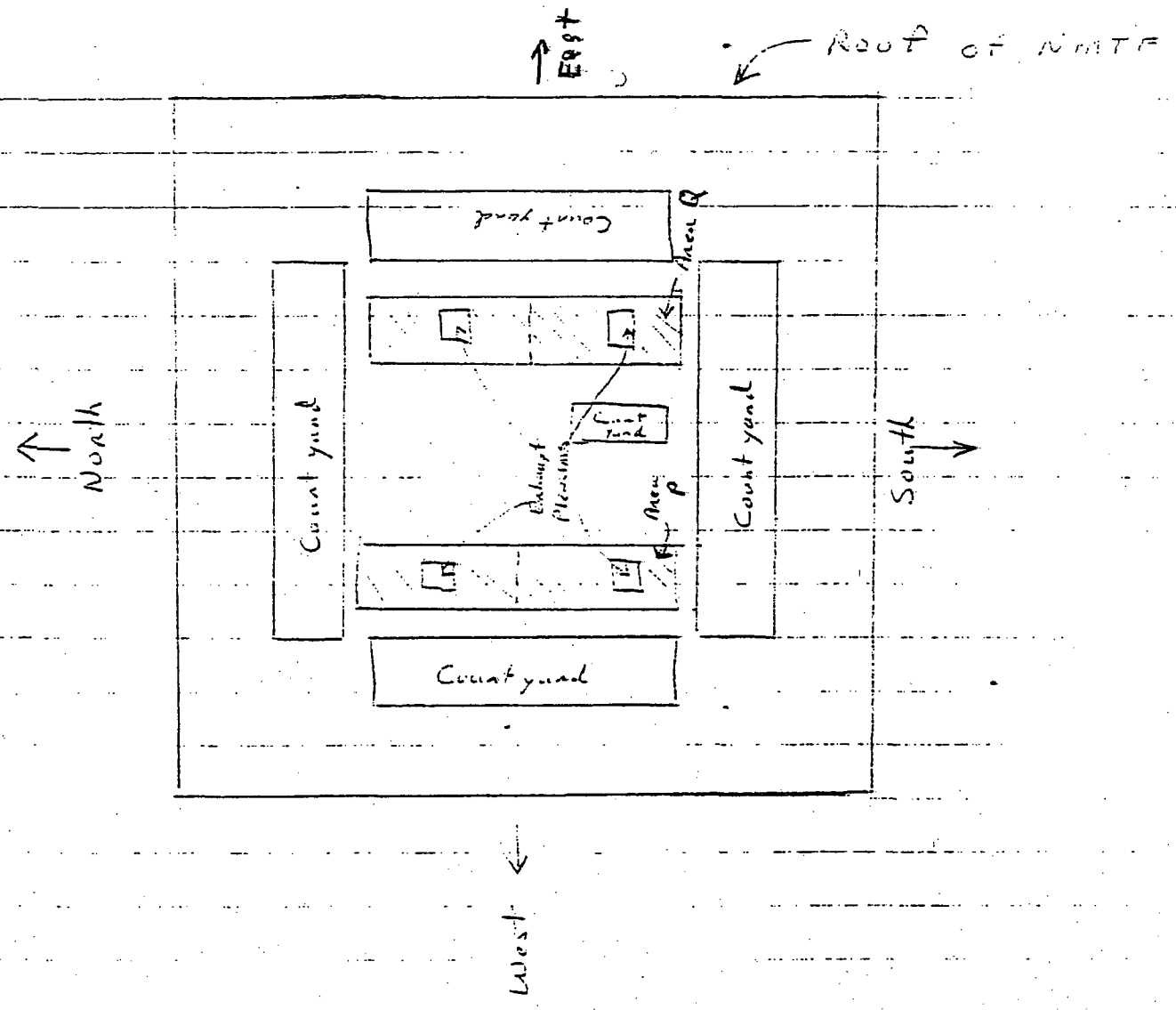
	1	2	3	4	5	6	7	8
Hole A =	1150 FPM	1200 FPM	1225 FPM	1250 FPM	1225 FPM	1200 FPM	1150 FPM	110
Hole B =	1250 FPM	1250 FPM	1225 FPM	1200 FPM	1225 FPM	1200 FPM	1150 FPM	100
Hole C =	1050 FPM	1100 FPM	1150 FPM	1175 FPM	1200 FPM	1225 FPM	1200 FPM	1150
Total:	3450 FPM	3550 FPM	3600 FPM	3625 FPM	3650 FPM	3625 FPM	3500 FPM	3250

Grand Total: 28250 FPM 18" x 18"

Average: 1177.1 FPM 1.5' x 1.5' = 2.25 ft² Ar

$$Q = VA$$
$$= (1177.1 \text{ FPM})(2.25 \text{ ft}^2)$$
$$= 2648.5 \text{ CFM}$$

Ex2



Room [ ] is exhausted through plenum in area P of penthouse on southwest corner of roof.

Rooms [ ] are exhausted by a designated system to plenum in area Q of penthouse on southeast corner of roof.

Ex 2

II Rooms

Pitot traverse of 14" diameter stainless steel duct designated for Fume hood in Room

	1	2	3	4	5	6	7	8
Hole A :	600 FPM	650 FPM	700 FPM	700 FPM	675 FPM	700 FPM	600 FPM	700 FPM
Hole B :	700 FPM	775 FPM	800 FPM	800 FPM	800 FPM	750 FPM	750 FPM	725 FPM
Total	1300 FPM	1425 FPM	1500 FPM	1500 FPM	1475 FPM	1450 FPM	1350 FPM	1425 FPM

Total = 11425 FPM ⟶ Average = 714.1 FPM

Area = πr^2
= (3.14)(0.583 ft)^2
= 1.83 ft^2

Q = VA
= (714.1 FPM)(1.83 ft^2)
= 1306.7 CFM

Fume hood in Room

Dimensions = 41" x 28" (FO) — Face Velocity = 164 FPM
(3.42 ft) x (2.33 ft) — @ last reading (March 8
Area = 7.97 ft^2

Q = VA
= (164 FPM)(7.97 ft^2)
= 1307.1 CFM

Air exchange rate measured in air changes per hour =

ⓐ $\frac{(1306.7)(60\,min)}{6499\,ft^3} = 12.1$ ⓑ $\frac{(1307.1\,cfm)(60\,min)}{6498\,ft^3} = 12.1$

ITEM 21

PROCEDURES AND PRECAUTIONS FOR USE OF RADIOACTIVE GASES

ITEM 21 - INFORMATION FOR THE USE OF XENON-133

a. Quantities to be Used:

(1) Patient information:

(a) Number of studies expected per week: 8

(b) Average activity per patient: 20 millicuries

b. Use and Storage Areas:

(1) Xenon-133 studies are only performed in room [ ] Walter Reed Army Medical Center (see attached drawing of the Xenon-133 dispensing room). Xenon-133 is stored in the [ ] which is kept locked after duty hours. The individual leaded storage drawers used to house unused Xenon-133 vials are also kept locked. Each drawer is individually lead lined on the top, bottom and all four sides. (See attached drawing of the Nuclear Medicine Radiopharmacy).

(2) The attached drawings show the ventilation air flow rates and location of the exhaust vents and the supply vents of the Xenon-133 dispensing room and Radiopharmacy.

(3) The air flow rates for the Radiopharmacy and Xenon-133 dispensing room are such that the rooms are by design under negative pressure at all times.

c. Procedures for Routine Use:

(1) The Procedures to be followed for routine use of Xenon-133 are as follows: When Xenon-133 is to be used for a patient's study, the necessary vial is removed from the storage unit a dose is drawn in a syringe, and assayed in a dose calibrator. Once the assay has been completed, the Xenon-133 syringe is placed in a lead shield and transported to the imaging room. The patient is positioned and the Xenon-13 injected into the Ventil-

ITEM 21 (Continued)

Con II gas dispensing system which provides more than adequate shielding prior to administration of the Xenon-133 gas. The gas is injected directly into a breathing value with a bacterial filter attached to a 8 inch tube which is fitted to a face mask that forms a tight seal around the patient's mouth and nose. The opposite end of the tubing is attached to the Ventil-Con II. The Ventil-Con II regulates air flow for the various phases of the ventilation procedure along with trapping the CO_2 gas released by the patient. Hooked in tandem with the unit is the Xenon gas trap which draws the exhaled air by a vacuum pump through the silica gel desiccant jar, then the activated charcoal filter. The injection port arm is shielded with lead which makes external radiation levels negligible.

(2) Special apparatus for administration and collection of Xenon-133 is the Ventil-Con II system by RADX, Model # 143.

(3) Special procedures employed to reduce leakage: A patient face mask is used to reduce leakage.

d. Emergency Procedures:

When a Xenon-133 study is compromised, personnel are instructed to leave the room and to close the door. The negative pressure facilitates the removal of the Xenon-133 gas.

e. Air Concentrations of Xenon-133 in Restricted Areas:

(1) The maximum activity used per week (A): 1.6×10^5 uCi (see para (5) (a) below).

(2) Estimated fraction of Xenon-133 lost during use and storage (f): 20%

(3) Actual measured air flow: 1750 ft^3/min

ITEM 21 (Continued)

Calculated volume of air available per week for dilution of the Xenon-133:

$$V = 1750\ ft^3/min \times \frac{year}{52\ week} \times 1.49 \times 10^{10}\ \frac{ml/year}{ft^3/min} = 5.0 \times 10^{11}\ ml/wk$$

(4) For restricted areas Section 20.103 of 10 CFR, Part 20 requires that:

$$A/V \times f \leq 1 \times 10^{-5}\ uCi/ml$$

(5) Calculation of required ventilation rate: A maximum of 20 mCi of Xenon-133 will be used per patient and a maximum of 8 studies per week will be performed. The ventilation rate required to ensure compliance with Section 20.103 of 10 CFR, Part 20:

(a) Maximum activity used per week:

$$A = \frac{20\ mCi}{Patient} \times \frac{8\ Patients}{Week} \times \frac{1 \times 10^3\ uCi}{mCi} = 1.6 \times 10^5\ uCi/week$$

(b) Assume a loss rate of 20% (f)

(c) $$V = \frac{A \times f}{1 \times 10^{-5} uCi/ml} = \frac{1.6 \times 10^5\ uCi/week \times 0.2}{1 \times 10^{-5}\ uCi/ml} = 3.2 \times 10^9\ ml/week$$

The required ventilation rate is:

$$\frac{3.2 \times 10^9\ ml/week}{40\ hrs/week} \div \frac{1.7 \times 10^6\ ml/hr}{CFM} = 47\ CFM$$

Since the ventilation rate in the Xenon dispensing room is 1750 CFM, the ventilation system is satisfactory for a restricted area. The maximum permissible level of release of Xenon-133 per 40-hour week for a restricted area (NRC Regulatory Guide 10.8, Appendix M, Page 6) would be approximately 600 mCi. The air in room [7C06] is not recirculated and is exhausted from a roof plenum with flow rates of more than 2600 CFM.

ITEM 21 (Continued)

f. Methods of Xenon-133 Disposal:

(1) Diluation through exhausted systems. Not used.

(2) Absorption onto charcoal traps:

(a) An effluent concentration of greater than 1 X 10^{-2} uCi/ml act-icates an audio visual alarm and the system is refilled with a new Xenon trap.

(b) The saturated filters are placed in a plastic bag and placed in a lead lined storage box in Nuclear Medicine Pharmacy and held until they decay ten (10) half-lives and disposed of in ordinary trash.

OPERATION, INSTALLATION, & MAINTENANCE MANUAL

Ventil-Con II

RADX

1390 WEST BELT DR., HOUSTON, TX 77043

Printed in U.S.A. 100(11/80)

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VENTIL-CON II

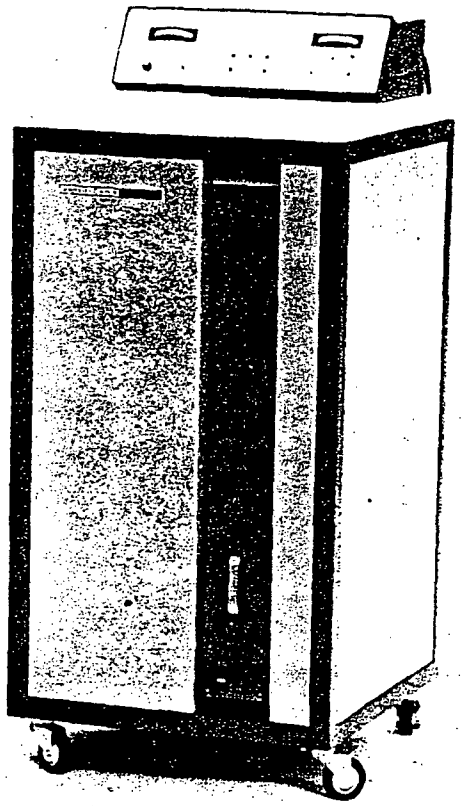


Fig. 1
Ventil-Con II Model 143

INTRODUCTION

Purpose - The Radx Ventil-Con II (Figure 1) was designed to provide a means of safely administering radioactive gases, principally ^{133}Xe to patients for the purpose of determining the patency of the pulmonary ventilation system.

Description - The Ventil-Con II is available in three different models: They are:

Model	Description
141	Ventil-Con II Rebreathing System Only
142	Ventil-Con II Rebreathing System with built-in Xenon Trap and Expandable Interface
143	Ventil-Con II Rebreathing System with built-in Xenon Trap, Expandable Interface and ^{133}Xe Xenon Trap Exhaust Port Detector/Alarm Warning System.

Note: This manual is dedicated to the 143 system. Deviations found in 142 and 141 are described where necessary.

Inspection and Unpacking - The Ventil-Con II is supplied with the following standard accessories:

1 - Breathing Port Adapter (Figure 26o)
1 - Face Mask Tubing $5\frac{1}{2}$" (Figure 26p)
1 - Adult Mouthpiece (Figure 26t)
1 - Nose Clip (Figure 26u)

In addition to the above, Models 142 and 143 are supplied with an Expandable Interface and its necessary mounting apparatus. The Expandable Interface and its accessories are shipped in a separate carton. Items shipped with the Expandable Interface are:

1 - Expandable Interface
1 - Flex Tube

Before discarding shipping cartons and packing material, inspect all parts for damage and make sure that all items are present. Report any discrepancies to Radx immediately.

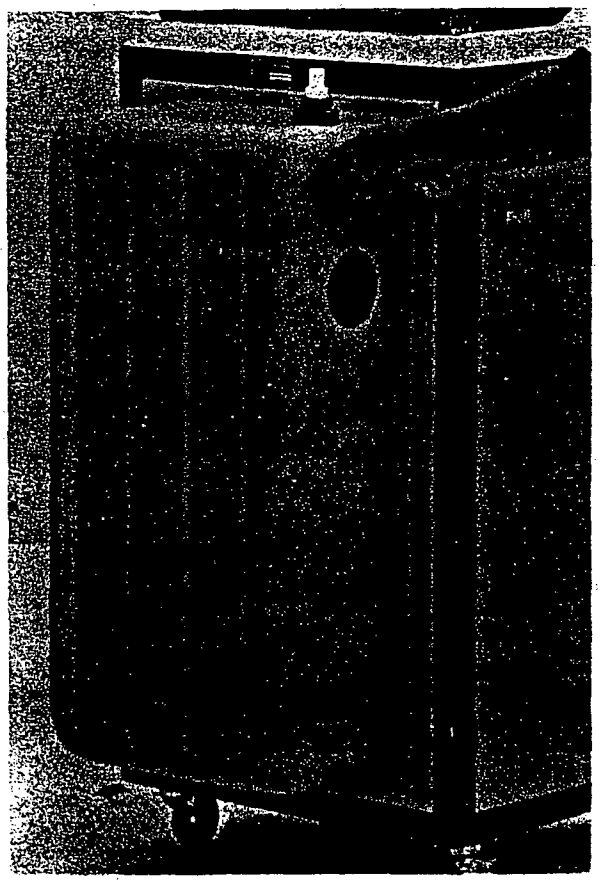


Fig. 2
Mounting Expandable Interface to rear door of Ventil-Con II

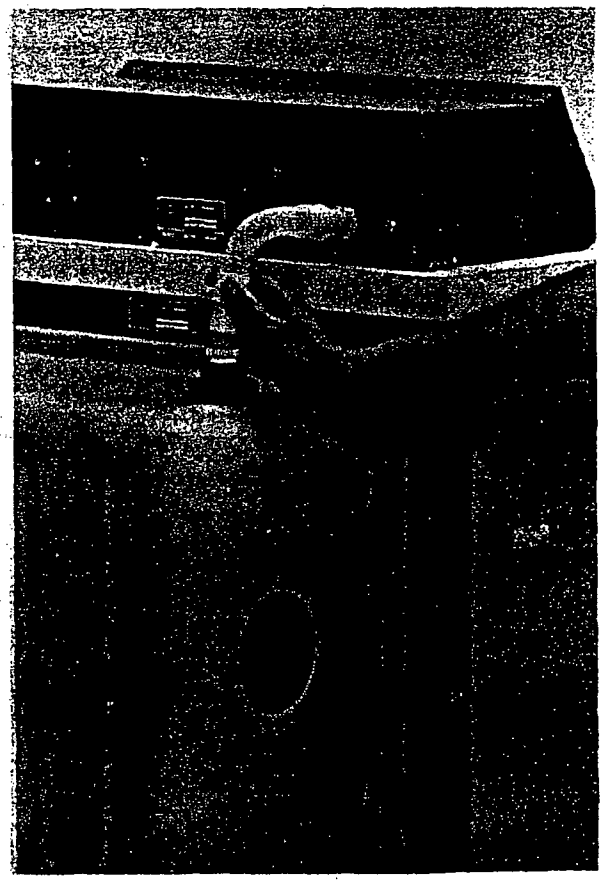


Fig. 3
Connecting flex tube between Ventil-Con II and Expandable Interface.

Assembly - The only assembly required with the Ventil-Con II is the mounting of the Expandable Interface on Models 142 and 143.

Expandable Interface - (Models 142 and 143) - The back side of the Expandable Interface housing is covered with heavy paper. Leave this intact to protect the internal bag. Locate the bulk-head fitting as this represents the top of the interface housing. The Expandable Interface should be mounted on the rear door of the Ventil-Con II with the six screws and washers provided (Figure 2). Attach the flex tube provided to the two male fittings, one on the Expandable Interface, and the other on the rear of the control panel labeled "To Interface" (Figure 3).

O_2 Hook Up - The Ventil-Con II requires an external O_2 supply, either a wall mount or tank. The O_2 supply should be regulated to a maximum pressure of 50 PSI and should be equipped with a flow meter capable of regulation to a rate of 2 liters per minute.

Attach a standard O_2 hose to the output of the O_2 flow meter. Standard O_2 line normally comes with a collar on both ends. Cut the collar off the end to be attached to the Ventil-Con II. Slip the O_2 hose through gold colored hose clamp which is shipped attached to the oxygen fitting. Slip the hose on to the oxygen fitting and slide the clamp firmly over the fitting as far as it will go.

The O_2 fitting screws on to the rear of the Ventil-Con II and may be easily disconnected if the unit is to be moved (Figure 4). It is also important to note that O_2 flow meters do not properly register unless O_2 is flowing. Therefore, to properly set the flow rate, it should be adjusted with the O_2 fitting free of the Ventil-Con II.

Check-Out - Before using your Ventil-Con II, you should perform the following checks. REPORT ANY DISCREPANCIES TO RADX IMMEDIATELY.

1. Access to all user serviceable parts is provided through the left hand door (as you face the unit). Due to electrical code requirements, the latch requires a tool (screwdriver) for opening. Open the access door and visually inspect the insides for signs of damage or loose connections which could occur during shipping.

2. All models have a CO_2 absorber jar (Figure 5) located inside the unit. The CO_2 absorber should contain pink barylyme granules.

3. Models 142 and 143 have a moisture absorber located to the left of the CO_2 absorber jar (Figure 5). This jar should contain blue silica gel desiccant crystals.

4. Raise the arm so that it is parallel to the floor. It should hold steady. If not, refer to Unit Repair Section.

5. Remove the protective cap from the breathing port.

6. Plug the unit into a grounded receptacle.

7. Turn the main power on. The green pilot light should come on.

8. Turn the Breathing Valve to "Rebreathe" (Figure 6) and push the center rod of the spirometer all the way in (Figure 7). The volume meter should read 0 liters ($\pm$ 0.5). Pull the center rod all the way out. The volume meter should read 10 liters ($\pm$ 0.5).

   Note: The spirometer can only be moved in the "Rebreathe" position.

9. Turn Breathing Valve (Figure 8) to "Washout" and turn the Operate/Evacuate Valve (Figures 5 and 9) to "Evacuate" position. By observing the volume meter you should observe the unit evacuating. Turn the Operate/Evacuate Valve back to "Operate".

10. Press the O_2 Assist button (Figures 6 and 8) on the arm. You should hear the electrical O_2 solenoid inside the unit "click".

11. Push the three positions switch in the Oxygen Replenishment section (Figures 10 and 11) to the "Manual" position. You should hear the O_2 solenoid "click".

12. Insert the Breathing Port adapter into the breathing port (Figure 12) and attach the face mask tubing and mouthpiece or face mask (Figure 13). Turn on the O_2 supply and adjust the flow rate to 2 liters per minute.

13. With the Breathe Valve in "Washout", breathe through the unit. You should notice little or no resistance.

14. Switch to "Rebreathe" and place the spirometer at 5 liters by using the center rod (Figure 7). Set the oxygen replenishment switch to "Auto" and set the control knob to 5 (Figure 11). Now breathe on the unit and observe the following:

    a. You should experience little or no resistance to normal breathing.

    b. The spirometer "volume" meter should move back and forth in rhythm with your breathing.

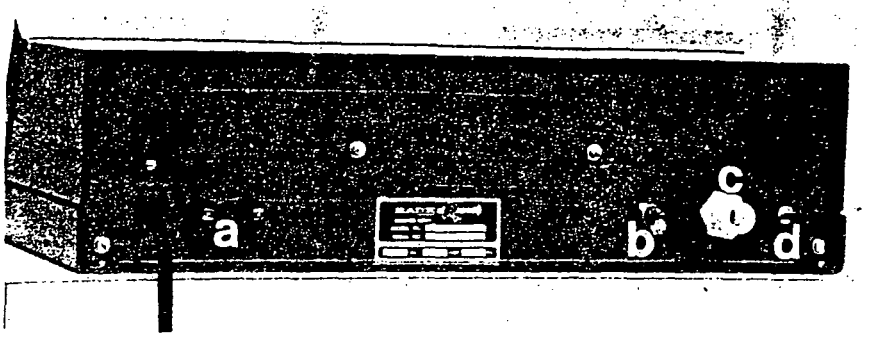


Fig. 4 Rear of Control Panel

a. Fuse holders

b. O_2 inlet

c. To interface port

d. Trap exhaust port

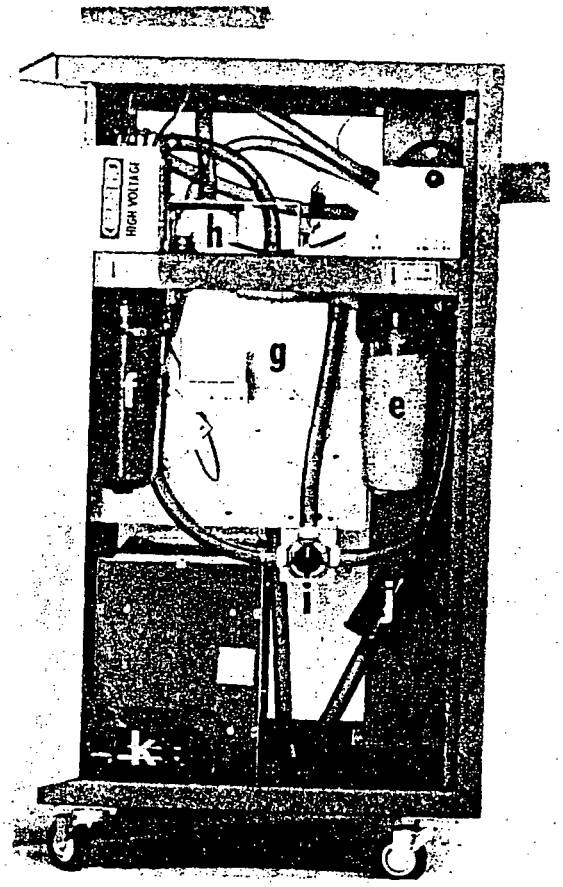


Fig. 5 Side of Ventil-Con II

e. CO_2 absorber

f. Moisture absorber

g. Spirometer

h. Mixing pump

i. Operate/Evacuate Valve

j. Bacteriological filter

k. Trap pump

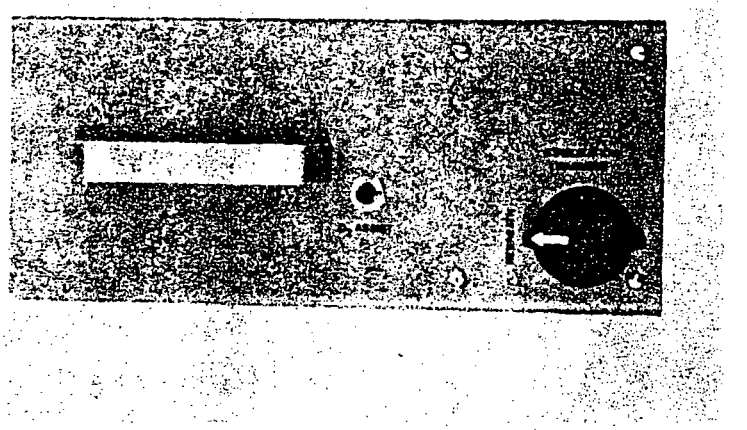


Fig. 6 Breathing Valve in Rebreathe

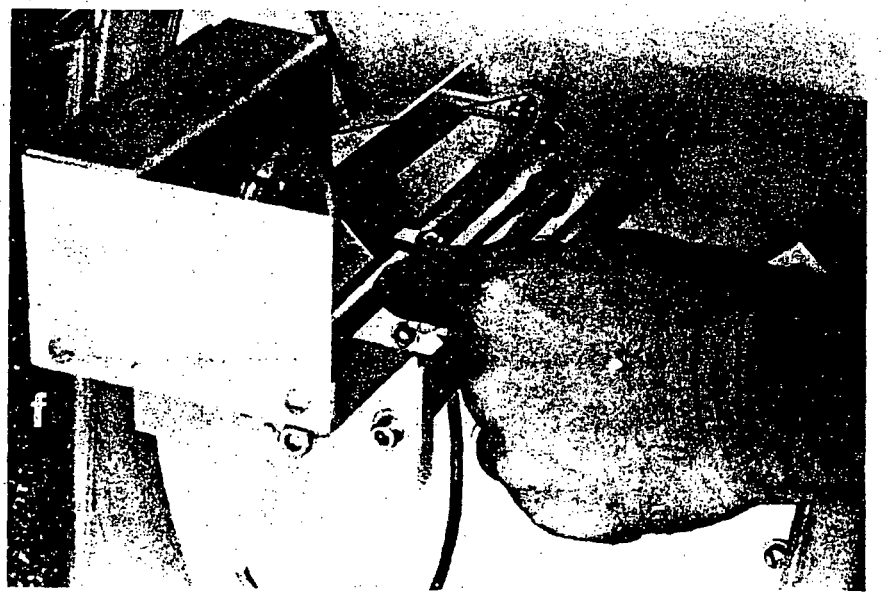


Fig. 7 Pushing in center rod of spirometer

f. Moisture absorber

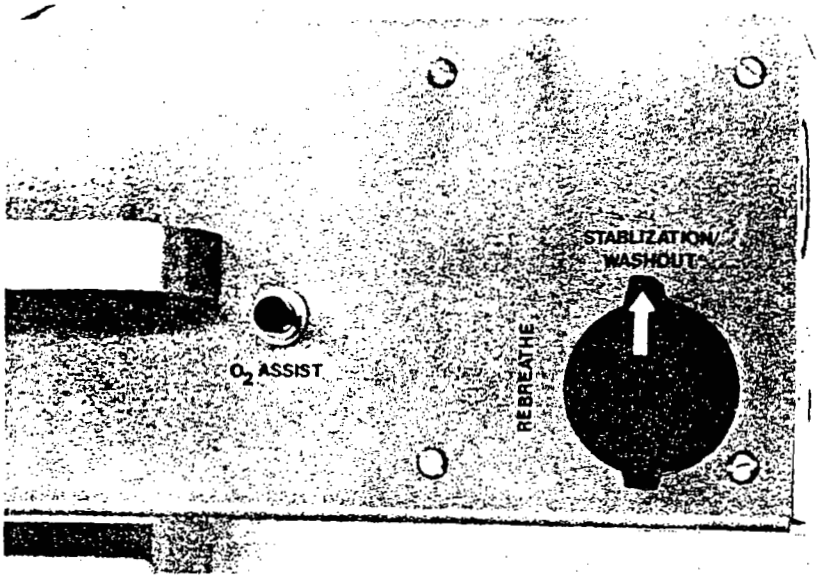


Fig. 8 Breathing Valve in Stabilization-Washout

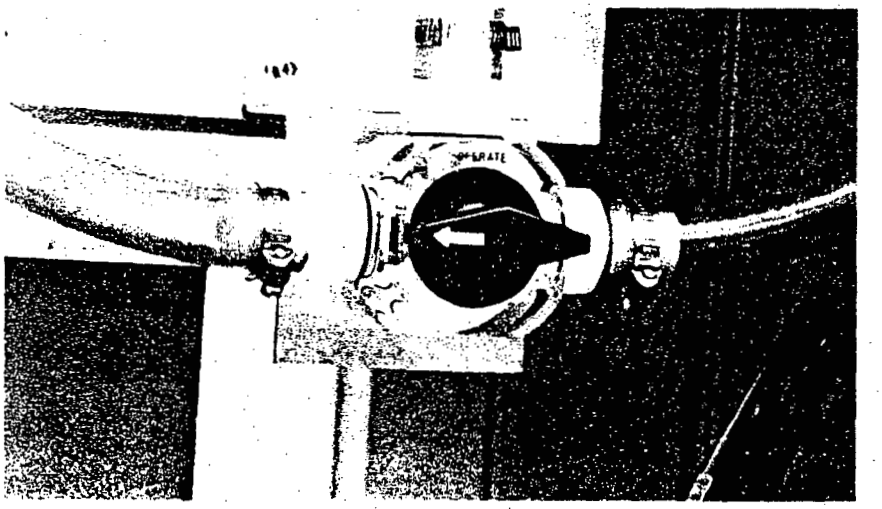


Fig. 9 Operate/Evacuate Valve

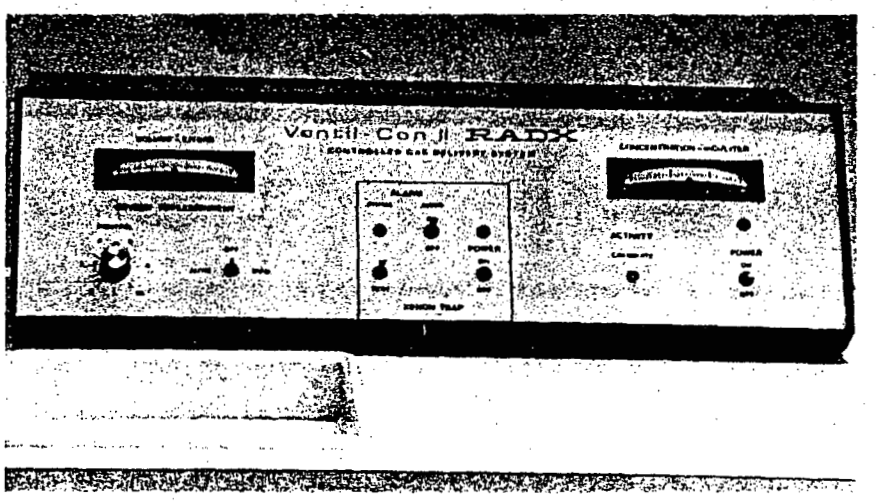


Fig. 10 Control Console

c. Each time the spirometer volume goes below 5 liters (the volume set on the oxygen replenishment control knob) you should hear the O_2 solenoid "click".

15. Turn the power switch located in the Xenon Trap section to "ON" (Figure 14) (Models 142 and 143). Locate the "Exhaust" fitting at the rear of the control panel and feel for air coming out (Figure 4).

16. With the audio switch in the "ON" position, push down on the Test switch (Model 143) (Figure 14). The red pilot light labeled visual should come on and you should hear the audio alarm. Turn the audio "OFF". The sound should stop.

<u>Alarm Calibration</u> - Model 143 is equippped with an end window GM tube detector/alarm system which continuously monitors the xenon trap exhaust port and activates an audio visual alarm when the concentration in the exhaust port exceeds 1×10^{-2} uCi/ml. The sensitivity is set at the factory but should be checked periodically to assure proper function.

1. Locate the alarm check point label (Figure 15) located on the left hand door.

2. Using a ^{137}Cs standard between 40 and 150 uCi the alarm is calibrated as follows:

   Calculate the activation distance of your ^{137}Cs standard by using the following formula:

   Activation distance (AD) $= \sqrt{3.3 \times {}^{137}Cs \text{ std.}} - 7$

   Example: ^{137}Cs std. is 50 uCi

   $$AD = \sqrt{3.3 \times 50} - 7$$

   $$= \sqrt{165} - 7$$

   $$= 12.8 - 7$$

   $$= 5.8 \text{ cm}$$

3. Place the center of the ^{137}Cs standard at the AD calculated above by placing a ruler perpendicular to the alarm check point (Figure 16).

Fig. 16 Checking the calibration of the Xenon Trap Alarm with Cs137

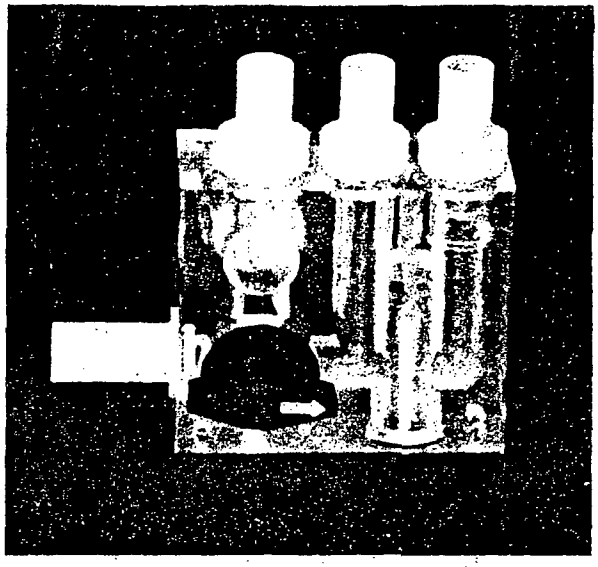


Fig. 18 Breathing Valve

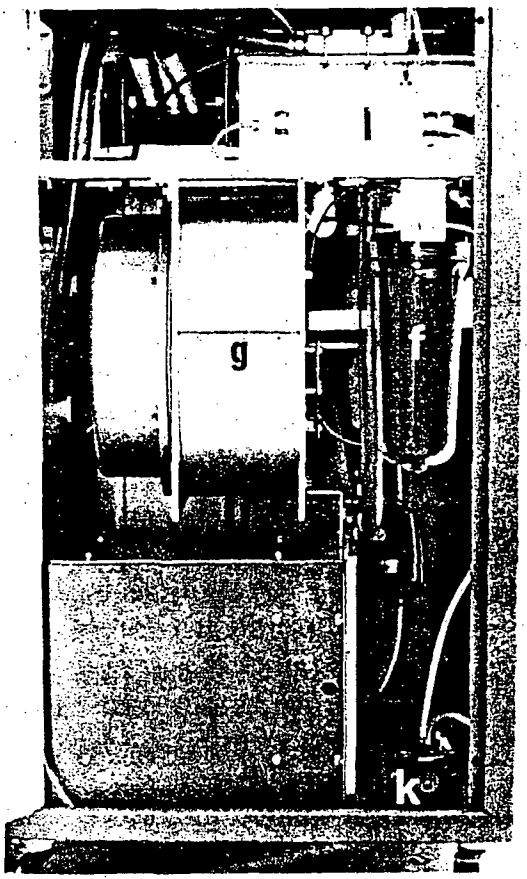


Fig. 17 Rear of the Ventil-Con II

f. Moisture absorber

g. Spirometer

k. Trap Pump

l. GM Tube for Xenon Trap Alarm

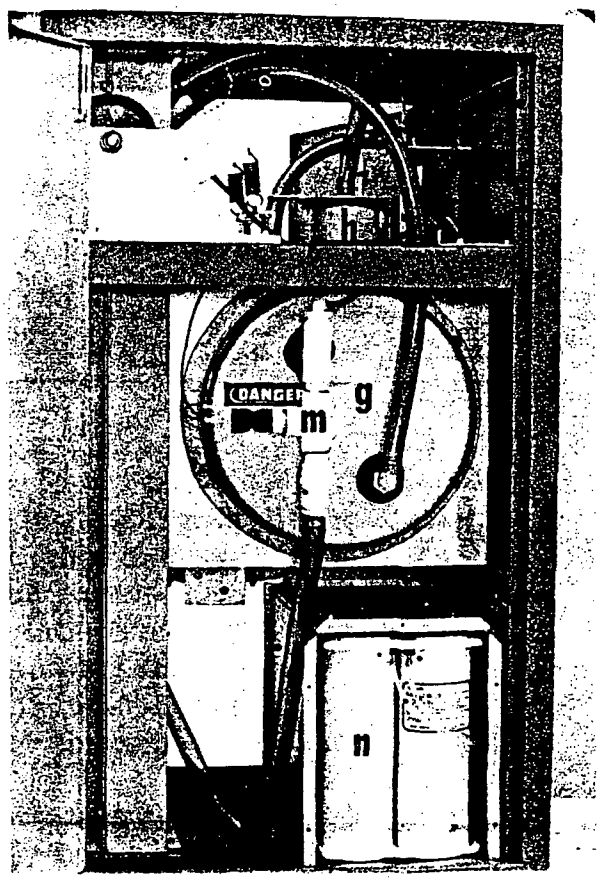


Fig. 19 Right side of Ventil-Con II

g. Spirometer

h. Mixing Pump

m. GM Tube for Concentration Meter

n. Activate Charcoal cartridge pack

The alarm should activate:

Acceptable limits

± 0.5 cm for distances to 10 cm

± 1.0 cm for distances greater than 10 cm

4. Move the Cs 137 Standard back 1.0 cm from the AD point, and the alarm should stop.

THEORY OF OPERATION

There are three generally recognized phases of a lung ventilation study. Each phase has variations supported by some and denied by others. In some circles even the phases are debated. This manual describes the use of the Ventil-Con II to perform the three phases and gives information on some of the more popular variations.

The three phases with more common variations are:

1. Washin
   a. Homogeneous administration
   b. Bolus administration
2. Equilibrium
3. Washout

The Ventil-Con II is designed to allow the user to perform the three phases. The unit consists of two separate plumbing systems (Diagram 1). In stabilization/washout, the patient inhales room air through a one way valve in the bottom of the breathing valve. When the patient exhales, this valve closes and another one opens directing the exhaled breath through the Ventil-Con II console into the exhaust port. In Models 142 and 143 the exhaled breath then goes into the expandable interface where it is subsequently drawn through the activated charcoal cartridge pack by the xenon trap pump.

The Expandable Interface is required because the trap pump moves air at the rate of 5 liters per minute while people normally breathe at a higher rate. Sick patients can breathe at rates up to 20-25 liters per minute. The Expandable Interface is a reservoir which accepts the excess flow rate until the trap can catch up. It has a capacity of approximately 100 liters and normally gives around 10 minutes of breathing time in washout.

In Model 143 the exhaled breath upon leaving the charcoal pack and trap pump, enters a chamber of 150 ml/m volume viewed by an end window Geiger-Mueller tube (Figure 17). When excessive ^{133}Xe (greater than 1×10^{-2} mCi/ml) appears in the exhaust port, an audio visual alarm activates.

The second plumbing system consists of the breathing valve (Figure 18), autoclavable bacteriological filter (Figure 5), CO_2 absorber (Figure 5), blower (Figure 5), GM detector (Figure 19), and spirometer (Figures 5, 17, 19). This is a closed system which may be opened to the outside only through the breathing valve and Operate/Evacuate valve. The breathing valve is equipped with a standard female Leur fitting followed by a one way valve for the injection of ^{133}Xe gas (Figure 20).

With the Operate/Evacuate valve in the operate position and the breathing valve in rebreathe as the patient exhales a one way valve in the head valve closes and the patients breath is directed first into the CO_2 absorber, thru the bacteriological filter and into the spirometer which expands to accommodate the increased volume. As the patient inhales, the one way valve opens and the patient breathes out of the spirometer thus contracting its volume. This system is actually a circuit with the patient on the opposite end of the spirometer with the spirometer providing opposite, but equal, reaction to the patients breathing.

The system is provided with an inline blower (Figure 5), which serves three functions:

1. Assists in providing one-way air flow
2. Overcomes inherent pathway resistance
3. Provides mixing to assure a homogenous mixture.

The rebreathing system is provided with two one-way input ports for the addition of O_2. Both are controlled by an electrical solenoid valve (Figure 21). One input port injects O_2 just before the spirometer allowing considerable mixing before reaching the patient. The second system (O_2 Assets) injects O_2 directly to any patient having breathing difficulties.

PROPER O_2 ADMINISTRATION DURING REBREATHING IS AN ABSOLUTE NECESSITY. Panic generally associated with O_2 deprivation is actually caused by a CO_2 build-up, since the unit is equipped with an effective CO_2 absorber. CO_2 build-up cannot occur thus insufficient O_2 will result in unconsciousness without alarm.

Too much O_2 can result in pulmonary arrest which can be fatal.

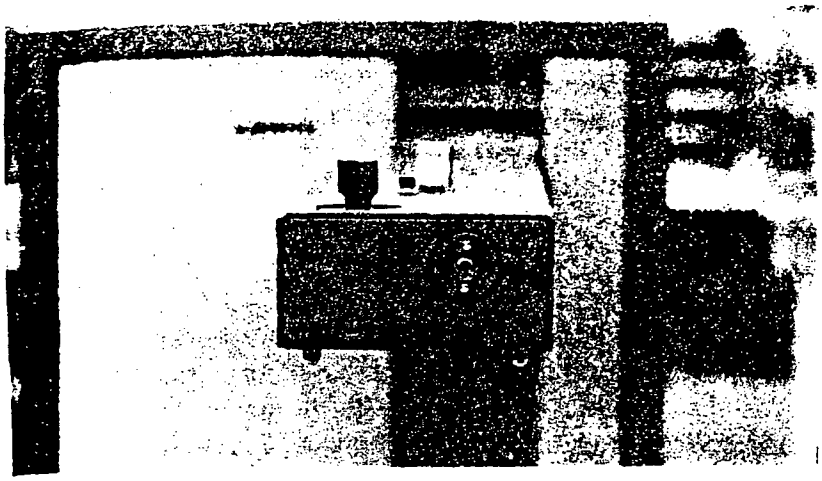


Fig. 20 Xenon Injection Port

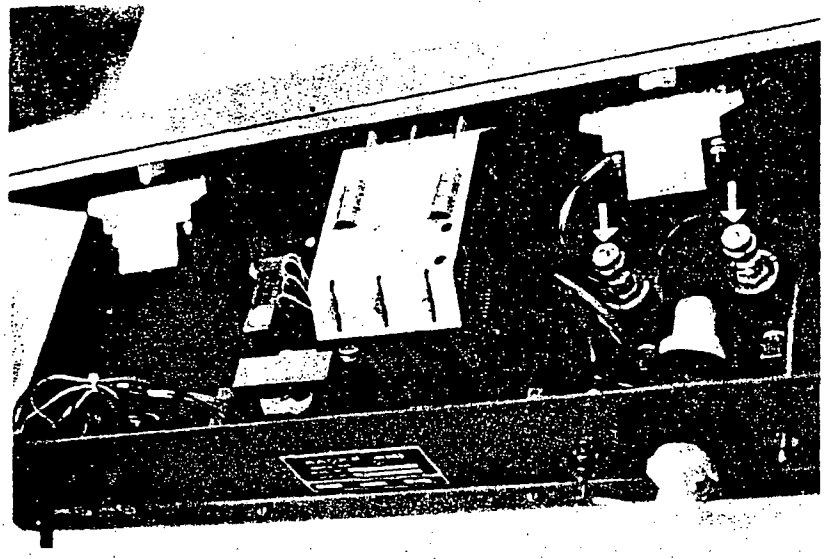


Fig. 21 Oxygen Solenoids (arrows)

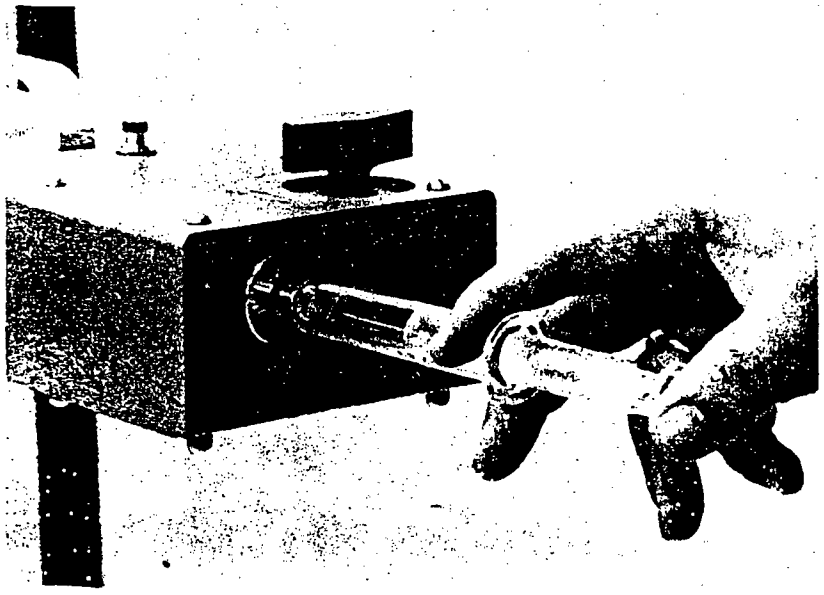


Fig. 24 Injecting Xenon into the Ventil-Con II through the Xenon Injection Port

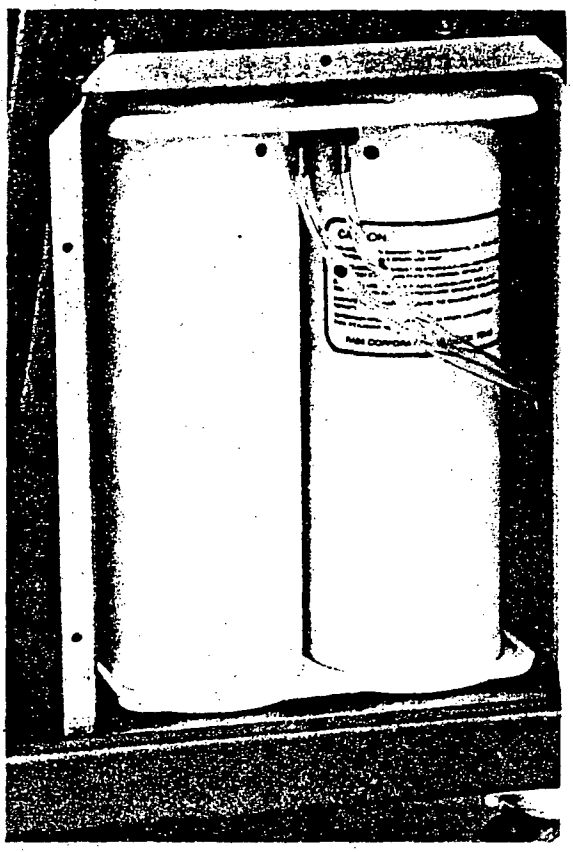


Fig. 22 8 cylinder, vertical, activated charcoal cartridge pack

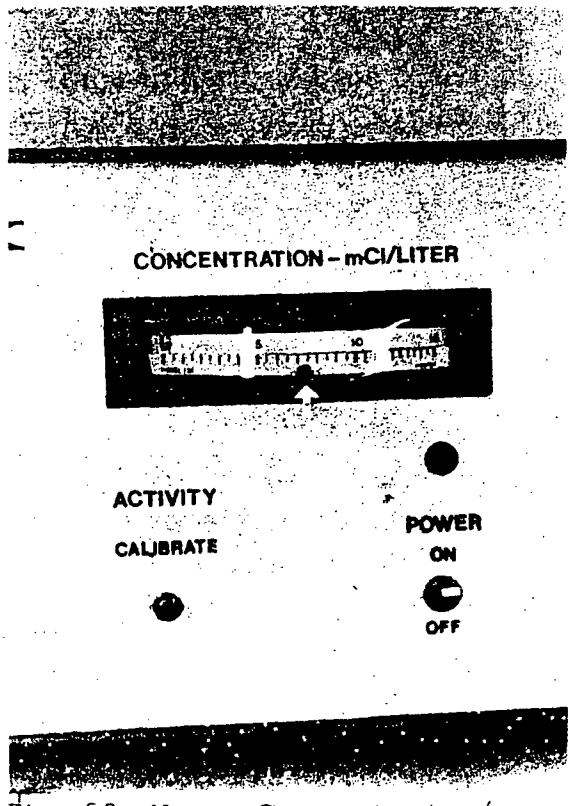


Fig. 23 Xenon Concentration/ Activity Section indicates "zeroing" screw

With the breathing valve in the washout position and the Operate/Evacuate valve in the evacuate position, the blower forces the air from the internal rebreathing system through the Operate/Evacuate valve into the general exhaust of the unit and follows the same path as previously described.

XENON TRAP - The term xenon trap is used to describe activated charcoal devices is a serious misnomer. Activated charcoal does not trap xenon but only acts as a delaying mechanism. If the xenon is delayed long enough to allow it to decay, then the word trap, although not scientifically correct, is from an end result standpoint, correct.

The process is best described by chromatagraphic principles where charcoal is the suspending media, air the solvent, and xenon the solute.

The process is dependent on the amount of charcoal, pathway configuration, temperature, and most significantly to air flow per unit time. The process is relatively independent on the amount of xenon, air flow rate (within reason) and humidity (but not water). Desiccants are used in xenon traps to remove the excess humidity which could condense in the charcoal cartridge interfering with the ability delay xenon. On a longer term basis, air pollutants, etc., will saturate the charcoal and negate its xenon delaying capacity

The single most important factor affecting the life of the trap is the total amount of air passing through it.

The patients exhaled breath first enters the Expandable Interface (Figure 3) where it is pulled through the silica gel desiccant jar (Figure 5), then the activated charcoal filter (Figure 19 and 22) by the trap pump (Figure 5 and 17). From the pump it is blown past the exhaust port monitoring GM tube (Figure 17) and out the back of the Ventil-Con II through a brass bulk head fitting (Figure 4).

OPERATION

Unit Preparation

1. Calibration of Xenon Concentration System - On the initial use it is necessary to check the Xenon Concentration meter calibration. This is done as follows:

   a. Turn the main power "ON".

b. With no ^{133}Xenon in the Ventil-Con II, adjust the concentration meter to zero by using the small screw in the center of the meter (Figure 23).

c. With the breathing valve in the rebreathe position, adjust the spirometer to 5.0 liters.

NOTE: If ^{133}Xe is in the unit, adjustment should be made by the Operate/Evacuate valve to lower the volume or the breathing valve to increase the volume. When the breathing valve is open, room air will be drawn into the unit.

CAUTION: During the addition of Xenon and at <u>all times after Xenon has been added</u>, the breathing valve should be in the <u>Stabilization/Washout position</u> except when you want the patient to breathe Xenon.

d. Inject a known amount of ^{133}Xe into the breathing valve (Figure 24) and allow several minutes for it to mix. Note: Figure 24 is for illustration only. To assure adequate radiation protection, a lead syringe holder should be used. Calculate the concentration by the following formula:

$$\text{Concentration} = \frac{\text{Xenon added}}{\text{Spirometer Volume} + 5 \text{ liters}}$$

In the above formula the constant 5 represents the dilution volume outside the spirometer, i.e., in the tubing, bacteriological filter, etc.

Recommendation: We recommend an initial concentration of 5 mCi/liter.

Example: Spirometer Volume = 5 liters

^{133}Xe Injected = 50 mCi

Then:

$$\text{Concentration} = \frac{50 \text{ mCi}}{5 + 5} = \frac{50}{10} = 5 \text{ mCi/liter}$$

Using a small screwdriver, adjust the concentration gain potentiometer so that the meter corresponds to the calculated concentration (Figure 25).

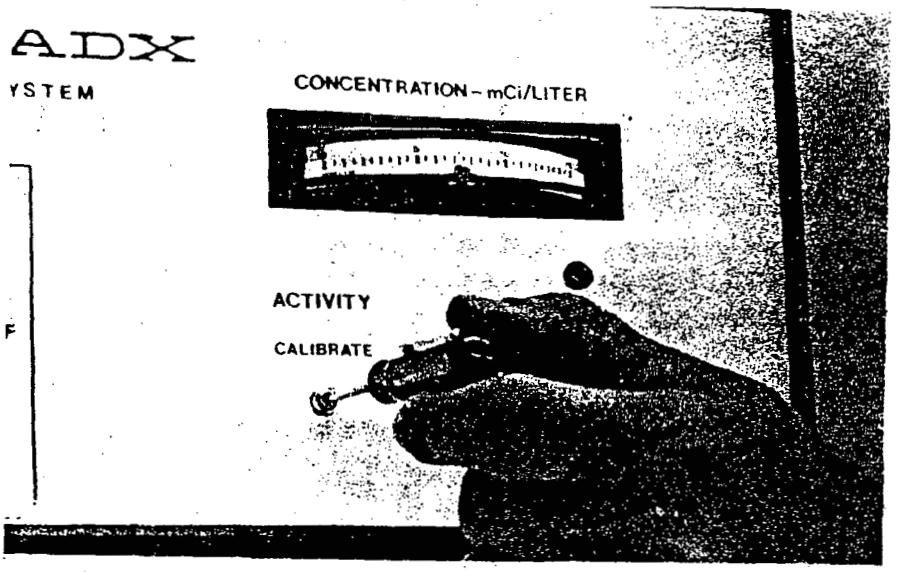


Fig. 25
Calibrating the Concentration Meter with the Activity Potentiometer

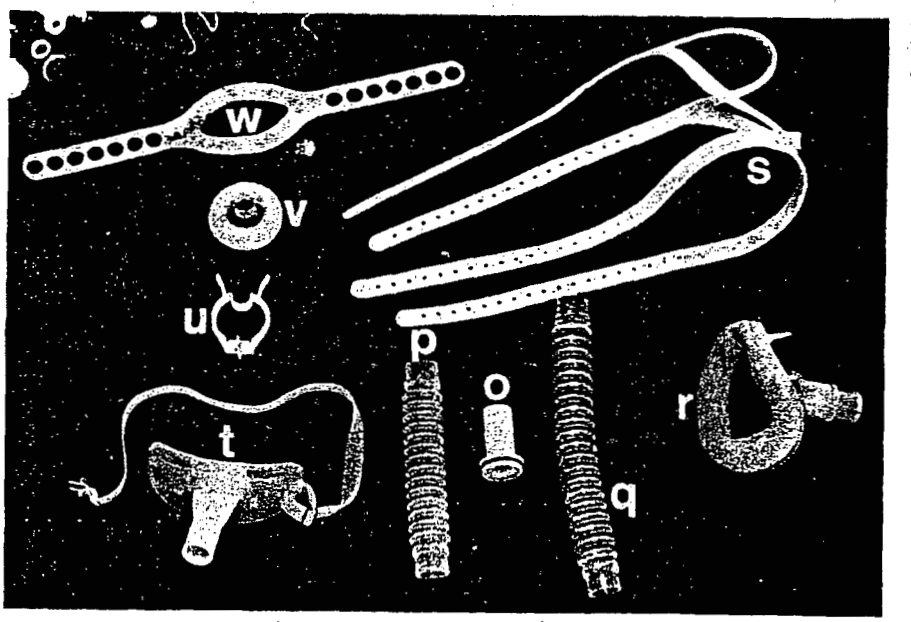


Fig. 26 Breathing accessories available for Ventil-Con II

o. Breathing Port Adapter
p. $5\frac{1}{2}$" Face Mask Tubing
q. 8" Face Mask Tubing
r. Adult Face Mask
s. Adult Face Mask Harness
t. Adult Mouthpiece (Headstrap included)
u. Nose clip
v. Infant Mask
w. Infant Mask Harness

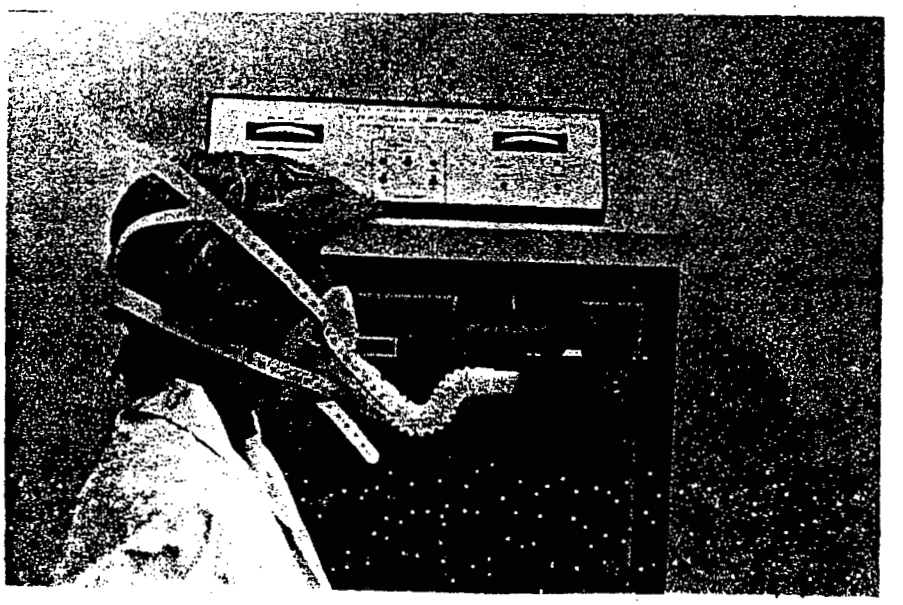


Fig. 27
Patient attached to Ventil-Con II

CAUTION: When handling large quantities of ^{133}Xe, it should be properly shielded. The ^{133}Xe to be injected into the Ventil-Con II should be calibrated in a dosecalibrator. However, the user should be aware that the type of container that the ^{133}Xe is assayed in can significantly affect the reading due to the low energy of the ^{133}Xe gamma ray.

The Ventil-Con II is designed in such a fashion that the only Xenon lost during a study is that Xenon in the patient at the start of washout. The remaining stays in the unit and may be used on subsequent patients. All parts having patient contact, such as face masks or mouthpieces and face mask tubing, should be autoclaved after each use.

Recommendation: In our experience, a concentration of 5 mCi/liter is the maximum required for a satisfactory study. As the stored Xenon is used, subsequent patient studies will require longer times to complete or counting statistics will suffer.

The minimum concentration is in the order of 2.5-3.0 mCi/liter.

Start with a concentration of 5.0 mCi/liter and when it drops below 2.5-3.0 mCi/liter, bring it back to 5.0 by adding Xenon. The amount of ^{133}Xe required may be calculated from the following formula:

$$A = (C_2 - C_1)\ (V + 5)$$

A = Activity to ad

C_2 = Desired concentration

C_1 = Current concentration

V = Spirometer Volume

Example: Current concentration = 2.0 mCi/l

Spirometer Volume = 4.0 l

Desired concentration = 5.0 mCi/l

then

$$A = (5.0\ \text{mCi/l} - 2.0\ \text{mCi/l})\ (4.0\ \text{l} + 5.0\ \text{l})$$

$$= (3.0\ \text{mCi/l})\ (9\ \text{l})$$

$$= 27.0\ \text{mCi}$$

2. Disconnect the O_2 line at the rear of the Ventil-Con II (Figure 4) and turn the O_2 supply on adjusting the flow rate to 2 liters per minute. Reconnect the O_2 line.

3. Set the Oxygen Replenishment selector to Auto and adjust the Oxygen Control to 0.5 liter below the starting spirometer volume (Figure 11).

   Example: Spirometer Volume = 5.5 liters

   Set control to 5.0 liters

   Explanation: Normal tidal volume is approximately 0.5 liter. In the above example, every time the spirometer volume drops below 5.0 liters, the O_2 replenishment solenoid will open allowing O_2 to enter the system. By using the control in this fashion, the O_2 concentration at the start of the study will be maintained throughout.

4. Check that the Expandable Interface bag is not inflated.

Patient Preparation

1. If the patient is to be studied in a sitting position, use the 5½" Face Mask Tubing. For the patient that cannot sit up, use the 8" tubing.

2. Face Masks are generally more comfortable than the Mouthpiece with Nose Clamp. When using a Face Mask, make sure you get a good seal particularly around the nose. A variety of patient hook-up accessories are available from Radx for use with the Ventil-Con II (Figure 26).

3. With the breathing valve in the Stabilization/Washout position, hook the patient to the Ventil-Con II (Figure 27). The patient is now breathing room air through the Ventil-Con II. When they exhale, a valve opens in the bottom of the breathing valve and admits room air. When they exhale, the intake valve closes and the exhaust valve opens and the patient's breath travels through the unit exhaust system.

   The patient should be allowed to breathe in this mode for several minutes to become acclimated to the system. If breathing difficulties are to be encountered, either psychological or otherwise, they will show up during the stabilization period where no Xenon is involved. It is during this time that the gamma camera should be set up and checked out.

Procedure

There are a multitude of procedures for performing Xenon Lung Ventilation studies. The procedures can vary significantly. The techniques and discussions which follow are based on our experience with our equipment and should not be construed as the only methodology. The user should feel free to change the recommended procedure to fit their particular requirements. The pros and cons of the "controversial" aspects of the study are presented below.

Bolus VS Homogeneous Administration

Bolus - Pro - Higher count rates provide a statistically superior image during the single breath phase of the procedure.

Con - Non-physiological.

Homogeneous - Pro - Physiological.

Con - Relatively low count rates provide a statistically poor image; however, they are comparable to the washout images which are statistically poor.

Equilibrium/Washout VS Single Breath/Washout

Single Breath/Washout - Pro - Fast

Con - See "Pro" on Equilibrium/Washout below.

