DEPARTMENT OF THE ARMY
OFFICE OF THE SURGEON GENERAL
5109 LEESBURG PIKE
FALLS CHURCH, VA 22041-3258

March 26, 1993

REPLY TO
ATTENTION OF
Preventive Medicine
Consultants Division

030-01317

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: HQ, USAEHA, ATTN: HSHB-MR-H, APG, MD 21010-5422

OFFICIAL RECORD COPY ML 10

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MAR 3 1 1993

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

REPLY TO
ATTENTION OF:

HSHL-HP (385-11m)

10 MAR 1993

MEMORANDUM THRU

Commander, US Army Health Services Command, ATTN: HSCL-P, Fort Sam Houston, TX 78234-6000 MCM 22 MAR 93

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 (WRAMC) 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 Gillette building (Enclosure 2), and a copy of part of the lease agreement between the US Government and MC-270, Inc. (Enclosure 3). At the current time two small research groups of less than ten people each are planning to use this facility for research involving radioactive material. They will be using only a few rooms per group, the remainder of the area will house administrative areas and research not involving radioactive material.

3. The isotope usage at this facility is currently planned to be H-3, C-14, Cr-51, Fe-59, I-125 RIA kits and Tc-99m. Less than 10 mCi of Cr-51, I-125 and Fe-59; 25 mCi of H-3, and C-14; and up to 100 mCi of Tc-99m are currently anticipated. No work with volatile iodine is currently planned. As always all rooms, isotopes, limits and protocols will be approved by the Health Physics Office and the WRAMC Radiation Control Committee prior to implementation.

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

4. If any additional information is required please contact Mr. David Burton at (301) 427-5161.

FOR THE COMMANDER:

3 Encls

ROY D. QUICK, JR.
LTC, MS
Executive Officer

030-01317

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	1.b. STREET ADDRESS(ES) AT WHICH RADIOACTIVE MATERIAL WILL BE USED *(If different from 1.a.)* INCLUDE ZIP CODE
Department of the Army Walter Reed Army Medical Center Washington, DC 20307-5001 TELEPHONE NO.: AREA CODE (301) 427-5104	The Gillette Building 270 Research Center 1413 Research Boulevard 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.)* NO CHANGE

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
NO CHANGE			

Enclosure 1

117924

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 or Print)*: ROY D. QUICK JR., LTC, MS

(2) TITLE: Executive Officer

c. DATE

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: October 25, 1992

LEASE NO: DACA-31-5-92-332

THIS LEASE, made and entered into this date by and between

MC-270, Inc., a corporation organized and existing under the laws of the State of Maryland

whose address is 55 Railroad Avenue
Greenwich, CT 06830

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 45,000 square feet of space, hereinafter called the "Leased Premises", comprising a portion of the premises generally known as the Gillette Building, hereinafter called the "Building", as shown on Exhibit "A", attached hereto, whose address is 270 Research Center, 1413 Research Boulevard, Rockville, Maryland 20850. The Leased Premises also includes paved parking for 93 vehicles.

to be used for Government purposes.

2. TO HAVE AND TO HOLD the said premises with their appurtenances for the term beginning on the Commencement Date, as defined in Clause 17 of the General Conditions of this Lease and continuing for a period of five (5) years thereafter, subject to termination and renewal rights as may be hereinafter set forth.

3. The Government shall pay the Lessor annual rent of $ SEE PARAGRAPH 19

4. This lease may be terminated at the option of the Government, in whole or in part, by giving to the Lessor not less than 60 days' notice in writing prior to 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:
The Government may renew this Lease for a term of five (5) years by providing the Lessor with written notice exercising this renewal option not less than 120 days prior to the last day of the initial five-year lease term. The Government shall pay rent during the renewal term as set forth in Clause 19 below. All other terms and conditions of this Lease shall remain the same except as otherwise provided for herein.

Enclose 3

6. The Lessor shall furnish to the Government, as part of the rental consideration, the following:

SEE ATTACHED - Paragraph 6 (continued)

7. The following are attached and made a part hereof:

The General Provisions and Instructions (Standard Form 2-A, May 1970 edition).

Exhibit "A" - map
Exhibit "B" - janitorial services
Exhibit "C" - operating expenses
Exhibit "D" - areas to be painted
Exhibit "E" - areas to be carpeted/sealed
Exhibit "F" - sealant specifications
Exhibit "G" - government improvements

8. The following changes were made in this lease prior to its execution:

Condition No. 3 and 5 of SF 2 were modified.
Condition No. 4 of SF 2 was deleted.
Condition No. 17 through 34 were added.

IN WITNESS WHEREOF, the parties hereto have hereunto subscribed their names as of the date first above written.

LESSOR MC-270, Inc. TAX I.D. No 52-1542793

BY R. E. Bogart (Signature) ..... (Signature)

IN PRESENCE OF: Barbara Henry (Signature) ..... (Address)

UNITED STATES OF AMERICA

BY ..... (Signature) G. R. BOGGS, Chief, Real Estate Division (Official title)

STANDARD FORM 2
FEBRUARY 1965 EDITION

*U.S. Government Printing Office: 1991 — 298-952/49179

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MATERIALS LICENSE

Amendment No. 64

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	In accordance with the letter dated June 14, 1993,
1. Department of the Army Walter Reed Army Medical Center (WRAMC)	3. License number 08-01738-02 is amended in its entirety to read as follows:
2. Washington, D.C. 20307-5001	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. 3 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

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License number: 08-01738-02

Docket or Reference number: 030-01317

Amendment No. 64

(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. [redacted]
V. Cobalt 60	V. Sealed sources	V. [redacted]
W. Americium 241	W. Any	W. 100 microcuries
X. Americium 241	X. Sealed sources	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	EE. [redacted]
FF. Cesium 137	FF.	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; 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 and Gillette Building, 270 Research Center, 1413 Research Boulevard, Rockville, Maryland.

11. Radiation Safety Officer: LTC Arthur G. Samiljan.

E2 (PARTIAL)

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License number
08-01738-02

Docket or Reference number
030-01317

Amendment No. 64

(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. 64

(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
R. Letter dated June 14, 1993

For the U.S. Nuclear Regulatory Commission

Date AUG 23 1993

By Original Signed By:
David G. Mann
Nuclear Materials Safety Branch
Region I
King of Prussia, Pennsylvania 19406

AUG 23 1993

License No. 08-01738-02
Docket No. 030-01317
Control No. 118276

Department of the Army
ATTN: DASG-PSP-E (COL Peter Myers)
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.

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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. 64
2. Requirements for Materials Licensees
3. NRC Forms 3 and 313
4. 10 CFR Parts 2, 19, 20, 30, 35 and 170

DRSS:RI
Mann/srb DGM

8/2 /93

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HUMAN GENOME SCIENCES, INC.
9620 MEDICAL CENTER DRIVE
SUITE 300
ROCKVILLE, MD 20850-3338
(301) 309-8504 (301) 309-8512 FAX

August 18, 1993

08- 01738-02
030-01317

Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406

Attn: Mr. David Mann

Dear David,

Pursuant to our conversation today, I am enclosing material that I believe is necessary to decommission the Walter Reed space at 9620 Medical Center Drive. Walter Reed's control number is 118276.

I appreciate your assistance in this matter and would also appreciate if you would copy me on the final notification to Walter Reed.

I have enclosed my card should you need any further assistance from me.

Thank you for your expedition of this matter.

Sincerely,

Jim Burtnett

James R. Burtnett
Director of Human Resources

Encl

JAMES R. BURTNETT, JR
DIRECTOR OF HUMAN RESOURCES

HUMAN GENOME SCIENCES, INC.
9620 MEDICAL CENTER DRIVE
SUITE 300
ROCKVILLE, MD 20850-3338
(301) 251-6021
(301) 309-8512 FAX

118276

AUG 19 1993

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DEPARTMENT OF THE ARMY
WALTER REED ARMY INSTITUTE OF RESEARCH
WALTER REED ARMY MEDICAL CENTER
WASHINGTON, D.C. 20307-5100

IN REPLY REFER TO:

August 16, 1993

08-01738-02
030-01317

Office of the Director

Mr. James R. Burtnett
Human Genome Sciences, Inc.
9620 Medical Center Drive
Rockville, Maryland 20850

Dear Mr. Burtnett:

The attached report and accompanying data are submitted for your review and use in obtaining an amendment to your radioactive material use license from the State of Maryland Department of the Environment. The radioactivity surveys performed by the Health Physics Office of the Walter Reed Army Medical Center clearly show the space now being leased by the Walter Reed Army Institute of Research (WRAIR) is free of any residual radioactivity above background.

Request you notify this office in writing if your company is willing to accept responsibility for the space indicated in light of the survey data submitted. This action will allow the WRAIR to drop the Medical Center Drive Building from its license and you to add the facility to your license.

Point of Contact for this action is Dr. Billy G. Bass, (202) 576 3428 if you have any questions concerning this matter.

Sincerely,

August J. Salvado

August J. Salvado
Colonel, U.S. Army
Director

118276

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AUG 19 1993

D ARTMENT OF THE ARMY
WALTER REED ARMY MEDICAL CENTER
WASHINGTON, DC 20307-5001

REPLY TO
ATTENTION OF:
HSHL-HP

5 August 1993

MEMORANDUM FOR Director, Walter Reed Army Institute of Research, Washington, D.C.

SUBJECT: Decommissioning Survey for the Cellular Immunology Research Facility at Key West, Rockville, Maryland

1. References:

a. Title 10, Code of Federal Regulations, Part 20, Standards for Protection Against Radiation.

b. United States Nuclear Regulatory Commission Regulatory Guide 1.86, "Termination of Operating Licenses for Nuclear Reactors".

c. United States Nuclear Regulatory Commission Regulatory Guide 8.23, 1 January 1981, "Radiation Safety Surveys at Medical Institutions".

d. United States Nuclear Regulatory Commission, 1 July 1982, "Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source, or Special Nuclear Material".

2. Purpose: During the time period of 14 June through 28 July 1993, Health Physics Office personnel conducted a decommissioning survey of the Cellular Immunology Research Facility (CIRF) at Key West to verify that residual radioactivity was below unrestricted levels.

3. Conclusion: Based upon the results of this comprehensive survey, there is no contamination in excess of unrestricted levels in the CIRF and it may be released, contingent upon NRC approval, to the owner.

4. Facility History: The Cellular Immunology Research Facility has been on Walter Reed's NRC License since 13 April 1990 as a site using byproduct material in biomedical research. At one time or another all 27 labs were active restricted areas. While 25 mCi of H-3, 10 mCi of C-14, 30 mCi of P-32, 45 mCi of S-35, 5 mCi of Cr-51, and 10.1 mCi of I-125 were authorized for use, not all radionuclides were used in each laboratory.

5. Methodology:

a. Survey Preparation. All licensed byproduct material was removed from the labs before commencing the survey. Contamination surveys were conducted on potentially contaminated equipment before returning the items to WRAIR. Additionally, all areas were cleared of equipment, furniture, and supplies before surveying.

b. Survey Strategy. Since the NRC had not, at the time of this survey, published a regulatory guide on how to conduct a decommissioning survey, we formulated the following approach:

(1) Areas that had been restricted areas received the most thorough surveying with measurements and wipes taken in 2 feet by 2 feet areas on all horizontal surfaces and to a height of 4 feet on all walls.

(2) The remaining unrestricted areas (offices, rest rooms, conference room, break areas, hallways, etc.) were surveyed to ensure a representative sampling.

(3) Wipes were taken in all sink drains, fume hood ducts, and exhaust ducts within the facility.

(4) Acceptable limits from NRC Regulatory Guide 8.23, Tables 2 and 3, were used for removable and fixed contamination, respectively.

(5) All areas were monitored for all possible contaminants regardless of the actual radionuclides used in specific labs.

c. Survey Technique.

(1) Direct Measurements of Fixed Contamination.

(a) Gamma Emitters. Gamma radiation was monitored with energy compensated G-M tubes measuring micro-R per hour at a distance of two inches above counter tops, shelves, drawers, and floors. Background was measured to be 15 uR/hr using this instrument.

(b) Beta Emitters. Beta radiation was monitored with a tungsten shielded G-M probe attached to a scaler. The Minimum Detectable Activity (MDA) for C-14 was 490 dpm/20 square cm using a one minute count time at a distance of one inch above counter tops, shelves, drawers, and floors.

(2) Indirect Measurements of Removable Contamination.

(a) Swipes. Swipes were taken over an area of 300 square centimeters.

(b) Gamma Emitter Analysis. All swipes were first analyzed for gamma energy by a well counter with a sodium iodide detector. The MDA varied slightly from day to day, but it was consistently and substantially below 2,200 DPM/100 square cms for Cr-51 and 220 DPM/100 square cms for I-125.

(c) Beta Emitter Analysis. All swipes were analyzed for beta energy by a liquid scintillation counter. The MDA varied slightly from day to day, but it was consistently below 220 DPM/100 square cms for H-3, C-14, P-32, and S-35.

(3) Survey Quality Control.

(a) Survey Meters. The survey meters and scaler used were within calibration and had a battery and/or performance check prior to each use.

(b) Gamma Counter. The gamma well counters were routinely checked for constancy utilizing an I-129 source and for efficiencies utilizing Cr-51 and I-125 sources.

(c) Liquid Scintillation Counter. The LSCs performed self-quench corrections on each sample, and were routinely checked with H-3 and C-14 sources to ensure consistency.

6. Results. Included as enclosures are the results of the individual room and area surveys.

7. Recommendation. That the Walter Reed Army Institute of Research prepare for the return of the CIRF to its owner once the NRC sends their approval for releasing the facility.

8. POC for this survey is CPT Mark A. Melanson, Chief, Operations Branch, Health Physics Office, @ (301)-427-5104/5107.

Encls

ARTHUR G. SAMILJAN
LTC, MS
Chief, Health Physics Office

KEY WEST DECOMMISSIONING SURVEY

Office - 1

REMOVABLE CONTAMINATION

Office Number 1 was surveyed for removable contamination on 28 Jun 93 by SPC Brinley. A total of 38 swipes were taken. See Attachment 1 for the location of each swipe.

The swipes were analyzed for gamma contamination, utilizing the LKB Gammawell Counter on 28 Jun 93. See Attachment 2 for the MDAs and associated efficiencies. No gamma contamination was found above 200 dpm for I-125 or above 2000 dpm for any other isotope.

The swipes were analyzed for beta contamination, utilizing the Beckman Liquid Scintillation Counter Model 5000 on 28 Jun 93. See Attachment 3 for the MDAs and associated efficiencies. No beta contamination was found above 200 dpm for any isotope.

FIXED CONTAMINATION

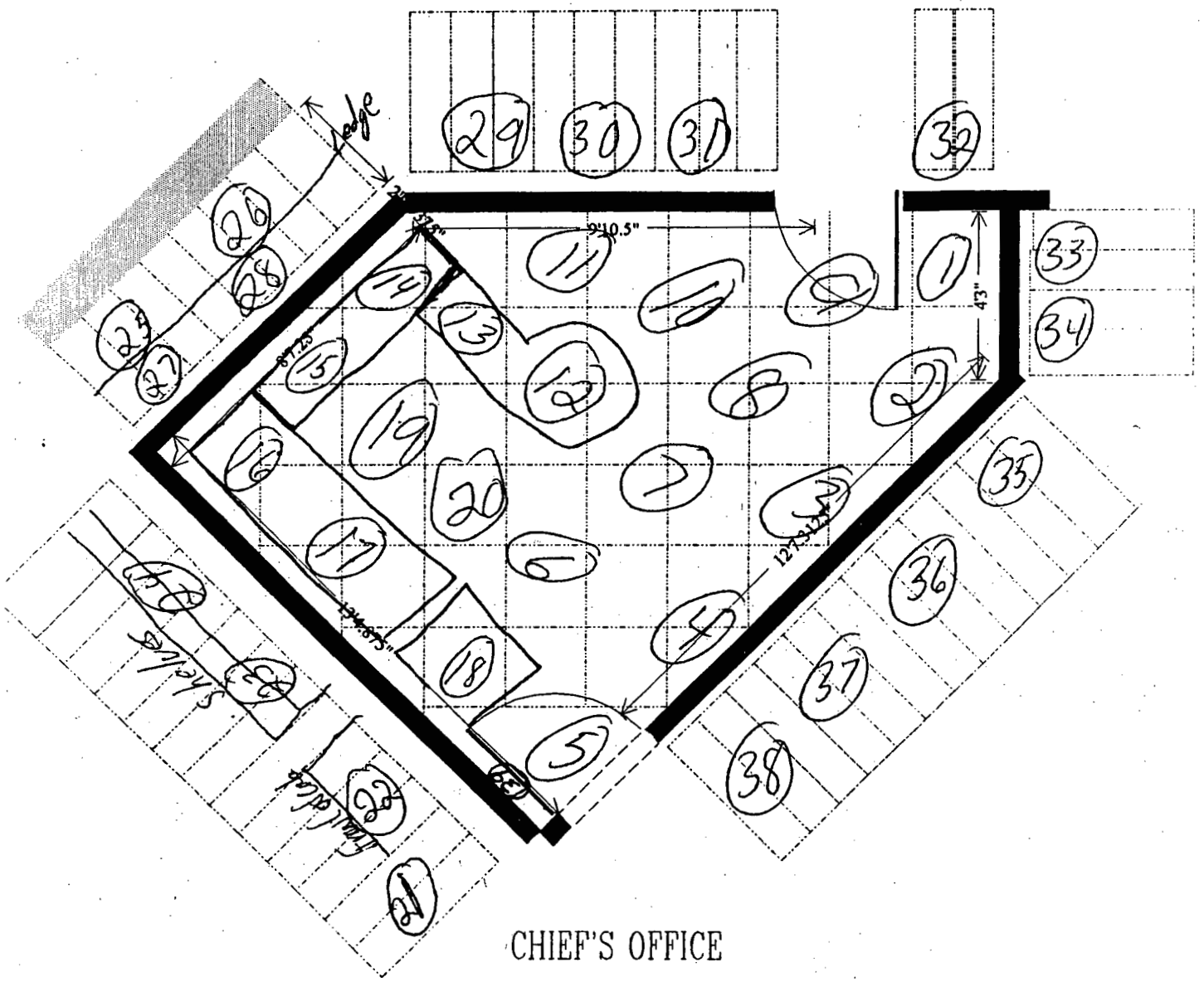
A fixed gamma survey was conducted on 28 Jun 93 by SPC Brinley. The highest exposure rate found was 15.9 uR/hr. The average exposure rate was approximately 9 uR/hr. See Attachment 4 for the location of readings taken.

A fixed beta survey was conducted on 26 Jul 93 by SPC Brinley. The highest number of counts found during a one minute count-time was 66 cpm. The average number of counts found during a one minute count-time was 30 cpm. See Attachment 5 for the location of readings taken.

As well as being reviewed at the time of the survey/receipt of laboratory results, all pertinent survey data was reviewed and compiled here by SFC Green on 8 Aug 93.

Key W[illegible]st Decommissioning Survey

Removable Contamination Survey-Office 1
Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 28 Jun 93
Lab analysis by (gamma): SSG Koelker on 28 Jun 93
(beta) : SSG Koelker on 28 Jun 93

Reviewed by: Donald K Olson on 10 Aug 93

Attachment 1

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:06/28/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	45 CPM	30.1 DPM	0.733 / I-125
CHANNEL 2:	194 CPM	669.3 DPM	0.068 / CR-51
BECKMAN:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A

ATTACHMENT 2

QUALITY ASSURANCE REPORT - BETA
FOR DATE:06/28/93

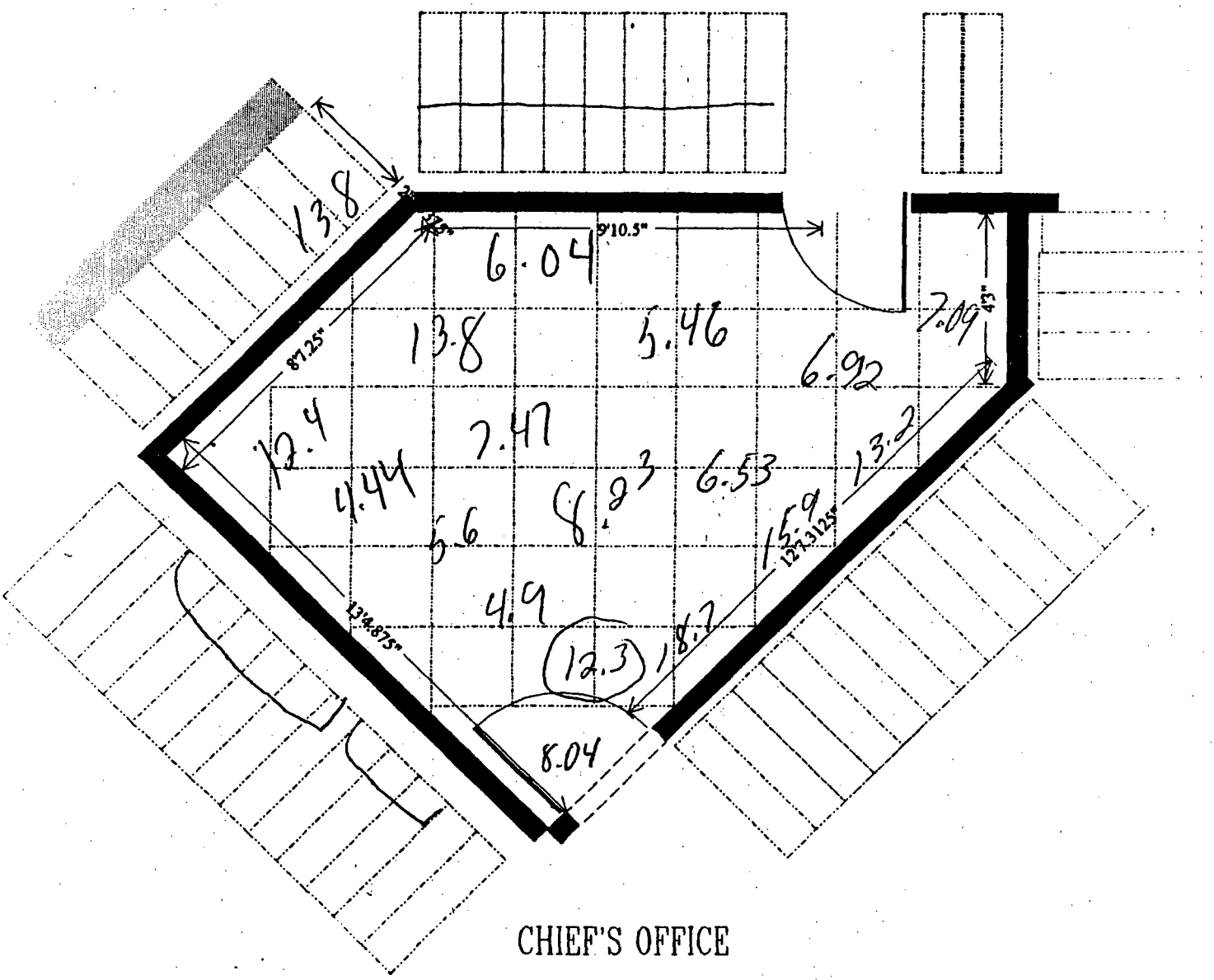
	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	32 CPM	29.4 DPM	0.633 / H-3
CHANNEL 2:	28 CPM	18.0 DPM	0.965 / C-14
CHANNEL 3:	26 CPM	N/A	N/A
BECKMAN LS6800:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A
CHANNEL 3:	N/A	N/A	N/A

ATTACHMENT 3

Key West Decommissioning Survey

Fixed Gamma Contamination Survey-Office 1

Scale 1 inch = 4 feet



CHIEF'S OFFICE

Conducted by: SPC Brinley on 28 Jun 93

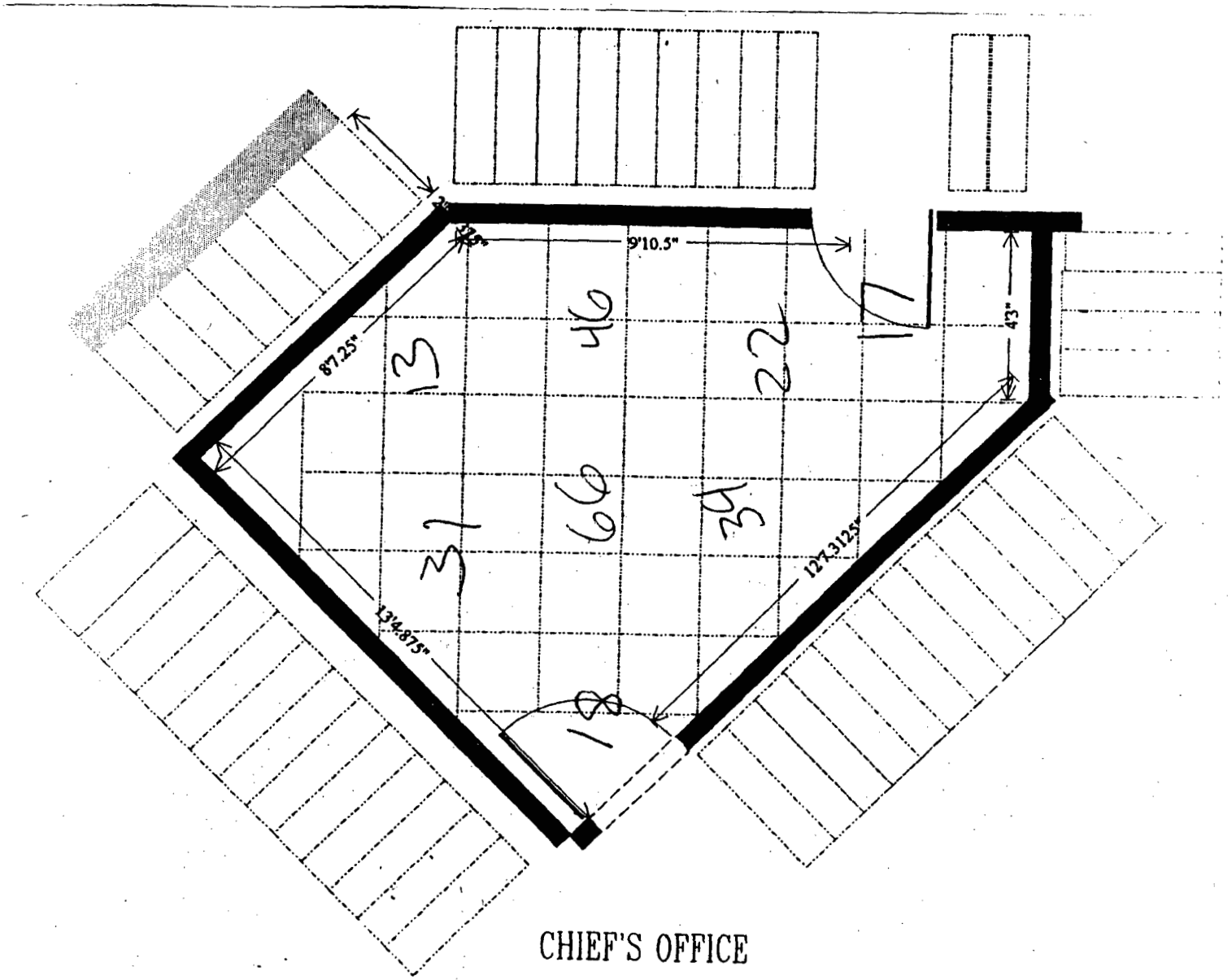
All Measurements in uR/hr

Reviewed by: Donald K Green on 10 Aug 93

Attachment 4

Key West Decommissioning Survey

Fixed Beta Contamination Survey-Office 1
Scale 1 inch = 4 feet



CHIEF'S OFFICE

Conducted by: SPC Brinley on 26 Jul 93
All Measurements are counts in one minute

Reviewed by: Donald K Lucas on 10 Aug 93

Attachment 5

KEY WEST DECOMMISSIONING SURVEY

Office - 2

REMOVABLE CONTAMINATION

Office Number 2 was surveyed for removable contamination on 30 Jun 93 by SPC Brinley. A total of 27 swipes were taken. See Attachment 1 for the location of each swipe.

The swipes were analyzed for gamma contamination, utilizing the LKB Gammawell Counter on 30 Jun 93. See Attachment 2 for the MDAs and associated efficiencies. No gamma contamination was found above 200 dpm for I-125 or above 2000 dpm for any other isotope.

The swipes were analyzed for beta contamination, utilizing the Beckman Liquid Scintillation Counter Model 6800 on 30 Jun 93. See Attachment 3 for the MDAs and associated efficiencies. No beta contamination was found above 200 dpm for any isotope.

FIXED CONTAMINATION

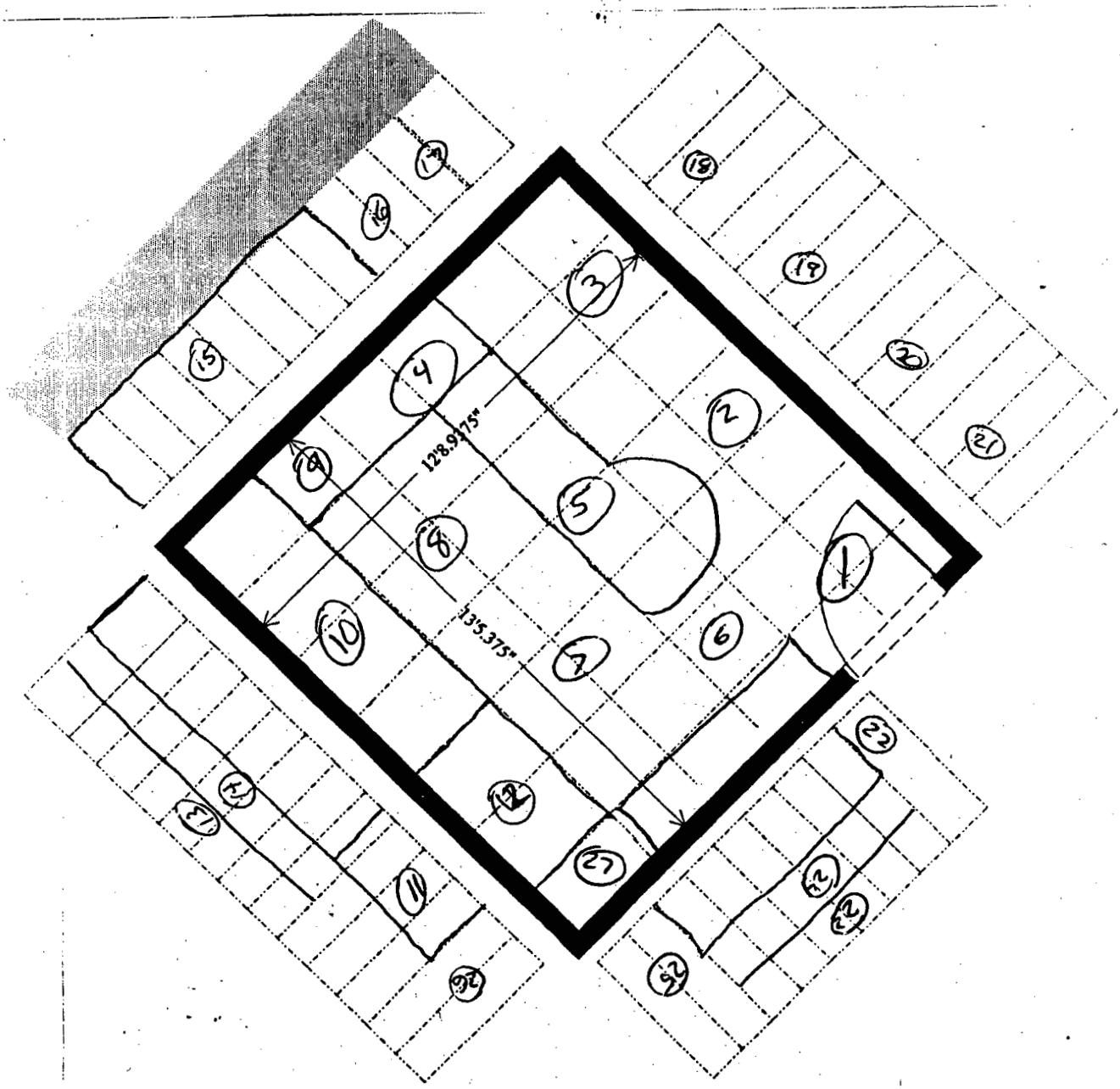
A fixed gamma survey was conducted on 30 Jun 93 by SPC Brinley. The highest exposure rate found was 21.4 uR/hr. The average exposure rate was approximately 12 uR/hr. See Attachment 4 for the location of readings taken.

A fixed beta survey was conducted on 26 Jul 93 by SPC Brinley. The highest number of counts found during a one minute count-time was 54 cpm. The average number of counts found during a one minute count-time was 40 cpm. See Attachment 5 for the location of readings taken.

As well as being reviewed at the time of the survey/receipt of laboratory results, all pertinent survey data was reviewed and compiled here by SFC Green on 8 Aug 93.