Equilibrium/Washout - Pro - One of the most diagnostic portions of the lung ventilation study is the washout phase where poorly ventilated areas appear as "hot" spots. In order for these areas to fill with sufficient ^{133}Xe to become "hot" on washout, an equilibrium must be established between normal ventilated areas and poorly ventilated areas. This requires a minimum of 3-5 minutes of rebreathing of the Xenon/air mixture in the unit.

Con - Adds approximately 3-5 minutes to the test.

4. Shut-Down - After completion of washout, disconnect the patient, but allow the trap to run for an additional 5 minutes (10 maximum) to deflate the Expandable Interface.

ROUTINE MAINTENANCE

CO_2 Absorber - The soda lime granules shipped with the Ventil-Con II have a color indicator to show when they are saturated with CO_2. The normal color is pink and as they absorb CO_2 they turn violet to purple. The granules should be changed when about 2/3 of them have changed color. Under low use conditions, the color may fade thus we recommend changing them once per month or as the color changes, whichever comes first.

To change the absorber, do the following:

1. Evacuate the system by putting the Operate/Evacuate valve (Figure 9) in the Evacuate position. When the spirometer volume reaches O, put the valve in the Operate position and fill the spirometer to 10 liters by opening the breathing valve (Rebreathe position). When the spirometer fills, close the breathing valve and evacuate the unit again.

2. Unscrew the "bell" jar and dispose of the soda lime granules.

3. Refill the jar with fresh soda lime granules. When refilling, be sure the white tube is centered in the jar.

4. Screw the jar back onto the cap. If the jar tightens but still has a space between the blue cap and clear jar (check it with your finger nail) the tube was probably not adequately centered. The jar should be removed and the central tube recentered.

Bacteriological Filter - The Bacteriological Filter (Figure 5) should be removed and autoclaved each time you change the CO_2 absorber or no less often than once per month. It should be replaced entirely once per year. Before removing the Bacteriological Filter, evacuate the unit as described above for the CO_2 absorber.

Moisture Absorber - Units equipped with a Xenon Trap have a silica gel desiccant jar (Figure 5) to remove moisture from the air prior to entering the charcoal cartridge pack. Silica gel is normally a dark blue and turns clear to pinkish as it becomes saturated with water. When the granules are approximately 2/3 saturated, remove the "bell" jar. The silica gel

desiccant may be reconstituted by heating. This may be done on a stove top or in an oven. If done on a stove top, constantly stir the granules to prevent burning. If done in an oven, set the temperature to about 300°F. When the crystals turn blue they are ready for reuse.

Replace the jar as described in the CO_2 Absorber section.

Note: It is not necessary to evacuate the Ventil-Con II in order to service the Moisture Absorber.

Charcoal Cartridge Pack - Units equipped with a Xenon Trap will require periodic replacement of the charcoal cartridge pack. On units equipped with the trap alarm, the alarm should be the guide for replacement. If your unit is not equipped with an alarm, samples from the exhaust port should be taken at least weekly if not daily, and checked for radioactivity. To replace the charcoal pack do the following:

1. Open the right side panel (as you face the unit). This exposes the end of the cartridge pack (Figure 19).

   Caution: The charcoal cartridge pack can have up to one curie of activity, therefore it should be handled rapidly to reduce the exposure time.

2. Disconnect the two hoses attached to the cartridge pack and remove the pack by sliding it towards you (Figure 28).

3. Seal the ends with the caps that come attached to the new pack and store the used pack behind lead shielding for a period of no less than 15 half lives.

   Note: After suitable decay, the cartridge pack may be reused. Its reuse life is unpredictable.

4. Insert the fresh cartridge pack and be sure to follow the color coding for the hose hook up.

CBF Modification

Obrist et al [1] pioneered a procedure for determining cerebral blood flow by a non-invasive ^{133}Xe inhalation process. Radx offers as an option a Ventil-Con II modified for CBF.

[1] Obrist, W.D. et al, "Determination of Regional Cerebral Blood Flow by Inhalation of Xenon-133". Circulation Research, XX, 124-134, Jan. 1967.

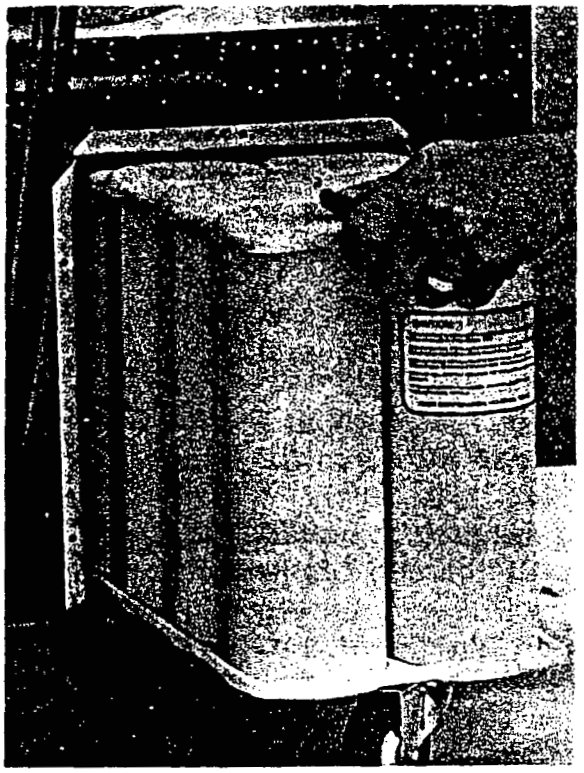


Fig. 28
Removing charcoal cartridge pack

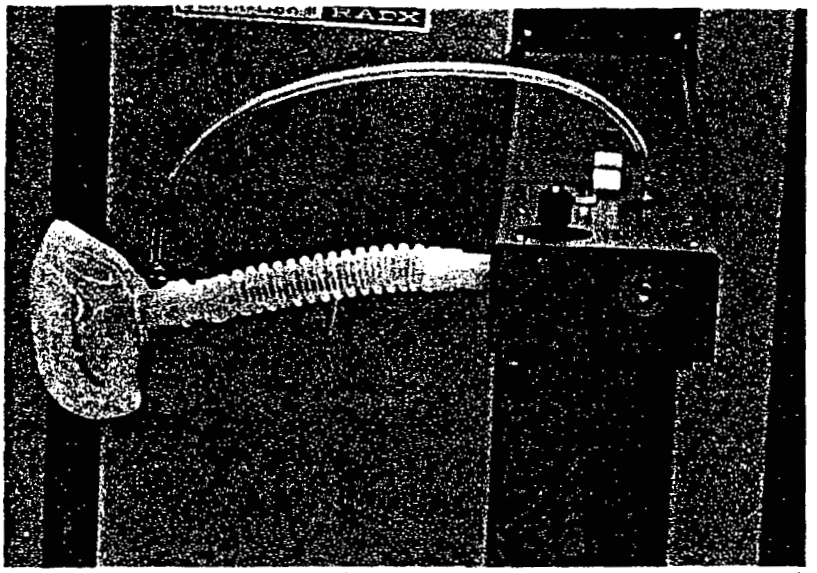


Fig. 29
CBF Face Mask attached to Ventil-Con II

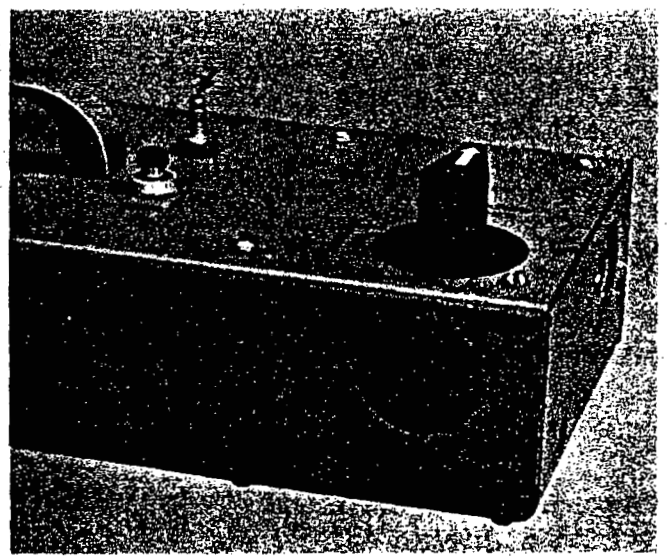


Fig. 30
CBF brass bulkhead fitting (arrow)

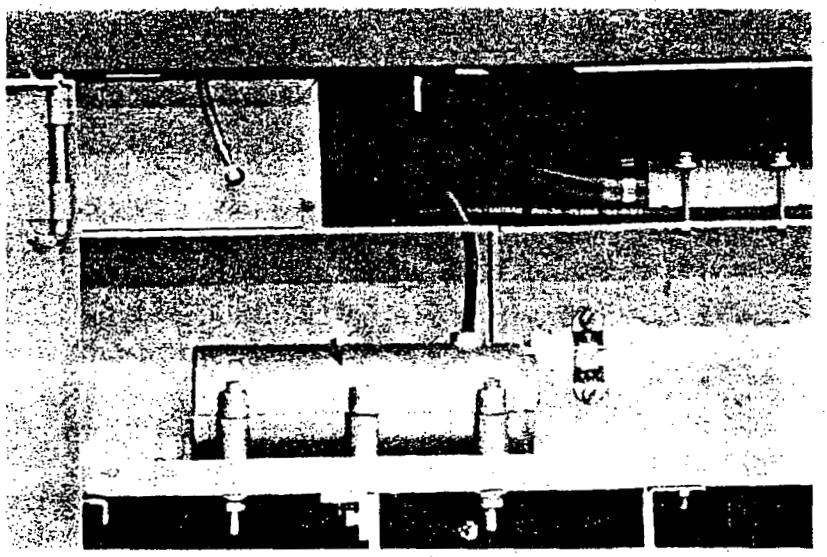


Fig. 31
Scintillation detector ("air probe") shield (arrow)

The Obrist technique requires (among other things) that a sample of the patient's exhaled breath be continuously monitored by a scintillation detector. The modification made to the Ventil-Con II provides simple and safe methods of taking the "Air Probe" sample.

These modifications are as follows:

1. The face mask is provided with a fitting to allow sampling (Figure 29).

2. A tube is run externally from the face mask to a brass bulk-head fitting on the arm (Figure 29).

3. Tubing is then run internally through the scintillation detector shield (the scintillation detector is not provided) (Figure 30).

4. From the shield it goes to the sampling pump and from the pump to a bulk-head fitting which exists at the rear of the unit and is labeled "To CO_2 Analyzer" (Figure 31).

5. Adjacent to the above fitting is another one labeled "From CO_2 Analyzer". This is then connected by tubing to the general exhaust of the Ventil-Con II.

Installation of CBF Unit

The CBF unit is set up and checked out in the same manner as the standard unit. Please refer to INSTALLATION starting on page 1.

The hook up of the special face mask is shown in Figure 29.

To install the "Air Probe" scintillation detector, do the following:

1. Disconnect the tubing that runs through the shield at the "L" located directly below the shield.

2. Pull the tube through the shield from the top.

3. With an Allen wrench, remove the four bolts that hold the top of the shield.

4. Remove the top.

5. Place the "well type" scintillation detector into the lower half in such a manner that the pass through hole in the detector lines up with the hole in the bottom of the shield.

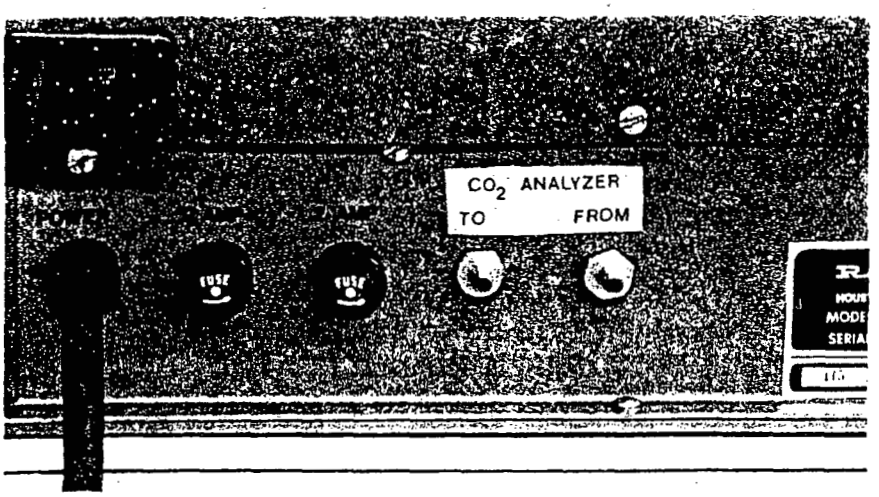


Fig. 32
Rear of CBF Modified Ventil-Con II showing the CO_2 Analyzer fittings.

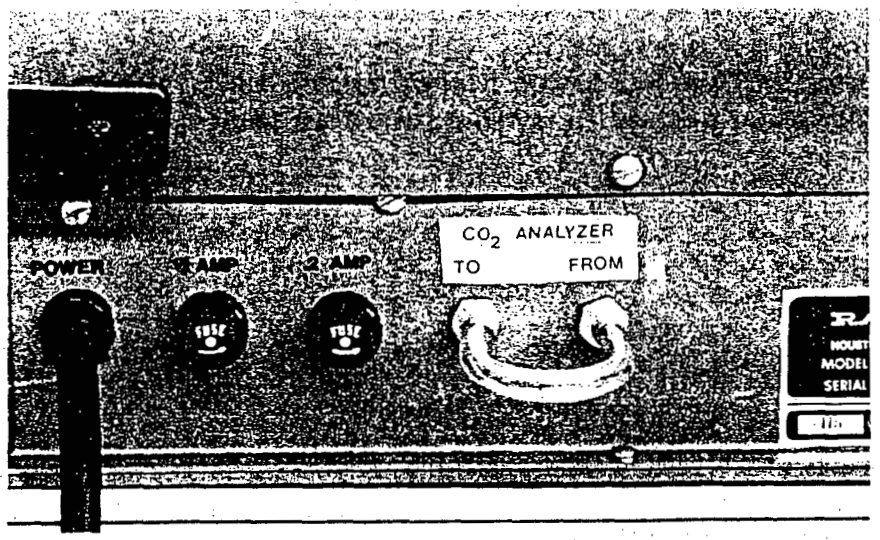


Fig. 33
Connecting the CO_2 Analyzer plumbing connections when an analyzer is not used.

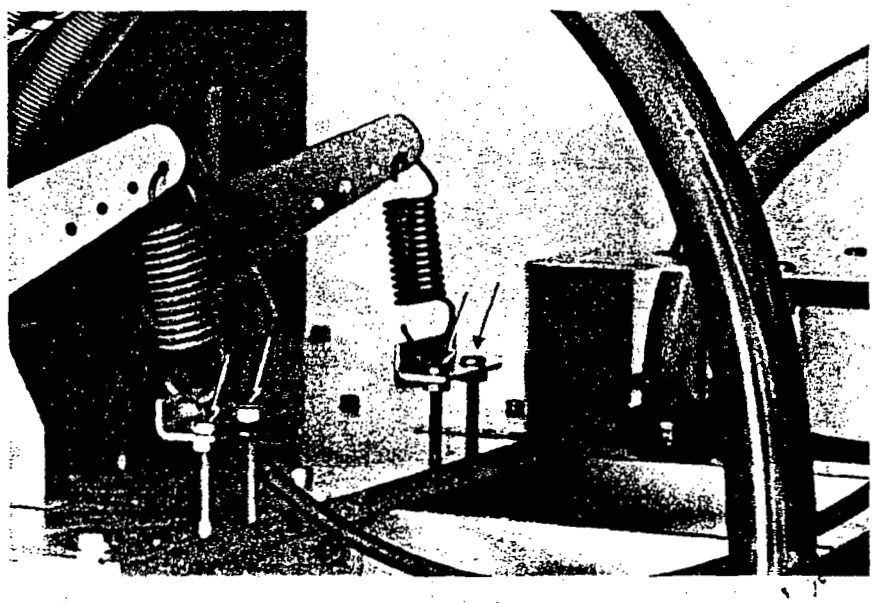


Fig. 34
Tensioning Bolts (arrows) for Ventil-Con II arm/brake mechanism

6. Replace the top, the bolts, and rethread the tube through both holes and reconnect it to the "L". Note: It may be easier to thread the tube prior to replacing the bolts.

7. If a CO_2 Analyzer is to be used, hook it to the output and input fitting at the rear of the Ventil-Con II. IF A CO_2 ANALYZER IS NOT USED, RUN A TUBE CONNECTING THE TO AND FROM CO_2 ANALYZER CONNECTIONS (Figure 33).

   NOTE: The Ventil-Con II modified for CBF may be used for standard lung ventilation studies by using a regular face mask or mouthpiece and disconnecting the tube between the TO/FROM CO_2 ANALYZER connections or disconnecting the CO_2 Analyzer.

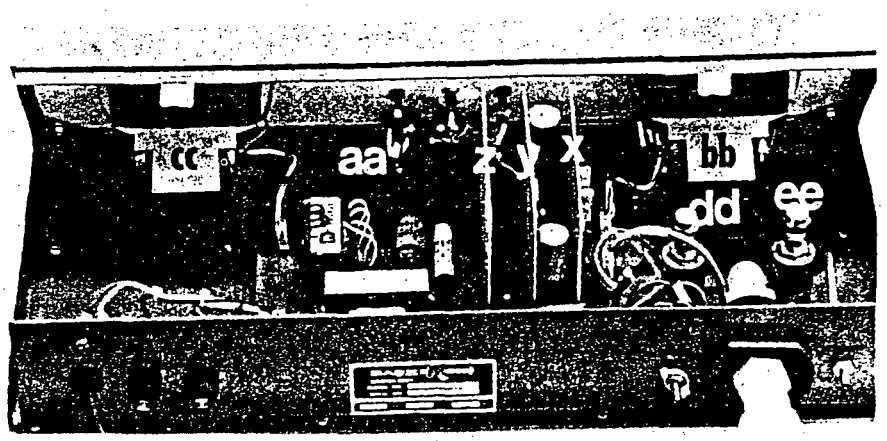
8. Turn the unit main power ON and the trap power ON. The CBF pump is activated when the trap power is turned on.

9. Check the TO CO_2 Analyzer fitting. You should feel a slow stream of air coming out.

CBF Procedure

The CBF procedure is best described in the paper of Obrist et al and in the manuals supplied with the multi-probe/computer systems necessary to collect and analyze the data.

Fig. 35 Electronics in Control Panel



x. Spirometer Volume Board

y. Xenon Trap Alarm Board

z. Activity/Concentration Board

aa. Mother Board

bb. Volume Meter

cc. Activity/Concentration Meter

dd. Manual/Automatic O_2 Solenoids

ee. Emergency Assist O_2 Solenoids

Unit Repair Section and Parts List

The following unit repair section presents the symptoms and provides a flow diagram to diagnose the problem and determine the action necessary to facilitate repair. The parts list provides information indicating which figure in the manual best shows the part in question. If the symptoms do not appear in this section, or if the repair instructions do not solve the problem, please call the Radx service department.

Symptoms:	Page
No lights or power	29
Trap pump does not run	29
Mixing pump does not run	30
Volume meter does not register properly	30
Concentration meter does not register properly	31
Alarm light or sound does not come on	31
Alarm does not come on with activity	32
No O_2 from O_2 Assist	32
Alarm activated	32
Arm hard to move or sags	33
Manual O_2 does not work	33
Automatic O_2 not working	34
Volume increase	34
Difficult breathing washout	35
Difficult breathing rebreathe	35

Arm sag which occasionally develops immediately as a result of vibration during shipment is treated separately below.

Arm Sag - If the arm of the Ventil-Con II drops by itself after being elevated, the arm requires adjustment of the brake band tensioning springs. Access to these springs is gained through either side door (Figure 34). Adjust the spring tension as follows:

1. Loosen the lock nut on the underside of the L bracket on all four screws.

2. Turn each screw clockwise so that it stretches the springs about 1/4 inch at a time.

3. Elevate the arm and place a 1 to 2 lb. weight on the end. If the arm sags, repeat step 2.

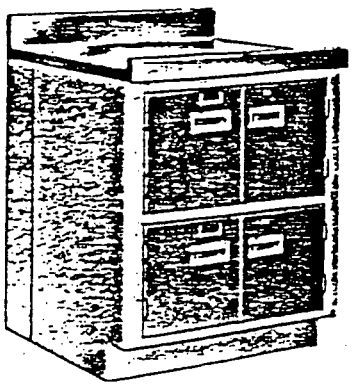
   Note: Over tension of the brake springs will result in an arm which is difficult to elevate.

4. After achieving proper tension, retighten the lock nuts below the L brackets.

PARTS LIST
VENTIL-CON II

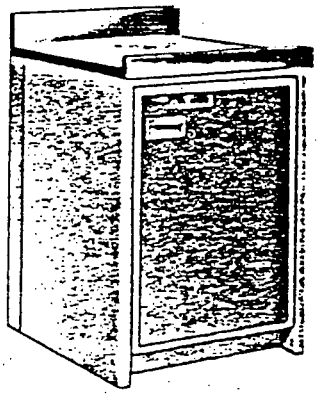
Description	Figure Number	Catalog Number	Part Number
Autoclavable Bacteriological Filter	5j	105	45-05-012
Infant Face Mask	26v	108	20-01-144
Infant Face Mask Harness	26w	114	20-01-144-1
Adult Mouthpiece with Headstrap	26t	109	20-01-058
Adult Face Mask	26r	110	20-01-151
Adult Face Mask Harness	26s	116	20-01-151-1
Nose Clip	26u		20-01-057
5½" Face Mask Tubing	26p	132	55-01-019
8" Face Mask Tubing	26q	133	55-01-020
Breathing Port Adapter	26o		55-03-069
Soda Lime Granules-CO_2 Absorber	5e	104	45-05-011
Silica Gel Desiccant	5f, 7f, 17f	126	45-05-006
Head Valve	18		30-05-024
Vertical Charcoal Cartridge Pack	19n, 22	125	20-01-154
Xenon Injection Port-Luer Fitting	20		30-05-025
Mixing Pump	5h, 19h		VC0485
Operate/Evacuate Valve	5j, 9		30-05-015
Expandable Interface Bag			20-02-028
Expandable Interface Housing	2		20-01-184
Xenon Trap Pump	5k, 17k		30-04-005
Control Panel			
Sonalert			10-28-002
LED (Red)-Xenon Trap Power and Alarm			10-19-033
LED (Green)-Main Power			10-19-034
Calibrate Potentiometer			10-06-040
Oxygen Control Potentiometer			10-06-016
Main Power Switch			10-13-082
Trap Power Switch			10-13-080
Audio ON-OFF			10-13-077
Trap Test Switch			10-13-079
Oxygen Control Switch			10-13-078
Volume Meter	35bb		10-10-015
Concentration Meter	35cc		10-10-016
Mother Board	35aa		10-09-026
Oxygen Solenoids	21, 35dd, ee		30-05-005
Volume Printed Circuit Board	35x		10-09-023
Concentration Printed Circuit Board	35z		10-09-024

STANDARD SYSTEM MODULES



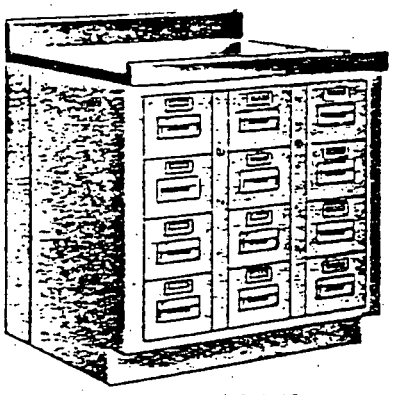
No. RH-3

No. RH-3 Receiving, Holding and Storage Module provides a lead shielded upper compartment for receiving and holding materials received into the Nuclear Medicine Department until time permits re-location and storage in the proper module. The lower lead shielded compartment may be used for short or long term decay.



No. RF-3

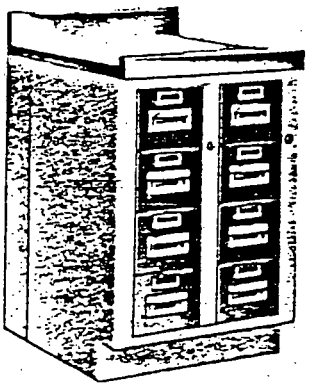
No. RF-3 Refrigerator Module provides a 4 cu. ft. lead shielded refrigerator complete with a freezer compartment and two lead shielded drawers. The U.L. listed refrigerator operates on single phase, 60 cycle, 115 volt AC, and is equipped with wide range temperature control and push button defrost.



No. IS-3-12

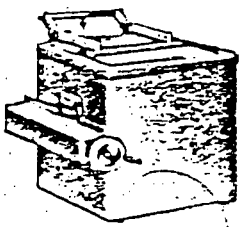
STORAGE FOR XENON-133

No. IS-3-12 Inventory and Storage Module provides for the inventory of generator prepared reagents and other radiopharmaceuticals. Utilization of this module will facilitate record keeping. The twelve drawers operate on heavy duty roller slides, and are individually lead shielded on the top, bottom and all four sides. All drawers are provided with coved interior plastic inserts for ease of cleaning and/or decontamination.



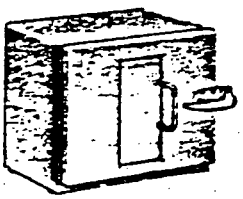
No. IS-3-8

No. IS-3-8 Inventory and Storage Module is similar to No. IS-3-12, except provides only eight drawers.



No. GT-1

No. GT-1 Generator Safe (for top elution generators) is lead shielded on all four sides, top and bottom, and provides radiation protection from the generator during and between elutions. A front remote control is provided to raise the cover partially for elution, or full open for generator replacement. The underside of the cover is equipped with a mirror to allow an indirect view of the generator for positioning elution vials without exposing the technologist to the open safe. Wheels are provided on the bottom of the safe to enable the user to move it to the front of the work surface for elution, and to the rear when it is not being used.



No. GT-1S

No. GT-1S Generator Safe (for front elution generators) is lead shielded on all four sides, top and bottom, and provides radiation protection from the generator during and between elutions. It includes a full swinging front door for generator replacement and a sliding door for the elution process. Wheels are provided on the bottom of the safe to enable the user to move it to the front of the work surface for elution, and to the rear when it is not being used.

ITEM 22

PROCEDURES AND PRECAUTIONS FOR USE RADIOACTIVE MATERIAL IN ANIMALS

Departments of the Army, Navy, and the Air Force; Defense Advanced Research Projects Agency; Defense Nuclear Agency; and the Uniformed Services University of the Health Sciences
Washington, DC
1 June 1984

*Army Regulation 70-18
*SECNAVINST 3900.38B
*AFR 169-2
DARPAINST 18
*DNAINST 3216.1B
*USUHSINST 3203

Research and Development

The Use of Animals in DOD Programs

Summary. This regulation, as revised, has been retitled "The Use of Animals in DOD Programs." It creates uniform policies, procedures, and responsibilities among Department of Defense (DOD) components involved in the use of animals as outlined in this regulation. This regulation references pertinent Federal statutes and regulations and other standards related to the care and use of animals. It establishes policies regarding the care and use of animals. It also sets requirements for monitoring the care and use of animals whether performed by DOD personnel or contract or grant recipients. This regulation implements DOD Directive (DODD) 3216.1.

Applicability. This regulation applies to the active components of the military services. It also applies to Reserve Components engaged in activities involving the use of animals as defined in this regulation.

Impact on New Manning System. This regulation does not contain information that affects the New Manning System.

Supplementation. Army supplementation of this regulation is prohibited without prior approval of HQDA(DASG-RDZ), WASH DC 20310. Send requests for exception, with justification, through command channels to HQDA(DASG-RDZ). Other DOD component supplements will be administered through the appropriate component offices listed in appendix A, according to individual component policies.

Interim changes. Interim changes to this regulation are not official unless they are authenticated by The Adjutant General. Users will destroy interim changes on their expiration date unless sooner superseded or rescinded.

Suggested improvements. The proponent agency of this regulation is the Office of The Surgeon General. Army users are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to HQDA(SGRD-OP), Fort Detrick, MD 21701. Other DOD users should submit their comments and suggested improvements through the appropriate component offices listed in appendix A according to individual component policies.

Contents

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Responsibilities	4
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Animal care and use procedures	8
Centralized review of nonhuman primate use	9
Contracts and grants	10
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Use of DOD facilities	12
Release of information	13
Reports and inspections	14

Appendix
A. DOD Component Offices
B. DOD—Federal Acquisition Regulation Supplement Clause 52.235-7003

Glossary

1. Purpose

This regulation sets policies, procedures, and responsibilities for using animals in DOD programs. As revised, this regulation covers transportation, care, use, review, reporting, and certain public affairs aspects for—

a. Research, development, test, and evaluation (RDTE).

b. Clinical investigation.

c. Diagnostic purposes.

d. Instructional programs or exhibitions in military departments and Defense agencies (DOD components).

2. References

Related publications are listed below. (A related publication is merely a source of additional information. The user does not have to read it to understand this regulation.)

a. AFR 125-5 (USAF Military Working Dog (MWD) Program).

b. AR 40-654 (Veterinary Services Nutritional Standards for Military Working Dogs).

c. AR 40-905 (Veterinary Health Services).

*This regulation supersedes AR 70-18, 8 October 1976; SECNAVINST 3900.38A, 21 March 1977; AFR 169-2, 15 October 1982; DNAINST 3216.1B, 4 June 1982; and USUHSINST 3203, 17 December 1982.

d. AR 40–920/AFR 163–9 (Veterinary Laboratory Services).

e. AR 190–12 (Military Police Working Dogs).

f. AR 700–81/AFR 400–8/NAVINST 10570.1/MCO 105–0.1 (DOD Dog Program).

g. NIH 80–23 (Guide for the Care and Use of Laboratory Animals), Institute of Laboratory Animal Resources, National Resource Council. (This guide is available from the Division of Research Resources, National Institutes of Health, Bethesda, MD 20205.)

h. NIH 80–1520 (National Primate Plan), Interagency Research Animal Committee. (This plan is available from the Division of Research Resources, National Institutes of Health, Bethesda, MD 20205.)

i. SECNAVINST 3900.41 (Procurement, Transport, and Maintenance of Marine Mammals).

3. Explanation of abbreviations and terms

Abbreviations and special terms used in this regulation are explained in the glossary.

4. Responsibilities

a. The Under Secretary of Defense for Research and Engineering (USDR&E) will—

(1) Issue policies and procedural guidance under DODD 3216.1 concerning animal use.

(2) Allocate nonhuman primate resources to DOD agencies when their requirements exceed the number of animals available for DOD use.

(3) Designate a veterinarian as the DOD representative to the Interagency Research Animal Committee (IRAC). (This was formerly the Interagency Primate Steering Committee.) This person must have the proper rank or grade and experience. He or she must also be a diplomate of the American College of Laboratory Animal Medicine.

b. The Surgeons General of the Army, Navy, and Air Force; the Directors, Defense Advanced Research Projects Agency and Defense Nuclear Agency; and the President, Uniformed Services University of the Health Sciences will—

(1) Supervise the use of animals by their DOD components and implement this regulation.

(2) Establish a joint working group to identify and conserve nonhuman primate resources. The working group will be chaired by the DOD representative to the IRAC. This group will—

(*a*) Share primates and data.

(*b*) Transfer primates between DOD components.

(*c*) Establish primate breeding programs.

(3) Establish and provide representatives to a joint technical working group (JTWG). The JTWG will assist in the—

(*a*) Periodic review of the care and use of animals in DOD programs.

(*b*) Matters related to developing and issuing joint regulations implementing DODD 3216.1.

c. The Army Assistant Surgeon General for Research and Development (DASG–RDZ), as executive agent, will—

(1) Develop, with other DOD components, plans and procedures to insure adequate supplies of nonhuman primates and other species needed to meet DOD requirements. Plans will be sent to the USDR&E for approval.

(2) Develop and issue joint regulations to implement DODD 3216.1.

d. The Chief, US Army Veterinary Corps, will serve as consultant to the USDR&E for technical and professional matters concerning this regulation.

e. DOD component offices listed in appendix A will administer this regulation.

f. Local commanders will insure that—

(1) RDTE, clinical investigation, diagnostic procedures, or instructional programs are conducted in laboratories that conform to the standards and guidelines cited in this regulation. If there is conflict between the standards of humane care and use of animals, the most humane standards will be used.

(2) Local animal care and use, procurement, and transportation policies and procedures comply with this regulation.

(3) Animals used or intended to be used will experience no unnecessary pain, suffering, or stress, and their use will meet valid DOD requirements.

(4) Alternatives to animal species will be used if they produce scientically satisfactory results.

(5) Dogs, cats, or nonhuman primates are not used in research conducted to develop nuclear, biological, or chemical weapons.

5. Accreditation

All DOD organizations having animals (other than military working, recreational, and ceremonial) will seek accreditation by the American Association for Accreditation of Laboratory Animal Care (AAALAC).

6. Statutes, regulations, and standards

a. The Laboratory Animal Welfare Act of 1966, as amended, and its implementing regulations require licensing of dealers, identification of animals, maintenance of records, submission of reports, and compliance with standards for the humane handling, care, treatment, and transportation of animals by dealers and research facilities (sections 2131–2156, title 7, United States Code (7 USC 2131–2156) and parts 1–4, title 9, Code of Federal Regulations (CFR 1–4)).

b. The Endangered Species Act of 1973, as amended,

Headquarters
Departments of the Army, the Navy and the Air Force; Defense Advanced Research Projects Agency; Defense Nuclear Agency; and the Uniformed Services University of the Health Sciences
Washington, DC
1 August 1984

Army R ulation 70-18/SECNAVINST 3900.38B/AFR 169-2/DARPAINST 18/ DNAINST 3216.1B/USUHINST 3203
Change 1

Effective Upon Receipt

Research and Development

The Use of Animals in DOD Programs

Summary. This is a change to AR 70-18/SECNAVINST 3900.38B/AFR 169-2/DARPAINST 18/DNAINST 3216.1B/USUHSINST 3203, 1 June 1984. A change has been made in paragraph 9*b*.

Suggested improvements. The proponent agency of this regulation is the Office of The Surgeon General. Army users are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to HQDA(SGRD-OP), Fort Detrick, MD 21701. Other DOD users should submit their comments and suggested improvements through the appropriate component offices listed in appendix A according to individual component policies.

AR 70-18/SECNAVINST 3900.38B/AFR 169-2/DARPAINST 18/DNAINST 3216.1B/USUHINST 3203, 1 June 1984, is changed as follows:

Page 3-4, paragraph 9b. In line 3, change "paragraph 6a and b" to paragraphs 8 and 9."

By Order of the Secretary of the Army:

JOHN A. WICKHAM, JR.
General, United States Army
Chief of Staff

Official:

ROBERT M. JOYCE
Major General, United States Army
The Adjutant General

By Order of the Secretary of the Navy:

M. R. PAISLEY
Assistant Secretary of the Navy
(Research, Engineering and Systems)

By Order of the Secretary of the Air Force:

CHARLES A. GABRIEL
General, USAF
Chief of Staff

Official

JAMES H. DELANEY
Colonel, USAF
Director of Administration

Official

ROBERT S. COOPER
Director
Defense Advanced Research Projects Agency

Official

RICHARD K. SAXER
Lieutenant General, USA
Director, DNA

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JAY P. SANFORD
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Marine Corps: Marine Corps Lists H & I

Air Force: F

DARPA: Special

DNA: Special

USUHS: Special

☆ U.S. G.P.O. 1984-421-661:10007

and its implementing regulations provide a program, under the Department of the Interior, for conserving threatened and endangered species (16 USC 1531–1543) (50 CFR 10–14, 17, and 217–222). The Marine Mammal Protection Act of 1972, as amended, and its implementing regulations provide a similar program, under the National Oceanic and Atmospheric Administration, for marine mammals and marine mammal products (16 USC 1361–1384) (50 CFR 10–14, 18, and 216). These acts require the US Government to acquire permits, maintain records, make reports, and perform inspections on the care and handling of animals.

c. The Lacey Act prohibits the importation of certain wild animals or their eggs if the Secretary of the Interior determines that they are injurious to humans, the interests of agriculture, or other specified national interests. These wild animals and their eggs are identified within the Lacey Act documentation (18 USC 42) (50 CFR 16 and subpart B).

d. Regulations on the use of harmful or dangerous viruses, serums, toxins, and other similar agents in animals used in research facilities producing or testing biological products are presented in 21 USC 154 and 9 CFR 117.

e. Regulations on the import and export of animals, their shipment interstate and intrastate, and the requirements for their quarantine and inspection are presented in the following documents: 5 USC 301; 19 CFR 120; 21 USC 111–113, 114a, 115–117, 120–126, and 151–158; 9 CFR 71–97 and 122; 42 USC 216 and 264–272; and 42 CFR 71–72.

f. The Department of Health and Human Services provides additional guidance on housing, caring for, and using laboratory animals. Guidance is in NIH 80–23, "Guide for the Care and Use of Laboratory Animals."

g. The Department of Health and Human Services provides guidance on the supply and use of laboratory primates in NIH 80–1520, "National Primate Plan."

7. Animal use proposals

a. Proposals, whether conducted or sponsored by DOD components, that involve using animals will be written. They will include the following information:

(1) Objectives.

(2) Discussion of the need to perform the experiment, procedure, or demonstration.

(3) Review or summary of the scientific literature or experience that led to the proposal.

(4) Rationale for using the animal species and proposed numbers.

(5) Design of the experiment, procedure, or demonstration.

b. The description of methods used in animal experiments, procedures, or demonstrations should be complete and sufficient to indicate that pain and discomfort are minimized without compromising objectives of the experiment. Justification must be given for not using proper drugs when the procedures may cause pain or discomfort.

8. Animal care and use procedures

a. The local commanders of each DOD organization conducting or sponsoring activities involving animals in RDTE, clinical investigation, diagnostic procedures, or instructional programs will form a committee(s) to oversee the care and use of animals.

b. Committee(s) appointed by the local commander will be made up of at least three members. At least one person will not be involved in the proposed project and at least one member will be a veterinarian. Committee(s) will submit recommendations and be responsible to the local appointing official.

c. The committee(s) will—

(1) Periodically review all aspects of animal care to insure established policies, standards, and regulations are complied with.

(2) Review all protocols or proposals to insure that—

(*a*) The information sought by the use of animals is sufficiently important to warrant their use.

(*b*) The design of the experiment, procedure, or demonstration is adequate.

(*c*) The maximum amount of information consistent with good scientific research practice is obtained.

(*d*) The minimum number of animals needed for scientific validity is used.

(*e*) The model selected is the most suitable, based on consideration of the the experimental design, potential alternatives, and laboratory limits.

(*f*) The use of drugs to minimize pain or discomfort is adequate.

(*g*) Established policies on the use of animals are complied with.

d. Commanders responsible for working animals or recreational or ceremonial animals will regularly review and oversee their activities. The oversight will involve the local official attending veterinarian.

9. Centralized review of nonhuman primate use

a. Proposals involving the use of nonhuman primates will receive an additional centralized review by the proper DOD component office (app A). This review will conform with the criteria of NIH 80–1520. A centralized review will confirm that—

(1) The proposed research can be done only with nonhuman primates and that no other species or test system could produce comparable results.

(2) The species of nonhuman primates proposed for

use is the most suitable and that some more plentiful species would not be adequate.

(3) The number of nonhuman primates proposed is the minimum that will produce scientifically acceptable results.

(4) The nonhuman primates will not be euthanatized during or at the end of the study except in cases requiring this as part of the investigation.

(5) If euthanasia is needed, positive action will be taken to share body material when feasible.

b. Each DOD organization using animals will establish review procedures and apply the criteria outlined in paragraph 6a and b. Protocols or proposals that involve using nonhuman primates must be reviewed and approved. The local DOD organization will send one copy of each protocol or proposal to the proper DOD office for centralized review.

10. Contracts and grants

a. RDTE, clinical investigation, diagnostic procedures, or instructional programs involving animals sponsored by a grant, award, loan, or contract from a DOD component will be conducted in facilities that conform to the standards and guidelines cited in this regulation. When conflict between the standards for humane care and use of animals exists, the most humane standards will be used.

b. Each DOD component sponsoring RDTE, clinical investigations, diagnostic procedures, or instructional programs involving animals will insure that the following criteria are met:

(1) Proposals or protocols are prepared according to paragraph 7 and reviewed using the criteria summarized in paragraph 8c and, where applicable, as outlined in paragraph 9.

(2) The care and use of animals are in compliance with prescribed standards and policies and that recipients of funds provide appropriate assurances of compliance. Assurances will include written statements from the recipient's animal care and use committee or other responsible official. Written statements will certify that the laboratories are accredited by AAALAC or that the care and use of animals will be done according to NIH 80–23 or other applicable Federal permits or regulations. The written assurances will also state that the protocol or proposal has been reviewed and approved by the local animal care and use committee or attending veterinarian. Site visits to assess animal care and use will be made as appropriate; the site visit team will include a person knowledgeable in laboratory animal science.

c. All contracts or grants by DOD that may involve using laboratory animals will contain clause 52.235–7003 of the DOD— Federal Acquisition Regulations Supplement (DOD—FAR) (app B).

11. Animal programs in foreign countries

To the extent that the local situation permits, research in foreign countries conducted by DOD personnel or sponsored by DOD funds will comply with the requirements of this regulation.

12. Use of DOD facilities

The use of animals jointly with or on behalf of other DOD, Federal, or civilian agencies in DOD facilities will comply fully with this regulation.

13. Release of information

a. If information about investigations using animals is released in a timely manner, public understanding and acceptance is likely to increase. This is especially so when it is shown that investigation results—

(1) Help solve military problems.

(2) Contribute to improved health and welfare of man and domestic animals.

b. Releasing information about an experiment involving animals before the experiment is completed should be the exception rather than the rule.

c. Material proposed for release to both the scientific community and the public will contain full information relevant to humane procedures used.

d. Publications describing the use of animals involving RDTE, clinical investigation, or instruction will include a statement of compliance with the Animal Welfare Act, when applicable. Publications should also include a statement declaring adherence to the principles enunciated in NIH 80–23.

e. Special attention must be devoted to insuring that all material (written, oral, and visual) will be acceptable to a wide audience, including lay as well as scientific readers, regarding specific techniques involving animals.

f. DOD components will develop public affairs policies, including the specific criteria mentioned in this paragraph. Local commanders will use these criteria when reviewing publishable written and presented materials involving animals.

14. Reports and inspections

a. DOD organizations do not register with the Secretary of Agriculture under the Animal Welfare Act but organizations holding or using animals subject to that Act are subject to inspection. Such organizations will submit reports to the US Department of Agriculture (USDA) as required by USDA regulations implementing the Animal Welfare Act.

b. All DOD organizations using animals subject to this regulation will submit copies of each USDA report, and other data as directed, to the proper office cited in appendix A.

Appendix A
DOD Component Offices

Assistant Surgeon General for Research and Development
Department of the Army
ATTN: DASG-RDZ
Washington, DC 20310

Commander
Aerospace Medical Division (AFSC)
ATTN: AMD/RD
Brooks Air Force Base, TX 78235

Commander
Naval Medical Command (MEDCOM-02E)
Washington, DC 20372

Director
Defense Advanced Research Projects Agency
ATTN: Administrative Office
1400 Wilson Boulevard
Arlington, VA 22209

Director
Defense Nuclear Agency
ATTN: OAMA
6801 Telegraph Road
Alexandria, VA 22310

President
Uniformed Services University of the Health Sciences
ATTN: ADO
4301 Jones Bridge Road
Bethesda, MD 20814

Appendix B
Department of Defense—Federal Acquisiton Regulations Supplement Clause 52.235-7003

Extracted from the DOD—Federal Acquisition Regulations Supplement

35.071(d) Care of Laboratory Animals. In compliance with law and in furtherance of the Department of Defense policy that all aspects of investigative programs involving the use of experimental or laboratory animals be humanely conducted in accordance with recognized principles, the following clause shall be included in all contracts awarded in the United States, its possessions, and Puerto Rico, which may involve the use of such animals.

52.235-7003 CARE OF LABORATORY ANIMALS (1974 APR)

(a) Before undertaking performance of any contract involving the use of laboratory animals, the Contractor shall register with the Secretary of Agriculture of the United States in accordance with Section 6, P.L. 89-544, Laboratory Animal Welfare Act, 24 August 1966 as amended by P.L. 91-579, Animal Welfare Act of 1970, 24 December 1970. The Contractor shall furnish evidence of such registration to the contracting officer.

(b) The Contractor shall acquire animals used in research and development programs from a dealer licensed by the Secretary of Agriculture or from exempted sources in accordance with the Public Laws enumerated in *(a)* above.

(c) In the care of any live animals used or intended for use in the performance of this contract, the Contractor shall adhere to the principles enunciated in the "Guide for Care and Use of Laboratory Animals" prepared by the Institute of Laboratory Animal Resources, National Academy of Sciences—National Research Council, and in the United States Department of Agriculture's regulations and standards issued under the Public Laws enumerated in *(a)* above. In the case of conflict between standards, the higher standard shall be used. Contractor reports on portions of the contract in which animals were used shall contain a certificate stating that the animals were cared for in accordance with the principles enunciated in the "Guide for Care and Use of Laboratory Animals" prepared by the Institute of Laboratory Animal Resources, NAS-NRC, and/or in the regulations and standards as promulgated by the Agricultural Research Service, USDA, pursuant to the Laboratory Animal Welfare Act of 24 August 1966, as amended (P.L. 89-544 and P.L. 91-579).

Note: The Contractor may request registration of his facility and a current listing of licensed dealers from the Regional Office of the Animal and Plant Health Inspection Service (APHIS), USDA, for the region in which his research facility is located. The location of the appropriate APHIS Regional Office as well as information concerning this program may be obtained by contacting the Senior Staff Officer, Animal Care Staff, USDA/APHIS, Federal Center Building, Hyattsville, Maryland, 20782.

(End of clause)

Glossary

Section I
Abbreviations

AAALAC.. American Association for Accreditation of Laboratory Animal Care
DAR ..... Defense Acquisition Regulations
DOD ..... Department of Defense
DODD..... Department of Defense directive
JTWG ..... joint technical working group
RDTE ..... research, development, test, and evaluation
USDA ..... US Department of Agriculture
USDR&E .. Under Secretary of Defense for Research and Engineering
USUHS .... Uniformed Services University of the Health Sciences

Section II
Terms

Alternatives
Any system or method that covers one or more of the following:

a. Replacing the use of laboratory animals altogether.
b. Reducing the number of animals required.
c. Refining an existing procedure or technique to minimize the level of stress endured by the animal.

Animal
Any living nonhuman vertebrate used for RDTE, clinical investigations, diagnostic procedures, and instructional programs or exhibitions.

Clinical investigation
All activities supported by clinical investigative funds.

Commander
Laboratory or unit commander, institute director, or other official having equivalent authority.

Dealer
Any person who, in commerce, for compensation or profit, delivers for transportation (or transports, except as a carrier), buys, sells, or negotiates the purchase or sale of animals.

Endangered species
A species or subspecies of mammal listed as "endangered" under the Endangered Species Act.

Exhibition
The use of animals, including working, recreational, or ceremonial animals, in displays, demonstrations, or ceremonies.

Injurious wildlife
Any wildlife for which a permit is required under the Lacey Act before being imported into or shipped between the continental United States and Alaska, Hawaii, the Commonwealth of Puerto Rico, or any possessions of the United States.

Instructional programs
All educational and training activities, except tactical training of personnel associated with military working dogs or other working, recreational, and ceremonial animals.

Marine mammal
Those species of the following orders, which are morphologically adapted to the marine environment, whether alive or dead, including but not limited to any raw, dressed, or dyed fur or skin: Cetacea (whales, dolphins, and porpoises) and Pinnipedia other than walrus (seals and sea lions).

Nonhuman primate
Any nonhuman member of the highest order of mammals, including prosimians, monkeys, and apes.

Research, development, test, and evaluation
All activities supported by RDTE funds.

Research facility
Any school (except an elementary or secondary school), institution, organization, or person that uses or intends to use live animals in research, tests, experiments, or instructional programs.

Threatened species
A species of mammal listed as "threatened" pursuant to the Endangered Species Act.

By Order of the Secretary of the Army:

JOHN A. WICKHAM, JR.
General, United States Army
Chief of Staff

Official:

ROBERT M. JOYCE
Major General, United States Army
The Adjutant General

By Order of the Secretary of the Navy:

M. R. PAISLEY
Assistant Secretary of the Navy
(Research, Engineering and Systems)

By Order of the Secretary of the Air Force:

CHARLES A. GABRIEL
General, USAF
Chief of Staff

Official

JAMES H. DELANEY
Colonel, USAF
Director of Administration

Official

ROBERT S. COOPER
Director
Defense Advanced Research Projects Agency

Official

RICHARD K. SAXER
Lieutenant General, USA
Director, DNA

Official

JAY P. SANFORD
President, USUHS

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A4A (Chief of Naval Material)
A6 (Headquarters, U.S. Marine Corps)
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FKA1G (Sea Systems Command Headquarters)
FKA6 (Research and Development Activities)
FM (Shore Activities under the Commander of the Director, Naval Investigative Service)

Marine Corps: Marine Corps Lists H & I

Air Force: F

DARPA: Special

DNA: Special

USUHS: Special

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DEPARTMENT OF THE ARMY
HEADQUARTERS, U.S. ARMY MEDICAL RESEARCH INSTITUTE OF INFECTIOUS DISEASES
FORT DETRICK, FREDERICK, MARYLAND 21701

STANDING OPERATING PROCEDURE 24 March 1982
IRCC #6*

PROCEDURE FOR REMOVAL OF RADIOACTIVE CARCASSES FROM USAMRIID

BIOLOGICAL CONTAINMENT

1. Carcasses (an individual monkey or groups of small animals, both infected and non-infected controls) are placed in 20" x 30" Chieftan nylon bags (an American Hospital Supply product). The bag is sealed tightly, rolling the open end and applying autoclave tape. Only this specific type of nylon bag should be used; other types are destroyed by autoclave heat. The bag should be marked with "Radioactive and bio-hazard waste" and identified as outlined in IRCC SOP #4. The properly labeled bag is placed in freezer in Room 704-F.

2. The Health Physics NCOIC will notify the co-worker listed on the bag at least 24 hours before the radioactive waste is to be shipped from the Institute. The co-worker will be responsible for autoclaving the carcasses.

3. Three autoclaves are currently authorized for the sterilizing of radioactive material (Virology Suite 1, Bacteriology Suite 2 and Animal Assessment Suite 2). The co-worker must contact the principal investigator in one of the authorized suites to arrange for "back-end" operation of the autoclave.

4. The Health Physics NCOIC should be notified as to the time that the radioactive carcasses are to be picked up from the autoclave.

5. At the time of pickup, the Health Physics technician will seal and properly relabel the container as radioactive and check to insure that the complete description of radioactive material within the container is listed on its lid.

6. Radioactive carcass waste will be packed for shipping in accordance with HSWP-QHP dated 8 May 1979.

William R. Beisel

WILLIAM R. BEISEL, M.D.
Radiation Protection Officer
HQ, USAMRIID

*This SOP supersedes IRCC SOP #6 dated 16 July 1979.

DEPARTMENT OF THE ARMY
HEADQUARTERS, U.S. ARMY MEDICAL RESEARCH INSTITUTE OF INFECTIOUS DISEASES
FORT DETRICK, FREDERICK, MARYLAND 21701-5011

STANDING OPERATING PROCEDURE 1 February 1985

Animal Quality Assurance Program

	Paragraph
Purpose	1
Scope	2
Responsibility	3
Records	4
Sample Selection and Size	5
Procedures	6

1. PURPOSE.

This program is directed toward evaluating the health status of research animals as a step in assuring that spontaneous diseases do not compromise animal related research at USAMRIID. Newly received animals are evaluated at once to assure that their health status is appropriate for their intended research use and to establish and maintain a vendor performance file. Animals already in-house are monitored to assure continued appropriateness of their status. This monitoring also provides a continual update on the pathogen burden of animals in the facility and thus allows informed management decisions to be made. All incoming animals and animals already in house should be reasonably free of bacteria, viruses and parasites pathogenic to the particular species and should not have been exposed to pharmacologically active or toxic agents except as an element of the specific research protocol to which they are assigned.

2. SCOPE.

All research animals received from outside sources are included in this Animal Quality Assurance Program. This SOP also establishes routine procedures for monitoring the health status of mice, rats, hamsters, guinea pigs and rabbits. Quality assurance procedures for other species are developed on a case by case basis when they are introduced into USAMRIID facilities. Management of nonhuman primates upon receipt is handled IAW a separate SOP.

It should be noted that this is a surveillance/monitoring program and that the presence of pathogens does not necessarily result in rejection or elimination of the animals. The information sought is incomplete and serves to detect the more serious pathogens and as an indicator of the health status of the animals. Exhaustive microbiological, parasitological and pathological evaluation of t animal is not indicated under the circumstances and would not be cost effective. In most cases, information gained through this program will be relied upon in making decisions such as vendor selection, assignment of animals to projects and disposition of animals in question.

3. RESPONSIBILITY.

The Laboratory and Quality Control Officer is responsible for the execution and monitoring of this program. The Laboratory and Quality Control officer is also responsible for periodical review all animal handling procedures associated with receipt, set up and quarantine of animals to assure that acceptable preventative medicine practices are followed.

4. RECORDS

This program provides for the in-house performance of diagnostic laboratory procedures to assess the presence of specified pathogens in research animals. Records should be established to reflect the health status of animals in-house. Records reflecting health status of incoming animals should be established, by vendor and by species, to build a vendor performance file. The Laboratory and Quality Control Officer will request current quality control laboratory results from animal suppliers. Depending on the number and species of animals involved, supplier generated information may be regarded as basic quality control data with in-house information serving as a confirmation.

5. SAMPLE SELECTION AND SIZE.

A. Animals for quality assurance testing upon receipt should be selected at random from the entire shipment of like animals (within species, strain or stock, and age group). Except where specified to be otherwise, sample size is at least two and not more than five animals in a shipment. Samples are to be taken from each shipment, not to exceed one sample per month from each individual strain and species of animal received from a vendor. In addition to the randomly selected sample, animals that die spontaneously or are moribund are necropsied by veterinary pathologists for cause of death.

B. In-house surveillance.

(1) Because of the nature of infectious disease research, few rodents are maintained in long term studies. The bulk of the research is performed in containment areas that do not lend themselves to routine in-house quality assurance surveillance. The few breeding colonies maintained are periodically sampled under the quality control format.

(2) Spontaneous deaths are investigated by the Pathology Division with diagnostic necropsies.

6. PROCEDURES.

In general, the animals covered by this program are transported directly from the delivery conveyance to the AR breakdown area. Samples for quality control monitoring are selected as animals are set up in sanitized caging and the quality control procedures are performed as soon as possible. Quality control animals are held in filter top cages to preclude in-house contamination of animals.

A. Rats, mice and hamsters

(1) Initial observation - upon receipt all animals will be observed by a qualified veterinarian or a trained technician. This observation, which may be done as animals are set up in sanitized cages, is intended to detect morbidity, moribundity, deaths and other grossly apparent illnesses or abnormalities in the shipment of animals. If abnormalities are detected, the OIC, Quality Control Section will determine what further diagnostic effort or corrective actions are to be taken.

In general, dead and moribund animals are necropsied and their tissues are submitted for histopathology.

(2) Quality Control Monitoring

(a) Bacterial culture of cecal contents of mice, rats and hamsters is done utilizing the isolation scheme in the AR Clinical Lab SOP. Organisms identified include:

Salmonella sp
Citrobacter freundii 4280
Pseudomonas aeruginosa
Yersinaia sp
Staphylococcus aureus
Campylobacter fetus supsp. *jejuni* (Hamsters only)
Proteus mirabilis
Streptococcus sp (Beta hemolytic)

(b) Bacterial culture of upper respiratory tissues and/or lung is done utilizing procedures outlined in the AR Clinical Lab SOP. Organisms identified include:

Corynebacterium kutcheri
Pasteurella sp
Streptococcus sp (Beta hemolytic, groups A & G)
Pseudomonas aeruginosa
Klebsiella pneumoniae
Bordetella bronchiseptica
Campylobacter sp

(c) Direct postmortem examination of pelage for ectoparasites is performed utilizing procedures outlined in Annex A. Hamsters are also examined for *Demodex* sp by doing a deep skin scraping when indicated.

(d) Examination for endoparasites is performed utilizing the procedures for cellophane tape test, fecal flotation, and direct examination of the gastrointestinal tract outlined in Annex B.

(e) Serology to detect antibody to viruses.

(1) Serology for viral and mycoplasma titer will be performed by an independent laboratory. Procedures are outlined in Annex D.

(2) CBC is performed on each quality control animal with the results included in the final report. A differential is performed if the WBC value is not within the following range:

Mouse	$5.1 - 11.6 \times 10^3/mm^3$
Rat	$6.3 - 17.2 \times 10^3/mm^3$
Hamster	$3.0 - 11.0 \times 10^3/mm^3$

(f) Necropsies are performed in accordance with procedures outlined in Annex C.

B. Guinea Pigs

(1) Initial observation - upon receipt, each guinea pig is examined by a veterinarian or a trained technician. This examination is intended to detect grossly apparent illness or abnormalities in the guinea pigs. If abnormalities are detected, the veterinarian responsible for the animals will determine what further diagnostic efforts or corrective actions are to be taken.

(2) Quality Control Monitoring

(a) Bacterial culture of guinea pig cecal contents is done utilizing the isolation scheme in AR Clinical Lab SOP. Organisms isolated include:

Salmonella sp
Pseudomonas aeruginosa
Klebsiella pneumoniae
Campylobacter sp

(b) Bacterial culture of upper respiratory tract and/or lung is done utilizing the procedures outlined in AR Clinical Lab SOP. Organisms identified include:

Streptobacillus moniliformis
Bordetella bronchiseptica
Psuedomonas sp
Streptococcus sp
Staphylococcus aureus
Pasteurella pneumotropica
Pasteurella multocida
Klebsiella pneumoniae
Corynebacterium pyogenes
Corynebacterium kutscheri
Yersinia pseudotuberculosis

(c) Direct examination of the pelage is done using the procedures for ectoparasite examination outlined in Annex A. Direct examination and skin scraping are used for live animals.

(d) Examination for endoparasites is performed utilizing the procedures for flotation of feces and direct examination of the gastrointestinal tract outlined in Annex B.

(e) Necropsies are performed in accordance with procedures outlined in Annex C.

(f) CBC is performed on each animal with results included in final report. A differential is performed if WBC value is not within the range 6.5 - 18.0 X $10^3/mm^3$.

C. Rabbits

(1) Initial observation - upon receipt all aimals will be physically examined by a qualified veterinarian. This examination specifically includes checking for malocclusion, buphthalmia, ear mites, and lesions of the mucocutaneous junctions of the mouth, eyes and genitalia.

(2) Quality Control Monitoring

(a) Bacterial culture of rectal swabs or fresh fecal droppings are cultured for enteropathogenic bacteria utilizing procedures outlined in Clinical Lab SOP. Organisms isolated include *Salmonella* sp and *Pseudomonas* sp.

(b) Bacterial culture of upper respiratory swabs (Calgiswabs®) are performed utilizing procedures outlined in AR Clinical Lab SOP. Organisms isolated include:

Pasteurella multocida
Bordetella bronchiseptica
Streptococcus sp
Straphylococcus aureus
Yersinia pseudotuberculosis
Corynebacterium pyogenes
Pseudomonas sp
Klebsiella pneumoniae
Franciella tularensis

(c) All rabbits receive a complete examination prior to acceptance and entry into the colony. Any abnormality is noted and may result in rejection of the animal and immediate return to the vendor.

(d) Examination for endoparasites of rabbits is performed utilizing the procedure for fecal floatation and anal tapes outlined in Annex B.

(e) Because of the cost of laboratory rabbits, Quality Control necropsies are not routinely performed.

William C Cole
WILLIAM C. COLE
LTC(P), VC
Chief, Animal Resources Div.

ANNEX A

Procedures for Identification of Ectoparasites

A. Materials

1. Applicator, cotton tipped
2. Coverglass
3. Dissecting needle
4. Forceps
5. Jar for waste
6. Microscope
7. Microscope lamp
8. Microslides
9. Light lubricating oil and dispenser
10. Scalpel
11. "Scotch" tape
2. Towels, or "Wipes"

1. Applicator, cotton tipped. Wooden applicator sticks, 15 cm (6 in.) in length, are tipped with absorbent cotton. These are for the removal of mites from the ear canals.

2. Coverglass. Any 18 or 22mm (3/4 or 7/8 in.) square glass or plastic coverglasses are suitable.

3. Dissecting needle. A wooden-or metal-handled needle is used for picking up individual mites.

4. Forceps. To be used for plucking hair.

5. Jar for waste. Mites may live for hours after their removal from the host. Discarded swabs, "wipes," and slides may be disinfected by placing them in a covered jar containing 3 per cent lysol solution.

6. Microscope. The same type of microscope and its equipment is recommended as that used for fecal examination. Lens paper should be used to maintain clean objectives, oculars, condenser, and mirror.

7. Microscope lamp. That used for fecal examination is recommended for mite identification.

8. Microslides. These are standard 75 x 25 mm. (3 x 1 in.) glass slides.

9. Oil and dispenser. Any light-bodied lubricating oil may be used to mount mites temporarily on a microslide under a cover-glass. The oil may be dispensed from a small bottle provided with a dropper-pipette.

10. Scalpel. A detachable-blade scalpel is preferred for scraping the skin. The blade should be convexly curved.

11. Scotch tape. To be used for holding plucked hair(s) to the microslide.

12. Towels or "Wipes." Soft woven towels or disposable laboratory "Wipes" are used for drying microslides and for cleaning the scalpel.

B. Technique for skin examination for suspected skin mite infestation

1. Place a drop of light lubricating oil on a microslide.

2. Clean the scalpel blade by wiping it with paper.

3. Dip the clean scalpel blade into the drop of oil on the microslide.

4. Pick up a fold of the patient's skin at the edge of the suspected area, pinching it firmly between the thumb and forefinger. With the oily scalpel, scrape the crest of the fold several times in the same direction. Scrapings will adhere to the blade. Stop scraping when a slight amount of blood appears.

5. Transfer the scraping from the scalpel blade into the drop of oil on the microslide, using a slight rotating motion.

6. Apply a coverglass to the scraping on the microslide. Additional oil may be added at the coverglass edge in order to full the space beneath it. Do not press on the coverglass.

7. Examine the preparation under low magnification (x 100) in a methodical manner so that all portions of the coverglass area are seen. For best results, manipulate the substage condenser and diaphragm of the microscope so as to provide a relatively low degree of light, evenly distributed. Oily preparations of mites may be kept for days as demonstration of specimens. The mites show motion for many hours.

8. For the detection of ear mites in the rabbit, the patient must be restrained. A cotton swab is introduced into the external auditory canal and gently rotated. The swab is then placed on a microslide to which a drop of lubricating oil has been added. The swab is rolled, back and forth, in the drop of oil so that material on the swab is transferred to the oily suspention on the slide. The slide is then examined microscopically for the presence of ear mites. Living and dead ear mites may be seen.

   An electrically illuminated otoscope cone may be introduced directly into the ear canal for the detection of ear mites, thus making microscopic examination unnecessary.

   The more rapidly-moving, larger skin mites may be captured by touching them with an oily cotton swab. This slows them down so that they may then be transferred to a drop of oil on a microslide for microscopic examination.

C. Method of examining rodents for lice and non-follicle-inhabiting mites

1. Render the animal unconcious (CO_2 euthanasia chamber).

2. Completely examine the animal's pelage under a good, strong light.

3. Using forceps, pluck representative samples of hair from the dorsal neck, shoulder, and central lumbar area.

4. Mount these hair shafts on a microslide, using cellophane tape to hold them in place.

5. Examine the slide microscopically for the presence of external parasites. Possible ectoparasites include the following:

Mouse:	*Myobia musculi* *Myocoptes musculinus*; *Trichoecius romboutsi* *Radfordia affinis*	*Polyplax serrata* *Ornithonyssus bacoti* *Demodex spp.*
Rat:	*Radfordia ensifera* *Polyplax spinulosa*	*Ornithonyssus bacoti* *Demodex spp.*
Hamster:	*Ornithonyssus bacoti*	*Demodex spp.*
Guinea Pig:	*Chirodiscoides caviae* *Gliricola porcelli*	*Gyropus ovalis* *Trixacarus caviae*
Rabbit:	*Psoroptes cuniculi* *Cheyletiella parasitivorax* *Notoedres cati* *Sarcoptes scabie* *Listrophorus gibbus*	

D. Method of examining rodents for follicle-inhabiting mites

1. Kill the animal and cut through the skin completely around the torso (avoid cutting the peritoneum).

2. Pull the skin forward and backward (turning it inside out) and examine the inside surface for white nodules.

3. If nodules are present, tease out the contents, mount on a slide and examine microscopically (100x).

ANNEX B

Procedures for Identification of Endoparasites

A. Materials:

1. Coverglasses
2. Microslides
3. Microscope
4. Cellophane Tape
5. Glass Marker ("Sharpie")
6. Fecal Test Kits
7. Floatation Solution
8. Lens Paper
9. Wooden Applicator Sticks
10. Gauze, 4" x 4" 's
11. Waste Container

B. Procedures

1. Anal Tape Test

   a. Place a 2 inch strip of cellophane tape over the anal area of the rodent being checked. Manipulate/smooth the tape to insure maximum adhesion to the anal area.

   b. Remove tape from animal and place on a microslide, sticky side down.

   c. Examine the slide, microscopically, under low (100x) magnification.

2. Fecal Smear Test

   a. Place a small amount of small intestinal content (cecum) on a microslide. Add one drop of water, mix well with a wooden applicator stick, then cover with a coverglass.

   b. Examine slide, within 1/2 hour, under phase contrast microscopy (200x). Protozoa and *Campylobacter* may be identified by their unique motion or characteristics.

3. Fecal Floatation Test

   a. Obtain a small amount of feces from the large intestine. (For rabbits, use fresh fecal pellets collected from the bottom of the cage.)

b. Place feces in a pre-labeled "Fecal Kit" container. Transport to lab and complete fecal floatation in accordance with "Fecal Kit" instructions.

c. Examine floatation slide, microscopically, under low (100x) magnification.

C. Intestinal parasites that might possible be present are listed below:

Mouse:	Syphacia obvelata Aspiculuris tetraptera Hymenolepis nana Hymenolepis diminuta Klossiella muris	Eimeria spp. Spironucleus muris Giardia spp. Trichomonads
Rat:	Syphacia muris Aspiculuris tetraptera Hymenolepis nana Hymenolepis diminuta Nippostrongylus muris	Eimeria spp. Spironucleus muris Giardia spp. Trichomonads
Hamster:	Syphacia obvelata Aspiculuris tetraptera Hymenolepis nana Hymenolepis diminuta Eimeria spp.	Spironucleus muris Giardia spp. Trichomonads Other protozoa
Guinea Pig:	Paraspidodera uncinata Klossiella cobayae	Eimeria spp. Trichomonads
Rabbit:	Passalurus ambiguus Passalurus nonannulatus Dermatoxys veligera Obeliscoides cuniculi Eimeria spp.	

ANNEX C

Quality Control Necropsy Procedure

A. Purpose: To give detailed instructions on proper necropsy techniques for laboratory animals

B. Materials and Equipment:

1. Blood agar and MacConkey plates (for lung and cecum swabs)
2. Petri dish, small (one for each cecum sample from each QC animal, filled with 0.9% NaCl solution).
3. Autoclaving hat box, small, one quart/half pint (for disposal of carcasses and used/dirty sponges)
4. Betadine solution
5. Alcohol
6. Sterile gauze
7. Calgiswabs® - Type IV
8. Jar with formalin
9. Rubber gloves and mask
10. Alcohol burner (for sterilizing equipment)
11. 30cc syringe plus 18ga needle for large rodents/21ga for small rodents (used to infuse trachea and lungs; also entire intestinal tract)
12. 3.0cc vacutainer tube with EDTA
13. 3.0cc serum vacutainer tube containing 0.6 ml saline
14. Dilutions of Isoton II in Accuvette containers (for diluting blood samples)
15. Disposable 10 microliter micro-pipets (for orbital bleeding)
16. Microscope slides (for making thin smears for differentials when blood samples are taken orbitally).
17. Surgical Equipment:
    a. pins
    b. scissors
    c. hemostatic clamps
    d. forceps
    e. surgical scalpel blades
    f. scalpel
18. 3.0 syringes; 23ga needles, 25ga needles
19. Fecal specimen containers

C. Techniques for Euthanasia

1. Primary Technique (for all rodents)

   CO_2 (euthanasia chamber): Place animal in chamber filled with CO_2 and remove when animal rendered unconsious.

2. Secondary Technique [For amphibians (frogs esp.)]

Take a scalpel blade and make an incision between the cranium and vertebral colum, severing the spinal cord from the cerebral cortex.

D. Quality Control Necropsy Procedure

1. Identify each group of animals set aside by Breakdown Technician for "Quality Control" on seperate cage cards. Then fill out a Quality Control and Experimental Necropsy Protocol form using information obtained from cage cards. Assign Quality Control Laboratory numbers and Animal Quality Control Numbers.

2. Bring QC cart, with all materials and equipment, to room where necropsy will be done.

3. Place animals individually into CO_2 chamber filled with CO_2 gas. When the animal reaches the appropriate level of anesthesia take it out of chamber.

a. Initial parasite examination

(1) Complete the procedure outlined in Annex A, "Method of examining rodents for lice and non-follicle inhabiting mites."

(2) Complete the procedure outlined in Annex B, "Anal Tape Test."

b. Blood Sampling techniques:

(1) Anterior Vena Cava vena-puncture technique: insert the 3.0cc syringe, with a 25ga needle, anterior to the manubrium angling posteriorly into the anterior vena cava.

(2) Cardiac Puncture

(a) Palpate for heart beat, then insert syringe, with 25ga needle, between ribs where heart beat is strongest.

(b) Insert syringe, with 25ga needle, into the thoracic cavity at 45° angle just below the xiphoid process, aiming into the heart.

(c) 0.3 ml of blood will be placed in the serum vacutainer tube which contains 0.6 ml saline. The remainder of the blood will be placed in a 3.0 ml vacutainer EDTA tube.

(3) Orbital bleeding technique:

Take a 10 microliter pipet and insert it into the medial canthus of the orbit. Rotate the micropipet to introduce it into the orbital sinus. Fill micropipet up to the blank line. Then discharge into sample of Isoton II (blood dilution media) immediately to avoid blood clotting.

When orbital site bleeding is performed, a droplet of blood may be put on a slide and a thin smear made for differential blood cell count.

4. Place the animals, ice again, into the CO_2 chamber and euthanitize the animal.

5. Take euthanitized animals out of CO_2 chamber and begin necropsy procedure. NOTE: If abnormalities are observed at any time during the necropsy procedure, the help of a qualified veterinarian will be obtained for determining what further action is to be taken.

6. Prepare your equipment for necropsy on the necropsy table:

   a. necropsy instruments
   b. tack-board and pins
   c. squeeze bottle with alcohol
   d. squeeze bottle with betadine solution
   e. gauze pads
   f. alcohol burner

7. Place one animal on tack-board in dorsal recumbency with one pin in each foot.

8. Make a longitudinal incision from the top of the jaw to the pelvis.

9. Separate the skin from the cervical, thoracic and abdominal musculature.

10. Make an incision from the inguinal area to the xiphoid process. Make another pair of incisions or cuts just below the last pair of ribs exposing the entire gastro-intestinal tract.

11. Remove the ventral half of the rib cage including the sternum (exposing the respiratory tract) and place it into the jar of formalin.

12. Cut out the muscles of the neck to expose the trachea. Remove the salivary glands of rats and drop into formalin jar.

13. Clamp hemostats onto upper-most rings of the trachea closing off the esophagus and the trachea.

14. Using a sterile blade, make an incision just below the clamp halfway through the trachea. Take a Calgiswab® and stick it into the trachea, swabbing down into both lungs. Take swab and streak out onto MacConkey's and blood agar plates.

15. a. For all rodents: Remove clamp and reclamp below tracheal incision. Then pull clamp up and away, cutting off the trachea above the clamp and severing the muscles, ligaments and vessels holding the trachea, lungs and heart to the dorsal wall of the chest cavity. Take syringe full of formalin with a 21ga needle, stick it into the trachea below the clamp, and infuse the lungs.

    b. For large rodents (rats and guinea pigs): Remove trachea, heart and lungs (as described in (a)) from the chest cavity and lay down on tack-board. For both right and left halves of the heart, make a cut, with scissors, through the atrium and ventricle (so formalin can seep in and fix the heart). Take syringe of formalin, with 23ga needle, and insert it down into the trachea below the clamps and infuse the lungs.

    c. Take lungs, heart and trachea, with clamp still in place, and place in formalin jar.

16. Remove spleen from the stomach and place in jar.

17. To cut out stomach and intestine: cut off esophagus near stomach, cut bile duct (duct portion that connects liver with duodenum). Start cutting all membranes and ligaments that keep the stomach and intestine attached to the body wall. Finally, remove the entire intestinal tract, down to the rectum. Once the stomach, small intestine, cecum and large intestine have been removed from the abdominal cavity, set aside on tack board until step 22.

18. Remove the liver, being careful not to make any tears in the walls of the liver, and drop into formalin jar.

19. a. Remove the left kidney and make a cut longitudinally down to its pelvis (so as not to sever it into two complete halves).

    b. Remove the right kidney and cut it cross-sectionally (but not severing it) into two halves.

    c. Be sure to remove each adrenal gland. Place both kidneys and adrenal glands into formalin jar.

20. a. For male rodents: Remove the bladder, seminal vesicles, urethra and both testicles in one group. Drop entire grouping into formalin jar.

b. For female rodents: Remove the urinary bladder, vulva, vagina, uterus, uterine horns and ovaries in one complete grouping. Place in jar of formalin.

21. Cut stomach open and empty contents.

22. Cut cecum open and empty a portion into the small petri dish. Empty excess cecal material onto gauze pad and dump into hat box.

23. For guinea pigs and large rats: Make slices in various sections of the large intestine to empty fecal contents.

24. a. Take a Calgiswab® and swab the inside of the cecum. Then streak it out onto the MacConkey's and blood agar plates.

    b. Obtain fecal specimens for a fecal floatation and for a fecal smear (Annex B).

25. a. Infuse as much of the large intestine as possible, from the cecum distally.

    b. Infuse the small intestine from the duodenum distally to the cecum.

    c. Place entire gastro-intestinal tract into formalin jar while infusing with the formalin.

26. Removal of the brain must be done very carefully. Make an incision with the scalpel from the forehead to the base of the neck. Remove the skin from around the cranial vault. Cut the frontal bones of the cranium between the eyes. Then cut through the interparietal bones (starting at the occipital bone), through the parietal bones up to the frontal bone. Carefully pull back both halves of the cranium, exposing the brain. Then pull the brain out and put it into the jar of formalin.

27. For rats only: Remove the lacrimal glands, with eyes, and drop into the formalin jar.

28. Place the body remains and all used gauze pads into the hat box.

29. All instruments must be kept clean throughout the entire procedure. When a sterile scalpel blade is required, the alcohol burner is used to flame the blade.

30. Samples that are submitted to the laboratory:

    a. Blood and serum samples in 3 ml tubes (taken from Rats, Guinea Pigs and Hamsters).

    b. Blood samples in Isoten II and blood smear slides (Mice, Gerbils, Voles).

c. MacConkey's and blood agar plates (from lung and cecum swabs) for culturing.

d. Cecum samples: for determination/identification of parasites.

31. Take jars of formalin containing the tissue specimens and the Necropsy Request Form to the Histopathology Laboratory, Pathology Division, 2nd Floor.

32. Record all laboratory results obtained from submitted specimens (blood, bacteriology and parasitology) on the Quality Control Record Sheet (Annex D). Place Record Sheet in log book. Take xerox of Record Sheet and fasten it to Necropsy form (when returned from Histopathology) and then file in Vendor file by animal species.

33. Blood sample (EDTA) tubes will be used for hematology screening.

34. Serum sample tubes (0.6 ml saline + 0.3 ml blood) will be used for viral titer screening, in accordance with Annex E.

ANNEX D

Viral and Mycoplasma Serology Procedures

1. Serum sample tubes will be allowed to form a "soft clot" (approximately 1 hr.). Tubes will be centrifuged and the supernatant serum decanted into fresh, clean serum tubes.

2. Label tubes with the Animal Quality Control Number only. Transfer tubes to freezer (-20°F).

3. Serum tubes will be processed and submitted for serology (titers) every two weeks. A separate "Animal Health Diagnostic Serology Submission Form" will be completed for each species of animal serum submitted. (Example - Annex D-2.)

4. Sera and request forms will then be transported to testing facility. Test results will be annotated on the Quality Control Record Sheet of the appropriate animals.

Reviewed by _____

ANIMAL HEALTH DIAGNOSTIC SEROLOGY SUBMISSION FORM

Sample type 11 and/or 88

Name TRABAN | JACKSON

Quarantine # _____

AHDL# or Range _____

Request Date 19 Mar 85 Invest.# _____ Project# _____ Page _____ of _____

USAMRIID

Building 1425 Room _____ I.D.# _____ Species/Strain Mice Age _____ Sex _____

Check	Group Requested		HEMAGGLUTINATION INHIBITION											COMPLEMENT FIXATION						ELISA								Plasma only	
Diluted 1:5 YES	_____ and/or		KRV	H-1	SV5	K	Reo3	MVM	GDVII	PVM	Polyoma	Ectro	Sendai	Sendai	LCM	M.Ad	MHV	AC	AC/ABS	MHV	Ectro	Sendai	PVM	Reo3	MVM	GDVII	Mycop		LDH	
Inact. NO	circle single tests		20	20	20	10	20	20	20	10	20	20	10	10	10	10	10													
AHDL#	ACC#	Inves ID	1004	1015	1002	1014	1008	1003	1006	1001	1005	1007	1018	1013	1010	1009	1011	1021	1022	1043	1052	1047	1048	1049	1050	1051	1045	1019	COMMENTS
Swiss Webster ♂ 5 wks	C57BL/10SWN	01/ 086																											
	C57BL/10SWN	02/ 087																											
	C57BL/10SWN	03/ 088																											
	C57BL/10SWN	04/ 089																											
	C57BL/10SWN	05/ 090																											
		06/																											
		07/																											
WR CRUM ♂ 3-4 wks	ICR	08/ 091																											
	ICR	09/ 092																											
	ICR	10/ 093																											
	ICR	11/ 095																											
		12/																											
		13/																											
WR Fricke ♂ 3 wks	ICR	14/ 096																											
	ICR	15/ 097																											
	ICR	16/ 098																											
	ICR	17/ 099																											
	ICR	18/ 100																											
		19/																											
		20/																											
Jaxx Velkos ♀ 5 wks	CAF1/J	21/ 108																											
	CAF1/J	22/ 109																											
	CAF1/J	23/ 110																											
	CAF1/J	24/ 111																											
	CAF1/J	25/ 112																											

BLA SPACE = Negative AC = Anticomplementary serum AE rum autoagglutinates RBC's

IS ficient serum NS = Sample not submitted for test TC acts with tissue culture

123-84

A-2

ANIMAL RESOURCES DIVISION
U.S. ARMY MEDICAL RESEARCH INSTITUTE OF INFECTIOUS DISEASES
FORT DETRICK, FREDERICK, MARYLAND 21701-5011

STANDING OPERATING PROCEDURES 4 December 1985

WEEKEND/HOLIDAY/NONDUTY HOUR ANIMAL CARE

Paragraph

Purpose 1
References. 2
Responsibilities. 3
General 4

1. PURPOSE

To insure that all animals maintained by USAMRIID receive quality husbandry, veterinary medical care, and emergency service on the weekends and holidays.

2. REFERENCES

a. Guide for the Care and Use of Laboratory Animals, Dept of HHS, PHS, NIH; 1985.

b. Biosafety in Microbiological and Biomedical Laboratories, Dept of HHS, PHS, NIH; 1984.

c. Classification of Etiologic Agents on the Basis of Hazard, Dept of HEW Public Health Service, CDC; 1975.

3. RESPONSIBILITIES

a. Chief, Animal Resources Division is responsible for:

(1) The total animal care program at USAMRIID.

(2) Administrative guidance concerning institute policy impacting upon the USAMRIID Non Duty Hour Animal Care (NDHAC)

(3) Advising the Chief, Department Laboratory Animal Medicine of requirements originating at Division level, or above, of importance to the NDHAC mission.

b. Chief, Department of Laboratory Animal Medicine (LAM) is responsible for:

(1) Implementation of this SOP.

(2) Coordinating authority for those persons involved in the NDHAC mission.

(3) General and technical guidance for those persons actually performing the NDHAC.

(4) Annual review and update of this SOP.

c. Chief, Department of Animal Husbandry, is responsible for:

(1) Developing and administrating a duty roster of animal caretakers who will maintain acceptable standards of husbandry and sanitation throughout weekend and holiday periods.

(2) Developing and revising, as needed, comprehensive guidance for animal caretakers for the NDHAC mission. This will include specific details of duties and responsibilities expected of caretaker personnel during nonduty hour (overtime) periods. (See Annex A)

(3) Monitoring the performance of caretaker personnel during non-duty hours, insuring that overtime is not abused, and that minimum standards are maintained.

d. NCOIC, Animal Resources Division, is responsible for:

(1) Developing and administrating the non-duty hour and holiday duty roster comprised of all Animal Resorces Division Veterinarians and of all other company grade veterinary officers at USAMRIID. This will not include Duty Veterinarians listed on the Pathology Division duty roster.

(2) Developing and administrating the non-duty hour and holiday duty roster of enlisted animal technicians. The Duty Technician will be trained to assist the Duty Veterinarian and to perform those tasks normally done by technicians.

e. NCOIC, Animal Resources Division Large Animal Research Facility (LARF), is responsible for developing and administrating the non-duty hour and holiday duty roster of enlisted animal technicians. The Animal Farm Technician will be trained to assist the Duty Veterinarian and to perform those tasks normally done by technicians.

f. The Chief, Department of Veterinary Pathology, Pathology Division, is responsible for:

(1) Maintaining a duty roster of veterinary pathologists that will be responsive to requests for diagnostic necropsies during non-duty hour periods. This roster will include current phone numbers.

(2) Coordinating with the Chief, Department Laboratory Animal Medicine, Animal Resources Division, on matters of material interest concerning non-duty hour patholgy support.

4. GENERAL

a. Duty Hours

(1) The duty week/holiday week begins at 0800 hrs on Friday morning of each week and runs until 0800 hrs on the following Friday. Those on the duty roster are responsible for colony animal care needed during the non-duty hour periods.

(2) Overtime hours for caretaker personnel are detailed in Annex A.

b. Non-Duty Hour Briefing

(1) Animal Resources Division Duty Veterinarian:

(a) Responsible for contacting the OIC, or NCOIC, of the Rodent and Rabbit Colony, Primate Colony, and Large Animal Research Facility (LARF) prior to 1500 hrs on Fridays. Personnel contacted will be queried about specific requirements for impending duty.

(b) Responsible for coordinating with the Duty Technician and the Animal Farm Technician on work hours and tasks to be accomplished during impending duty. The briefing will be completed prior to the end of the duty day on Fridays.

(c) Responsible for carrying out nonduty animal care program (Annex B).

(2) Chief, Dept. LAM:

(a) Responsible for insuring that the Duty Veterinarian has coordinated with Section OIC's (or NCOIC's), and has been contacted by Duty Technician and Animal Farm Technician before the end of the duty day on Fridays.

(b) Responsible for insuring that the non-preceptee Duty Veterinarian is briefed, prior to the end of the duty day on Friday, on special requirements for weekend duty.

(c) Responsible for insuring that the Duty Technician and Animal Farm Technician assigned to non-preceptee Duty Veterinarians are briefed on work hours and tasks to be accomplished during the upcoming duty period.

(3) Non-preceptee Duty Veterinarian will contact the Chief, Dept. LAM, prior to 1630 hrs on Friday of the impending duty period. Special instructions and treatment regimens requiring veterinary supervision will be discussed.

WILLIAM C. COLE
LTC(P), VC
Ch, Animal Resources Div.

ANNEX A

Animal Care and Husbandry
Weekend Animal Care

1. Weekend care is provided by rotating four animal caretakers on an overtime basis.

   a. The animal caretakers will be assigned only to suites they are capable of and immunized to enter.

   b. The work hours are from 0600-1200 hrs and will be strictly adhered to.

2. The responsibilities of the weekend animal caretakers are:

   a. Observe all animals and report any deviations to the Duty Technician or Duty Veterinarian.

   b. Nonhuman Primates will be fed as soon as possible after arrival for duty in the morning and just before leaving the shift.

   c. Rabbits and rodents will be fed and watered in accordance with established schedules.

   d. Check automatic watering devices for proper functioning.

   e. Report any malfunction of air supply and temperature to Building Engineers, Ext. 7373.

   f. Check for dead and remove, if instructions are such to remove the animals.

      (1) Dead animals should be labeled, placed in proper container.

      (2) Place labeled container in proper refrigerator.

   g. Wash down all primate cages.

   h. If rodent and rabbit pans are excessively wet, they should be changed.

3. If problems arise that cannot be handled by available personnel, the Chief, Dept Animal Husbandry, or the Chief, LAM, will be contacted and briefed on the matter.

ANNEX B

Non-Duty Hour Animal Care Veterinarian

1. The Duty Veterinarian has primary responsibility for ensuring that animal care is maintained at an acceptable level during non-duty hour periods. As the ranking member of the team, he must remain cognizant of his duty to oversee the total animal care package provided the Institute. It is imperative that the importance of the NDHAC mission not be overlooked by any member of the team, especially the Duty Veterinarian.

2. Responsibilities (all statements refer to weekend/holiday or non-duty hour periods)

   a. Ensure that all caretaker personnel are present for duty at appropriate time (Annex A).

   b. Ensure that the Duty Technician is present for duty at the agreed upon time.

   c. Ensure that the Animal Farm Technician is present for duty at the agreed time.

   d. Rounds

      (1) The Duty Veterinarian is responsible for completion of rounds of all accessible animal rooms within Bldg 1412 and Bldg 1425 on each day of his duty. Watering systems will be checked to insure proper operation. Rounds should occur after the initial feeding period for Nonhuman Primates. Problems noted during rounds should be corrected as needed.

      (2) Scheduled treatments should be performed as requested by the appropriate clinician. Records should be accurately annotated after each treatment.

      (3) General conditions of the facilities should be noted during rounds and significant problem areas reported to the appropriate personnel.

      (4) If Project animals are found ill during rounds, investigators should be notified prior to treatment (short of emergency life saving measures). Treatment may introduce variables unacceptable to a protocol.

      (5) NOTE: All rounds in Bldg 1412, Bldg 1425, and the LARF WILL BE COMPLETED BY 0930 hrs. The Duty Veterinarian will be advised of the status of the animals and facilities checked by the Duty Technician and the Animal Farm Technician. Contact with the Duty Veterinarian will be made prior to departure from the facilities.

e. Pathologist Notification

(1) Dead or moribund animals will be necropsied by a pathologist. A current duty roster of veterinary pathologists is kept at the Engineers desk and in the AR Division Office. The Duty Veterinarian is responsible for contacting the pathologist.

(2) A complete necropsy request form (USAMRIID Form 607), with pertinent history, will be completed prior to the arrival of the duty pathologist. It is the responsibility of the Duty Veterinarian to ensure that pertinent information is provided on the form.

f. Caretaker Personnel

The Duty Veterinarian should make contact with one of the caretakers during the work period to inquire about any general conditions or problem areas. If the caretakers are unavailable, the Duty Veterinarian will periodically check with the Engineers desk for messages from the animal caretaker staff.

g. USAMRIID Large Animal Research Farm

(1) All personnel working directly with Rift Valley Fever Virus (RVFV) or RVFV-Infected Animals will sign the certification statement at Annex C. This prohibits them from having contact with cattle, sheep, and goats for a period of seven (7) days after last directly working with the RVFV or the RVFV-infected animals.

(2) The Animal Farm Technician will contact the Duty Veterinarian during the duty period. This should be arranged at the Friday briefing. The Animal Farm Technician will report on the conditions at the barn and advise the veterinarian of any problems encountered. Animal Farm Technician will be responsible for:

(a) Ensuring animals receive adequate care on nonduty day(s) assigned.

(b) Making personal contact with Duty Veterinarian before leaving for the day (prior to 0930 hrs).

(c) Daily surveillance of herd for problems during the tour of duty.

(d) Signing in and out at the Engineer Desk in Bldg 1425 for tour of duty.

h. Any safety or engineering deficiencies noted during NDHAC should be reported ASAP to the surveillance technician at the Engineers desk.

i. Duty Technician

The Duty Veterinarian will coordinate with, and direct the work of, the Duty Technician. Normally the veterinarian and the technician will perform treatments together. The veterinarian will make nonhuman primate colony rounds and the technician will perform the required duties in the Primate, Rabbit, Rodent and Strain 13 Guinea Pig breeding colony IAW the SOP dealing with that operation. Cooperation and coordination are essential in this endeavor.

ANNEX C

TO: Safety Officer, USAMRIID

ANIMAL EXPOSURE CERTIFICATION FOR PERSONS WORKING DIRECTLY WITH RIFT VALLEY FEVER VIRUS (RVFV)

I certify that I will avoid contact with domestic cattle, sheep and goats for a period of seven days after last working directly with RVFV or RVFV - infected animals.

_____
Signature

_____
Name (Print)

_____
Date

ITEM 23

PROCEDURES AND PRECAUTIONS FOR USE OF RADIOACTIVE MATERIAL

HEALTH PHYSICS
WALTER REED ARMY MEDICAL CENTER
Washington, D.C. 20307-5001

HSHL-HP
SOP Number 1-3*

30 April 1987

BIOASSAY PROGRAM

1. PURPOSE. To establish requirements and procedures for internal personnel exposure monitoring except for radioactive iodine, tritium and phosphorus-32. Bioassay requirements for using any one of these three radionuclides are contained in Condition No. 7 for Radioactive Material Authorizations.

2. REFERENCES. Models, equations, assumptions and requirements for internal dosimetry are derived from concepts found in International Commission on Radiological Protection Publications 2, 6, 9, 10, 10a and 12; NCRP Report 57 and MIRD.

3. REQUIREMENTS.

a. The objectives of the program are to:

(1) Identify the conditions under which bioassay should be performed.

(2) Indicate whether entry of radionuclides into the body has occurred.

(3) Determine the extent of an individual's exposure to concentrations of radioactive material.

b. Monitoring for internal deposition of radionuclides will be normally performed only under the following circumstances:

(1) When laboratory surveys indicate frequent or gross contamination.

(2) When air sampling indicates levels of airborne concentration that might lead to internal deposition exceeding 10% of maximum permissible body (organ) burdens.

(3) When operations are performed utilizing large quantities of particulate, gaseous or volatile materials in unsealed form.

(4) When internal deposition of radioactive material is known or suspected.

4. METHODS.

a. One or more of the following methods will be used, as appropriate, for internal exposure monitoring:

(1) Estimation of body burden by analysis of radioactivity in excreta and relation of excretion rate to body burden through biological models.

* This SOP supersedes HP SOP 1-3, dated 22 July 1983

(2) Estimation of body burden by whole body counting and pulse height analysis.

(3) Estimation of body burden from survey data which permit estimates of intake of radioactive material followed by estimates of body (organ) burden based on biological models.

(4) Chromosomal Analysis.

b. The frequency of measurements depends on the effective half-life of the material in question, variations of excretion rate with time and the recent experience of individuals with respect to internal contamination levels.

c. Body burden values will be assigned and entered on DA Form 4700 and appropriate annotations made on the individual's DD Form 1141.

5. INVESTIGATIONS AND REPORTS.

a. All exposures resulting in a body burden larger than $^{1}/_{10}$ of the annual limit will be investigated by the Health Physics Officer and will be submitted to the WRAMC Radiation Control Committee.

b. Such reports will include pertinent information regarding the exposure such as:

(1) Analysis

(2) Time and nature of exposure

(3) Chemical form of isotope

(4) Body burden calculations

(5) Action taken or recommendations

Gerald M. Connock
GERALD M. CONNOCK
MAJ, MS
Health Physics Officer

1112-16
K-Ø

DEPARTMENT OF THE ARMY
WALTER REED ARMY MEDICAL CENTER
WASHINGTON, D.C. 20307-5001

March 16, 1988

REPLY TO
ATTENTION OF:

Health Physics Office

SUBJECT: Additional Information for Review of Renewal of U.S Nuclear Regulatory Commission License No. 08-01738-02, Mai' Control No. 107349

Nuclear Materials Safety Section B
Division of Radiation Safety and Safeguards
ATTENTION: Dr. Josephine M. Piccone
U.S. Nuclear Regulatory Commission, Region I
475 Allendale Road
King of Prussia, Pennsylvania 19406

Dear Dr. Piccone:

In response to your letter of 19 February 1988, pertaining to the renewal of License No. 08-01738-02, Control No. 107349, the following additional information is provided:

a. The frequency of initial and refresher training for "Support Personnel", "Firefighter" and "Military Police/Security Personnel" is at least annually, with additonal training for certain of these groups being conducted more frequently depending on personnel turnover.

b. Our procedures do include the requirements as specified in 10 CFR 35.51 for survey meter calibration.

c. We choose to adopt the NRC's Model ALARA Program and have provided an executed copy of Appendix G at enclosure 1.

d. Walter Reed Army Medical Center (WRAMC) is complying with the requirements of 10 CFR 35.53 to include the record requirements for the measurement of radiopharmaceutical dosages.

e. The duties, responsiblities and administrative procedures of WRAMC's "Medical Isotope Committee/Radiation Control Committee" are in conformance with the requirements of 35.22 (a) and (b).

f. In response to question number 7, please refer to TAB C, WRAMC Regulation 40-10, Chapter 7, "Radiation Survey Procedures" of the previously submitted renewal package. This chapter, along with the enclosed copies of our weekly area survey forms (Enclosure 2-6) should help to clear up any questions you have about our procedures for performing "Radiation Protection Area Surveys".

KK/5

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ccordance with the Freedom of Information
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2006-0238

"OFFICIAL RECORD COPY"

107349
3/21/88

g. With regard to the "Procedures and Precautions for Use of Radioactive Gases", WRAMC will use the method detailed in Appendix 0.4 to determine spilled gas clearance time to be posted in usage areas. In addition, the operation of the collection system will be checked monthly and ventilation rates will be measured every six months as required by 35.205(e).

h. With regard to the therapeutic use of radiopharmaceuticals, WRAMC has complied with and will continue to comply with the requirements set down in 10 CFR 35.75 and 35.315.

i. The Health Physics Office, WRAMC performs quarterly physical inventory of all sealed sources and brachytherapy sources and makes quarterly surveys of the dose rates in all source storage areas (See Enclosure 7), in compliance with 10 CFR 35.59 (g) and (h).

j. The Radiation Control Committee (RCC) follows the criteria set down in 10 CFR Part 35, Subpart J for evaluating physicians to use radiosiotopes in or on humans and the criteria set down in 10 CFR 33.15 (b) for evaluating physicians and other individuals to use radioactive material for nonhuman uses. After evaluations have been completed using the previous criteria, along with other information the RCC makes their final decision approving or disapproving an individual as an authorized user.

I hope the information I am providing will aid in your review of our renewal application.

Sincerely,

Gerald M. Connock

Gerald M. Connock
Major U.S. Army
Health Physics Officer

Enclosures

Copies Furnished:

U.S. Army Health Services Command
Attention: Lieutenant Colonel Gaston

Office of the Surgeon General
Attention: Colonel Field

APPENDIX G

Model Program for Maintaining Occupational Radiation Exposure
at Medical Institutions ALARA
(See § 35.20.)

You may use the text as it appears here, saying on your application, "We will establish and implement the model ALARA program that was published in Appendix G to Regulatory Guide 10.8, Revision 2."

If you prefer, you may develop your own ALARA program for NRC review. If you do so, you should consider for inclusion all the features in the model and carefully review the requirements of § 35.20. Say on your application, "We have developed an ALARA program for your review that is appended as ATT 10.2," and append your program.

ALARA PROGRAM

Walter Reed Army Medical Center
(Licensee's Name)

16 March 1988
(Date)

1. Management Commitment

   a. We, the management of this (medical facility, hospital, etc.), are committed to the program described herein for keeping individual and collective doses as low as is reasonably achievable (ALARA). In accord with this commitment, we hereby describe an administrative organization for radiation safety and will develop the necessary written policy, procedures, and instructions to foster the ALARA concept within our institution. The organization will include a Radiation Safety Committee (RSC) and a Radiation Safety Officer (RSO).

   b. We will perform a formal annual review of the radiation safety program, including ALARA considerations. This will include reviews of operating procedures and past dose records, inspections, etc., and consultations with the radiation safety staff or outside consultants.

   c. Modifications to operating and maintenance procedures and to equipment and facilities will be made if they will reduce exposures unless the cost, in our judgment, is considered to be unjustified. We will be able to demonstrate, if necessary, that improvements have been sought, that modifications have been considered, and that they have been implemented when reasonable. If modifications have been recommended but not implemented, we will be prepared to describe the reasons for not implementing them.

   d. In addition to maintaining doses to individuals as far below the limits as is reasonably achievable, the sum of the doses received by all exposed individuals will also be maintained at the lowest practicable

Encl 1

level. It would not be desirable, for example, to hold the highest doses to individuals to some fraction of the applicable limit if this involved exposing additional people and significantly increasing the sum of radiation doses received by all involved individuals.

2. Radiation Safety Committee

a. Review of Proposed Users and Uses

(1) The RSC will thoroughly review the qualifications of each applicant with respect to the types and quantities of materials and methods of use for which application has been made to ensure that the applicant will be able to take appropriate measures to maintain exposure ALARA.

(2) When considering a new use of byproduct material, the RSC will review the efforts of the applicant to maintain exposure ALARA.

(3) The RSC will ensure that the users justify their procedures and that individual and collective doses will be ALARA.

b. Delegation of Authority

(The judicious delegation of RSC authority is essential to the enforcement of an ALARA program.)

(1) The RSC will delegate authority to the RSO for enforcement of the ALARA concept.

(2) The RSC will support the RSO when it is necessary for the RSO to assert authority. If the RSC has overruled the RSO, it will record the basis for its action in the minutes of the quarterly meeting.

c. Review of ALARA Program

(1) The RSC will encourage all users to review current procedures and develop new procedures as appropriate to implement the ALARA concept.

(2) The RSC will perform a quarterly review of occupational radiation exposure with particular attention to instances in which the investigational levels in Table 1 are exceeded. The principal purpose of this review is to assess trends in occupational exposure as an index of the ALARA program quality and to decide if action is warranted when investigational levels are exceeded (see Section 6 below for a discussion of investigational levels).*

---

*The NRC has emphasized that the investigational levels in this program are not new dose limits but, as noted in ICRP Report 26, "Recommendations of the International Commission on Radiological Protection," serve as check points above which the results are considered sufficiently important to justify investigations.

Table 1

Investigational Levels

	Investigational Levels (mrems per calendar quarter)	
	Level I	Level II
1. Whole body; head and trunk; active blood-forming organs; lens of eyes; or gonads	125	375
2. Hands and forearms; feet and ankles	1875	5625
3. Skin of whole body*	750	2250

*Not normally applicable to medical use operations except those using significant quantities of beta-emitting isotopes.

(3) The RSC will evaluate our institution's overall efforts for maintaining doses ALARA on an annual basis. This review will include the efforts of the RSO, authorized users, and workers as well as those of management.

3. Radiation Safety Officer

a. Annual and Quarterly Review

(1) Annual review of the radiation safety program. The RSO will perform an annual review of the radiation safety program for adherence to ALARA concepts. Reviews of specific methods of use may be conducted on a more frequent basis.

(2) Quarterly review of occupational exposures. The RSO will review at least quarterly the external radiation doses of authorized users and workers to determine that their doses are ALARA in accordance with the provisions of Section 6 of this program and will prepare a summary report for the RSC.

(3) Quarterly review of records of radiation surveys. The RSO will review radiation surveys in unrestricted and restricted areas to determine that dose rates and amounts of contamination were at ALARA levels during the previous quarter and will prepare a summary report for the RSC.

b. Education Responsibilities for ALARA Program

(1) The RSO will schedule briefings and educational sessions to inform workers of ALARA program efforts.

(2) The RSO will ensure that authorized users, workers, and ancillary personnel who may be exposed to radiation will be instructed in the ALARA philosophy and informed that management, the RSC, and the RSO are committed to implementing the ALARA concept.

c. Cooperative Efforts for Development of ALARA Procedures

Radiation workers will be given opportunities to participate in formulating the procedures that they will be required to follow.

(1) The RSO will be in close contact with all users and workers in order to develop ALARA procedures for working with radioactive materials.

(2) The RSO will establish procedures for receiving and evaluating the suggestions of individual workers for improving health physics practices and will encourage the use of those procedures.

d. Reviewing Instances of Deviation from Good ALARA Practices

The RSO will investigate all known instances of deviation from good ALARA practices and, if possible, will determine the causes. When the cause is known, the RSO will implement changes in the program to maintain doses ALARA.

4. Authorized Users

a. New Methods of Use Involving Potential Radiation Doses

(1) The authorized user will consult with the RSO and/or RSC during the planning stage before using radioactive materials for new uses.

(2) The authorized user will review each planned use of radioactive materials to ensure that doses will be kept ALARA. Trial runs may be helpful.

b. Authorized User's Responsibility to Supervised Individuals

(1) The authorized user will explain the ALARA concept and the need to maintain exposures ALARA to all supervised individuals.

(2) The authorized user will ensure that supervised individuals who are subject to occupational radiation exposure are trained and educated in good health physics practices and in maintaining exposures ALARA.

5. Individuals Who Receive Occupational Radiation Doses

a. Workers will be instructed in the ALARA concept and its relationship to work procedures and work conditions.

b. Workers will be instructed in recourses available if they feel that ALARA is not being promoted on the job.

6. Establishment of Investigational Levels in Order to Monitor Individual Occupational External Radiation Doses

This institution hereby establishes investigational levels for occupational external radiation doses which, when exceeded, will initiate review or investigation by the RSC and/or the RSO. The investigational levels that we have adopted are listed in Table 1. These levels apply to the exposure of individual workers.

The RSO will review and record on Form NRC-5, "Current Occupational External Radiation Exposures," or an equivalent form (e.g., dosimeter processor's report) results of personnel monitoring not less than once in any calendar quarter as required by § 20.401 of 10 CFR Part 20. The following actions will be taken at the investigational levels as stated in Table 1:

a. Personnel dose less than Investigational Level I.

   Except when deemed appropriate by the RSO, no further action will be taken in those cases where an individual's dose is less than Table 1 values for the Investigational Level I.

b. Personnel dose equal to or greater than Investigational Level I but less than Investigational Level II.

   The RSO will review the dose of each individual whose quarterly dose equals or exceeds Investigational Level I and will report the results of the reviews at the first RSC meeting following the quarter when the dose was recorded. If the dose does not equal or exceed Investigational Level II, no action related specifically to the exposure is required unless deemed appropriate by the Committee. The Committee will, however, review each such dose in comparison with those of others performing similar tasks as an index of ALARA program quality and will record the review in the Committee minutes.

c. Personnel dose equal to or greater than Investigational Level II.

   The RSO will investigate in a timely manner the causes of all personnel doses equaling or exceeding Investigational Level II and, if warranted, will take action. A report of the investigation, any actions taken, and a copy of the individual's Form NRC-5 or its equivalent will be presented to the RSC at its first meeting following completion of the investigation. The details of these reports will be included in the RSC minutes.

d. Reestablishment of investigational levels to levels above those listed in Table 1.

   In cases where a worker's or a group of workers' doses need to exceed an investigational level, a new, higher investigational level may be established for that individual or group on the basis that it is consistent with good ALARA practices. Justification for new investigational levels will be documented.

The RSC will review the justification for and must approve or disapprove all revisions of investigational levels.

7. Signature of Certifying Official*

I hereby certify that this institution has implemented the ALARA Program set forth above.

Michael C. Hicks

Signature

MICHAEL C. HICKS

Name (print or type)

Executive Officer

Title

*The person who is authorized to make commitments for the administration of the institution (e.g., hospital administrator).

HEALTH PHYSICS LABORATORY SURVEY

PRINCIPAL USER:	AUTH. NO:	SURVEYOR(S):	DATE:
Neutze, Janet MAJ, MC	H274		

ORGANIZATION:	SURVEY METER:	METER MODEL:
Nuclear Medicine Service		

BUILDING NO:	ROOM NO:	PHONE NO:	SN:	CAL DUE:
2		576-0177		

ROOM SKETCH

Highest Reading	mR/Hr CPM

QUESTIONS

1. POSTING FORMS, SIGNS, AND LABELS	YES	NO	N/A
A. NRC FORM 3	O	O	
B. NOTICE TO EMPLOYEES	O	O	
C. 10 CFR 19, 20, AND 21	O	O	O
D. CAUTION RADIOACTIVE MATERIAL (CRM)			
1) ENTRANCE	O	O	O
2) STORAGE AREAS	O	O	O
3) WORK AREAS	O	O	O
4) WASTE STORAGE AREAS	O	O	O
E. CAUTION (HIGH) RADIATION AREA	O	O	O
F. CAUTION AIRBORNE RADIOACTIVITY	O	O	O
G. RADIOACTIVE WASTE WASH SINK (RWS)			
1) RWS LABEL	O	O	O
2) SHELLFISH WARNING	O	O	O
3) MAINTENANCE WARNING	O	O	O
H. RADIOACTIVE REFRIGERATOR (RSR)			
1) CRM	O	O	O
2) NO FOOD OR BEVERAGE ...	O	O	O
3) MAINTENANCE WARNING	O	O	O
I. RADIOACTIVE FREEZER (RSF)			
1) CRM	O	O	O
2) NO FOOD OR BEVERAGE ...	O	O	O
3) MAINTENANCE WARNING	O	O	O
J. RADIOACTIVE CENTRIFUGE			
1) CRM	O	O	O
2) MAINTENANCE WARNING	O	O	O
K. NO EATING, DRINKING, OR SMOKING	O	O	O
2. COPY OF AUTHORIZATION AVAILABLE	O	O	
3. TERMS AND CONDITIONS AVAILABLE	O	O	
4. CONDITION #2 FOLLOWED	O	O	
5. CONDITION #3 FOLLOWED	O	O	
6. CONDITION #4 FOLLOWED	O	O	
7. USER SURVEY LOG AVAILABLE	O	O	
8. SURVEY INSTRUMENT	O	O	O
9. RWS LOG	O	O	O

COMMENTS:

SMEAR ANALYSIS

☐ ALL SMEARS SHOW LESS THAN 100 DPM OF REMOVABLE CONTANIMATION

☐ ALL SMEARS SHOW LESS THAN 100 DPM OF REMOVABLE CONTAMINATION EXCEPT:

SMEAR	DPM	SMEAR	DPM	SMEAR	DPM

TYPE OF ANALYSIS: DATE OF ANALYSIS:

☐ AUTO GAMMA
☐ LIQUID SCINTILLATION

ANALYSIS PERFORMED BY:

COMMENTS:

ACTION REQUIRED: ☐ YES ☐ NO

ACTION TAKEN:

Reviewer:

Encl 2

Ex 2

WRAMC FORM 708 (PREVIOUS EDITIONS MAY BE USED UNTIL EXHAUSTED)
1 JAN 88

HEALTH PHYSICS LABORATORY SURVEY

PRINCIPAL USER:	AUTH. NO:	SURVEYOR(S):	DATE:
Neutze, Janet MAJ,MC	H274		

ORGANIZATION:	SURVEY METER:	METER MODEL:
Nuclear Medicine Service		

BUILDING NO:	ROOM NO:	PHONE NO:	SN:	CAL DUE:
2	1	576-0177		

ROOM SKETCH

1

Highest Reading	mR/Hr CPM

QUESTIONS

1. POSTING FORMS, SIGNS, AND LABELS	YES	NO	N/A
A. NRC FORM 3	O	O	
B. NOTICE TO EMPLOYEES	O	O	
C. 10 CFR 19, 20, AND 21	O	O	O
D. CAUTION RADIOACTIVE MATERIAL (CRM)			
1) ENTRANCE	O	O	O
2) STORAGE AREAS	O	O	O
3) WORK AREAS	O	O	O
4) WASTE STORAGE AREAS	O	O	O
E. CAUTION (HIGH) RADIATION AREA	O	O	O
F. CAUTION AIRBORNE RADIOACTIVITY	O	O	O
G. RADIOACTIVE WASTE WASH SINK (RWS)			
1) RWS LABEL	O	O	O
2) SHELLFISH WARNING	O	O	O
3) MAINTENANCE WARNING	O	O	O
H. RADIOACTIVE REFRIGERATOR (RSR)			
1) CRM	O	O	O
2) NO FOOD OR BEVERAGE ...	O	O	O
3) MAINTENANCE WARNING	O	O	O
I. RADIOACTIVE FREEZER (RSF)			
1) CRM	O	O	O
2) NO FOOD OR BEVERAGE ...	O	O	O
3) MAINTENANCE WARNING	O	O	O
J. RADIOACTIVE CENTRIFUGE			
1) CRM	O	O	O
2) MAINTENANCE WARNING	O	O	O
K. NO EATING, DRINKING, OR SMOKING	O	O	O
2. COPY OF AUTHORIZATION AVAILABLE	O	O	
3. TERMS AND CONDITIONS AVAILABLE	O	O	
4. CONDITION #2 FOLLOWED	O	O	
5. CONDITION #3 FOLLOWED	O	O	
6. CONDITION #4 FOLLOWED	O	O	
7. USER SURVEY LOG AVAILABLE	O	O	
8. SURVEY INSTRUMENT	O	O	O
9. RWS LOG	O	O	O

COMMENTS:

SMEAR ANALYSIS

☐ ALL SMEARS SHOW LESS THAN 100 DPM OF REMOVABLE CONTANIMATION

☐ ALL SMEARS SHOW LESS THAN 100 DPM OF REMOVABLE CONTAMINATION EXCEPT:

SMEAR	DPM	SMEAR	DPM	SMEAR	DPM

TYPE OF ANALYSIS:

☐ AUTO GAMMA

☐ LIQUID SCINTILLATION

DATE OF ANALYSIS:

ANALYSIS PERFORMED BY:

COMMENTS:

ACTION REQUIRED: ☐ YES ☐ NO

ACTION TAKEN:

Ex 2

Encl 3

Reviewer:

WRAMC FORM 708 (PREVIOUS EDITIONS MAY BE USED UNTIL EXHAUSTED)
1 JAN 88

HEALTH PHYSICS LABORATORY SURVEY

PRINCIPAL USER:	AUTH. NO:	SURVEYOR(S):	DATE:
Neutze, Janet MAJ,MC	H274		

ORGANIZATION:	SURVEY METER:	METER MODEL:
Nuclear Medicine Service		

BUILDING NO:	ROOM NO:	PHONE NO:	SN:	CAL DUE:
2		576-0177		

ROOM SKETCH

QUESTIONS

	YES	NO	N/A
1. POSTING FORMS, SIGNS, AND LABELS			
A. NRC FORM 3	O	O	
B. NOTICE TO EMPLOYEES	O	O	
C. 10 CFR 19, 20, AND 21	O	O	O
D. CAUTION RADIOACTIVE MATERIAL (CRM)			
1) ENTRANCE	O	O	O
2) STORAGE AREAS	O	O	O
3) WORK AREAS	O	O	O
4) WASTE STORAGE AREAS	O	O	O
E. CAUTION (HIGH) RADIATION AREA	O	O	O
F. CAUTION AIRBORNE RADIOACTIVITY	O	O	O
G. RADIOACTIVE WASTE WASH SINK (RWS)			
1) RWS LABEL	O	O	O
2) SHELLFISH WARNING	O	O	O
3) MAINTENANCE WARNING	O	O	O
H. RADIOACTIVE REFRIGERATOR (RSR)			
1) CRM	O	O	O
2) NO FOOD OR BEVERAGE ...	O	O	O
3) MAINTENANCE WARNING	O	O	O
I. RADIOACTIVE FREEZER (RSF)			
1) CRM	O	O	O
2) NO FOOD OR BEVERAGE ...	O	O	O
3) MAINTENANCE WARNING	O	O	O
J. RADIOACTIVE CENTRIFUGE			
1) CRM	O	O	O
2) MAINTENANCE WARNING	O	O	O
K. NO EATING, DRINKING, OR SMOKING	O	O	O
2. COPY OF AUTHORIZATION AVAILABLE	O	O	
3. TERMS AND CONDITIONS AVAILABLE	O	O	
4. CONDITION #2 FOLLOWED	O	O	
5. CONDITION #3 FOLLOWED	O	O	
6. CONDITION #4 FOLLOWED	O	O	
7. USER SURVEY LOG AVAILABLE	O	O	
8. SURVEY INSTRUMENT	O	O	O
9. RWS LOG	O	O	O

COMMENTS:

SMEAR ANALYSIS

☐ ALL SMEARS SHOW LESS THAN 100 DPM OF REMOVABLE CONTANIMATION

☐ ALL SMEARS SHOW LESS THAN 100 DPM OF REMOVABLE CONTAMINATION EXCEPT:

SMEAR	DPM	SMEAR	DPM	SMEAR	DPM

TYPE OF ANALYSIS:

☐ AUTO GAMMA

☐ LIQUID SCINTILLATION

DATE OF ANALYSIS:

ANALYSIS PERFORMED BY:

COMMENTS:

ACTION REQUIRED: ☐ YES ☐ NO

ACTION TAKEN:

Reviewer:

Encl 4

Ex 2

WRAMC FORM 708 (PREVIOUS EDITIONS MAY BE USED UNTIL EXHAUSTED)
1 JAN 88

HEALTH PHYSICS LABORATORY SURVEY

PRINCIPAL USER: NEUTZE, JANET MAJ,MC	AUTH. NO: H274	SURVEYOR(S):	DATE:
ORGANIZATION: NUCLEAR MEDICINE SERVICE		SURVEY METER:	METER MODEL:
BUILDING NO: 2	ROOM NO: 1	PHONE NO: 576-0177	SN:	CAL DUE:

ROOM SKETCH

QUESTIONS

	YES	NO	N/A
1. POSTING FORMS, SIGNS, AND LABELS			
A. NRC FORM 3	O	O	
B. NOTICE TO EMPLOYEES	O	O	
C. 10 CFR 19, 20, AND 21	O	O	O
D. CAUTION RADIOACTIVE MATERIAL (CRM)			
1) ENTRANCE	O	O	O
2) STORAGE AREAS	O	O	O
3) WORK AREAS	O	O	O
4) WASTE STORAGE AREAS	O	O	O
E. CAUTION (HIGH) RADIATION AREA	O	O	O
F. CAUTION AIRBORNE RADIOACTIVITY	O	O	O
G. RADIOACTIVE WASTE WASH SINK (RWS)			
1) RWS LABEL	O	O	O
2) SHELLFISH WARNING	O	O	O
3) MAINTENANCE WARNING	O	O	O
H. RADIOACTIVE REFRIGERATOR (RSR)			
1) CRM	O	O	O
2) NO FOOD OR BEVERAGE ...	O	O	O
3) MAINTENANCE WARNING	O	O	O
I. RADIOACTIVE FREEZER (RSF)			
1) CRM	O	O	O
2) NO FOOD OR BEVERAGE ...	O	O	O
3) MAINTENANCE WARNING	O	O	O
J. RADIOACTIVE CENTRIFUGE			
1) CRM	O	O	O
2) MAINTENANCE WARNING	O	O	O
K. NO EATING, DRINKING, OR SMOKING	O	O	O
2. COPY OF AUTHORIZATION AVAILABLE	O	O	
3. TERMS AND CONDITIONS AVAILABLE	O	O	
4. CONDITION #2 FOLLOWED	O	O	
5. CONDITION #3 FOLLOWED	O	O	
6. CONDITION #4 FOLLOWED	O	O	
7. USER SURVEY LOG AVAILABLE	O	O	
8. SURVEY INSTRUMENT	O	O	O
9. RWS LOG	O	O	O

COMMENTS:

SMEAR ANALYSIS

☐ ALL SMEARS SHOW LESS THAN 100 DPM OF REMOVABLE CONTANIMATION

☐ ALL SMEARS SHOW LESS THAN 100 DPM OF REMOVABLE CONTAMINATION EXCEPT:

SMEAR	DPM	SMEAR	DPM	SMEAR	DPM

TYPE OF ANALYSIS:

☐ AUTO GAMMA

☐ LIQUID SCINTILLATION

DATE OF ANALYSIS:

ANALYSIS PERFORMED BY:

COMMENTS:

ACTION REQUIRED: ☐ YES ☐ NO

ACTION TAKEN:

Ex 2

Encl 5

Reviewer:

WRAMC FORM 708 (PREVIOUS EDITIONS MAY BE USED UNTIL EXHAUSTED)
1 JAN 88

HEALTH PHYSICS LABORATORY SURVEY

PRINCIPAL USER:	AUTH. NO:	SURVEYOR(S):	DATE:
Neutze, Janet MAJ,MC	H274		

ORGANIZATION:	SURVEY METER:	METER MODEL:
Nuclear Medicine Service		

BUILDING NO:	ROOM NO:	PHONE NO:	SN:	CAL DUE:
2	Suite E	576-0177		

ROOM SKETCH

QUESTIONS

	YES	NO	N/A
1. POSTING FORMS, SIGNS, AND LABELS			
A. NRC FORM 3	O	O	
B. NOTICE TO EMPLOYEES	O	O	
C. 10 CFR 19, 20, AND 21	O	O	O
D. CAUTION RADIOACTIVE MATERIAL (CRM)			
1) ENTRANCE	O	O	O
2) STORAGE AREAS	O	O	O
3) WORK AREAS	O	O	O
4) WASTE STORAGE AREAS	O	O	O
E. CAUTION (HIGH) RADIATION AREA	O	O	O
F. CAUTION AIRBORNE RADIOACTIVITY	O	O	O
G. RADIOACTIVE WASTE WASH SINK (RWS)			
1) RWS LABEL	O	O	O
2) SHELLFISH WARNING	O	O	O
3) MAINTENANCE WARNING	O	O	O
H. RADIOACTIVE REFRIGERATOR (RSR)			
1) CRM	O	O	O
2) NO FOOD OR BEVERAGE ...	O	O	O
3) MAINTENANCE WARNING	O	O	O
I. RADIOACTIVE FREEZER (RSF)			
1) CRM	O	O	O
2) NO FOOD OR BEVERAGE ...	O	O	O
3) MAINTENANCE WARNING	O	O	O
J. RADIOACTIVE CENTRIFUGE			
1) CRM	O	O	O
2) MAINTENANCE WARNING	O	O	O
K. NO EATING, DRINKING, OR SMOKING	O	O	O
2. COPY OF AUTHORIZATION AVAILABLE	O	O	
3. TERMS AND CONDITIONS AVAILABLE	O	O	
4. CONDITION #2 FOLLOWED	O	O	
5. CONDITION #3 FOLLOWED	O	O	
6. CONDITION #4 FOLLOWED	O	O	
7. USER SURVEY LOG AVAILABLE	O	O	
8. SURVEY INSTRUMENT	O	O	O
9. RWS LOG	O	O	O

COMMENTS:

SMEAR ANALYSIS

☐ ALL SMEARS SHOW LESS THAN 100 DPM OF REMOVABLE CONTANIMATION

☐ ALL SMEARS SHOW LESS THAN 100 DPM OF REMOVABLE CONTAMINATION EXCEPT:

SMEAR	DPM	SMEAR	DPM	SMEAR	DPM

TYPE OF ANALYSIS:

☐ AUTO GAMMA

☐ LIQUID SCINTILLATION

DATE OF ANALYSIS:

ANALYSIS PERFORMED BY:

COMMENTS:

ACTION REQUIRED: ☐ YES ☐ NO

ACTION TAKEN:

Ex 2

Encl 6

Reviewer:

WRAMC FORM 708 (PREVIOUS EDITIONS MAY BE USED UNTIL EXHAUSTED)
1 JAN 88

HEALTH PHYSICS LABORATORY SURVEY

PRINCIPAL USER:	AUTH. NO:	SURVEYOR(S):	DATE:
Yuen, Albert	H427		

ORGANIZATION:	SURVEY METER:	METER MODEL:
Radiation Therapy/Oncology Service		

BUILDING NO:	ROOM NO:	PHONE NO:	SN:	CAL DUE:
2		576-1180		

ROOM SKETCH

___ mR/hr

QUESTIONS

	YES	NO	N/A
1. POSTING FORMS, SIGNS, AND LABELS			
A. NRC FORM 3	O	O	
B. NOTICE TO EMPLOYEES	O	O	
C. 10 CFR 19, 20, AND 21	O	O	O
D. CAUTION RADIOACTIVE MATERIAL (CRM)			
1) ENTRANCE	O	O	O
2) STORAGE AREAS	O	O	O
3) WORK AREAS	O	O	O
4) WASTE STORAGE AREAS	O	O	O
E. CAUTION (HIGH) RADIATION AREA	O	O	O
F. CAUTION AIRBORNE RADIOACTIVITY	O	O	O
G. RADIOACTIVE WASTE WASH SINK (RWS)			
1) RWS LABEL	O	O	●
2) SHELLFISH WARNING	O	O	●
3) MAINTENANCE WARNING	O	O	●
H. RADIOACTIVE REFRIGERATOR (RSR)			
1) CRM	O	O	●
2) NO FOOD OR BEVERAGE ...	O	O	●
3) MAINTENANCE WARNING	O	O	●
I. RADIOACTIVE FREEZER (RSF)			
1) CRM	O	O	●
2) NO FOOD OR BEVERAGE ...	O	O	●
3) MAINTENANCE WARNING	O	O	●
J. RADIOACTIVE CENTRIFUGE			
1) CRM	O	O	●
2) MAINTENANCE WARNING	O	O	●
K. NO EATING, DRINKING, OR SMOKING	O	O	
2. COPY OF AUTHORIZATION AVAILABLE	O	O	
3. TERMS AND CONDITIONS AVAILABLE	O	O	
4. CONDITION #2 FOLLOWED	O	O	
5. CONDITION #3 FOLLOWED	O	O	
6. CONDITION #4 FOLLOWED	O	O	
7. USER SURVEY LOG AVAILABLE	O	O	
8. SURVEY INSTRUMENT	O	O	O
9. RWS LOG	O	O	O

COMMENTS:

SMEAR ANALYSIS

☐ ALL SMEARS SHOW LESS THAN 100 DPM OF REMOVABLE CONTANIMATION

☐ ALL SMEARS SHOW LESS THAN 100 DPM OF REMOVABLE CONTAMINATION EXCEPT:

SMEAR	DPM	SMEAR	DPM	SMEAR	DPM

TYPE OF ANALYSIS:

☐ AUTO GAMMA

☐ LIQUID SCINTILLATION

DATE OF ANALYSIS:

ANALYSIS PERFORMED BY:

COMMENTS:

ACTION REQUIRED: ☐ YES ☐ NO

ACTION TAKEN:

Reviewer:

Encl 7

Ex 2

WRAMC FORM 708 (PREVIOUS EDITIONS MAY BE USED UNTIL EXHAUSTED)
1 JAN 88

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NRC Form 374
(5-84)

U.S. NUCLEAR REGULATORY COMMISSION

MATERIALS LICENSE

Amendment No 55

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974 (Public Law 93 – 438), and Title 10, Code of Federal Regulations, Chapter I, Parts 30, 31, 32, 33, 34, 35, 40 and 70, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, possess, and transfer byproduct, source, and special nuclear material designated below; to use such material for the purpose(s) and at the place(s) designated below; to deliver or transfer such material to persons authorized to receive it in accordance with the regulations of the applicable Part(s). This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954, as amended, and is subject to all applicable rules, regulations and orders of the Nuclear Regulatory Commission now or hereafter in effect and to any conditions specified below.

Licensee

1. Department of the Army
Walter Reed Army Medical Center (WRAMC)

2. Washington, D.C. 20307-5001

3. License number 08-01738-02 is amended in its entirety to read as follows:

4. Expiration date April 30, 1993

5. Docket or Reference No. 030-01317

6. Byproduct, source, and/or special nuclear material	7. Chemical and/or physical form	8. Maximum amount that licensee may possess at any one time under this license
A. Any byproduct material with atomic numbers 1-83	A. Any	A. 400 millicuries of each radionuclide with a total possession limit of 26 curies
B. Iodine 131	B. Any	B. 2 curies
C. Xenon 133	C. Any	C. 2 curies
D. Krypton 85	D. Any	D. 1 curie
E. Gold 198	E. Any	E. 1 curie
F. Phosphorus 32	F. Any	F. 2 curies
G. Carbon 14	G. Any	G. 2 curies
H. Iodine 125	H. Any	H. 1 curie
I. Iridium 192	I. Any	I. 1 curie
J. Chromium 51	J. Any	J. 750 millicuries
K. Sulfur 35	K. Any	K. 1 curie
L. Hydrogen 3	L. Any	L. 5 curies
M. Molybdenum 99	M. Molybdenum 99/ Technetium 99m Generators	M. 23 curies
N. Technetium 99m	N. Any	N. 23 curies
O. Strontium 90	O. Sealed sources	O. 500 millicuries
P. Cesium 137	P. Sealed sources	P.
Q. Gadolinium 153	Q. Sealed sources	Q.
R. Iodine 125	R. Sealed sources (Norland Inst. Co., Model 178A591A)	R. 400 millicuries
S. Iodine 125	S. Sealed sources (3M Company seeds)	S. 500 millicuries
T. Iodine 125	T. Sealed sources (AECL Models C235 or C324, or Amersham Corp Model IMC.P2)	T. 4 sources, not to exceed 300 millicuries each
U. Cesium 137	U. Sealed sources	U.
V. Cobalt 60	V. Sealed sources	V.