Key st Decommissioning Survey

Removable Contamination Survey-Office 2
Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 30 Jun 93
Lab analysis by (gamma): SSG Koelker on 30 Jun 93
(beta) : SSG Koelker on 30 Jun 93

Reviewed by: Donald K Green, on 10 Aug 93

Attachment 1

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:06/30/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	54 CPM	45.5 DPM	0.530 / I-125
CHANNEL 2:	204 CPM	948.4 DPM	0.050 / CR-51
BECKMAN:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A

ATTACHMENT 2

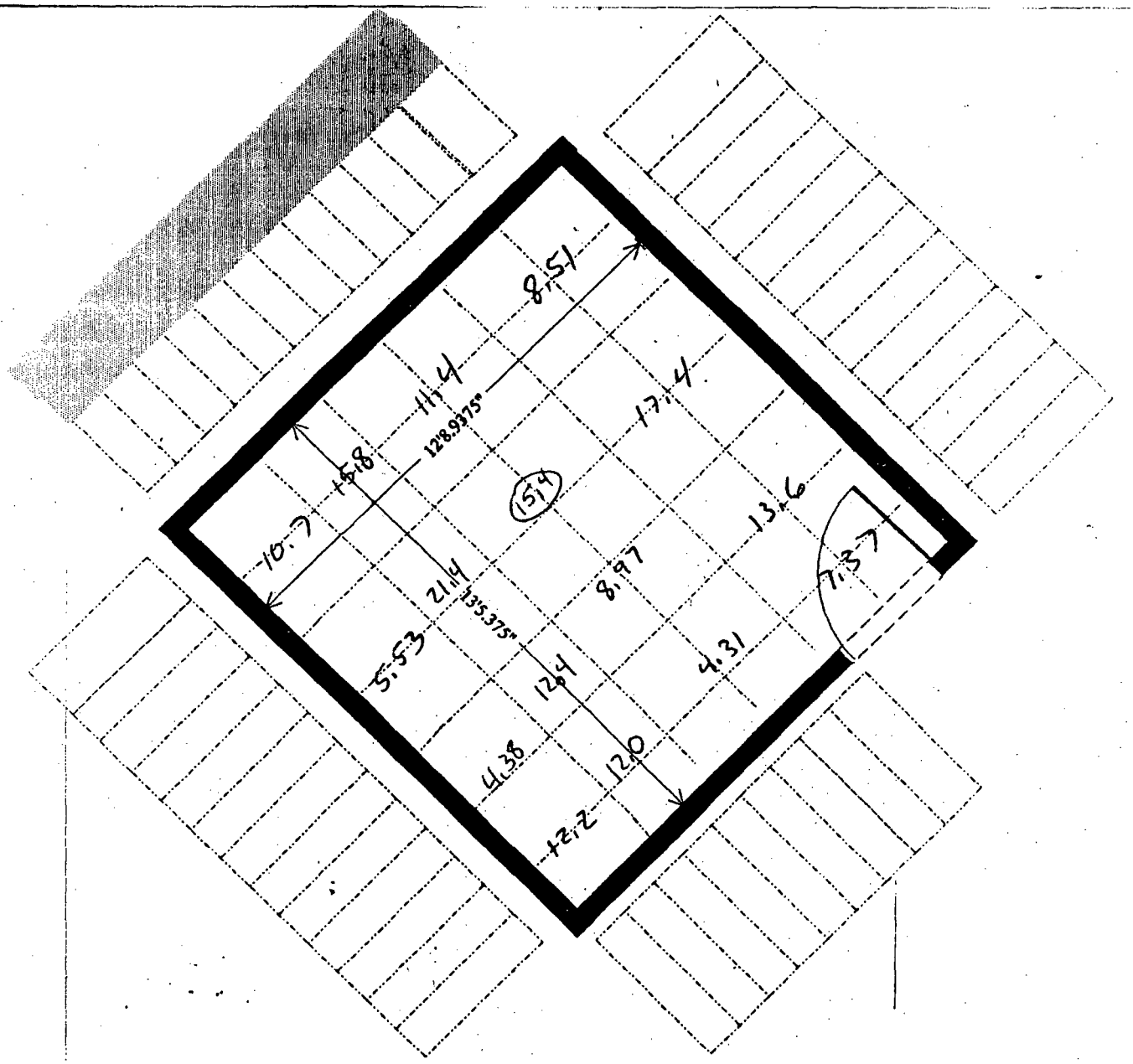
QUALITY ASSURANCE REPORT - BETA
FOR DATE:06/30/93

	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A
CHANNEL 3:	N/A	N/A	N/A
BECKMAN LS6800:			
CHANNEL 1:	17 CPM	23.4 DPM	0.579/H-3
CHANNEL 2:	30 CPM	19.0 DPM	0.947/C-14
CHANNEL 3:	40 CPM	20.7 DPM	1.007/P-32

ATTACHMENT 3

Key ..est Decommissioning Survey

Fixed Gamma Contamination Survey-Office 2
Scale 1 inch = 4 feet

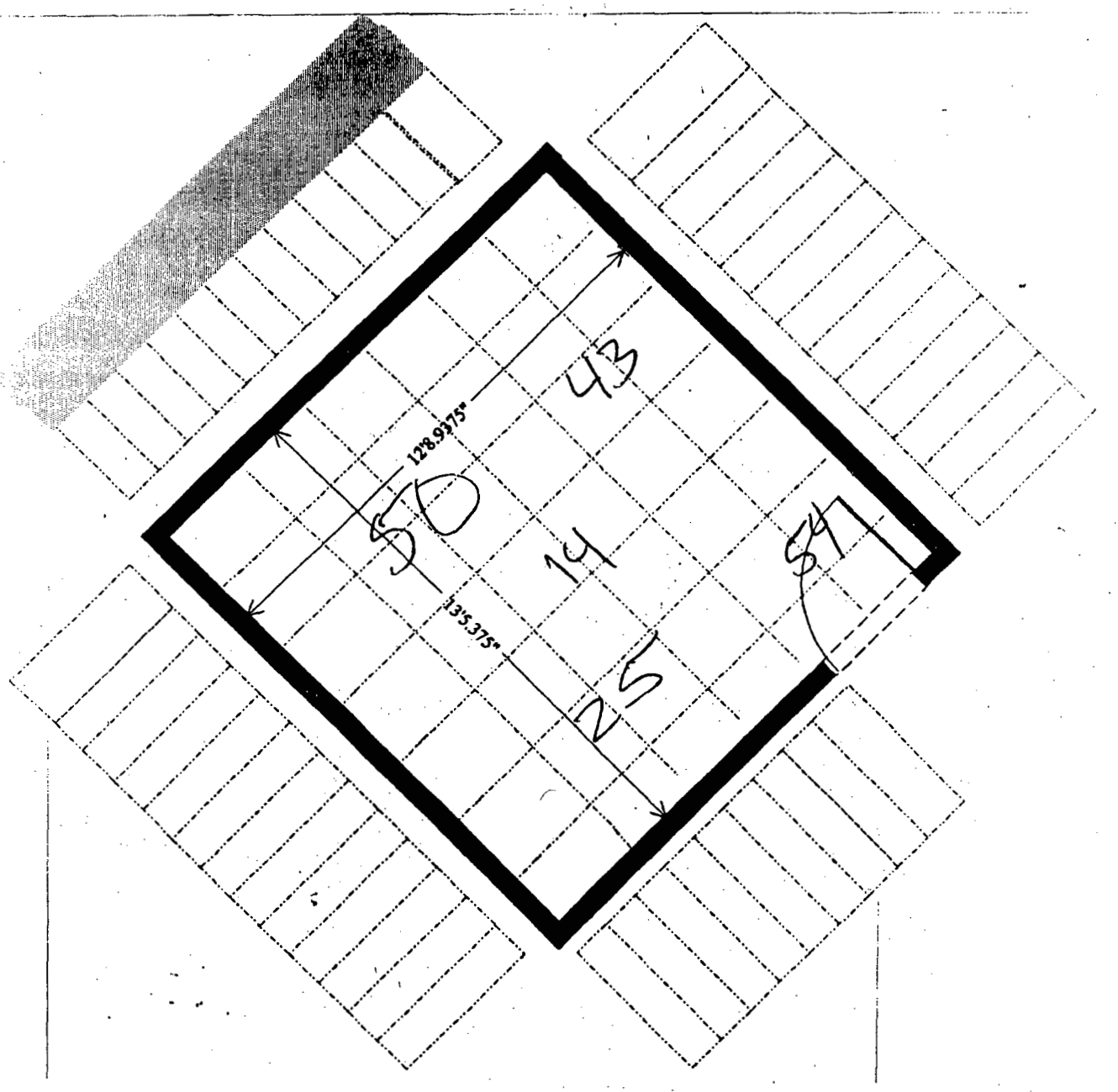


Conducted by: SPC Brinley on 30 Jun 93
All Measurements in uR/hr
Reviewed by: Donald K Green on 10 Aug 93

Attachment 4

Key West Decommissioning Survey

Fixed Beta Contamination Survey-Office 2
Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 26 Jul 93
All Measurements are counts in one minute

Reviewed by: Donald K Green on 10 Aug 93

Attachment 5

KEY WEST DECOMMISSIONING SURVEY

Office - 3

REMOVABLE CONTAMINATION

Office Number 3 was surveyed for removable contamination on 6 Jul 93 by SSG Koelker. A total of 27 swipes were taken. See Attachment 1 for the location of each swipe.

The swipes were analyzed for gamma contamination, utilizing the LKB Gammawell Counter on 6 Jul 93. See Attachment 2 for the MDAs and associated efficiencies. No gamma contamination was found above 200 dpm for I-125 or above 2000 dpm for any other isotope.

The swipes were analyzed for beta contamination, utilizing the Beckman Liquid Scintillation Counter Model 6800 on 6 Jul 93. See Attachment 3 for the MDAs and associated efficiencies. No beta contamination was found above 200 dpm for any isotope.

FIXED CONTAMINATION

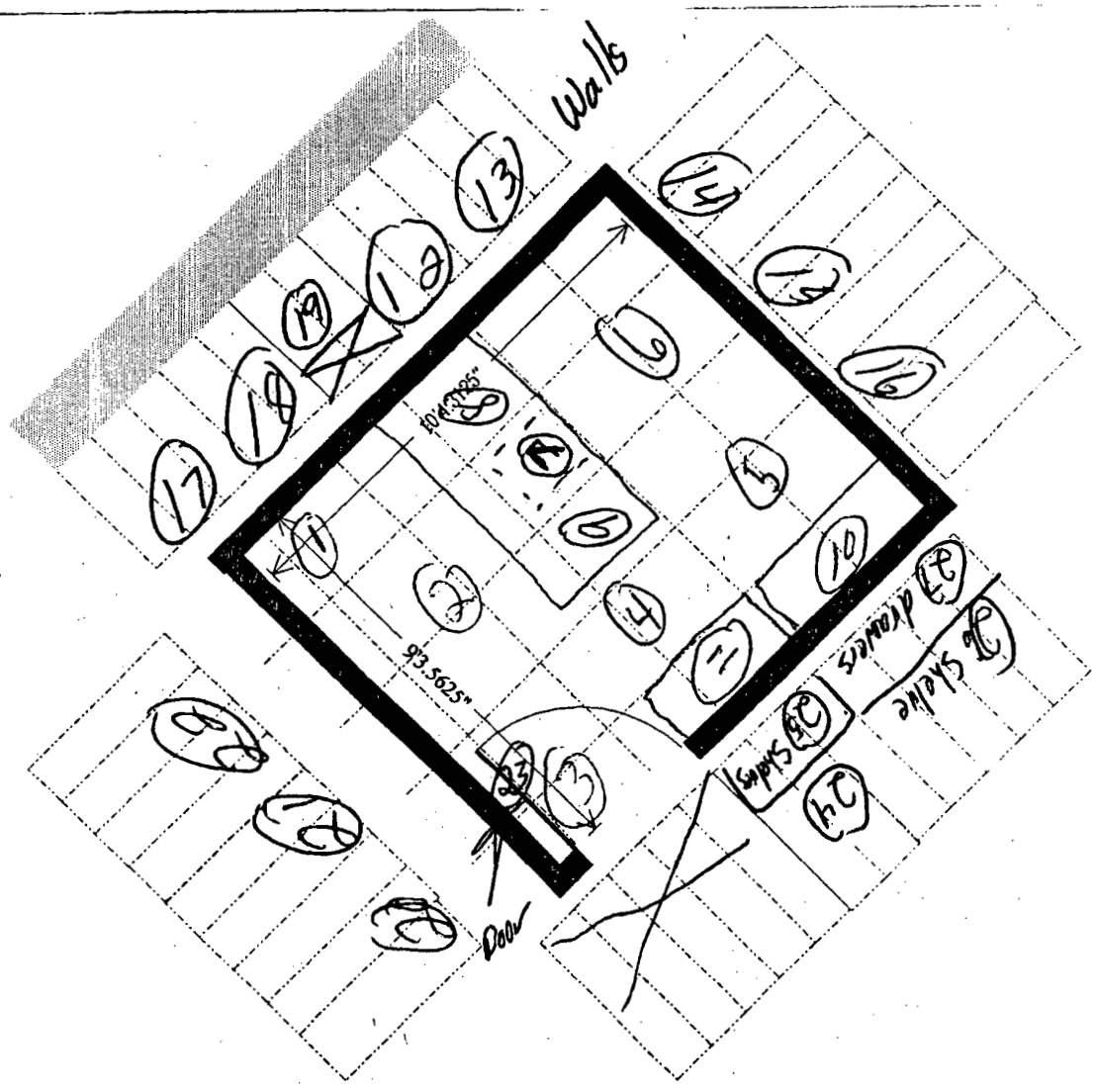
A fixed gamma survey was conducted on 6 Jul 93 by SSG Koelker. The highest exposure rate found was 17.4 uR/hr. The average exposure rate was approximately 8 uR/hr. See Attachment 4 for the location of readings taken.

A fixed beta survey was conducted on 26 Jul 93 by SPC Brinley. The highest number of counts found during a one minute count-time was 45 cpm. The average number of counts found during a one minute count-time was 25 cpm. See Attachment 5 for the location of readings taken.

As well as being reviewed at the time of the survey/receipt of laboratory results, all pertinent survey data was reviewed and compiled here by SFC Green on 8 Aug 93.

Key W[illegible]t Decommissioning Survey

Removable Contamination Survey-Office 3
Scale 1 inch = 4 feet



Conducted by: SSG Koelker on 06 Jul 93
Lab analysis by (gamma): SSG Koelker on 06 Jul 93
(beta) : SSG Koelker on 06 Jul 93

Reviewed by: Donald K Green on 10 Aug 93

Attachment 1

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:07/06/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	53 CPM	32.2 DPM	0.742 / I-125
CHANNEL 2:	198 CPM	709.2 DPM	0.065 / CR-51
BECKMAN:			
CHANNEL 1:	52 CPM	22.1 DPM	1.075 / I-125
CHANNEL 2:	198 CPM	452.3 DPM	0.102 / CR-51

ATTACHMENT 2

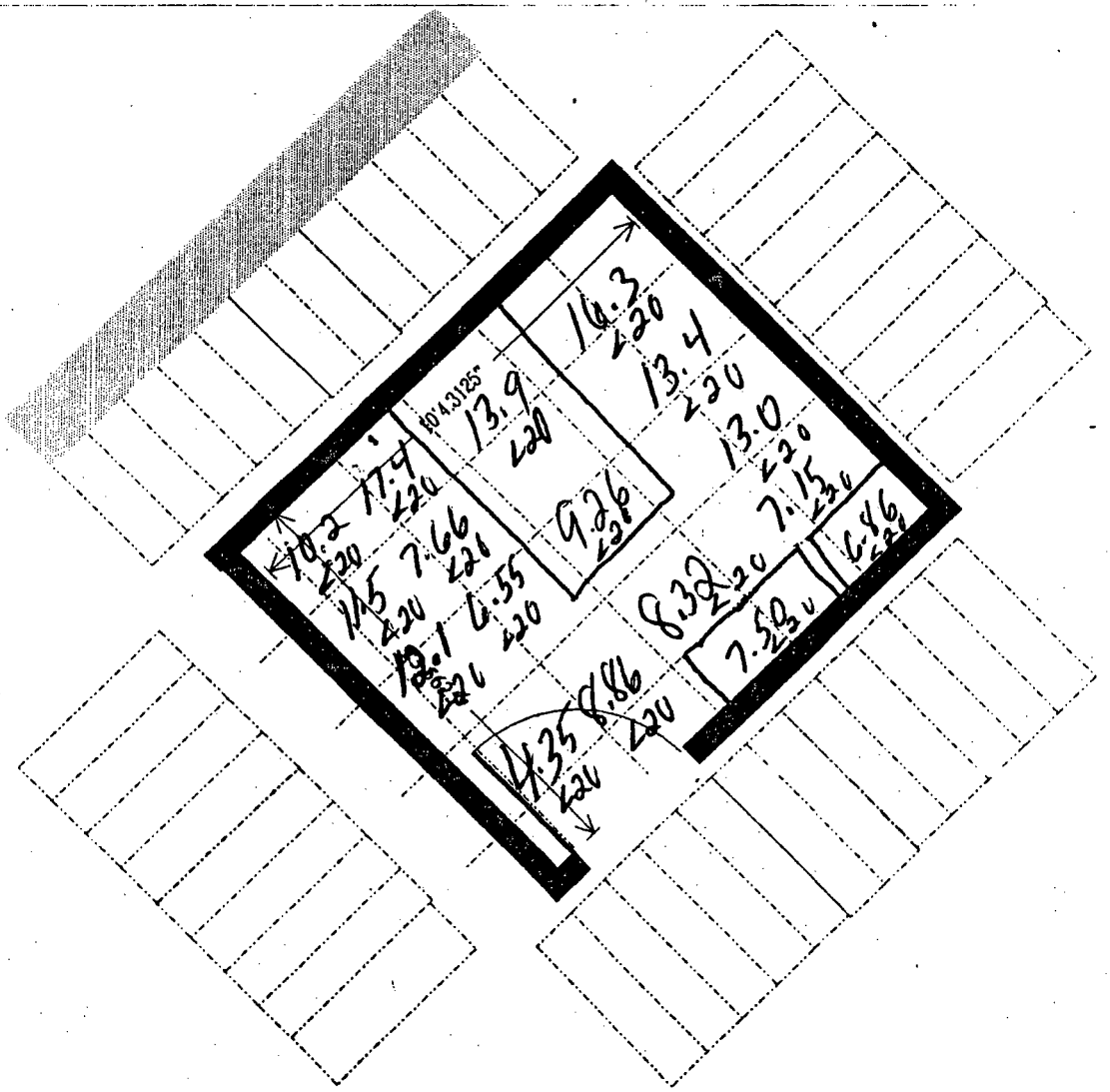
QUALITY ASSURANCE REPORT - BETA
FOR DATE: 07/06/93

	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A
CHANNEL 3:	N/A	N/A	N/A
BECKMAN LS6800:			
CHANNEL 1:	17 CPM	23.4 DPM	0.579/H-3
CHANNEL 2:	30 CPM	19.0 DPM	0.947/C-14
CHANNEL 3:	40 CPM	20.7 DPM	1.007/P-32

ATTACHMENT 3

Key West Decommissioning Survey

Fixed Gamma Contamination Survey-Office 3
Scale 1 inch = 4 feet

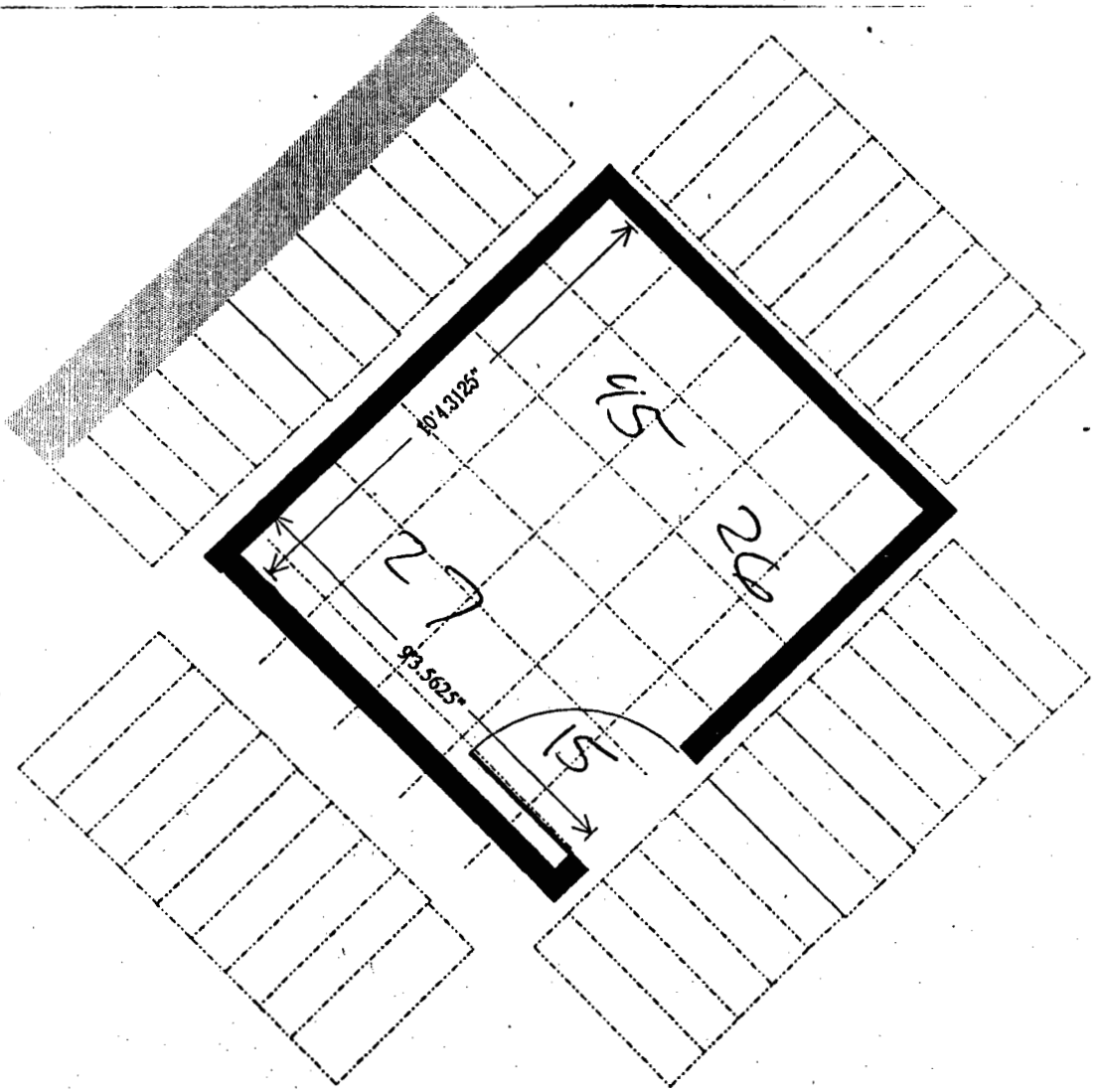


Conducted by: SSG Koelker on 06 Jul 93
All Measurements in uR/hr
Reviewed by: Donald K Shear on 10 Aug 93

Attachment 4

Key West Decommissioning Survey

Fixed Beta Contamination Survey-Office 3
Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 26 Jul 93
All Measurements are counts in one minute
Reviewed by: Donald L. Lhom on 10 Aug 93

Attachment 5

KEY WEST DECOMMISSIONING SURVEY

Office - 4

REMOVABLE CONTAMINATION

Office Number 4 was surveyed for removable contamination on 28 Jun 93 by SSG Koelker. A total of 46 swipes were taken. See Attachment 1 for the location of each swipe.

The swipes were analyzed for gamma contamination, utilizing the LKB Gammawell Counter on 28 Jun 93. See Attachment 2 for the MDAs and associated efficiencies. No gamma contamination was found above 200 dpm for I-125 or above 2000 dpm for any other isotope.

The swipes were analyzed for beta contamination, utilizing the Beckman Liquid Scintillation Counter Model 5000 on 28 Jun 93. See Attachment 3 for the MDAs and associated efficiencies. No beta contamination was found above 200 dpm for any isotope.

FIXED CONTAMINATION

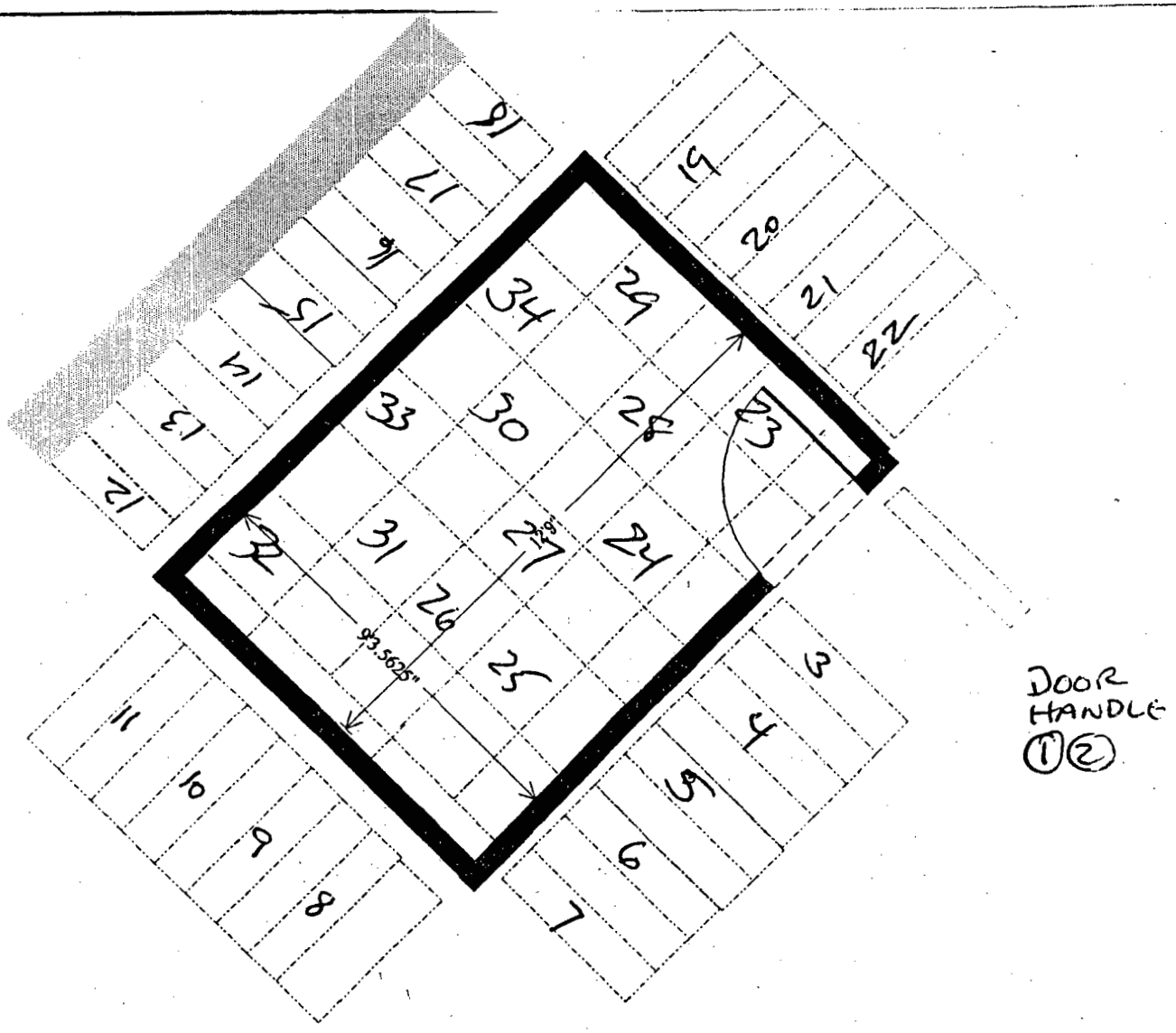
A fixed gamma survey was conducted on 28 Jun 93 by SPC Brinley. The highest exposure rate found was 19.4 uR/hr. The average exposure rate was approximately 11 uR/hr. See Attachment 4 for the location of readings taken.

A fixed beta survey was conducted on 26 Jul 93 by SPC Brinley. The highest number of counts found during a one minute count-time was 36 cpm. The average number of counts found during a one minute count-time was 20 cpm. See Attachment 5 for the location of readings taken.

As well as being reviewed at the time of the survey/receipt of laboratory results, all pertinent survey data was reviewed and compiled here by SFC Green on 8 Aug 93.

Key W . Decommissioning Survey

Removable Contamination Survey-Office 4
Scale 1 inch = 4 feet



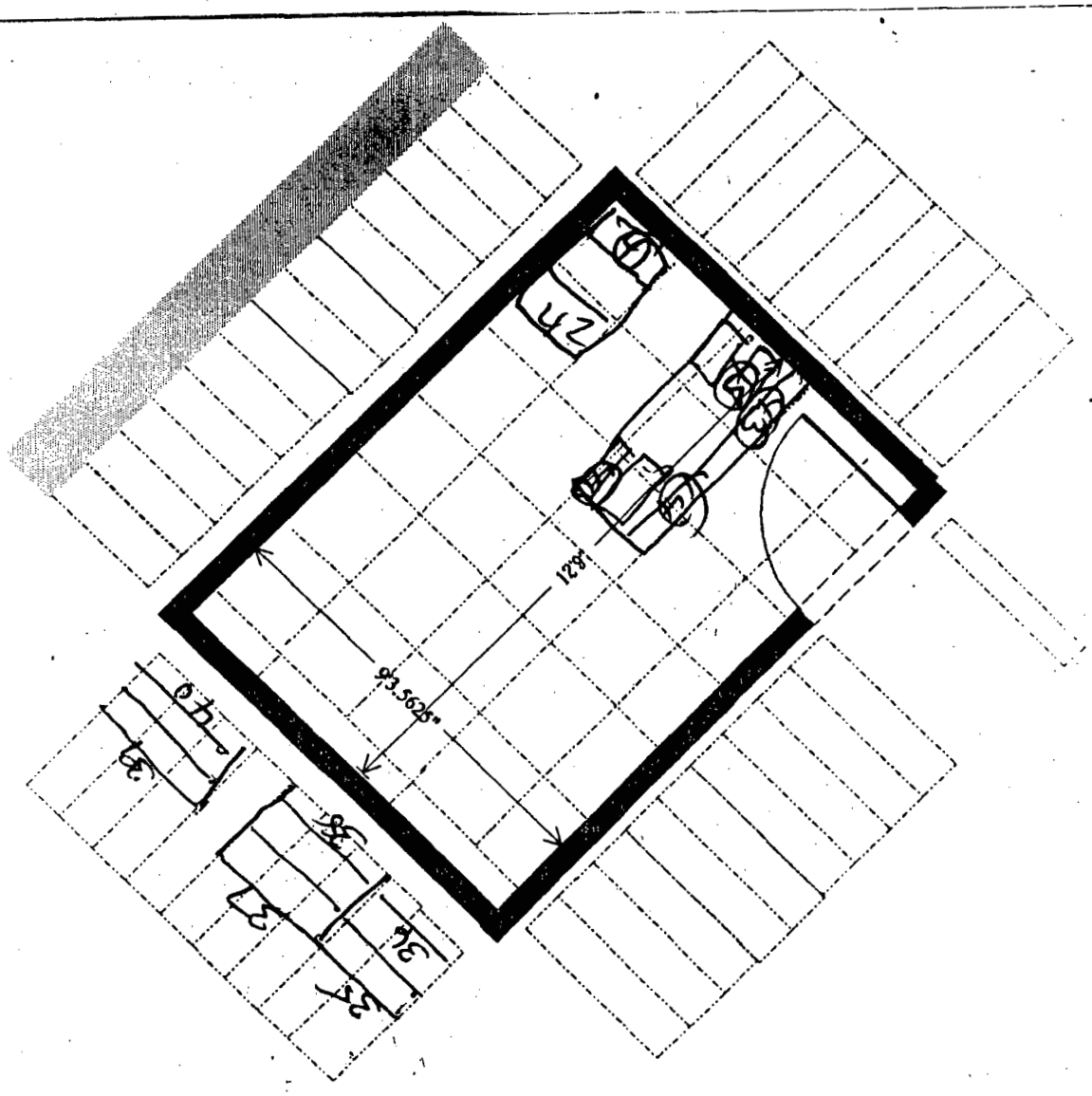
Conducted by: SSG Koelker on 28 Jun 93
Lab analysis by (gamma): SSG Koelker on 28 Jun 93
(beta) : SSG Koelker on 28 Jun 93

Reviewed by: Donald K Green on 10 Aug 93

Attachment 1

Key W(Decommissioning Survey

Removable Contamination Survey-Office 4
Scale 1 inch = 4 feet



Conducted by: SSG Koelker on 28 Jun 93
Lab analysis by (gamma): SSG Koelker on 28 Jun 93
(beta) : SSG Koelker on 28 Jun 93

Reviewed by: Donald K Green on 10 Aug 93

Attachment 1

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:06/28/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	45 CPM	30.1 DPM	0.733 / I-125
CHANNEL 2:	194 CPM	669.3 DPM	0.068 / CR-51
BECKMAN:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A

ATTACHMENT 2

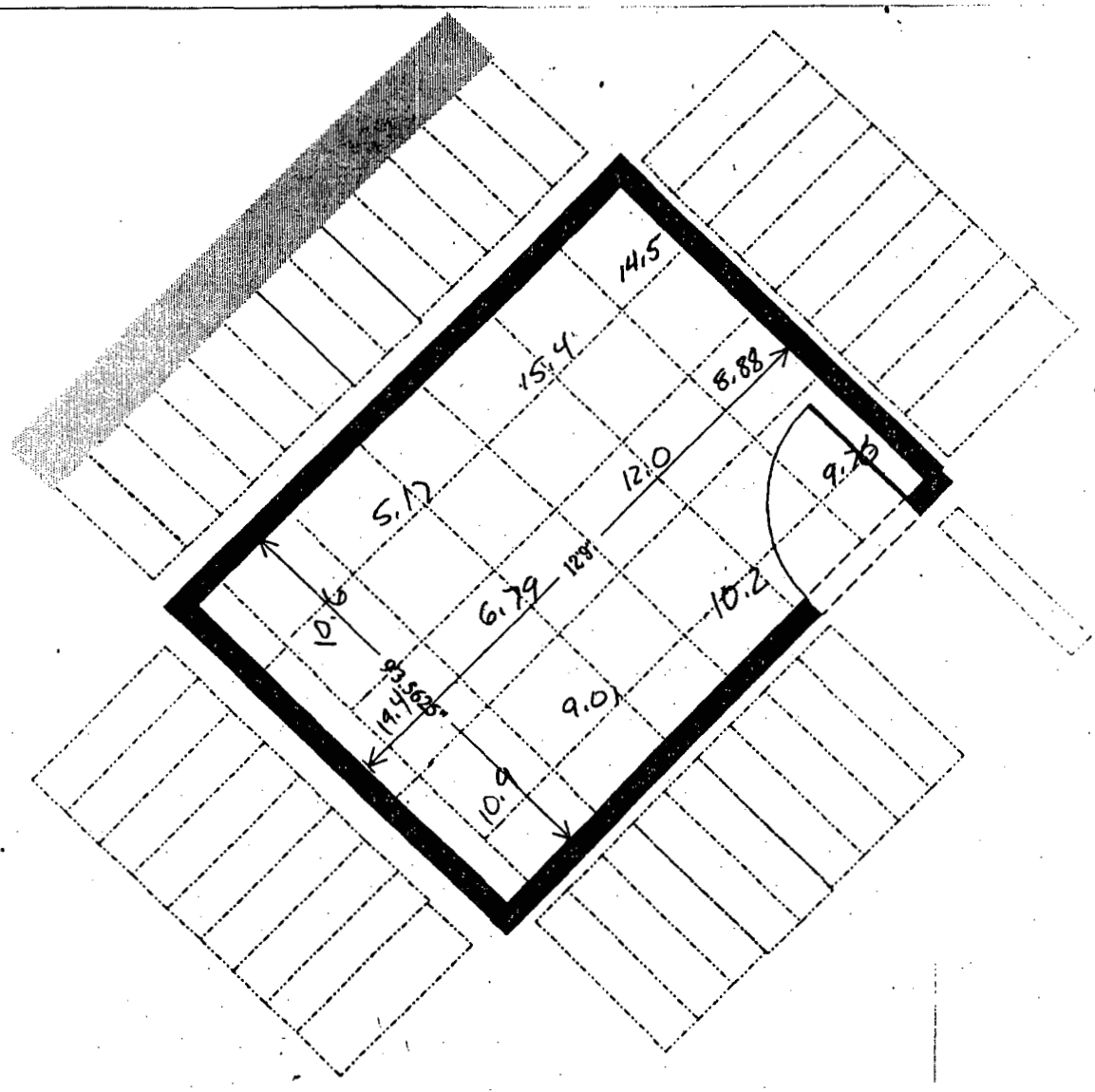
QUALITY ASSURANCE REPORT - BETA
FOR DATE:06/28/93

	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	32 CPM	29.4 DPM	0.633 / H-3
CHANNEL 2:	28 CPM	18.0 DPM	0.965 / C-14
CHANNEL 3:	26 CPM	N/A	N/A
BECKMAN LS6800:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A
CHANNEL 3:	N/A	N/A	N/A

ATTACHMENT 3

Key West Decommissioning Survey

Fixed Gamma Contamination Survey-Office 4
Scale 1 inch = 4 feet



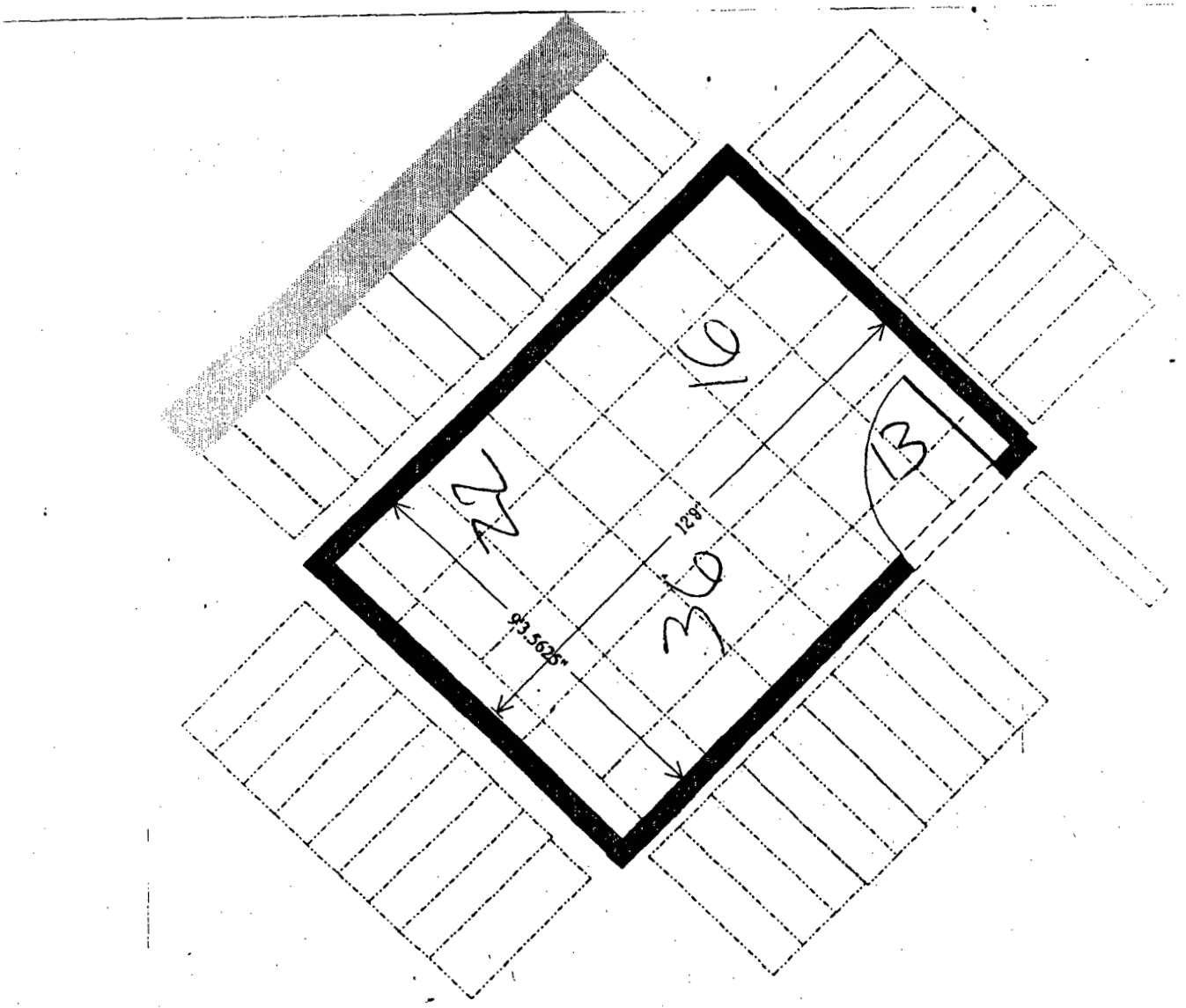
Conducted by: SPC Brinley on 28 Jun 93
All Measurements in uR/hr

Reviewed by: Donald K Thorpn 10 Aug 93

Attachment 4

Key West Decommissioning Survey

Fixed Beta Contamination Survey-Office 4
Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 26 Jul 93
All Measurements are counts in one minute

Reviewed by: Donald K Green on 10 Aug 93

Attachment 5

KEY WEST DECOMMISSIONING SURVEY

Office - 5

REMOVABLE CONTAMINATION

Office Number 5 was surveyed for removable contamination on 2 Jul 93 by SSG Koelker. A total of 40 swipes were taken. See Attachment 1 for the location of each swipe.

The swipes were analyzed for gamma contamination, utilizing the LKB Gammawell Counter on 2 Jul 93. See Attachment 2 for the MDAs and associated efficiencies. No gamma contamination was found above 200 dpm for I-125 or above 2000 dpm for any other isotope.

The swipes were analyzed for beta contamination, utilizing the Beckman Liquid Scintillation Counter Model 6800 on 2 Jul 93. See Attachment 3 for the MDAs and associated efficiencies. No beta contamination was found above 200 dpm for any isotope.

FIXED CONTAMINATION

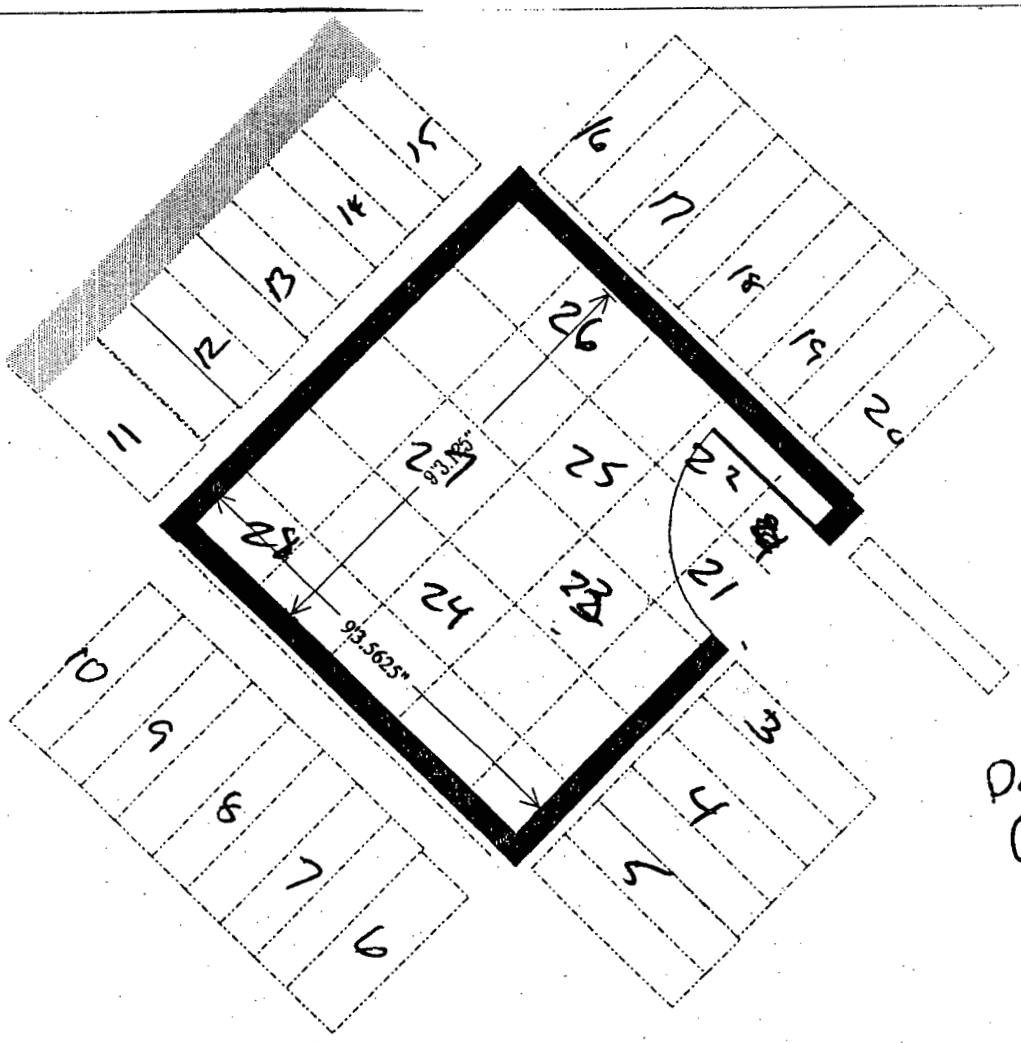
A fixed gamma survey was conducted on 2 Jul 93 by SSG Koelker. The highest exposure rate found was 15.7 uR/hr. The average exposure rate was approximately 12 uR/hr. See Attachment 4 for the location of readings taken.

A fixed beta survey was conducted on 26 Jul 93 by SPC Brinley. The highest number of counts found during a one minute count-time was 49 cpm. The average number of counts found during a one minute count-time was 33 cpm. See Attachment 5 for the location of readings taken.

As well as being reviewed at the time of the survey/receipt of laboratory results, all pertinent survey data was reviewed and compiled here by SFC Green on 8 Aug 93.

Key ast Decommissioning Survey

Removable Contamination Survey-Office 5
Scale 1 inch = 4 feet



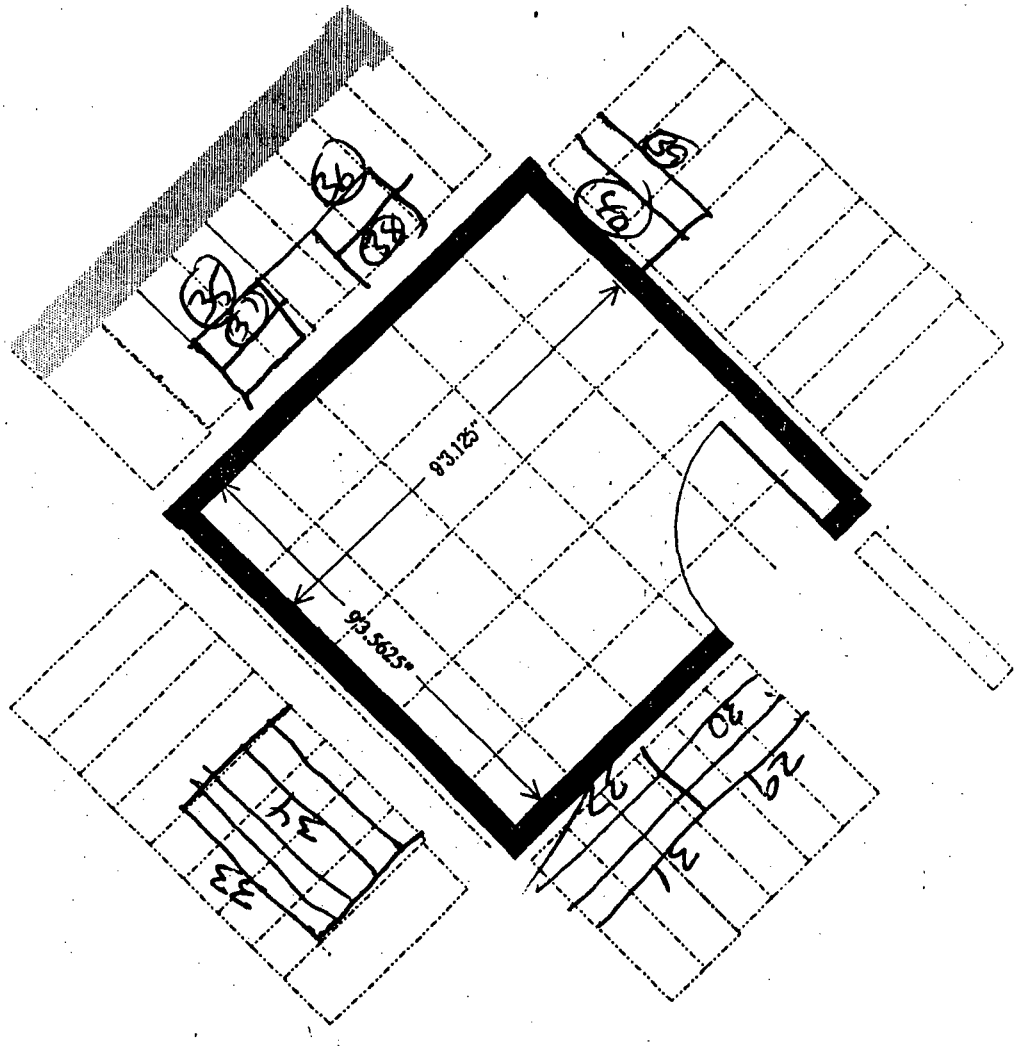
Conducted by: SSG Koelker on 02 Jun 93
Lab analysis by (gamma): SSG Koelker on 02 Jul 93
(beta) : SSG Koelker on 02 Jul 93

Reviewed by: Donald K Thom on 10 Aug 93

Attachment 1

Key ›st Decommissioning Survey

Removable Contamination Survey-Office 5
Scale 1 inch = 4 feet



Conducted by: SSG Koelker on 02 Jun 93
Lab analysis by (gamma): SSG Koelker on 02 Jul 93
(beta) : SSG Koelker on 02 Jul 93

Reviewed by: Donald K Koelker, on 10 Aug 93

Attachment 1

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:07/02/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	**53 CPM**	**32.2 DPM**	**0.742 / I-125**
CHANNEL 2:	**198 CPM**	**709.2 DPM**	**0.065 / CR-51**
BECKMAN:			
CHANNEL 1:	**52 CPM**	**22.1 DPM**	**1.075 / I-125**
CHANNEL 2:	**198 CPM**	**452.3 DPM**	**0.102 / CR-51**

ATTACHMENT 2

QUALITY ASSURANCE REPORT - BETA
FOR DATE: 07/02/93

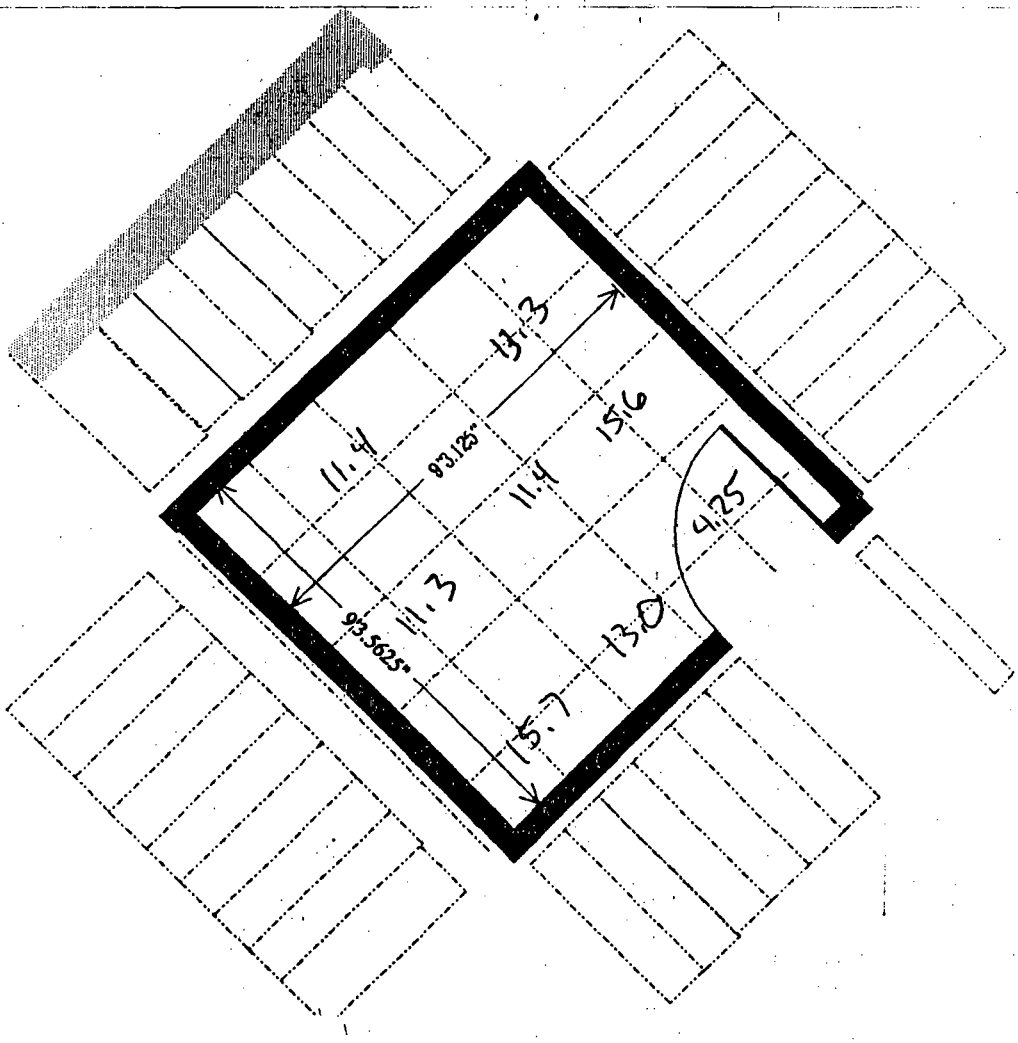
	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A
CHANNEL 3:	N/A	N/A	N/A
BECKMAN LS6800:			
CHANNEL 1:	17 CPM	23.4 DPM	0.579/H-3
CHANNEL 2:	30 CPM	19.0 DPM	0.947/C-14
CHANNEL 3:	40 CPM	20.7 DPM	1.007/P-32

ATTACHMENT 3

Key West Decommissioning Survey

Fixed Gamma Contamination Survey-Office 5

Scale 1 inch = 4 feet



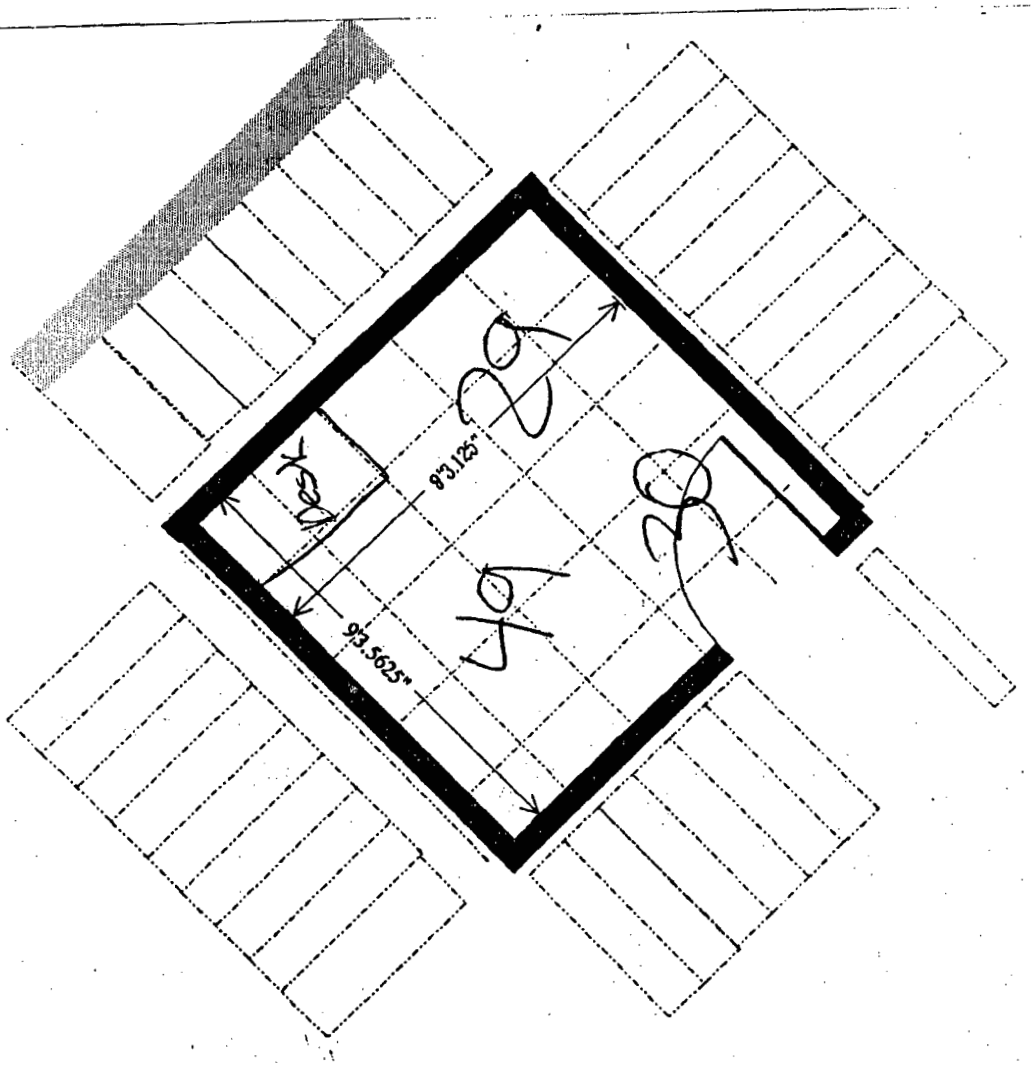
Conducted by: SSG Koelker on 02 Jul 93

All Measurements in uR/hr

Reviewed by: Donald K Green on 10 Aug 93

Key W[illegible]st Decommissioning Survey

Fixed Beta Contamination Survey-Office 5
Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 26 Jul 93
All Measurements are counts in one minute

Reviewed by: Donald K Green on 10 Aug 93

Attachment 5

KEY WEST DECOMMISSIONING SURVEY

Office - 6

REMOVABLE CONTAMINATION

Office Number 6 was surveyed for removable contamination on 30 Jun 93 by SSG Koelker. A total of 110 swipes were taken. See Attachment 1 for the location of each swipe.

The swipes were analyzed for gamma contamination, utilizing the LKB Gammawell Counter on 30 Jun 93. See Attachment 2 for the MDAs and associated efficiencies. No gamma contamination was found above 200 dpm for I-125 or above 2000 dpm for any other isotope.

The swipes were analyzed for beta contamination, utilizing the Beckman Liquid Scintillation Counter Model 6800 on 30 Jun 93. See Attachment 3 for the MDAs and associated efficiencies. No beta contamination was found above 200 dpm for any isotope.

FIXED CONTAMINATION

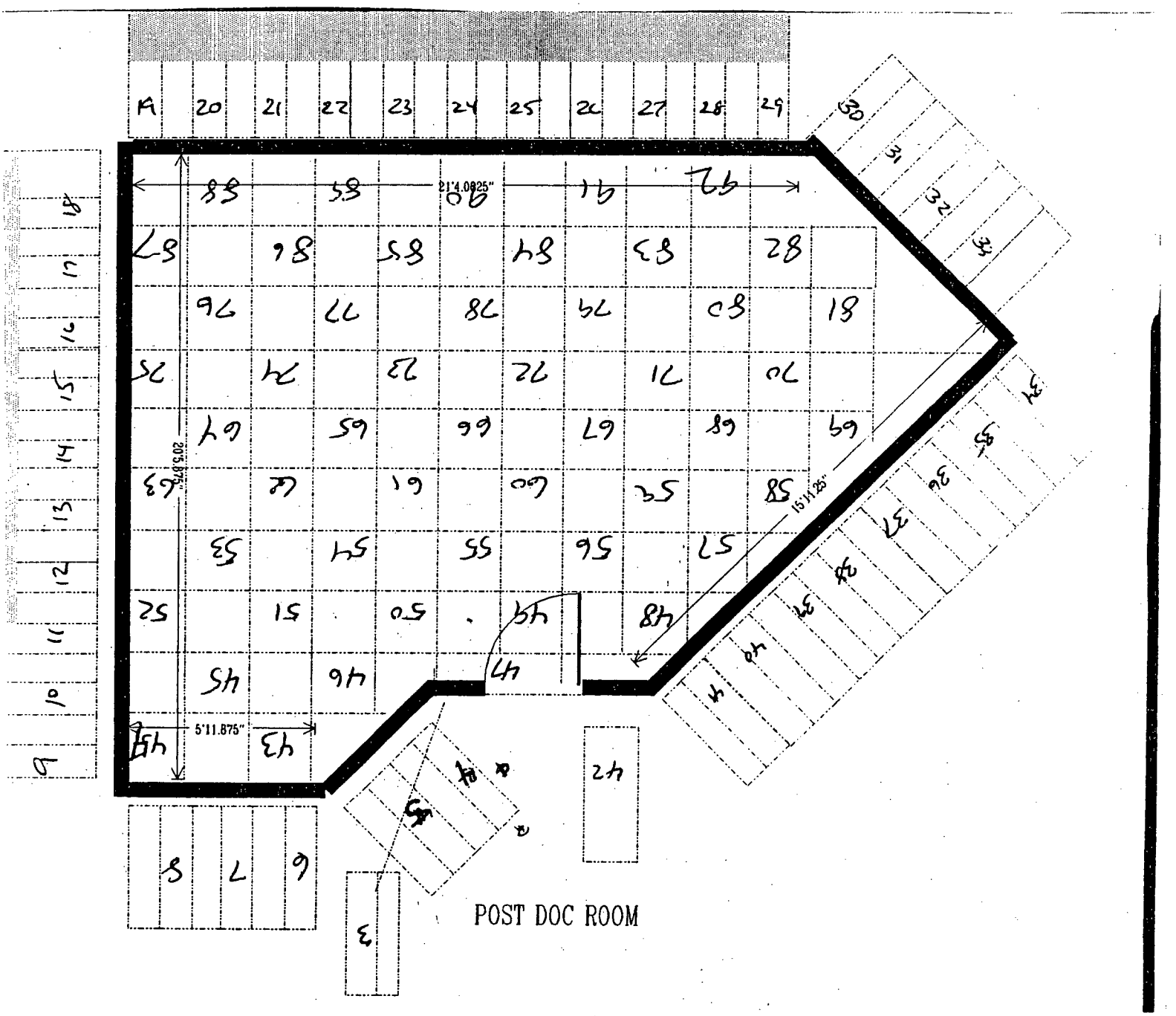
A fixed gamma survey was conducted on 30 Jun 93 by SSG Koelker. The highest exposure rate found was 20.9 uR/hr. The average exposure rate was approximately 10 uR/hr. See Attachment 4 for the location of readings taken.

A fixed beta survey was conducted on 26 Jul 93 by SPC Brinley. The highest number of counts found during a one minute count-time was 67 cpm. The average number of counts found during a one minute count-time was 38 cpm. See Attachment 5 for the location of readings taken.

As well as being reviewed at the time of the survey/receipt of laboratory results, all pertinent survey data was reviewed and compiled here by SFC Green on 8 Aug 93.