Information in this record was deleted in accordance with the Freedom of Information Act, exemptions 2
FOIA 2006-0238

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MATERIALS LICENSE
SUPPLEMENTARY SHEET

License number: 08-01738-02
Docket or Reference number: 030-01317
Amendment No. 55

(Items 6., 7. & 8. continued)

6. Byproduct, source, and/or special nuclear material	7. Chemical and/or physical form	8. Maximum amount that licensee may possess at any one time under this license
W. Americium 241	W. Any	W. 100 microcuries
X. Americium 241	X. Sealed source	X. [illegible]
Y. Nickel 63	Y. Sealed sources and foils	Y. 1 curie
Z. Iodine 129	Z. Sealed sources	Z. 1 curie
AA. Thorium	AA. Any	AA. 5 kilograms
BB. Uranium	BB. Any	BB. 50 kilograms
CC. Uranium deleted in Uranium-235	CC. Plated Metal	CC. 280 kilograms
DD. Americium 241	DD. Sealed sources	DD. [illegible]
EE. Cesium 137	EE. Sealed source	EE. [illegible]
FF. Cesium 137	FF. Sealed sources	FF. [illegible]

9. Authorized use

A. through T. Medical research, diagnosis, and therapy; research and development as defined in 10 CFR 30.4(q).
U. through Z. Research and development as defined in 10 CFR 30.4(q); teaching.
CC. Shielding
DD. Standards and reference sources.
EE. In an [illegible] r calibration of instruments.
FF. Instrument calibration.

CONDITIONS

10. Location of use:

Walter Reed Army Medical Center, Washington, D. C.; WRAMC Forest Glen Section and Annex, Silver Spring, Maryland; U.S. Army Medical Research Institute for Infectious Diseases, Fort Detrick, Frederick, Maryland; Andrew Rader Army Clinic, Fort Myer, Virginia; Walter Reed Army Institute of Research Animal Holding Facility, Fort Meade, Maryland; U.S. Army Medical Laboratory, WRAMC Department of Pathology, Fort Meade, Maryland; and U.S. Army Institute of Dental Research Facility, Fort Meade, Maryland.

11. Radiation Safety Officer: Major Gerald M. Connock

12. A. Licensed material shall be used by, or under the supervision of, individuals designated by the licensee's Radiation Safety Committee, Col. James E. Hastings, MC, Chairman.

42

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License number
08-01738-02

Docket or Reference number
030-01317

Amendment No. 55

(12. continued) CONDITIONS

B. The use of licensed material in or on humans shall be by a physician as defined in Section 35.2 of 10 CFR Part 35.

C. Physicians designated to use licensed material in or on humans shall meet the training criteria established in 10 CFR Part 35, Subpart J.

13. Experimental animals administered licensed materials or their products shall not be used for human consumption.

14. In lieu of using the conventional radiation caution colors (magenta or purple on yellow background) as provided in Section 20.203(a)(1), of 10 CFR Part 20, the licensee is hereby authorized to label detector cells and cell baths, containing licensed material and used in gas chromatography devices, with conspicuously etched or stamped radiation caution symbols without a color requirement.

15. Detector cells containing titanium tritide foil shall only be used in conjunction with a properly operating temperature control mechanism which prevents foil temperatures from exceeding 225 degrees Centigrade.

16. Detector cells containing scandium tritide foil shall only be used in conjunction with a properly operating temperature control mechanism which prevents foil temperatures from exceeding 325 degrees Centigrade.

17. Notwithstanding the requirements of 10 CFR 35.49 (a) and (b), the licensee may use for medical use any byproduct material or reagent kit for which the Food and Drug Administration has accepted a "Notice of Claimed Investigational Exemption for a New Drug" (IND).

18. The licensee may transport licensed material in accordance with the provisions of 10 CFR Part 71, "Packaging and Transportation of Radioactive Material".

19. If only a single radionuclide specified in NUREG 0767, is possessed, the possession limit is the quantity specified in Schedule of Limiting Possession Limits, NUREG-0767. If two or more radionuclides are possessed, the possession limit for each is determined as follows: the sum of the quotients of the quantities possessed divided by the quantities of those radionuclides specified in the Schedule of Limiting Possession Limits, NUREG-0767 shall not exceed unity.

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License number
08-01738-02

Docket or Reference number
030-01317

Amendment No. 55

(Continued) CONDITIONS

20. This license is based on the licensee's statements and representations listed below:

A. Application dated July 18, 1979
B. Letter dated January 13, 1984
C. Letter dated May 8, 1987
D. Letter dated March 16, 1988
E. Letter dated March 28, 1988

For the U.S. Nuclear Regulatory Commission

Date 18 APR 1988

By Original Signed By:
Josephine M. Piccone
Nuclear Materials Safety and
Safeguards Branch, Region I
King of Prussia, Pennsylvania 19406

NRC Form 374
(5-84)

CORRECTED COPY

U.S. NUCLEAR REGULATORY COMMISSION

MATERIALS LICENSE

Amendment No 55

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974 (Public Law 93-438), and Title 10, Code of Federal Regulations, Chapter I, Parts 30, 31, 32, 33, 34, 35, 40 and 70, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, possess, and transfer byproduct, source, and special nuclear material designated below; to use such material for the purpose(s) and at the place(s) designated below; to deliver or transfer such material to persons authorized to receive it in accordance with the regulations of the applicable Part(s). This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954, as amended, and is subject to all applicable rules, regulations and orders of the Nuclear Regulatory Commission now or hereafter in effect and to any conditions specified below.

Licensee

1. Department of the Army
Walter Reed Army Medical Center (WRAMC)

2. Washington, D.C. 20307-5001

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4. Expiration date April 30, 1993

5. Docket or Reference No. 030-01317

6. Byproduct, source, and/or special nuclear material	7. Chemical and/or physical form	8. Maximum amount that licensee may possess at any one time under this license
A. Any byproduct material with atomic numbers 1-83	A. Any	A. 400 millicuries of each radionuclide with a total possession limit of 26 curies
B. Iodine 131	B. Any	B. 2 curies
C. Xenon 133	C. Any	C. 2 curies
D. Krypton 85	D. Any	D. 1 curie
E. Gold 198	E. Any	E. 1 curie
F. Phosphorus 32	F. Any	F. 2 curies
G. Carbon 14	G. Any	G. 2 curies
H. Iodine 125	H. Any	H. 1 curie
I. Iridium 192	I. Any	I. 1 curie
J. Chromium 51	J. Any	J. 750 millicuries
K. Sulfur 35	K. Any	K. 1 curie
L. Hydrogen 3	L. Any	L. 5 curies
M. Molybdenum 99	M. Molybdenum 99/ Technetium 99m Generators	M. 23 curies
N. Technetium 99m	N. Any	N. 23 curies
O. Strontium 90	O. Sealed sources	O. 500 millicuries
P. Cesium 137	P. Sealed sources	P. [redacted]
Q. Gadolinium 153	Q. Sealed sources	Q. [redacted]
R. Iodine 125	R. Sealed sources (Norland Inst. Co., Model 178A591A)	R. 400 millicuries
S. Iodine 125	S. Sealed sources (3M Company seeds)	S. 500 millicuries
T. Iodine 125	T. Sealed sources (AECL Models C235 or C324, or Amersham Corp Model IMC.P24)	T. 4 sources, not to exceed 300 millicuries each
U. Cesium 137	U. Sealed sources	U. [redacted]
V. Cobalt 60	V. Sealed sources	V. [redacted]

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Information in this record was deleted in accordance with the Freedom of Information Act, exemptions 2 FOIA 2006-0238

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License number 08-01738-02

Docket or Reference number 030-01317

MATERIALS LICENSE
SUPPLEMENTARY SHEET

CORRECTED COPY

Amendment No. 55

(Items 6., 7. & 8. continued)

6. Byproduct, source, and/or special nuclear material	7. Chemical and/or physical form	8. Maximum amount that licensee may possess at any one time under this license
W. Americium 241	W. Any	W. 100 microcuries
X. Americium 241	X. Sealed source	X.
Y. Nickel 63	Y. Sealed sources and foils	Y. 1 curie
Z. Iodine 129	Z. Sealed sources	Z. 1 curie
AA. Thorium	AA. Any	AA. 5 kilograms
BB. Uranium	BB. Any	BB. 50 kilograms
CC. Uranium deleted in Uranium-235	CC. Plated Metal	CC. 400 kilograms
DD. Americium 241	DD. Sealed sources	DD.
EE. Cesium 137	EE. Sealed source	EE.
FF. Cesium 137	FF.	FF.

9. Authorized use

A. through T. Medical research, diagnosis, and therapy; research and development as defined in 10 CFR 30.4(q).
U. through Z. Research and development as defined in 10 CFR 30.4(q); teaching.
CC. Shielding
DD. Standards and reference sources.
EE. In an for calibration of instruments.
FF. Instrument calibration.

CONDITIONS

10. Location of use:

Walter Reed Army Medical Center, Washington, D. C.; WRAMC Forest Glen Section and Annex, Silver Spring, Maryland; U.S. Army Medical Research Institute for Infectious Diseases, Fort Detrick, Frederick, Maryland; Andrew Rader Army Clinic, Fort Myer, Virginia; Walter Reed Army Institute of Research Animal Holding Facility, Fort Meade, Maryland; U.S. Army Medical Laboratory, WRAMC Department of Pathology, Fort Meade, Maryland; and U.S. Army Institute of Dental Research Facility, Fort Meade, Maryland.

11. Radiation Safety Officer: Major Gerald M. Connock

12. A. Licensed material shall be used by, or under the supervision of, individuals designated by the licensee's Radiation Safety Committee, Col. James E. Hastings, MC, Chairman.

42

License number
08-01738-02

Docket or Reference number
030-01317

MATERIALS LICENSE
SUPPLEMENTARY SHEET

CORRECTED COPY

Amendment No. 55

(12. continued) CONDITIONS

B. The use of licensed material in or on humans shall be by a physician as defined in Section 35.2 of 10 CFR Part 35.

C. Physicians designated to use licensed material in or on humans shall meet the training criteria established in 10 CFR Part 35, Subpart J.

13. Experimental animals administered licensed materials or their products shall not be used for human consumption.

14. In lieu of using the conventional radiation caution colors (magenta or purple on yellow background) as provided in Section 20.203(a)(1), of 10 CFR Part 20, the licensee is hereby authorized to label detector cells and cell baths, containing licensed material and used in gas chromatography devices, with conspicuously etched or stamped radiation caution symbols without a color requirement.

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19. If only a single radionuclide specified in NUREG 0767, is possessed, the possession limit is the quantity specified in Schedule of Limiting Possession Limits, NUREG-0767. If two or more radionuclides are possessed, the possession limit for each is determined as follows: the sum of the quotients of the quantities possessed divided by the quantities of those radionuclides specified in the Schedule of Limiting Possession Limits, NUREG-0767 shall not exceed unity.

License number
08-01738-02

Docket or Reference number
030-01317

Amendment No. 55

MATERIALS LICENSE
SUPPLEMENTARY SHEET

CORRECTED COPY

(Continued) CONDITIONS

20. This license is based on the licensee's statements and representations listed below:

    A. Application dated July 18, 1979
    B. Letter dated January 13, 1984
    C. Letter dated May 8, 1987
    D. Letter dated March 16, 1988
    E. Letter dated March 28, 1988

For the U.S. Nuclear Regulatory Commission

Date 31 MAY 1988

By Original Signed By:
Josephine M. Piccone

Nuclear Materials Safety and
Safeguards Branch, Region I
King of Prussia, Pennsylvania 19406

NRC FORM 313M (8-86) 10 CFR 35	U.S. NUCLEAR REGULATORY COMMISSION **APPLICATION FOR MATERIALS LICENSE – MEDICAL**	Approved by OMB 3150-0041 Expires 6-30-89

INSTRUCTIONS – *Complete Items 1 through 26 if this is an initial application or an application for renewal of a license. Use supplemental sheets where necessary. Item 26 must be completed on all applications and signed. Retain one copy. Submit original and one copy of entire application to : Director, Office of Nuclear Materials Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555. Upon approval of this application, the applicant will receive a Materials License. An NRC Materials License is issued in accordance with the general requirements contained in Title 10, Code of Federal Regulations, Part 30, and the Licensee is subject to Title 10, Code of Federal Regulations, Parts 19, 20 and 35 and the license fee provision of Title 10, Code of Federal Regulations, Part 170. The license fee category should be stated in Item 26 and the appropriate fee enclosed.*

1.a. NAME AND MAILING ADDRESS OF APPLICANT *(institution, firm, clinic, physician, etc.)* INCLUDE ZIP CODE

Department of the Army
Walter Reed Army Medical Center
Washington, DC 20307-5001

TELEPHONE NO.: AREA CODE (301) 427 5104

1.b. STREET ADDRESS(ES) AT WHICH RADIOACTIVE MATERIAL WILL BE USED *(If different from 1.a.)* INCLUDE ZIP CODE

13 Taft Court
Rockville, MD 20853

2. PERSON TO CONTACT REGARDING THIS APPLICATION

Gerald M. Connock, MAJ, MS
Health Physics Officer, WRAMC

TELEPHONE NO.: AREA CODE (301) 427 5104

3. THIS IS AN APPLICATION FOR: *(Check appropriate item)*

a. ☐ NEW LICENSE
b. ☒ AMENDMENT TO LICENSE NO. 08-01738-02
c. ☐ RENEWAL OF LICENSE NO. _____

4. INDIVIDUAL USERS *(Name individuals who will use or directly supervise use of radioactive material. Complete Supplements A and B for each individual.)*

Individuals approved by the Radiation Control Committee, Walter Reed Army Medical Center

5. RADIATION SAFETY OFFICER (RSO) *(Name of person designated as radiation safety officer. If other than individual user, complete resume of training and experience as in Supplement A.)* Gerald M. Connock, MAJ, MS, Ref: AR 40-14 and 40-37, the Health Physics Officer will be appointed by the Commanding General, WRAMC

6.a. RADIOACTIVE MATERIAL FOR MEDICAL USE NO CHANGE

RADIOACTIVE MATERIAL LISTED IN:	ITEMS DESIRED "X"	MAXIMUM POSSESSION LIMITS (In millicuries)
10 CFR 31.11 FOR IN VITRO STUDIES		
10 CFR 35.100, SCHEDULE A, GROUP I		AS NEEDED
10 CFR 35.100, SCHEDULE A, GROUP II		AS NEEDED
10 CFR 35.100, SCHEDULE A, GROUP III		
10 CFR 35.100, SCHEDULE A, GROUP IV		AS NEEDED
10 CFR 35.100, SCHEDULE A, GROUP V		AS NEEDED
10 CFR 35.100, SCHEDULE A, GROUP VI		

ADDITIONAL ITEMS:	MARK ITEMS DESIRED "X"	MAXIMUM POSSESSION LIMITS (In millicuries)
IODINE-131 AS IODIDE FOR TREATMENT OF HYPERTHYROIDISM		
PHOSPHORUS-32 AS SOLUBLE PHOSPHATE FOR TREATMENT OF POLYCYTHEMIA VERA, LEUKEMIA AND BONE METASTASES		
PHOSPHORUS-32 AS COLLOIDAL CHROMIC PHOSPHATE FOR INTRACAVITARY TREATMENT OF MALIGNANT EFFUSIONS.		
GOLD-198 AS COLLOID FOR INTRA-CAVITARY TREATMENT OF MALIGNANT EFFUSIONS.		
IODINE-131 AS IODIDE FOR TREATMENT OF THYROID CARCINOMA		
XENON-133 AS GAS OR GAS IN SALINE FOR BLOOD FLOW STUDIES AND PULMONARY FUNCTION STUDIES.		

6.b. RADIOACTIVE MATERIAL FOR USES NOT LISTED IN ITEM 6.a. *(Sealed sources up to 3 mCi used for calibration and reference standards are authorized under Section 35.14(d), 10 CFR Part 35, and NEED NOT BE LISTED.)*

ELEMENT AND MASS NUMBER	CHEMICAL AND/OR PHYSICAL FORM	MAXIMUM NUMBER OF MILLICURIES OF EACH FORM	DESCRIBE PURPOSE OF USE
NO	CHANGE		

FOIA EXEMPT

Information in this record was deleted in accordance with the Freedom of Information Act, exemptions 2
FOIA 2006-0238

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NRC FORM 313M (8-86) Enclosure 1

AUG 30 1988

INFORMATION REQUIRED FOR ITEMS 7 THROUGH 23

For Items 7 through 23, check the appropriate box(es) and submit a detailed description of all the requested information. Begin each item on a separate sheet. Identify the item number and the date of the application in the lower right corner of each page. If you indicate that an appendix to the medical licensing guide will be followed, do not submit the pages, but specify the revision number and date of the referenced guide: Regulatory Guide 10.8 , Rev. _____ Date: _____

7. MEDICAL ISOTOPES COMMITTEE NO CHANGE		15. GENERAL RULES FOR THE SAFE USE OF RADIOACTIVE MATERIAL *(Check One)* NO CHANGE	
	Names and Specialties Attached; and		Appendix G Rules Followed; or
	Duties as in Appendix B; or *(Check One)*		Equivalent Rules Attached
	Equivalent Duties Attached	16. EMERGENCY PROCEDURES *(Check One)* NO CHANGE	
8. TRAINING AND EXPERIENCE NO CHANGE			Appendix H Procedures Followed; or
	Supplements A & B Attached for Each Individual User; and		Equivalent Procedures Attached
	Supplement A Attached for RSO.	17. AREA SURVEY PROCEDURES *(Check One)* NO CHANGE	
9. INSTRUMENTATION *(Check One)* NO CHANGE			Appendix I Procedures Followed; or
	Appendix C Form Attached; or		Equivalent Procedures Attached
	List by Name and Model Number	18. WASTE DISPOSAL *(Check One)* NO CHANGE	
10. CALIBRATION OF INSTRUMENTS NO CHANGE			Appendix J Form Attached; or
	Appendix D Procedures Followed for Survey Instruments; or *(Check One)*		Equivalent Information Attached
	Equivalent Procedures Attached; and	19. THERAPEUTIC USE OF RADIOPHARMACEUTICALS *(Check One)* NO CHANGE	
	Appendix D Procedures Followed for Dose Calibrator; or *(Check One)*		Appendix K Procedures Followed; or
	Equivalent Procedures Attached		Equivalent Procedures Attached
11. FACILITIES AND EQUIPMENT		20. THERAPEUTIC USE OF SEALED SOURCES NO CHANGE	
X	Description and Diagram Attached Enclosure 2		Detailed Information Attached; and
12. PERSONNEL TRAINING PROGRAM NO CHANGE			Appendix L Procedures Followed; or *(Check One)*
	Description of Training Attached		Equivalent Procedures Attached
13. PROCEDURES FOR ORDERING AND RECEIVING RADIOACTIVE MATERIAL NO CHANGE		21. PROCEDURES AND PRECAUTIONS FOR USE OF RADIOACTIVE GASES (e.g., Xenon – 133) NO CHANGE	
	Detailed Information Attached		Detailed Information Attached
14. PROCEDURES FOR SAFELY OPENING PACKAGES CONTAINING RADIOACTIVE MATERIALS *(Check One)*		22. PROCEDURES AND PRECAUTIONS FOR USE OF RADIOACTIVE MATERIAL IN ANIMALS NO CHANGE	
			Detailed Information Attached
	Appendix F Procedures Followed; or NO CHANGE	23. PROCEDURES AND PRECAUTIONS FOR USE OF RADIOACTIVE MATERIAL SPECIFIED IN ITEM 6.b	
	Equivalent Procedures Attached		Detailed Information Attached NO CHANGE

24. PERSONNEL MONITORING DEVICES

TYPE (Check appropriate box)			SUPPLIER	EXCHANGE FREQUENCY
a. WHOLE BODY		FILM		
		TLD	NO CHANGE	
		OTHER *(Specify)*		
b. FINGER		FILM		
		TLD	NO CHANGE	
		OTHER *(Specify)*		
c. WRIST		FILM		
		TLD	NO CHANGE	
		OTHER *(Specify)*		

d. OTHER *(Specify)*

25. FOR PRIVATE PRACTICE APPLICANTS ONLY

a. HOSPITAL AGREEING TO ACCEPT PATIENTS CONTAINING RADIOACTIVE MATERIAL

NAME OF HOSPITAL

MAILING ADDRESS

CITY | STATE | ZIP CODE

b. ATTACH A COPY OF THE AGREEMENT LETTER SIGNED BY THE HOSPITAL ADMINISTRATOR.

c. WHEN REQUESTING THERAPY PROCEDURES, ATTACH A COPY OF RADIATION SAFETY PRECAUTIONS TO BE TAKEN AND LIST AVAILABLE RADIATION DETECTION INSTRUMENTS.

26. CERTIFICATE

(This item must be completed by applicant)

The applicant and any official executing this certificate on behalf of the applicant named in Item 1a certify that this application is prepared in conformity with Title 10, Code of Federal Regulations, Parts 30 and 35, and that all information contained herein, including any supplements attached hereto, is true and correct to the best of our knowledge and belief.

a. LICENSE FEE REQUIRED
(See Section 170.31, 10 CFR 170)

(1) LICENSE FEE CATEGORY: 7B

(2) LICENSE FEE ENCLOSED: $ ~~Exception, 10CFR170.11~~ (a) (5)

b. APPLICANT OR CERTIFYING OFFICIAL *(Signature)*

Marshall K. Bolyard

(1) NAME *(Type of Print)*

MARSHALL K. BOLYARD, LTC, MS

(2) TITLE

Executive Officer

c. DATE

5 AUG 1988.

NRC FORM 313M (8-86)

PRIVACY ACT STATEMENT

Pursuant to 5 U.S.C. 552a(e)(3), enacted into law by section 3 of the Privacy Act of 1974 (Public Law 93-579) the following statement is furnished to individuals who supply information to the Nuclear Regulatory Commission on NRC Form 313M. This information is maintained in a system of records designated as NRC-3 and described at 40 Federal Register 45334 (October 1, 1975).

1. **AUTHORITY** Sections 81 and 161(b) of the Atomic Energy Act of 1954, as amended (42 U.S.C. 2111 and 2201(b)).

2. **PRINCIPAL PURPOSE(S)** The information is evaluated by the NRC staff pursuant to the criteria set forth in 10 CFR Parts 30-36 to determine whether the application meets the requirements of the Atomic Energy Act of 1954, as amended, and the Commission's regulations, for the issuance of a radioactive material license or amendment thereof.

3. **ROUTINE USES** The information may be used: (a) to provide records to State health departments for their information and use; and (b) to provide information to Federal, State, and local health officials and other persons in the event of incident or exposure, for their information, investigation, and protection of the public health and safety. The information may also be disclosed to appropriate Federal, State, and local agencies in the event that the information indicates a violation or potential violation of law and in the course of an administrative or judicial proceeding. In addition, this information may be transferred to an appropriate Federal, State, or local agency to the extent relevant and necessary for a NRC decision or to an appropriate Federal agency to the extent relevant and necessary for that agency's decision about you. A copy of the license issued will routinely be placed in the NRC's Public Document Room, 1717 H Street, N.W., Washington, D.C.

4. **WHETHER DISCLOSURE IS MANDATORY OR VOLUNTARY AND EFFECT ON INDIVIDUAL OF NOT PROVIDING INFORMATION** Disclosure of the requested information is voluntary. If the requested information is not furnished, however, the application for radioactive material license, or amendment thereof, will not be processed.

5. **SYSTEM MANAGER(S) AND ADDRESS** Director, Division of Fuel Cycle and Material Safety, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555.

STANDARD FORM 2
FEBRUARY 1965 EDITION
GENERAL SERVICES
ADMINISTRATION
FPR (41 CFR) 1-16.601

U.S. GOVERNMENT LEASE FOR REAL PROPERTY

DATE OF LEASE: JUN 23 1988

LEASE NO: GS-11B-80404

THIS LEASE, made and entered into this date by and between William M. Rickman
t/a W.M. Rickman Construction, Co.

whose address is 15215 Shady Grove Road
Rockville, MD 20850

and whose interest in the property hereinafter described is that of owner

hereinafter called the Lessor, and the UNITED STATES OF AMERICA, hereinafter called the Government:

WITNESSETH: The parties hereto for the considerations hereinafter mentioned, covenant and agree as follows:

1. The Lessor hereby leases to the Government the following described premises:

Approximately 6,555 net usable square of office and laboratory space located on the second floor of the Rickman Building, 13 Taft Court, Rockville, MD, 20850, in accordance with the attached Floor Plan.

to be used for such purposes as will be designated by the Government.

2. TO HAVE AND TO HOLD the said premises with their appurtenances for the term beginning on REFER TO RIDER NO. 1 through ....., subject to termination and renewal rights as may be hereinafter set forth.

3. The Government shall pay the Lessor annual rent of $ 119,659.50 at the rate of $ 9,971.63 per month in arrears. Rent for a lesser period shall be prorated. Rent checks shall be made payable to: W.M. Rickman Construction Co.
15215 Shady Grove Road
Rockville, MD 20850

4. The Government may terminate this lease at any time by giving at least 180 days' notice in writing to the Lessor and no rental shall accrue after the effective date of termination. Said notice shall be computed commencing with the day after the date of mailing.

~~5. This lease may be renewed at the option of the Government, for the following terms and at the following rentals:~~

provided notice be given in writing to the Lessor at least ..... days before the end of the original lease term or any renewal term; all other terms and conditions of this lease shall remain the same during any renewal term. ~~Said notice shall be computed commencing with the day after the date of mailing.~~

INITIALS: Lessor Gov

2-106

Enclosure 3

6. The Lessor shall furnish the Government, as part of the rental consideration the following:

6A. The Lessor shall provide services, utilities and maintenance in accordance with SFO No. 88-020.

6B. The Government shall be responsible to pay for separately metered utilities for its space.

6C. The lessor shall provide standard office cleaning, in accordance with specifications as contained in the SFO, for the portion of the space not utilized as laboratory. This shall include office and reception areas, and interior corridors of the Government's space. The lessor shall be responsible for all interior and exterior maintenance of the building's common areas.

6D. With regards to ratios for electrical outlets, telephone outlets, partitioning, doors, etc., the Lessor will construct the space in accordance with the attached Floor Plan, as made a part of this lease, as part of the rental consideration specified in Paragraph 3 of the SF-2 of this Lease.

7. The following are attached and made a part hereof:

The General Provisions and Instructions ~~(Standard Form 2 Ap..... edition),~~

GSA Form 3517:	General Clauses	SFO No. 88-020
GSA Form 3518:	Representations and Certifications	Floor Plan
GSA Form 1217:	Operating Cost Statement	
GSA Form 3516:	Solicitation Provisions	
Rider No. 1 :	"Lease Term"	

8. The following changes were made in this lease prior to its execution:

Paragraph No. 2 of this SF-2 has been deleted in its entirety.

IN WITNESS WHEREOF, the parties hereto have hereunto subscribed their names as of the date first above written.

LESSOR WILLIAM M. RICKMAN, t/a W.M. RICKMAN CONSTRUCTION CO.

BY _____ (Signature) _____ (Signature)

IN PRESENCE OF: _____ (Signature) _____ (Address)

UNITED STATES OF AMERICA

BY _____ (Signature) CONTRACTING OFFICER GSA, NCR, RED (Official title)

STANDARD FORM 2
FEBRUARY 1965 EDITION

U. S. GOVERNMENT PRINTING OFFICE : 1974 O - 5[illegible]

RIDER NO. 1
LEASE NO. GS-11B-80404

"LEASE TERM"

Pursuant Paragraph 2 of the SF-2 of this lease, the term of the lease will be for up to 3 years from the date of acceptance by the Government of the completed space. Following acceptance of the space, the Government reserves the right to terminate the lease upon 180 days advance written notice to the lessor.

109508

30 AUG 1988

"OFFICIAL RECORD COPY" ML 10

INITIALS: _____ & _____
LESSOR GOVERNMENT

NRC Form 374
(5-84)

U.S. NUCLEAR REGULATORY COMMISSION

MATERIALS LICENSE

Amendment No. 56

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974 (Public Law 93 – 438), and Title 10, Code of Federal Regulations, Chapter I, Parts 30, 31, 32, 33, 34, 35, 40 and 70, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, possess, and transfer byproduct, source, and special nuclear material designated below; to use such material for the purpose(s) and at the place(s) designated below; to deliver or transfer such material to persons authorized to receive it in accordance with the regulations of the applicable Part(s). This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954, as amended, and is subject to all applicable rules, regulations and orders of the Nuclear Regulatory Commission now or hereafter in effect and to any conditions specified below.

Licensee	
1. Department of the Army Walter Reed Army Medical Center (WRAMC) 2. Washington, D.C. 20307-5001	3. License number 08-01738-02 is amended in its entirety to read as follows: 4. Expiration date April 30, 1993 5. Docket or Reference No. 030-01317

6. Byproduct, source, and/or special nuclear material	7. Chemical and/or physical form	8. Maximum amount that licensee may possess at any one time under this license
A. Any byproduct material with atomic numbers 1-83	A. Any	A. 400 millicuries of each radionuclide with a total possession limit of 26 curies
B. Iodine 131	B. Any	B. 2 curies
C. Xenon 133	C. Any	C. 2 curies
D. Krypton 85	D. Any	D. 1 curie
E. Gold 198	E. Any	E. 1 curie
F. Phosphorus 32	F. Any	F. 2 curies
G. Carbon 14	G. Any	G. 2 curies
H. Iodine 125	H. Any	H. 1 curie
I. Iridium 192	I. Any	I. 1 curie
J. Chromium 51	J. Any	J. 750 millicuries
K. Sulfur 35	K. Any	K. 1 curie
L. Hydrogen 3	L. Any	L. 5 curies
M. Molybdenum 99	M. Molybdenum 99/ Technetium 99m Generators	M. 23 curies
N. Technetium 99m	N. Any	N. 23 curies
O. Strontium 90	O. Sealed sources	O. 500 millicuries
P. Cesium 137	P. Sealed sources	P. [redacted]
Q. Gadolinium 153	Q. Sealed sources	Q. [redacted]
R. Iodine 125	R. Sealed sources (Norland Inst. Co., Model 178A591A)	R. 400 millicuries
S. Iodine 125	S. Sealed sources (3M Company seeds)	S. 500 millicuries
T. Iodine 125	T. Sealed sources (AECL Models C235 or C324, or Amersham Corp Model IMC.P2)	T. 4 sources, not to exceed 300 millicuries each
U. Cesium 137	U. Sealed sources	U. [redacted]
V. Cobalt 60	V. Sealed sources	V. [redacted]

"OFFICIAL RECORD COPY"

Information in this record was deleted in accordance with the Freedom of Information Act, exemptions 2
FOIA 2006-0238

Ex2

KK/9

License number 08-01738-02

Docket or Reference number 030-01317

Amendment No. 56

MATERIALS LICENSE
SUPPLEMENTARY SHEET

(Items 6., 7. & 8. continued)

6. Byproduct, source, and/or special nuclear material	7. Chemical and/or physical form	8. Maximum amount that licensee may possess at any one time under this license
W. Americium 241	W. Any	W. 100 microcuries
X. Americium 241	X. Sealed source	X. [illegible]
Y. Nickel 63	Y. Sealed sources and foils	Y. 1 curie
Z. Iodine 129	Z. Sealed sources	Z. 1 curie
AA. Thorium	AA. Any	AA. 5 kilograms
BB. Uranium	BB. Any	BB. 50 kilograms
CC. Uranium deleted in Uranium-235	CC. Plated Metal	CC. 400 kilograms
DD. Americium 241	DD. Sealed sources	DD. [illegible]
EE. Cesium 137	EE. Sealed source [illegible]	EE. [illegible]
FF. Cesium 137	FF. [illegible] sources	FF. [illegible]

9. Authorized use

A. through T. Medical research, diagnosis, and therapy; research and development as defined in 10 CFR 30.4(q).
U. through Z. Research and development as defined in 10 CFR 30.4(q); teaching.
CC. Shielding
DD. Standards and reference sources.
EE. In an [illegible] for calibration of instruments.
FF. Instrument calibration.

CONDITIONS

10. Location of use:

Walter Reed Army Medical Center, Washington, D. C.; WRAMC Forest Glen Section and Annex, Silver Spring, Maryland; U.S. Army Medical Research Institute for Infectious Diseases, Fort Detrick, Frederick, Maryland; Andrew Rader Army Clinic, Fort Myer, Virginia; Walter Reed Army Institute of Research Animal Holding Facility, Fort Meade, Maryland; U.S. Army Medical Laboratory, WRAMC Department of Pathology, Fort Meade, Maryland; and U.S. Army Institute of Dental Research Facility, Fort Meade, Maryland; Rickman Building, 13 Taft Court, Rockville, Maryland.

11. Radiation Safety Officer: Major Gerald M. Connock

12. A. Licensed material shall be used by, or under the supervision of, individuals designated by the licensee's Radiation Safety Committee, Col. James E. Hastings, MC, Chairman.

Ex 2

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License number: 08-01738-02

Docket or Reference number: 030-01317

Amendment No. 56

(12. continued) CONDITIONS

B. The use of licensed material in or on humans shall be by a physician as defined in Section 35.2 of 10 CFR Part 35.

C. Physicians designated to use licensed material in or on humans shall meet the training criteria established in 10 CFR Part 35, Subpart J.

13. Experimental animals administered licensed materials or their products shall not be used for human consumption.

14. In lieu of using the conventional radiation caution colors (magenta or purple on yellow background) as provided in Section 20.203(a)(1), of 10 CFR Part 20, the licensee is hereby authorized to label detector cells and cell baths, containing licensed material and used in gas chromatography devices, with conspicuously etched or stamped radiation caution symbols without a color requirement.

15. Detector cells containing titanium tritide foil shall only be used in conjunction with a properly operating temperature control mechanism which prevents foil temperatures from exceeding 225 degrees Centigrade.

16. Detector cells containing scandium tritide foil shall only be used in conjunction with a properly operating temperature control mechanism which prevents foil temperatures from exceeding 325 degrees Centigrade.

17. Notwithstanding the requirements of 10 CFR 35.49 (a) and (b), the licensee may use for medical use any byproduct material or reagent kit for which the Food and Drug Administration has accepted a "Notice of Claimed Investigational Exemption for a New Drug" (IND).

18. The licensee may transport licensed material in accordance with the provisions of 10 CFR Part 71, "Packaging and Transportation of Radioactive Material".

19. If only a single radionuclide specified in NUREG 0767, is possessed, the possession limit is the quantity specified in Schedule of Limiting Possession Limits, NUREG-0767. If two or more radionuclides are possessed, the possession limit for each is determined as follows: the sum of the quotients of the quantities possessed divided by the quantities of those radionuclides specified in the Schedule of Limiting Possession Limits, NUREG-0767 shall not exceed unity.

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License number: 08-01738-02
Docket or Reference number: 030-01317
Amendment No. 56

(Continued) CONDITIONS

20. This license is based on the licensee's statements and representations listed below:

A. Application dated July 18, 1979
B. Letter dated January 13, 1984
C. Letter dated May 8, 1987
D. Letter dated March 16, 1988
E. Letter dated March 28, 1988
F. Application dated August 5, 1988
G. Letter dated September 23, 1988

For the U.S. Nuclear Regulatory Commission

Date 07 OCT 1988

By Original Signed By:
John E. Glenn
Nuclear Materials Safety Branch
Region I
King of Prussia, Pennsylvania 19406

MATERIALS LICENSE

Amendment No. 57

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974 (Public Law 93-438), and Title 10, Code of Federal Regulations, Chapter I, Parts 30, 31, 32, 33, 34, 35, 40 and 70, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, possess, and transfer byproduct, source, and special nuclear material designated below; to use such material for the purpose(s) and at the place(s) designated below; to deliver or transfer such material to persons authorized to receive it in accordance with the regulations of the applicable Part(s). This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954, as amended, and is subject to all applicable rules, regulations and orders of the Nuclear Regulatory Commission now or hereafter in effect and to any conditions specified below.

Licensee

1. Department of the Army
Walter Reed Army Medical Center (WRAMC)

2. Washington, D.C. 20307-5001

3. License number 08-01738-02 is amended in its entirety to read as follows:

4. Expiration date April 30, 1993

5. Docket or Reference No. 030-01317

6. Byproduct, source, and/or special nuclear material	7. Chemical and/or physical form	8. Maximum amount that licensee may possess at any one time under this license
A. Any byproduct material with atomic numbers 1-83	A. Any	A. 400 millicuries of each radionuclide with a total possession limit of 26 curies
B. Iodine 131	B. Any	B. 2 curies
C. Xenon 133	C. Any	C. 2 curies
D. Krypton 85	D. Any	D. 1 curie
E. Gold 198	E. Any	E. 1 curie
F. Phosphorus 32	F. Any	F. 2 curies
G. Carbon 14	G. Any	G. 2 curies
H. Iodine 125	H. Any	H. 1 curie
I. Iridium 192	I. Any	I. 1 curie
J. Chromium 51	J. Any	J. 750 millicuries
K. Sulfur 35	K. Any	K. 1 curie
L. Hydrogen 3	L. Any	L. 5 curies
M. Molybdenum 99	M. Molybdenum 99/ Technetium 99m Generators	M. 23 curies
N. Technetium 99m	N. Any	N. 23 curies
O. Strontium 90	O. Sealed sources	O. 500 millicuries
P. Cesium 137	P. Sealed sources	P.
Q. Gadolinium 153	Q. Sealed sources	Q.
R. Iodine 125	R. Sealed sources (Norland Inst. Co., Model 178A591A)	R. 400 millicuries
S. Iodine 125	S. Sealed sources (3M Company seeds)	S. 500 millicuries
T. Iodine 125	T. Sealed sources (AECL Models C235 or C324, or Amersham Corp Model IMC.P2)	T. 4 sources, not to exceed 300 millicuries each
U. Cesium 137	U. Sealed sources	U.
V. Cobalt 60	V. Sealed sources	V.

Information in this record was deleted in accordance with the Freedom of Information Act, exemptions 2 + 6
FOIA 2006-0238

Ex 2

KK/10

License number 08-01738-02

Docket or Reference number 030-01317

Amendment No. 57

MATERIALS LICENSE
SUPPLEMENTARY SHEET

(Items 6., 7. & 8. continued)

6. Byproduct, source, and/or special nuclear material	7. Chemical and/or physical form	8. Maximum amount that licensee may possess at any one time under this license
W. Americium 241	W. Any	W. 100 microcuries
X. Americium 241	X. Sealed source	X.
Y. Nickel 63	Y. Sealed sources and foils	Y. 1 curie
Z. Iodine 129	Z. Sealed sources	Z. 1 curie
AA. Thorium	AA. Any	AA. 5 kilograms
BB. Uranium	BB. Any	BB. 50 kilograms
CC. Uranium deleted in Uranium-235	CC. Plated Metal	CC. 400 kilograms
DD. Americium 241	DD. Sealed sources	DD.
EE. Cesium 137	EE. Sealed source Corporation Model	EE.
FF. Cesium 137	FF. Sealed sources	FF.

9. Authorized use

A. through T. Medical research, diagnosis, and therapy; research and development as defined in 10 CFR 30.4(q).
U. through Z. Research and development as defined in 10 CFR 30.4(q); teaching.
CC. Shielding
DD. Standards and reference sources.
EE. In an for calibration of instruments.
FF. Instrument calibration.

CONDITIONS

10. Location of use:

Walter Reed Army Medical Center, Washington, D. C.; WRAMC Forest Glen Section and Annex, Silver Spring, Maryland; U.S. Army Medical Research Institute for Infectious Diseases, Fort Detrick, Frederick, Maryland; Andrew Rader Army Clinic, Fort Myer, Virginia; Walter Reed Army Institute of Research Animal Holding Facility, Fort Meade, Maryland; U.S. Army Medical Laboratory, WRAMC Department of Pathology, Fort Meade, Maryland; and U.S. Army Institute of Dental Research Facility, Fort Meade, Maryland; Rickman Building, 13 Taft Court, Rockville, Maryland.

11. Radiation Safety Officer: Second Lieutenant Allen W. Anthony.

12. A. Licensed material shall be used by, or under the supervision of, individuals designated by the licensee's Radiation Safety Committee, Col. Russ Zajtchuk, Chairman.

Ex 2

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License number
08-01738-02

Docket or Reference number
030-01317

Amendment No. 57

(12. continued) CONDITIONS

B. The use of licensed material in or on humans shall be by a physician as defined in Section 35.2 of 10 CFR Part 35.

C. Physicians designated to use licensed material in or on humans shall meet the training criteria established in 10 CFR Part 35, Subpart J.

13. Experimental animals administered licensed materials or their products shall not be used for human consumption.

14. In lieu of using the conventional radiation caution colors (magenta or purple on yellow background) as provided in Section 20.203(a)(1), of 10 CFR Part 20, the licensee is hereby authorized to label detector cells and cell baths, containing licensed material and used in gas chromatography devices, with conspicuously etched or stamped radiation caution symbols without a color requirement.

15. Detector cells containing titanium tritide foil shall only be used in conjunction with a properly operating temperature control mechanism which prevents foil temperatures from exceeding 225 degrees Centigrade.

16. Detector cells containing scandium tritide foil shall only be used in conjunction with a properly operating temperature control mechanism which prevents foil temperatures from exceeding 325 degrees Centigrade.

17. Notwithstanding the requirements of 10 CFR 35.49 (a) and (b), the licensee may use for medical use any byproduct material or reagent kit for which the Food and Drug Administration has accepted a "Notice of Claimed Investigational Exemption for a New Drug" (IND).

18. The licensee may transport licensed material in accordance with the provisions of 10 CFR Part 71, "Packaging and Transportation of Radioactive Material".

19. If only a single radionuclide specified in NUREG 0767, is possessed, the possession limit is the quantity specified in Schedule of Limiting Possession Limits, NUREG-0767. If two or more radionuclides are possessed, the possession limit for each is determined as follows: the sum of the quotients of the quantities possessed divided by the quantities of those radionuclides specified in the Schedule of Limiting Possession Limits, NUREG-0767 shall not exceed unity.

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License number
08-01738-02

Docket or Reference number
030-01317

Amendment No. 57

(Continued) CONDITIONS

20. This license is based on the licensee's statements and representations listed below:

A. Application dated July 18, 1979
B. Letter dated January 13, 1984
C. Letter dated May 8, 1987
D. Letter dated March 16, 1988
E. Letter dated March 28, 1988
F. Application dated August 5, 1988
G. Letter dated September 23, 1988
H. Letter dated July 28, 1989
I. Letter dated September 12, 1989

For the U.S. Nuclear Regulatory Commission

Date JAN 19 1990

By Original Signed By: Judith A. Joustra

Nuclear Materials Safety Branch
Region I
King of Prussia, Pennsylvania 19406

JAN 19 1990

License No. 08-01738-02
Docket No. 030-01317
Control No. 111200

Department of the Army
U.S. Army Health Professional
Support Agency
ATTN: Charles E. Day, III
Lieutenant Colonel
Radiological Hygiene Consultant
5109 Leesburg Pike
Falls Church, Virginia 22041-3258

Gentlemen:

Please find enclosed an amendment to your NRC Material License.

Please review the enclosed document carefully and be sure that you understand all conditions. If there are any errors or questions, please notify the Region I Material Licensing Section, (215) 337-5239, so that we can provide appropriate corrections and answers.

Please be advised that you must conduct your program involving licensed radioactive materials in accordance with the conditions of your NRC license, representations made in your license application, and NRC regulations. In particular, please note the items in the enclosed, "Requirements for Materials Licensees."

Since serious consequences to employees and the public can result from failure to comply with NRC requirements, the NRC expects licensees to pay meticulous attention to detail and to achieve the high standard of compliance which the NRC expects of its licensees.

You will be periodically inspected by NRC. A fee may be charged for inspections in accordance with 10 CFR Part 170. Failure to conduct your program safely and in accordance with NRC regulations, license conditions, and representations made in your license application and supplemental correspondence with NRC will result in prompt and vigorous enforcement action against you. This could include issuance of a notice of violation, or in case of serious violations, an imposition of a civil penalty or an order suspending, modifying or revoking your license as specified in the General Policy and Procedures for NRC Enforcement Actions, 10 CFR Part 2, Appendix C.

We wish you success in operating a safe and effective licensed program.

Sincerely,

Original Signed By:
Judith A. Joustra

Judith A. Joustra
Nuclear Materials Safety Section A
Division of Radiation Safety
and Safeguards

Enclosures:
1. Amendment No. 57
2. Requirements for Materials Licensees
3. NRC Form 473 - Diagnostic Misadministration Report

cc:
Department of Army
Walter Reed Army Medical Center (WRAMC)
ATTN: Llewellyn E. Piper
LTC, MS
Executive Officer
Washington, D.C. 20307-5001

DRSS:RI
Joustra/pmb

01/11/90

ABOVE CLASS C SOURCE/DEVICE INVENTORY SURVEY

Licensee's (name and address) License #: 08-01738-02
08-01738-03

Licensee Name: Walter Reed AMC
Contact Name: David W. Burton
Title: Chief, Radioactive Material Control
Department: Health Physics Office
Street:
City: Washington State: DC Zip Code: 20307-5001
Phone Number: (301) 427-5104 Ext.:

Provide accurate and complete responses to each question below:

1) How many sealed sources and/or devices do you have that are above Class C (i.e. Am-241 > 27 mCi, Pu-238 or -239 > 27 mCi, Cm-244 > 27 mCi, Cs-137 > 910 Ci, or any other transuranic > 27 mCi with a half-life greater than five years)? Identify each source or device on the attached inventory sheet.

2) How do you dispose of your sources and/or devices? (check appropriate box)

Manufacturer: X
Transfer to another licensee: X
Other: ___

If other, please elaborate: _____

3) a. Are you able to find and use an authorized recipient to purchase, dispose, or store any sources and/or devices that you no longer want? (check one) Yes X No ___

If no, please elaborate: _____

b. Are there any difficulties in using this authorized recipient? (check one) Yes ___ No X

If yes, please elaborate: _____

4) Additional comments - check here ___ and use back of this sheet.

Surveyor: David W. Burton Date: 16 Jan 90

Note: Activity levels described in question 1 were derived from limits established in 10 CFR 61 section 61.55. The levels were based on typical size sources.

License #: 08-01738-02/03

ABOVE CLASS C SOURCE/DEVICE INVENTORY SHEET

Manufacturer	Model #	Type	Isotope	Activity mCi or Ci	Use	Active	Inactive	Explanation
			Cs-137		B Irradiator	✓		
			Cs-137		B	✓		
	Model-43		Cs-137		B	✓		
	NRC-2704		Am-241		O		O	use: Thyroid Scanner, has not been used for a number of years but some future use still anticipated

NOTE: List each source/device separately. If inactive or use is other, please explain.

CODES:

Isotope: Am-241, Cm-244, Cs-137, Pu-238, Pu-239

Inactive: D - Damaged; L - Lost; T - Wants to dispose or transfer; DT - Damaged and wants to dispose or transfer; X - Surplus; O - Other

Use: A - Well logging; B - Irradiator; C - Teletherapy; D - X-ray fluorescence; E - Portable gauges; F - Fixed gauges; G - Broad licenses; H - Pacemakers; I - Waste brokers; O - Other

JAN 11 '90 17:30 RC RI DRSS P.3

MS-16
P-8

DEPARTMENT OF THE ARMY
WALTER REED ARMY MEDICAL CENTER
WASHINGTON, D.C. 20307-5001

REPLY TO
ATTENTION OF:

12 SEP 1989

HSHL-H-HP (385-11a)

MEMORANDUM FOR US Nuclear Regulatory Commission (NRC), Region I, Nuclear Material Safety Section A, 475 Allendale Road, King of Prussia, Pennsylvania 19406

SUBJECT: Amendment to NRC License No. 08-01738-02, Docket No. 030-01317, Control No. 111200

1. Please find the additional information you requested pertaining to the amendment to NRC License Number 08-01738-02, at the enclosure to this letter.

2. Should you have any further questions pertaining to our request please contact Mr. David Burton at (301) 427-5104/5107.

FOR THE COMMANDER

Encl

LLEWELLYN E. PIPER
LTC, MS
Executive Officer

FEE EXEMPT

111200

OFFICIAL RECORD COPY ML10

SEP 18 1989

CURRICULUM VITAE

for

ALLEN W. ANTHONY

Date & Place of Birth:

Home Address:

Home Telephone Number:

Office Address: Health Physics Office
Walter Reed Army Medical Center
Washington, DC 20307-5001

Office Telephone Number: (301) 427-5104

Degrees:

B.S. - Education (Biology)
University of Nebraska
Lincoln, NE 68508

A.S. - X-ray Technology
St. Philip's College
San Antonio, TX (60 hours)

A.S. - Nuclear Medicine Technology
George Washington University
Washington, DC 20037 (60 hours)

Certification: American Registry of Radiologic Technologists
(X-Ray and Nuclear Medicine)

Other Education and Training:

1989 Laser and Microwave Hazards Workshop
US Army Environmental Hygiene Agency
Aberdeen Proving Ground, MD (32 hours)

1988 Introduction to Nuclear Medicine and Radiation Therapy Course
George Washington University
Washington, DC 20037 (42 hours)

Ex 6

ANTHONY, Allen W. (Continuation of Curriculum Vitae)

1988	AMEDD Radiation Protection Officers Workshop US Army Environmental Hygiene Agency Aberdeen Proving Ground, MD (32 hours)
1988	Radiation Service Organization, Inc. Course US Army Environmental Hygiene Agency Aberdeen Proving Ground, MD (32 hours)
1988	Medical Effects of Nuclear Weapons Course Armed Forces Radiobiology Research Institute Bethesda, MD (27 hours)
1988	US Army Medical X-Ray Survey Techniques Course Academy of Health Sciences, US Army Fort Sam Houston, TX (32 hours)
1988	AMEDD Officer Basic Course Academy of Health Sciences, US Army Fort Sam Houston, TX

Chronological Experience:

Feb 1988 - Present	Walter Reed Army Medical Center Washington, DC 20307 Assistant Health Physics Officer Health Physics Office Supervise personnel in conduct of Radiation Protection Surveys for radioisotope laboratories x-ray units, radiotherapy procedures, emergency response, and shielding evaluations.
Oct 1987 - Jan 1988	Academy of Health Sciences, US Army Fort Sam Houston, TX Student AMEDD Officer Basic Course
Sep 1986 - Sep 1987	US MEDDAC Fort Bragg, NC Nuclear Medicine Technologist Nuclear Medicine Service
Nov 1985 - July 1986	Madigan Army Medical Center Fort Lewis, WA Student (Phase II) Nuclear Medicine Service

ANTHONY, Allen W. (Continuation of Curriculum Vitae)

Jun 1985 - Oct 1985	Naval School of Health Sciences Bethesda, MD Student (Phase I) Nuclear Medicine Technology Course (640 hours)
Jan 1983 - May 1985	97th General Hospital Frankfurt, West Germany X-Ray & C.T. Technologist Radiology Department
Oct 1982 - Nov 1982	Walter Reed Army Medical Center Washington, DC 20307-5001 Student (Phase II) Radiology Department
Jun 1982 - Oct 1982	Academy of Health Sciences, US Army Fort Sam Houston, TX Student (Phase I) X-Ray Technology Branch (760 hours)

y 1967, the undersigned verified with the University of Nebraska (T. Fiefler) that this degree is valid.

D. STAFFORD, CPT, MSC

The University of Nebraska

LINCOLN
TEACHERS COLLEGE

THIS DIPLOMA MAKES KNOWN THAT THE BOARD OF REGENTS OF THE UNIVERSITY OF NEBRASKA UPON THE RECOMMENDATION OF THE FACULTY AND BY AUTHORITY OF THE STATUTES OF THE STATE HAS BY ITS OFFICERS SPECIALLY AUTHORIZED HERETO CONFERRED THE DEGREE

BACHELOR OF SCIENCE IN EDUCATION

UPON

ALLEN W. ANTHONY

WHO IS ENTITLED TO ENJOY ALL THE RIGHTS, HONORS AND PRIVILEGES PERTAINING TO THAT DEGREE

IN TESTIMONY WHEREOF WE HAVE HEREUNTO SUBSCRIBED OUR NAMES AND CAUSED THE SEAL OF THE SAID BOARD TO BE AFFIXED AT LINCOLN THIS ELEVENTH DAY OF [ ]

UNIVERSITAS NEBRASKENSIS FEB. 15, 1869

ATTEST:

CORPORATION SECRETARY OF THE BOARD

CHAIRMAN OF THE BOARD

CHA

PRESIDENT OF THE UNIVERSITY

St. Philip's College

San Antonio Texas

ST. PHILIPS COLLEGE · ALAMO COMMUNITY COLLEGE DIST.

Be it Known That

Allen W. Anthony

has completed in a satisfactory manner the course of study as prescribed for graduation from St. Philip's College and is entitled to receive this

Associate of Applied Science

Radiography Technology

on this

Stephen R. Mitchell
President of the College

Gerardo S. Gonzalez
Chairman of Board of Trustees

Gary V. Nelson
Chancellor

Douglas Harlan
Secretary of Board of Trustees

The George Washington University

Washington, District of Columbia

To all persons who read these letters, Greeting:

Be it known that the President, Faculty, and Trustees,
by virtue of the authority granted by The United States of America,
have conferred upon

Allen W. Anthony

the degree of

Associate in Science

together with all the honors, rights, privileges, and responsibilities
thereunto appertaining.

In witness whereof, *we have hereunto affixed the seal of the University,*
and subscribed our names, in Washington, in the District of Columbia,
this [ ]

L. Thompson Bowles
Dean for Academic Affairs
School of Medicine and Health Sciences

Randall B. Emmanuel
Vice President for Medical Affairs
and Chief Executive Officer

THE GEORGE WASHINGTON UNIVERSITY
NORIS
DEUS
FIDUCIA

Lloyd H. Elliott

X-7

On 2 Jun 1987, the undersigned verified with the American Registry of Radiologic Technologist (Shirley) (612-377-8416) that Allen W. Anthony is registered in Nuclear Medicine. Certificate is valid.

D. Stafford
DARRELL E. STAFFORD, CPT, MSC

THE AMERICAN REGISTRY OF RADIOLOGIC TECHNOLOGIST

MINNEAPOLIS, MINNESOTA

Representative of

The American College of Radiology and

The American Society of Radiologic Technologists

HEREBY CERTIFIES THAT

Allen W. Anthony

has pursued an approved educational program in Nuclear Medicine Technology, has met certain standards and qualifications and has passed the examinations conducted under authority of this Registry, and is thus qualified as a

Registered Technologist

Nuclear Medicine Technology

and by virtue of this certificate is authorized to use the title Registered Technologist and its abbreviation R.T. (N) (ARRT) as long as this certificate is in force as is indicated by the date appearing on the seal hereon attached.

Certificate Number 211687

Roland C. McGowan
EXECUTIVE DIRECTOR

DEPARTMENT OF THE ARMY

CERTIFICATE OF TRAINING

This is to certify that

SECOND LIEUTENANT ALLEN W. ANTHONY

has successfully completed

LASER MICROWAVE HAZARDS COURSE
6H-F17
17 - 21 APRIL 1989

Given at U.S. Army Environmental Hygiene Agency
Aberdeen Proving Ground, MD

Penelope K. Galoff
PENELOPE K. GALOFF
Physical Scientist
Course Director

DA FORM 87, 1 OCT 78

OFFICIAL RECORD COPY ML10

111200

DEPARTMENT OF THE ARMY

CERTIFICATE OF TRAINING

This is to certify that

2LT ALLEN ANTHONY

has successfully completed

THE ARMY MEDICAL DEPARTMENT
RADIATION HEALTH SCIENCES COURSE
24-28 Oct 88

Given by: U.S. Army Environmental Hygiene Agency

Arthur B. Webb
LTC, MS
DRES

RSO, Inc.

Radiation Service Organization

CERTIFICATE OF TRAINING

This is to certify that

2LT Allen W. Anthony

has successfully completed

a 32 hour course in

Basic Radiological Health

July 25, 26, 27, 28, 1988

Jack F. Patterson, CHP
Senior Instructor

Gregory D. Smith, MS
Instructor

COURSE DIRECTOR

Daniel G. Caulk
PRESIDENT

Armed Forces Radiobiology Research Institute

Defense Nuclear Agency

Certificate of Completion

This is to certify that

2LT ALLEN W. ANTHONY

has completed 27 hours of

MEDICAL EFFECTS OF NUCLEAR WEAPONS

conducted by the

Armed Forces Radiobiology Research Institute,

Bethesda, Maryland

19 May 1982

DATE

GEORGE W. IRVING, III
Colonel, USAF, BSC
Director

As an organization accredited for continuing medical education, the Naval Health Sciences Education and Training Command designates this continuing medical activity as meeting the criteria for 27 credit hours in Category I of the Physician's Recognition Award of the American Medical Association.

AFRRI FORM 57
15 MAY 83

US Army

This is to certify that

SECOND LIEUTENANT ALLEN W. ANTHONY

has successfully completed the

Medical X-Ray Survey Techniques Course
6H-F18/323-F18

Given at Fort Sam Houston, Texas,

from 24 January 1988 to 5 February 1988 .

Colonel, MS, Dean
Medical Field Service School

Brigadier General, Medical Corps
Commandant

DEPARTMENT OF THE ARMY

CERTIFICATE OF TRAINING

This is to certify that

2LT ALLEN W. ANTHONY

has successfully completed

INTRODUCTORY PRINCIPLES OF RADIATION PROTECTION (Radiation Physics and Instrumentation - 3 hours; Radiation Protection - 2½ hours; Radiation Biology - 1½ hours; Regulations and Guidelines - 1½ hours)

Given at WALTER REED ARMY MEDICAL CENTER WASHINGTON, DC 20307-5001

16 and 17 February 1988

JAMES I. LEWIS, JR.
SSG, USA
Course Director

GERALD M. CONNOCK
MAJ, MS
Health Physics Officer

NAVAL HEALTH SCIENCES EDUCATION AND TRAINING COMMAND

Awards this

CERTIFICATE OF GRADUATION

to

SERGEANT ALLEN W. ANTHONY

who has satisfactorily completed the prescribed course of instruction for

CLINICAL NUCLEAR MEDICINE TECHNICIAN SCHOOL
PHASE II

at

MADIGAN ARMY MEDICAL CENTER
FORT LEWIS
TACOMA, WASHINGTON 98431

23 JULY 1986
Date

P. J. ELSASS, CAPT, NC, USN
Commanding Officer
NAVAL SCHOOL OF HEALTH SCIENCES
BETHESDA, MARYLAND 20814-5033

HSETC 1510/1 (11-83)

№ 8422

NAVAL HEALTH SCIENCES EDUCATION AND TRAINING COMMAND

Awards this

CERTIFICATE OF GRADUATION

to

SERGEANT ALLEN W. ANTHONY

who has satisfactorily completed the prescribed course of instruction for

CLINICAL NUCLEAR MEDICINE TECHNICIAN
PHASE I

at

NAVAL SCHOOL OF HEALTH SCIENCES
BETHESDA, MARYLAND 20814-5033

16 OCTOBER 1985
Date

P. J. Elsass
P. J. ELSASS, CAPT, NC, USN
Commanding Officer

HSETC 1510/1 (11-83)

№ 6230

Academy of Health Sciences, USArmy

Diploma

PRIVATE FIRST CLASS ALLEN W. ANTHONY

has successfully completed the

X-Ray Specialist Course

Given at Fort Sam Houston, Texas
this 19th day of November 19 82

ENRIQUE MENDEZ, Jr., MD
Major General, MC
Commanding

BRIGADIER GENERAL, MEDICAL CORPS, COMMANDANT

OFFICIAL RECORD COPY ML10

111200

SEP 18 1989

CONVERSATION RECORD

TIME 2:40 PM | DATE 8/29/89

TYPE
☐ VISIT ☐ CONFERENCE ☒ TELEPHONE
☒ INCOMING ☐ OUTGOING

Location of Visit/Conference:

NAME OF PERSON(S) CONTACTED OR IN CONTACT WITH YOU	ORGANIZATION (Office, dept., bureau, etc.)	TELEPHONE NO:
David Burton Branch Chief of RAd Control	Walter Reed Med CTR.	(301) 427-5104

ROUTING

NAME/SYMBOL	INT

SUBJECT letter dated July 28, 1989 Lic# 08-01735-02

SUMMARY Need confirmation on training of Allen Anthony did he successfully complete training and does his training & experience meet 10 CFR 35.900 requirements.

Also letter states to add Anthony has Alternate RSO and that by 9/28/89 he will be RSO when current RSO is transferred. Since we are so close to 9/89 Mr. Burton stated that Anthony can be listed as RSO rather than alternate.

Discussed 35 training with Anthony. Shown he did not meet 10/10/90 requirements with Mr. Anthony

ACTION REQUIRED Mr Burton will forward more training + experience for ~~AS~~ 2nd Lt. Anthony

NAME OF PERSON DOCUMENTING CONVERSATION	SIGNATURE	DATE
	D. A. Joustra	8/29/89

ACTION TAKEN

OFFICIAL RECORD COPY ML 10 111200

SIGNATURE	TITLE	DATE

DEPARTMENT OF THE ARMY
U.S. ARMY HEALTH PROFESSIONAL SUPPORT AGENCY
5109 LEESBURG PIKE
FALLS CHURCH, VA 22041-3258

REPLY TO
ATTENTION OF

030-01317

August 17, 1989

Preventive and Military
Medicine Consultants Division

US Nuclear Regulatory Commission
Region I
475 Allendale
King of Prussia, Pennsylvania 19406

Dear Sir:

Enclosed are two copies of a request to amend Byproduct Material License Number 08-01738-02, Walter Reed Army Medical Center, Washington, DC.

Recommend approval.

Sincerely,

Charles E. Day, III
Lieutenant Colonel, U.S. Army
Radiological Hygiene Consultant

Enclosure

111200

OFFICIAL RECORD COPY ML18

AUG 21 1989

DEPARTMENT OF THE ARMY
WALTER REED ARMY MEDICAL CENTER
WASHINGTON, D.C. 20307-5001

REPLY TO
ATTENTION OF:

HSHL-H-HP (385-11m)

28 JUL 1989

MEMORANDUM THRU Commander, US Army Health Services Command, ~~ATTN: HSCL-P,~~ ~~Fort Sam Houston,~~ Texas 78234-6000

Robert Cherry
CTC, MS
11 Aug 89

FOR US Nuclear Regulatory Commission, Region I, Nuclear Material Safety Section A, 475 Allendale Road, King of Prussia, Pennsylvania 19406

SUBJECT: Amendment to US Nuclear Regulatory Commission (NRC) License No. 08-01738-02

1. Please be advised that Major General Richard D. Cameron is the new Commanding Officer of Walter Reed Army Medical Center.