Key l st Decommissioning Survey

Removable Contamination Survey-Office 6
Scale 1 inch = 4 feet



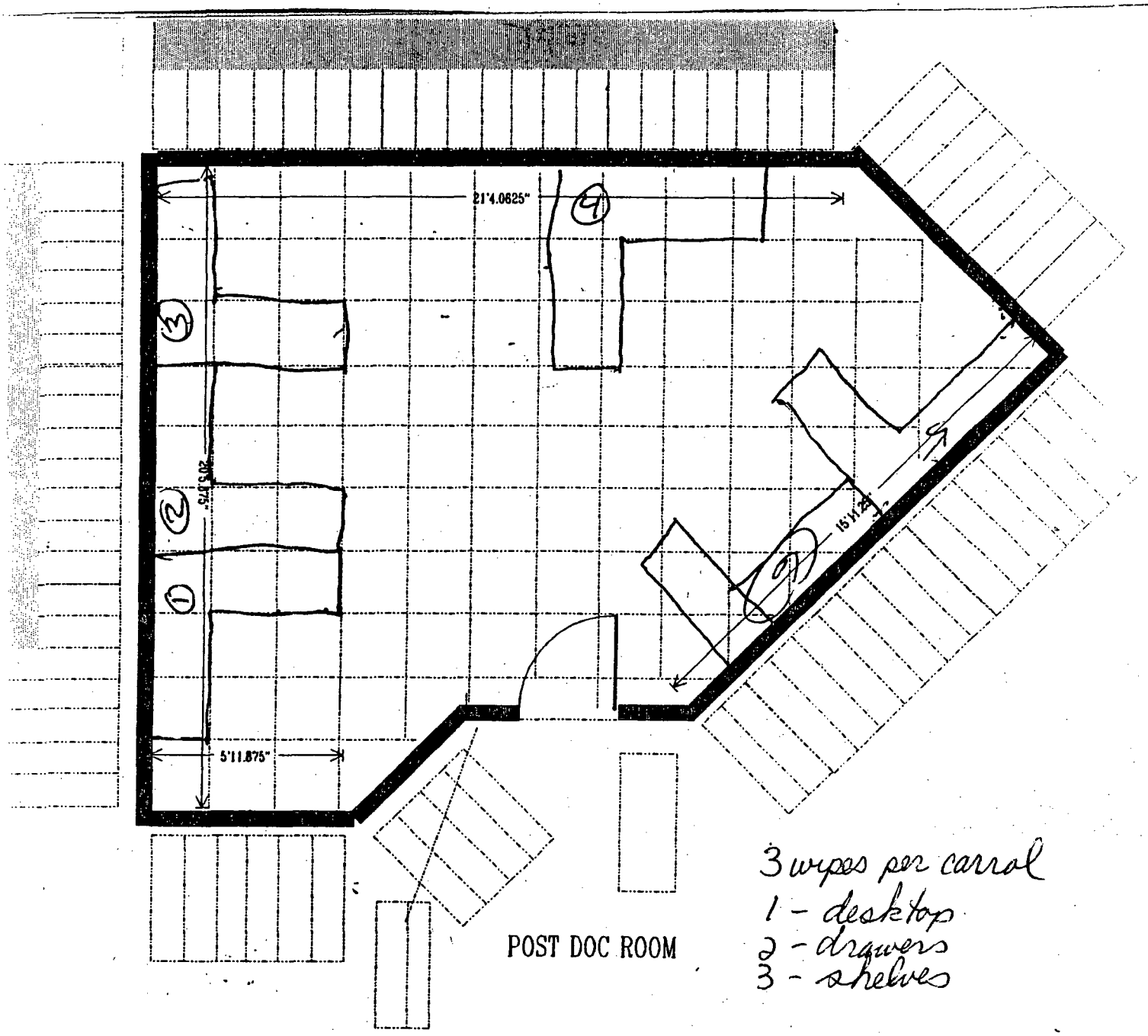
Conducted by: SSG Koelker on 30 Jun 93
Lab analysis by (gamma): SSG Koelker on 30 Jun 93
(beta) : SSG Koelker on 30 Jun 93

Reviewed by: Donald K. Keen on 10 Aug 93

Attachment 1

Key ...st Decommissioning Survey

Removable Contamination Survey-Office 6
Scale 1 inch = 4 feet



3 wipes per carrol
1 - desktop
2 - drawers
3 - shelves

wipes 93-110

Conducted by: SSG Koelker on 30 Jun 93
Lab analysis by (gamma): SSG Koelker on 30 Jun 93
(beta) : SSG Koelker on 30 Jun 93

Reviewed by: Donald K Thoen on 10 Aug 93

Attachment 1

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:06/30/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	54 CPM	45.5 DPM	0.530 / I-125
CHANNEL 2:	204 CPM	948.4 DPM	0.050 / CR-51
BECKMAN:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A

ATTACHMENT 2

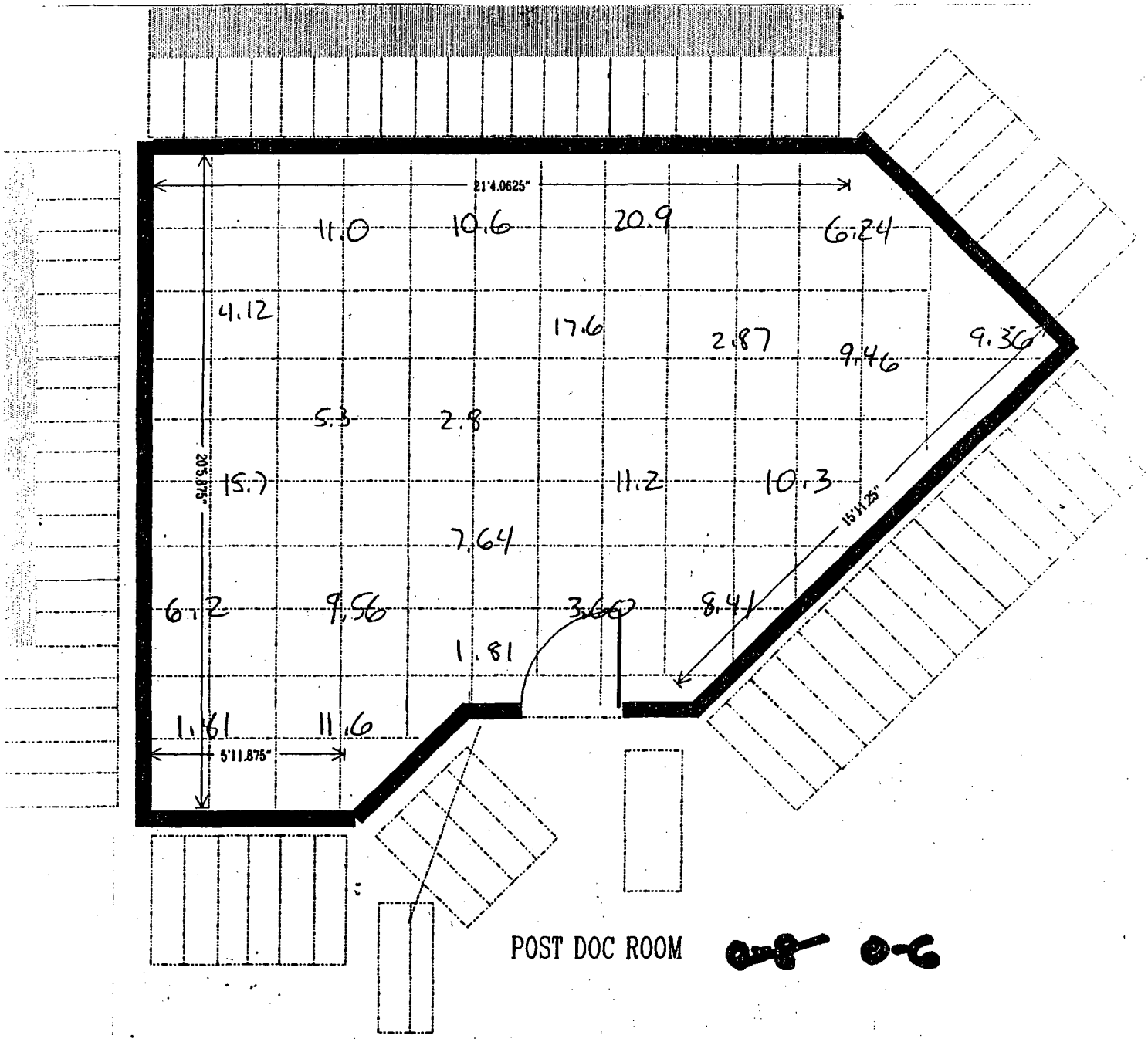
QUALITY ASSURANCE REPORT - BETA
FOR DATE: 06/30/93

	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A
CHANNEL 3:	N/A	N/A	N/A
BECKMAN LS6800:			
CHANNEL 1:	17 CPM	23.4 DPM	0.579/H-3
CHANNEL 2:	30 CPM	19.0 DPM	0.947/C-14
CHANNEL 3:	40 CPM	20.7 DPM	1.007/P-32

ATTACHMENT 3

Key West Decommissioning Survey

Fixed Gamma Contamination Survey-Office 6
Scale 1 inch = 4 feet

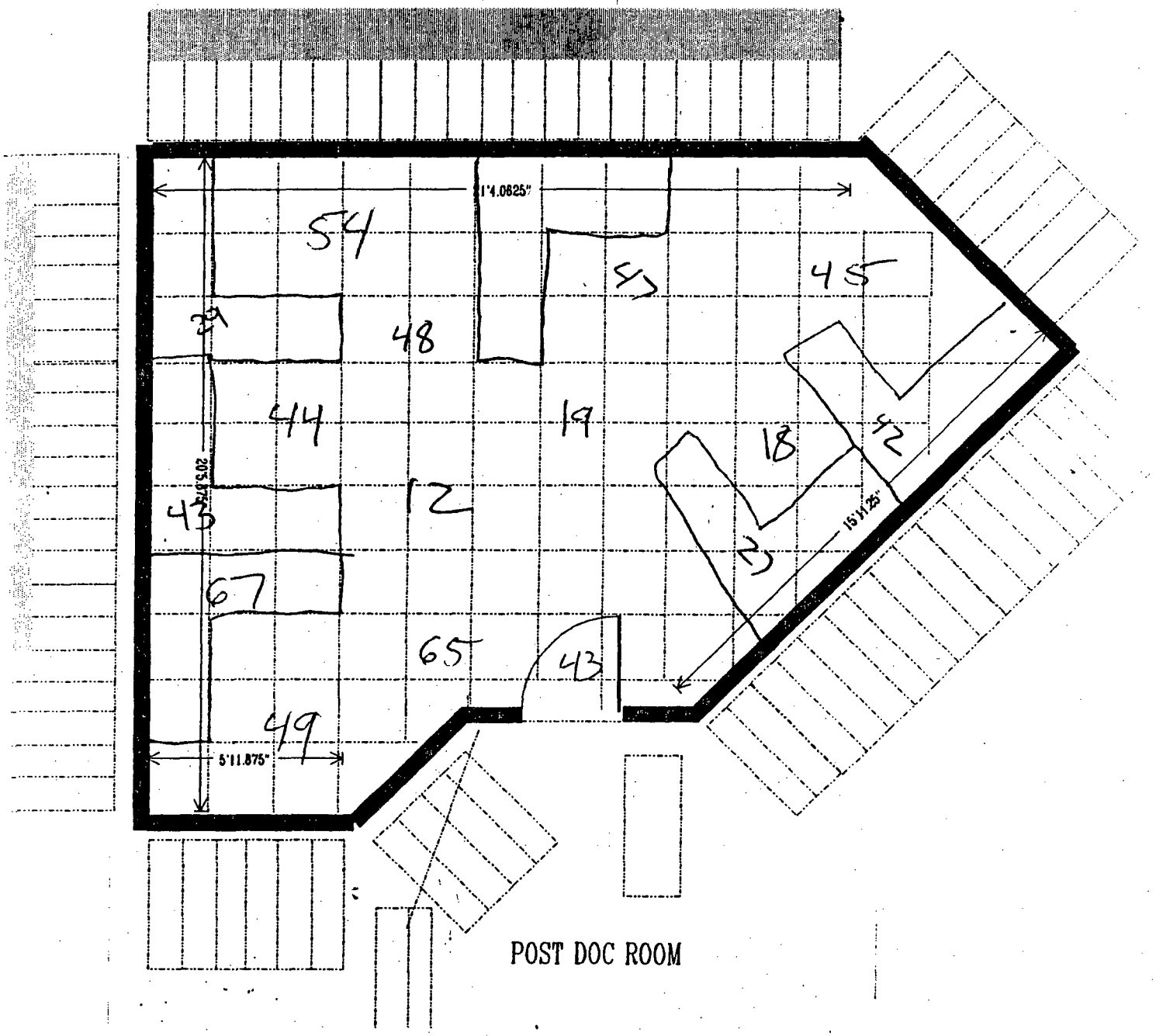


Conducted by: SSG Koelker on 30 Jun 93
All Measurements in uR/hr

Reviewed by: Donald K Koon on 10 Aug 93

Key West Decommissioning Survey

Fixed Beta Contamination Survey-Office 6
Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 26 Jul 93
All Measurements are counts in one minute

Reviewed by: Donald K Green on 10 Aug 93

Attachment 5

KEY WEST DECOMMISSIONING SURVEY

Office - 7

REMOVABLE CONTAMINATION

Office Number 7 was surveyed for removable contamination on 30 Jun 93 by SSG Koelker. A total of 70 swipes were taken. See Attachment 1 for the location of each swipe.

The swipes were analyzed for gamma contamination, utilizing the LKB Gammawell Counter on 30 Jun 93. See Attachment 2 for the MDAs and associated efficiencies. No gamma contamination was found above 200 dpm for I-125 or above 2000 dpm for any other isotope.

The swipes were analyzed for beta contamination, utilizing the Beckman Liquid Scintillation Counter Model 6800 on 30 Jun 93. See Attachment 3 for the MDAs and associated efficiencies. No beta contamination was found above 200 dpm for any isotope.

FIXED CONTAMINATION

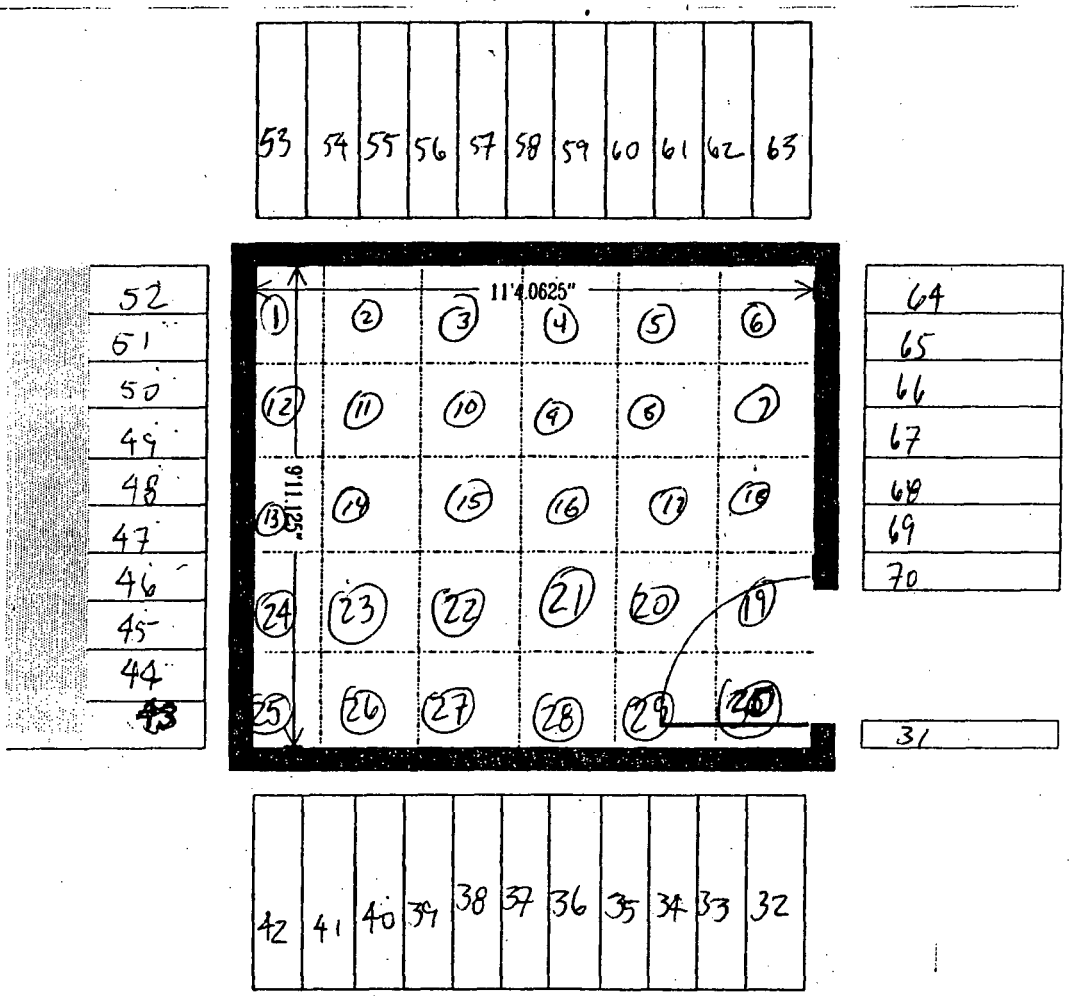
A fixed gamma survey was conducted on 30 Jun 93 by SSG Koelker. The highest exposure rate found was 19.4 uR/hr. The average exposure rate was approximately 11 uR/hr. See Attachment 4 for the location of readings taken.

A fixed beta survey was conducted on 26 Jul 93 by SPC Brinley. The highest number of counts found during a one minute count-time was 61 cpm. The average number of counts found during a one minute count-time was 55 cpm. See Attachment 5 for the location of readings taken.

As well as being reviewed at the time of the survey/receipt of laboratory results, all pertinent survey data was reviewed and compiled here by SFC Green on 8 Aug 93.

Key ' st Decommissioning Survey

Removable Contamination Survey-Office 7
Scale 1 inch = 4 feet



Conducted by: SSG Koelker on 30 Jun 93
Lab analysis by (gamma): SSG Koelker on 30 Jun 93
(beta) : SSG Koelker on 30 Jun 93

Reviewed by: Donald K Koon on 10 Aug 93

Attachment 1

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:06/30/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	54 CPM	45.5 DPM	0.530 / I-125
CHANNEL 2:	204 CPM	948.4 DPM	0.050 / CR-51
BECKMAN:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A

ATTACHMENT 2

QUALITY ASSURANCE REPORT - BETA
FOR DATE: 06/30/93

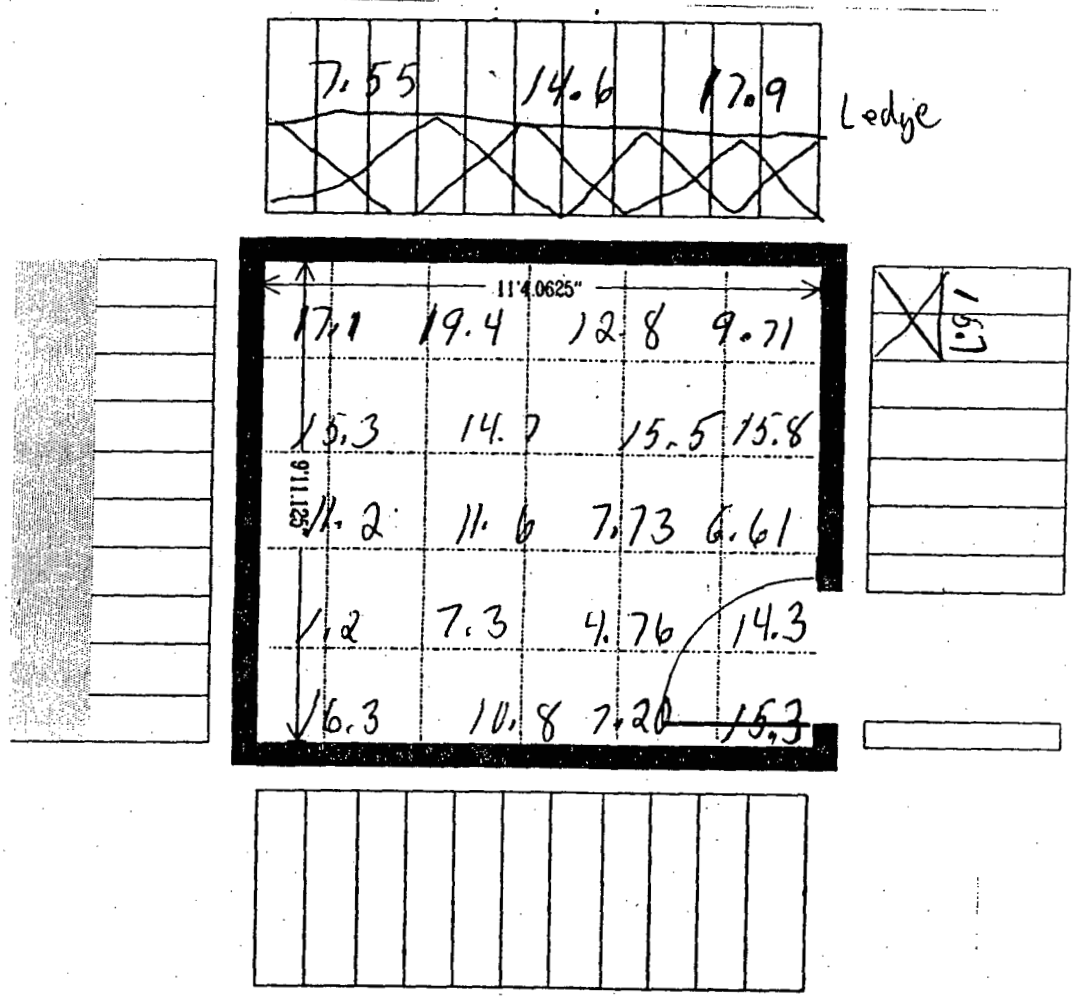
	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A
CHANNEL 3:	N/A	N/A	N/A
BECKMAN LS6800:			
CHANNEL 1:	17 CPM	23.4 DPM	0.579/H-3
CHANNEL 2:	30 CPM	19.0 DPM	0.947/C-14
CHANNEL 3:	40 CPM	20.7 DPM	1.007/P-32

ATTACHMENT 3

Key West Decommissioning Survey

Fixed Gamma Contamination Survey-Office 7

Scale 1 inch = 4 feet



Conducted by: SSG Koelker on 30 Jun 93

All Measurements in uR/hr

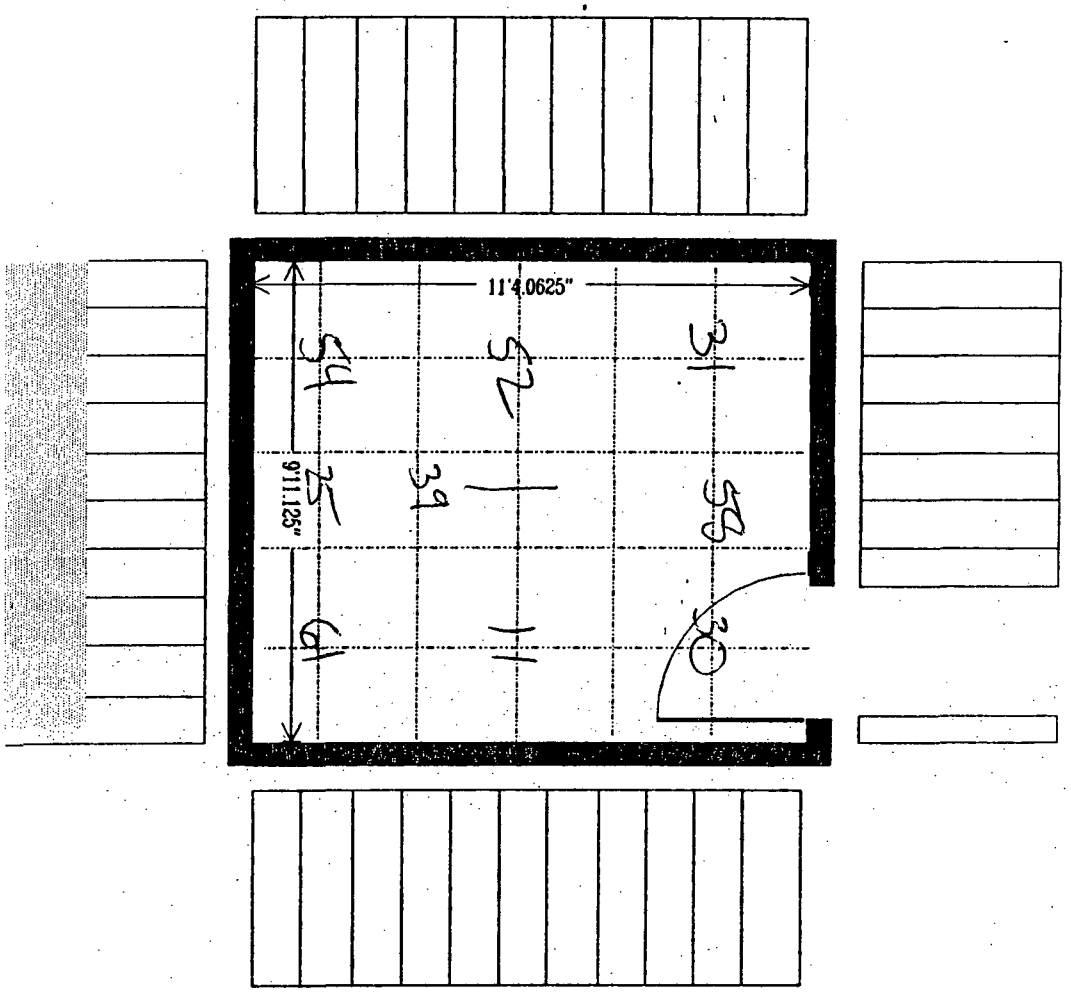
Reviewed by: Donald K Green on 10 Aug 93

Attachment 4

Key West Decommissioning Survey

Fixed Beta Contamination Survey-Office 7

Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 26 Jul 93

All Measurements are counts in one minute

Reviewed by: Donald K Beam on 10 Aug 93

Attachment 5

KEY WEST DECOMMISSIONING SURVEY

Office - 8

REMOVABLE CONTAMINATION

Office Number 8 was surveyed for removable contamination on 1 Jul 93 by SSG Koelker. A total of 113 swipes were taken. See Attachment 1 for the location of each swipe.

The swipes were analyzed for gamma contamination, utilizing the LKB Gammawell Counter on 1 Jul 93. See Attachment 2 for the MDAs and associated efficiencies. No gamma contamination was found above 200 dpm for I-125 or above 2000 dpm for any other isotope.

The swipes were analyzed for beta contamination, utilizing the Beckman Liquid Scintillation Counter Model 6800 on 1 Jul 93. See Attachment 3 for the MDAs and associated efficiencies. No beta contamination was found above 200 dpm for any isotope.

FIXED CONTAMINATION

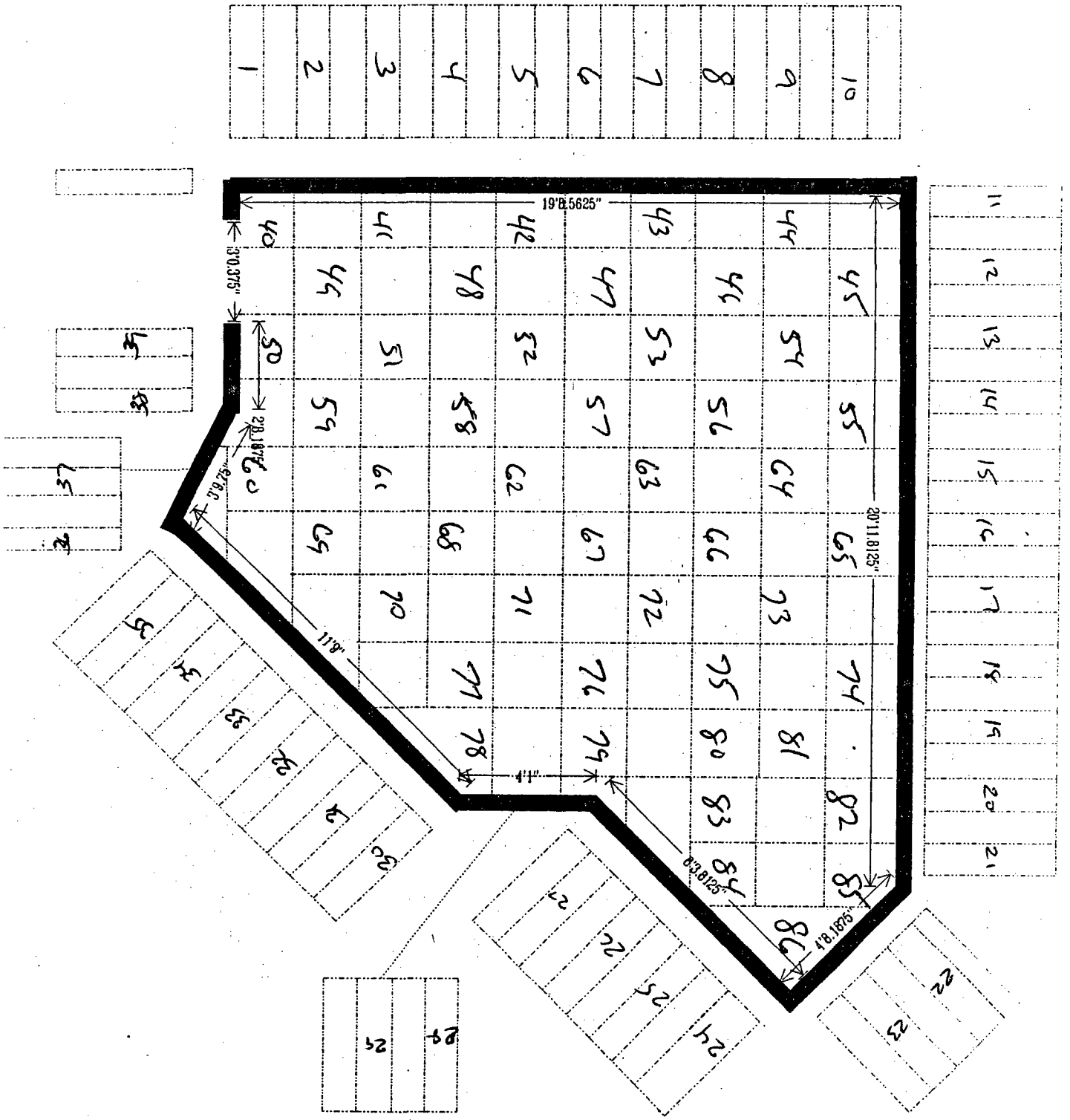
A fixed gamma survey was conducted on 1 Jul 93 by SSG Koelker. The highest exposure rate found was 13.6 uR/hr. The average exposure rate was approximately 12 uR/hr. See Attachment 4 for the location of readings taken.

A fixed beta survey was conducted on 26 Jul 93 by SPC Brinley. The highest number of counts found during a one minute count-time was 64 cpm. The average number of counts found during a one minute count-time was 45 cpm. See Attachment 5 for the location of readings taken.

As well as being reviewed at the time of the survey/receipt of laboratory results, all pertinent survey data was reviewed and compiled here by SFC Green on 8 Aug 93.

Key W[illegible]t Decommissioning Survey

Removable Contamination Survey-Office 8
Scale 1 inch = 4 feet



Conducted by: SSG Koelker on 01 Jul 93
Lab analysis by (gamma): SSG Koelker on 01 Jul 93
(beta) : SSG Koelker on 01 Jul 93

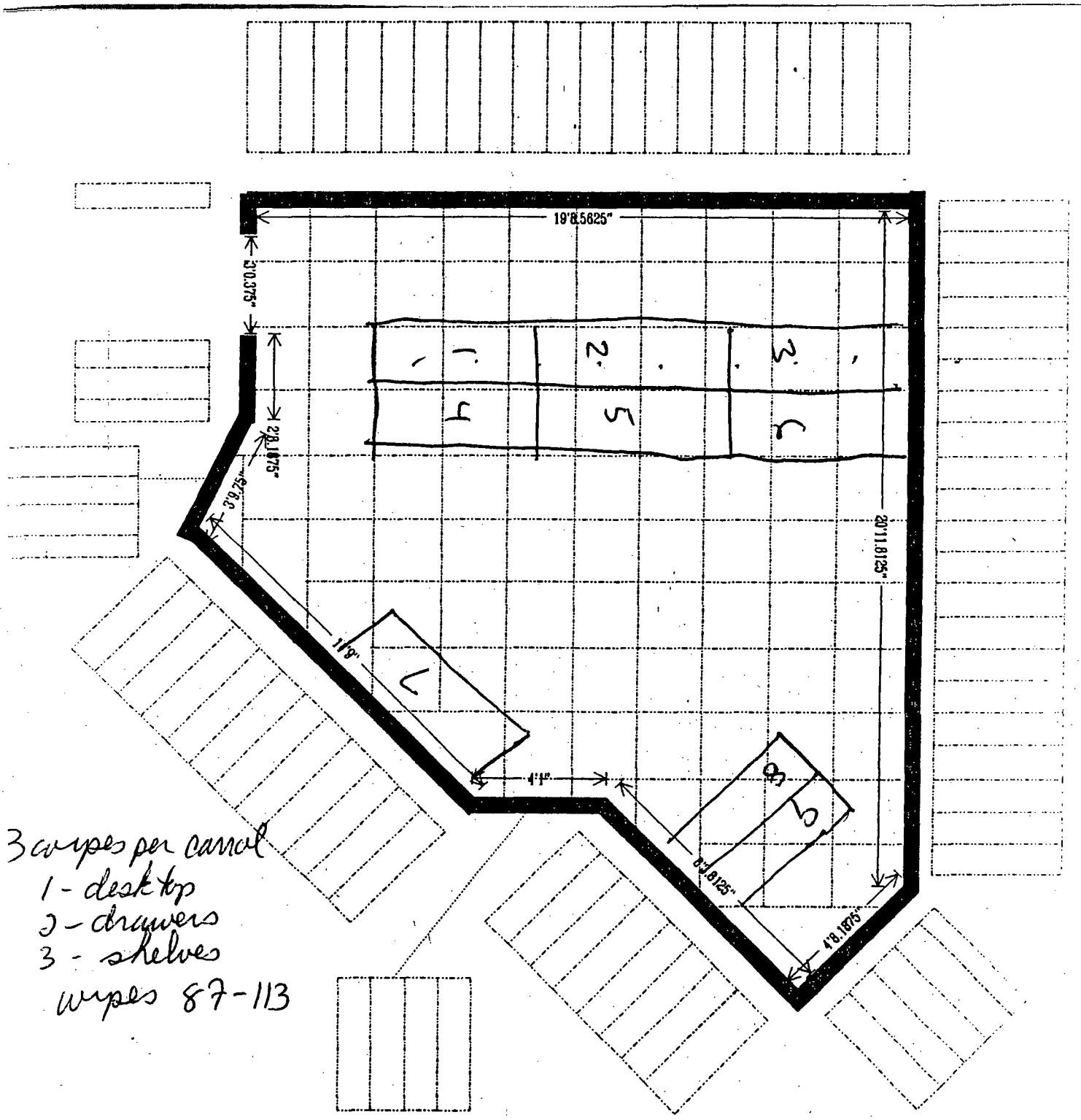
Reviewed by: Donald K Koelker on 10 Aug 93

Attachment 1

Key ' st Decommissioning Survey

Removable Contamination Survey-Office 8

Scale 1 inch = 4 feet



3 wipes per canal
1 - desktop
2 - drawers
3 - shelves
wipes 87-113

Conducted by: SSG Koelker on 01 Jul 93
Lab analysis by (gamma): SSG Koelker on 01 Jul 93
(beta) : SSG Koelker on 01 Jul 93

Reviewed by: Donald K Shaw on 10 Aug 93

Attachment 1

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:07/01/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	54 CPM	45.5 DPM	0.530 / I-125
CHANNEL 2:	204 CPM	948.4 DPM	0.050 / CR-51
BECKMAN:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A

ATTACHMENT 2

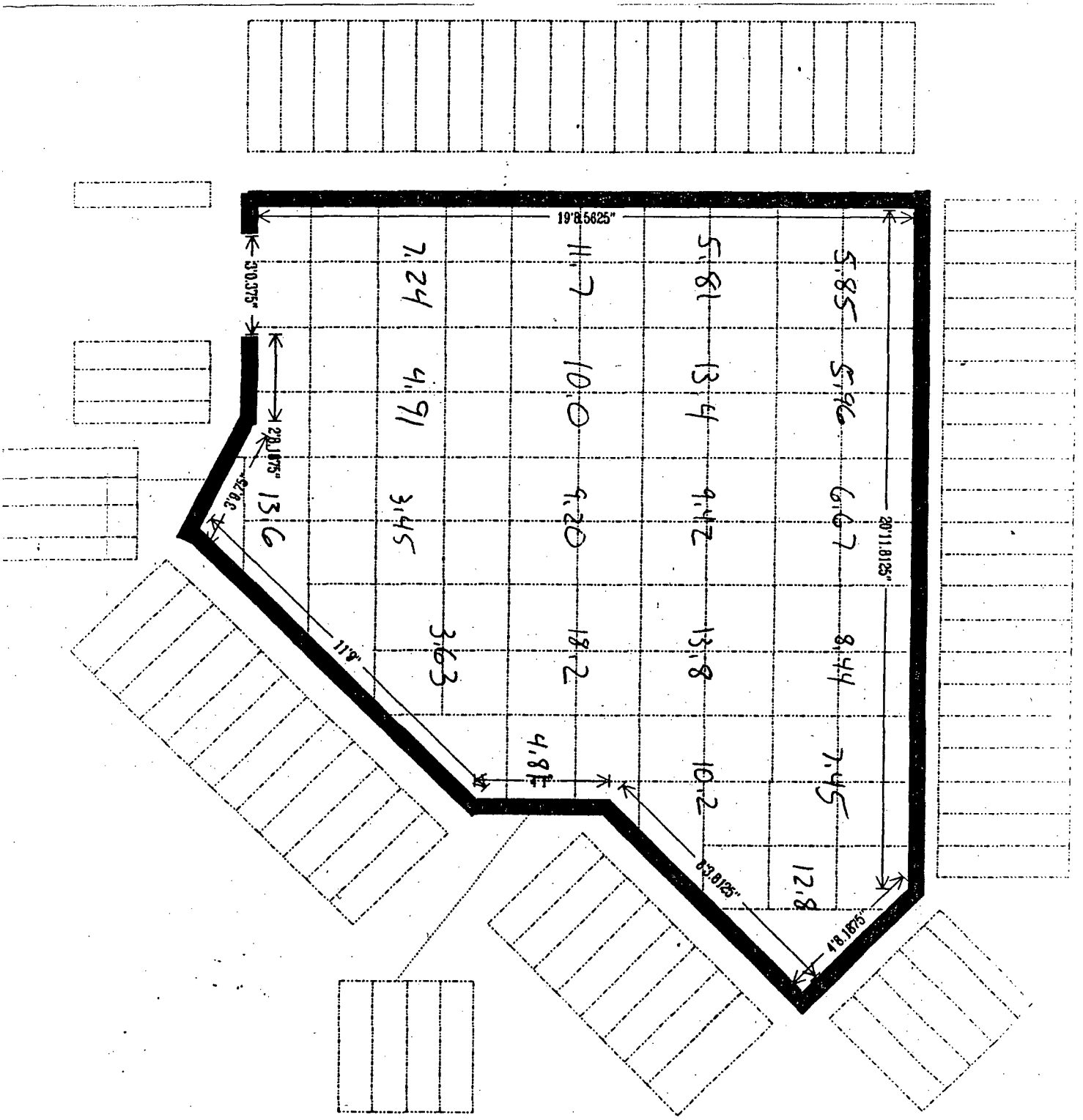
QUALITY ASSURANCE REPORT - BETA
FOR DATE:07/01/93

	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A
CHANNEL 3:	N/A	N/A	N/A
BECKMAN LS6800:			
CHANNEL 1:	17 CPM	23.4 DPM	0.579/H-3
CHANNEL 2:	30 CPM	19.0 DPM	0.947/C-14
CHANNEL 3:	40 CPM	20.7 DPM	1.007/P-32

ATTACHMENT 3

Key West Decommissioning Survey

Fixed Gamma Contamination Survey-Office 8
Scale 1 inch = 4 feet



Conducted by: SSG Koelker on 01 Jul 93
All Measurements in uR/hr

Reviewed by: Donald K Green on 10 Aug 93

Attachment 4

KEY WEST DECOMMISSIONING SURVEY

Office - 9

REMOVABLE CONTAMINATION

Office Number 9 was surveyed for removable contamination on 16 Jul 93 by SPC Brinley. A total of 50 swipes were taken. See Attachment 1 for the location of each swipe.

The swipes were analyzed for gamma contamination, utilizing the Beckman Gammawell Counter on 16 Jul 93. See Attachment 2 for the MDAs and associated efficiencies. No gamma contamination was found above 200 dpm for I-125 or above 2000 dpm for any other isotope.

The swipes were analyzed for beta contamination, utilizing the Beckman Liquid Scintillation Counter Model 5000 on 16 Jul 93. See Attachment 3 for the MDAs and associated efficiencies. No beta contamination was found above 200 dpm for any isotope.

FIXED CONTAMINATION

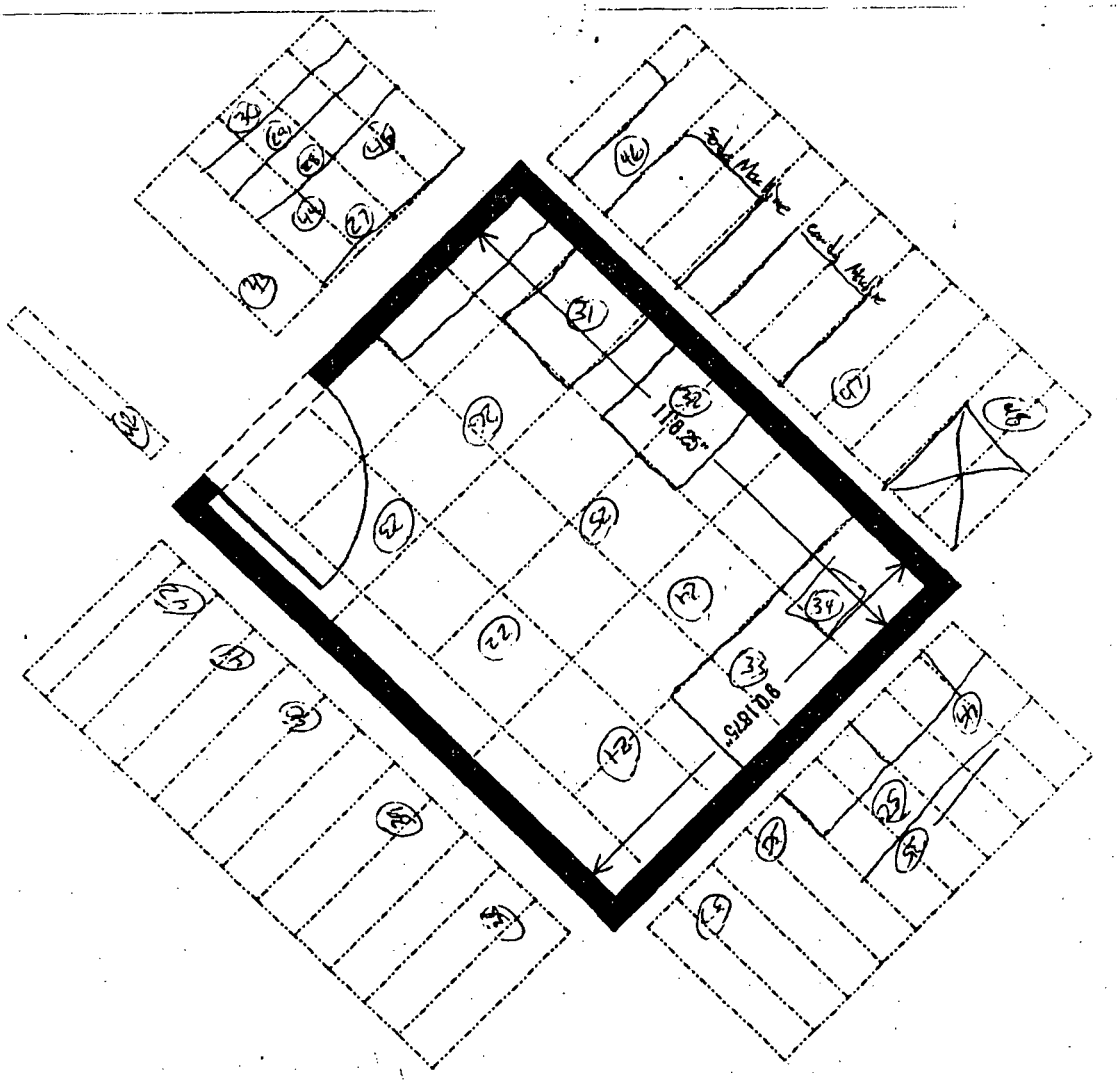
A fixed gamma survey was conducted on 16 Jul 93 by SSG Koelker. The highest exposure rate found was 13.2 uR/hr. The average exposure rate was approximately 9.5 uR/hr. See Attachment 4 for the location of readings taken.

A fixed beta survey was conducted on 26 Jul 93 by SPC Brinley. The highest number of counts found during a one minute count-time was 92 cpm. The average number of counts found during a one minute count-time was 70 cpm. See Attachment 5 for the location of readings taken.

As well as being reviewed at the time of the survey/receipt of laboratory results, all pertinent survey data was reviewed and compiled here by SFC Green on 8 Aug 93.

Key [illegible]st Decommissioning Survey

Removable Contamination Survey-Office 9
Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 16 Jul 93
Lab analysis by (gamma): SSG Koelker on 16 Jul 93
(beta) : SSG Koelker on 16 Jul 93

Reviewed by: Donald L. Shaw on 10 Aug 93

Attachment 1

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:07/16/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	46 CPM	32.8 DPM	0.680 / I-125
CHANNEL 2:	194 CPM	724.5 DPM	0.063 / CR-51
BECKMAN:			
CHANNEL 1:	50 CPM	23.3 DPM	0.999 / I-125
CHANNEL 2:	198 CPM	393.6 DPM	0.118 / CR-51

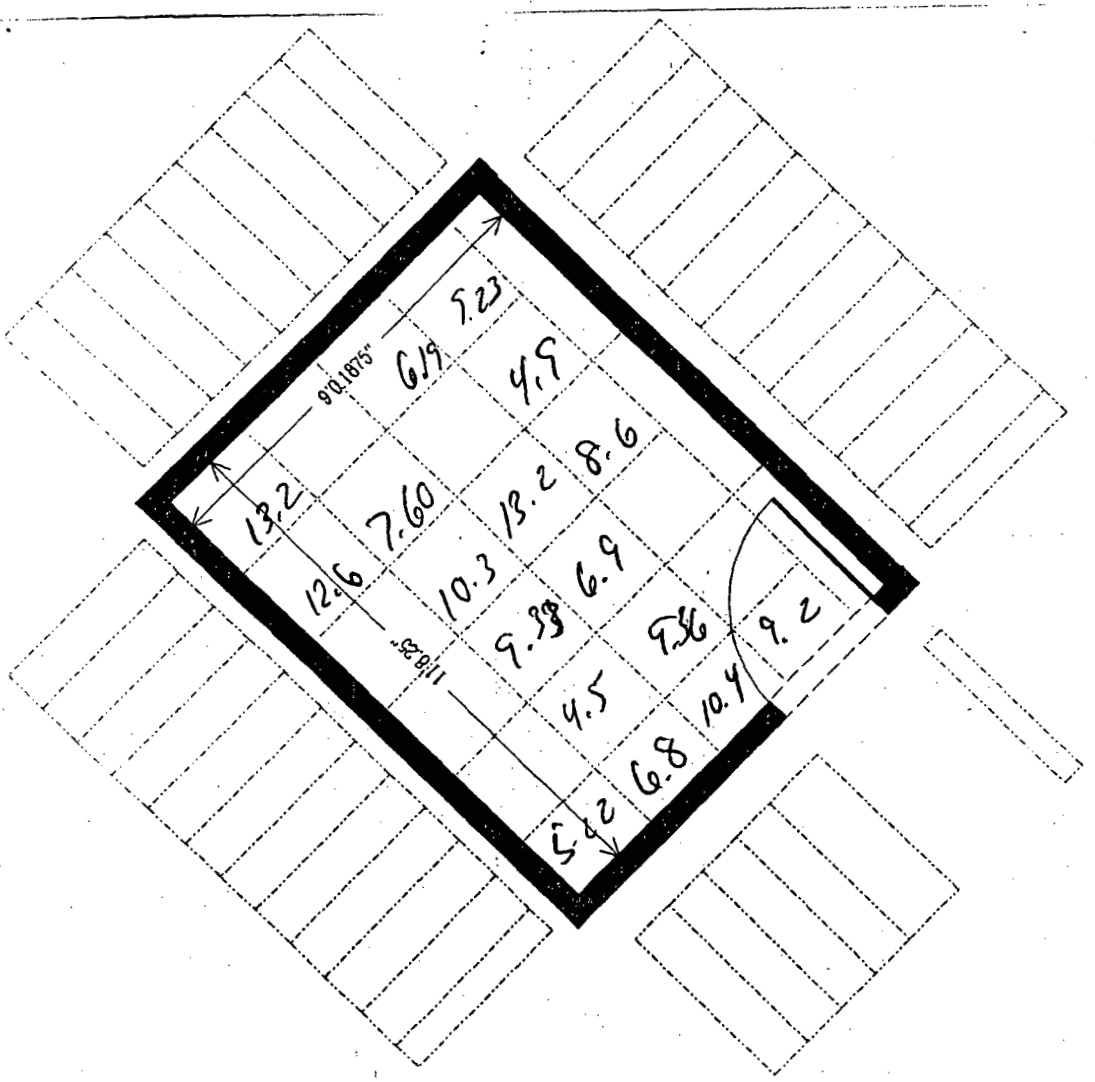
ATTACHMENT 2

QUALITY ASSURANCE REPORT - BETA
FOR DATE:07/16/93

	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	31 CPM	28.8 DPM	0.636 / H-3
CHANNEL 2:	28 CPM	18.1 DPM	0.962 / C-14
CHANNEL 3:	25 CPM	16.5 DPM	1.004 / P-32
BECKMAN LS6800:			
CHANNEL 1:	33 CPM	32.4 DPM	0.583 / H-3
CHANNEL 2:	25 CPM	17.2 DPM	0.954 / C-14
CHANNEL 3:	21 CPM	14.9 DPM	1.011 / P-32

Key West Decommissioning Survey

Fixed Gamma Contamination Survey-Office 9
Scale 1 inch = 4 feet



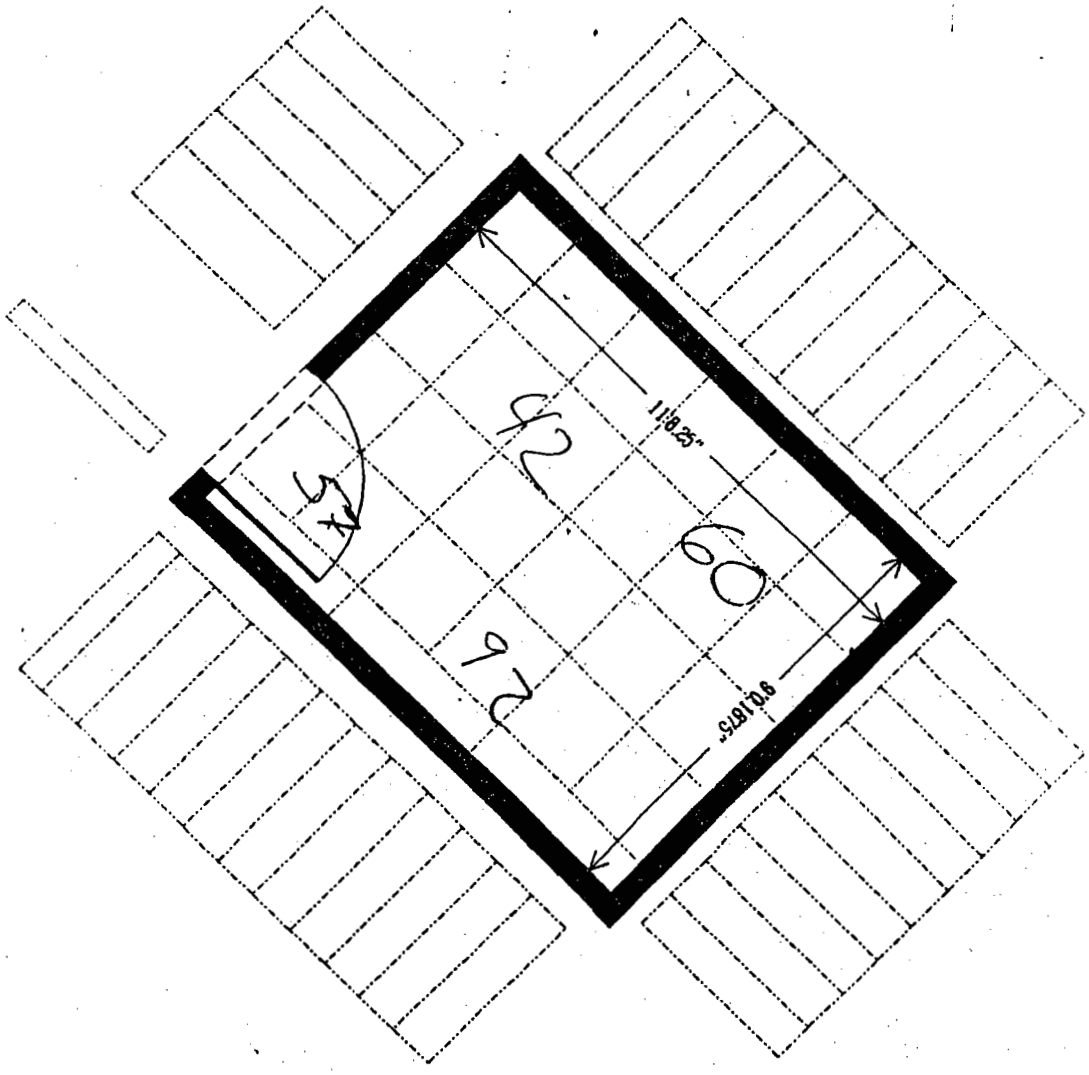
Conducted by: SSG Koelker on 16 Jul 93
All Measurements in μR/hr

Reviewed by: Donald K Green on 10 Aug 93

Attachment 9

Key \ st Decommissioning Survey

Fixed Beta Contamination Survey-Office 9
Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 26 Jul 93
All Measurements are counts in one minute

Reviewed by: Donald K Shaw on 10 Aug 93

Attachment 5

KEY WEST DECOMMISSIONING SURVEY

Office - 10

REMOVABLE CONTAMINATION

Office Number 10 was surveyed for removable contamination on 7 Jul 93 by SSG Koelker. A total of 31 swipes were taken. See Attachment 1 for the location of each swipe.

The swipes were analyzed for gamma contamination, utilizing the LKB Gammawell Counter on 8 Jul 93. See Attachment 2 for the MDAs and associated efficiencies. No gamma contamination was found above 200 dpm for I-125 or above 2000 dpm for any other isotope.

The swipes were analyzed for beta contamination, utilizing the Beckman Liquid Scintillation Counter Model 6800 on 8 Jul 93. See Attachment 3 for the MDAs and associated efficiencies. No beta contamination was found above 200 dpm for any isotope.

FIXED CONTAMINATION

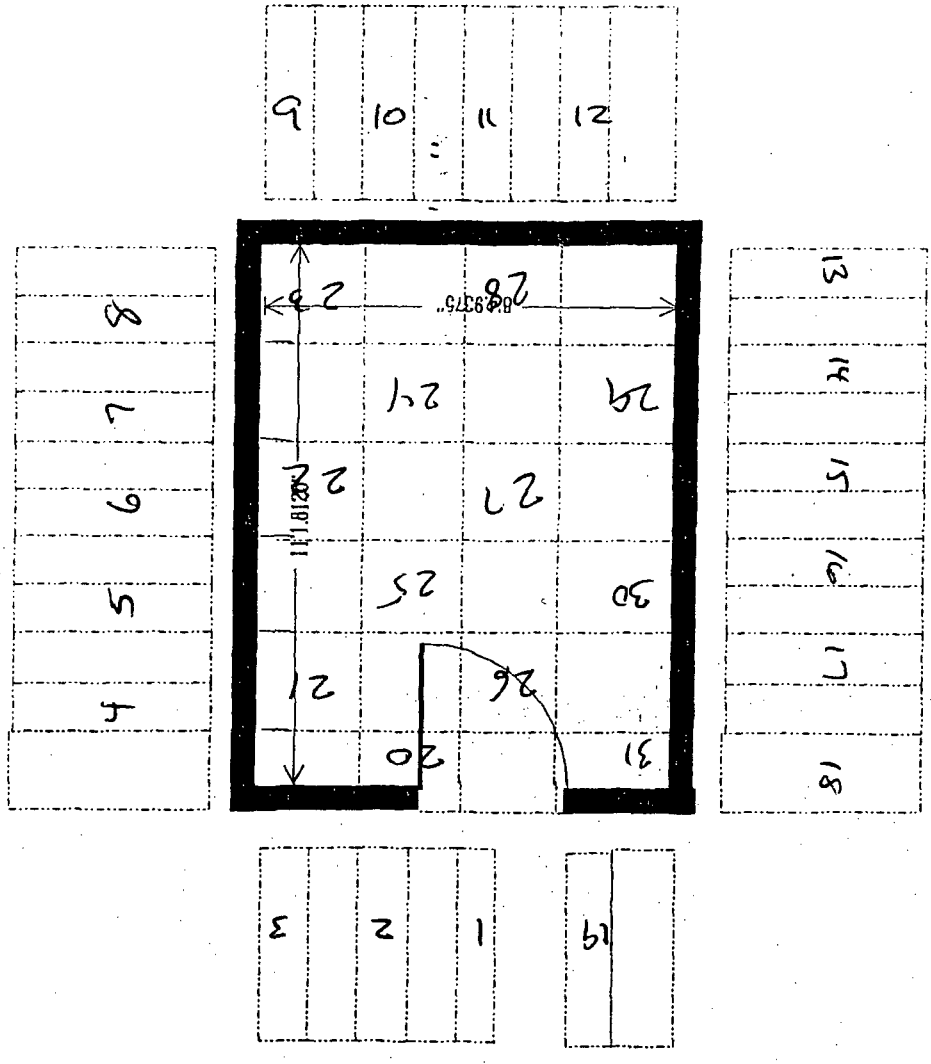
A fixed gamma survey was conducted on 7 Jul 93 by SSG Koelker. The highest exposure rate found was 12.3 uR/hr. The average exposure rate was approximately 6 uR/hr. See Attachment 4 for the location of readings taken.

A fixed beta survey was conducted on 26 Jul 93 by SPC Brinley. The highest number of counts found during a one minute count-time was 54 cpm. The average number of counts found during a one minute count-time was 40 cpm. See Attachment 5 for the location of readings taken.

As well as being reviewed at the time of the survey/receipt of laboratory results, all pertinent survey data was reviewed and compiled here by SFC Green on 8 Aug 93.

Key W[illegible]t Decommissioning Survey

Removable Contamination Survey-Office 10
Scale 1 inch = 4 feet



Conducted by: SSG Koelker on 07 Jul 93
Lab analysis by (gamma): SSG Koelker on 08 Jul 93
(beta) : SSG Koelker on 08 Jul 93
Reviewed by: Donald K. Green on 10 Aug 93

Attachment 1

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:07/08/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	52 CPM	33.7 DPM	0.702 / I-125
CHANNEL 2:	201 CPM	636.1 DPM	0.073 / CR-51
BECKMAN:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A

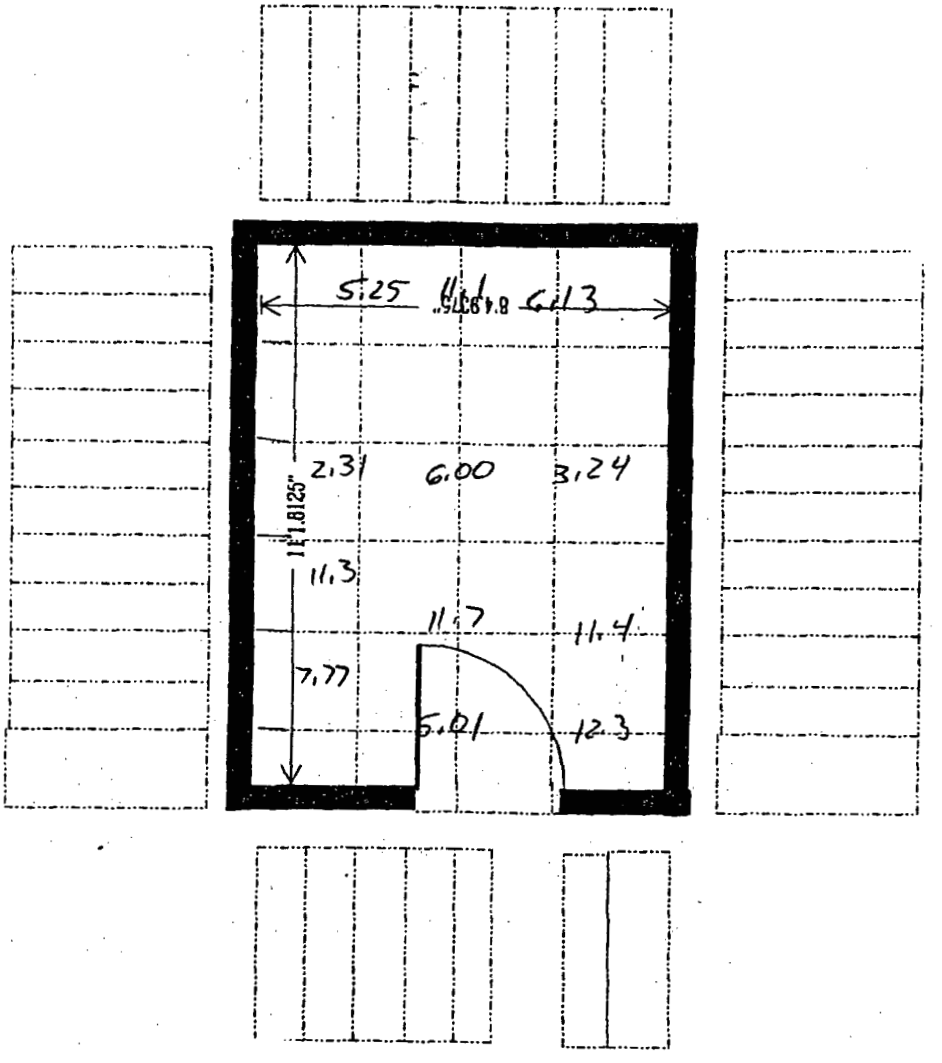
ATTACHMENT 2

QUALITY ASSURANCE REPORT - BETA
FOR DATE: 07/08/93

	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A
CHANNEL 3:	N/A	N/A	N/A
BECKMAN LS6800:			
CHANNEL 1:	39 CPM	36.4 DPM	0.561 / H-3
CHANNEL 2:	26 CPM	17.6 DPM	0.950 / C-14
CHANNEL 3:	24 CPM	16.1 DPM	1.002 / P-32

Key W[illegible]t Decommissioning Survey

Fixed Gamma Contamination Survey-Office 10
Scale 1 inch = 4 feet

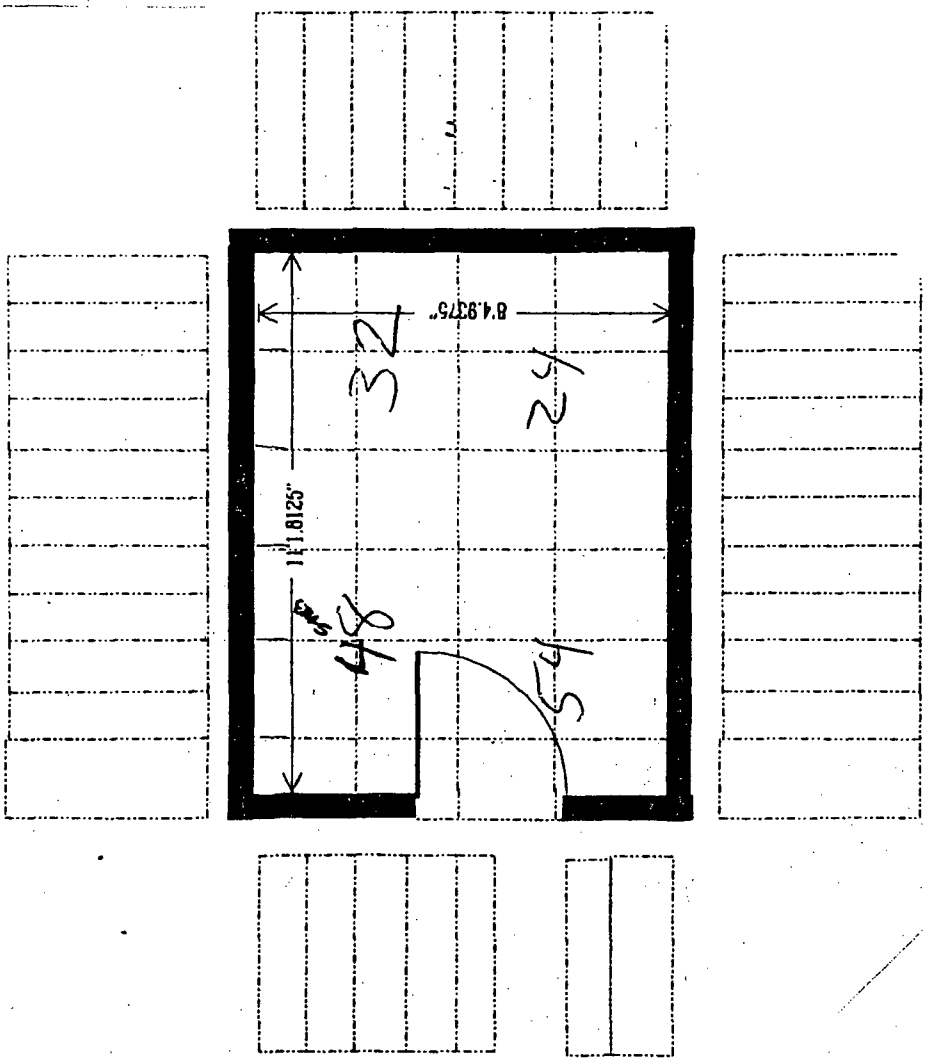


Conducted by: SSG Koelker on 07 Jul 93
All Measurements in uR/hr
Reviewed by: Donald K Lhamon 10 Aug 93

Attachment 4

Key W t Decommissioning Survey

Fixed Beta Contamination Survey-Office 10
Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 26 Jul 93
All Measurements are Gross One Minute Counts
Reviewed by: Donald K Green on 10 Aug 93

Attachment 5

KEY WEST DECOMMISSIONING SURVEY

Office - 11

REMOVABLE CONTAMINATION

Office Number 11 was surveyed for removable contamination on 2 Jul 93 by SSG Koelker. A total of 23 swipes were taken. See Attachment 1 for the location of each swipe.

The swipes were analyzed for gamma contamination, utilizing the Beckman Gammawell Counter on 3 Jul 93. See Attachment 2 for the MDAs and associated efficiencies. No gamma contamination was found above 200 dpm for I-125 or above 2000 dpm for any other isotope.

The swipes were analyzed for beta contamination, utilizing the Beckman Liquid Scintillation Counter Model 6800 on 3 Jul 93. See Attachment 3 for the MDAs and associated efficiencies. No beta contamination was found above 200 dpm for any isotope.