2. Also Colonel Russ Zajtchuk is the new Deputy Commander for Clinical Services and in that capacity is the new Chairman of the Radiation Control Committee of Walter Reed Army Medical Center.

3. Please add Second Lieutenant Allen W. Anthony to NRC License No. 08-01738-02 as an Alternate Radiation Protection Officer (RPO). Second Lieutenant Anthony has served at Walter Reed as the acting Assistant Health Physics Officer since January 1988. Second Lieutenant Anthony will replace Major Gerald M. Connock as the RPO on the License on 28 September 1989 as Major Connock is being transferred.

4. Copies of the curriculum vitae for all gentlemen are enclosed.

3 Encls

LLEWELLYN E. PIPER
LTC, MS
Executive Officer

BIOGRAPHICAL INFORMATION

RICHARD D. CAMERON, M.D., MAJOR GENERAL, USA.

Education:	BA Degree, State University of Iowa	
	MD Degree, State University of Iowa	
	MHA Degree, Baylor University, Texas	
Internship:	Rotating Internship, Brooke Army Medical Center, San Antonio, Texas,	1965-66
Residency:	Psychiatric Residency, Letterman Army Medical Center, San Francisco, California, (with work at Center for Training in Community Psychiatry, Berkeley.	1966-69
Positions:	Commanding Officer, 93d (KO) Neuro-psychiatric Team, RVN,	1969
	Division Psychiatrist, 1st Air Cavalry Divison, RVN,	1970
	Instructor, Behavioral Sciences Divison, Academy of Health Sciences, US Army, Fort Sam Houston, Texas,	1971
	Instructor, US Army Alcohol and Drug Prevention Program, Yale University, FRG	1972
	Project Officer, Deputy Chief of Staff for Professional Activities, HQ, US Army Health Services Command, San Antonio, Texas,	1974
	Chief, Inpatient Psychiatric Service, William Beaumont Army Medical Center, El Paso, Texas,	1974
	Chief, Department of Psychiatry, William Beaumont Army Medical Center, El Paso, Texas,	1974-75
	Chief, Department of Psychiatry, Landstuhl Army Medical Center, 2d General Hospital, FRG	1975-76

Ex 6

Encl 1

Positions (continued)	Divison Surgeon, 3d Armored Division, Frankfurt, FRG,	1976-77
	Commander, 56th General Hospital, Baumholder FRG	1977-79
	Medical Team Chief-Saudi Arabian National Guard Medical Modernization Program,	1980
	Deputy Chief of Staff, Operations, HQ, US Army Health Services Command, Fort Sam Houston, Texas,	1980-1983
	Commander, Darnall Army Community Hospital and III Corps Surgeon, Fort Hood, Texas,	1983-86
	Commanding General, William Beaumont Army Medical Center, El Paso, Texas,	1986-88
	Deputy Assistant Secretary of Defense for Health and Medicine, Washington, D. C.,	1988-89
Current Position:	Commanding General Walter Reed Army Medical Center Washington, D. C.,	1989-
Certificate of License:	Medicine and Surgery, Iowa,	1965
Professional Boards:	Diplomate, American Board of Psychiatry and Neurology,	1973
Professional Societies:	American College of Physician Executives American Psychiatric Associaton Association of Military Surgeons	
Awards:	Legion of Merit (2) Meritorious Service Medal Air Medal Army Commendation Medal (5) Expert Field Medical Badge Parachutist Badge US Army Order of Military Merit	
Military Schooling:	AMEDD Officers' Basic AMEDD Officers' Advanced Command and General Staff College US Army-Baylor Hospital Administration Course Industrial College of the Armed Forces.	

CURRICULUM VITAE

NAME: Russ Zajtchuk

CURRENT STATUS: Colonel, Medical Corps, U. S. Army (Active, Regular)
SSI#: 61K9A, 61J9B
Date of Rank: 7 June 1978

Deputy Commander for Clinical Services
Walter Reed Army Medical Center
Washington, DC 20307-5001

Professor and Chairman
Division of Cardiothoracic Surgery
Uniformed Services University of the Health Sciences
Bethesda, MD 20814

Consultant, Cardiothoracic Surgery
National Naval Medical Center
Bethesda, MD 20814

BOARD CERTIFICATION AND LICENSURE: American Board of Surgery, 1969
American Board of Thoracic Surgery, 1970
Licensed: Colorado and Illinois (current and fully active)

EDUCATION: College: University of Illinois
University of Chicago,

Medical School: University of Chicago,
Degrees:

Internship: University of Chicago, 1963-1964

General Surgery Residency: University of Chicago, 1964-1968

Cardiothoracic Residency: University of Chicago, 1968-1970

PROFESSIONAL EXPERIENCE AND ASSIGNMENTS: University of Chicago, Assistant Professor of Surgery, Jan 1970 - Jul 1970

Chief, Thoracic Surgery, Fort Campbell, Kentucky, 1970-1971

Tour in Vietnam. Served as Chief, Professional Services at 24th Evac Hospital and 3rd Field Hospital. Also served as Consultant in Thoracic Surgery for Vietnam, Sep 1971 - Sep 1972

Ex 6

Encl 2

PROFESSIONAL EXPERIENCE AND ASSIGNMENTS (CONT'D):

Assistant Chief, Thoracic-Cardiovascular Surgery Service, Fitzsimons Army Medical Center, Denver, CO, 1972-1977

Director of Surgical Research, Fitzsimons Army Medical Center, Denver, CO, 1972-1977

Assistant Professor of Surgery, University of Colorado School of Medicine, 1972-1976

Assistant Chief, Thoracic-Cardiovascular Surgery Service, Walter Reed Army Medical Center, Washington, DC, 1980-1981

Chairman and Program Director, National Naval Medical Center, Bethesda, MD, 1980-1981

Chairman and Program Director, Thoracic-Cardiovascular Surgery Service, Walter Reed Army Medical Center, Washington, DC, 1981-1984

Professor and Chairman, Division of Cardiothoracic Surgery, School of Medicine, Uniformed Services University of the Health Sciences, Bethesda, MD, 1981 - Present

Consultant to The Army Surgeon General in Cardiac and Thoracic Surgery, Washington, DC, 1980-1984

Commander, 41st Combat Support Hospital and JTF Surgeon for Honduras, Jul 1983 - Apr 1984

Department of Defense Readiness Review Member for Secretary of Defense, Apr 1984 - Jun 1984

United States Southern Command, Command Surgeon, Quarry Heights, Panama, Jul 1984 - Jul 1985

Student at National Defense University, Aug 1985 - Jun 1986

Surgical Consultant to The Surgeon General, Chief Consultants Division, Jul 1986 - Jul 1988

Deputy Director, Professional Services, Office of The Surgeon General, Jun 1988 - Jun 1989

Chief, Consultants Division, Office of The Surgeon General, Jun 1987 - Jun 1989

MILITARY SCHOOLS/COURSES:	AMEDD Officer Basic, 1970
	AMEDD Officer, Advanced, 1978
	Combat Casualty Course (AMEDD), 1982
	USA Command and General Staff College, 1983
	Baylor University Program in Health Care Administration, 1986
	Industrial College of the Armed Forces, 1986
SOCIETIES:	American College of Surgeons
	Association of Military Surgeons
	Society for Thoracic Surgeons
	Sigma Xi
	The Western Thoracic Surgical Society
	American Association for Thoracic Surgery
	American College of Cardiology
	Association of Training Program Directors
CIVILIAN AWARDS/HONORS:	NSF Fellowship, 1961 - 1962
	Chicago Surgical Society Award for Surgical Research, 1965 (1st Prize)
	Certificate of Merit from AMA for Exhibit on Hypercoagulability, 1976
	Won Second Place at Southeastern Surgical Congress, Exhibit on Hypercoagulability, 1977
	Dominique Larey Award for Excellence in Military Surgery, Awarded by USUHS, 1989
MILITARY AWARDS - U.S.:	Department of Defense Superior Service Medal
	Legion of Merit with Oak Leaf Cluster (One from the Air Force)
	Bronze Star
	Deparment of Defense Meritorious Service Medal

MILITARY AWARDS - U.S.: (CONT'D)	Meritorious Service Medal with Two Oak Leaf Clusters (One from the Navy)
	Department of Defense Commendation Medal
	Army Commendation Medal with Oak Leaf Cluster
	Army Achievement Medal
	Humanitarian Assistance Medal
MILITARY AWARDS - FOREIGN	Vietnamese Cross of Gallantry
	Vietnamese Civic Action Medal
	Honduran Merit Medal, First Class
MILITARY PROFESSIONAL AWARD:	Awarded 'A Prefix' by The Surgeon General for Outstanding Performance in Cardiothoracic Surgery
PUBLICATIONS:	Dawson, D., Allen, J.G., and Zajtchuk, R.: Monoalkylating Agents as therapeutic agents in plasma sterilization and plasma protein stabilization. J. Surg Res., 2:31-35, 1962.
	Dawson, D., Zajtchuk, R., and Allen, J.G.: Use of chemotherapeutic agents for possible bacterial and viral contamination of blood. J. Surg. Res., 3:97-100, 1963.
	Dawson, D. and Zajtchuk, R.: Effect of rapid rewarming on tissue survival after deep freezing injury. Research and proceedings of the Institute of Medicine Bulletin (Chicago), Mar, 1963.
	Dawson, D., Zajtchuk, R., and Allen, J.G.: Infectious hepatitis and the role of chemotherapeutics in viral disease transmitted by blood transfusions. J. Surg. Res., 4:47-53, 1964.
	Dawson, D. and Zajtchuk, R.: 'Use of chloracetate and formaldehyde as plasma additives in instability heat denaturation of plasma proteins. J. Clin. Chem., 10:793-799, 1964.
	Kahan, B.D., Zajtchuk, R., Dawson, D., and Adams, W.G.: The kinetics of sensitization with whole and fractioned mouse spleen cells. Dis. Chest, 46:452-456, 1964.

PUBLICATIONS:
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Gago, O., Zajtchuk, R., Nigro, S., and Adams, W.E.: Canine pulmonary homografts with uncontrolled cross-circulation. J. Thor. Cardiovasc. Surg., 50:775-780, 1965.

Adams, W.G., Gago, O., and Zajtchuk, R.: Use of azathioprine in homotransplantation of pulmonary tissue. Bull. Soc. Int. Chi., 25:631-638, 1966.

Block, G.E., Evans, R., and Zajtchuk, R.: Splenectomy for idiopathic thrombocytopenic purpura. Arch. Surg., 92:434-489, 1966.

Zajtchuk, R., Ake, V., Hamouda, I., Moulder, P.V., and Adams, W.E.: Maintenance of the circulation in cardiac asystole by the mechanical pulsator. Trans. Amer. Soc. Artif. Intern Organs, Vol. XII, 1966.

Zajtchuk, R., Kahan, B.D., and Adams, W.E.: The tissue distribution of a water soluble transplantation antigen. Dis. Chest, 50:368-371, 1966.

Evans, R., Zajtchuk, R., and Menguy, R.: Role of vagotomy and gastric drainage in the surgical treatment of duodenal ulcer (Result of 10-year experience at the University of Chicago Hospitals). Surg. Clin. N. Amer., 47:141-146, 1967.

Zajtchuk, R., Gago, O., and Adams, W.E.: Homotransplantation of the lung (influence of quantity of antigen on the survival of the graft). J. Thor. Cardiovasc. Surg., 53:109-115, 1967.

Zajtchuk, R., Amato, J., Paloyan, E., and Baker, R.: Inhibition of external pancreatic secretion by glucagon. Surg. Forum, 18:410-411, 1967.

Zajtchuk, R., Mamouda, F., Moulder, P.V., and Adams, W.E.: Maintenance of Circulation in cardiac asystole by the mechanical pulsator. Dis Chest, 1967.

Bauer, R.J., Bass, R.T., Zajtchuk, R., and Strohl, E.L.: External pancreatic fistula following abdominal injury. Arch. Surg., 95:556-566, 1967.

Zajtchuk, R. and Baker, R.: Effects of hypoglycemia on external pancreatic secretion. J. Trauma, 9:629-637, 1969.

PUBLICATIONS:
(CONT'D)

Menguy, R., Gadacz, R., and Zajtchuk, R.: Surgical management of acute gastric mucosal bleeding. Arch. Surg., 99:198-208, 1969.

Zajtchuk, R., Yacoub, M.H., and Kittle, C.F.: Spontaneous A-V fistula between common iliac vessels. Surgery, 69:194-200, Feb 1971.

Geis, P., Johnson, C.F., Zajtchuk, R., and Kittle, C.F.: Extrapericardial (mediastinal) cardiac tamponade. Arch. Surg., 100:305-306, 1970.

Daily, R., Ranniger, K., Zajtchuk, R., Evans, R., and Moulder, P.V.: Serum and plasma infusion in human pulmonary artery: Embolic implications. Arch. Surg., 101:26-31, Jul, 1970.

Baker, R.J., Zajtchuk, R., and Shoemaker, W.C., et al: Physiologic studies on external pancreatic secretion in man. Bull. Soc. Int. Chir., 27:81-88, 1968.

Zajtchuk, R., Resnekor, L., Ranniger, K., and Gonzales-Lavin, L.: Traumatic aorta to pulmonary artery fistula. Thoracic, 26(2):219, 1971.

Gonzales-Lavin, L. and Zajtchuk, R.: Surgical considerations in the treatment of acute acquired ventricular septal defect. Thorax, 26:610-614, Sep 1971.

Zajtchuk, R., Gonzales-Lavin, L., and Replogle, R.: Pulmonary artery aneurysm associated with ASD and absent pulmonary valve. J. Thorac. Cardiovasc. Surg. 65:699-701, May 1973.

Zajtchuk, R., Strevey, T., Heydorn, W., and Treasure, R.: Mediastinal histoplasmosis: Surgical considerations. J. Thorac. Cardiovasc. Surg., 66:300-304, Aug 1973.

Zajtchuk, R., Guiton, C.R., Sadler, T.R., Heydorn, W.H., and Strevey, T.E.: Surgical treatment of pulmonary melioidosis. J. Thorac. Cardiovasc. Surg., 66:838, Nov 1973.

Heydorn, W.H., Barry, M.J., Zajtchuk, R., and Strevey, T.W.: Tumor embolus death during pneumonectomy. J. Thorac. Cardiovasc. Surg., 67:308-309, Feb 1974.

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Zajtchuk, R., Fitterer, J., Strevey, T.E., and Nelson, W.P.: Bilateral atrial myxoma (Preoperative diagnosis and successful removal). J. Thorac. Cardiovasc. Surg., 69:291-294, Feb 1975.

Zajtchuk, R., Seyfer, A.E., and Strevey, T.E.: Use of intercostal muscle in primary repair of esophageal atresia with tracheoesophageal fistula. Ann. Thorac. Surg., 19:239-241, Mar 1975.

Zajtchuk, R., Corby, D.B., Miller, J.G., and O'Barr, T.P.: Treatment of digoxin toxicity with activated charcoal. Am. J. Cardiol. 35:178, Jan 1975.

Collins, G.J. and Zajtchuk, R.: Hypercoagulability in mesenteric venous occlusion: Report of two cases. Am. J. of Surg., 132(3):390-391, Sep 1976.

Collins, G.J., and Zajtchuk, R.: Hypercoagulability in patients with peripheral vascular disease. Am. J. Surg., 13c(1):2-6, Jul 1975.

Zajtchuk, R., et al: Revascularization of the heart through coronary veins, Ann. Thorac. Surg., 21(4):318-321, Apr 1976.

Heydorn, W.H., and Zajtchuk, R., et al: Surgical management of pectus deformity. Ann. Thorac. Surg., 23(5):417-420, May 1977.

Zajtchuk, R., and Collins, G.J., et al: Coagulation factors influencing thrombosis of aortocoronary bypass grafts. J. Thor. Cardiovasc. Surg., 73:309, 1977.

Collins, G.J. and Zajtchuk, R., et al: The effects of operative stress on the coagulation profile. Am. J. of Surg., 133:612, May 1977.

Seyfer, A.E. and Zajtchuk, R.: A clinical analysis of Ewing's sarcoma of the chest wall. Military Medicine, 142(10):778-779, Oct 1977.

Heydorn, W.H. and Zajtchuk, R., et al: Gore-Tex grafts for replacement of the superior vena cava. Ann. Thorac. Surg., 23(6):539-544, Jun 1977.

Bode, R. and Zajtchuk, R.: Evaluation of saphenous vein bypass surgery using multistage treadmill test and ventricular function studies. J. Thorac. Cardiovasc. Surg., 74:44, 1977.

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Zajtchuk, R. and Collins, G.J.: Coagulation abnormalities in patients undergoing myocardial revascularization. J. Thorac. Cardiovasc. Surg., 75:168, 1978.

Bowen, T.E., Brott, W.H., and Zajtchuk, R., et al: Thoracic traction for median sternotomy dehiscence. Ann. Thorac. Surg., 25, 1978.

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Zajtchuk, R., Seyfer, A.E., et al: Intrathoracic ganglioneuroblastoma. J. Thorac. Cardiovasc. Surg., 80(4):605-612, Oct 1980.

Chun, P., Leeburg, W.T., Coggin, J.T., and Zajtchuk, R.: Primary pericardial malignant epithelioid mesothelioma. Chest, 77, 558-561, Apr 1980.

Zajtchuk, R., Bowen, T.E., Albus, R.A., and Brott, W.H.: Surgical treatment of left main equivalent coronary artery disease. J. Thorac. Cardiovasc. Surg., 78(3):452-454, Sep 1979.

Bowen, T.E. and Zajtchuk, R.: Isolated mitral valve replacement with Kay Shiley disc valve (long-term followup). J. Thorac. Cardiovasc. Surg., 80(1):45-49, Jul 1980.

Graeber, G.M., Synder, T.R., Zajtchuk, R., and Brott, W.H.: A comparison of serum isoenzyme levels of creatinine phosphokinase and lactic dehydrogenase in patients undergoing thoracic operations and patients admitted to coronary care unit. Ann. of Thorac. Surg., 30(4):364-369, Oct 1980.

Bowen, T.E., Brott, W.H., Green, D., Zajtchuk, R.: Coarctation of the aorta with left aortic arch and right descending aorta: Case report. Military Medicine, 145(2), Feb 1980.

PUBLICATIONS:
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Graeber, G.M., Zajtchuk, R., et al: An analysis of the isoenzymes of creatinine phosphokinase and lactic dehydrogenase in the esophagus. Ann. of Thorac. Surg., 32(3), 230-234, Sep 1981.

Brott, W.H., Zajtchuk, R., et al: Incidence of thromboembolism in patients with Bjork-Shiley prosthesis on aspirindipyridamole treatment. J. of Thorac. Cardiovasc. Surg., 81(4):632-635, Apr 1981.

Gibelly, G., and Zajtchuk, R.: Diagnosis and treatment of desmoid tumors: A review. Military Medicine, 147(4):278-284, Apr 1982.

Bowen, T. and Zajtchuk, R.: Diaphragmatic paralysis managed by diaphragmatic replacement. Ann. of Thorac. Surg., 33:184-185, Feb 1982.

Zajtchuk, R., Nelson, W.P., and Collins, G.J.: Ischemic heart disease and coronary thrombosis, Chapter 7, pp. 215-240, in Vascular Occlusive Disorders, Futura Publishing Company, Inc., Mount Kisco, New York, 1981.

Zajtchuk, R. and Zajtchuk, J.: Relationship of triglyceride levels to thrombosis in patients with coronary artery disease. Published in the Ann. Thorac. Surg. 1980.

Graeber, G., Grishkin, B., Cohen, D.J., and Zajtchuk, R.: A technique for successful replacement of the esophagus with an interposed substernal colon segment. Contemporary Surgery, pp. 17-26, Apr 1983.

Sherrill, P.J., Grishkin, B.A., Galal, F.S., Zajtchuk, R., and Graeber, G.M.: Radiation association malignancies of the esophagus. Cancer, 54:726, 1984.

Cohen, D.J., Ronningen, L.D., Graeber, G.M., Deshong, J.L., Jaffin, J. and Zajtchuk, R.: Management of patients with malignant thymoma. J. Thorac. Cardiovasc. Surg., 87(2):301-307, Feb 1984.

Graeber, G.M., Cafferty, P.J., Wolf, R.E., Cohen, D.J., and Zajtchuk, R.: Creatine kinase (CK) and lactic dehydrogenase (LD) in the muscles encountered during median sternotomy and in the myocardium of the cardiac chambers. J. Thorac. Cardiovasc. Surg., 89(5):700-705, May 1985.

PUBLICATIONS:
(CONT'D)

Graeber, G.M. Thompson, L.D., Cohen, D.J., Ronnigen, L.D., Jaffin, J. and Zajtchuk, R.: Cystic lesions of the thymes: An occasionally malignant cervical and/or anterior mediastinal mass. J. Thorac. Cardiovasc. Surg., 87(2):295-300, Feb 1984.

Watkins, M.T., Sharefkin, J.B., Zajtchuk, R., Maciag, T.M., D'Amore, P.A., Ryan, U.S., Wart, H.V., Rich, N.M.: Adult human saphenous vein endothelial cells: Assessment of their reproductive capacity for use in endothelial seeding of vascular prostheses. J. Surg. Research 36:588-596, 1984.

Zajtchuk, R., Antopol, M.R., Graeber, G.M.: Thoracic Trauma, Medical Bulletin, 41(12):3-7, 1984.

Graeber, G.M., Cohen, D.J., Patrick, D.H., Wolf, R.E., Hotard, M.C., and Zajtchuk, R.: Rib fracture healing in experimental flail chest. Journal of Trauma 25:903-908, 1985.

Cohen, D.J., Benjamin, S.B., Graeber, G.M., Zajtchuk, R., Castell, D.O., and Patrick, D.H.: Evaluation of the Agelchik Antireflux prosthesis using a model for esophageal reflux in rhesus monkeys. Ann. Thorac. Surg. 41:135-142, 1986.

Graeber, G.M. and Zajtchuk, R.: Changes in serum creatine kinase and lactic dehydrogenase caused by acute perioperative myocardial infarction and by transatrial cardiac surgical procedures. J. Thorac. Cardiovasc. Surg., 92:63-72, Jul 1986.

Fall, S.M., Burton, N.A., Graeber, G.M., Mead, M.D., Lough, F.C., Albus, R.A., Zajtchuk, R.: Prevention of ventricular fibrillation after myocardial revascularization. Ann. Thorac. Surg. 43:182-184, Feb 1987.

Graeber, G.M. and Zajtchuk, R.: Serum creatine kinase and lactic dehydrogenase isoenzyme levels in patients after major esophageal surgery, esophageal dilatation, and acute myocardial infarction. Ann. Thorac. Surg., 43:279-284, Mar 1987.

Graeber, G.M. and Zajtchuk, R.: A comparison of patients with endoscopic esophageal perforations and patients with Boerhaave's Syndrome. Chest. 92:995-998, Dec 1987.

PUBLICATIONS: (CONT'D)

Edwards, F.H., Zajtchuk, R.: Use of a Bayesian statistical model for risk assessment in coronary artery surgery. Ann. Thorac. Surg.

Burton, W.A., Graeber, G.M., Zajtchuk, R.: An alternative method of ventricular venting. The pulmonary artery pump. Chest 85:814, 1984.

Edwards, F.M. and Zajtchuk, R.: A Quality Assurance Model of Operation Mortality for coronary artery surgery. Ann. Thorac. Surg.

Zajtchuk, R., Brown, F., Rumbaugh, J.: Medical Success in El Salvador, Military Medicine, Feb 1989.

PRESENTATIONS:

Soluble Transplantation Antigen. Presented at Chicago Surgical Society Meeting in 1965. (Awarded prize for best surgical research in 1965.)

Maintenance of Circulation with a Mechanical Cardiac Pulsator. Presented at the Meeting of the American Society for Artificial Organs in 1966.

Maintenance of Circulation with a Mechanical Cardiac Pulsator. Presented at 32nd Annual Meeting of American College of Chest Physicians, June 1966. (Received certificate of merit)

Inhibition of External Pancreatic Secretion by Glucagon. Presented at Surgical Forum in 1967.

Treatment of Digoxin Toxicity with Activated Charcoal. Presented at the 24th Annual Scientific Session of American College of Cardiology, 1974.

Measurement of Heart Valve Cross Section Area by Electrical Impedance. Presented at Biomedical Engineering Society, Apr 1975.

Coagulation Abnormalities in Patients Undergoing Myocardial Revascularization. Presented at Seminar on Thrombosis Research, May 1977, Walter Reed Army Medical Center.

Coagulation Abnormalities in Patients Undergoing Myocardial Revascularization. Presented at Samson Thoracic Society, Jun 1977.

Use of Intra-Aortic Balloon in Left Main Coronary Artery Lesions. Presented at the Army Cardiology Meeting, May 1978.

PRESENTATIONS: (CONT'D)

Surgical Treatment of Left Main and Left Main Equivalent Coronary Artery Disease. Presented at University of Chicago, Jun 1978.

Left Ventricular to Aortic Stenosis. Presented at Cardiology Symposium, Madigan Army Medical Center, May 1979.

Asymptomatic Left Main Coronary Artery Disease (Clinical Profile). Presented at Military Cardiology Meeting, San Francisco, May 1980.

A Comparison of Serum Isoenzyme Levels of CPK and LDH in Patients Undergoing Thoracic Operations and Patients Admitted to Coronary Care Unit. Presented at Thoracic Surgery Society Meeting, Jan 1980.

Symposium Director for "The First Annual USUHS Cardiothoracic Surgery Symposium". Presented at Uniformed Services University of the Health Sciences, Bethesda, MD, Oct 1982.

Cardiac Trauma. Presented at the Hospital of the University of Pennsylvania, Nov 1982.

Evaluation of the Angelchik Antireflux Prosthesis using a Model for Esophageal Reflux in Rhesus Monkeys. Presented at the Southwestern Surgical Congress, 36th Annual Meeting, Hawaii, Apr 1984.

Preventing Ventricular Fibrillation after Aortic Cross Clamping. Presented at the Army Cardiology Meeting, Apr 1984.

The Use of Computerized Tomography (CT) in the Evaluation of Mediastinal Masses. Presented at the Western Thoracic Surgical Association, Jun 1985.

Results of Coronary Artery Bypass Grafting in Young Patients. Presented at the American College of Chest Physicians, 1985.

Central America - An Overview with Emphasis on Honduras. Presented at 22nd Medical Symposium of the 94th U.S. Army Reserve Command, October 1988.

MOVIES:

Apical Left Ventricular Aortic Bypass - A Method for Relief of Left Ventricular Outflow Obstruction (Presented at the Annual Meeting of the Society of Thoracic Surgeons, Los Angeles, CA, Jan 1981.

MOVIES: (CONT'D)	Resection of Giant Cell Tumor Involving the Clavicle and Chest Wall. (Presented at the Annual Meeting of the Society of Thoracic Surgeons, San Francisco, CA, Jan 1983).
	Surgical Management of Sinus of Valsalva Fistula. Presented at American College of Surgery, 1984.
SCIENTIFIC EXHIBITS:	Hypercoagulability - Importance in Surgical Practice. (Won Second Place at Southeastern Surgical Congress, Apr 1977).
	Different Techniques for Replacing the Esophagus with Interposed Colon. (Presented at the 68th Annual Clinical Congress of the American College of Surgeons, Chicago, IL, Oct 1982.
	The Use of Muscle and Musculo-Cutaneous Flaps for Reconstruction of Thoracic Defects. (Presented at the 68th Annual Clinical Congress of the American College of Surgeons, Chicago, IL, Oct 1982).
	Medicine in Low Intensity Conflict (Presented at AMSUS, 1987).
	Surgical Treatment of Snake Bites (Presented at AMSUS, 1987).
	Management of Primary Cardiac Tumors. Displayed at The 69th Clinical Congress of the American College of Surgeons, 1983 and the 33rd Scientific Session of American College of Cardiology, 1984.
BOOKS:	Senior Editor of 18 Volume Series on Military Medicine.

CURRICULUM VITAE

for

ALLEN W. ANTHONY

Date & Place of Birth:		[redacted]
Home Address:		[redacted]
Home Telephone Number:		[redacted]
Office Address:		Health Physics Office Walter Reed Army Medical Center Washington, DC 20307-5001
Office Telephone Number:		(301) 427-5104
Degrees:	B.S. -	Education (Biology) University of Nebraska Lincoln, NE 68508
	A.S. -	X-ray Technology St. Philip's College San Antonio, TX
	A.S. -	Nuclear Medicine Technology George Washington University Washington, DC 20037
Certification:		American Registry of Radiologic Technologists (X-Ray and Nuclear Medicine)

Other Education and Training:

1989	Laser and Microwave Hazards Workshop US Army Environmental Hygiene Agency Aberdeen Proving Ground, MD
1988	Introduction to Nuclear Medicine and Radiation Therapy Course George Washington University Washington, DC 20037

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Encl 3

ANTHONY, Allen W. (Continuation of Curriculum Vitae)

1988	AMEDD Radiation Protection Officers Workshop US Army Environmental Hygiene Agency Aberdeen Proving Ground, MD
1988	Radiation Service Organization, Inc. Course US Army Environmental Hygiene Agency Aberdeen Proving Ground, MD
1988	Medical Effects of Nuclear Weapons Course Armed Forces Radiobiology Research Institute Bethesda, MD
1988	US Army Medical X-Ray Survey Techniques Course Academy of Health Sciences, US Army Fort Sam Houston, TX
1988	AMEDD Officer Basic Course Academy of Health Sciences, US Army Fort Sam Houston, TX

Chronological Experience:

Feb 1988 - Present	Walter Reed Army Med. Ctr. Washington, DC 20307 Assistant Health Physics Officer Health Physics Office Supervise personnel in conduct of radiation protection surveys for radioisotope laboratories x-ray units, radiotherapy procedures, emergency response, and shielding evaluations.
Oct 1987 - Jan 1988	Academy of Health Sciences, US Army Fort Sam Houston, TX Student AMEDD Officer Basic Course
Sep 1986 - Sep 1987	USA MEDDAC Fort Bragg, NC Nuclear Medicine Technologist Nuclear Medicine Service
Nov 1985 - July 1986	Madigan Army Medical Center Fort Lewis, WA Student (Phase II) Nuclear Medicine Service

ANTHONY, Allen W. (Continuation of Curriculum Vitae)

Jun 1985 - Oct 1985	Naval School of Health Sciences Bethesda, MD Student (Phase I) Nuclear Medicine Technology Course
Jan 1983 - May 1985	97th General Hospital Frankfurt, West Germany X-Ray & C.T. Technologist Radiology Department
Oct 1982 - Nov 1982	Walter Reed Army Medical Center Washington, DC 20307 Student (Phase II) Radiology Department
Jun 1982 - Oct 1982	Academy of Health Sciences, US Army Fort Sam Houston, TX Student (Phase I) X-Ray Technology Branch

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MATERIALS LICENSE

Amendment No. 58

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974 (Public Law 93-438), and Title 10, Code of Federal Regulations, Chapter I, Parts 30, 31, 32, 33, 34, 35, 40 and 70, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, possess, and transfer byproduct, source, and special nuclear material designated below; to use such material for the purpose(s) and at the place(s) designated below; to deliver or transfer such material to persons authorized to receive it in accordance with the regulations of the applicable Part(s). This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954, as amended, and is subject to all applicable rules, regulations and orders of the Nuclear Regulatory Commission now or hereafter in effect and to any conditions specified below.

Licensee	
1. Department of the Army Walter Reed Army Medical Center (WRAMC) 2. Washington, D.C. 20307-5001	3. License number 08-01738-02 is amended in its entirety to read as follows: 4. Expiration date April 30, 1993 5. Docket or Reference No. 030-01317

6. Byproduct, source, and/or special nuclear material	7. Chemical and/or physical form	8. Maximum amount that licensee may possess at any one time under this license
A. Any byproduct material with atomic numbers 1-83	A. Any	A. 400 millicuries of each radionuclide with a total possession limit of 26 curies
B. Iodine 131	B. Any	B. 2 curies
C. Xenon 133	C. Any	C. 2 curies
D. Krypton 85	D. Any	D. 1 curie
E. Gold 198	E. Any	E. 1 curie
F. Phosphorus 32	F. Any	F. 2 curies
G. Carbon 14	G. Any	G. 2 curies
H. Iodine 125	H. Any	H. 1 curie
I. Iridium 192	I. Any	I. 1 curie
J. Chromium 51	J. Any	J. 750 millicuries
K. Sulfur 35	K. Any	K. 1 curie
L. Hydrogen 3	L. Any	L. 5 curies
M. Molybdenum 99	M. Molybdenum 99/ Technetium 99m Generators	M. 23 curies
N. Technetium 99m	N. Any	N. 23 curies
O. Strontium 90	O. Sealed sources	O. 500 millicuries
P. Cesium 137	P. Sealed sources	P.
Q. Gadolinium 153	Q. Sealed sources	Q.
R. Iodine 125	R. Sealed sources (Norland Inst. Co., Model 178A591A)	R. 400 millicuries
S. Iodine 125	S. Sealed sources (3M Company seeds)	S. 500 millicuries
	T. Sealed sources (AECL Models C235 or C324, or Amersham Corp Model IMC.P2)	T. 4 sources, not to exceed 300 millicuries each
U. Cesium 137	U. Sealed sources	U.
V. Cobalt 60	V. Sealed sources	V.

Information in this record was deleted in accordance with the Freedom of Information Act, exemptions 2
2006-0238

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License number 08-01738-02

Docket or Reference number 030-01317

Amendment No. 58

MATERIALS LICENSE
SUPPLEMENTARY SHEET

(Items 6., 7. & 8. continued)

6. Byproduct, source, and/or special nuclear material	7. Chemical and/or physical form	8. Maximum amount that licensee may possess at any one time under this license
W. Americium 241	W. Any	W. 100 microcuries
X. Americium 241	X. Sealed source [ ]	X. [ ]
Y. Nickel 63	Y. Sealed sources and foils	Y. 1 curie
Z. Iodine 129	Z. Sealed sources	Z. 1 curie
AA. Thorium	AA. Any	AA. 5 kilograms
BB. Uranium	BB. Any	BB. 50 kilograms
CC. Uranium depleted in Uranium 235	CC. Plated Metal	CC. 400 kilograms
DD. Americium 241	DD. Sealed sources	DD. [ ]
EE. Cesium 137	EE. Sealed source [ ]	EE. [ ]
FF. Cesium 137	FF. [ ]	FF. [ ]

9. Authorized use

A. through T. Medical research, diagnosis, and therapy; research and development as defined in 10 CFR 30.4(q).
U. through Z. Research and development as defined in 10 CFR 30.4(q); teaching.
AA. and BB. Teaching and laboratory research.
CC. Shielding
DD. Standards and reference sources.
EE. In an [ ] for calibration of instruments.
FF. Instrument calibration.

CONDITIONS

10. Location of use:

Walter Reed Army Medical Center, Washington, D. C.; WRAMC Forest Glen Section and Annex, Silver Spring, Maryland; U.S. Army Medical Research Institute for Infectious Diseases, Fort Detrick, Frederick, Maryland; Andrew Rader Army Clinic, Fort Myer, Virginia; Walter Reed Army Institute of Research Animal Holding Facility, Fort Meade, Maryland; U.S. Army Medical Laboratory, WRAMC Department of Pathology, Fort Meade, Maryland; and U.S. Army Institute of Dental Research Facility, Fort Meade, Maryland; Rickman Building, 13 Taft Court, Rockville, Maryland; Key West Research Center, 9620 Medical Center Drive, Rockville, Maryland.

11. Radiation Safety Officer: Second Lieutenant Allen W. Anthony.

12. A. Licensed material shall be used by, or under the supervision of, individuals designated by the licensee's Radiation Safety Committee, Col. Russ Zajtchuk, Chairman.

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MATERIALS LICENSE
SUPPLEMENTARY SHEET

(12. continued) CONDITIONS

B. The use of licensed material in or on humans shall be by a physician as defined in Section 35.2 of 10 CFR Part 35.

C. Physicians designated to use licensed material in or on humans shall meet the training criteria established in 10 CFR Part 35, Subpart J.

13. Experimental animals administered licensed materials or their products shall not be used for human consumption.

14. In lieu of using the conventional radiation caution colors (magenta or purple on yellow background) as provided in Section 20.203(a)(1), of 10 CFR Part 20, the licensee is hereby authorized to label detector cells and cell baths, containing licensed material and used in gas chromatography devices, with conspicuously etched or stamped radiation caution symbols without a color requirement.

15. Detector cells containing titanium tritide foil shall only be used in conjunction with a properly operating temperature control mechanism which prevents foil temperatures from exceeding 225 degrees Centigrade.

16. Detector cells containing scandium tritide foil shall only be used in conjunction with a properly operating temperature control mechanism which prevents foil temperatures from exceeding 325 degrees Centigrade.

17. Notwithstanding the requirements of 10 CFR 35.49 (a) and (b), the licensee may use for medical use any byproduct material or reagent kit for which the Food and Drug Administration has accepted a "Notice of Claimed Investigational Exemption for a New Drug" (IND).

18. The licensee may transport licensed material in accordance with the provisions of 10 CFR Part 71, "Packaging and Transportation of Radioactive Material".

19. If only a single radionuclide specified in NUREG 0767, is possessed, the possession limit is the quantity specified in Schedule of Limiting Possession Limits, NUREG-0767. If two or more radionuclides are possessed, the possession limit for each is determined as follows: the sum of the quotients of the quantities possessed divided by the quantities of those radionuclides specified in the Schedule of Limiting Possession Limits, NUREG-0767 shall not exceed unity.

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License number
08-01738-02

Docket or Reference number
030-01317

Amendment No. 58

(Continued) CONDITIONS

20. This license is based on the licensee's statements and representations listed below:

A. Application dated July 18, 1979
B. Letter dated January 13, 1984
C. Letter dated May 8, 1987
D. Letter dated March 16, 1988
E. Letter dated March 28, 1988
F. Application dated August 5, 1988
G. Letter dated September 23, 1988
H. Letter dated July 28, 1989
I. Letter dated September 12, 1989
J. Letter dated January 19, 1990

For the U.S. Nuclear Regulatory Commission

Date APR 13 1990

By Original Signed By:
Mohamed M. Shanbaky
Nuclear Materials Safety Branch
Region I
King of Prussia, Pennsylvania 19406

APR 13 1990

License No. 08-01738-02
Docket No. 030-01317
Control No. 112003

Department of the Army
Walter Reed Army Medical Center
ATTN: Llewellyn E. Piper, LTC, MS
Executive Officer
Washington, D.C. 20307-5001

Gentlemen:

Please find enclosed an amendment to your NRC Material License.

Please review the enclosed document carefully and be sure that you understand all conditions. If there are any errors or questions, please notify the Region I Material Licensing Section, (215) 337-5239, so that we can provide appropriate corrections and answers.

Please be advised that you must conduct your program involving licensed radioactive materials in accordance with the conditions of your NRC license, representations made in your license application, and NRC regulations. In particular, please note the items in the enclosed, "Requirements for Materials Licensees."

Since serious consequences to employees and the public can result from failure to comply with NRC requirements, the NRC expects licensees to pay meticulous attention to detail and to achieve the high standard of compliance which the NRC expects of its licensees.

You will be periodically inspected by NRC. A fee may be charged for inspections in accordance with 10 CFR Part 170. Failure to conduct your program safely and in accordance with NRC regulations, license conditions, and representations made in your license application and supplemental correspondence with NRC will result in prompt and vigorous enforcement action against you. This could include issuance of a notice of violation, or in case of serious violations, an imposition of a civil penalty or an order suspending, modifying or revoking your license as specified in the General Policy and Procedures for NRC Enforcement Actions, 10 CFR Part 2, Appendix C.

We wish you success in operating a safe and effective licensed program.

Sincerely,

Original Signed By:
Mohamed M. Shanbaky
for Josephine Piccone, Ph.D.
Nuclear Materials Safety Section A
Division of Radiation Safety
and Safeguards

Enclosures:
1. Amendment No. 58
2. Requirements for Materials Licensees
3. Requirements for Medical Licensees

DRSS:RI
Tripp/pmb
04/12/90

DRSS:RI
Piccone
04/12/90

030-01017

DEPARTMENT OF THE ARMY
OFFICE OF THE SURGEON GENERAL
5109 LEESBURG PIKE
FALLS CHURCH, VA 22041-3258

REPLY TO
ATTENTION OF

February 1, 1990

Preventive and Military
Medicine Consultants Division

US Nuclear Regulatory Commission
Region I
475 Allendale
King of Prussia, Pennsylvania 19406

Dear Sir:

Enclosed are two copies of a request to amend Byproduct Material License Number 08-01738-02, Walter Reed Army Medical Center, Washington, DC.

Recommend approval.

Sincerely,

Charles E. Day, III
Lieutenant Colonel, U.S. Army
Radiological Hygiene Consultant

Enclosure

FEE EXEMPT

'90 FEB -5 P6:17

RECEIVED-REGION I

112003

FEB 05 1990

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DEPARTMENT OF THE ARMY
WALTER REED ARMY MEDICAL CENTER
WASHINGTON, D.C. 20307-5001

REPLY TO
ATTENTION OF:

19 JAN 1990

HSHL-H-HP (385-11m)

MEMORANDUM THRU

Commander, US Army Health Services Command, ATTN: ~~HSCL-P, Fort Sam Houston, TX 78234-6000~~ RC 24 Jan 90

HQDA (SGPS-PSP-E), 5109 Leesburg Pike, Falls Church, VA 22041-3258

FOR: US Nuclear Regulatory Commission, Region I, Nuclear Material Safety Section A, 475 Allendale Road, King of Prussia, PA 19406

SUBJECT: Amendment of US Nuclear Regulatory Commission License No. 08-01738-02

1. Request that NRC License No. 08-01738-02 for Walter Reed Army Medical Center be amended to include an additional location where radioactive material will be used, Form NRC-313M, Item 1b (Enclosure 1). All existing procedures instituted by the Health Physics Office to ensure the safe handling of radioactive material in a laboratory environment will apply at this location.

2. Enclosed is a floor plan of the area on the second floor of the building located in the Key West Research Center at 9620 Medical Center Drive, Rockville, MD 20850 which is being leased (Enclosure 2), and a copy of part of the lease agreement between the US Government and W. R. Rickman Construction Company (Enclosure 3). The new location (bounded by the blue line) has one main exit which will be controlled by [, a freight elevator which will be controlled [, and an emergency only fire exit to a back stairwell.

3. The work to be performed at this new location is basic HIV research involving millicurie amounts of H-3, C-14, Cr-51, P-32, S-35 and I-125. The current authorization limits for this research group are less than 50 millicuries for each isotope listed. The isotopes will initially be used in the rooms bounded by the yellow lines (Enclosure 2). The I-125 is used in a Western blot assay for identification of HIV proteins. In the future should protein iodinations need be performed, an iodination box will be set-up in a chemical fume hood; breathing & exhaust air samples will be

Ex 2

performed etc., the same monitoring as any other iodination facility at Walter Reed Army Medical Center (WRAMC). Any future changes would need to be approved by the Health Physics Office and the WRAMC Radiation Control Committee.

FOR THE COMMANDER

3 Encls

LLEWELLYN E. PIPER
LTC, MS
Executive Officer

NRC FORM 313M (9-81) 10 CFR 35	U.S. NUCLEAR REGULATORY COMMISSION **APPLICATION FOR MATERIALS LICENSE – MEDICAL**	Approved by OMB 3150-0041 Expires 9-30-86

INSTRUCTIONS – *Complete Items 1 through 26 if this is an initial application or an application for renewal of a license. Use supplemental sheets where necessary. Item 26 must be completed on all applications and signed. Retain one copy. Submit original and one copy of entire application to : Director, Office of Nuclear Materials Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555. Upon approval of this application, the applicant will receive a Materials License. An NRC Materials License is issued in accordance with the general requirements contained in Title 10, Code of Federal Regulations, Part 30, and the Licensee is subject to Title 10, Code of Federal Regulations, Parts 19, 20 and 35 and the license fee provision of Title 10, Code of Federal Regulations, Part 170. The license fee category should be stated in Item 26 and the appropriate fee enclosed.*

1.a. NAME AND MAILING ADDRESS OF APPLICANT *(institution, firm, clinic, physician, etc.)* **INCLUDE ZIP CODE**

Department of the Army
Walter Reed Army Medical Center
Washington, DC 20307-5001

TELEPHONE NO.: AREA CODE (301) 427 5104

1.b. STREET ADDRESS(ES) AT WHICH RADIOACTIVE MATERIAL WILL BE USED *(If different from 1.a.)* **INCLUDE ZIP CODE**

9620 Medical Center Dr.
Key West Medical Center Bldg.
Rockville, MD 20850

2. PERSON TO CONTACT REGARDING THIS APPLICATION

David W. Burton
Health Physics, WRAMC
TELEPHONE NO.: AREA CODE (301) 427-5104

3. THIS IS AN APPLICATION FOR: *(Check appropriate item)*

a. ☐ NEW LICENSE
b. ☒ AMENDMENT TO LICENSE NO. 08-01738-02
c. ☐ RENEWAL OF LICENSE NO. _____

4. INDIVIDUAL USERS *(Name individuals who will use or directly supervise use of radioactive material. Complete Supplements A and B for each individual.)* Individuals approved by the Radiation Control Committee, Walter Reed Army Medical Center

5. RADIATION SAFETY OFFICER (RSO) *(Name of person designated as radiation safety officer. If other than individual user, complete resume of training and experience as in Supplement A.)* Allen W. Anthony 1LT, MS, Ref AR 40-14 and 40-37, the Health Physics Officer will be appointed by the Commanding General, WRAMC

6.a. RADIOACTIVE MATERIAL FOR MEDICAL USE NO CHANGE

RADIOACTIVE MATERIAL LISTED IN:	ITEMS DESIRED "X"	MAXIMUM POSSESSION LIMITS (In millicuries)
10 CFR 31.11 FOR IN VITRO STUDIES		
10 CFR 35.100, SCHEDULE A, GROUP I		AS NEEDED
10 CFR 35.100, SCHEDULE A, GROUP II		AS NEEDED
10 CFR 35.100, SCHEDULE A, GROUP III		
10 CFR 35.100, SCHEDULE A, GROUP IV		AS NEEDED
10 CFR 35.100, SCHEDULE A, GROUP V		AS NEEDED
10 CFR 35.100, SCHEDULE A, GROUP VI		

ADDITIONAL ITEMS:	MARK ITEMS DESIRED "X"	MAXIMUM POSSESSION LIMITS (In millicuries)
IODINE-131 AS IODIDE FOR TREATMENT OF HYPERTHYROIDISM		
PHOSPHORUS-32 AS SOLUBLE PHOSPHATE FOR TREATMENT OF POLYCYTHEMIA VERA, LEUKEMIA AND BONE METASTASES		
PHOSPHORUS-32 AS COLLOIDAL CHROMIC PHOSPHATE FOR INTRACAVITARY TREATMENT OF MALIGNANT EFFUSIONS.		
GOLD-198 AS COLLOID FOR INTRA-CAVITARY TREATMENT OF MALIGNANT EFFUSIONS.		
IODINE-131 AS IODIDE FOR TREATMENT OF THYROID CARCINOMA		
XENON-133 AS GAS OR GAS IN SALINE FOR BLOOD FLOW STUDIES AND PULMONARY FUNCTION STUDIES.		

6.b. RADIOACTIVE MATERIAL FOR USES NOT LISTED IN ITEM 6.a. *(Sealed sources up to 3 mCi used for calibration and reference standards are authorized under Section 35.14(d), 10 CFR Part 35, and NEED NOT BE LISTED.)*

ELEMENT AND MASS NUMBER	CHEMICAL AND/OR PHYSICAL FORM	MAXIMUM NUMBER OF MILLICURIES OF EACH FORM	DESCRIBE PURPOSE OF USE
NO CHANGE			

INFORMATION REQUIRED FOR ITEMS 7 THROUGH 23

For Items 7 through 23, check the appropriate box(es) and submit a detailed description of all the requested information. Begin each item on a separate sheet. Identify the item number and the date of the application in the lower right corner of each page. If you indicate that an appendix to the medical licensing guide will be followed, do not submit the pages, but specify the revision number and date of the referenced guide: Regulatory Guide 10.8 , Rev. _____ Date: _____

7. MEDICAL ISOTOPES COMMITTEE NO CHANGE		15. GENERAL RULES FOR THE SAFE USE OF RADIOACTIVE MATERIAL *(Check One)* NO CHANGE	
	Names and Specialties Attached; and		Appendix G Rules Followed; or
	Duties as in Appendix B; or *(Check One)*		Equivalent Rules Attached
	Equivalent Duties Attached	16. EMERGENCY PROCEDURES *(Check One)* NO CHANGE	
8. TRAINING AND EXPERIENCE NO CHANGE			Appendix H Procedures Followed; or
	Supplements A & B Attached for Each Individual User; and		Equivalent Procedures Attached
	Supplement A Attached for RSO.	17. AREA SURVEY PROCEDURES *(Check One)*	
9. INSTRUMENTATION *(Check One)* NO CHANGE			Appendix I Procedures Followed; or NO CHANGE
	Appendix C Form Attached; or		Equivalent Procedures Attached
	List by Name and Model Number	18. WASTE DISPOSAL *(Check One)* NO CHANGE	
10. CALIBRATION OF INSTRUMENTS NO CHANGE			Appendix J Form Attached; or
	Appendix D Procedures Followed for Survey Instruments; or *(Check One)*		Equivalent Information Attached
	Equivalent Procedures Attached; and	19. THERAPEUTIC USE OF RADIOPHARMACEUTICALS *(Check One)* NO CHANGE	
	Appendix D Procedures Followed for Dose Calibrator; or *(Check One)*		Appendix K Procedures Followed; or
	Equivalent Procedures Attached		Equivalent Procedures Attached
11. FACILITIES AND EQUIPMENT		20. THERAPEUTIC USE OF SEALED SOURCES NO CHANGE	
X	Description and Diagram Attached		Detailed Information Attached; and
12. PERSONNEL TRAINING PROGRAM NO CHANGE			Appendix L Procedures Followed; or *(Check One)*
	Description of Training Attached		Equivalent Procedures Attached
13. PROCEDURES FOR ORDERING AND RECEIVING RADIOACTIVE MATERIAL NO CHANGE		21. PROCEDURES AND PRECAUTIONS FOR USE OF RADIOACTIVE GASES (e.g., Xenon – 133) NO CHANGE	
	Detailed Information Attached		Detailed Information Attached
14. PROCEDURES FOR SAFELY OPENING PACKAGES CONTAINING RADIOACTIVE MATERIALS *(Check One)*		22. PROCEDURES AND PRECAUTIONS FOR USE OF RADIOACTIVE MATERIAL IN ANIMALS NO CHANGE	
			Detailed Information Attached
	Appendix F Procedures Followed; or NO CHANGE	23. PROCEDURES AND PRECAUTIONS FOR USE OF RADIOACTIVE MATERIAL SPECIFIED IN ITEM 6.b	
	Equivalent Procedures Attached		Detailed Information Attached NO CHANGE

24. PERSONNEL MONITORING DEVICES

TYPE (Check appropriate box)			SUPPLIER	EXCHANGE FREQUENCY
a. WHOLE BODY		FILM		
		TLD	NO CHANGE	
		OTHER *(Specify)*		
b. FINGER		FILM		
		TLD	NO CHANGE	
		OTHER *(Specify)*		
c. WRIST		FILM		
		TLD	NO CHANGE	
		OTHER *(Specify)*		

d. OTHER *(Specify)*

25. FOR PRIVATE PRACTICE APPLICANTS ONLY

a. HOSPITAL AGREEING TO ACCEPT PATIENTS CONTAINING RADIOACTIVE MATERIAL

NAME OF HOSPITAL

MAILING ADDRESS

CITY | STATE | ZIP CODE

b. ATTACH A COPY OF THE AGREEMENT LETTER SIGNED BY THE HOSPITAL ADMINISTRATOR.

c. WHEN REQUESTING THERAPY PROCEDURES, ATTACH A COPY OF RADIATION SAFETY PRECAUTIONS TO BE TAKEN AND LIST AVAILABLE RADIATION DETECTION INSTRUMENTS.

26. CERTIFICATE

(This item must be completed by applicant)

The applicant and any official executing this certificate on behalf of the applicant named in Item 1a certify that this application is prepared in conformity with Title 10, Code of Federal Regulations, Parts 30 and 35, and that all information contained herein, including any supplements attached hereto, is true and correct to the best of our knowledge and belief.

a. LICENSE FEE REQUIRED
(See Section 170.31, 10 CFR 170)

(1) LICENSE FEE CATEGORY: 7B

(2) LICENSE FEE ENCLOSED: $ Exception, 10CFR170.11 (a) (5)

b. APPLICANT OR CERTIFYING OFFICIAL *(Signature)*

(1) NAME *(Type of Print)* LLEWELLYN E. PIPER, LTC, MS

(2) TITLE Executive Officer

c. DATE 19 JAN 1990

FORM NRC-313M (8-78)

GENERAL PROVISIONS

1. SUBLETTING THE PREMISES.

The Government may sublet any part of the premises but shall not be relieved from any obligations under this lease by reason of any such subletting.

2. MAINTENANCE OF PREMISES.

The Lessor shall maintain the demised premises, including the building and any and all equipment, fixtures, and appurtenances, furnished by the Lessor under this lease in good repair and tenantable condition, except in case of damage arising from the act or the negligence of the Government's agents or employees. For the purpose of so maintaining said premises and property, the Lessor may at reasonable times, and with the approval of the authorized Government representative in charge, enter and inspect the same and make any necessary repairs thereto.

3. DAMAGE BY FIRE OR OTHER CASUALTY.

If the said premises be destroyed by fire or other casualty this lease shall immediately terminate. In case of partial destruction or damage, so as to render the premises untenantable, as determined by the Government, the Government may terminate the lease by giving written notice to the Lessor within fifteen (15) days thereafter; if so terminated no rent shall accrue to the Lessor after such partial destruction or damage; and if not so terminated the rent shall be reduced proportionately by supplemental agreement hereto effective from the date of such partial destruction or damage.

4. ALTERATIONS.

The Government shall have the right during the existence of this lease to make alterations, attach fixtures and erect additions, structures or signs in or upon the premises hereby leased, which fixtures, additions or structures so placed in, upon or attached to the said premises shall be and remain the property of the Government and may be removed or otherwise disposed of by the Government.

5. CONDITION REPORT.

A joint physical survey and inspection report of the demised premises shall be made as of the effective date of this lease, reflecting the then present condition, and will be signed on behalf of the parties hereto.

6. COVENANT AGAINST CONTINGENT FEES.

The Lessor warrants that no person or selling agency has been employed or retained to solicit or secure this lease upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, excepting bona fide employees or bona fide established commercial or selling agencies maintained by the Lessor for the purpose of securing business. For breach or violation of this warranty the Government shall have the right to annul this lease without liability or in its discretion to deduct from the rental price or consideration, or otherwise recover, the full amount of such commission, percentage, brokerage, or contingent fee. (Licensed real estate agents or brokers having listings on property for rent, in accordance with general business practice, and who have not obtained such licenses for the sole purpose of effecting this lease, may be considered as bona fide employees or agencies within the exception contained in this clause.)

7. OFFICIALS NOT TO BENEFIT.

No Member of or Delegate to Congress, or Resident Commissioner shall be admitted to any share or part of this lease contract, or to any benefit that may arise therefrom; but this provision shall not be construed to extend to this lease contract if made with a corporation for its general benefit.

8. ASSIGNMENT OF CLAIMS.

Pursuant to the provisions of the Assignment of Claims Act of 1940, as amended (31 U.S.C. 203, 41 U.S.C. 15), if this lease provides for payments aggregating $1,000 or more, claims for monies due or to become due the Lessor from the Government under this contract may be assigned to a bank, trust company, or other financing institution, including any Federal lending agency, and may thereafter be further assigned or reassigned to any such institution. Any such assignment or reassignment shall cover all amounts payable under this contract and not already paid, and shall not be made to more than one party, except that any such assignment or reassignment may be made to one party as agent or trustee for two or more parties participating in such financing. Notwithstanding any provisions of this contract, payments to an assignee of any monies due or to become due under this contract shall not, to the extent provided in said Act, as amended, be subject to reduction or set-off.

9. EQUAL OPPORTUNITY CLAUSE.

(The following clause is applicable unless this contract is exempt under the rules, regulations, and relevant orders of the Secretary of Labor (41 CFR, ch. 60).)

During the performance of this contract, the Contractor agrees as follows:

(a) The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, or national origin. Such action shall include, but not be limited to, the following: Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the Contracting Officer setting forth the provisions of this Equal Opportunity clause.

(b) The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.

(c) The Contractor ~~will~~ send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice, to be provided by the agency Contracting Officer, advising the labor union or workers' representative of the Contractor's commitments under this Equal Opportunity clause, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(d) The Contractor will comply with all provisions of Executive Order No. 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

(e) The Contractor will furnish all information and reports required by Executive Order No. 11246 of September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the contracting

Standard Form 2-A
General Services Administration—FPR (41 CFR) 1-16.601
May 1970 Edition
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agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(f) In the event of the Contractor's noncompliance with the Equal Opportunity clause of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended, in whole or in part, and the Contractor may be declared ineligible for further Government contracts in accordance with procedures authorized in Executive Order No. 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order No. 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(g) The Contractor will include the provisions of paragraphs (a) through (g) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order No. 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as the contracting agency may direct as a means of enforcing such provisions, including sanctions for noncompliance: *Provided, however,* That in the event the Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the contracting agency, the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

10. Facilities Nondiscrimination.

(a) As used in this section, the term "facility" means stores, shops, restaurants, cafeterias, restrooms, and any other facility of a public nature in the building in which the space covered by this lease is located.

(b) The Lessor agrees that he will not discriminate by segregation or otherwise against any person or persons because of race, color, religion, sex, or national origin in furnishing, or by refusing to furnish, to such person or persons the use of any facility, including any and all services, privileges, accommodations, and activities provided thereby. Nothing herein shall require the furnishing to the general public of the use of any facility customarily furnished by the Lessor solely to tenants, their employees, customers, patients, clients, guests and invitees.

(c) It is agreed that the Lessor's noncompliance with the provisions of this section shall constitute a material breach of this lease. In the event of such noncompliance, the Government may take appropriate action to enforce compliance, may terminate this lease, or may pursue such other remedies as may be provided by law. In the event of termination, the Lessor shall be liable for all excess costs of the Government in acquiring substitute space, including but not limited to the cost of moving to such space. Substitute space shall be obtained in as close proximity to the Lessor's building as is feasible and moving costs will be limited to the actual expenses thereof as incurred.

(d) It is further agreed that from and after the date hereof the Lessor will, at such time as any agreement is to be entered into or a concession is to be permitted to operate, include or require the inclusion of the foregoing provisions of this section in every such agreement or concession pursuant to which any person other than the Lessor operates or has the right to operate any facility. Nothing herein contained, however, shall be deemed to require the Lessor to include or require the inclusion of the foregoing provisions of this section in any existing agreement or concession arrangement or one in which the contracting party other than the Lessor has the unilateral right to renew or extend the agreement or arrangement, until the expiration of the existing agreement or arrangement and the unilateral right to renew or extend. The Lessor also agrees that it will take any and all lawful actions as expeditiously as possible, with respect to any such agreement as the contracting agency may direct, as a means of enforcing the intent of this section, including, but not limited to, termination of the agreement or concession and institution of court action.

11. Examination of Records.

(Note.—This provision is applicable if this lease was negotiated without advertising.)

(a) The Lessor agrees that the Comptroller General of the United States or any of his duly authorized representatives shall, until the expiration of 3 years after final payment under this lease, have access to and the right to examine any directly pertinent books, documents, papers, and records of the Lessor involving transactions related to this lease.

(b) The Lessor further agrees to include in all his subcontracts hereunder a provision to the effect that the subcontractor agrees that the Comptroller General of the United States or his representatives shall, until the expiration of 3 years after final payment under this lease with the Government, have access to and the right to examine any directly pertinent books, documents, papers, and records of such subcontractor involving transactions related to the subcontract.

12. Applicable Codes and Ordinances

The Lessor, as part of the rental consideration, agrees to comply with all codes and ordinances applicable to the ownership and operation of the building in which the leased space is situated and, at his own expense, to obtain all necessary permits and related items.

13. Inspection.

At all times after receipt of Bids, prior to or after acceptance of any Bid or during any construction, remodeling or renovation work, the premises and the building or any parts thereof, upon reasonable and proper notice, shall be accessible for inspection by the Contracting Officer, or by architects, engineers, or other technicians representing him, to determine whether the essential requirements of the solicitation or the lease requirements are met.

14. Economy Act Limitation.

If the rental specified in this lease exceeds $2,000 per annum, the limitation of Section 322 of the Economy Act of 1932, as amended (40 U.S.C. 278a), shall apply.

15. Failure in Performance.

In the event of failure by the Lessor to provide any service, utility, maintenance or repairs required under this lease, the Government shall have the right to secure said services, utilities, maintenance or repairs and to deduct the cost thereof from rental payments.

16. Lessor's Successors.

The terms and provisions of this lease and the conditions herein shall bind the Lessor, and the Lessor's heirs, executors, administrators, successors, and assigns.

CERTIFICATION

1. Certification of Nonsegregated Facilities.

(Applicable to (1) contracts, (2) subcontracts, and (3) agreements with applicants who are themselves performing federally assisted construction contracts, exceeding $10,000 which are not exempt from the provisions of the Equal Opportunity clause.)

By the submission of this bid, the bidder, offeror, applicant, or subcontractor certifies that he does not maintain or provide for his employees any segregated facilities at any of his establishments, and that he does not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. He certifies fur-

ther that he will not maintain or provide for his employees any segregated facilities at any establishments, and that he will not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The bidder, offeror, applicant, or subcontractor agrees that a breach of this certification is a violation of the Equal Opportunity clause in this contract. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, or national origin, because of habit, local custom, or otherwise. He further agrees that (except where he has obtained identical certifications from proposed subcontractors for specific time periods) he will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding $10,000 which are not exempt from the provisions of the Equal Opportunity clause; that he will retain such certifications in his files; and that he will forward the following notice to such proposed subcontractors (except where the proposed subcontractors have submitted identical certifications for specific time periods):

NOTICE TO PROSPECTIVE SUBCONTRACTORS OF REQUIREMENT FOR CERTIFICATIONS OF NONSEGREGATED FACILITIES

A Certification of Nonsegregated Facilities must be submitted prior to the award of a subcontract exceeding $10,000 which is not exempt from the provisions of the Equal Opportunity clause. The certification may be submitted either for each subcontract or for all subcontracts during a period (i.e., quarterly, semiannually, or annually).