FIXED CONTAMINATION

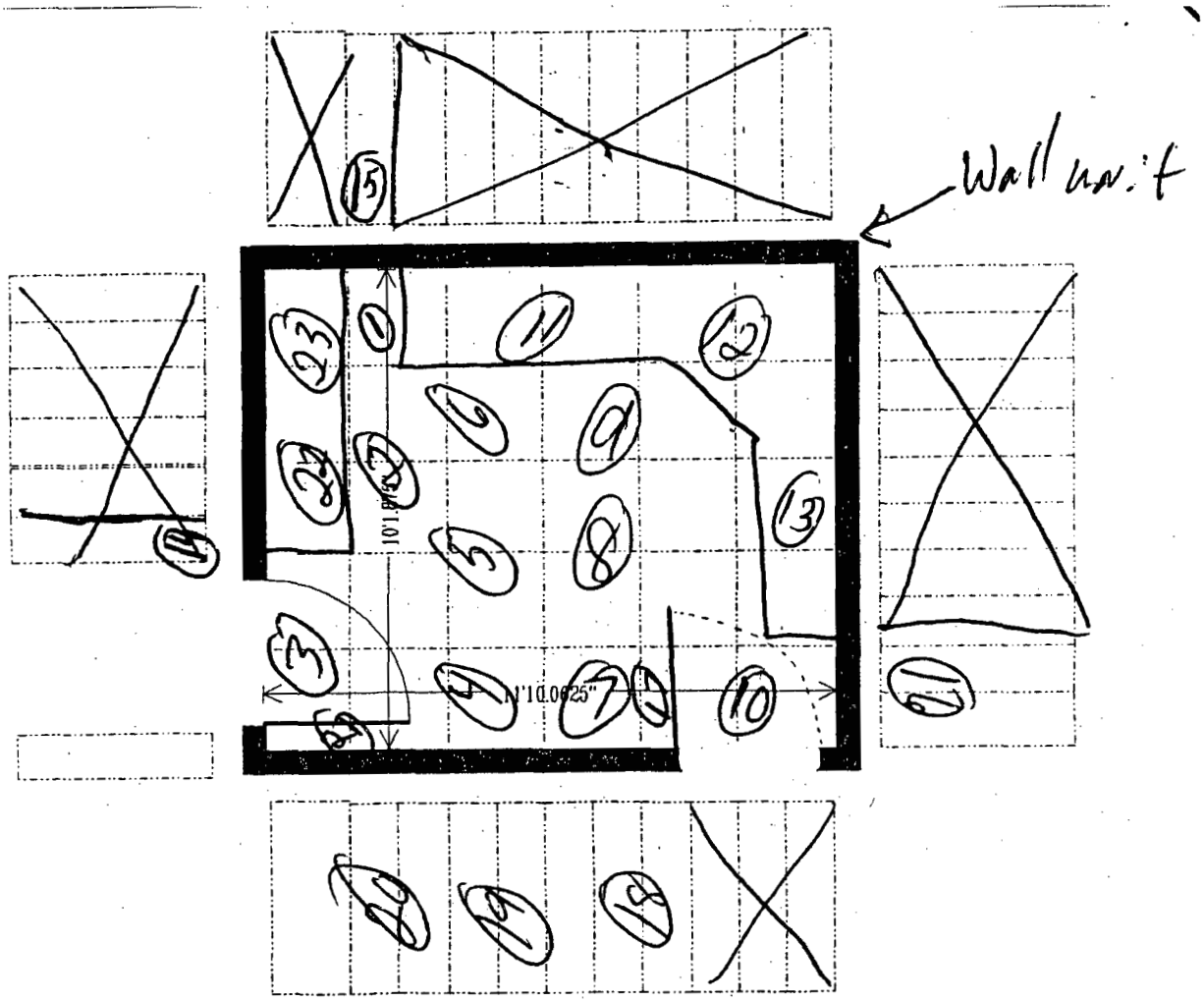
A fixed gamma survey was conducted on 2 Jul 93 by SSG Webster. The highest exposure rate found was 21.9 uR/hr. The average exposure rate was approximately 9 uR/hr. See Attachment 4 for the location of readings taken.

A fixed beta survey was conducted on 26 Jul 93 by SPC Brinley. The highest number of counts found during a one minute count-time was 26 cpm. The average number of counts found during a one minute count-time was 22 cpm. See Attachment 5 for the location of readings taken.

As well as being reviewed at the time of the survey/receipt of laboratory results, all pertinent survey data was reviewed and compiled here by SFC Green on 8 Aug 93.

Key W[illegible]t Decommissioning Survey

Removable Contamination Survey-Office 11
Scale 1 inch = 4 feet



Conducted by: SSG Koelker on 02 Jun 93
Lab analysis by (gamma): SSG Koelker on 03 Jun 93
(beta) : SSG Koelker on 03 Jun 93

Reviewed by: Donald K Grein on 10 Aug 93

Attachment 1

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:07/03/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	53 CPM	32.2 DPM	0.742 / I-125
CHANNEL 2:	198 CPM	709.2 DPM	0.065 / CR-51
BECKMAN:			
CHANNEL 1:	52 CPM	22.1 DPM	1.075 / I-125
CHANNEL 2:	198 CPM	452.3 DPM	0.102 / CR-51

ATTACHMENT 2

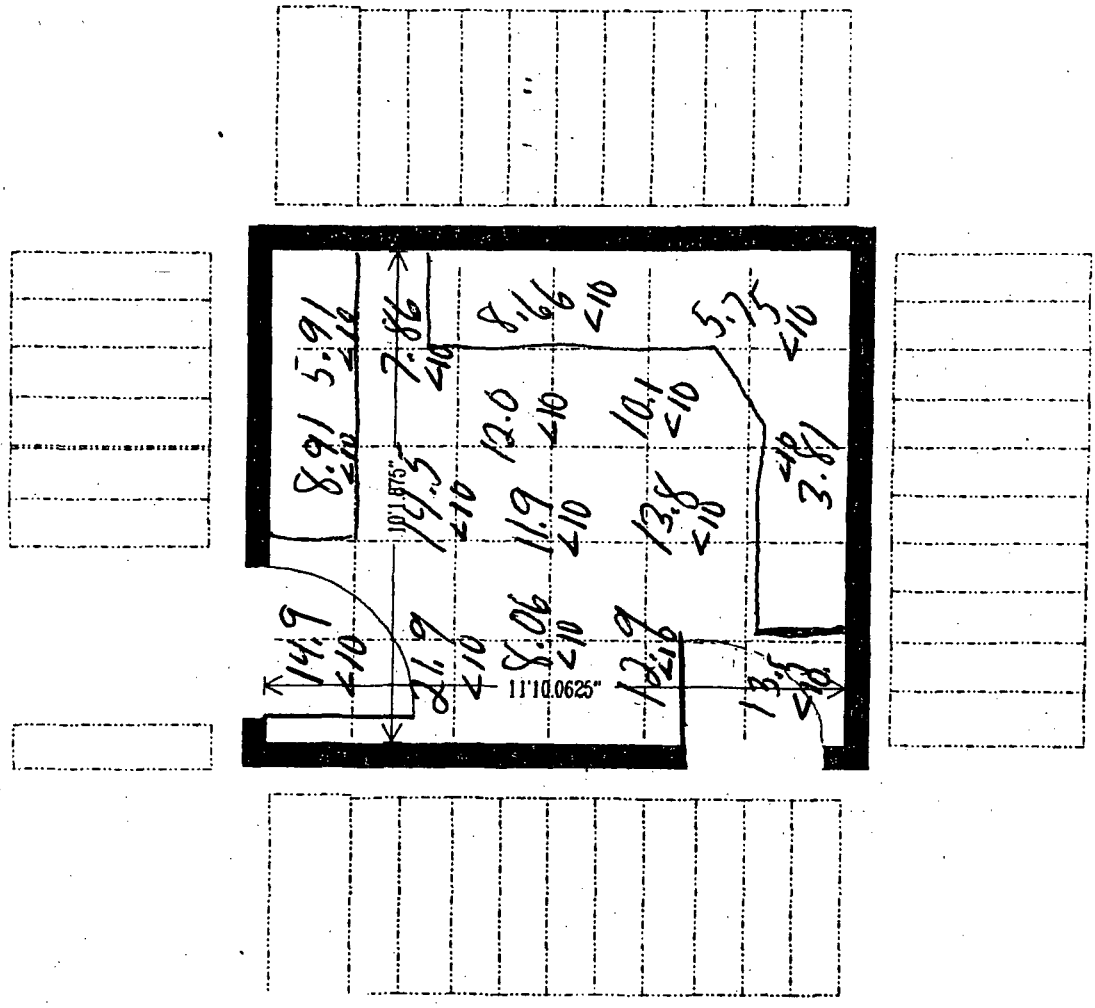
QUALITY ASSURANCE REPORT - BETA
FOR DATE:07/03/93

	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A
CHANNEL 3:	N/A	N/A	N/A
BECKMAN LS6800:			
CHANNEL 1:	17 CPM	23.4 DPM	0.579/H-3
CHANNEL 2:	30 CPM	19.0 DPM	0.947/C-14
CHANNEL 3:	40 CPM	20.7 DPM	1.007/P-32

ATTACHMENT 3

Key West Decommissioning Survey

Fixed Gamma Contamination Survey-Office 11
Scale 1 inch = 4 feet



Conducted by: SSG Webster on 02 Jun 93

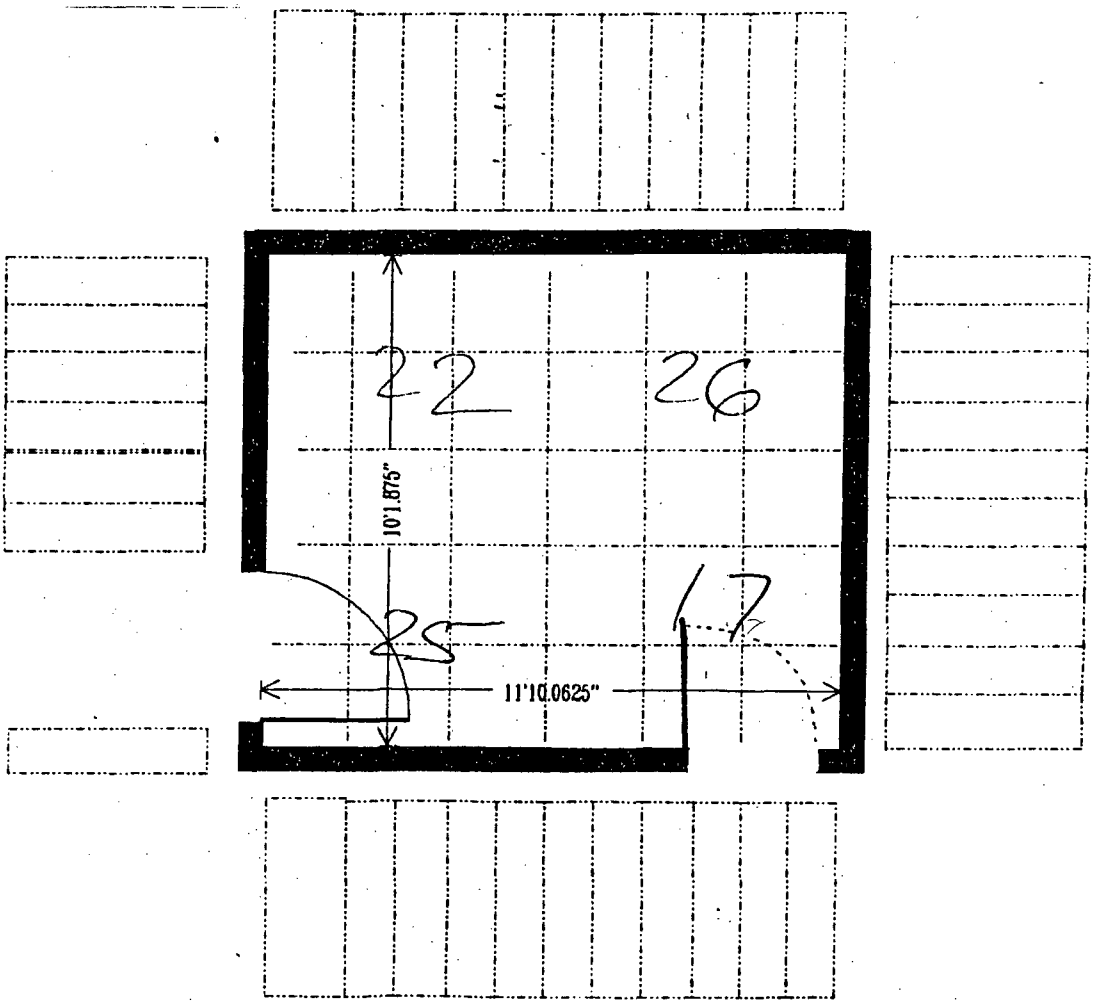
Reviewed by: Donald K Green on 10 Aug 93

Attachment 4

Key W[illegible]st Decommissioning Survey

Fixed Beta Contamination Survey-Office 11

Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 26 Jul 93

Reviewed by: Donald K Green on 10 Aug 93

Attachment 5

KEY WEST DECOMMISSIONING SURVEY

Office - 12

REMOVABLE CONTAMINATION

Office Number 12 was surveyed for removable contamination on 2 Jul 93 by SPC Brinley. A total of 48 swipes were taken. See Attachment 1 for the location of each swipe.

The swipes were analyzed for gamma contamination, utilizing the LKB Gammawell Counter on 2 Jul 93. See Attachment 2 for the MDAs and associated efficiencies. No gamma contamination was found above 200 dpm for I-125 or above 2000 dpm for any other isotope.

The swipes were analyzed for beta contamination, utilizing the Beckman Liquid Scintillation Counter Model 6800 on 2 Jul 93. See Attachment 3 for the MDAs and associated efficiencies. No beta contamination was found above 200 dpm for any isotope.

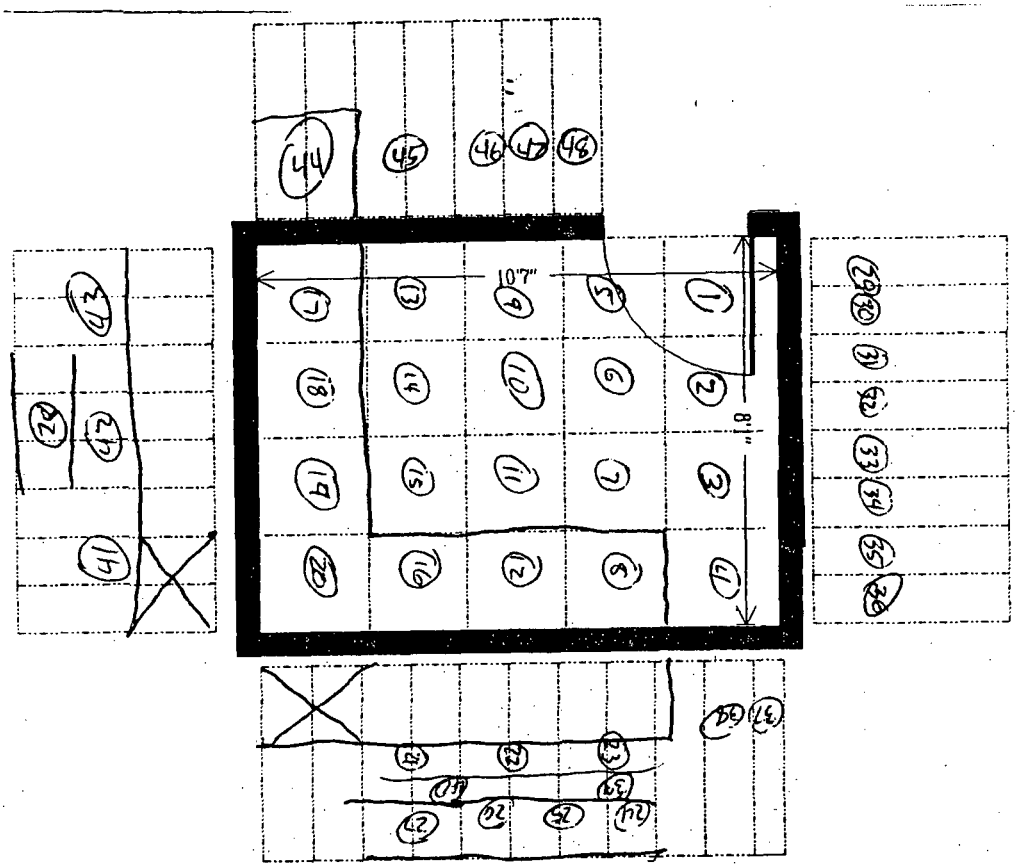
FIXED CONTAMINATION

A fixed gamma survey was conducted on 7 Jul 93 by SSG Koelker. The highest exposure rate found was 22.2 uR/hr. The average exposure rate was approximately 14 uR/hr. See Attachment 4 for the location of readings taken.

A fixed beta survey was conducted on 26 Jul 93 by SPC Brinley. The highest number of counts found during a one minute count-time was 55 cpm. The average number of counts found during a one minute count-time was 35 cpm. See Attachment 5 for the location of readings taken.

As well as being reviewed at the time of the survey/receipt of laboratory results, all pertinent survey data was reviewed and compiled here by SFC Green on 8 Aug 93.

Removable Contamination Survey-Office 12
Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 02 Jul 93
Lab analysis by (gamma): SSG Koelker on 02 Jul 93
(beta) : SSG Koelker on 02 Jul 93

Reviewed by: Donald K Green on 10 Aug 93

Attachment 1

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE: 07/02/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	53 CPM	32.2 DPM	0.742 / I-125
CHANNEL 2:	198 CPM	709.2 DPM	0.065 / CR-51
BECKMAN:			
CHANNEL 1:	52 CPM	22.1 DPM	1.075 / I-125
CHANNEL 2:	198 CPM	452.3 DPM	0.102 / CR-51

ATTACHMENT 2

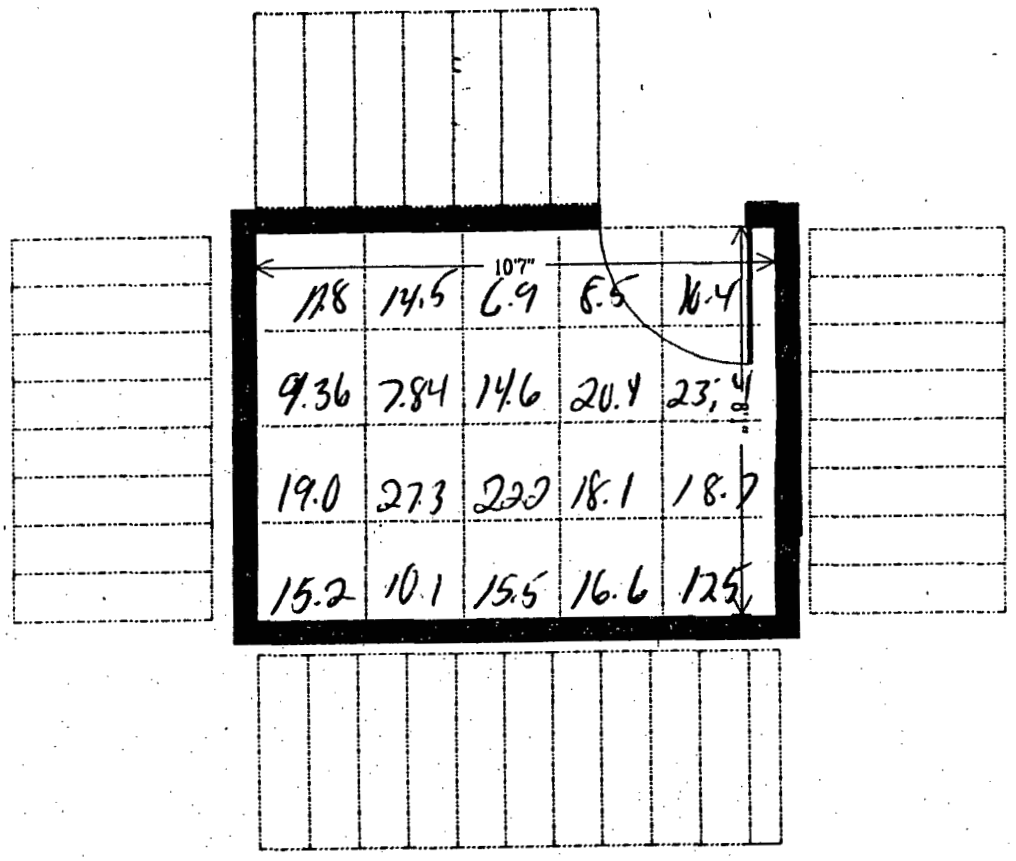
QUALITY ASSURANCE REPORT - BETA
FOR DATE: 07/02/93

	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A
CHANNEL 3:	N/A	N/A	N/A
BECKMAN LS6800:			
CHANNEL 1:	17 CPM	23.4 DPM	0.579/H-3
CHANNEL 2:	30 CPM	19.0 DPM	0.947/C-14
CHANNEL 3:	40 CPM	20.7 DPM	1.007/P-32

ATTACHMENT 3

Key West Decommissioning Survey

Fixed Gamma Contamination Survey-Office 12
Scale 1 inch = 4 feet



Conducted by: SSG Koelker on 07 Jul 93
All Measurements in uR/hr

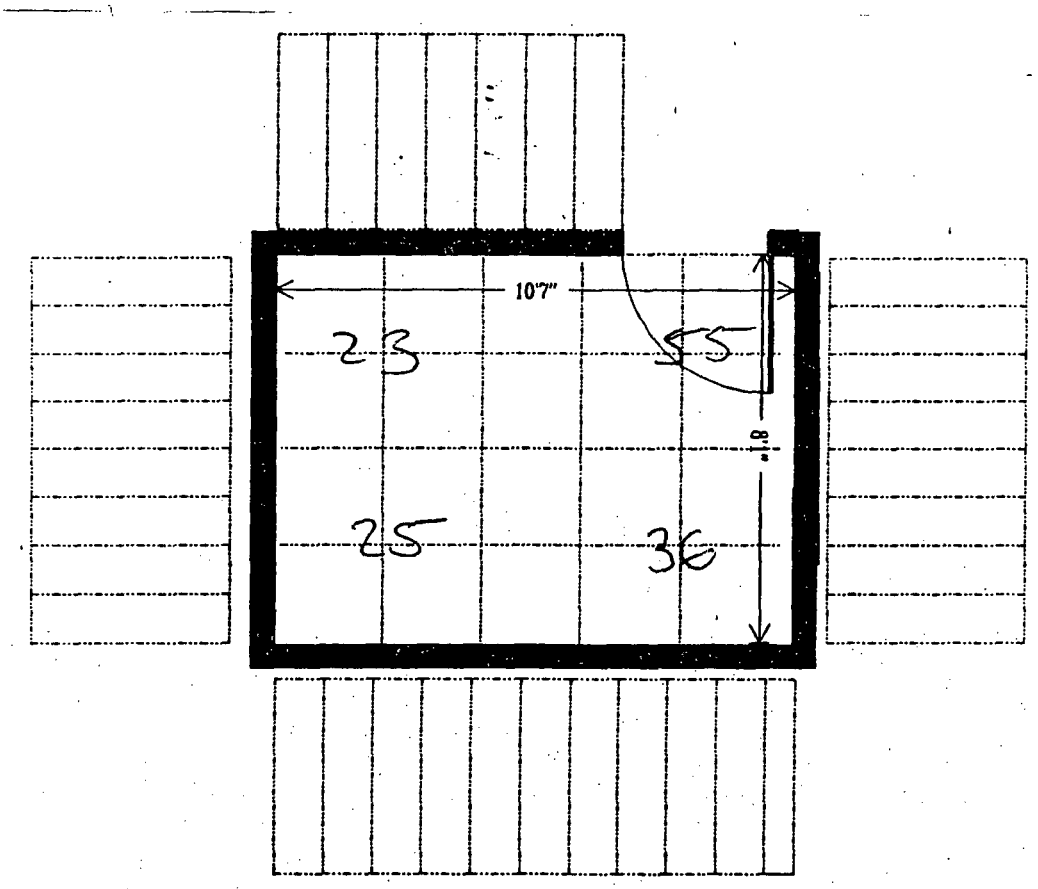
Reviewed by: Donald K Green on 10 Aug 93

Attachment 4

Key W[illegible]st Decommissioning Survey

Fixed Beta Contamination Survey-Office 12

Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 26 Jul 93

All Measurements are Gross One Minute Counts

Reviewed by: Donald K. Grein on 10 Aug 93

Attachment 5

KEY WEST DECOMMISSIONING SURVEY

Office - 13

REMOVABLE CONTAMINATION

Office Number 13 was surveyed for removable contamination on 2 Jul 93 by SPC Brinley. A total of 68 swipes were taken. See Attachment 1 for the location of each swipe.

The swipes were analyzed for gamma contamination, utilizing the Beckman Gammawell Counter on 3 Jul 93. See Attachment 2 for the MDAs and associated efficiencies. No gamma contamination was found above 200 dpm for I-125 or above 2000 dpm for any other isotope.

The swipes were analyzed for beta contamination, utilizing the Beckman Liquid Scintillation Counter Model 6800 on 3 Jul 93. See Attachment 3 for the MDAs and associated efficiencies. No beta contamination was found above 200 dpm for any isotope.

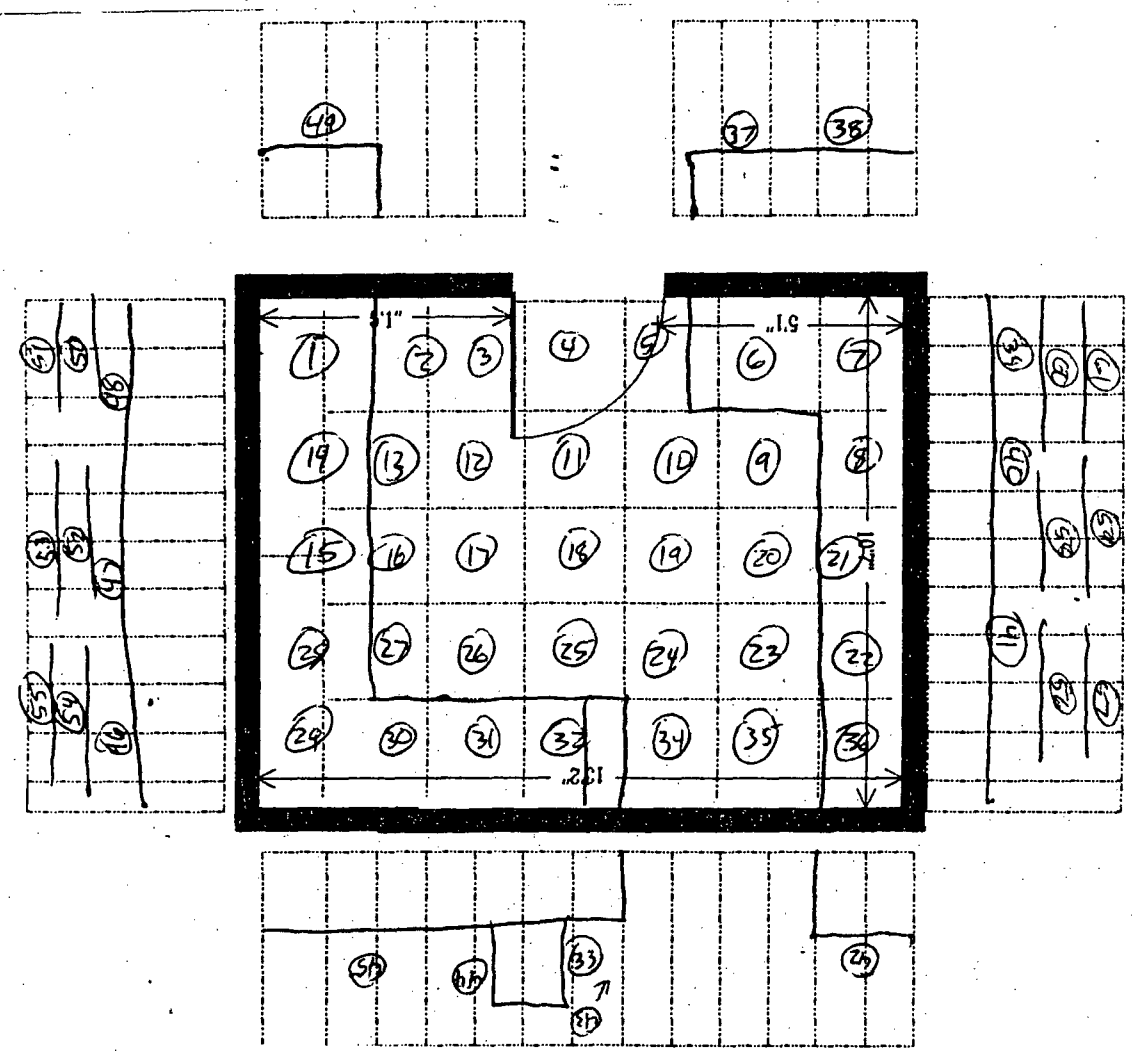
FIXED CONTAMINATION

A fixed gamma survey was conducted on 6 Jul 93 by SSG Koelker. The highest exposure rate found was 15.4 uR/hr. The average exposure rate was approximately 11 uR/hr. See Attachment 4 for the location of readings taken.

A fixed beta survey was conducted on 26 Jul 93 by SPC Brinley. The highest number of counts found during a one minute count-time was 72 cpm. The average number of counts found during a one minute count-time was 40 cpm. See Attachment 4 for the location of readings taken.

As well as being reviewed at the time of the survey/receipt of laboratory results, all pertinent survey data was reviewed and compiled here by SFC Green on 8 Aug 93.

Removable Contamination Survey-Office 13
Scale 1 inch = 4 feet



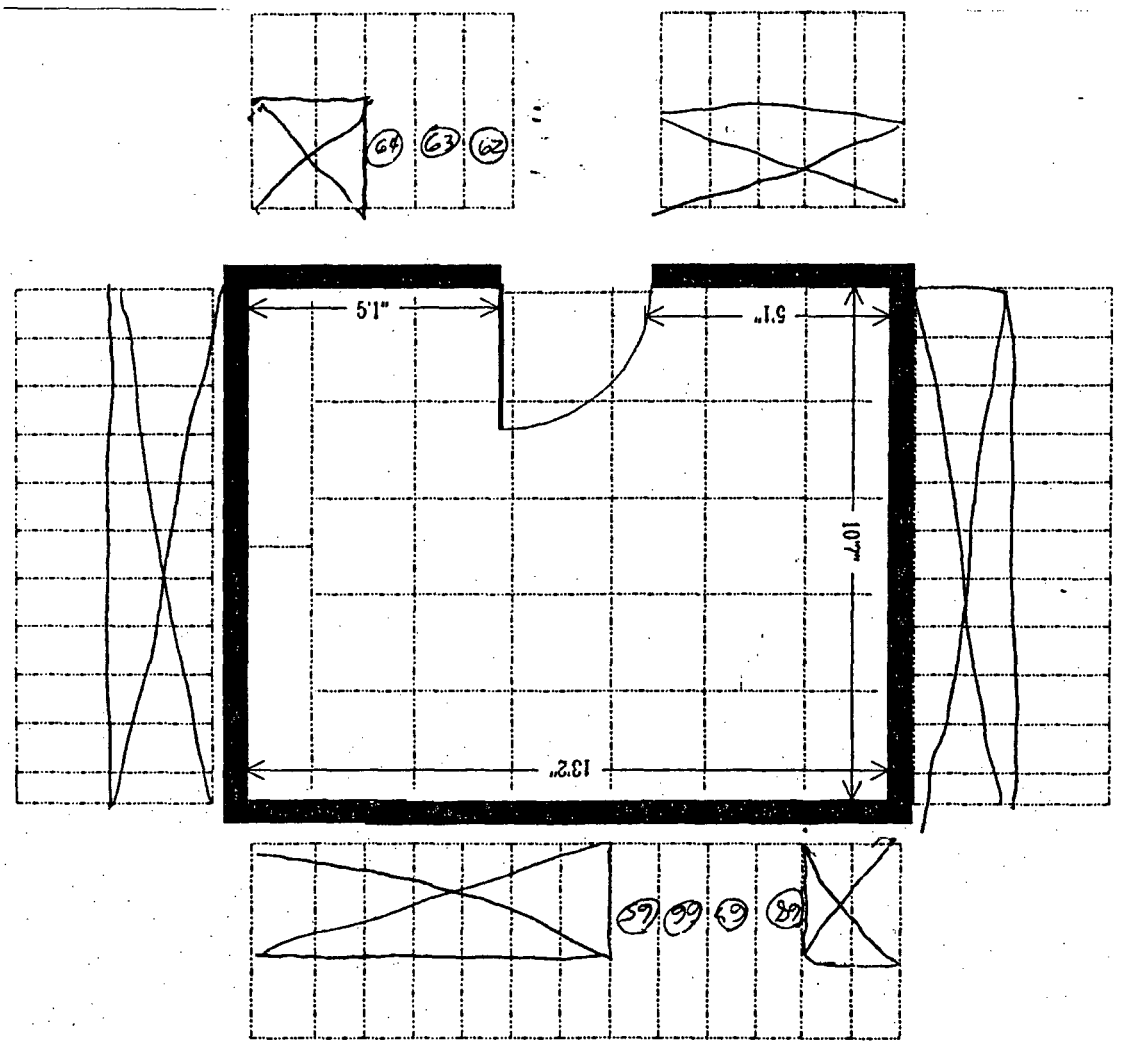
Conducted by: SPC Brinley on 02 Jul 93
Lab analysis by (gamma): SSG Koelker on 03 Jul 93
(beta) : SSG Koelker on 03 Jul 93

Reviewed by: Donald K Green on 10 Aug 93

Attachment 1

Key W[illegible]st Decommissioning Survey

Removable Contamination Survey-Office 13
Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 02 Jul 93
Lab analysis by (gamma): SSG Koelker on 03 Jul 93
(beta) : SSG Koelker on 03 Jul 93

Reviewed by: Donald K Green on 10 Aug 93

Attachment 1

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:07/03/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	53 CPM	32.2 DPM	0.742 / I-125
CHANNEL 2:	198 CPM	709.2 DPM	0.065 / CR-51
BECKMAN:			
CHANNEL 1:	52 CPM	22.1 DPM	1.075 / I-125
CHANNEL 2:	198 CPM	452.3 DPM	0.102 / CR-51

ATTACHMENT 2

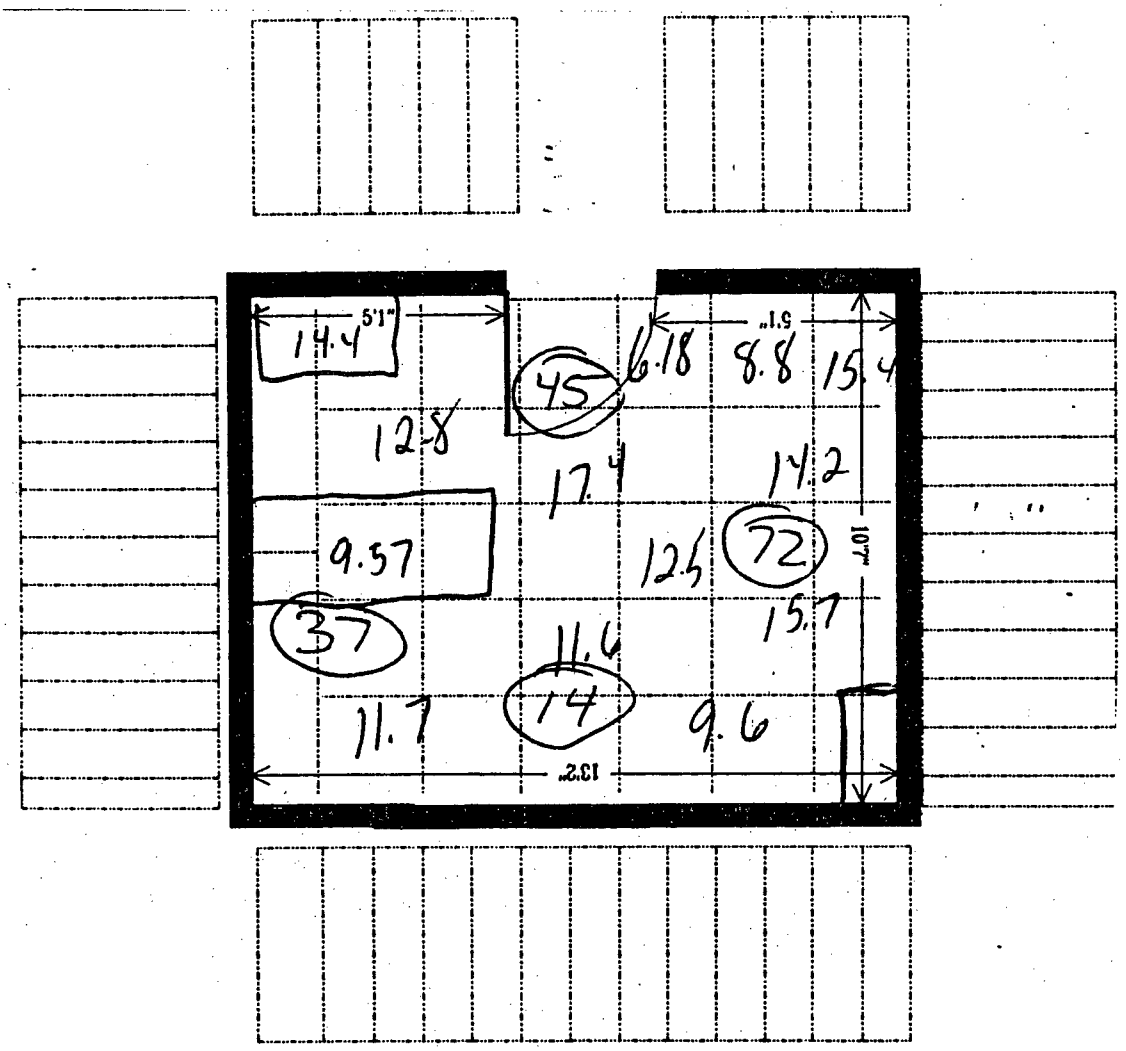
QUALITY ASSURANCE REPORT - BETA
FOR DATE:07/03/93

	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A
CHANNEL 3:	N/A	N/A	N/A
BECKMAN LS6800:			
CHANNEL 1:	17 CPM	23.4 DPM	0.579/H-3
CHANNEL 2:	30 CPM	19.0 DPM	0.947/C-14
CHANNEL 3:	40 CPM	20.7 DPM	1.007/P-32

ATTACHMENT 3

Key V[illegible]st Decommissioning Survey

Fixed Gamma Contamination Survey-Office 13
Scale 1 inch = 4 feet



uR/hr

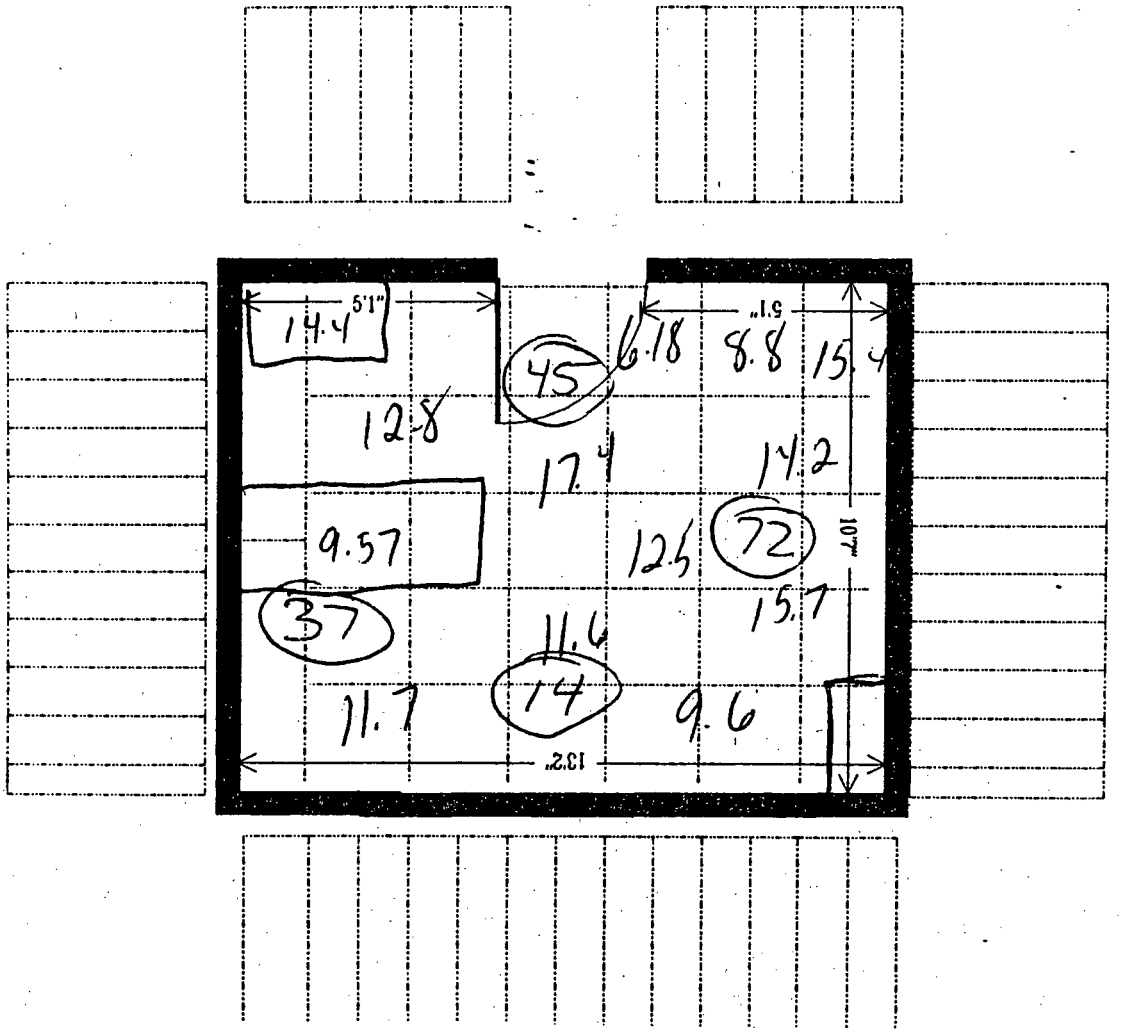
(**) Gross Beta Counts in 1 minute

Conducted by: SSG Koelker on 06 Jul 93
All Measurements in uR/hr
Reviewed by: Donald K Green on 10 Aug 93

Attachment 4

Key W[illegible]t Decommissioning Survey

Fixed Beta Contamination Survey-Office 13
Scale 1 inch = 4 feet



mR/hr

(**) Gross Beta Counts in 1 minute

Conducted by: SPC Brinley on 26 Jul 93
All Measurements are Gross One Minute Counts

Reviewed by: Donald K Green on 10 Aug 93

Attachment 5

KEY WEST DECOMMISSIONING SURVEY

Office - 14

REMOVABLE CONTAMINATION

Office Number 14 was surveyed for removable contamination on 29 Jun 93 by SSG Webster. A total of 44 swipes were taken. See Attachment 1 for the location of each swipe.

The swipes were analyzed for gamma contamination, utilizing the LKB Gammawell Counter on 29 Jun 93. See Attachment 2 for the MDAs and associated efficiencies. No gamma contamination was found above 200 dpm for I-125 or above 2000 dpm for any other isotope.

The swipes were analyzed for beta contamination, utilizing the Beckman Liquid Scintillation Counter Model 5000 on 29 Jun 93. See Attachment 3 for the MDAs and associated efficiencies. No beta contamination was found above 200 dpm for any isotope.

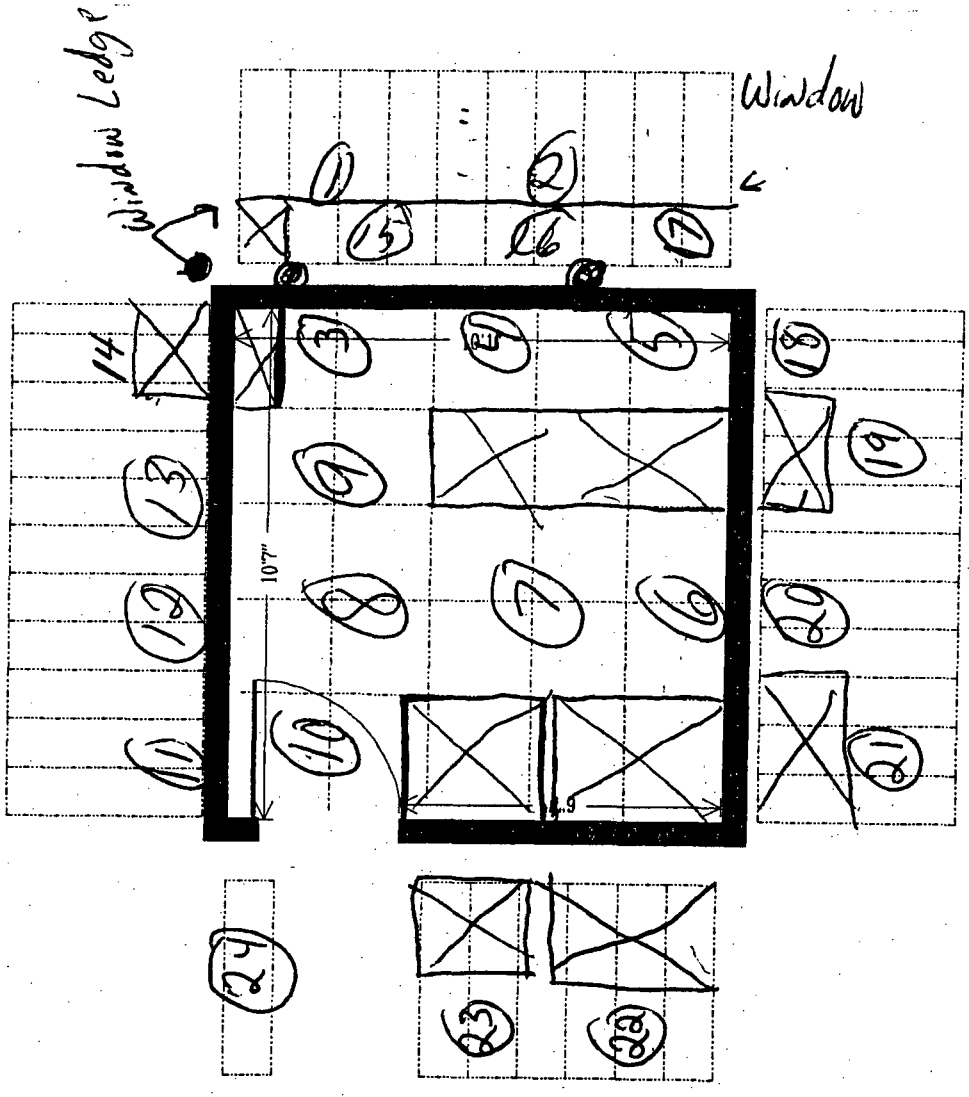
FIXED CONTAMINATION

A fixed gamma survey was conducted on 29 Jun 93 by SSG Webster. The highest exposure rate found was 12.0 uR/hr. The average exposure rate was approximately 8 uR/hr. See Attachment 4 for the location of readings taken.

A fixed beta survey was conducted on 26 Jul 93 by SPC Brinley. The highest number of counts found during a one minute count-time was 60 cpm. The average number of counts found during a one minute count-time was 30 cpm. See Attachment 5 for the location of readings taken.

As well as being reviewed at the time of the survey/receipt of laboratory results, all pertinent survey data was reviewed and compiled here by SFC Green on 8 Aug 93.

Removable Contamination Survey-Office 14
Scale 1 inch = 4 feet

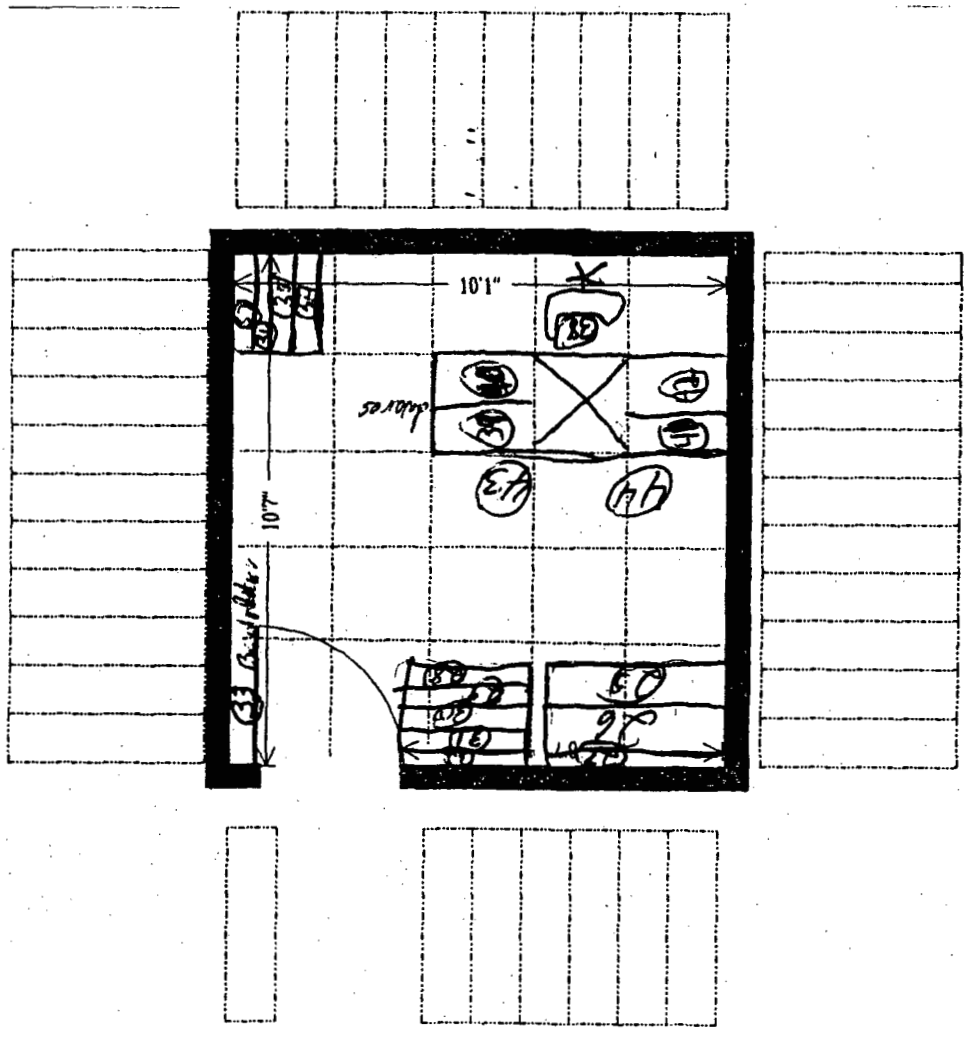


Conducted by: SSG Webster on 29 Jun 93
Lab analysis by (gamma): SSG Koelker on 29 Jun 93
(beta) : SSG Koelker on 29 Jun 93
Reviewed by: Donald Green on 10 Aug 93

Attachment 1

Key West Decommissioning Survey

Removable Contamination Survey-Office 14
Scale 1 inch = 4 feet



Conducted by: SSG Webster on 29 Jun 93
Lab analysis by (gamma): SSG Koelker on 29 Jun 93
(beta) : SSG.Koelker on 29 Jun 93

Reviewed by: Donald K Grein on 10 Aug 93

Attachment 1

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:06/29/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	47 CPM	31.2 DPM	0.722 / I-125
CHANNEL 2:	199 CPM	802.1 DPM	0.058 / CR-51
BECKMAN:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A

ATTACHMENT 2

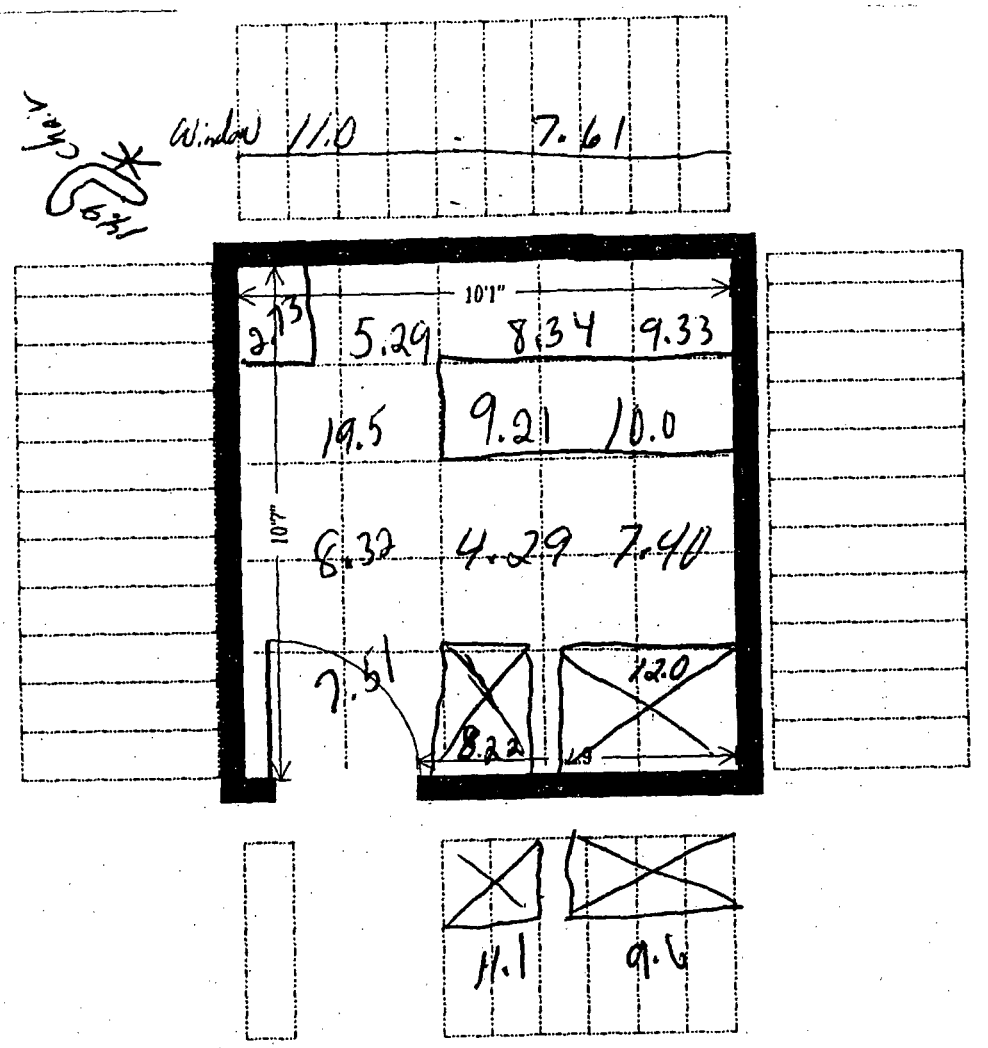
QUALITY ASSURANCE REPORT - BETA
FOR DATE:06/29/93

	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	32 CPM	29.4 DPM	0.633 / H-3
CHANNEL 2:	28 CPM	18.0 DPM	0.965 / C-14
CHANNEL 3:	26 CPM	N/A	N/A
BECKMAN LS6800:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A
CHANNEL 3:	N/A	N/A	N/A

ATTACHMENT 3

Key W[illegible]st Decommissioning Survey

Fixed Gamma Contamination Survey-Office 14
Scale 1 inch = 4 feet



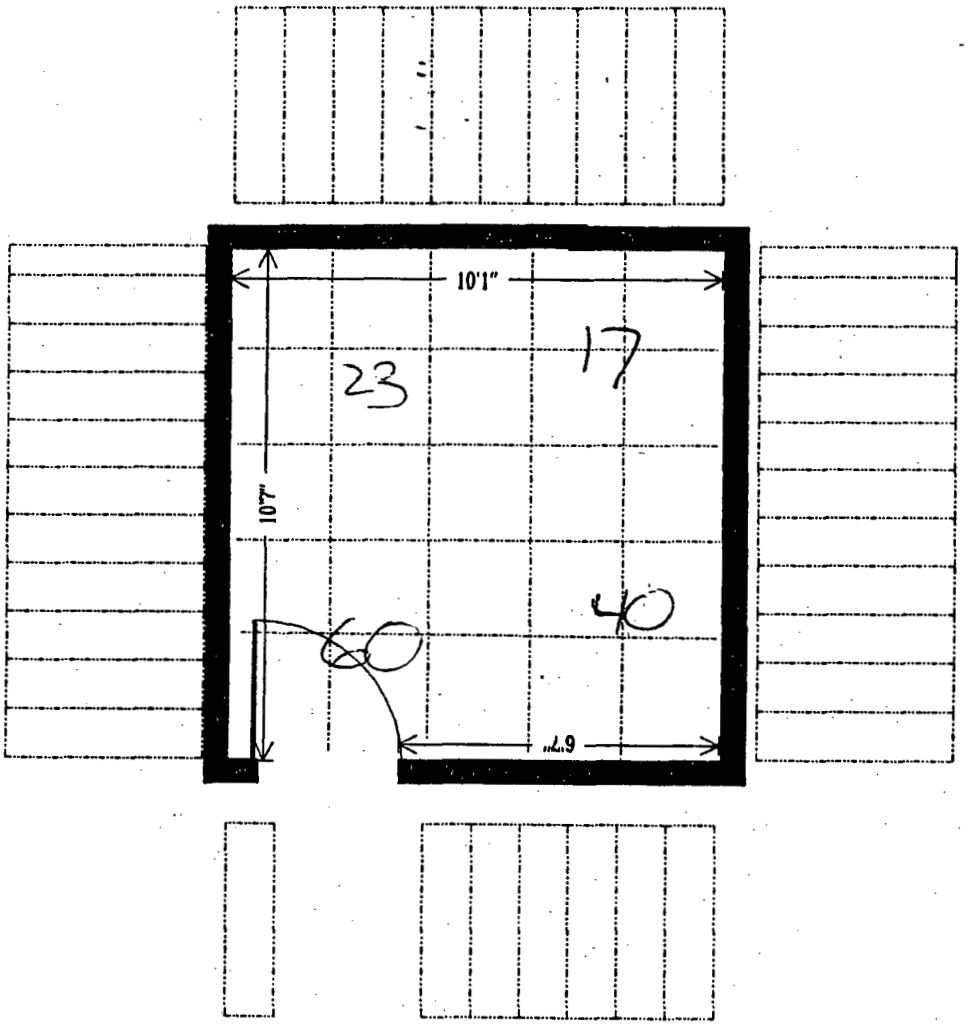
Conducted by: SSG Webster on 29 Jul 93
All Measurements in uR/hr

Reviewed by: Donald K Green on 10 Aug 93

Attachment 4

Key W st Decommissioning Survey

Fixed Beta Contamination Survey-Office 14
Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 26 Jul 93
All Measurements are Gross One Minute Counts
Reviewed by: Donald K Green on 10 Aug 93

Attachment 5

KEY WEST DECOMMISSIONING SURVEY

Office - 15

REMOVABLE CONTAMINATION

Office Number 15 was surveyed for removable contamination on 25 Jun 93 by SSG Webster. A total of 29 swipes were taken. See Attachment 1 for the location of each swipe.

The swipes were analyzed for gamma contamination, utilizing the LKB Gammawell Counter on 25 Jun 93. See Attachment 2 for the MDAs and associated efficiencies. No gamma contamination was found above 200 dpm for I-125 or above 2000 dpm for any other isotope.

The swipes were analyzed for beta contamination, utilizing the Beckman Liquid Scintillation Counter Model 5000 on 25 Jun 93. See Attachment 3 for the MDAs and associated efficiencies. No beta contamination was found above 200 dpm for any isotope.

FIXED CONTAMINATION

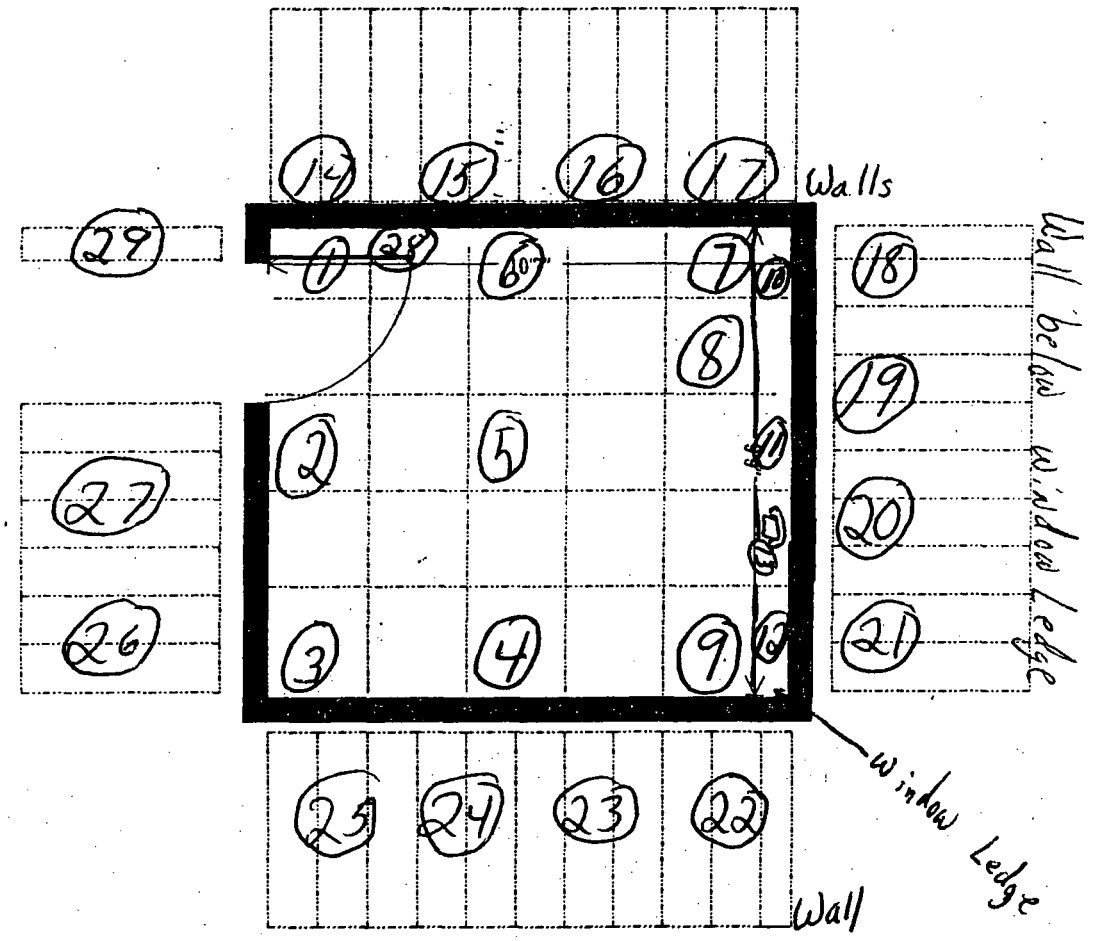
A fixed gamma survey was conducted on 25 Jun 93 by SSG Webster. The highest exposure rate found was 28.3 uR/hr. The average exposure rate was approximately 14 uR/hr. See Attachment 4 for the location of readings taken.

A fixed beta survey was conducted on 26 Jul 93 by SPC Brinley. The highest number of counts found during a one minute count-time was 63 cpm. The average number of counts found during a one minute count-time was 32 cpm. See Attachment 5 for the location of readings taken.

As well as being reviewed at the time of the survey/receipt of laboratory results, all pertinent survey data was reviewed and compiled here by SFC Green on 8 Aug 93.