NOTE: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

NOTE.—The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

INSTRUCTIONS

1. Whenever the lease is executed by an attorney, agent, or trustee on behalf of the Lessor, two authenticated copies of his power of attorney, or other evidence to act on behalf of the Lessor, shall accompany the lease.

2. When the Lessor is a partnership, the names of the partners composing the firm shall be stated in the body of the lease. The lease shall be signed with the partnership name, followed by the name of the partner signing the same.

3. Where the Lessor is a corporation, the lease shall be signed with the corporate name, followed by the signature and title of the officer or other person signing the lease on its behalf, duly attested, and, if requested by the Government evidence of this authority so to act shall be furnished.

4. When deletions or other alterations are made specific notation thereof shall be entered under clause 8 of the lease before signing.

5. If the property leased is located in a State requiring the recording of leases, the Lessor shall comply with all such statutory requirements at Lessor's expense.

☆ U.S. GOVERNMENT PRINTING OFFICE: 1979—281-187/5052

Standard Form 2-A
May 1970 Edition

17. The Government's obligation hereunder is made contingent upon Congress enacting appropriations. The supplies and services to be obtained by this instrument are authorized by, are for the purpose set forth in and are chargeable to Procurement Authority Number quoted below, the available balance of which is sufficient to cover the cost of same:

18. (a) The Government may, by written notice to the Lessor, terminate the right of the Lessor to proceed under this lease if it is found after notice and hearing by the Secretary of the Army or his duly authorized representative that gratuities (in the form of entertainment, gifts, or otherwise) were offered or given by the Lessor, or any agent or representative of the Lessor to any officer or employee of the Government with a view toward securing a lease or securing favorable treatment with respect to the awarding or amending, or the making of any determination, with respect to the performing of such lease; provided, that the existence of facts upon which the Secretary of the Army or his duly authorized representatives makes such finding shall be in issue and may be reviewed in any competent court.

(b) In the event this lease is terminated as provided in paragraph (a) hereof, the Government shall be entitled (1) to pursue the same remedies against the Lessor as it could pursue in the event of a breach of the lease by the Lessor (2) as a penalty in addition to any other damages to which it may be entitled by law, to exemplary damages in an amount (as determined by the Secretary of the Army or his duly authorized representative) which shall be not less than three nor more than ten times the costs incurred by the Lessor in providing any such gratuities to any such officer or employee.

(c) The rights and remedies of the Government provided in this clause shall not be exclusive and are in addition to any other rights and remedies provided by law or under this lease.

19. Any notice under the terms of this lease may be given by "Certified Mail - Return Receipt Requested" or any other appropriate method, and delivery shall be deemed notice under the terms of this lease. Any notice given by the Lessor to the Government shall be addressed to: The District Engineer, Baltimore District, Corps of Engineers, Post Office Box 1715, Baltimore Maryland 21203-1715, ATTN: CENAB-RE-AP. Any notice given by the Government to the Lessor or his Agent, shall be addressed to: W. M. Rickman Construction Company, 15215 Shady Grove Road, Rockville, MD 20850

20. The Lessor, by written notice to the Government, will furnish notification or any change of address, ownership of property, name of new lessor or line of succession. Such notice shall be provided at least 15 days prior to said change.

STANDARD FORM 2
FEBRUARY 1965 EDITION
GENERAL SERVICES
ADMINISTRATION
FPR (41 CFR) 1-16.601

COPY

U.S. GOVERNMENT
LEASE FOR REAL PROPERTY

DATE OF LEASE: 20 December 1989

LEASE NO.: DACA-31-5-90-316

THIS LEASE, made and entered into this date by and between

W. M. RICKMAN CONSTRUCTION COMPANY
15215 Shady Grove Road
Rockville, Maryland 20850

whose address is

and whose interest in the property hereinafter described is that of owner

hereinafter called the Lessor, and the UNITED STATES OF AMERICA, hereinafter called the Government:

WITNESSETH: The parties hereto for the considerations hereinafter mentioned, covenant and agree as follows:

1. The Lessor hereby leases to the Government the following described premises:

FULL-TIME EXCLUSIVE USE of approximately 11,795 net square feet of office and laboratory space on the second floor of a building located in the Key West Research Center at 9620 Medical Center Drive, Rockville, MD 20850 as shown in Exhibit "A" hereto attached and by this reference made a part hereof.

to be used for Government purposes.

2. TO HAVE AND TO HOLD the said premises with their appurtenances for the term beginning on

..... through ....., subject to termination and renewal rights as may be hereinafter set forth. See Paragraph 22 and 25. WMR

3. The Government shall pay the Lessor annual rent of $ 283,080.00 288,977.50 WMR

at the rate of $ 23,590.00 24,081.00 per month in arrears.

Rent for a lesser period shall be prorated. Rent checks shall be made payable to: W. M. Rickman Construction Company, 15215 Shady Grove Road, Rockville, MD 20850, by: Finance & Accounting Office, USAED Baltimore, P.O. Box 1715, Baltimore, Maryland 21203-1715

4. The Government may terminate this lease at any time by giving at least ..... days' notice in writing to the Lessor and no rental shall accrue after the effective date of termination. Said notice shall be computed commencing with the day after the date of mailing. See Paragraph 25.

DELETE

5. This lease may be renewed at the option of the Government, for the following terms and at the following rentals:

This lease shall be automatically renewed from year to year without further notice unless and until the Government shall give notice of termination in accordance with Clause 4, provided that adequate appropriations are available from year to year for payment of rental; and provided further that this lease shall in no event extend beyond the last day preceding the fifth anniversary date of beneficial occupancy.

~~Provided notice be given in writing to the Lessor at least ..... days before the end of the original lease or any renewal term, all other terms and conditions of this lease shall remain the same during any renewal term.~~

2-106

Encl 3

6. The Lessor shall furnish to the Government, as part of the rental consideration, the following:

A. Adequate and sufficient lighting, electric current, hot and cold potable running water, sewerage, light bulbs, starters, flourescent tubes, ballasts and replacement as may be required by the using service.

B. Toilet facilities.

C. Snow removal.

D. Full janitorial service three (3) times per week and trash collection.

E. Separate metering for electric and gas.

F. Adequate and sufficient heating and air conditioning equipment to sustain a temperature of not less than 68°F in winter and not more than 78°F in summer regardless of outside temperature.

G. Adequate smoke detectors installed and maintained to cover building.

7. The following are attached and made a part hereof:
The General Provisions and Instructions (Standard Form 2-A, May 1970 edition).

Typewritten Provisions 17 through 26 were added to Standard Form 2-A and are hereby made a part of this lease.

8. The following changes were made in this lease prior to its execution:

Paragraph 4 and lines 7, 8, and 9 of Paragraph 5 (Standard Form 2) were deleted.

IN WITNESS WHEREOF, the parties hereto have hereunto subscribed their names as of the date first above written.

LESSOR W. M. RICKMAN CONSTRUCTION COMPANY TAX I.D. or SSI 52-121-3625

BY William M Rickman (Signature) (Signature)

IN PRESENCE OF

(Address)

UNITED STATES OF AMERICA

BY G. R. BOGGS (Signature) Chief, Real Estate Division (Official title)

☆ U.S. GPO: 1987—181-247/60065

21. The Lessor warrants this building as occupied by the Government to be in full compliance with all federal, state, and local fire/safety environmental/building codes. Should any violation of these codes exist or occur, the Lessor will immediately correct those violations at the Lessor's sole cost. Upon failure by the Lessor to correct such violations the Government may, at its option effect the correction and deduct such costs from the rent due or terminate the lease at any time.

22. The terms of this Lease will commence on the date of beneficial occupancy of the facility and will terminate not later than the last day preceding the fifth anniversary of such beneficial occupancy date. No funds shall be payable by the United States, and the term of the Lease shall not commence until the beneficial occupancy date of the facility. The Lessor is to provide notice to the Lessee upon completion of the fitted space agreed so that the Lessee may inspect and approve same. It is contemplated that such beneficial occupancy date will occur on or about 1 March 1990.

23. It is understood and agreed by and between the parties hereto that the Lessor shall furnish adequate metering facilities (without cost to the Government) to permit separate payment for the utilities consumed by the Government, direct to the local utility company. The Lessor further warrants that such separate metered gas, electric and water shall serve the demised premises exclusively.

24. The Lessor agrees to provide and arrange for the installation of lessee specified laboratory casework, small appliances and office equipment based on using service selected vendors. Equipment shall be purchased by the Lessor and shall be amortized over a five (5) year period based on $300,000 worth of improvements installed and the property shall remain the property of the Lessor at the termination of this lease. The Lessor also agrees to arrange with the vendor for installation of additional equipment, i.e. biological laboratory laminate flow hoods (approximately 14).

25. The Government may terminate this lease after the first anniversary date by giving at least 180 days notice in writing to the Lessor, and no rental shall accrue after the effective date of termination. Said notice shall be computed commencing with the day after the date of mailing.

26. In addition to the rent herein stated, the Government will, if requested by the Lessor in writing within sixty (60) days after the second anniversary date and of each succeeding anniversary date, pay the Lessor in a lump sum payment, by Supplemental Agreement, executed by both parties, the proportionate share of any tax increase for the preceding year. The basis for increase will be that amount in excess of the taxes paid by the Lessor during the first full year of occupancy by the Government under Lease No. DACA-31-5-90-316. The proportion will be the space occupied by this lease compared to the total rental space of said building. The increase shall not include amounts charged for forfeited discount, penalties and interest and will be based on paid invoices, receipts and other documentary evidence issued by proper taxing authorities. If written notice of a tax increase is not given by the Lessor within sixty (60) days after each respective anniversary date, the rental consideration will remain unchanged for the next succeeding year without recourse. In no event shall any increase be made retroactive for any year for which notice was not given within the required time period of sixty (60) days.

OFFICIAL RECORD COPY ML 10

OFFICIAL RECORD COPY ML 10

NRC FORM 374
(10-89)

U.S. NUCLEAR REGULATORY COMMISSION

MATERIALS LICENSE

Amendment No. 59

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974 (Public Law 93-438), and Title 10, Code of Federal Regulations, Chapter I, Parts 30, 31, 32, 33, 34, 35, 39, 40 and 70, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, possess, and transfer byproduct, source, and special nuclear material designated below; to use such material for the purpose(s) and at the place(s) designated below; to deliver or transfer such material to persons authorized to receive it in accordance with the regulations of the applicable Part(s). This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954, as amended, and is subject to all applicable rules, regulations and orders of the Nuclear Regulatory Commission now or hereafter in effect and to any conditions specified below.

Licensee

1. Department of the Army
Walter Reed Army Medical Center (WRAMC)

2. Washington, D.C. 20307-5001

In accordance with letter dated July 16, 1990,

3. License number 08-01738-02 is amended in its entirety to read as follows:

4. Expiration date April 30, 1993

5. Docket or Reference No. 030-01317

6. Byproduct, source, and/or special nuclear material	7. Chemical and/or physical form	8. Maximum amount that licensee may possess at any one time under this license
A. Any byproduct material with atomic numbers 1-83	A. Any	A. 400 millicuries of each radionuclide with a total possession limit of 26 curies
B. Iodine 131	B. Any	B. 2 curies
C. Xenon 133	C. Any	C. 2 curies
D. Krypton 85	D. Any	D. 1 curie
E. Gold 198	E. Any	E. 1 curie
F. Phosphorus 32	F. Any	F. 2 curies
G. Carbon 14	G. Any	G. 2 curies
H. Iodine 125	H. Any	H. 1 curie
I. Iridium 192	I. Any	I.
J. Chromium 51	J. Any	J. 750 millicuries
K. Sulfur 35	K. Any	K. 1 curie
L. Hydrogen 3	L. Any	L. 5 curies
M. Molybdenum 99	M. Molybdenum 99/ Technetium 99m Generators	M. 23 curies
N. Technetium 99m	N. Any	N. 23 curies
O. Strontium 90	O. Sealed sources	O. 500 millicuries
P. Cesium 137	P. Sealed sources	P.
Q. Gadolinium 153	Q. Sealed sources	Q.
R. Iodine 125	R. Sealed sources (Norland Inst. Co., Model 178A591A)	R. 400 millicuries
S. Iodine 125	S. Sealed sources (3M Company seeds)	S. 500 millicuries
T. Iodine 125	T. Sealed sources (AECL Models C235 or C324, or Amersham Corp Model IMC.P2)	T. 4 sources, not to exceed 300 millicuries each
U. Cesium 137	U. Sealed sources	U.
V. Cobalt 60	V. Sealed sources	V.

Information in this record was deleted in accordance with the Freedom of Information Act, exemptions 2 + 6
FOIA 2006-0238

KK/12

License number
08-01738-02

Docket or Reference number
030-01317

Amendment No. 59

MATERIALS LICENSE
SUPPLEMENTARY SHEET

(Items 6., 7. & 8. continued)

6. Byproduct, source, and/or special nuclear material	7. Chemical and/or physical form	8. Maximum amount that licensee may possess at any one time under this license
W. Americium 241	W. Any	W. [redacted]
X. Americium 241	X. Sealed source [redacted]	X. [redacted]
Y. Nickel 63	Y. Sealed sources and foils	Y. 1 curie
Z. Iodine 129	Z. Sealed sources	Z. 1 curie
AA. Thorium	AA. Any	AA. 5 kilograms
BB. Uranium	BB. Any	BB. 50 kilograms
CC. Uranium depleted in Uranium 235	CC. Plated Metal	CC. 400 kilograms
DD. Americium 241	DD. Sealed sources	DD. [redacted]
EE. Cesium 137	EE. Sealed source [redacted]	EE. [redacted]
FF. Cesium 137	FF. [redacted]	FF. [redacted]

9. Authorized use

A. through T. Medical research, diagnosis, and therapy; research and development as defined in 10 CFR 30.4.
U. through Z. Research and development as defined in 10 CFR 30.4; teaching.
AA. and BB. Teaching and laboratory research.
CC. Shielding
DD. Standards and reference sources.
EE. In an [redacted] for calibration of instruments.
FF. Instrument calibration.

CONDITIONS

10. Location of use:

Walter Reed Army Medical Center, Washington, D. C.; WRAMC Forest Glen Section and Annex, Silver Spring, Maryland; U.S. Army Medical Research Institute for Infectious Diseases, Fort Detrick, Frederick, Maryland; Andrew Rader Army Clinic, Fort Myer, Virginia; Walter Reed Army Institute of Research Animal Holding Facility, Fort Meade, Maryland; U.S. Army Medical Laboratory, WRAMC Department of Pathology, Fort Meade, Maryland; and U.S. Army Institute of Dental Research Facility, Fort Meade, Maryland; Rickman Building, 13 Taft Court, Rockville, Maryland; Key West Research Center, 9620 Medical Center Drive, Rockville, Maryland.

11. Radiation Safety Officer: LTC Peter H. Myers.

Information in this record was deleted in accordance with the Freedom of Information Act, exemptions 2

Ex 2

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License number
08-01738-02

Docket or Reference number
030-01317

Amendment No. 59

(Continued) CONDITIONS

12. A. Licensed material shall be used by, or under the supervision of, individuals designated by the licensee's Radiation Safety Committee, Col. Russ Zajtchuk, Chairman.

    B. The use of licensed material in or on humans shall be by a physician as defined in Section 35.2 of 10 CFR Part 35.

    C. Physicians designated to use licensed material in or on humans shall meet the training criteria established in 10 CFR Part 35, Subpart J.

13. Experimental animals administered licensed materials or their products shall not be used for human consumption.

14. In lieu of using the conventional radiation caution colors (magenta or purple on yellow background) as provided in Section 20.203(a)(1), of 10 CFR Part 20, the licensee is hereby authorized to label detector cells and cell baths, containing licensed material and used in gas chromatography devices, with conspicuously etched or stamped radiation caution symbols without a color requirement.

15. Detector cells containing titanium tritide foil shall only be used in conjunction with a properly operating temperature control mechanism which prevents foil temperatures from exceeding 225 degrees Centigrade.

16. Detector cells containing scandium tritide foil shall only be used in conjunction with a properly operating temperature control mechanism which prevents foil temperatures from exceeding 325 degrees Centigrade.

17. Notwithstanding the requirements of 10 CFR 35.49 (a) and (b), the licensee may use for medical use any byproduct material or reagent kit for which the Food and Drug Administration has accepted a "Notice of Claimed Investigational Exemption for a New Drug" (IND).

18. The licensee may transport licensed material in accordance with the provisions of 10 CFR Part 71, "Packaging and Transportation of Radioactive Material".

19. If only a single radionuclide specified in NUREG 0767, is possessed, the possession limit is the quantity specified in Schedule of Limiting Possession Limits, NUREG-0767. If two or more radionuclides are possessed, the possession limit for each is determined as follows: the sum of the quotients of the quantities possessed divided by the quantities of those radionuclides specified in the Schedule of Limiting Possession Limits, NUREG-0767 shall not exceed unity.

20. The licensee is authorized to hold radioactive material with a physical half-life of less than 90 days for decay-in-storage before disposal in ordinary trash provided:

    A. Radioactive waste to be disposed of in this manner shall be held for decay a minimum of 10 half-lives.

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License number: 08-01738-02
Docket or Reference number: 030-01317
Amendment No. 58

(20. continued) CONDITIONS

B. Before disposal as normal waste, radioactive waste shall be surveyed to determine that its radioactivity cannot be distinguished from background. All radiation labels shall be removed or obliterated.

C. Generator columns shall be segregated so that they may be monitored separately to ensure decay to background levels prior to disposal.

21. Except as specifically provided otherwise in this license, the licensee shall conduct its program in accordance with the statements, representations, and procedures contained in the documents, including any enclosures, listed below. The Nuclear Regulatory Commission's regulations shall govern unless the statements, representations and procedures in the licensee's application and correspondence are more restrictive than the regulations.

A. Application dated July 18, 1979
B. Letter dated January 13, 1984
C. Letter dated May 8, 1987
D. Letter dated March 16, 1988
E. Letter dated March 28, 1988
F. Application dated August 5, 1988
G. Letter dated September 23, 1988
H. Letter dated July 28, 1989
I. Letter dated September 12, 1989
J. Letter dated January 19, 1990
K. Letter dated July 16, 1990
L. Letter dated March 15, 1991

For the U.S. Nuclear Regulatory Commission

Original Signed By:

Date APR 3 0 1991

By Judith A. Joustra
Nuclear Materials Safety Branch
Region I
King of Prussia, Pennsylvania 19406

APR 3 0 1991

License No. 08-01738-02
Docket No. 030-01317
Control No. 112925

Department of the Army
Walter Reed Army Medical Center (WRAMC)
ATTN: Lt. Col. Llewellyn E. Piper
Executive Officer
Washington, DC 20307-5001

Gentlemen:

Please find enclosed an amendment to your NRC Material License.

Please review the enclosed document carefully and be sure that you understand all conditions. If there are any errors or questions, please notify the Region I Material Licensing Section, (215) 337-5093, so that we can provide appropriate corrections and answers.

Please be advised that you must conduct your program involving licensed radioactive materials in accordance with the conditions of your NRC license, representations made in your license application, and NRC regulations. In particular, please note the items in the enclosed, "Requirements for Materials Licensees."

Since serious consequences to employees and the public can result from failure to comply with NRC requirements, the NRC expects licensees to pay meticulous attention to detail and to achieve the high standard of compliance which the NRC expects of its licensees.

You will be periodically inspected by NRC. A fee may be charged for inspections in accordance with 10 CFR Part 170. Failure to conduct your program safely and in accordance with NRC regulations, license conditions, and representations made in your license application and supplemental correspondence with NRC will result in prompt and vigorous enforcement action against you. This could include issuance of a notice of violation, or in case of serious violations, an imposition of a civil penalty or an order suspending, modifying or revoking your license as specified in the General Policy and Procedures for NRC Enforcement Actions, 10 CFR Part 2, Appendix C.

We wish you success in operating a safe and effective licensed program.

Sincerely,

Original Signed By:
Judith A. Joustra

Judith A. Joustra
Nuclear Materials Safety Section D
Division of Radiation Safety
and Safeguards

Enclosures:
1. Amendment No. 59
2. Requirements for Materials Licensees

DRSS:RI
Joustra/ss

04/29/91

OFFICIAL RECORD COPY

ML 08-01738-02/LTR - 0002.0.0
04/17/91

DEPARTMENT OF THE ARMY
WALTER REED ARMY MEDICAL CENTER
WASHINGTON, D.C. 20307-5001

REPLY TO
ATTENTION OF:

M516
P8

HSHL-H-HP (385-11m) 15 March 1991

MEMORANDUM FOR US Nuclear Regulatory Commission, Region I,
Nuclear Material Safety Section A, 475
Allendale Road, King of Prussia, PA 19406

SUBJECT: Amendment of US Nuclear Regulatory Commission License No. 08-01738-02. Additional information requested Docket No. 030-01317, Control No. 112925.

This is in reference to your request in a letter dated February 5, 1991 for additional information on our decay-in-storage program. The following information is provided in response to those questions.

1. The existing program for research waste with half-lives of 65 days or less generates 50-60 55gal. drums of compacted trash per year. The expected increase with half-lives of 90 days or less could raise the total to 60-75 drums per year. We currently hold this waste for 24 months to ensure at least 10 half-lives for the longest isotopes, which means we have between 100 and 120 drums in storage at any one time. Holding all our short half-life waste for 30 months could mean up to 185 drums in storage at any one time.

2. Enclosure 1 is a copy of one of the "Terms and Conditions" which all users of radioactive material at Walter Reed most follow. All the solid radioactive waste at Walter Reed is collected, screened, and packaged by the Health Physics Office. Bags of waste are examined by the health physics personnel when they are collected and again when they are compacted to ensure the proper segregation and defacing of any radioactive labels has occurred.

3. When the solid, short half-life, radioactive material is compacted it is in a 55 gal. steel drum (DOT 17H). The drum is sealed shut, the out side is marked with an I.D. number with an indelible marker, and the following information is recorded; the drum I.D., all isotopes in the drum and the initial activity of each, the date the drum was closed. When this drum is ready for disposal it is re-entered in a local disposal log and data base which includes; I.D. number, date closed, date disposed, survey instrument model, serial number and calibration date, background

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112925
MAR 25 1991

readings, maximum readings of waste, and initials of person performing survey and waste disposal.

4. When the waste has been held for decay for at least 10 half-lives of the longest half-life material present, the drums are moved to a low background area and surveyed with a portable survey meter with a remote GM or scintillation probe. If no readings above background are found the drums are opened and the material is surveyed again as it is removed from the drum. Currently we are using a Ludlum model 2 with a GM probe which is calibrated in mr/hr. The normal background is approximately 0.05 mr/hr which is 10% of full scale on the lowest scale. If I-125 is the major remaining contaminate a low energy gamma scintillation probe may also be used to ensure no external radiation levels above background are present. The waste when originally packaged contains at most a few millicuries of activity, after at least 10 half-lives it contains at most a few microcuries of activity and no measurable external exposure. In addition this waste will continue to decay in a land fill at the rate of at least 4 half-lives per year making the likelihood of any internal deposition remote. Any biological waste held for decay will be incinerated at the conclusion of the decay period which will preclude the ingestion of this material.

5. The medical waste in question will be compacted into 55 gal. steel drums as outlined in question 3's response.

6. The waste storage facility at WRAMC is a decommissioned research reactor facility. This building is constructed of concrete, concrete block and brick, it has no windows and very little flammable material involved in it's construction. This building is dry and heated and has a maximum capacity to hold two or three times the amount of waste we will be holding when this amendment is granted. This building is under the sole control of the Health Physics Office with steel doors and double locks at all entrances.

1 Encl

PETER H. MYERS
LTC, MS
Health Physics Officer

HEALTH PHYSICS
WALTER REED ARMY MEDICAL CENTER
Washington, D.C. 20307-5001

CONDITION NO. 4

For

RADIOACTIVE MATERIAL AUTHORIZATIONS

RADIOACTIVE WASTE

1. General. Radioactive waste from Walter Reed Army Medical Center and tenant activities will be controlled, packaged, transported, and disposed of in accordance with AR 385-11, "Ionizing Radiation Protection;" Title 10, Code of Federal Regulations; Title 49, Code of Federal Regulations; Nuclear Regulatory Commission Licenses issued to WRAMC; applicable provisions of State Government requirements for waste disposal sites located within their jurisdiction; and the guidelines delineated herein.

2. Definitions:

a. Radioactive Material: Any material or combination of materials that spontaneously emits gamma rays, X-rays, alpha particles, beta particles, neutrons, or other atomic particles that are capable of producing ions, directly or indirectly by their passage through matter.

b. Radioactive Waste: Surplus items containing radioactive material, property contaminated with radioactive material to the extent that decontamination is economically unsound, and materials that have become contaminated during possession/use of radioactive material.

c. Activity: The number of nuclear transitions (disintegrations) occurring in a given quantity of material per unit time (disintegrations per second); expressed in units of Curies or Becquerels.

d. Specific Activity: Total activity of a given radionuclide per gram of a compound, element, or radioactive nuclide.

e. Curie: The special unit of activity. One curie equals 3.700×10^{10} nuclear transitions per second. (Abbreviated Ci.). Several fractions of the curie are in common usage:

(1) Microcurie: One-millionth of a curie (3.7×10^4 disintegrations per sec.). Abbreviated μCi.

(2) Millicurie: One-thousandth of a curie (3.7×10^7 disintegrations per sec.). Abbreviated mCi.

REVISION 2, effective 13 Apr 87

Encl 1

(12) Animal Carcasses/Animal Waste: Short half-life.

(13) Animal Carcasses/Animal Waste: Long half-life.

(14) Animal Carcasses: $\leq$ 0.05 Microcuries H-3 or C-14 per gram of animal tissue averaged over the entire weight of the animal.

(15) Gas, Combustible.

(16) Gas, Non-combustible.

b. Limiting the non-radioactive waste which is intermixed with radioactive waste to an absolute minimum.

c. Removing or obliterating all "Radioactive Material" labels on non-radioactive vendor shipping packages and on short half-life radioactive waste. Uncontaminated vendor shipping containers may be disposed of in the normal trash by the users. Short half-life waste will be delivered to Health Physics Office (HPO) collection points for subsequent storage, decay, and ultimate disposal in the normal trash when HPO personnel have determined that the waste has reached natural background radiation levels.

d. Storing used Mo-99/Tc-99m generators and other items of equipment containing radioactive material in designated areas only. The radiation labels will be removed on such items only when they reach background radiation levels.

e. Maintaining their inventory of radioactive waste to a practical minimum.

f. Controlling radioactive waste in their work areas to prevent unauthorized disposal by the custodial service. Magenta plastic bags will be used to contain radioactive waste. Magenta bags will not be used for other purposes.

g. Insuring that all radioactive waste is delivered to HPO collection point personnel for ultimate disposal.

h. Marking all radioactive waste containers with the radiation caution symbol and the words "Caution - Radioactive Waste" and/or "Caution -Radioactive Material." Plus "DO NOT EMPTY!"

i. Insuring that radioactive material is not released into the sanitary sewage system without the specific approval of the Health Physics Officer.

j. Insuring that decontamination of reusable equipment is only performed in laboratory sinks that have been authorized via their Radioactive Material Authorization. See Section II for specific requirements concerning this procedure.

CONDITION NO. 4 FOR RADIOACTIVE MATERIAL AUTHORIZATIONS (RADIOACTIVE WASTE)

i. Biological wastes (e.g., animal carcasses/animal waste) shall be prepared by the User in a manner that allows the waste to be readily packed in in a 30-gallon drum alternating 10-inch layers of waste and packing materials. Prepared biological waste shall be placed in double magenta plastic bags and tagged as previously indicated.

SECTION II - RELEASE OF RADIOACTIVITY INTO THE SANITARY SEWAGE SYSTEM

1. Liquid waste will be released to the sanitary sewage system in accordance with Title 10, Code of Federal Regulations, Chapter 1, Part 20.303 (i.e., 10 CFR 20).

2. Unless specifically authorized by the Health Physics Office, all releases of radioactive liquid to the sanitary sewerage system will be conducted by the Health Physics Office to assure that the quantity of radioactive material released into the system by combined WRAMC disposal procedures does not exceed the following limits:

a. The quantity of any licensed or other radioactive material released into the system by WRAMC in any one day does not exceed the larger of paragraphs a(1) or (2) below.

(1) The quantity which, if diluted by the average daily quantity of sewage released into the sewer by WRAMC will result in an average concentration equal to the limits specified in Appendix B, Table I, Column 2 of 10 CFR 20 or

(2) Ten times the quantity of such material specified in Appendix C of 10 CFR 20 and

b. The quantity of any licensed or other radioactive material released in any one month, if diluted by the average monthly quantity of water released by WRAMC, will not result in an average concentration exceeding the limits specified in Appendix B, Table I, Column 2 of 10 CFR 20 and

c. The gross quantity of licensed and other radioactive material, excluding hydrogen-3 and carbon-14, released into the sewerage system by WRAMC does not exceed one curie per year. The quantities of hydrogen-3 and carbon-14 released into the sanitary sewerage system may not exceed 5 curies per year for hydrogen-3 and 1 curie per year for carbon-14. Excreta from individuals undergoing medical diagnosis or therapy with radioactive material shall be exempt from any limitations contained in this document.

3. The following policy and procedures apply to all individuals permitted to release radioactive washings into the sanitary sewage system via laboratory sinks:

a. Such release approval must be specifically included in the Principal User's WRAMC Radioactive Material Authorization.

CONDITION NO. 4 FOR RADIOACTIVE MATERIAL AUTHORIZATION (RADIOACTIVE WASTE)

SECTION IV - RADIOACTIVE WASTE DISPOSAL SUPPLIES

1. Items of supply for the containment and packaging of radioactive waste are stocked by the Supply and Administration Branch, Materiel Division, Directorate of Industrial Operations, WRAMC. The stockage items meet U.S. Army and Federal radioactive material packaging requirements for most of the radioactive waste resulting from laboratory and/or clinic procedures at WRAMC, WRAIR and AFIP. However, it should be noted that packaging requirements vary with the particular type, form and curie amount of the radioactive waste. Consequently, all personnel involved with the packaging of radioactive waste should consult the Health Physics Office in order to assure that the available stockage items meet packaging specification requirements for each particular radioactive waste disposal operation.

2. Following are the currently stocked items:

a. DRUM, Steel, DOT Specification 17-H, 30-gallon with gasket and sealing bolt. (Used as shipping container for the transport of radioactive biologicals).

b. DRUM, Steel, DOT Specification 17-H, 55-gallon with gasket and sealing bolt. (Used as a shipping container for the transport of low-level radioactive materials).

c. VERMICULITE, 4 cu ft bags. (Used as an absorbent material for the packaging of biological and liquid radioactive waste) - agricultural, Grade 4.

d. SLAKED LIME (Used to retard spoilage of biological radioactive waste).

e. BAG, Plastic, Magenta, 20" x 15" x 60", 4 mil thickness. (Used as a liner for large waste receptacle).

f. BAG, Plastic, Magenta, 13" x 12" x 24", 2 mil thickness. (Used as a liner for small laboratory radioactive waste receptacle).

g. DIATOMACEOUS EARTH, medium grade (floor dry #85), 2.5 cu ft bag. (Used as an absorbent material for packaging of liquid radioactive waste).

3. Additional items will be stocked or procured as required to meet the provisions of Federal/State regulatory agencies.

4. Principal Users are responsible for funding the costs of materials and supplies used to dispose of radioactive wastes. Although Principal Users will pay for the supplies they stock for use in their particular areas, the Health Physics Office, RMC Branch, will order and pick up the supplies needed to collect and package the radioactive waste received from the Principal Users. All orders placed by the Health Physics Office for radioactive waste disposal supplies for the hospital, WRAIR and AFIP will be funded by Clinical Investigation, Department of Pathology/Laboratory Services, Department of Radiology, WRAIR, or AFIP as appropriate.

FEB 05 1991

License No. 08-01738-02
Docket No. 030-01317
Control No. 112925

Department of the Army
Walter Reed Army Medical Center
ATTN: Lt. Col. Llewellyn E. Piper,
Executive Officer
Washington, DC 20307-5001

Gentlemen:

This is in reference to your request in a letter dated July 11, 1990, to amend License No. 08-01738-02. In order to continue our review, we need the following additional information:

Item 2 of your letter requests that your license be amended in order to change your decay-in-storage program. In reference to that request please address the following questions.

1. Please submit an estimation of the volume of contaminated waste to be produced.

2. Provide a copy of instructions which will be provided to employees concerning the segregation of radioactive waste. Your instructions must be adequate to assure that waste is properly labelled or identified, especially with regard to isotope.

3. Please provide a description of the records that will be maintained and labelling that will be used to track and identify the waste.

4. Describe the instrumentation and the monitoring procedure you will use to determine that the waste is free of radioactive contamination at the end of the storage period. Please include the minimal detectable activity (MDA) which will be achieved.

5. Describe the containers in which the waste will be stored and show that they are appropriate to the waste form anticipated and are likely to survive the proposed storage interval.

6. Describe the storage facility, including security and fire protection features. Show that the facility is large enough to hold the expected volume of waste, and adequate to protect the waste containers from deterioration due to environmental conditions.

We will continue our review upon receipt of this information. Please reply in duplicate to my attention at the Region I office and refer to Mail Control No. 112925.

OFFICIAL RECORD COPY ML 037 JOUSTRA - 0001.0.0
01/31/91

ML 10

If we do not receive a reply from you within 30 calendar days from the date of this letter, we shall assume that you do not wish to pursue your application.

Sincerely,

Original Signed By:
Judith A. Joustra

Judith A. Joustra
Nuclear Materials Safety Section A
Division of Radiation Safety
and Safeguards

RI:DRSS
Joustra/vhd

1/ 5 /91

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ML 037 JOUSTRA - 0002.0.0
01/31/91

030-01317

DEPARTMENT OF THE ARMY
OFFICE OF THE SURGEON GENERAL
5109 LEESBURG PIKE
FALLS CHURCH, VA 22041-3258

REPLY TO
ATTENTION OF

July 16, 1990

Preventive and Military
Medicine Consultants Division

US Nuclear Regulatory Commission
Region I
475 Allendale
King of Prussia, Pennsylvania 19406

Dear Sir:

Enclosed are two copies of a request to amend Byproduct Material License Number 08-01738-02, Walter Reed Army Medical Center, Washington, DC.

Recommend approval.

Sincerely,

Charles E. Day, III
Lieutenant Colonel, U.S. Army
Radiological Hygiene Consultant

Enclosure

FEE EXEMPT

OFFICIAL RECORD COPY 10

112925

JUL 19 1990

DEPARTMENT OF THE ARMY
WALTER REED ARMY MEDICAL CENTER
WASHINGTON, D.C. 20307-5001

REPLY TO
ATTENTION OF:

18 JUN 1990

HSHL-H-HP (385-11m)

MEMORANDUM THRU

Commander, US Army Health Services Command, ~~ATTN: HSCL-P, Fort Sam Houston, TX 78234-6000~~ Robert Mehay LTC, MS 5 Jul 90

HQDA (SGPS-PSP-E), 5109 Leesburg Pike, Falls Church, VA 22041-3258

FOR US Nuclear Regulatory Commission, Region I, Nuclear Material Safety Section A, 475 Allendale Road, King of Prussia, PA 19406

SUBJECT: Amendment of US Nuclear Regulatory Commission License No. 08-01738-02

1. Request that NRC License No. 08-01738-02 for Walter Reed Army Medical Center be amended to reflect a change in the Radiation Safety Officer from 1Lt. Allen W. Anthony to LTC Peter H. Myers. LTC Myers has been assigned as the Chief, Health Physics Office at Walter Reed AMC since August 1989. A Training and Experience Form and a Curriculum Vitae for LTC Myers are enclosed (Enclosures 1 and 2).

2. Request that Walter Reed's license also be amended to allow the holding for decay of radioactive waste containing isotopes with half lives up to ninety (90) days. We have been decaying waste with half lives of sixty five (65) days or less for a few years and have a good program for segregating, packaging, storing, and disposing of this material. We have the space to hold material for three (3) years instead of the current twenty two (22) months. Some protocols at Walter Reed use P-32 and S-35 in the same labs or even the same experiments, requiring that all the waste be packaged for burial because of the S-35 half life. Some animal studies use three (3) or four (4) different microspheres to measure blood flow at different time points in an experiment, Cr-51, Ru-103, and Ce-141 (all with half

FEE EXEMPT

lives of less than sixty five (65) days) may be used with Sc-46 so all the waste has to be packaged for burial. This amendment would reduce our solid waste volume to the burial ground by 10-20%.

FOR THE COMMANDER:

2 Encls

LLEWELLYN E. PIPER
LTC, MS
Executive Officer

TRAINING AND EXPERIENCE OF AUTHORIZED RADIOISOTOPE USER

1. NAME OF AUTHORIZED USER (Last, First, MI)	2. STATE OR TERRITORY IN WHICH LICENSED: (MD, DDS, DVM, etc.)
MYERS, Peter H.	

RANK/GRADE	ORGANIZATION	ORGANIZATIONAL DIVISION	BLDG./ROOM NO.	WRAMC AUTHORIZATION NO.
LTC	WRAMC	Health Physics Office	Bld 188,FGS,WRAMC	221

3. CERTIFICATION

SPECIALTY BOARD A	CATEGORY B	MONTH AND YEAR CERTIFIED C
N/A	N/A	N/A

4. FORMAL EDUCATION

HIGHEST ACADEMIC DEGREE ATTAINED

	Higher Educational Institutions Attended	Type of Program Pursued and Dates of Attendance	Degree, Diploma or Certificate Received and Date
a.	Texas A&M University	MS,Biophysics (Rad Hlth)	MS,Biophysics (Rad Hlth)
b.	University of Kansas	BA. Biology (Env Hlth)	BA. Biology (Env Hlth)
c.			
d.			

EX 6

5. TRAINING RECEIVED IN BASIS RADIOISOTOPE HANDLING TECHNIQUES

FIELD OF TRAINING A	LOCATION AND DATE(S) OF TRAINING (Include course title if known) B	TYPE AND LENGTH OF TRAINING: LECTURE/ LABORATORY COURSES (Hours) C	TYPE AND LENGTH OF TRAINING: SUPERVISED LABORATORY EXPERIENCE (Hours) D
a. RADIATION PHYSICS AND INSTRUMENTATION	Applied Hlth Phys Crse Oak Ridge Nat'l Lab, TN June 1978	60	20
b. RADIATION PROTECTION	Applied Hlth Phys Crse Oak Ridge Nat'l Lab, TN June 1978	60	20
c. MATHEMATICS PERTAINING TO THE USE AND MEASUREMENT OF RADIOACTIVITY	Applied Hlth Phys Crse ORAU, TN June 1978	15	5
d. RADIATION BIOLOGY	Applied Hlth Phys Crse ORAU, TN	15	5
e. RADIOPHARMACEUTICAL CHEMISTRY			

WRAMC FORM 1 FEB 79 1643 (PREVIOUS EDITIONS ARE OBSOLETE) (OVER)

Encl 1

6. EXPERIENCE WITH RADIATION *(Actual use of Radioisotopes) (Sealed or unsealed source)*

ISOTOPE	MAXIMUM AMOUNT	WHERE EXPERIENCE WAS GAINED	DURATION OF EXPERIENCE	TYPE OF USE
Pu-239 Ar-241 Cs-137 Sr-90 Co-60		Enewetok Atoll Radiological Clean-up	1 year	Environmental Clean-up Project Debris & Soil
I-131 Ir-192 Cs-137	400 mCi	WRAMC WRAMC WRAMC	10 months 10 months 10 months	Radiotherapy Radiotherapy Radiotherapy

7. EXPERIENCE WITH RADIATION PRODUCING DEVICES *(X-ray, Irradiators, etc.)*

DEVICE	WHERE EXPERIENCE WAS GAINED	DURATION OF EXPERIENCE	TYPE OF USE
GE Maximar 250-III Deep Therapy X-ray Unit	Texas A&M University	2 years	Research Pro-
Research/Teaching Nuclear Reactor	Texas A&M University	1 year	General Radiation Program OJT — (1) Waste Management (2) Env Monitoring (3) Dosimetry (4) Isotope Manufacture for use in Research

8. CERTIFICATION:

I certify that the information provided hereon is true and complete to the best of my knowledge.

25 May 91
(Date Signed)

(Signature of Applicant)

CURRICULUM VITAE

for

PETER HALL MYERS, Lieutenant Colonel

DATE AND PLACE OF BIRTH: [redacted]

YEARS OF ACTIVE MILITARY SERVICE: Over 22 years

PRESENT ASSIGNMENT: (3 Aug 89 to present)
Chief, Health Physics Office; Alternate RPO,
Walter Reed Army Medical Center,
Washington, DC 20307-5001

MILITARY EDUCATION (pertinent to radiation protection):

1. Senior Officers' Nuclear Accident Course,
3 1/2 days (8 hours related to 10CFR35.900), 24-27 Apr 78
InterService Nuclear Weapons School
Kirtland Air Force Base, New Mexico

(included presentations on basic radiation protection principals used in managing nuclear weapons accidents, e.g., characteristics of radiological materials to be encountered, contamination monitoring and identification, hot line operations)

2. Nuclear Medical Science Officers Workshop
1 week (11 hours related to 10CFR35.900), 19-23 Oct 81
U.S. Army Environmental Hygiene Agency
Aberdeen Proving Ground, Maryland

(included presentations on management of radiation protection programs and topical radiation protection issues)

3. Nuclear Weapons Orientation Advanced Course
1 week (2 hours related to 10CFR35.900), 1-5 Mar 82
InterService Nuclear Weapons School
Kirtland Air Force Base, New Mexico

4. Medical Effects of Nuclear Weapons Course,
1 week (17 hours related to 10CFR35.900), 28 Feb-4 Mar 83
Armed Forces Radiobiology Research Institute
Bethesda, Maryland

(included presentations on predicted human response to both high and low doses of ionizing radiation; receipt and processing (by medical treatment facilities) of patients contaminated by nuclear material; and basic and advanced medical techniques for the management and treatment of patients having received ionizing radiation exposures)

Ex 2

Encl 2

Curriculum Vitae, LTC Peter H. Myers
(continued)

MILITARY EDUCATION (continued):

5. U.S. Army Medical Department Radiation Health Sciences Course
1 week (16 hours related to 10CFR35.900), 24-28 Oct 88
U.S. Army Environmental Hygiene Agency
Aberdeen Proving Ground, Maryland

(included presentations on management of radiation protection programs and topical radiation protection issues)

CIVILIAN EDUCATION (relative to radiation protection):

1. Applied Health Physics Course
5 weeks (200 hours related to 10CFR35.900), 30 May-1 Jul 77
Oak Ridge Associated Universities
Oak Ridge, Tennessee

(see attachment 7 for course curriculum)

2. Graduate Study leading to Master of Science Degree in Biophysics (emphasis in Health Physics)
2 years, Jul 79-Jun 81 (52 Semester Hours)
Texas A&M University
College Station, Texas

(see attachment 8 for details of courses taken)

(included one-year of practical experience (4-8 hours a week) working with Texas A&M's Dosimetry Program, Cyclotron and Research Reactor's Radiation Protection Programs, Radioactive Waste Management Program, Environmental (air, water and soil) Monitoring Program)

3. ABHP Certification Examination Preparation Course
21 Weeks (57 hours related to 10CFR35.900), 11 Jan-31 May 90
Baltimore-Washington Chapter, Health Physics Society
(Classes at NRC Headquarters, Rockville, MD)

(see attachment 9 for details of course curriculum)

HEALTH PHYSICS EXPERIENCE:

1. Instructor, Radiation Protection
July 1977 - April 1978
Radiological/Chemical Protection Branch
Academy of Health Sciences
Fort Sam Houston, Texas

(included preparing and presenting classes on Battlefield

HEALTH PHYSICS EXPERIENCE (continued);

Nuclear Radiation Protection to Army Medical Department Officers; classes included characteristics of ionizing radiation (alpha, beta and gamma), monitoring for ionizing radiation contamination, decontamination procedures and principles of radiation protection (time, distance and shielding)

2. Assistant Radiation Protection Officer
2 May 1978 - 1 May 1979
Joint Task Group
Enewetak Atoll Cleanup Project
Enewetak Atoll,
Trust Territories of the Pacific Islands

(included assisting the RPO in the preparation and execution of all radiation protection policies in support of the three-year multi-Agency project to remove debris and radiologically-contaminated soil from the islands of Enewetak Atoll; part of the Atomic weapons Pacific Test Site, 1948 - 1958. Radionuclides encountered included those typical to nuclear weapons detonations: Plutonium-239, Americium-241, Cesium-137, Strontium-90, Cobalt-60. Significant radiation protection programs involved: personnel dosimetry, personnel and equipment contamination control, hot-line operations, and air sampling.)

3. Course Director, Medical Effects of Nuclear Weapons Course
6 March 1984 - 6 January 1986
Armed Forces Radiobiology Research Institute
National Naval Medical Center
Bethesda, MD

(included presentations on predicted human response to both high and low doses of ionizing radiation; receipt and processing (by medical treatment facilities) of patients contaminated by nuclear material; and basic and advanced medical techniques for the management and treatment of patients having received ionizing radiation exposures)

4. Nuclear, Biological, Chemical Staff Officer
January 1986 - July 1987
Office of The Surgeon General
Headquarters, Department of the Army
Washington, DC

(included sponsoring and staying abreast of latest research on medical treatment of ionizing radiation exposure patients; of specific interest was the development of radioprotectants and medicaments to maintain effective performance during times

HEALTH PHYSICS EXPERIENCE (continued):

when early radiation sickness ordinarily would interfere with performance effectiveness -- also included development of procedures to be used by battlefield medical units to maximize effectiveness within environments affected by nuclear weapons detonations, e.g., unit preparation in anticipation of nuclear weapons detonations (shielding from prompt ionizing radiation exposures) and unit procedures subsequent to nuclear weapons detonations (shielding from residual radiation exposures and prevention of residual radiation contamination.)

5. Commander
14 July 1987 - 13 July 1989
US Army Pacific Environmental Health Engineering Agency
Camp Zama, Japan

(included directly supervising Health Physics Division whose responsibility was to perform surveys of Tripler Army Medical Center's (TAMC's) Radiation Protection Program which, in part, supported their Nuclear Medicine Clinic -- direct supervision involved reviewing and approving all survey reports written in evaluation of TAMC's Radiation Protection Program.)

NITED STATES AIR

Certifies that

CPT PETER H. MYERS [redacted] Ex 6

has successfully completed the

SENIOR OFFICERS NUCLEAR ACCIDENT COURSE (G302P0515-1)
KIRTLAND AIR FORCE BASE, NEW MEXICO 87117
PDS CODE: NPR DURATION: 3½ DAYS

and is herewith awarded this

CERTIFICATE of TRAINING

Butler T. Franklin

BUTLER T. FRANKLIN, Lt Col, USAF
Commandant
Interservice Nuclear Weapons School

24 - 27 Apr 1978
Date

DEPARTMENT OF THE ARMY

CERTIFICATE OF TRAINING

This is to certify that

MAJ PETER H. MYERS

has successfully completed

NUCLEAR MEDICAL SCIENCE OFFICERS WORKSHOP
19 - 23 OCT 81

Given at US Army Environmental Hygiene Agency

Charles E. Day III

CHARLES E. DAY, III
MAJ, MSC
Course Director

DA FORM 87, 1 OCT 79 EDITION OF 1 JUL 74 WILL BE USED.

NUCLEAR MEDICAL SCIENCE OFFICERS' CONFERENCE

18 October 1981

Sunday

0001-2400	Sign-in & Register	SDO & SDNCO

19 October 1981

Monday

TIME	TITLE	INSTRUCTOR
0815-0830	In-processing	Mrs. Donley
0830-0845	Welcome	COL Whitlaw
0845-0900	Course Introduction	MAJ Day
0910-0950	Orientation/Task Assignments	MAJ Day/CPT Vreuls
1000-1100	Nuclear Medical Science Officers in the Army	COL McDermott
1110-1200	MSC Affairs	BG Jordan
	LUNCH	
1300-1330	Litigation of Speaking Out(JAG)	MAJ Reilly
1335-1425	Radiological Technician(91P)	1LT Watts
1435-1525	Health Physics Technician(91M)	CPT Harrison
1535-1600	Naval Health Physics	CDR Beuchler
1605-1630	Air Force Health Physics	LTC Kopp

20 October 1981

Tuesday

0800-1630	201/Branch File Review with Personnel Interview	COL McDermott
0800-0850	Rad Contaminated Patients; Physician's Perspectives	LTC Spebar
0850-0900	Class Photo	
0900-0950	WRAMC-RAMI	CPT Tupin
1000-1050	NUWAX-8	MAJ Mathewson
1100-1150	Nuc Med Sci Officers in the Field	CPT(P) Connock
	LUNCH	
1300-1330	AFFRI Orientation	COL Adcock/MAJ Hagai
1335-1425	Non-Ionizing Rad: What's New	LMD (TBA)
1435-1525	INRAD	MAJ Potter
1535-1625	Internal Dosimetry	MAJ(P) Williams

21 October 1981

Wednesday

TIME	TITLE	INSTRUCTOR
0800-0850	Rad Waste Management at a MEDCEN	CPT Cherry
0900-0950	Rad Waste Management in the Army	Byron Morris
1000-1050	Air Gap Technique	MAJ Day
1100-1150	HSC in Perspective	LTC Field
	LUNCH	
1300-1330	Army Nuclear Chemical Agency Orientation	MAJ Myers
1335-1425	Dosimetry: Estimated Fetal Exposure Utilizing Radiographs	MAJ Wright
1435-1625	Instrument and Monitoring Methods for Health Physicists	CPT Cherry

22 October 1981

Thursday

0800-0850	American Society of Radiological Technologist	Ms Dorothy Foutf
0900-0950	Society of Nuclear Medicine	Dr. Hendee
1000-1050	Nuclear Regulatory Commission	Mrs. P. Vacca
1100-1150	Bureau of Radiological Health	John Villforth
	LUNCH	
1300-1330	DARCOM Orientation	MAJ Gaston
1335-1425	American Association of Physicists in Medicine	Dr. Wright
1435-1525	Health Physics Society	Mr. Holeman
1535-1625	National Committee on Radiation Protection	Dr. Taylor
1800-1900	Banquet	
1900-2000	Eat	
2000-	Dr. Hendee	

23 October 1981

Friday

0800-1030	Discussion of Tasks	MAJ Day
1040-1120	Open Discussion	All Students
1130-1145	Critique	All Students
1150-1215	Summary & Closing Remarks	MAJ Day
	LUNCH	
1315-1630	Out-Processing	SM
	Sign-Out	SDO & SDNCO

THE UNITED STATES AIR FORCE

MCMXLVII

[redacted]

has successfully completed the

NUCLEAR WEAPONS ORIENTATION ADVANCED COURSE (G302P4054)
KIRTLAND AIR FORCE BASE, NEW MEXICO 87117
PDS CODE: EHX DURATION: 14 1/2 DAYS

and is herewith awarded this

CERTIFICATE of TRAINING

Francis M. Gullick

FRANCIS M. GULLICK, Lt Col, USAF
Commander
Interservice Nuclear Weapons School

1-5 Mar 82
Date

Armed Forces Radiobiology Research Institute

Defense Nuclear Agency

Certificate of Completion

This is to certify that

MAJ Peter H. Myers, MSC, USA

has completed 29 hours of

MEDICAL EFFECTS OF NUCLEAR WEAPONS

a Course for Military Physicians

given at the Armed Forces Radiobiology Research Institute,

Bethesda, Maryland.

4 March 1983

DATE

BOBBY R. ADCOCK
Colonel, MSC, USA
Director, AFRRI

As an organization accredited for continuing medical education, the Naval Health Sciences Education and Training Command designates this continuing medical activity as meeting the criteria for credit hours in Category I of the Physician's Recognition Award of the American Medical Association.

29

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History of Nuclear Weapons . . . . . B

The Threat and U.S. Concept of Nuclear War C

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Blast and Thermal Effects of Nuclear Weapons . . . . . E

Physical Principles of Ionizing Radiation Effects . . . . . F

Cellular Radiation Biology . . . . . G

Effects of Ionizing Radiation on Organ Function . . . . . H

Performance Decrement Caused by Ionizing Radiation I

The Acute Radiation Syndrome: Diagnosis and Treatment . . . . . J

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Nuclear Weapons Accidents . . . . . Q

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Radiation Sources: Principles and Operations V

Potential Hazards of Chemical Agents on the Nuclear Battlefield . . . . . W

Detection and Decontamination of Radiation Casualties X

Radiation Exposure: Values and Risks . . . . . Y

"SECTION COPY"

112880

DEPARTMENT OF THE ARMY

CERTIFICATE OF TRAINING

This is to certify that

LTC PETER H. MYERS

has successfully completed

THE ARMY MEDICAL DEPARTMENT
RADIATION HEALTH SCIENCES COURSE
24-28 Oct 88

Given by: U.S. Army Environmental Hygiene Agency

Arthur B. Webb
LTC, MS
DRES

DA FORM 87, 1 OCT 78

OAK RIDGE ASSOCIATED UNIVERSITIES

This is to certify that

PETER H. MYERS

has completed

A FIVE-WEEK APPLIED HEALTH PHYSICS COURSE

conducted by Special Training Division of
Oak Ridge Associated Universities
Operating under contract with the
Energy Research and Development Administration

1ST day of JULY, 1977

at Oak Ridge, Tennessee

Chairman, Special Training Division

APPLIED HEALTH PHYSICS

May 30 - June 3, 1977

FIRST WEEK

DATE	TIME	TOPIC	LECTURER	R
Monday, May 30	8:00 AM	Welcome, Registration, Orientation	Beck/Kent	
	9:00 AM	ATOMIC AND NUCLEAR STRUCTURE	PAULSON	
	11:00 AM	Math Review	Beck	
	1:00 PM	INTRODUCTION TO RADIOACTIVITY	PAULSON	
	2:30	COMPUTER ORIENTATION	GLEASON	
Tuesday, May 31	8:00 AM	MODES AND RATES OF DECAY	PAULSON	
	9:30 AM	Lab: Computational Techniques	Beck	
	10:30 AM	COUNTING STATISTICS	GLEASON	
	1:00 PM	PARTICLE INTERACTIONS	PAULSON	
	2:30 PM	GAS DETECTORS: G-M COUNTERS	BECK	
	3:30 PM	Lab: HP-1 Laboratory Techniques	Kent/Auxier	
Wednesday, June 1	8:00 AM	GAMMA INTERACTIONS	PAULSON	
	9:30 AM	Lab: HP-2 G-M Counting	Auxier/Beck	
	1:00 PM	GAS DETECTORS: PROPORTIONAL COUNTERS	KENT	
	2:30 PM	Lab: HP-3 Beta Characteristics	Auxier/Paulson	
Thursday, June 2	8:00 AM	QUANTITIES AND UNITS I	BECK	
	9:30 AM	Review & Problem Session	Kent	
	10:30 AM	GAS DETECTORS: IONIZATION CHAMBERS	KENT	
	1:00 PM	SCINTILLATION SPECTROMETRY I	GLEASON	
	2:30 PM	Lab: HP-8 Proportional Counting	Beck/Kent	
Friday, June 3	8:00 AM	QUANTITIES AND UNITS II	BECK	
	9:30 AM	Review and Quiz	Beck/Kent	
	10:30 AM	SCINTILLATION SPECTROMETRY II	GLEASON	
	1:00 PM	BIOLOGY REVIEW	GIST	
	2:30 PM	Lab: HP-5 Gamma Ray Spectrometry	Gleason	

Attachment 7

APPLIED HEALTH PHYSIC

June 6 - 10, 1977

SECOND WEEK

DATE	TIME	TOPIC	LECTURER
Monday, June 6	8:00 AM	SCINTILLATION SPECTROMETRY III	GLEASON
	9:30 AM	Lab: HP-6 Multichannel Analyzer	Paulson/Gleason
	1:00 PM	RADIATION BIOLOGY I	CLOUTIER
	2:30 PM	Lab: HP-45 Bio. Effects of Radiation	Gist/Auxier
Tuesday, June 7	8:00 AM	LIQUID SCINTILLATION COUNTERS	GIST
	9:30 AM	Lab: HP-20 Liquid Scintillation Counters	Gist/Kent
	1:00 PM	RADIATION BIOLOGY II	CLOUTIER
	2:30 PM	RADIATION PROTECTION GUIDES I	BECK
Wednesday, June 8	8:00 AM	X-RAY PRODUCTION AND CHARACTERISTICS	CLOUTIER
	9:30 AM	Review and Problem Session	Kent
	10:30 AM	SHIELDING I	BECK
	1:00 PM	SHIELDING II	KENT
	2:30 PM	Lab: HP-18 Shielding	Kent/Beck
Thursday, June 9	8:00 AM	RADIATION PROTECTION GUIDES II	BECK
	9:30 AM	ACUTE EFFECTS OF RADIATION	ANDREWS
	10:45 AM	Shielding Evaluation Problem	Kent
	1:00 PM	IONIZATION SURVEY INSTRUMENTS	KENT
	2:30 PM	Lab: HP-13 Ionization Survey Meter Characteristics	Beck/Kent
Friday, June 10	8:00 AM	GEIGER-MUELLER SURVEY INSTRUMENTS	BECK
	9:00 AM	Lab: HP-21 Condenser R Meter	Beck/Kent
	11:00 AM	Review and Quiz	Beck/Kent
	1:00 PM	SOURCES OF HEALTH PHYSICS INFORMATION	BECK
	2:00 PM	Lab: HP-14 G-M Survey Instruments	Beck/Kent

APPLIED HEALTH PHYSICS

June 13 - 17, 1977

THIRD WEEK

DATE	TIME	TOPIC	LECTURER	ROOM
Monday, June 13	8:00 AM	SPECIAL SURVEY INSTRUMENTS	KENT	E-4
	9:00 AM	Lab: (A) γ Scintillation Instruments	Beck	E-4
		(B) α Instruments	Kent	E-4
	11:00 AM	NEUTRON PRODUCTION	PAULSON	E-4
	1:00 PM	NEUTRON INTERACTIONS AND DETECTION	PAULSON	E-4
	2:30 PM	Lab: (B) γ Scintillation Instruments	Beck	E-4
		(A) α Instruments	Kent	E-4
Tuesday, June 14	8:00 AM	STANDARDIZATION	GLEASON	E-4
	9:30 AM	Lab: HP-35 Standardization	Gleason	W-14
	1:00 PM	NEUTRON SURVEY INSTRUMENTS		E-4
	2:30 PM	Lab: (A) HP-15 BF_3 Detectors	Beck	W-15
		(B) HP-16 Neutron Survey Instruments	Kent	E.B.
Wednesday, June 15	8:00 AM	FACILITY DESIGN		E-4
	9:30 AM	Review and Problem Session	Kent	E-4
	11:00 AM	NEUTRON SHIELDING		E-4
	1:00 PM	FILM DOSIMETRY	KENT	E-4
	2:30 PM	Lab: (B) HP-15 BF_3 Detectors	Beck	W-15
		(A) HP-16 Neutron Survey Instruments	Kent	E.B.
Thursday, June 16	8:00 AM	THERMOLUMINESCENT DOSIMETRY	BECK	E-4
	9:30 AM	Lab: (A) HP-25 Thermoluminescent Dosimetry	Beck	W-1
		(B) HP-22 Film Dosimetry	Kent	W-14
	1:00 PM	INTERNAL DOSIMETRY I	CLOUTIER	E-4
	2:30 PM	Lab: (B) HP-25 Thermoluminescent Dosimetry	Beck	W-1
		(A) HP-22 Film Dosimetry	Kent	W-14
Friday, June 17	8:00 AM	INTERNAL DOSIMETRY II	CLOUTIER	E-4
	9:30 AM	Review and Quiz	Beck/Kent	E-4
	11:00 AM	INTERNAL DOSIMETRY III	CLOUTIER	E-4
	1:00 PM	TRITIUM HAZARDS	GIST	E-4
	2:30 PM	Lab: Internal Dosimetry	Cloutier/Kent	E-4

APPLIED HEALTH PHYSICS

June 20 - 24, 1977

FOURTH WEEK

DATE	TIME	TOPIC	LECTURER	ROO
Monday, June 20	8:00 AM	RADIATION ACCIDENTS	LUSHBAUGH	E-4
	9:00 AM	PROTECTIVE CLOTHING AND RESPIRATORS	BERGER	E-4
	10:30 AM	Lab: Protective Clothing & Respirators	Berger/Beck	E.B
	1:00 PM	BIOASSAY AND WHOLE-BODY COUNTING	CLOUTIER	E-4
	3:00 PM	Lab: HP-32 Bioassay	Beck/Kent	W-1
Tuesday, June 21	8:00 AM	ELEMENTS OF EMERGENCY PLANNING	SMALLEY	E-4
	9:30 AM	MEDICAL ASPECTS OF INTERNAL CONTAMINATION		E-4
	10:30 AM	ACCIDENT DOSIMETRY	BECK	E-4
	1:00 PM	EMERGENCY PROCEDURES	BECK	E-4
	2:30 PM	Lab: Accident Dosimetry	Beck/Kent	W-1
Wednesday, June 22	8:00 AM	ADVANCED ABSOLUTE COUNTING	GLEASON	E-4
	9:30 AM	Review and Problem Session	Kent	E-4
	11:00 AM	SEMICONDUCTOR DETECTORS	KENT	E-4
	1:00 PM	PARTICLE SPECTROSCOPY	KENT	E-4
	2:30 PM	Lab: (A) HP-28 Particle Spectroscopy	Kent/Paulson	W-1
		(B) HP-38 Advanced Absolute Counting	Gleason	W-1
Thursday, June 23	8:00 AM	AIR SAMPLING AND ANALYSIS		E-4
	9:30 AM	Lab: (B) HP-28 Particle Spectroscopy	Kent/Paulson	W-1
		(A) HP-38 Advanced Absolute Counting	Gleason	W-1
	1:00 PM	NEUTRON ACTIVATION ANALYSIS	GLEASON	E-4
	2:30 PM	Lab: (A) HP-36 Air Sampling	Kent/Beck	W-1
		(B) HP-42 Neutron Activation Analysis	Paulson/Gleason	E.B
Friday,	8:00 AM	ENVIRONMENTAL MONITORING	GIST	E-4
	9:30 AM	Review and Quiz	Beck/Kent	E-4
	11:00 AM	CRITICALITY AND FISSION	CLOUTIER	E-4
	1:00 PM	DECONTAMINATION	KENT	E-4
	2:30 PM	Lab: (A) HP-42 Neutron Activation Analysis	Gleason/Paulson	E.B
		(B) HP-36 Air Sampling	Beck/Kent	W-1

APPLIED HEALTH PHYSICS

June 27 - July 1, 1977

FIFTH WEEK

DATE	TIME	TOPIC	LECTURER	R
Monday, June 27	8:00 AM	WATER SAMPLING AND ANALYSIS		E
	9:30 AM	Lab: (B) Decontamination	Beck/Kent	W
	1:00 PM	CONTAMINATION & SMEAR SURVEYS	BERGER	E
	2:30 PM	Lab: (A) HP-33 Decontamination (B) HP-37 Water Analysis	Beck/Kent Kent/Beck	W W
Tuesday, June 28	8:00 AM	LOW LEVEL COUNTING	GLEASON	E
	9:30 AM	Lab: HP-12 Low Level Counting	Gleason/Paulson	W
	1:00 PM	CRITICALLITY SAFETY		E
	2:30 PM	Lab: Practice Survey	Beck/Kent	E
Wednesday, June 29	8:00 AM	WASTE DISPOSAL	BERGER	E
	9:30 AM	Review and Problem Session	Kent	E
	11:00 AM	X-RAY FLUORESCENCE	PAULSON	E
	1:00 PM	TRANSPORTATION		E
	2:30 PM	Lab: (A) HP-47 X-Ray Fluorescence	Paulson/Gleason	E
Thursday, June 30	8:00 AM	SEALED SOURCE DESIGN AND TESTING	BERGER	E
	9:30 AM	LICENSING REGULATIONS	BECK/BERGER Cloutier/Kent	E
	1:00 PM	PUBLIC INFORMATION	ALEXANDER	E
	2:00 PM	Field Exercise	Beck/Kent	E
Friday, July 1	8:00 AM	Critique	Beck/Kent	E
	9:00 AM	Final Exam	Beck/Kent	E
	10:00 AM	HEALTH PHYSICS CHALLENGES	CLOUTIER	E
	11:00 AM	Commencement	Beck/Kent	E
	12:00 N	END OF COURSE		

MRS. PETER HALL

7915005

TEXAS A&M UNIVERSITY

College Station, Texas

DATE AND PLACE OF BIRTH:

ADMISSION: GRADUATE, BA, UNIV OF KANSAS
LAWRENCE, KANSAS

SOCIAL SECURITY NUMBER:

TO THE RECIPIENT OF THIS DOCUMENT: THIS INFORMATION MAY NOT BE RELEASED OR TRANSFERRED TO ANY OTHER PERSON, AGENCY OR PARTY WITHOUT THE STUDENT'S CONSENT.

GRADUATE COLLEGE
BIO-PHYSICS

Descriptive Title	Course Number	Hours Th	Hours Pr	Grade	Cr Hrs	Gr Pts
1ST TERM SS 1979						
CALCULUS	MATH 210	3	0		3	9
7915005			3		3	9
2ND TERM SS 1979						
CALCULUS	MATH 307	3	0		3	9
ELECTRICITY	PHYS 219	3	3		3	9
7915005			3			
FALL SEMESTER 1979						
DIFF. EQUATIONS	MATH 308	3	0		3	9
INTRO TO NUC ENGR I	N E 201	3	0		3	12
ENVRNMNTL NUCLEAR ENGR	N E 475	3	0		3	12
ELECTRICITY	PHYS 219	3	3		4	16
7915005		13			13	49
SPRING SEMESTER 1980						
RESEARCH	BIPH 691	2	0		2	
INTRO TO NE II	N E 202	3	0		3	9
RADIATION PROTCTN ENGR	N E 479	2	3		3	12
SEMINAR	N E 681	1	0		1	
BIONUCLEONICS II	VPP 626	3	3		4	16
7915005		10			13	37

Descriptive Title	Course Number	Hours Th	Hours Pr	Grade
1ST SUMMER 1980				
RESEARCH	BIPH 691	6	0	
7915005				
2ND SUMMER 1980				
RESEARCH	BIPH 691	6	0	
7915005				
FALL SEMESTER 1980				
RESEARCH	BIPH 691	2	0	
MUS. DET. ISO. TECH LAB	N E 402	2	3	
PRIN OF RADIOLOG. SAF.	N E 613	3	0	
PROBLEMS	N E 685	3	0	
7915005			9	
SPRING 1981				
RESEARCH	BIPH 691	2	0	
RADIO. SAFETY & HAZARDS	N E 612	3	0	
SEMINAR	N E 681	1	0	
PROBLEMS	N E 685	3	0	
7915005			6	

DEGREE OF MASTER OF SCIENCE (BIPH)
CONFERRED 9-8-81

1990 HEALTH PHYSICS CERTIFICATION EXAMINATION PREPARATION COURSE

Preliminary Schedule

Date	Topic	Assignment
Jan 11	**Introduction to the Course** Charlie Willis, Director, 301-492-1091 Joel Rabovsky, Co-director, 202-602-1223	None
Jan 18	**Radioactivity & Decay** Charlie Willis, NRC	Cember Chapter 4 Prob. 1, 2, 4, 5, 6, & 15; Exam 28: #10
Jan 25	**Interaction With Matter** James Rogers, GU, 202-687-2173	Cember Chapter 5 Probs 1, 3, 19-21, 25, 28, 36
Feb 1	**External Radiation Dosimetry** Charlie Willis	Cember Chapter 6 Prob. 1-6, 13-15
Feb 8	**Shielding** Francis M. Roddy, Bechtel 301-258-3097	Cember Chapter 10 Ex 28 #4; Ex 29 #5 Probs. 1, 2, 3, 5, 6, 8, 13, 16
Feb 15	**Internal Dosimetry** Allen Brodsky, 301-840-5443	Cember Chapter 8 Ex 28: 3, 5; Ex 29 9
Feb 22	**Bioassay** Allen Brodsky	Handouts
Mar 1	**TLD & Film Dosimetry** Eric E. Kearsley, 301-295-5414	Cember, pp 257-262 Exam 28: 11 & 13
Mar 8	**Instrumentation & Spectroscopy** Timothy Osborn, ESA, 301-498-1514	Cember Chapter 9 Problems 12-20
Mar 15	**Biological Effects of Radiation** Kenneth Mossman, GU, 202-653-5505	Cember Ch 7 & NCRP 91 Exam 29: 1 & 6
Mar 22	**Criticality** Charlie Willis	Cember Chapter 12 Problems: all Ch. 12
Mar 29	**Environmental Health Physics** Harold Paterson, NRC, 301-492-3640	Cember pp 339-352 Ex 28 8, 14 Ex 29 7
Apr 5	Break: Chapter Meeting Recommended	
Apr 12	**Industrial Radiography** Steve McGuire, NRC, 301-492-3757 **Statistics** Warren Keene, CU, 202-635-5206	NUREG/BR-0024 Cember pp 282-290 Problems 2, 3, 5, 7
Apr 19	**Transportation** Alfred Grella, NRC, 301-492-3381	Handouts

Apr 26	**Medical Health Physics** Coleman Rosen, Fairfax, 703-698-3705	
May 3	**Reactor Health Physics** John Serabian, CIA,	Handouts Exam 29: #3
May 10	**Radon** Robert Watters, ENRAD, 301-948-8040	NCRP 78
	Accelerator Health Physics Lester A. Slaback, NIST, 975-5810	NCRP-51 & Patterson & Thomas, "Accelerator HP," Chapter 4
May 17	**Beta Dosimetry** Sidney Porter, Porter Cons., 215-896-5353	Handouts
May 24	**Uranium Fuel Cycle** Frank Congel, NRC, 301-492-1091	Handouts Exam 29: #8
May 31	**Practice Examination** John Serabian Charlie Willis	Handouts

1990 Certification Course

NAME		COMPANY	ADDRESS			PHONE
Arnaudo	Joseph	FDA	1390 Piccard Dr.	Rockville	MD 20850	427-1050
Burchanowski	John	Army	STRBE-VR	Ft. Belvoir	VA 22060	664-5437
Camper	Larry	NRC		Washington	DC 20555	492-0573
Clark	James	NIST	Bldg 235, Rm A132	Rockville	MD 20899	975-8516
Dolce	Kathleen	NIH	9000 Rockville Pk	Bethesda	MD 20892	496-574
Doremus	Steven	Naval Med. C.		Bethesda	MD 20814	295-5422
Faraz	Yawar	NUS	910 Clopper Rd	Gaithersburg	MD 20877	258-8750
Fenton	Norm	HPSI	4 Research Pl #140	Rockville	MD 20850	670-1818
Haapala	Marvin		1307 Lake Elmo Dr.	Billings	MT 59105	(406)259-4443
Hill	Dan	HPSI	4 Research Pl #140	Rockville	MD 20850	(800)969-4774
Kerns	Kenneth	DNA/AFRRI		Bethesda	MD 20814-5145	295-2299
Krueger	Suzanne	K-G HP	8114 Sandpiper Cr	Baltimore	MD 21236	529-4440
LaVake	Thomas	NIH	9000 Rockville Pk.	Bethesda	MD 20892	496-5774
Liotta	Philip	Naval Med C	Code 047	Bethesda	MD 20814	295-5426
Melanson	Mark	Army	107 Chell Rd.	Joppa	MD 21085	679-8528
Mengers	Timothy	NIST	Bldg 235 Rm A106	Gaithersberg	MD 20899	975-5810
Myers	Pete	Army	Walter Reed	Washington	DC 20307	427-5104
Nicholson	Nora	VEPCO	PO Box 402	Mineral	VA 23117	894-2419
Numark	Neil	ERC Env.	321 Germantown Rd.	Fairfax	VA 22030	246-0421
Orlando	Nick	HPSI	4 Research Pl #140	Rockville	MD 20852	670-1818
Pierpont	Sujita	U. MD	Bldg 018 Rm 1102	College Park	MD 20742	454-5294
Rao	Nimi	NSWC	New Hampshire Ave	Silver Spring	MD 20908-5000	394-4292
Schlueter	Janet	NRC	Mail Stop 6-H-3	Washington	DC 20555	492-0633
Shandruk	Petro	FDA	5600 Fishers Ln	Rockville	MD 20857	443-2850
Vassar	John	Edison	6026 Tree Swallow	Columbia	MD 21044	992-4217
Watson	Bruce	BGE	Calvert Cliffs	Lusby	MD 20657	260-4740
Webb	Arthur	AFRRI	Nat. Naval Med. Ct.	Bethesda	MD 20814-5145	295-0472
Williams	Betty Ann	AFRRI	Nat. Naval Med. Ct.	Bethesda	MD 20814-5145	295-2299
Zaremba	Loren	CDRH	1390 Piccard Dr.	Rockville	MD 20850	427-1050

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MATERIALS LICENSE

Amendment No. 60

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974 (Public Law 93-438), and Title 10, Code of Federal Regulations, Chapter I, Parts 30, 31, 32, 33, 34, 35, 39, 40 and 70, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, possess, and transfer byproduct, source, and special nuclear material designated below; to use such material for the purpose(s) and at the place(s) designated below; to deliver or transfer such material to persons authorized to receive it in accordance with the regulations of the applicable Part(s). This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954, as amended, and is subject to all applicable rules, regulations and orders of the Nuclear Regulatory Commission now or hereafter in effect and to any conditions specified below.

Licensee	
1. Department of the Army Walter Reed Army Medical Center (WRAMC) 2. Washington, D.C. 20307-5001	In accordance with letter dated July 11, 1991, 3. License number 08-01738-02 is amended in its entirety to read as follows: 4. Expiration date April 30, 1993 5. Docket or Reference No 030-01317

6. Byproduct, source, and/or special nuclear material	7. Chemical and/or physical form	8. Maximum amount that licensee may possess at any one time under this license
A. Any byproduct material with atomic numbers 1-83	A. Any	A. 400 millicuries of each radionuclide with a total possession limit of 26 curies
B. Iodine 131	B. Any	B. 2 curies
C. Xenon 133	C. Any	C. 2 curies
D. Krypton 85	D. Any	D. 1 curie
E. Gold 198	E. Any	E. 1 curie
F. Phosphorus 32	F. Any	F. 2 curies
G. Carbon 14	G. Any	G. 2 curies
H. Iodine 125	H. Any	H. 1 curie
I. Iridium 192	I. Any	I.
J. Chromium 51	J. Any	J. 750 millicuries
K. Sulfur 35	K. Any	K. 1 curie
L. Hydrogen 3	L. Any	L. 5 curies
M. Molybdenum 99	M. Molybdenum 99/ Technetium 99m Generators	M. 23 curies
N. Technetium 99m	N. Any	N. 23 curies
O. Strontium 90	O. Sealed sources	O.
P. Cesium 137	P. Sealed sources	P.
Q. Gadolinium 153	Q. Sealed sources	Q.
R. Iodine 125	R. Sealed sources (Norland Inst. Co., Model 178A591A)	R. 400 millicuries
S. Iodine 125	S. Sealed sources (3M Company seeds)	S. 500 millicuries
T. Iodine 125	T. Sealed sources (AECL Models C235 or C324, or Amersham Corp Model IMC.P2)	T. 4 sources, not to exceed 300 millicuries each
U. Cesium 137	U. Sealed sources	U.
V. Cobalt 60	V. Sealed sources	V.

Information in this record was deleted in accordance with the Freedom of Information Act, exemptions 2 & 6
FOIA 2006-0238

Ex 2

KK/13

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MATERIALS LICENSE
SUPPLEMENTARY SHEET

License number: 08-01738-02
Docket or Reference number: 030-01317
Amendment No. 60

(Items 6., 7. & 8. continued)

6. Byproduct, source, and/or special nuclear material	7. Chemical and/or physical form	8. Maximum amount that licensee may possess at any one time under this license
W. Americium 241	W. Any	W. 100 microcuries
X. Americium 241	X. Sealed source	X.
Y. Nickel 63	Y. Sealed sources and foils	Y. 1 curie
Z. Iodine 129	Z. Sealed sources	Z. 1 curie
AA. Thorium	AA. Any	AA. 5 kilograms
BB. Uranium	BB. Any	BB. 50 kilograms
CC. Uranium depleted in Uranium 235	CC. Plated Metal	CC. 400 kilograms
DD. Americium 241	DD. Sealed sources	DD.
EE. Cesium 137	EE. Sealed source	EE.
FF. Cesium 137	FF.	FF.

9. Authorized use

A. through T. Medical research, diagnosis, and therapy; research and development as defined in 10 CFR 30.4.
U. through Z. Research and development as defined in 10 CFR 30.4; teaching.
AA. and BB. Teaching and laboratory research.
CC. Shielding
DD. Standards and reference sources.
EE. In an for calibration of instruments.
FF. Instrument calibration.

CONDITIONS

10. Location of use:

Walter Reed Army Medical Center, Washington, D. C.; WRAMC Forest Glen Section and Annex, Silver Spring, Maryland; U.S. Army Medical Research Institute for Infectious Diseases, Fort Detrick, Frederick, Maryland; Andrew Rader Army Clinic, Fort Myer, Virginia; Walter Reed Army Institute of Research Animal Holding Facility, Fort Meade, Maryland; U.S. Army Medical Laboratory, WRAMC Department of Pathology, Fort Meade, Maryland; and U.S. Army Institute of Dental Research Facility, Fort Meade, Maryland; Rickman Building, 13 Taft Court, Rockville, Maryland; Key West Research Center, 9620 Medical Center Drive, Rockville, Maryland.

11. Radiation Safety Officer: MAJ Arthur G. Samiljan.

Ex 2

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License number: 08-01738-02
Docket or Reference number: 030-01317
Amendment No. 60

(Continued) CONDITIONS

12. A. Licensed material shall be used by, or under the supervision of, individuals designated by the licensee's Radiation Safety Committee, Col. Joan T. Zajtchuk, Chairman.

    B. The use of licensed material in or on humans shall be by a physician as defined in Section 35.2 of 10 CFR Part 35.

    C. Physicians designated to use licensed material in or on humans shall meet the training criteria established in 10 CFR Part 35, Subpart J.

13. Experimental animals administered licensed materials or their products shall not be used for human consumption.

14. In lieu of using the conventional radiation caution colors (magenta or purple on yellow background) as provided in Section 20.203(a)(1), of 10 CFR Part 20, the licensee is hereby authorized to label detector cells and cell baths, containing licensed material and used in gas chromatography devices, with conspicuously etched or stamped radiation caution symbols without a color requirement.

15. Detector cells containing titanium tritide foil shall only be used in conjunction with a properly operating temperature control mechanism which prevents foil temperatures from exceeding 225 degrees Centigrade.

16. Detector cells containing scandium tritide foil shall only be used in conjunction with a properly operating temperature control mechanism which prevents foil temperatures from exceeding 325 degrees Centigrade.

17. Notwithstanding the requirements of 10 CFR 35.49 (a) and (b), the licensee may use for medical use any byproduct material or reagent kit for which the Food and Drug Administration has accepted a "Notice of Claimed Investigational Exemption for a New Drug" (IND).

18. The licensee may transport licensed material in accordance with the provisions of 10 CFR Part 71, "Packaging and Transportation of Radioactive Material".

19. If only a single radionuclide specified in NUREG 0767, is possessed, the possession limit is the quantity specified in Schedule of Limiting Possession Limits, NUREG-0767. If two or more radionuclides are possessed, the possession limit for each is determined as follows: the sum of the quotients of the quantities possessed divided by the quantities of those radionuclides specified in the Schedule of Limiting Possession Limits, NUREG-0767 shall not exceed unity.

20. The licensee is authorized to hold radioactive material with a physical half-life of less than 90 days for decay-in-storage before disposal in ordinary trash provided:

    A. Radioactive waste to be disposed of in this manner shall be held for decay a minimum of 10 half-lives.

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License number: 08-01738-02
Docket or Reference number: 030-01317
Amendment No. 60

(20. continued) CONDITIONS

B. Before disposal as normal waste, radioactive waste shall be surveyed to determine that its radioactivity cannot be distinguished from background. All radiation labels shall be removed or obliterated.

C. Generator columns shall be segregated so that they may be monitored separately to ensure decay to background levels prior to disposal.

21. Except as specifically provided otherwise in this license, the licensee shall conduct its program in accordance with the statements, representations, and procedures contained in the documents, including any enclosures, listed below. The Nuclear Regulatory Commission's regulations shall govern unless the statements, representations and procedures in the licensee's application and correspondence are more restrictive than the regulations.

A. Application dated July 18, 1979
B. Letter dated January 13, 1984
C. Letter dated May 8, 1987
D. Letter dated March 16, 1988
E. Letter dated March 28, 1988
F. Application dated August 5, 1988
G. Letter dated September 23, 1988
H. Letter dated July 28, 1989
I. Letter dated September 12, 1989
J. Letter dated January 19, 1990
K. Letter dated July 16, 1990
L. Letter dated March 15, 1991
M. Letter dated July 11, 1991

For the U.S. Nuclear Regulatory Commission

Date DEC 0 6 1991

By Original Signed By: Judith A. Johnson

Nuclear Materials Safety Branch
Region I
King of Prussia, Pennsylvania 19406

DEC 0 6 1991

License No. 08-01738-02
Docket No. 030-01317
Control No. 114973

Department of the Army
Walter Reed Army Medical Center (WRAMC)
ATTN: Roy D. Quick, Jr.
MAJ, MS
Executive Officer
Washington, DC 20307-5001

Dear Mr. Quick:

Please find enclosed an amendment to your NRC Material License.

Please review the enclosed document carefully and be sure that you understand all conditions. If there are any errors or questions, please notify the Region I Material Licensing Section, (215) 337-5093, so that we can provide appropriate corrections and answers.

Please be advised that you must conduct your program involving licensed radioactive materials in accordance with the conditions of your NRC license, representations made in your license application, and NRC regulations. In particular, please note the items in the enclosed, "Requirements for Materials Licensees."

Since serious consequences to employees and the public can result from failure to comply with NRC requirements, the NRC expects licensees to pay meticulous attention to detail and to achieve the high standard of compliance which the NRC expects of its licensees.

You will be periodically inspected by NRC. A fee may be charged for inspections in accordance with 10 CFR Part 170. Failure to conduct your program safely and in accordance with NRC regulations, license conditions, and representations made in your license application and supplemental correspondence with NRC will result in prompt and vigorous enforcement action against you. This could include issuance of a notice of violation, or in case of serious violations, an imposition of a civil penalty or an order suspending, modifying or revoking your license as specified in the General Policy and Procedures for NRC Enforcement Actions, 10 CFR Part 2, Appendix C.

We wish you success in operating a safe and effective licensed program.

Sincerely,

Original Signed By:
Judith A. Joustra

Judith A. Joustra
Medical Licensing Section D
Division of Radiation Safety
and Safeguards

Enclosures:
1. Amendment No. 60
2. Requirements for Materials Licensees

DRSS:RI
Joustra/sl

12/5/91

030-01317

DEPARTMENT OF THE ARMY
WALTER REED ARMY MEDICAL CENTER
WASHINGTON, D.C. 20307-5001

REPLY TO
ATTENTION OF:

HSHL-HP (385-11m)

11 JUL 1991

MEMORANDUM FOR US Nuclear Regulatory Commission, Region I, Nuclear Material Safety Section A, 475 Allendale Road, King of Prussia, PA 19406

SUBJECT: Amendment of US Nuclear Regulatory Commission License No. 08-01738-02.

1. Request that NRC License No. 08-01738-02 for Walter Reed Army Medical Center be amended to reflect a change in the Radiation Safety Officer from LTC Peter H. Myers to MAJ Arthur G. Samiljan. MAJ Samiljan has been assigned as the Chief, Health Physics Office at Walter Reed AMC since June 1991, before that he was the Chief, Operations Branch of the Health Physics Office and alternate RPO at WRAMC since August 1990. A Training and Experience Form and a Curriculum Vitae for MAJ Samiljan are enclosed (Enclosures 1 and 2).

2. Please be advised that Col Joan T. Zajtchuk is the new Deputy Commander for Clinical Services and in that capacity is the new Chairman of the Radiation Control Committee of Walter Reed Army Medical Center.

FOR THE COMMANDER:

2 Encls

ROY D. QUICK, JR.
MAJ, MS
Executive Officer

Copies Furnished

Commander, US Army Health Services Command, ATTN: HSCL-P, Fort Sam Houston, TX 78234-6000
HQDA (SGPS-PSP-E), 5109 Leesburg Pike, Falls Church, VA 22041-3258

FEE EXEMPT

114973

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JUL 17 1991

TRAINING AND EXPERIENCE OF AUTHORIZED RADIOISOTOPE USERS

1. NAME OF AUTHORIZED USER (Last, First, MI)	2. STATE OR TERRITORY IN WHICH LICENSED: (MD, DDS, DVM, etc.)
SAMILJAN, ARTHUR G.	

RANK/GRADE	ORGANIZATION	ORGANIZATIONAL DIVISION	BLDG./ROOM NO.	WRAMC AUTHORIZATION NO.
MAJ	WRAMC	Health Physics	Bldg 188 FGS	221

3. CERTIFICATION

SPECIALTY BOARD A	CATEGORY B	MONTH AND YEAR CERTIFIED C

4. FORMAL EDUCATION — HIGHEST ACADEMIC DEGREE ATTAINED

	Higher Educational Institutions Attended	Type of Program Pursued and Dates of Attendance	Degree, Diploma or Certificate Received and Date
a.	University of FL	MS Env Eng (Rad Hlth)	MS
b.			
c.			
d.			

Ex6

5. TRAINING RECEIVED IN BASIS RADIOISOTOPE HANDLING TECHNIQUES

FIELD OF TRAINING A	LOCATION AND DATE(S) OF TRAINING (Include course title if known) B	TYPE AND LENGTH OF TRAINING: LECTURE/LABORATORY COURSES (Hours) C	TYPE AND LENGTH OF TRAINING: SUPERVISED LABORATORY EXPERIENCE (Hours) D
a. RADIATION PHYSICS AND INSTRUMENTATION	University of Florida Kirtland AFB, AFRRI	60	20
b. RADIATION PROTECTION	"	60	20
c. MATHEMATICS PERTAINING TO THE USE AND MEASUREMENT OF RADIOACTIVITY	"	100	20
d. RADIATION BIOLOGY	"	60	20
e. RADIOPHARMACEUTICAL CHEMISTRY			

WRAMC FORM 1643
1 Jan 91

(OVER)

Fig. 1 1

CIRRICULUM VITAE

for

ARTHUR G. SAMILJAN, Major

DATE AND PLACE OF BIRTH: [ ]

YEARS OF ACTIVE MILITARY SERVICE: Over 18 years

PRESENT ASSIGNMENT: (21 Jun 91 to present)
Chief, Health Physics Office; Alternate RPO,
Walter Reed Army Medical Center,
Washington, DC 20307-5001

MILITARY EDUCATION (pertinent to radiation protection):

1. Medical Effects of Nuclear Weapons Course, 8-12 Sep 86
Armed Forces Radiobiology Research Institute
Bethesda, Maryland

2. Army Medical Department Physics and Military Medicine Course, 26-30 Oct 87
U.S. Army Environmental Hygiene Agency
Aberdeen Proving Ground, Maryland

(included presentations on management of radiation protection programs and topical radiation protection issues)

3. Radiological Hazards Associated with Depleted Uranium Munitions Course, 16-20 Nov 87
U.S. Army, Belvoir Research, Development & Engineering Center, Fort Belvoir, Virginia

4. Laser Microwave Hazards Workshop, 25-29 Apr 88
U.S. Army Environmental Hygiene Agency
Aberdeen Proving Ground, Maryland

5. The Army Medical Department Radiation Health Sciences Course, 24-28 Oct 88
U.S. Army Environmental Hygiene Agency
Aberdeen Proving Ground, Maryland

(included presentations on management of radiation protection programs and topical radiation protection issues)

6. Senior Officer Nuclear Accident Course, 24-27 Apr 89
InterService Nuclear Weapons School
Kirtland Air Force Base, New Mexico

Ex 2

Encl 2

MILITARY EDUCATION (continued):

7. Management of Radiation Accidents and Emergency Prepardness Training Course, 5-9 Jun 89
U.S. Army, Belvoir Research, Development & Engineering Center, Fort Belvoir, Virginia

8. Nuclear Weapons Incident Seminar, 7-8 Mar 91
Naval Base
Norfolk, Virginia

9. Medical X-Ray Survey Techniques Course, 15-26 Apr 91
Academy of Health Sciences
Fort Sam Houston, Texas

CIVILIAN EDUCATION (relative to radiation protection):

Graduate Study leading to Master of Science Degree in Environmental Engineering (emphasis in Health Physics)
Aug 84 - Dec 85
University of Florida
Gainesville, Florida

HEALTH PHYSICS EXPERIENCE:

1. Nuclear, Biological, and Chemical Officer
Mar 76 - Jun 77
44th Medical Brigade
Fort Bragg, North Carolina

(included designing and supervising the training of 100 personnel in battle field radiation detection, survey techniques, monitoring, decontamination, and protection)

2. Nuclear, Biological, and Chemical Officer
Jun 77 - Dec 78
5th General Hospital
Bad Cannstatt, Germany

(included designing and supervising the training of 350 personnel in battle field radiation detection, survey techniques, monitoring, decontamination, and protection)

3. Manager, Department of the Army, Nuclear Test Personnel Review
Jan 86 - Dec 87
Environmental Support Group
Washington, DC

(included the identification, dose assessments, and notification of all Army personnel who participated in the atmospheric nuclear testing program from 1944 to 1963.

4. Medical Health Physics Consultant
   Dec 87 - Jun 89
   Headquarters, Army Materiel Command
   Office of the Command Surgeon
   Alexandria, Virginia

   (included being the Commanding General's action officer for health aspects of ionizing and nonionizing radiation as applied to the command's workforce, and technical advisor on health hazard assessment of new materiel and to related materiel management processes.

5. Contract Manager, Johnston Island Plutonium Clean-up Project
   Jun 89 - Aug 90
   Field Command
   Defense Nuclear Agency
   Johnston Atoll

   (included planning, directing, and supervising the clean-up project, conducting radiological site surveys, and establishing procedures for packaging, storing, and disposal of radioactive waste)

6. Chief, Operations Branch/Assistant RPO
   Aug 90 - Jun 91
   Health Physics Office
   Walter Reed Army Medical Center
   Washington, DC

   (included reviewing x-ray compliance surveys and radiositope laboratory room surveys, monitoring radiation therapy procedures, performing x-ray shielding evaluations and dose assessments, and assisting the RPO in the preparation and execution of all radiation protection policies in support of the medical center's NRC license, and ionizing and nonionizing radiation producing devices)

Armed Forces Radiobiology Research Institute

Defense Nuclear Agency

Certificate of Completion

This is to certify that

MAJ Arthur G. Samuljan

Ex. 6

has completed 29 hours of

MEDICAL EFFECTS OF NUCLEAR WEAPONS

conducted by the

Armed Forces Radiobiology Research Institute,

Bethesda, Maryland

8-12 September 1986

DATE

JAMES J. CONKLIN
Colonel, USAF, MC
Director

As an organization accredited for continuing medical education, the Naval Health Sciences Education and Training Command designates this continuing medical activity as meeting the criteria for 29 credit hours in Category I of the Physician's Recognition Award of the American Medical Association.

AFRRI FORM 57
15 MAY 83

Ex 6

CONTENTS

Welcome and Introduction . . . . . A

Military Radiobiology: A Perspective . . . . . B

Physical Principles of Nuclear Weapons C

Blast and Thermal Effects of Nuclear Weapons . . . . . D

Physical Principles of Ionizing Radiation Effects . . . . . E

Cellular Radiation Biology . . . . . F

Effects of Ionizing Radiation on Organ Function . . . . . G

Performance Decrement Caused by Ionizing Radiation . . . . . H

The Acute Radiation Syndrome: Diagnosis and Treatment I

Current Concepts in Management of Radiation Injuries and Associated Trauma J

Medical Operations in Nuclear War . . . . . K

Impact of Electromagnetic Radiation L

Human Experience in Radiation Injury . . . . . M

Nuclear Weapons Accidents . . . . . N

Radiation-Detecting Devices . . . . . O

Fallout: Its Characteristics and Management . . . . . P

Thermal Trauma in Nuclear Warfare . . . . . Q

Long-Term Effects of Ionizing Radiation . . . . . R

Radiation Sources: Principles and Operations . . . . . S

Radiation Pathology . . . . . T

Detection and Decontamination of Radiation Casualties . . . . . U

Radioprotectants V

Internal Contamination With Medically Significant Radionuclides . . . . . W

Psychological Effects of Nuclear Weapons X

114973

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DEPARTMENT OF THE ARMY

CERTIFICATE OF TRAINING

This is to certify that

MAJ ARTHUR G. SAMILJAN

has successfully completed

THE ARMY MEDICAL DEPARTMENT RADIATION HEALTH SCIENCES COURSE 24-28 Oct 88

Given by: U.S. Army Environmental Hygiene Agency

Arthur B. Webb
LTC, MS
DRES

DA FORM 87, 1 OCT 78

"OFFICIAL RECORD COPY" AW 10

114973

This is to Certify that

MAJ ARTHUR G. SAMILJAN

has attended the "Radiological Hazards Associated with Depleted Uranium Munitions" training course presented by the United States Army, Belvoir Research, Development and Engineering Center, at Fort Belvoir, Virginia, November 16-20, 1987.

L. H. Munson
Pacific Northwest Laboratory

F. J. Lenoach, Chief
Training and Development Division
Civilian Personnel Office

D. E. Hadlock
Pacific Northwest Laboratory

RADIOLOGICAL HAZARDS ASSOCIATED WITH DEPLETED URANIUM MUNITIONS

COURSE OUTLINE

Topics	Reference Text
- Purpose of Radiation Safety Program	Chapter 3, pages 3-26
Controls	
Regulations	Chapter 6, pages 3-26
Implementation	Chapter 8, pages 15-34
Inspection and Enforcement	
Radiation Safety Program and Depleted Uranium	
- History of Depleted Uranium Production	
- Military Uses of Depleted Uranium	
Uses of Depleted Uranium	
Advantages of Depleted Uranium	
Disadvantages of Depleted Uranium	
- Characteristics of Depleted Uranium	
Isotopic	
Physical Properties	
Chemical Properties	
Nuclear Properties	

Topics	Reference Text
- Uranium Processing	
Uranium Processing to Green Salt	
Mining	
Milling	
Conversion	
Uranium Processing, Green Salt to Metal	
Orange Salt	
Green Salt	
Metal	
Purification	
Uranium Metal Processing	
Conversion of DU Derby to Components	
Conversion of DU Derby to Rod	
Conversion of DU Rod to Penetrator	
Hazards Associated with Mechanical Processes	
Hazards Associated with Machining/Lathing	
- Radiation Physics	Chapter 1, pages 5-33
Natural Radiation	pages 49-53
Manmade Radiation	
Atomic Structure	
Isotopes	

Topics	Reference Text
Radioactive Decay	
Properties of Ionizing Radiation	
Radiation Quantities and Units	
Types of Radiation Exposure	
- Radiation Biology and Toxicology	Chapters 1, pages 31-41
Radionuclide Pathways Into the Body	Chapter 5, pages 3-37
Radionuclide Transport Within the Body	Chapter 7, pages 6-13
Maximum Permissible Concentrations	
Threshold Limit Value	
- Radiation Protection Program Surveillance	Chapter 4, pages 5-35
Program Administration	
Radiological Measurements	
Protective Measures	
- Dosimetry and Instrumentation	Chapter 2, pages 5-52
Personnel Dosimetry Program	
Personnel Dosimetry Types	
Factors in Accurate Dose Assignment	
Radiation Detector Instruments	
Demonstration Workshop	

Topics	Reference Text
- Depleted Uranium Storage and Transportation	
Typical Radiation Levels	
Transportation and Mechanical Damage	
Demilitarization	
- Aerosol Sampling and Environmental Monitoring	Chapter 4, pages 21-23
Aerosol Sampling	
Respirable Particulates	Chapter 5, page 6
Routine Air Sampling	Chapter 13, pages 5-50
Selection of Sampling Locations and Equipment	
Sampling Frequency	
Records	
Environmental Monitoring	Chapter 4, page 30
Relationship to Radiation Safety Program	Chapter 3, page 8
Elements of the Environmental Monitoring Program	
Records Requirements	
- Fire Hazards of Depleted Uranium Munitions	
Heat Test (XM774)	
Heat Test (XM829)	
Los Alamos Heat Test	

Topics	Reference Text
EMERGENCY RESPONSE	
- Depleted Uranium Munitions Impact Testing	
Testing Hard and Soft Target Range	
Operations	
- Recovery and Restoration	Chapter 7, pages 14-16
Property	pages 31-44
Equipment	
Approvals	
- Waste Management	Chapter 10, pages 3-14

DEPARTMENT OF THE ARMY

CERTIFICATE OF TRAINING

This is to certify that

MAJ ARTHUR G. SAMILJAN

has successfully completed

LASER MICROWAVE HAZARDS WORKSHOP 6H-17
25 - 29 April 1988

Given at US Army Environmental Hygiene Agency

Arthur B. Webb
ARTHUR B. WEBB
LTC, MS
C, Laser Microwave Division

DA FORM 87, 1 OCT 70

1. USE OF LASERS IN INDUSTRY AND SOCIETY

2. USE OF LASERS IN G. M. OF CANADA

3. BASIC CONCEPTS AND LASER LIGHT PROPERTIES

4. BIOLOGICAL EFFECTS OF LASER LIGHT

5. HAZARDS OTHER THAN LIGHT

6. LASER CLASSIFICATION

7. CONTROL MEASURES

DEPARTMENT OF THE ARMY

CERTIFICATE OF TRAINING

This is to certify that

MAJ ARTHUR G. SAMILJAN

has successfully completed

AMEDD PHYSICS AND MILITARY MEDICINE COURSE
26 - 30 Oct 87

Given at US Army Environmental Hygiene Agency

RALPH R. CARESTIA, COLONEL, MS
Director, Radiation and Environmental Sciences

The United States Air Force

CERTIFIES THAT

MAJ ARTHUR G. SAMILJAN

HAS SUCCESSFULLY COMPLETED THE

SENIOR OFFICER NUCLEAR ACCIDENT COURSE (G30ZP0515-001)
KIRTLAND AIR FORCE BASE, NEW MEXICO 87117
PDS CODE: NPR DURATION: 3 DAYS (24 HRS)

AND IS HEREWITH AWARDED THIS

Certificate of Training

WALTER L. BRADSHAW III, Lt Col, USAF
Commander
Interservice Nuclear Weapons School

27 Apr 89
DATE

This is to Certify that

ART SAMILJAN

has successfully completed

Scinta, inc.

(40 Hours)

5-9 June 1989

MANAGEMENT OF RADIATION ACCIDENTS and EMERGENCY PREPAREDNESS TRAINING COURSE

Bernard Shleien

Bernard Shleien, Pharm. D.
Certified Health Physicist
American Board of Health Physics
President, Scinta, Inc.

"OFFICIAL RECORD COPY"

114973

MANAGEMENT OF RADIATION ACCIDENTS and EMERGENCY PREPAREDNESS TRAINING COURSE

AGENDA

Monday, June 5, 1989

8:30 **Introduction**

Overview - Dr. B. Shleien
Pretest - R. Johnson

9:15 **Radiation and Radioactivity -**

Radiation Basics and Units - T. Osborne

10:15 Coffee

10:30 Sources of Radiation - B. Shleien

11:15 Radiation Bioeffects - B. Shleien

12:00 Lunch

1:00 Principles of Radiation Protection - R. Johnson

1:30 Radiation Standards - R. Johnson

2:00 Coffee

2:15 **Radiation Survey Instruments and Operations -** T. Osborne

3:00 **Exercise** - T. Osborne

Demonstration and Use of Survey Meters, Pocket Dosimeters, Air Samplers.

Monitoring Exercise

5:00 Adjourn

Wednesday, June 7, 1989

8:30 **Protective Action Guides and Protective Actions** - B. Shleien

Plume Pathway
Ingestion Pathway
Thyroid Blocking
Access Control
Respiratory Protection
Sheltering
Evacuation
Potassium Iodide
Protective Actions for Food Chain

9:30 Coffee

9:45 **Pre-Hospital Response to Accidents - Video**

10:15 **Radioactive Contamination at the Accident Site** - R. Johnson

Contamination Control
Surface Contamination Guides
Measuring Ground Contamination
Decontamination Procedures
Air Monitoring
Herbage Sampling
Milk Measurements
Whole Body Counting and Bioassay
Meteorological Factors

11:30 **SOP's for Police, Firemen, and First Responders** - B. Shleien

12:15 Lunch

1:15 **Exercise** - T. Osborne

Hotline and Contamination Control
Protective Clothing
Respiratory Protection

2:00 **Writing an Emergency Response Plan** -
B. Shleien, R. Johnson, T. Osborne

Radiation Accident at a Storage Facility
Materials Common to U.S. Army Facilities

5:00 Adjourn

US Army

This is to certify that

MAJOR ARTHUR G. SAMILJAN

has successfully completed the

MEDICAL X-RAY SURVEY TECHNIQUES COURSE
6H-F18/323-F18

Given at Fort Sam Houston, Texas

from 15 April 1991 to 26 April 1991

Colonel, DC, Dean
Medical Field Service School

Colonel, MC
Acting Commandant

AHS FORM 208, 27 MAR 74

512-221-6682

6H-F18 CLASS 91-1 TEACHING SCHEDULE

WEEK NUMBER: 1

DAY NUMBER: 1

Day	Date	Start	Stop	LP No.	Subject	Instructor	Remarks
MON	15-04-1991	07:00	07:40	85-999-101	Inprocessing	Pavlick	Bring course notebooks for students, post classroom number on door of 0410, remind students to always bring scientific calculator
		07:40	08:00	76-350-332	Radiation Safety Briefing	Bland	Read Christensen's Chapter 26 (pp 401 - 406), DD 1952, Slides
		08:00	08:20	85-999-102	Course Opening	Gaston	
		08:30	09:10	76-350-300	Overview of Diagnostic Radiology	Bresell	Slides
		09:20	11:00	76-350-305	Production of X-rays	Lee	Read Christensen's Chapter 2, Slides
		11:10	11:55	76-350-900	Lunch	Staff	
		12:05	13:50	76-350-310	X-ray Generators	Bland	Read Christensen's Chapter 3, Slides
		14:00	15:10	76-350-315	Interactions Between X-rays and Matter	Schlapper	Read Christensen's Chapter 4, Slides
		15:20	16:35	76-350-320	Attenuation of X-rays	Collins	Read Christensen's Chapter 5, Slides

DAY NUMBER: 2

Day	Date	Start	Stop	LP No.	Subject	Instructor	Remarks
TUE	16-04-1991	07:30	09:10	76-350-325	Measurement of X-rays	Lee	Read Mimeo 76-350-325 Prior to Class, Slides
		09:20	10:05	76-350-330	Filters, Collimators, and Grids	Collins	Read Christensen's Chapters 6, 7, and 8, Slides
		10:15	11:00	76-350-355	The Image Receptor	Schlapper	Read Christensen's Chapters 10 and 11, Slides
		11:10	11:55	76-350-395	Operation and Limitation of Selected	Collins	Slides, MDH, Timer, Light Meter, kVp Meter

14:00	16:35	76-350-380	Federal Performance Standards	Martin	Browse 21 CFR Subchapter J, TB MED 521, Slides

DAY NUMBER: 4

Day	Date	Start	Stop	LP No.	Subject	Instructor	Remarks
THR	18-04-1991	07:30	08:10	76-350-350	Review of Labs II - IV	Bresell	
		08:25	11:55	76-350-425	Lab VII - Survey of Mobile Units	Staff	Group A - Lab VII; X-ray Survey Kit
		08:25	11:55	76-350-420	Lab VIII - Survey of Fluoroscopic Unit	Staff	Group B - Lab VIII; X-ray Survey Kit
		08:25	11:55	76-350-415	Lab IX - Survey of General Purpose Radiographic Unit	Staff	Group C - Lab IXb; X-ray Survey Kit
		08:25	11:55	76-350-415	Lab IX - Survey of General Purpose Radiographic Unit	Staff	Group D - Lab IXa; X-ray Survey Kit
		12:05	12:55	76-350-900	Lunch	Staff	
		13:05	16:35	76-350-420	Lab VIII - Survey of Fluoroscopic Unit	Staff	Group A - Lab VIII; X-ray Survey Kit
		13:05	16:35	76-350-425	Lab VII - Survey of Mobile Units	Staff	Group B - Lav VII; X-ray Survey Kit
		13:05	16:35	76-350-415	Lab IX - Survey of General Purpose Radiographic Unit	Staff	Group C - Lab IXa; X-ray Survey Kit
		13:05	16:35	76-350-415	Lab IX - Survey of General Purpose Radiographic Unit	Staff	Group D - Lab IXb; X-ray Survey Kit

DAY NUMBER: 5

Day	Date	Start	Stop	LP No.	Subject	Instructor	Remarks
FRI	19-04-1991	07:30	11:00	76-350-415	Lab IX - Survey of General Purpose Radiographic Unit	Staff	Group A - Lab IXa; X-ray Survey Kit

14:00	15:40	76-350-375	Legal Aspects of Occupational Exposure	Schlapper	Slides, Calculators
15:50	16:35	85-999-103	Open (Research/Study)	Staff	

DAY NUMBER: 2

Day	Date	Start	Stop	LP No.	Subject	Instructor	Remarks
TUE	23-04-1991	07:30	08:15	76-350-470	Organ Dose Estimation in Diagnostic	Bland	Slides, Overheads, Scientific Calculator
		08:25	09:10	76-350-475	Selected Diagnostic X-ray Radiation Protection Survey	Schlapper	Slides
		09:20	10:05	76-350-500	JCAHO Standards	Marx	Slides, Overheads, Scientific Calculator
		10:15	11:55	76-350-900	Lunch	Staff	
		12:05	16:35	76-350-385	X-ray Survey Data Analysis Practical Exercise	Bresell	X-ray Survey Form, Overheads, Calculator

DAY NUMBER: 3

Day	Date	Start	Stop	LP No.	Subject	Instructor	Remarks
WED	24-04-1991	07:30	09:25	76-020-435	Examination II: Survey of General Purpose	Staff	Group 1a - Exam IIb, X-ray Survey Kit
		07:30	09:25	76-020-435	Examination II: Survey of General Purpose	Staff	Group 2a - Exam IIa; X-ray Survey Kit
		07:30	09:25	76-020-445	Examination IV: Survey of Mobile Unit	Staff	Group 3a - Exam IV; X-ray Survey Kit
		07:30	09:25	76-020-440	Examination III: Survey of Fluoroscopic Unit	Staff	Group 4a - Exam III; X-ray Survey Kit
		07:30	09:10	76-010-395	Examination I: Principles of X-ray Production, Image	Staff	Group B - Exam 1; Scientific Calculator

14:30	16:35	85-999-103	Open (Research/Study)	Staff	Group B
14:35	16:30	76-020-440	Examination III: Survey of Fluoroscopic Unit	Staff	Group 1a - Exam III; X-ray Survey Kit
14:35	16:30	76-020-445	Examination IV: Survey of Mobile Unit	Staff	Group 2a - Exam IV; X-ray Survey Kit
14:35	16:30	76-020-435	Examination II: Survey of General Purpose	Staff	Group 4a - Exam IIb; X-ray Survey Kit
14:35	16:30	76-020-435	Examination II: Survey of General Purpose	Staff	Group 3a - Exam IIa; X-ray Survey Kit

DAY NUMBER: 4

Day	Date	Start	Stop	LP No.	Subject	Instructor	Remarks
THR	25-04-1991	07:30	09:25	76-020-435	Examination II: Survey of General Purpose	Staff	Group 1b - Exam IIb; X-ray Survey Kit
		07:30	09:25	76-020-435	Examination II: Survey of General Purpose	Staff	Group 2b - Exam IIa; X-ray Survey Kit
		07:30	09:25	76-020-445	Examination IV: Survey of Mobile Unit	Staff	Group 3b - Exam IV; X-ray Survey Kit
		07:30	09:25	76-020-440	Examination III: Survey of Fluoroscopic Unit	Staff	Group 4b - Exam III; X-ray Survey Kit
		07:30	09:10	76-010-395	Examination I: Principles of X-ray Production, Image	Staff	Group A, Scientific Calculator
		09:20	09:50	85-999-103	Open (Research/Study)	Staff	Group A
		10:00	10:45	76-350-405	Exam I Critique	Lee	Group A

14:35	16:30	76-020-445	Examination IV: Survey of Mobile Unit	Staff	Group 2b - Exam IV; X-ray Survey Kit
14:35	16:30	76-020-435	Examination II: Survey of General Purpose	Staff	Group 4b - Exam IIb; X-ray Survey Kit
14:35	16:30	76-020-435	Examination II: Survey of General Purpose	Staff	Group 3b - Exam IIa; X-ray Survey Kit

DAY NUMBER: 5

Day	Date	Start	Stop	LP No.	Subject	Instructor	Remarks
FRI	26-04-1991	07:30	10:05	76-350-445	Radiation Protection Program Management Seminar	Staff	
		10:15	11:00	76-999-101	Critique and Graduation	Gaston	Critique Sheets

NUCLEAR WEAPON INCIDENT SEMINAR- 7-8 MAR 1991
AGENDA

7 MAR

0630-0755	REGISTRATION/CONTINENTAL BREAKFAST (COLLECTION OF ORDERS)	
0800	OVERVIEW/SEMINAR OBJECTIVES	CAPT S. M. MONDUL, USN DIRECTOR OF OPERATIONS
0810	WELCOMING REMARKS	RADM B. E. TOBIN, JR., USN COMMANDER, NAVA BASE, NORFOLK, VA
0820	CINCLANTFLT REMARKS	MR. WILLIAM H. AUSTIN, JR. NUCLEAR WPNS READINESS OFFICER
0830	DAMASCUS, ARKANSAS INCIDENT '80 15 MIN VHS TAPE	CAPT S. M. MONDUL, USN DIRECTOR OF OPERATIONS
0850	INITIAL RESPONSE FORCE	CDR S. KOTZ, USN PUBLIC WORKS OFFICER/ DISASTER PREPAREDNESS OFFICER
0920	SERVICE RESPONSE FORCE OPS	CAPT S.M. MONDUL, USN DIRECTOR OF OPERATIONS
0950	SECURITY	CAPT DONALD R. DENAULT, USN DIRECTOR OF SECURITY
1020	BREAK	
1035	WEAPONS RECOVERY	CAPT MICHAEL A. MURRAY, USN COMEODGRUTWO (PRI) CDR THOMAS M. LIGON, USN CHIEF STAFF OFFICER (SEC)

1105	PUBLIC AFFAIRS	LCDR MIKE TODD, USN PUBLIC AFFAIRS OFFICER MRS JUDY CONDRA, DEPUTY PAO (SEC)
1135	LUNCH	
1230	FLTIMGCOMLANT	LT STEVEN M. HOWELL, USN FLTIMAGCOMLANT
1300	COMMUNICATIONS	MR. PAUL W. POISSON AREA OPERATIONS OFFICER
1330	LOGISTIC SUPPORT	LCDR STAN HETTICH, USN SRF SUPPLY & PROCUREMENT OFFICER
1400	LEGAL	CAPT JOHN P. CLUM, USN STAFF JUDGE ADVOCATE
1430	BREAK	
1450	RECOVERY OPERATIONS	LCDR ROBERT EADIE, USN BASE CIVIL ENGINEER
1520	RADIOLOGICAL HEALTH/SAFETY	CDR J. P. McBRIDE, MC NUCLEAR MEDICINE OFFICER/ LCDR ANTHONY R. PULCRANO, MSC RADIATION HEALTH OFFICER
1550	FRIGID DIGIT 90 EXERCISE/ LESSONS LEARNED	CAPT ROGER A. FRANCIS/ CDR MICHAEL D. TEMPLE NLO FEMA REGION X

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1620	GROUP/OPEN DISCUSSION	MR. STEVE GIBSON DEPUTY DIRECTOR OPERATIONS
1700	ADJOURN	
1730- 1930	COCKTAIL HOUR (CASH BAR)	

<u>8 MAR</u>

0700	CONTINENTAL BREAKFAST	
0800	ADMINISTRATIVE COMMENTS	CAPT S.M. MONDUL, USN DIRECTOR OF OPERATIONS
0815	NUCLEAR WEAPON SAFETY	LCDR LOUIS F. RILL, USN HEAD OF THE TECHNICAL INPECTION DEPT.
0830	DEPARTMENT OF ENERGY RESPONSE CAPABILITIES	MR. STEVEN H. CHAPMAN U.S. DEPARTMENT OF ENERGY
0900	FEDERAL EMERGENCY MANAGEMENT AGENCY	MR. VERNON WINGERT CHIEF OF PROGRAM DEVELOPMENT BRANCH
0930	NUCLEAR WEAPONS SAFETY 12 MIN VHS TAPE	OFFICE OF THE CHIEF OF NAVAL OPERATIONS
0950	BREAK	

1015	U.S. ARMY RADIOLOGICAL CONTROL TEAM (RADCON)	MR. JOSEPH M. SANTASIERO CHIEF, RADIOLOGICAL ENGINEERING BRANCH (PRI) MR. STEVEN A. HORNE CHIEF, CECOM SAFETY OFFICE (SEC)
1045	U.S. ARMY RADIOLOGICAL ADVISORY MEDICAL TEAM	MAJ ARTHUR G. SAMILJAN USA, WALTER REED ARMY MEDICAL CENTER
1115	INTER-SERVICE NUCLEAR SCHOOL (SONAC/FONAC) ORIENTATION	MAJ ROBERT SIMMONS, USMC BRANCH CHIEF
1145	LUNCH (1300-1330 HOTEL CHECKOUT,.LUGGAGE STORAGE AVAILABLE AT THE BELLMAN'S STATION)	
1330	GROUP/OPEN DISCUSSION	MR. STEVE GIBSON DEPUTY DIRECTOR OPERATIONS
1400	CLOSING REMARKS	CAPT S.M. MONDUL, USN DIRECTOR OF OPERATIONS
1415	BREAKOUT SEMINAR/PM SODA	
1430	CLOSE- DISTRIBUTION OF ORDERS	

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PERMANENT ACADEMIC RECORD

UNIVERSITY OF FLORIDA

GAINESVILLE FLORIDA 32611

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PAGE 1 | DATE PRINTED JANUARY 07, 1986 | STUDENT NO.

STUDENT NAME LAST: SAMILJAN FIRST: ARTHUR MIDDLE: G

RESIDENCE FLA MAJOR: ENE SEX M HIGH SCHOOL LAST ATTENDED

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STUDENT IS IN GOOD STANDING AND IS ELIGIBLE TO RETURN UNLESS OTHERWISE STATED. THIS TRANSCRIPT IS NOT OFFICIAL UNLESS IT BEARS THE EMBOSSED SEAL OF THE UNIVERSITY.

COURSE TYPE
BLANK - INST. CREDIT
Z -CLEP
Y -ADV. PLACEMT
A -ACT PROGRAM
O -OTHER EXT. CR.
F -GRADE FORGIVEN
D -TRANSFER REPEAT COURSE, NO CREDIT
G-CSE NOT APP TO UF DEG.
AU-AUDIT, NO CREDIT
L-CREDIT, BELOW ACCEPTABLE LEVEL
V-NO CREDIT VOCATIONAL TECH
R-REPEAT COURSE, NO CREDIT
S-NO CREDIT, UNDER SUSPENSION
M-REPEATED, CREDIT ALLOWED

GRADE SYSTEM
A 4.0 GP, B+ 3.5 GP, B 3.0 GP — EXCELLENT, GOOD
C+ 2.5 GP, C 2.0 GP, D+ 1.5 GP, D 1.0 GP — AVERAGE, POOR
E 0.0 GP FAIL
W 0.0 GP WITHDREW
WF 0.0 GP WITHDREW FAIL
EW 0.0 GP DROP NON ATTEND.
I 0.0 GP INCOMPLETE
X 0.0 GP ABSENT FROM EXAM
S SATISFACTORY
S + LAW SCHOOL HON.
P PASSING
N - NO CREDIT
U - UNSATISFACTOR
H - DEFERRED
AU - AUDIT-NO CREDIT

COURSE			SEM/QTR CREDITS			
PREFIX & CSE NO.	TITLE	TYPE	GRADE	COURSE CREDIT	CREDIT EARNED	CREDIT FOR GPA
DURN UNIV						FALL
	RECEIVED THE DEGREE BACHELOR OF ARTS					
STON UNIV						SPRING
	RECEIVED THE DEGREE MASTER OF EDUCATION					
IVERSITY OF FLORIDA 7EG				1984 FALL		
	ADMITTED TO GRADUATE SCHOOL					
U 5005	FUND OF REACTOR ENG			0300	0300	0300
U 6061	INTRO MED RADIOL PHYS			0100	0100	0100
V 6006	GRAD ENV ENGR SEMINAR			0100	0100	
V 6211	HEALTH PHYSICS			0300	0300	0300
V 6236	RADIOLOGCL TECHNIQUES			0400	0400	0400
RNED HRS	12.00 GRADE PTS 31.50 HRS			CARRIED 11.00		
IVERSITY OF FLORIDA 7EG				1985 SPRING		
P 3212	COMPU PROG FOR ENGRS			0200	0200	0200
S 6207	ENVIRONMENTAL CHEM			0300	0300	0300
U 5626	RADIATION BIOLOGY			0400	0400	0400
V 6006	GRAD ENV ENGR SEMINAR			0100	0100	0100
V 6216	RADIOACTIVE WASTES			0300	0300	0300
V 6932	POST-ACCIDENT SAMPLE			0100	0100	0100
RNED HRS	14.00 GRADE PTS 47.00 HRS			CARRIED 14.00		

COURSE			SEM/QTR CREDITS			
PREFIX & CSE NO.	TITLE	TYPE	GRADE	COURSE CREDIT	CR. EARN.	
UNIVERSITY OF FLORIDA 7EG				1985 SUMM		
	MAY-JUNE - 6 WEE					
CHM 3200	ORGANIC CHEMISTRY			0300	0300	0
EARNED HRS	3.00 GRADE PTS 6.00 HRS			CARRIED 3.		
UNIVERSITY OF FLORIDA 7EG				1985 SUMM		
	MAY-AUGUST - 12 WEE					
ENV 6211 L	HEALTH PHYSICS LAB			0200	0200	0
STA 6166	STAT METH RES I			0400	0400	0
EARNED HRS	6.00 GRADE PTS 16.00 HRS			CARRIED 6.		
UNIVERSITY OF FLORIDA 7EG				1985 F. -		
EES 5105	ENVIRONMENTAL BIOLOGY			0300	0300	0
ENU 5615	NUC RAD DETEC/INSTRU			0300	0300	0
ENU 5615 L	NUC RAD DETEC/INST LB			0100	0100	0
ENV 5005	ENVIRONMENTAL HEALTH			0300	0300	0
ENV 6916	NON-THESIS PROJECT			0200	0200	0
	AWARDED MASTER OF SCIENCE					
	GRADUATED DEC 21 1985					
	MAJOR ENVIRONMENTAL ENGINEERING SCI					
EARNED HRS	12.00 GRADE PTS 40.50 HRS			CARRIED 12.		
CUM EARNED HRS	47.00 GRP 141.00 HRS			CARRIED 46.		
END OF TRANSCR				EASED		
TO THIRD PARTY				RMISSION		

HEALTH PHYSICS
WALTER REED ARMY MEDICAL CENTER
Washington, D.C. 20307-5001

CONDITION NO. 5

FOR

RADIOACTIVE MATERIAL AUTHORIZATIONS

PROCEDURES FOR
ORDERING, RECEIVING AND SAFELY OPENING PACKAGES
CONTAINING RADIOACTIVE MATERIAL

1. GENERAL. Radioactive material for Walter Reed Army Medical Center (WRAMC) and tenant activities will be ordered, received and secured in accordance with US Army Regulations, Title 10, Code of Federal Regulations, and the provisions of WRAMC's Nuclear Regulatory Commission License.

2. PRINCIPAL USER'S RESPONSIBILITIES.

a. WRAMC Principal Users are responsible for ordering and receiving radioactive material in accordance with the instructions outlined below.

b. A Principal User may procure only those radioisotopes currently authorized for their use by the WRAMC Radiation Control Committee, subject to the limitations of their authorization.

c. Unless specified prior arrangements have been made with the Health Physics Officer, the maximum quantity which may be ordered at any one time is limited by the maximum activity of that radioisotope which the User is authorized to possess less the amount of activity the User will have on hand at the time the new order is received.

d. Specific prior approval of the Health Physics Office shall be required before receiving and/or transferring gifts containing radioactive material. This procedure applies to those instances where normal supply channels are not utilized. All gifts will be delivered to the Health Physics Office unless alternate arrangements are specifically approved by the Health Physics Office.

3. ORDERING PROCEDURES.

a. The Principal User shall submit a completed Purchase Request through normal supply channels for procurement of all radioactive materials.

REVISION 3, effective 6 April 1992

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CONDITION NO. 5 FOR RADIOACTIVE MATERIAL AUTHORIZATION (PROCEDURES FOR ORDERING, RECEIVING AND SAFELY OPENING PACKAGES CONTAINING RADIOACTIVE MATERIAL)

b. In addition to the information required by WRAMC Procurement Regulations, each purchase request shall contain the following:

(1) Radionuclide, chemical form, and total activity (Activity is given as microcuries (Uci), millicuries (Mci), or curies (Ci); for natural radioactive materials microgram (ug), milligram (mg), gram (g), or kilogram (kg) may be used.

(2) This notice will be typed after the item description:

RADIOACTIVE MATERIAL
NOTIFY HEALTH PHYSICS OFFICE
PRIOR TO PLACING ORDER
(TELEPHONE NO. (301) 427-5104)

(3) The WRAMC Radioactive Material Authorization Number will be indicated in the "Attention Line" of the "Ship To" address.

(4) Date required or delivery date.

(5) The proper shipping address for any radioactive material not specifically exempted by the Health Physics Office (HPO) is:

Health Physics Office
Bldg 188, 2681 Linden Lane
Forest Glen Section
Walter Reed Army Medical Center
ATTN: Authorization No. _____
Silver Spring, MD 20910

(6) Two specific approved exemptions are:

(a) Army Medical Laboratory, Ft. Meade, MD:

Radiation Protection Officer
Army Medical Laboratory
Bldg 2490
Fort Meade, Maryland 20755

CONDITION NO. 5 FOR RADIOACTIVE MATERIAL AUTHORIZATION (PROCEDURES FOR ORDERING, RECEIVING AND SAFELY OPENING PACKAGES CONTAINING RADIOACTIVE MATERIAL)

(b) Radiopharmaceuticals for WRAMC Nuclear Medicine Clinic:

Walter Reed Army Medical Center
Nuclear Pharmacy
Bldg 2, Room [redacted] Ex 2
Washington, D.C. 20307-5001

4. RECEIVING PROCEDURES.

a. All incoming shipments of radioactive material to the Health Physics Office will be received by the Health Physics Office during duty hours, or by the Military Police, WRAMC Forest Glen Section during non-duty hours. Shipments to Fort Meade, or the WRAMC Nuclear Medicine Clinic will be delivered to the address shown in paragraph 3. The Health Physics Office must be notified immediately of any shipment delivered to an unapproved address.

b. All incoming packages of radioactive material will be examined for damage immediately upon receipt. Any packages that appear to be wet, punctured, crushed, or otherwise damaged will be considered to be contaminated, until it can be determined that they are not.

c. Incoming radioactive material shipments must be continuously secured against unauthorized removal and the radiation levels adjacent to the secured storage area may not exceed 0.5 mR/hr.

5. SHIPMENT MONITORING & DELIVERY TO AUTHORIZED RECIPIENTS.

a. All shipments of radioactive material must be inspected to insure that the shipment does not exceed the possession limits of the Authorization under which it is ordered. Unauthorized shipments will be returned to the vendor when possible, disposed of as radioactive waste, or held by the Health Physics Office until the Principal User obtains an amended Radioactive Material Authorization allowing receipt of the material. Unauthorized shipments will not be held by Health Physics for more than ninety (90) days.

b. Shipments will be Delivered to Principal Users by the Health Physics Office after monitoring procedures have been accomplished.

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CONDITION NO. 5 FOR RADIOACTIVE MATERIAL AUTHORIZATION (PROCEDURES FOR ORDERING, RECEIVING AND SAFELY OPENING PACKAGES CONTAINING RADIOACTIVE MATERIAL)

6. FINAL SOURCE CONTAINER CHECK. The Principal User is responsible for making a final check of the radioactive materials' source container after it is delivered by the Health Physics Office. This check will follow the steps outlined below:

a. Put on gloves.

b. Open outer package (following manufacturer's directions, if supplied) and remove packing slip. Open inner package and verify that the contents are as listed on the packing slip.

c. Check integrity of source container, inspecting for breakage of seals or vials, loss of liquid, discoloration of packaging material, etc.

d. Before disposing of clean outer packaging ensure that any "radioactive" labels or statements have been defaced or removed.

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RECEIVED-REGION I

NRC FORM 374
(10-89)

U.S. NUCLEAR REGULATORY COMMISSION

MATERIALS LICENSE

Amendment No. 61

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974 (Public Law 93-438), and Title 10, Code of Federal Regulations, Chapter I, Parts 30, 31, 32, 33, 34, 35, 39, 40 and 70, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, possess, and transfer byproduct, source, and special nuclear material designated below; to use such material for the purpose(s) and at the place(s) designated below; to deliver or transfer such material to persons authorized to receive it in accordance with the regulations of the applicable Part(s). This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954, as amended, and is subject to all applicable rules, regulations and orders of the Nuclear Regulatory Commission now or hereafter in effect and to any conditions specified below.

Licensee	
1. Department of the Army Walter Reed Army Medical Center (WRAMC) 2. Washington, D.C. 20307-5001	In accordance with letter dated April 8, 1992, 3. License number 08-01738-02 is amended in its entirety to read as follows: 4. Expiration date April 30, 1993 5. Docket or Reference No. 030-01317

6. Byproduct, source, and/or special nuclear material	7. Chemical and/or physical form	8. Maximum amount that licensee may possess at any one time under this license
A. Any byproduct material with atomic numbers 1-83	A. Any	A. 400 millicuries of each radionuclide with a total possession limit of 26 curies
B. Iodine 131	B. Any	B. 2 curies
C. Xenon 133	C. Any	C. 2 curies
D. Krypton 85	D. Any	D. 1 curie
E. Gold 198	E. Any	E. 1 curie
F. Phosphorus 32	F. Any	F. 2 curies
G. Carbon 14	G. Any	G. 2 curies
H. Iodine 125	H. Any	H. 1 curie
I. Iridium 192	I. Any	I.
J. Chromium 51	J. Any	J. 750 millicuries
K. Sulfur 35	K. Any	K. 1 curie
L. Hydrogen 3	L. Any	L. 5 curies
M. Molybdenum 99	M. Molybdenum 99/ Technetium 99m Generators	M. 23 curies
N. Technetium 99m	N. Any	N. 23 curies
O. Strontium 90	O. Sealed sources	O.
P. Cesium 137	P. Sealed sources	P.
Q. Gadolinium 153	Q. Sealed sources	Q.
R. Iodine 125	R. Sealed sources (Norland Inst. Co., Model 178A591A)	R. 400 millicuries
S. Iodine 125	S. Sealed sources (3M Company seeds)	S. 500 millicuries
T. Iodine 125	T. Sealed sources (AECL Models C235 or C324, or Amersham Corp. Model IMC.P2)	T. 4 sources, not to exceed 300 millicuries each

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License number 08-01738-02

Docket or Reference number 030-01317

Amendment No. 61

MATERIALS LICENSE
SUPPLEMENTARY SHEET

(Items 6., 7. & 8. continued)

6. Byproduct, source, and/or special nuclear material	7. Chemical and/or physical form	8. Maximum amount that licensee may possess at any one time under this license
U. Cesium 137	U. Sealed sources	U.
V. Cobalt 60	V. Sealed sources	V.
W. Americium 241	W. Any	W. 100 microcuries
X. Americium 241	X. Sealed sources	X.
Y. Nickel 63	Y. Sealed sources and foils	Y. 1 curie
Z. Iodine 129	Z. Sealed sources	Z. 1 curie
AA. Thorium	AA. Any	AA. 5 kilograms
BB. Uranium	BB. Any	BB. 50 kilograms
CC. Uranium depleted in Uranium 235	CC. Plated Metal	CC. 400 kilograms
DD. Americium 241	DD. Sealed sources	DD.
EE. Cesium 137	EE. Sealed source	EE.
FF. Cesium 137	FF.	FF.

9. Authorized use

A. through T. Medical research, diagnosis, and therapy; research and development as defined in 10 CFR 30.4.
U. through Z. Research and development as defined in 10 CFR 30.4; teaching.
AA. and BB. Teaching and laboratory research.
CC. Shielding
DD. Standards and reference sources.
EE. In an for calibration of instruments.
FF. Instrument calibration.

CONDITIONS

10. Location of use:

Walter Reed Army Medical Center, Washington, D. C.; WRAMC Forest Glen Section and Annex, Silver Spring, Maryland; Walter Reed Army Institute of Research Animal Holding Facility, Fort Meade, Maryland; U.S. Army Medical Laboratory, WRAMC Department of Pathology, Fort Meade, Maryland; and U.S. Army Institute of Dental Research Facility, Fort Meade, Maryland; Rickman Building, 13 Taft Court, Rockville, Maryland; Key West Research Center, 9620 Medical Center Drive, Rockville, Maryland.

11. Radiation Safety Officer: LTC Arthur G. Samiljan.

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MATERIALS LICENSE
SUPPLEMENTARY SHEET

License number: 08-01738-02
Docket or Reference number: 030-01317
Amendment No. 61

(Continued) CONDITIONS

12. A. Licensed material shall be used by, or under the supervision of, individuals designated by the licensee's Radiation Safety Committee, Col. Joan T. Zajtchuk, Chairman.

    B. The use of licensed material in or on humans shall be by a physician as defined in Section 35.2 of 10 CFR Part 35.

    C. Physicians designated to use licensed material in or on humans shall meet the training criteria established in 10 CFR Part 35, Subpart J.

13. Experimental animals administered licensed materials or their products shall not be used for human consumption.

14. In lieu of using the conventional radiation caution colors (magenta or purple on yellow background) as provided in Section 20.203(a)(1), of 10 CFR Part 20, the licensee is hereby authorized to label detector cells and cell baths, containing licensed material and used in gas chromatography devices, with conspicuously etched or stamped radiation caution symbols without a color requirement.

15. Detector cells containing titanium tritide foil shall only be used in conjunction with a properly operating temperature control mechanism which prevents foil temperatures from exceeding 225 degrees Centigrade.

16. Detector cells containing scandium tritide foil shall only be used in conjunction with a properly operating temperature control mechanism which prevents foil temperatures from exceeding 325 degrees Centigrade.

17. Notwithstanding the requirements of 10 CFR 35.49 (a) and (b), the licensee may use for medical use any byproduct material or reagent kit for which the Food and Drug Administration has accepted a "Notice of Claimed Investigational Exemption for a New Drug" (IND).

18. The licensee may transport licensed material in accordance with the provisions of 10 CFR 71, "Packaging and Transportation of Radioactive Material."

19. If only a single radionuclide specified in NUREG 0767, is possessed, the possession limit is the quantity specified in Schedule of Limiting Possession Limits, NUREG-0767. If two or more radionuclides are possessed, the possession limit for each is determined as follows: the sum of the quotients of the quantities possessed divided by the quantities of those radionuclides specified in the Schedule of Limiting Possession Limits, NUREG-0767 shall not exceed unity.

20. The licensee is authorized to hold radioactive material with a physical half-life of less than 90 days for decay-in-storage before disposal in ordinary trash provided:

    A. Radioactive waste to be disposed of in this manner shall be held for decay a minimum of 10 half-lives.

License number 08-01738-02

Docket or Reference number 030-01317

Amendment No. 61

MATERIALS LICENSE
SUPPLEMENTARY SHEET

(20. continued) CONDITIONS

B. Before disposal as normal waste, radioactive waste shall be surveyed to determine that its radioactivity cannot be distinguished from background. All radiation labels shall be removed or obliterated.

C. Generator columns shall be segregated so that they may be monitored separately to ensure decay to background levels prior to disposal.

21. Except as specifically provided otherwise in this license, the licensee shall conduct its program in accordance with the statements, representations, and procedures contained in the documents, including any enclosures, listed below. The Nuclear Regulatory Commission's regulations shall govern unless the statements, representations and procedures in the licensee's application and correspondence are more restrictive than the regulations.

A. Application dated July 18, 1979
B. Letter dated January 13, 1984
C. Letter dated May 8, 1987
D. Letter dated March 16, 1988
E. Letter dated March 28, 1988
F. Application dated August 5, 1988
G. Letter dated September 23, 1988
H. Letter dated July 28, 1989
I. Letter dated September 12, 1989
J. Letter dated January 19, 1990
K. Letter dated July 16, 1990
L. Letter dated March 15, 1991
M. Letter dated July 11, 1991
N. Paragraphs 4 and 5 of the letter dated April 8, 1992
O. Letter dated August 4, 1992

For the U.S. Nuclear Regulatory Commission

Date SEP 0 9 1992

By Original Signed By: Jenny Johansen

Nuclear Materials Safety Branch
Region I
King of Prussia, Pennsylvania 19406

SEP 0 9 1992

License No. 08-01738-02
Docket No. 030-01317
Control No. 116711

Department of the Army
Office of the Surgeon General
ATTN: Colonel Peter H. Myers
Radiological Hygiene Consultant
5109 Leesburg Pike
Falls Church, Virginia 22041

Dear Colonel Myers:

Please find enclosed an amendment to your NRC Material License.

Please review the enclosed document carefully and be sure that you understand all conditions. If there are any errors or questions, please notify the Region I Material Licensing Section, (215) 337-5093, so that we can provide appropriate corrections and answers.

Please be advised that you must conduct your program involving licensed radioactive materials in accordance with the conditions of your NRC license, representations made in your license application, and NRC regulations. In particular, please note the items in the enclosed, "Requirements for Materials Licensees."

Since serious consequences to employees and the public can result from failure to comply with NRC requirements, the NRC expects licensees to pay meticulous attention to detail and to achieve the high standard of compliance which the NRC expects of its licensees.

You will be periodically inspected by NRC. A fee may be charged for inspections in accordance with 10 CFR Part 170. Failure to conduct your program safely and in accordance with NRC regulations, license conditions, and representations made in your license application and supplemental correspondence with NRC will result in prompt and vigorous enforcement action against you. This could include issuance of a notice of violation, or in case of serious violations, an imposition of a civil penalty or an order suspending, modifying or revoking your license as specified in the General Policy and Procedures for NRC Enforcement Actions, 10 CFR Part 2, Appendix C.

We wish you success in operating a safe and effective licensed program.

Sincerely,

Original Signed By:
Jenny Johansen

Jenny M. Johansen, Chief
Medical Licensing Section
Division of Radiation Safety
and Safeguards

Enclosures:
1. Amendment No. 61
2. Requirements for Materials Licensees
3. NRC Forms 3 and 313

bcc:
Radiation Safety Officer - WRAMC

DRSS:RI	DRSS:RI
Henderson/gcb	Johansen
09/02/92	09/2/92

TELEPHONE CONVERSATON RECORD	Date: 9/4/92	Time: 2:30 PM
Mail Control No.: 116711	**License No.:** 08-01738-02	**Docket No.:** 030-01317
Person Called: David Burton	**Organization:** WRAMC	**Telephone Number:** (301) 427-5104
Person Calling: Pamela J. Henderson		
Subject: Amendment Request		

Summary:

Licensee had requested that condition 2 of their license be amended to state a more specific address for correspondence purposes. The address they wanted on their license is their Health Physics Office which is located in Maryland. I explained that since WRAMC is in Washington, D.C., that their license would then have a different state number (Maryland) than the actual location of WRAMC. LAS Section stated that this is not feasible.

I spoke with Cindy O'Daniell (LAS) in order to resolve the licensee's concern over receiving their NRC correspondence. She suggested that I have a sticker placed on the docket requesting that all correspondence be blind cc'd to the Health Physics Office at WRAMC. Apparently this is the case with several other licensees.

I told the licensee that I would place a sticker on their docket which would direct reviewers to send blind cc's to the Health Physics Office at WRAMC for all future correspondence involving their docket (licensing/inspection).

Action Required/Taken: Place sticker on docket with WRAMC Health Physics Office address.

Signature: P. Henderson	**Date:** 9/4/92

TELEPHONE CONVERSATON RECORD	Date: 8/4/92	Time: 10:00 AM
Mail Control No.: 116711	**License No.:** 08-01738-02	**Docket No.:** 030-01317
Person Called: David Burton	**Organization:** WRAMC	**Telephone Number:** (301) 427-5104
Person Calling: Pamela J. Henderson		
Subject: Amendment Request		

Summary:

Asked licensee to:

1. Clarify that they want condition 10 of their license amended to delete two addresses of use - USAMRIID and Andrew Rader Army Clinic. This was not clear from their letter which referred to condition 5 of WRAMC authorization procedures.

2. Clarify that they want condition 2 of their license amended to state a more specific address for correspondance purposes. Although an address change was requested, no new address was given in their letter. Asked them also to clarify that this change was requested for all correspondance (condition 2).

3. Confirm that Nuclear Medicine will process all incoming shipment in accordance with Regulatory Guide 10.8 Revision 2 - Appendix K and L procedures.

Action Required/Taken: File MS-15.

Signature: Pamela J. Henderson	Date: 8/4/92

OFFICIAL RECORD COPY ML 10

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MS16
K7

DEPARTMENT OF THE ARMY
WALTER REED ARMY MEDICAL CENTER
WASHINGTON, DC 20307-5001

REPLY TO
ATTENTION OF:

HSHL-H-HP (385-11m) 04 AUG 1992

MEMORANDUM FOR US Nuclear Regulatory Commission, Region I, Nuclear Material Section B, Attn: Ms. Pamala Henderson, Mail Control No. 116711, 475 Allendale Road, King of Prussia, PA 19406

SUBJECT: Additional information requested to amend NRC License No. 08-01738-02, Mail Control No. 116711.

1. Condition 10 (Location of use) should be modified to delete the addresses for the Andrew Rader Army Clinic, Fort Myer, Virginia and U.S. Army Medical Research Institute for Infectious Diseases, Fort Detrick, Frederick, Maryland. The Andrew Rader Clinic is a health clinic with x-ray facilities as it's only radiation hazards. There are no plans to use radioactive material at this location. The U.S. Army Medical Research Institute for Infectious Diseases has recently received their own broad scope and irradiator licenses (NRC # 19-11831-01 and 02).

2. Condition 2 should be modified to: Health Physics Office, 2681 Linden Lane, Silver Spring, Maryland. 20910. This is not a new isotope use location, it is part of the Walter Reed Army Medical Center, Forest Glen Annex. Use of this address will eliminate routing delay due to the Medical Center's distribution system.

3. The Nuclear Medicine Clinic will process all incoming isotope shipments in accordance with Regulatory Guide 10.8 revision 2, Appendix K and Appendix L.

4. If any other information is needed the point of contact is Mr. David W. Burton. (301) 427-5161

ARTHUR G. SAMILJAN
LTC, MS
Chief, Health Physics Office

FEE EXEMPT

116711

OFFICIAL RECORD COPY ML 10 AUG 11 1992

030-03017

DEPARTMENT OF THE ARMY
OFFICE OF THE SURGEON GENERAL
5109 LEESBURG PIKE
FALLS CHURCH, VA 22041-3258

REPLY TO
ATTENTION OF

April 20, 1992

Preventive Medicine
Consultants Division

US Nuclear Regulatory Commission
Region I
475 Allendale
King of Prussia, Pennsylvania 19406

Dear Sir:

Enclosed are two copies of a request to amend Byproduct Material License Number 08-01738-02, Walter Reed Army Medical Center, Washington, DC.

Recommend approval.

Sincerely,

Peter H. Myers

Peter H. Myers
Colonel, U.S. Army
Radiological Hygiene Consultant

Enclosure

CF: HSHB-MR-H

ITEMS HANDS PULLED OUT AND CONTROLLED SEPARATELY 6/9/92.

116711

~~116472~~

APR 24 1992

OFFICIAL RECORD COPY ML 10

Copy Rec'd in LAS APR 13 1992

DEPARTMENT OF THE ARMY
WALTER REED ARMY MEDICAL CENTER
WASHINGTON, D.C. 20307-5001

REPLY TO
ATTENTION OF:
HSHL-HP (385-11m)

8 Apr 92

MEMORANDUM THRU HQDA (SGPS-PSP-E), 5109 Leesburg Pike, Falls Church, VA 22041-3258

FOR US Nuclear Regulatory Commission, Region I, Nuclear Material Safety Section A, 475 Allendale Road, King of Prussia, PA 19406-1415

SUBJECT: Application for Exemption to 10 CFR 35.315(a)7

1. Request that Walter Reed Army Medical Center (WRAMC), NRC License No. 08-01738-02, be granted exemption from the provisions of 10 CFR 35.315 (a) 7.

2. WRAMC averages thirty iodine therapies per year and has a dedicated room which is assigned only to iodine therapy patients. Before reassigning the room to another iodine therapy patient, Health Physics Office (HPO) personnel clean and disinfect it. The room remains locked until needed for an iodine therapy and may only be opened by HPO personnel.

3. Although ensuring a maximum removable room contamination level of 200 dpm/cm^2 is appropriate for a room that may be utilized by the general public, it does not seem necessary for a room that is solely used by patients that have just received 150 mCi of radioiodine and well trained radiation workers.

4. Also, Condition No.5 of the WRAMC authorization procedures has been modified to delete addresses for USAMRIID and Andrew Rader Army Clinic; to change the Health Physics Office mailing address to the recently assigned street address; and to include the Nuclear Medicine Clinic as a receipt point for radiopharmaceutical shipments. (Enclosure)

5. Nuclear Medicine has been approved by the WRAMC Radiation Control Committee to receive radiopharmaceuticals directly from local pharmacies for more timely and cost effective handling of this material. Nuclear Medicine will process all incoming shipments in accordance with Regulatory Guide 10.8 and forward inventory records to the Health Physics Office.

116711

HSHL-HP
SUBJECT: Application for Exemption to 10 CFR 35.315(a)7

FOR THE COMMANDER:

ROY D. QUICK, JR.
LTC, MS
Executive Officer

Encl
as

Copy Furnished

Commander, US Army Health Services Command, ATTN: HSCL-P, Fort Sam Houston, TX 78234-6000

HEALTH PHYSICS
WALTER REED ARMY MEDICAL CENTER
Washington, D.C. 20307-5001

CONDITION NO. 5

FOR

RADIOACTIVE MATERIAL AUTHORIZATIONS

PROCEDURES FOR
ORDERING, RECEIVING AND SAFELY OPENING PACKAGES
CONTAINING RADIOACTIVE MATERIAL

1. GENERAL. Radioactive material for Walter Reed Army Medical Center (WRAMC) and tenant activities will be ordered, received and secured in accordance with US Army Regulations, Title 10, Code of Federal Regulations, and the provisions of WRAMC's Nuclear Regulatory Commission License.

2. PRINCIPAL USER'S RESPONSIBILITIES.

a. WRAMC Principal Users are responsible for ordering and receiving radioactive material in accordance with the instructions outlined below.

b. A Principal User may procure only those radioisotopes currently authorized for their use by the WRAMC Radiation Control Committee, subject to the limitations of their authorization.

c. Unless specified prior arrangements have been made with the Health Physics Officer,the maximum quantity which may be ordered at any one time is limited by the maximum activity of that radioisotope which the User is authorized to possess less the amount of activity the User will have on hand at the time the new order is received.

d. Specific prior approval of the Health Physics Office shall be required before receiving and/or transferring gifts containing radioactive material. This procedure applies to those instances where normal supply channels are not utilized. All gifts will be delivered to the Health Physics Office unless alternate arrangements are specifically approved by the Health Physics Office.

3. ORDERING PROCEDURES.

a. The Principal User shall submit a completed Purchase Request through normal supply channels for procurement of all radioactive materials.

CONDITION NO. 5 FOR RADIOACTIVE MATERIAL AUTHORIZATION (PROCEDURES FOR ORDERING, RECEIVING AND SAFELY OPENING PACKAGES CONTAINING RADIOACTIVE MATERIAL)

(b) Radiopharmaceuticals for WRAMC Nuclear Medicine Clinic:

Walter Reed Army Medical Center
Nuclear Pharmacy
Bldg 2, Room [redacted] Ex2
Washington, D.C. 20307-5001

4. RECEIVING PROCEDURES.

a. All incoming shipments of radioactive material to the Health Physics Office will be received by the Health Physics Office during duty hours, or by the Military Police, WRAMC Forest Glen Section during non-duty hours. Shipments to Fort Meade, or the WRAMC Nuclear Medicine Clinic will be delivered to the address shown in paragraph 3. The Health Physics Office must be notified immediately of any shipment delivered to an unapproved address.

b. All incoming packages of radioactive material will be examined for damage immediately upon receipt. Any packages that appear to be wet, punctured, crushed, or otherwise damaged will be considered to be contaminated, until it can be determined that they are not.

c. Incoming radioactive material shipments must be continuously secured against unauthorized removal and the radiation levels adjacent to the secured storage area may not exceed 0.5 mR/hr.

5. SHIPMENT MONITORING & DELIVERY TO AUTHORIZED RECIPIENTS.

a. All shipments of radioactive material must be inspected to insure that the shipment does not exceed the possession limits of the Authorization under which it is ordered. Unauthorized shipments will be returned to the vendor when possible, disposed of as radioactive waste, or held by the Health Physics Office until the Principal User obtains an amended Radioactive Material Authorization allowing receipt of the material. Unauthorized shipments will not be held by Health Physics for more than ninety (90) days.

b. Shipments will be Delivered to Principal Users by the Health Physics Office after monitoring procedures have been accomplished.

Ex2

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OFFICIAL RECORD COPY ML 10

NRC FORM 374
(10-89)

U.S. NUCLEAR REGULATORY COMMISSION

MATERIALS LICENSE

Amendment No. 62

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974 (Public Law 93-438), and Title 10, Code of Federal Regulations, Chapter I, Parts 30, 31, 32, 33, 34, 35, 39, 40 and 70, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, possess, and transfer byproduct, source, and special nuclear material designated below; to use such material for the purpose(s) and at the place(s) designated below; to deliver or transfer such material to persons authorized to receive it in accordance with the regulations of the applicable Part(s). This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954, as amended, and is subject to all applicable rules, regulations and orders of the Nuclear Regulatory Commission now or hereafter in effect and to any conditions specified below.

Licensee

1. Department of the Army
   Walter Reed Army Medical Center (WRAMC)

2. Washington, D.C. 20307-5001

In accordance with letter dated April 8, 1992,

3. License number 08-01738-02 is amended in its entirety to read as follows:

4. Expiration date April 30, 1993

5. Docket or Reference No. 030-01317

6. Byproduct, source, and/or special nuclear material	7. Chemical and/or physical form	8. Maximum amount that licensee may possess at any one time under this license
A. Any byproduct material with atomic numbers 1-83	A. Any	A. 400 millicuries of each radionuclide with a total possession limit of 26 curies
B. Iodine 131	B. Any	B. 2 curies
C. Xenon 133	C. Any	C. 2 curies
D. Krypton 85	D. Any	D. 1 curie
E. Gold 198	E. Any	E. 1 curie
F. Phosphorus 32	F. Any	F. 2 curies
G. Carbon 14	G. Any	G. 2 curies
H. Iodine 125	H. Any	H. 1 curie
I. Iridium 192	I. Any	I.
J. Chromium 51	J. Any	J. 750 millicuries
K. Sulfur 35	K. Any	K. 1 curie
L. Hydrogen 3	L. Any	L. 5 curies
M. Molybdenum 99	M. Molybdenum 99/ Technetium 99m Generators	M. 23 curies
N. Technetium 99m	N. Any	N. 23 curies
O. Strontium 90	O. Sealed sources	O.
P. Cesium 137	P. Sealed sources	P.
Q. Gadolinium 153	Q. Sealed sources	Q.
R. Iodine 125	R. Sealed sources (Norland Inst. Co., Model 178A591A)	R. 400 millicuries
S. Iodine 125	S. Sealed sources (3M Company seeds)	S. 500 millicuries
T. Iodine 125	T. Sealed sources (AECL Models C235 or C324, or Amersham Corp. Model IMC.P2)	T. 4 sources, not to exceed 300 millicuries each

Information in this record was deleted in accordance with the Freedom of Information Act, exemptions 2
FOIA 2006-0238

OFFICIAL RECORD COPY

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KK/16

License number 08-01738-02

Docket or Reference number 030-01317

Amendment No. 62

MATERIALS LICENSE
SUPPLEMENTARY SHEET

(Items 6., 7. & 8. continued)

6. Byproduct, source, and/or special nuclear material	7. Chemical and/or physical form	8. Maximum amount that licensee may possess at any one time under this license
U. Cesium 137	U. Sealed sources	U.
V. Cobalt 60	V. Sealed sources	V.
W. Americium 241	W. Any	W. 100 microcuries
X. Americium 241	X. Sealed sources	X. [illegible]
Y. Nickel 63	Y. Sealed sources and foils	Y. 1 curie
Z. Iodine 129	Z. Sealed sources	Z. 1 curie
AA. Thorium	AA. Any	AA. 5 kilograms
BB. Uranium	BB. Any	BB. 50 kilograms
CC. Uranium depleted in Uranium 235	CC. Plated Metal	CC. 400 kilograms
DD. Americium 241	DD. Sealed sources	DD.
EE. Cesium 137	EE. Sealed source	EE.
FF. Cesium 137	FF.	FF.

9. Authorized use

A. through T. Medical research, diagnosis, and therapy; research and development as defined in 10 CFR 30.4.
U. through Z. Research and development as defined in 10 CFR 30.4; teaching.
AA. and BB. Teaching and laboratory research.
CC. Shielding.
DD. Standards and reference sources.
EE. In an for calibration of instruments.
FF. Instrument calibration.

CONDITIONS

10. Location of use: Walter Reed Army Medical Center, Washington, D. C.; WRAMC Forest Glen Section and Annex, Silver Spring, Maryland; Walter Reed Army Institute of Research Animal Holding Facility, Fort Meade, Maryland; U.S. Army Medical Laboratory, WRAMC Department of Pathology, Fort Meade, Maryland; and U.S. Army Institute of Dental Research Facility, Fort Meade, Maryland; Rickman Building, 13 Taft Court, Rockville, Maryland; Key West Research Center, 9620 Medical Center Drive, Rockville, Maryland.

11. Radiation Safety Officer: LTC Arthur G. Samiljan.

Ex 2

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License number: 08-01738-02

Docket or Reference number: 030-01317

Amendment No. 62

(Continued) CONDITIONS

12. A. Licensed material shall be used by, or under the supervision of, individuals designated by the licensee's Radiation Safety Committee, Col. Joan T. Zajtchuk, Chairman.

    B. The use of licensed material in or on humans shall be by a physician as defined in Section 35.2 of 10 CFR Part 35.

    C. Physicians designated to use licensed material in or on humans shall meet the training criteria established in 10 CFR Part 35, Subpart J.

13. Experimental animals administered licensed materials or their products shall not be used for human consumption.

14. In lieu of using the conventional radiation caution colors (magenta or purple on yellow background) as provided in Section 20.203(a)(1), of 10 CFR Part 20, the licensee is hereby authorized to label detector cells and cell baths, containing licensed material and used in gas chromatography devices, with conspicuously etched or stamped radiation caution symbols without a color requirement.

15. Detector cells containing a titanium tritide foil or a scandium tritide foil shall only be used in conjunction with a properly operating temperature control mechanism which prevents foil temperatures from exceeding that specified by the manufacturer.

16. Notwithstanding the requirements of 10 CFR 35.49 (a) and (b), the licensee may use for medical use any byproduct material or reagent kit for which the Food and Drug Administration has accepted a "Notice of Claimed Investigational Exemption for a New Drug" (IND).

17. The licensee may transport licensed material in accordance with the provisions of 10 CFR 71, "Packaging and Transportation of Radioactive Material."

18. If only a single radionuclide specified in NUREG 0767, is possessed, the possession limit is the quantity specified in Schedule of Limiting Possession Limits, NUREG-0767. If two or more radionuclides are possessed, the possession limit for each is determined as follows: the sum of the quotients of the quantities possessed divided by the quantities of those radionuclides specified in the Schedule of Limiting Possession Limits, NUREG-0767 shall not exceed unity.

19. The licensee is authorized to hold radioactive material with a physical half-life of less than 90 days for decay-in-storage before disposal in ordinary trash provided:

    A. Radioactive waste to be disposed of in this manner shall be held for decay a minimum of 10 half-lives.

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License number: 08-01738-02

Docket or Reference number: 030-01317

Amendment No. 62

(19. continued) CONDITIONS

B. Before disposal as normal waste, radioactive waste shall be surveyed to determine that its radioactivity cannot be distinguished from background. All radiation labels shall be removed or obliterated.

C. Generator columns shall be segregated so that they may be monitored separately to ensure decay to background levels prior to disposal.

20. Except as specifically provided otherwise in this license, the licensee shall conduct its program in accordance with the statements, representations, and procedures contained in the documents, including any enclosures, listed below. The Nuclear Regulatory Commission's regulations shall govern unless the statements, representations and procedures in the licensee's application and correspondence are more restrictive than the regulations.

A. Application dated July 18, 1979
B. Letter dated January 13, 1984
C. Letter dated May 8, 1987
D. Letter dated March 16, 1988
E. Letter dated March 28, 1988
F. Application dated August 5, 1988
G. Letter dated September 23, 1988
H. Letter dated July 28, 1989
I. Letter dated September 12, 1989
J. Letter dated January 19, 1990
K. Letter dated July 16, 1990
L. Letter dated March 15, 1991
M. Letter dated July 11, 1991
N. Letter dated April 8, 1992
O. Letter dated August 4, 1992
P. Letter dated November 24, 1992

For the U.S. Nuclear Regulatory Commission

Date APR 15 1993

By Original Signed By: Pamela J. Henderson

Nuclear Materials Safety Branch
Region I
King of Prussia, Pennsylvania 19406

APR 15 1993

License No. 08-01738-02
Docket No. 030-01317
Control No. 116472

Department of the Army
ATTN: Colonel Peter H. Myers
DASG-PSP-E
5109 Leesburg Pike
Falls Church, Virginia 22041-3258

Dear Colonel Myers:

Please find enclosed an amendment to your NRC Material License.

Please review the enclosed document carefully and be sure that you understand all conditions. If there are any errors or questions, please notify the Region I Material Licensing Section, (215) 337-5093, so that we can provide appropriate corrections and answers.

Please be advised that you must conduct your program involving licensed radioactive materials in accordance with the conditions of your NRC license, representations made in your license application, and NRC regulations. In particular, please note the items in the enclosed, "Requirements for Materials Licensees."

Since serious consequences to employees and the public can result from failure to comply with NRC requirements, the NRC expects licensees to pay meticulous attention to detail and to achieve the high standard of compliance which the NRC expects of its licensees.

You will be periodically inspected by NRC. A fee may be charged for inspections in accordance with 10 CFR Part 170. Failure to conduct your program safely and in accordance with NRC regulations, license conditions, and representations made in your license application and supplemental correspondence with NRC will result in prompt and vigorous enforcement action against you. This could include issuance of a notice of violation, or in case of serious violations, an imposition of a civil penalty or an order suspending, modifying or revoking your license as specified in the General Policy and Procedures for NRC Enforcement Actions, 10 CFR Part 2, Appendix C.

We wish you success in operating a safe and effective licensed program.

Sincerely,

Original Signed By:
Pamela J. Henderson

Pamela J. Henderson
Nuclear Materials Safety Branch
Division of Radiation Safety
and Safeguards

Enclosures:
1. Amendment No. 62
2. Requirements for Materials Licensees
3. Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source, or Special Nuclear Material

cc:
Walter Reed Army Medical Center
ATTN: Radiation Safety Officer
Health Physics Office
2681 Linden Lane
Silver Spring, Maryland 20910

DRSS/RI
Henderson/mlb

4/12/93

MS 16
K-7

DEPARTMENT OF THE ARMY
WALTER REED ARMY MEDICAL CENTER
WASHINGTON, DC 20307-5001

REPLY TO
ATTENTION OF:

24 November 1992

Health Physics Office

United States Nuclear Regulatory Commission
Attention: Chief, Medical Licensing Section
Division of Radiation Safety and Safeguards
475 Allendale Road
King of Prussia, Pennsylvania 19406-1415

Dear Ms. Jenny M. Johansen:

We provide the following information in reference to Mail Control No. 116472 and in response to your memo, dated 16 November 1992, requesting additional information concerning our dedicated iodine-131 therapy room.

As a matter of standing operating procedure, the dedicated therapy room, Room 7437, remains closed and locked when there are no iodine therapies. Only the Health Physics Office possesses a key to that room.

Decontamination limits for this room will be the restricted area action limits established in NRC Regulatory Guide 8.23, "Radiation Safety in Medical Institutions". Health Physics Office personnel will decontaminate the room below this level of removable contamination prior to admittance of an iodine-131 radiation therapy patient into Room 7437.

We hope that this information will satisfy your questions and permit you to grant our exemption to 10 CFR 35.315(a)(7). We appreciate your prompt attention to this matter.

Your point of contact for this matter is the undersigned at (301)-427-5104/5107.

Sincerely,

ARTHUR G. SAMILJAN
Lieutenant Colonel, US Army
Health Physics Officer

116472

OFFICIAL RECORD COPY ML 10

NOV 30 1992

NOV 16 1992

License No. 08-01738-02
Docket No. 030-01317
Control No. 116472

Department of the Army
ATTN: Lieutenant Commander Roy D. Quick, Jr.
Executive Officer
Walter Reed Army Medical Center
Washington, D.C. 20307-5001

Dear Lieutenant Commander Quick:

This is in reference to your request in a letter dated April 8, 1992 to amend License No. 08-01738-02. In order to continue our review, we need the following additional information:

Your request to receive an exemption to 10 CFR 35.315(a)(7), may be granted at such time as you provide the additional commitments/information described in 1 through 3 below. Please confirm/provide the following:

1. The door to the contaminated therapy room will remain closed and locked when the room is unoccupied.

2. The access to the unoccupied and locked room will be under the control of the Health Physics Office (HPO) at all times and can only be opened by HPO personnel.

3. The dedicated therapy room must be decontaminated, prior to use by any other therapy patient, by one of two methods described below (a or b):

   a. Decontaminate based on the restricted area action level for removable surface contamination of 2,200 dpm/square centimeter as described in Regulatory Guide 8.23, "Radiation Safety Surveys at Medical Institutions".

   b. Decontaminate based upon action levels determined to meet the following criteria:

      i. No primary radiation protection standards will be exceeded (personal dose, member of the public dose or environmental release limits.); and

ii. The action levels are determined to be ALARA based upon consideration of worker, environmental, and public exposures.

Submit a description of the procedures to be followed to determine these criteria are met.

We will continue our review upon receipt of this information. Please reply in duplicate to my attention at the Region I office and refer to Mail Control No. 116472. The reviewer for this licensing action is Pamela Henderson. If you have any technical questions regarding this deficiency letter please call the reviewer at (215) 337-6952.

If we do not receive a reply from you within 30 calendar days from the date of this letter, we shall assume that you do not wish to pursue your application.

Sincerely,

Original Signed By:
Thomas K. Thompson

for Jenny M. Johansen, Chief
Medical Licensing Section
Division of Radiation Safety
and Safeguards

Enclosure: Regulatory Guide 8.23

bcc:
Department of the Army
Walter Reed Army Medical Center
ATTN: Radiation Safety Officer
Health Physics Office
2681 Linden Lane
Silver Spring, Maryland 20910

DRSS:RI	DRSS:RI
Henderson/Pam;gc	for Johansen
11/13/92	11/16/92

File

MS 20
K-7

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

SEP 24 1992

MEMORANDUM FOR: Ronald R. Bellamy, Chief
Nuclear Materials Safety and Safeguards Branch, RI

FROM: John E. Glenn, Chief
Medical, Academic, and Commercial
Use Safety Branch
Division of Industrial and
Medical Nuclear Safety, NMSS

SUBJECT: TECHNICAL ASSISTANCE REQUEST DATED JUNE 10, 1992, RE: AN AMENDMENT REQUEST FROM WALTER REED ARMY MEDICAL CENTER, WASHINGTON, DC, LICENSE NO. 08-01738-02 (CONTROL NO. 116472)

This memorandum responds to a technical assistance request (TAR) dated June 10, 1992 (enclosed), regarding an amendment request from the Walter Reed Army Medical Center, Washington, DC. In a letter dated April 8, 1992, the licensee requested an exception to 10 CFR 35.315(a)(7) to allow dedication of a single patient room for radiopharmaceutical therapies without being required to decontaminate to the levels required for unrestricted occupancy and assignment to a non-therapy patient.

It is our understanding that the licensee does survey and decontaminate the patient room after release of each therapy patient, but restricts the room for use only by iodine therapy patients. The licensee therefore requests relief from the requirement of decontaminating the room to the level required to release it as an unrestricted area. If granted this practice would require an exemption from the requirements of 10 CFR 35.315(a)(7) because the regulation does not anticipate subsequent use of the room by therapy patients, and the required decontamination level of 200 disintegrations per minute (dpm) per 100 centimeters squared (cm) is for release of the room as an unrestricted area.

In the letter dated April 8, 1992, the licensee submitted procedures to ensure the safety of facility personnel who frequent the vicinity of a dedicated therapy patient room.

1. The licensee states that the door to the contaminated therapy room will remain <u>closed</u> and <u>locked</u> when the room is unoccupied.

2. The licensee states that access to the unoccupied and locked room will be under the control of the Health Physics Office (HPO) at all times and can only be opened by HPO personnel.

3. The licensee should be required to decontaminate the dedicated therapy room, prior to use by any other therapy patient, to the restricted area action level for removable surface contamination of 2,200 dpm/100 cm as described in Regulatory Guide 8.23, "Radiation Safety Surveys at Medical Institutions", or the licensee may be approved to decontaminate based

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upon action levels determined to meet the following criteria:

a. No primary radiation protection standards will be exceeded (personal dose, member of the public dose or environmental release limits.); and

b. The action levels are determined to be ALARA based upon a consideration of worker, environmental, and public exposures.

The licensee must describe the procedures to be followed to determine these criteria are met.

In summary, the licensee's request for an exemption (to be provided by a license amendment) from the requirements in 10 CFR 35.315(a)(7) may be granted at such time as the licensee provides the additional commitments including the decontamination level described in item 3 above.

Any questions regarding this information should be directed to Robert Ayres of this staff at (301) 504-3423.

John E. Glenn, Chief
Medical, Academic, and Commercial
Use Safety Branch
Division of Industrial and
Medical Nuclear Safety, NMSS

Enclosure:
TAR dtd 6/10/92
DISTRIBUTION: IMAB922

NRC File Center	TAR r/f	JEGlenn	RECunningham
JGreeves	IMNS Central File	PCVacca	RRBellamy, RI
DCollins, RII	JGrobe, RIII	RJPate, RV	MShanbacky, RI
JKinneman, RI	PSwetland, RI	CHosey, RII	GMMcCann, RIII
BPrange, RV	MLamastra	RFonner, OGC	NMSS r/f
JPelchat, RII	LJCallan, RIV	VLMiller, GPA/SP	WFisher, RIV
JRicci, AEOD/TTC	CCain, RIV	LWCamper, IMAB	BJHolt, RII
JPiccone, IMAB	JJohansen, RI	FCombs, IMOB	

OFC	:IMAB	:IMAB	:OGC	:IMAB	:IMOB
NAME	:RAyres	:LCamper	:STreby	:JEGlenn	:FCombs
DATE	:09/09/92	:09/9/92	:09/21/92	:09/10/92	:09/11/92

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REQUEST FOR TECHNICAL ASSISTANCE

DATE: 6/10/92

TO: John E. Glenn, Chief, Medical, Academic, and Commercial Use Safety Branch, NMSS

FROM: Ronald R. Bellamy RRBellamy 6/10/92, Chief, Nuclear Materials Safety and Safeguards Branch, Region I

LICENSEE: Walter Reed Army Medical Center LICENSE NO.: 08-01738-02

X Control No. 116472 (enclosed)

X Letter dated April 8, 1992 (enclosed)

____ Suggested change in licensing procedure (enclosed)

____ Other (see remarks)

Problem/Issue: Walter Reed Army Medical Center (WRAMC) is requesting an exemption from 10 CFR 35.315(a)(7) which requires that for each patient receiving radiopharmaceutical therapy and hospitalized, a (Continued on attached sheet)

Action Required:

Alternatives Considered:

Recommended Alternative: Recommend that this exemption be granted with the restrictions stated in their letter dated April 8, 1992. This letter should be a tie down condition in their license.

Remarks:

Regional Reviewer: Pamela Henderson
Reviewer Code: K-7
Reviewer Phone No.: FTS 346-6952

REV. 8/90

Problem/Issue continued:

licensee shall survey the patient's room and private sanitary facility for removable contamination with a radiation detection survey instrument before assigning another patient to the room. The room must not be reassigned until removable contamination is less than 200 disintegrations per minute per 100 square centimeters. WRAMC states that they average thirty iodine therapies per year and have a dedicated room which is assigned only to iodine therapy patients. Before reassigning the room to another iodine patient, their Health Physics Office personnel clean and disinfect it. The room remains locked until needed for an iodine therapy and may only be opened by health physics personnel.

DEPARTMENT OF THE ARMY
WALTER REED ARMY MEDICAL CENTER
WASHINGTON, D.C. 20307-5001

REPLY TO
ATTENTION OF:
HSHL-HP (385-11m)

8 Apr 92

MEMORANDUM THRU HQDA (SGPS-PSP-E), 5109 Leesburg Pike, Falls Church, VA 22041-3258

FOR US Nuclear Regulatory Commission, Region I, Nuclear Material Safety Section A, 475 Allendale Road, King of Prussia, PA 19406-1415

SUBJECT: Application for Exemption to 10 CFR 35.315(a)7

1. Request that Walter Reed Army Medical Center (WRAMC), NRC License No. 08-01738-02, be granted exemption from the provisions of 10 CFR 35.315 (a) 7.

2. WRAMC averages thirty iodine therapies per year and has a dedicated room which is assigned only to iodine therapy patients. Before reassigning the room to another iodine therapy patient, Health Physics Office (HPO) personnel clean and disinfect it. The room remains locked until needed for an iodine therapy and may only be opened by HPO personnel.

3. Although ensuring a maximum removable room contamination level of 200 dpm/cm^2 is appropriate for a room that may be utilized by the general public, it does not seem necessary for a room that is solely used by patients that have just received 150 mCi of radioiodine and well trained radiation workers.

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4. Also, Condition No.5 of the WRAMC authorization procedures has been modified to delete addresses for USAMRIID and Andrew Rader Army Clinic; to change the Health Physics Office mailing address to the recently assigned street address; and to include the Nuclear Medicine Clinic as a receipt point for radiopharmaceutical shipments. (Enclosure)

5. Nuclear Medicine has been approved by the WRAMC Radiation Control Committee to receive radiopharmaceuticals directly from local pharmacies for more timely and cost effective handling of this material. Nuclear Medicine will process all incoming shipments in accordance with Regulatory Guide 10.8 and forward inventory records to the Health Physics Office.

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HSHL-HP
SUBJECT: Application for Exemption to 10 CFR 35.315(a)7

FOR THE COMMANDER:

ROY D. QUICK, JR.
LTC, MS
Executive Officer

Encl
as

Copy Furnished

Commander, US Army Health Services Command, ATTN: HSCL-P, Fort Sam Houston, TX 78234-6000

HEALTH PHYSICS
WALTER REED ARMY MEDICAL CENTER
Washington, D.C. 20307-5001

CONDITION NO. 5

FOR

RADIOACTIVE MATERIAL AUTHORIZATIONS

PROCEDURES FOR
ORDERING, RECEIVING AND SAFELY OPENING PACKAGES
CONTAINING RADIOACTIVE MATERIAL

1. GENERAL. Radioactive material for Walter Reed Army Medical Center (WRAMC) and tenant activities will be ordered, received and secured in accordance with US Army Regulations, Title 10, Code of Federal Regulations, and the provisions of WRAMC's Nuclear Regulatory Commission License.

2. PRINCIPAL USER'S RESPONSIBILITIES.

a. WRAMC Principal Users are responsible for ordering and receiving radioactive material in accordance with the instructions outlined below.

b. A Principal User may procure only those radioisotopes currently authorized for their use by the WRAMC Radiation Control Committee, subject to the limitations of their authorization.

c. Unless specified prior arrangements have been made with the Health Physics Officer, the maximum quantity which may be ordered at any one time is limited by the maximum activity of that radioisotope which the User is authorized to possess less the amount of activity the User will have on hand at the time the new order is received.

d. Specific prior approval of the Health Physics Office shall be required before receiving and/or transferring gifts containing radioactive material. This procedure applies to those instances where normal supply channels are not utilized. All gifts will be delivered to the Health Physics Office unless alternate arrangements are specifically approved by the Health Physics Office.

3. ORDERING PROCEDURES.

a. The Principal User shall submit a completed Purchase Request through normal supply channels for procurement of all radioactive materials.

CONDITION NO. 5 FOR RADIOACTIVE MATERIAL AUTHORIZATION (PROCEDURES FOR ORDERING, RECEIVING AND SAFELY OPENING PACKAGES CONTAINING RADIOACTIVE MATERIAL)

b. In addition to the information required by WRAMC Procurement Regulations, each purchase request shall contain the following:

(1) Radionuclide, chemical form, and total activity (Activity is given as microcuries (Uci), millicuries (Mci), or curies (Ci); for natural radioactive materials microgram (ug), milligram (mg), gram (g), or kilogram (kg) may be used.

(2) This notice will be typed after the item description:

RADIOACTIVE MATERIAL
NOTIFY HEALTH PHYSICS OFFICE
PRIOR TO PLACING ORDER
(TELEPHONE NO. (301) 427-5104)

(3) The WRAMC Radioactive Material Authorization Number will be indicated in the "Attention Line" of the "Ship To" address.

(4) Date required or delivery date.

(5) The proper shipping address for any radioactive material not specifically exempted by the Health Physics Office (HPO) is:

Health Physics Office
Bldg 188, 2681 Linden Lane
Forest Glen Section
Walter Reed Army Medical Center
ATTN: Authorization No. _____
Silver Spring, MD 20910

(6) Two specific approved exemptions are:

(a) Army Medical Laboratory, Ft. Meade, MD:

Radiation Protection Officer
Army Medical Laboratory
Bldg 2490
Fort Meade, Maryland 20755

CONDITION NO. 5 FOR RADIOACTIVE MATERIAL AUTHORIZATION (PROCEDURES FOR ORDERING, RECEIVING AND SAFELY OPENING PACKAGES CONTAINING RADIOACTIVE MATERIAL)

(b) Radiopharmaceuticals for WRAMC Nuclear Medicine Clinic:

Walter Reed Army Medical Center
Nuclear Pharmacy
Bldg 2, Room
Washington, D.C. 20307-5001

Ex 2

4. RECEIVING PROCEDURES.

a. All incoming shipments of radioactive material to the Health Physics Office will be received by the Health Physics Office during duty hours, or by the Military Police, WRAMC Forest Glen Section during non-duty hours. Shipments to Fort Meade, or the WRAMC Nuclear Medicine Clinic will be delivered to the address shown in paragraph 3. The Health Physics Office must be notified immediately of any shipment delivered to an unapproved address.

b. All incoming packages of radioactive material will be examined for damage immediately upon receipt. Any packages that appear to be wet, punctured, crushed, or otherwise damaged will be considered to be contaminated, until it can be determined that they are not.

c. Incoming radioactive material shipments must be continuously secured against unauthorized removal and the radiation levels adjacent to the secured storage area may not exceed 0.5 mR/hr.

5. SHIPMENT MONITORING & DELIVERY TO AUTHORIZED RECIPIENTS.

a. All shipments of radioactive material must be inspected to insure that the shipment does not exceed the possession limits of the Authorization under which it is ordered. Unauthorized shipments will be returned to the vendor when possible, disposed of as radioactive waste, or held by the Health Physics Office until the Principal User obtains an amended Radioactive Material Authorization allowing receipt of the material. Unauthorized shipments will not be held by Health Physics for more than ninety (90) days.

b. Shipments will be Delivered to Principal Users by the Health Physics Office after monitoring procedures have been accomplished.

Ex 2

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CONDITION NO. 5 FOR RADIOACTIVE MATERIAL AUTHORIZATION (PROCEDURES FOR ORDERING, RECEIVING AND SAFELY OPENING PACKAGES CONTAINING RADIOACTIVE MATERIAL)

6. FINAL SOURCE CONTAINER CHECK. The Principal User is responsible for making a final check of the radioactive materials' source container after it is delivered by the Health Physics Office. This check will follow the steps outlined below:

a. Put on gloves.

b. Open outer package (following manufacturer's directions, if supplied) and remove packing slip. Open inner package and verify that the contents are as listed on the packing slip.

c. Check integrity of source container, inspecting for breakage of seals or vials, loss of liquid, discoloration of packaging material, etc.

d. Before disposing of clean outer packaging ensure that any "radioactive" labels or statements have been defaced or removed.

'92 APR 24 A10:14

RECEIVED-REGION I

030-01317

DEPARTMENT OF THE ARMY
OFFICE OF THE SURGEON GENERAL
5109 LEESBURG PIKE
FALLS CHURCH, VA 22041-3258

REPLY TO
ATTENTION OF

April 20, 1992

Preventive Medicine
Consultants Division

US Nuclear Regulatory Commission
Region I
475 Allendale
King of Prussia, Pennsylvania 19406

Dear Sir:

Enclosed are two copies of a request to amend Byproduct Material License Number 08-01738-02, Walter Reed Army Medical Center, Washington, DC.

Recommend approval.

Sincerely,

Peter H. Myers
Colonel, U.S. Army
Radiological Hygiene Consultant

Enclosure

CF: HSHB-MR-H

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APR 24 1992

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Copy Rec'd in LAS APR 13 1992

DEPARTMENT OF THE ARMY
WALTER REED ARMY MEDICAL CENTER
WASHINGTON, D.C. 20307-5001

REPLY TO
ATTENTION OF:
HSHL-HP (385-11m)

8 Apr 92

MEMORANDUM THRU HQDA (SGPS-PSP-E), 5109 Leesburg Pike, Falls Church, VA 22041-3258

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HSHL-HP
SUBJECT: Application for Exemption to 10 CFR 35.315(a)7

FOR THE COMMANDER:

ROY D. QUICK, JR.
LTC, MS
Executive Officer

Encl
as

Copy Furnished

Commander, US Army Health Services Command, ATTN: HSCL-P, Fort Sam Houston, TX 78234-6000

HEALTH PHYSICS
WALTER REED ARMY MEDICAL CENTER
Washington, D.C. 20307-5001

CONDITION NO. 5

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CONDITION NO. 5 FOR RADIOACTIVE MATERIAL AUTHORIZATION (PROCEDURES FOR ORDERING, RECEIVING AND SAFELY OPENING PACKAGES CONTAINING RADIOACTIVE MATERIAL)

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CONDITION NO. 5 FOR RADIOACTIVE MATERIAL AUTHORIZATION (PROCEDURES FOR ORDERING, RECEIVING AND SAFELY OPENING PACKAGES CONTAINING RADIOACTIVE MATERIAL)

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d. Before disposing of clean outer packaging ensure that any "radioactive" labels or statements have been defaced or removed.

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RECEIVED-REGION I

BETWEEN:

LICENSE FEE MANAGEMENT BRANCH, ARM
AND
REGIONAL LICENSING SECTIONS

(FOR LFMS USE)
INFORMATION FROM LTS

PROGRAM CODE: 02110
STATUS CODE: 0
FEE CATEGORY: EX 7B 2B 2C
EXP. DATE: 19930430
FEE COMMENTS: SHIELDING AND R&D USE
DECOM FIN ASSUR REQD: Y

LICENSE FEE TRANSMITTAL

A. REGION I

1. APPLICATION ATTACHED
APPLICANT/LICENSEE: ARMY, DEPARTMENT OF THE
RECEIVED DATE: 920413
DOCKET NO: 3001317
CONTROL NO.: 116472
LICENSE NO.: 08-01733-02
ACTION TYPE: AMENDMENT

2. FEE ATTACHED
AMOUNT: Ø
CHECK NO.: Ø

3. COMMENTS

SIGNED M A Perkins
DATE 4/15/92

B. LICENSE FEE MANAGEMENT BRANCH (CHECK WHEN MILESTONE 03 IS ENTERED /__/)

1. FEE CATEGORY AND AMOUNT: _____

2. CORRECT FEE PAID. APPLICATION MAY BE PROCESSED FOR:
AMENDMENT _____
RENEWAL _____
LICENSE _____

3. OTHER _____
_____

SIGNED _____
DATE _____

NRC FORM 374
(10-89)

U.S. NUCLEAR REGULATORY COMMISSION

MATERIALS LICENSE

Amendment No. 63

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974 (Public Law 93-438), and Title 10, Code of Federal Regulations, Chapter I, Parts 30, 31, 32, 33, 34, 35, 39, 40 and 70, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, possess, and transfer byproduct, source, and special nuclear material designated below; to use such material for the purpose(s) and at the place(s) designated below; to deliver or transfer such material to persons authorized to receive it in accordance with the regulations of the applicable Part(s). This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954, as amended, and is subject to all applicable rules, regulations and orders of the Nuclear Regulatory Commission now or hereafter in effect and to any conditions specified below.

Licensee	
1. Department of the Army Walter Reed Army Medical Center (WRAMC) 2. Washington, D.C. 20307-5001	In accordance with the letter dated March 26, 1993, 3. License number 08-01738-02 is amended in its entirety to read as follows: 4. Expiration date April 30, 1993 (Extended) 5. Docket or Reference No. 030-01317

6. Byproduct, source, and/or special nuclear material	7. Chemical and/or physical form	8. Maximum amount that licensee may possess at any one time under this license
A. Any byproduct material with atomic numbers 1-83	A. Any	A. 400 millicuries of each radionuclide with a total possession limit of 26 curies
B. Iodine 131	B. Any	B. 2 curies
C. Xenon 133	C. Any	C. 2 curies
D. Krypton 85	D. Any	D. 1 curie
E. Gold 198	E. Any	E. 1 curie
F. Phosphorus 32	F. Any	F. 2 curies
G. Carbon 14	G. Any	G. 2 curies
H. Iodine 125	H. Any	H. 1 curie
I. Iridium 192	I. Any	I.
J. Chromium 51	J. Any	J. 750 millicuries
K. Sulfur 35	K. Any	K. 1 curie
L. Hydrogen 3	L. Any	L. 5 curies
M. Molybdenum 99	M. Molybdenum 99/ Technetium 99m Generators	M. 23 curies
N. Technetium 99m	N. Any	N. 23 curies
O. Strontium 90	O. Sealed sources	O.
P. Cesium 137	P. Sealed sources	P.
Q. Gadolinium 153	Q. Sealed sources	Q.
R. Iodine 125	R. Sealed sources (Norland Inst. Co., Model 178A591A)	R. 400 millicuries
S. Iodine 125	S. Sealed sources (3M Company seeds)	S. 500 millicuries
T. Iodine 125	T. Sealed sources (AECL Models C235 or C324, or Amersham Corp. Model IMC.P2)	T. 4 sources, not to exceed 300 millicuries each

Information in this record was deleted in accordance with the Freedom of Information Act, exemptions 2
FOIA 2006-0238
"OFFICIAL RECORD COPY" ML 10

Ex 2

KK/17

License number
08-01738-02
Docket or Reference number
030-01317
Amendment No. 63

MATERIALS LICENSE
SUPPLEMENTARY SHEET

(Items 6., 7. & 8. continued)

6. Byproduct, source, and/or special nuclear material	7. Chemical and/or physical form	8. Maximum amount that licensee may possess at any one time under this license
U. Cesium 137	U. Sealed sources	U.
V. Cobalt 60	V. Sealed sources	V.
W. Americium 241	W. Any	W. 100 microcuries
X. Americium 241	X. Sealed sources	X.
Y. Nickel 63	Y. Sealed sources and foils	Y. 1 curie
Z. Iodine 129	Z. Sealed sources	Z. 1 curie
AA. Thorium	AA. Any	AA. 5 kilograms
BB. Uranium	BB. Any	BB. 50 kilograms
CC. Uranium depleted in Uranium 235	CC. Plated Metal	CC. 400 kilograms
DD. Americium 241	DD. Sealed sources	DD.
EE. Cesium 137	EE. Sealed source	EE.
FF. Cesium 137	FF. Sealed sources	FF.

9. Authorized use

A. through T. Medical research, diagnosis, and therapy; research and development as defined in 10 CFR 30.4.
U. through Z. Research and development as defined in 10 CFR 30.4; teaching.
AA. and BB. Teaching and laboratory research.
CC. Shielding.
DD. Standards and reference sources.
EE. In an for calibration of instruments.
FF. Instrument calibration.

CONDITIONS

10. Location of use: Walter Reed Army Medical Center, Washington, D. C.; WRAMC Forest Glen Section and Annex, Silver Spring, Maryland; Walter Reed Army Institute of Research Animal Holding Facility, Fort Meade, Maryland; U.S. Army Medical Laboratory, WRAMC Department of Pathology, Fort Meade, Maryland; and U.S. Army Institute of Dental Research Facility, Fort Meade, Maryland; Rickman Building, 13 Taft Court, Rockville, Maryland; Key West Research Center, 9620 Medical Center Drive, Rockville, Maryland; and Gillette Building, 270 Research Center, 1413 Research Boulevard, Rockville, Maryland.

11. Radiation Safety Officer: LTC Arthur G. Samiljan.

Ex 2

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License number: 08-01738-02
Docket or Reference number: 030-01317
Amendment No. 63

(Continued) CONDITIONS

12. A. Licensed material shall be used by, or under the supervision of, individuals designated by the licensee's Radiation Safety Committee, Col. Joan T. Zajtchuk, Chairman.

    B. The use of licensed material in or on humans shall be by a physician as defined in Section 35.2 of 10 CFR Part 35.

    C. Physicians designated to use licensed material in or on humans shall meet the training criteria established in 10 CFR Part 35, Subpart J.

13. Experimental animals administered licensed materials or their products shall not be used for human consumption.

14. In lieu of using the conventional radiation caution colors (magenta or purple on yellow background) as provided in Section 20.203(a)(1), of 10 CFR Part 20, the licensee is hereby authorized to label detector cells and cell baths, containing licensed material and used in gas chromatography devices, with conspicuously etched or stamped radiation caution symbols without a color requirement.

15. Detector cells containing a titanium tritide foil or a scandium tritide foil shall only be used in conjunction with a properly operating temperature control mechanism which prevents foil temperatures from exceeding that specified by the manufacturer.

16. Notwithstanding the requirements of 10 CFR 35.49 (a) and (b), the licensee may use for medical use any byproduct material or reagent kit for which the Food and Drug Administration has accepted a "Notice of Claimed Investigational Exemption for a New Drug" (IND).

17. The licensee may transport licensed material in accordance with the provisions of 10 CFR 71, "Packaging and Transportation of Radioactive Material."

18. If only a single radionuclide specified in NUREG 0767, is possessed, the possession limit is the quantity specified in Schedule of Limiting Possession Limits, NUREG-0767. If two or more radionuclides are possessed, the possession limit for each is determined as follows: the sum of the quotients of the quantities possessed divided by the quantities of those radionuclides specified in the Schedule of Limiting Possession Limits, NUREG-0767 shall not exceed unity.

19. The licensee is authorized to hold radioactive material with a physical half-life of less than 90 days for decay-in-storage before disposal in ordinary trash provided:

    A. Radioactive waste to be disposed of in this manner shall be held for decay a minimum of 10 half-lives.

MATERIALS LICENSE
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(19. continued) CONDITIONS

B. Before disposal as normal waste, radioactive waste shall be surveyed to determine that its radioactivity cannot be distinguished from background. All radiation labels shall be removed or obliterated.

C. Generator columns shall be segregated so that they may be monitored separately to ensure decay to background levels prior to disposal.

20. Except as specifically provided otherwise in this license, the licensee shall conduct its program in accordance with the statements, representations, and procedures contained in the documents, including any enclosures, listed below. The Nuclear Regulatory Commission's regulations shall govern unless the statements, representations and procedures in the licensee's application and correspondence are more restrictive than the regulations.

A. Application dated July 18, 1979
B. Letter dated January 13, 1984
C. Letter dated May 8, 1987
D. Letter dated March 16, 1988
E. Letter dated March 28, 1988
F. Application dated August 5, 1988
G. Letter dated September 23, 1988
H. Letter dated July 28, 1989
I. Letter dated September 12, 1989
J. Letter dated January 19, 1990
K. Letter dated July 16, 1990
L. Letter dated March 15, 1991
M. Letter dated July 11, 1991
N. Letter dated April 8, 1992
O. Letter dated August 4, 1992
P. Letter dated November 24, 1992
Q. Letter dated March 26, 1993

For the U.S. Nuclear Regulatory Commission

Original Signed By:
David G. Mann

Date JUN 2 2 1993

By

Nuclear Materials Safety Branch
Region I
King of Prussia, Pennsylvania 19406

JUN 2 2 1993

License No. 08-01738-02
Docket No. 030-01317
Control No. 117924

Department of the Army
ATTN: Major General Ronald R. Blanck
Commanding Officer
Walter Reed Army Medical Center
Washington, DC 20307-5001

Dear Major General Blanck:

Please find enclosed an amendment to your NRC Material License.

Please review the enclosed document carefully and be sure that you understand all conditions. If there are any errors or questions, please notify the Region I Material Licensing Section, (215) 337-5093, so that we can provide appropriate corrections and answers.

Please be advised that you must conduct your program involving licensed radioactive materials in accordance with the conditions of your NRC license, representations made in your license application, and NRC regulations. In particular, please note the items in the enclosed, "Requirements for Materials Licensees."

Since serious consequences to employees and the public can result from failure to comply with NRC requirements, the NRC expects licensees to pay meticulous attention to detail and to achieve the high standard of compliance which the NRC expects of its licensees.

You will be periodically inspected by NRC. A fee may be charged for inspections in accordance with 10 CFR Part 170. Failure to conduct your program safely and in accordance with NRC regulations, license conditions, and representations made in your license application and supplemental correspondence with NRC will result in prompt and vigorous enforcement action against you. This could include issuance of a notice of violation, or in case of serious violations, an imposition of a civil penalty or an order suspending, modifying or revoking your license as specified in the General Policy and Procedures for NRC Enforcement Actions, 10 CFR Part 2, Appendix C.

We wish you success in operating a safe and effective licensed program.

Sincerely,

Original Signed By:
David G. Mann

David G. Mann
Nuclear Materials Safety Branch
Division of Radiation Safety
and Safeguards

Enclosures:
1. Amendment No. 63
2. Requirements for Materials Licensees
3. NRC Forms 3 and 313
4. 10 CFR Parts 2, 19, 20, 30, 35, and 170
5. Regulatory Guide 10.8

DRSS:RI
Mann/amw

6/21/93