Key West Decommissioning Survey

Removable Contamination Survey-Office 15
Scale 1 inch = 4 feet



Conducted by: SSG Webster on 25 Jun 93
Lab analysis by (gamma): SSG Koelker on 25 Jun 93
(beta) : SSG Koelker on 25 Jun 93

Reviewed by: Donald K Green on 10 Aug 93

Attachment 1

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:06/25/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	45 CPM	30.1 DPM	0.733 / I-125
CHANNEL 2:	194 CPM	669.3 DPM	0.068 / CR-51
BECKMAN:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A

ATTACHMENT 2

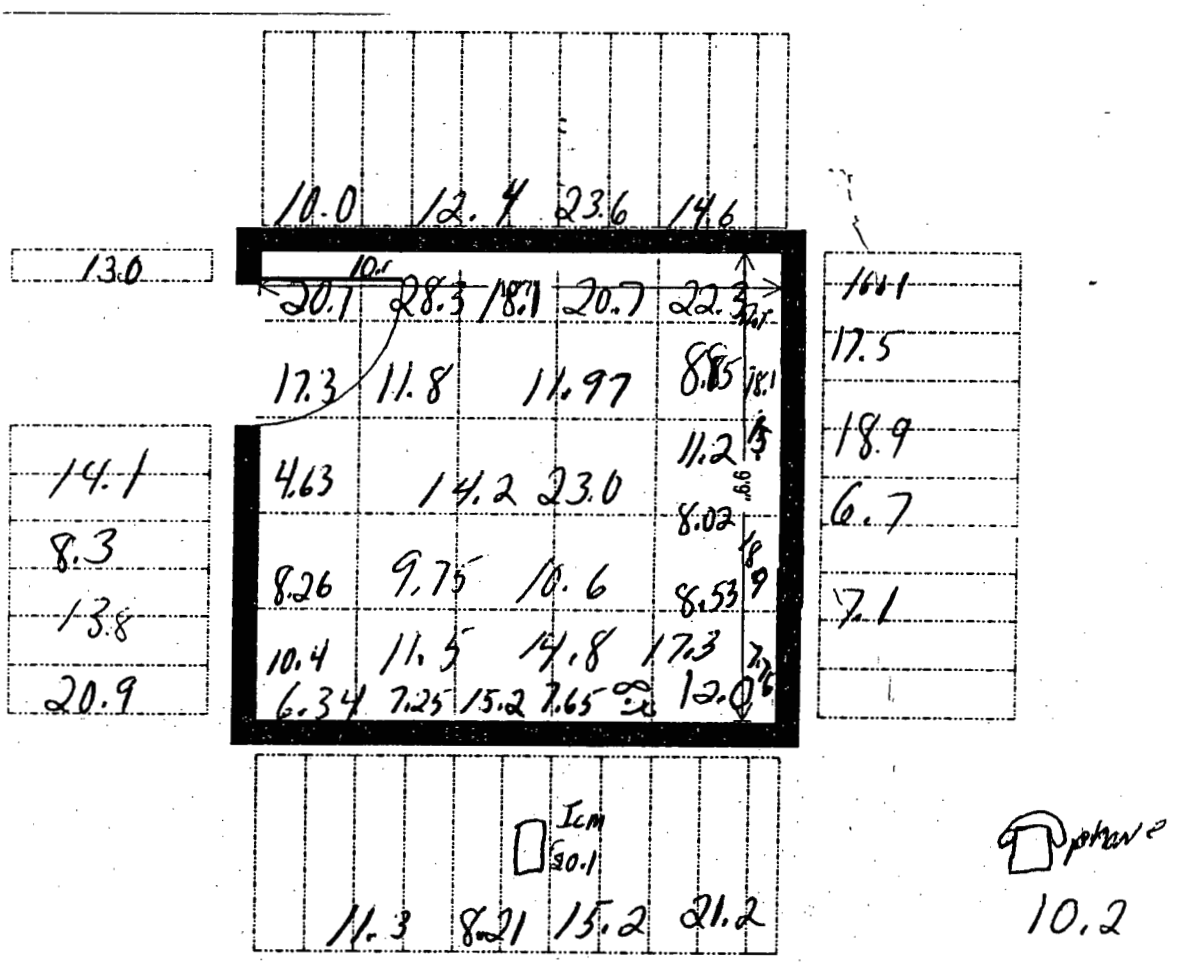
QUALITY ASSURANCE REPORT - BETA
FOR DATE:06/25/93

	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	21.0 CPM	23.8 DPM	0.627 / H-3
CHANNEL 2:	27.0 CPM	17.7 DPM	0.964 / C-14
CHANNEL 3:	36.0 CPM	N/A	N/A
BECKMAN LS6800:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A
CHANNEL 3:	N/A	N/A	N/A

ATTACHMENT 3

Key West Decommissioning Survey

Fixed Gamma Contamination Survey-Office 15
Scale 1 inch = 4 feet



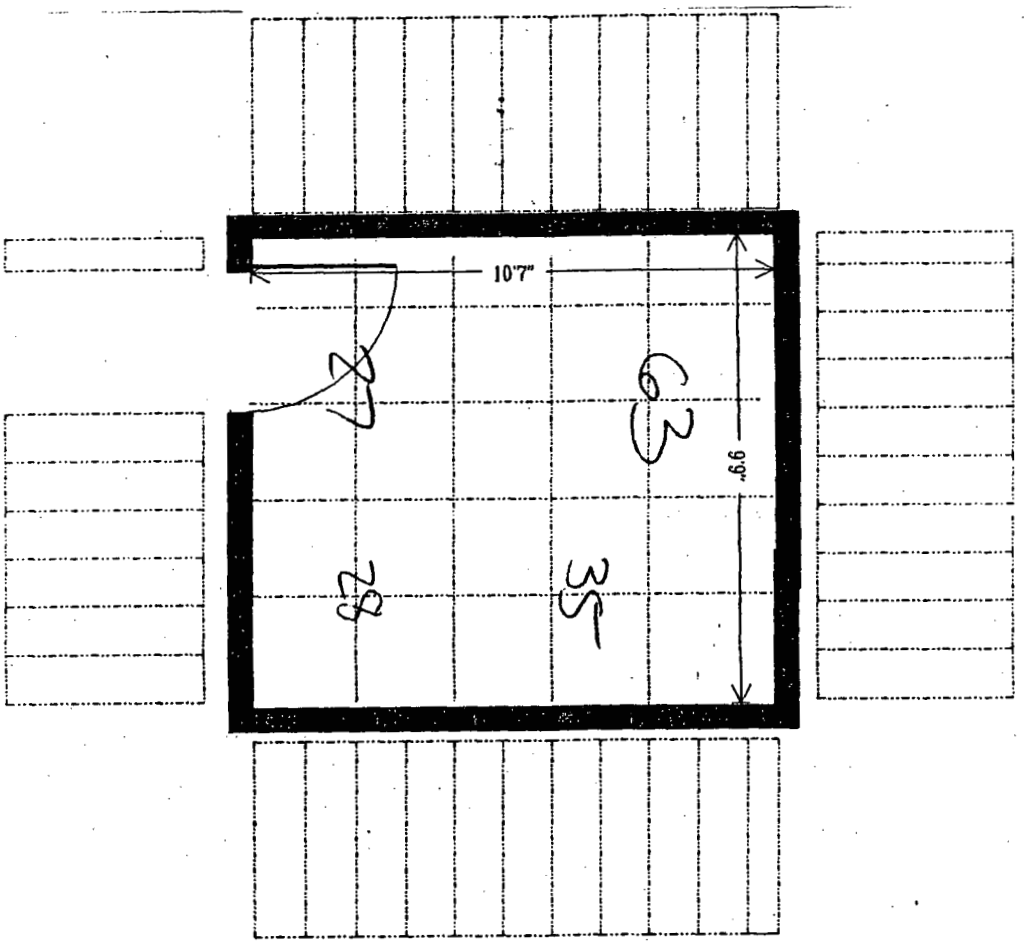
Conducted by: SSG Webster on 25 Jul 93
All Measurements in uR/hr

Reviewed by: Donald L Gunn on 10 Aug 93

Attachment 4

Key West Decommissioning Survey

Fixed Beta Contamination Survey-Office 15
Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 26 Jul 93
All Measurements are Gross One Minute Counts
Reviewed by Donald K Green on 10 Aug 93

Attachment 5

KEY WEST DECOMMISSIONING SURVEY

Office - 16

REMOVABLE CONTAMINATION

Office Number 16 was surveyed for removable contamination on 2 Jul 93 by SSG Webster. A total of 25 swipes were taken. See Attachment 1 for the location of each swipe.

The swipes were analyzed for gamma contamination, utilizing the LKB Gammawell Counter on 6 Jul 93. See Attachment 2 for the MDAs and associated efficiencies. No gamma contamination was found above 200 dpm for I-125 or above 2000 dpm for any other isotope.

The swipes were analyzed for beta contamination, utilizing the Beckman Liquid Scintillation Counter Model 6800 on 6 Jul 93. See Attachment 3 for the MDAs and associated efficiencies. No beta contamination was found above 200 dpm for any isotope.

FIXED CONTAMINATION

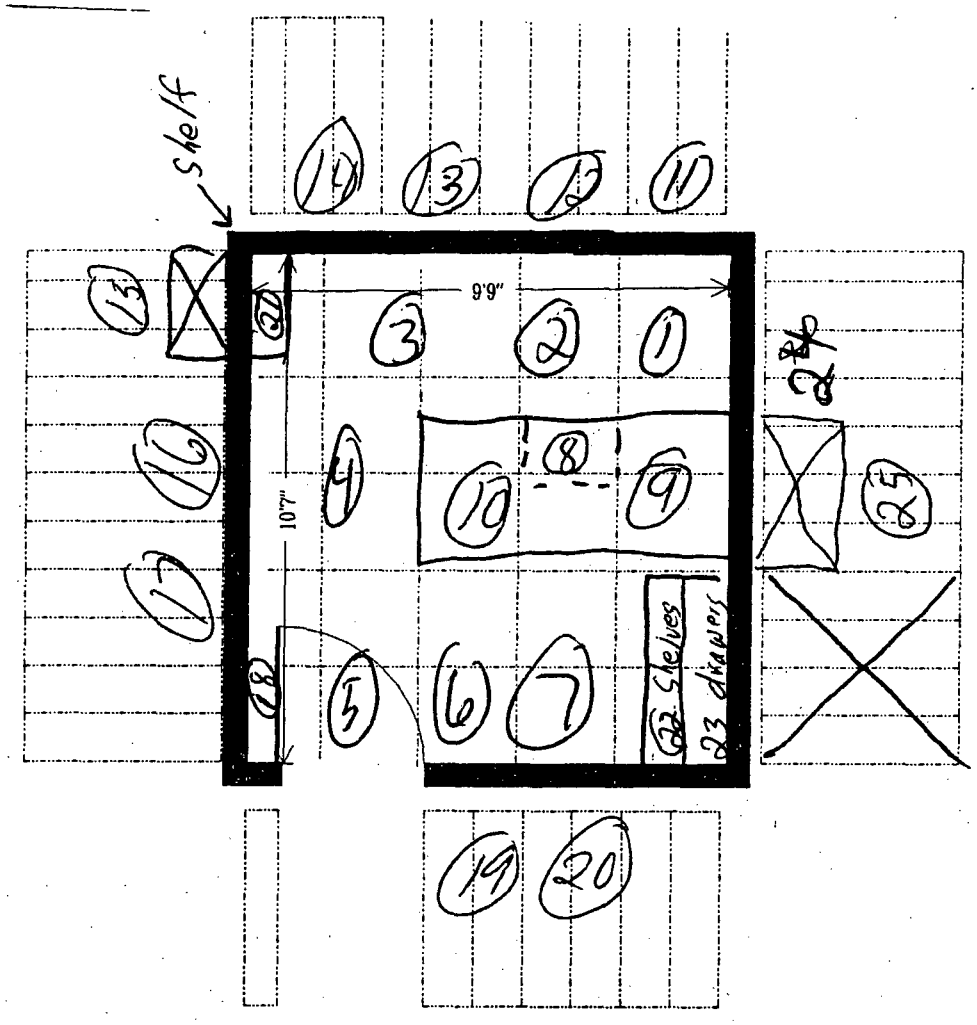
A fixed gamma survey was conducted on 2 Jul 93 by SSG Webster. The highest exposure rate found was 16.3 uR/hr. The average exposure rate was approximately 8 uR/hr. See Attachment 4 for the location of readings taken.

A fixed beta survey was conducted on 26 Jul 93 by SPC Brinley. The highest number of counts found during a one minute count-time was 36 cpm. The average number of counts found during a one minute count-time was 34 cpm. See Attachment 5 for the location of readings taken.

As well as being reviewed at the time of the survey/receipt of laboratory results, all pertinent survey data was reviewed and compiled here by SFC Green on 8 Aug 93.

Key West Decommissioning Survey

Removable Contamination Survey-Office 16
Scale 1 inch = 4 feet



Conducted by: SSG Webster on 02 Jul 93
Lab analysis by (gamma): SSG Koelker on 06 Jul 93
(beta) : SSG Koelker on 06 Jun 93
Reviewed by: Donald K Green on 10 Aug 93

Attachment 1

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:07/06/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	53 CPM	32.2 DPM	0.742 / I-125
CHANNEL 2:	198 CPM	709.2 DPM	0.065 / CR-51
BECKMAN:			
CHANNEL 1:	52 CPM	22.1 DPM	1.075 / I-125
CHANNEL 2:	198 CPM	452.3 DPM	0.102 / CR-51

ATTACHMENT 2

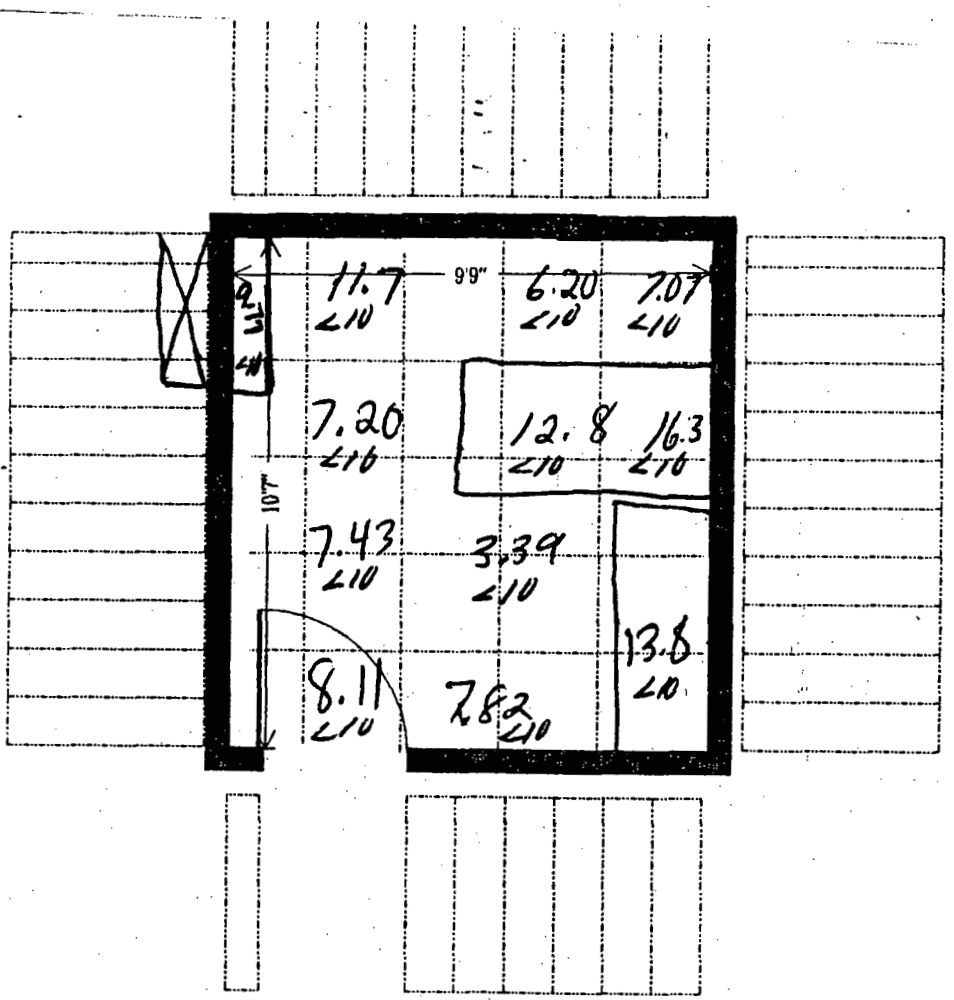
QUALITY ASSURANCE REPORT - BETA
FOR DATE:07/06/93

	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A
CHANNEL 3:	N/A	N/A	N/A
BECKMAN LS6800:			
CHANNEL 1:	39 CPM	36.4 DPM	0.561 / H-3
CHANNEL 2:	26 CPM	17.6 DPM	0.950 / C-14
CHANNEL 3:	24 CPM	16.1 DPM	1.002 / P-32

ATTACHMENT 3

Key W[illegible]t Decommissioning Survey

Fixed Gamma Contamination Survey-Office 16
Scale 1 inch = 4 feet



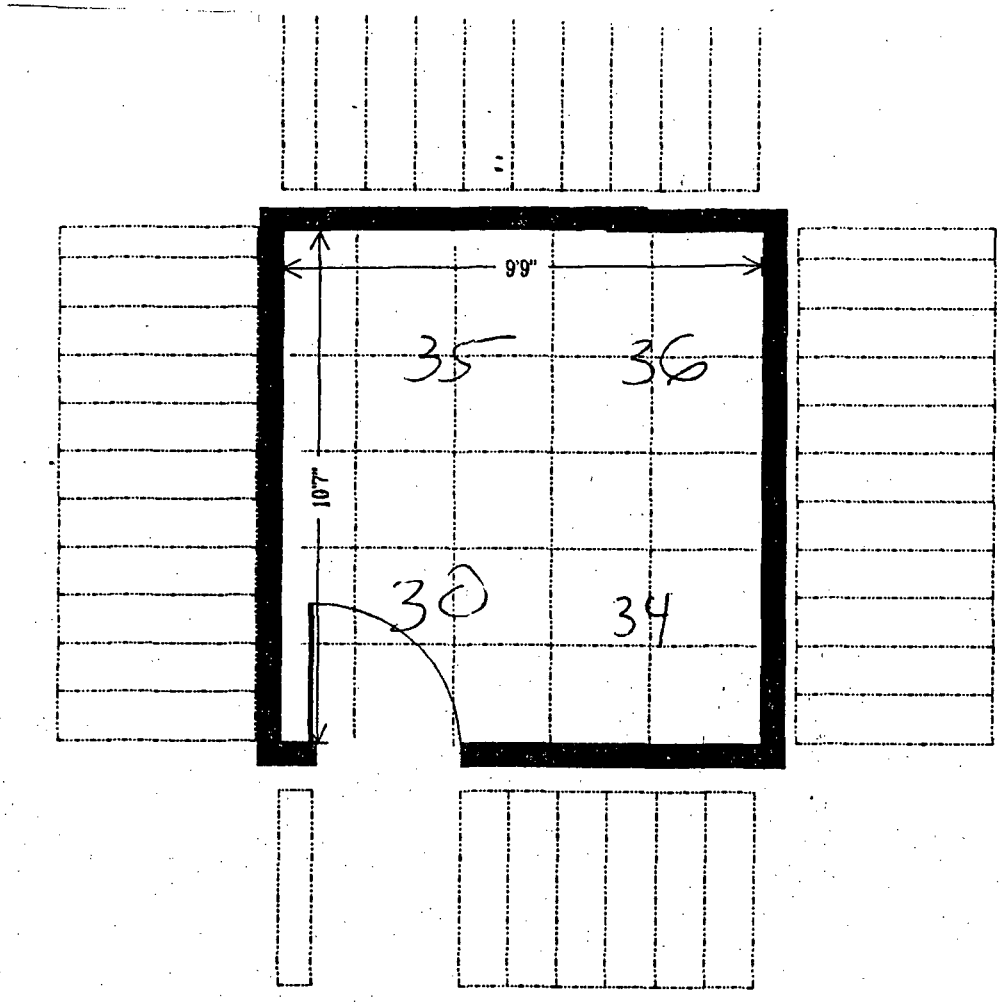
Conducted by: SSG Webster on 02 Jul 93
All Measurements in uR/hr

Reviewed by: Donald K Green on 10 Aug 93

Attachment 4

Key W[illegible]t Decommissioning Survey

Fixed Beta Contamination Survey-Office 16
Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 26 Jul 93
All Measurements are Gross One Minute Counts
Reviewed by: Donald K Glen on 10 Aug 93

Attachment 5

KEY WEST DECOMMISSIONING SURVEY

Conference Room

REMOVABLE CONTAMINATION

The Conference Room was surveyed for removable contamination on 19 Jul by SPC Brinley. A total of 63 swipes were taken. See Attachment 1 for the location of each swipe.

The swipes were analyzed for gamma contamination, utilizing the LKB Gammawell Counter on 19 Jul 93. See Attachment 2 for the MDAs and associated efficiencies. No gamma contamination was found above 200 dpm for I-125 or above 2000 dpm for any other isotope.

The swipes were analyzed for beta contamination, utilizing the Beckman Liquid Scintillation Counter Model 5000 on 19 Jul 93. See Attachment 3 for the MDAs and associated efficiencies. No beta contamination was found above 200 dpm for any isotope.

FIXED CONTAMINATION

Fixed gamma surveys were conducted on 19 Jul by SSG Webster. The highest exposure rate found was 27.6 uR/hr. See Attachment 4 for the location of readings taken.

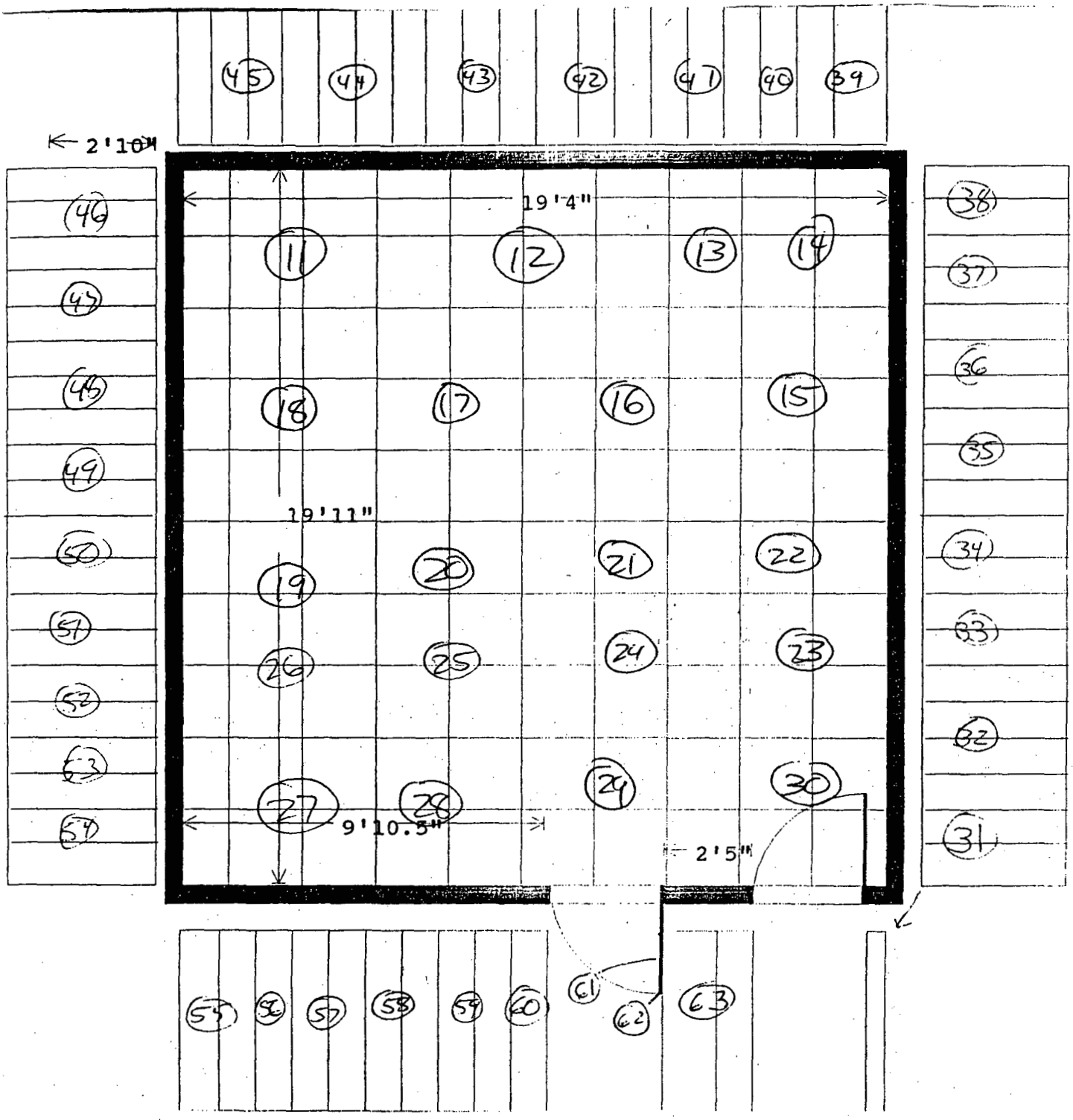
A fixed beta survey was conducted on 26 Jul 93 by SPC Brinley. The highest number of counts found during a one minute count-time was 70 cpm. The average number of counts found during a one minute count-time was approximately 50 cpm. See Attachment 5 for the location of readings taken.

As well as being reviewed at the time of the survey/receipt of laboratory results, all pertinent survey data was reviewed and compiled here by SFC Green on 9 Aug 93.

Key West Decommissioning Survey

Removable Contamination Survey-Conference Room

Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 19 Jul 93

Lab analysis by (gamma): SSG Koelker on 19 Jul 93

(beta) : SSG Koelker on 19 Jul 93

Reviewed by: Donald K Thom on 10 Aug 93

Attachment 1

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:07/19/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	46 CPM	32.8 DPM	0.680 / I-125
CHANNEL 2:	194 CPM	724.5 DPM	0.063 / CR-51
BECKMAN:			
CHANNEL 1:	50 CPM	23.3 DPM	0.999 / I-125
CHANNEL 2:	198 CPM	393.6 DPM	0.118 / CR-51

ATTACHMENT 2

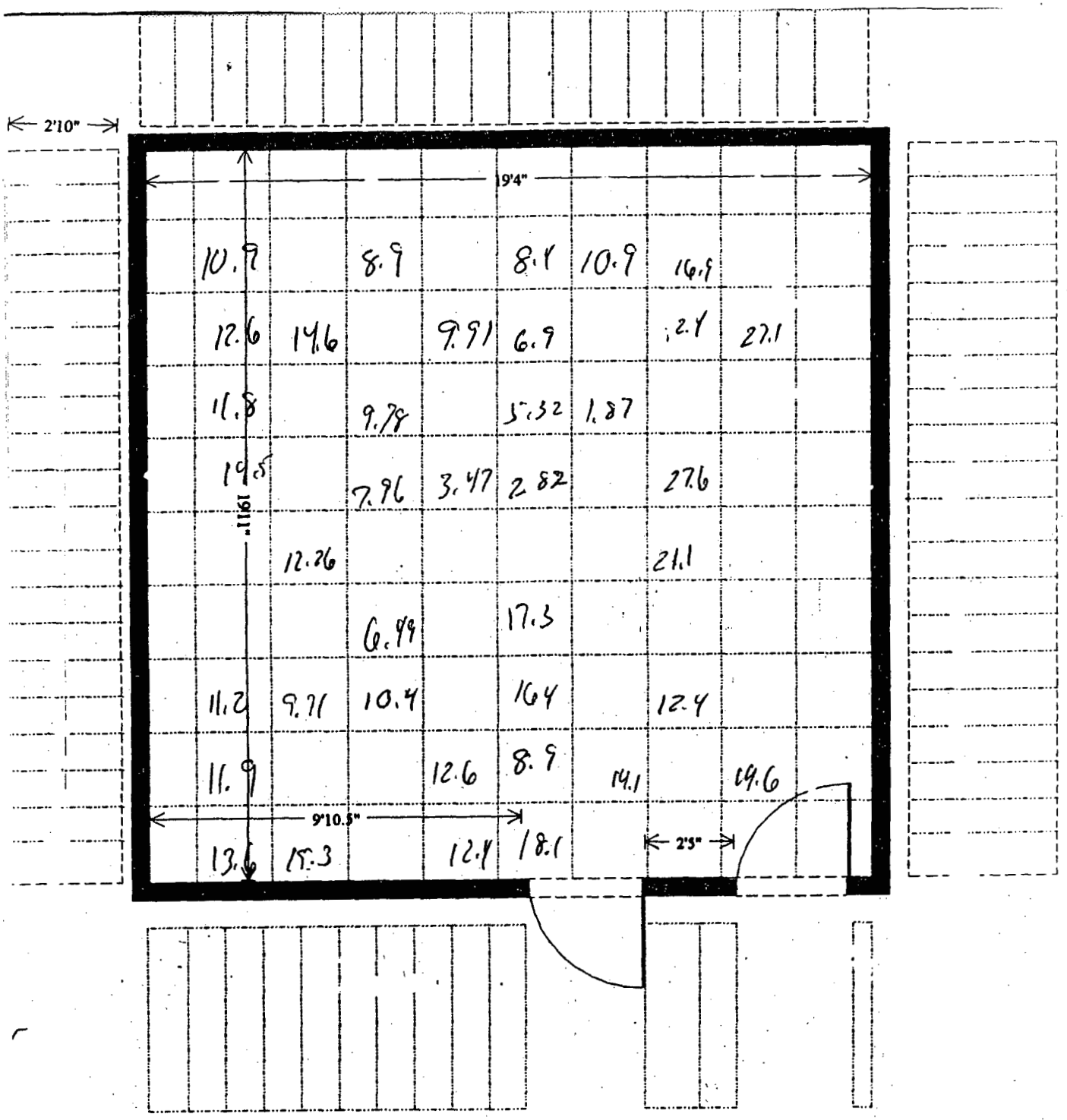
QUALITY ASSURANCE REPORT - BETA
FOR DATE:07/19/93

	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	31 CPM	28.8 DPM	0.636 / H-3
CHANNEL 2:	28 CPM	18.1 DPM	0.962 / C-14
CHANNEL 3:	25 CPM	16.5 DPM	1.004 / P-32
BECKMAN LS6800:			
CHANNEL 1:	33 CPM	32.4 DPM	0.583 / H-3
CHANNEL 2:	25 CPM	17.2 DPM	0.954 / C-14
CHANNEL 3:	21 CPM	14.9 DPM	1.011 / P-32

ATTACHMENT 3

Key West Decommissioning Survey

Fixed Gamma Contamination Survey-Conference Room
Scale 1 inch = 4 feet



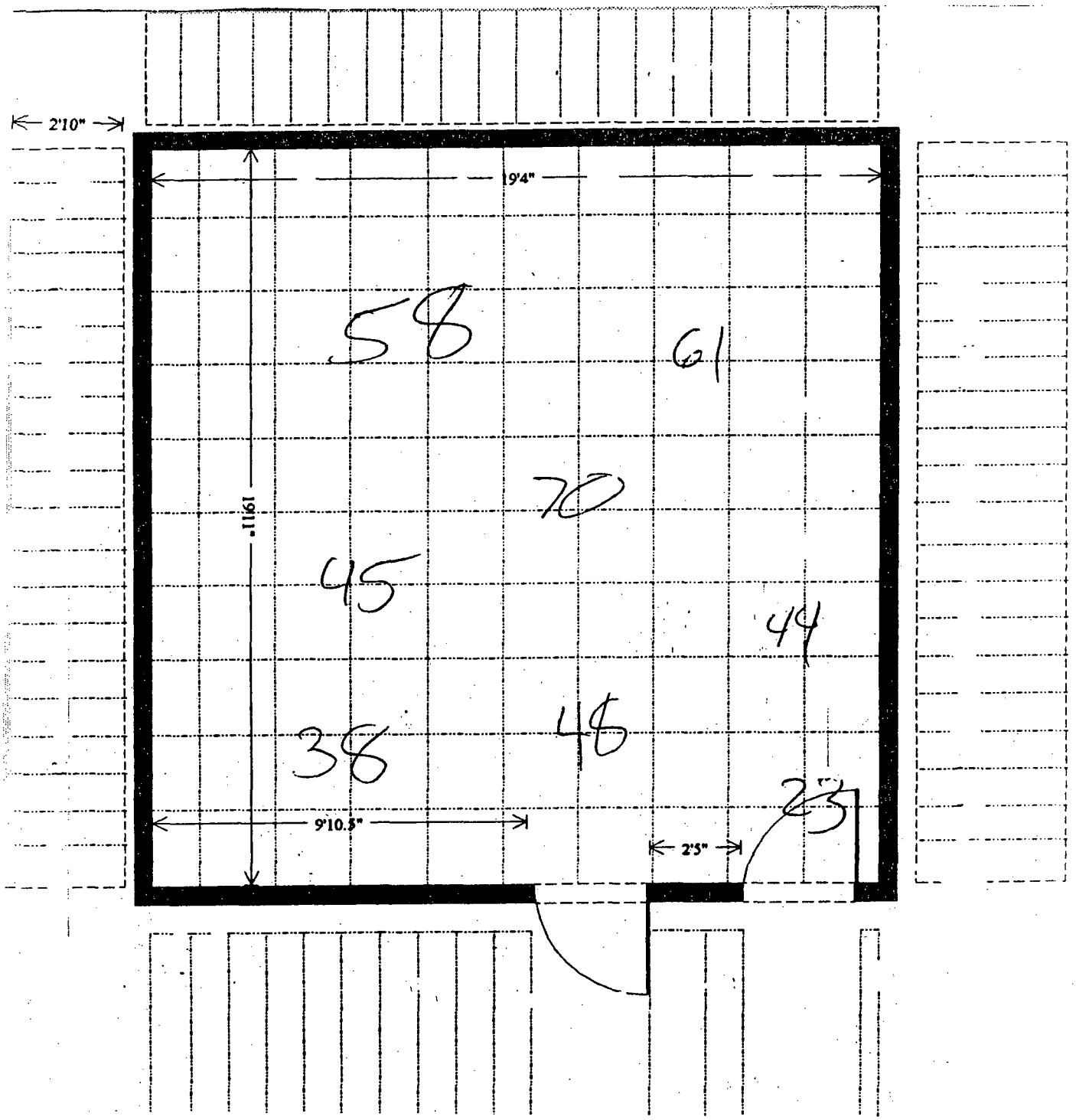
Conducted by: SSG Webster on 19 Jul 93
All Measurements are in uR/hr

Reviewed by: Donald K Green on 10 Aug 93

Attachment 4

Key W[illegible]t Decommissioning Survey

Fixed Beta Contamination Survey-Conference Room
Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 26 Jul 93
All Measurements are Gross Counts in One Minute

Reviewed by: Donald K Green on 10 Aug 93

Attachment 5

KEY WEST DECOMMISSIONING SURVEY

Reception Area

REMOVABLE CONTAMINATION

The Reception Area was surveyed for removable contamination on 17 Jul by SPC Brinley. A total of 56 swipes were taken. See Attachment 1 for the location of each swipe.

The swipes were analyzed for gamma contamination, utilizing the LKB Gammawell Counter on 17 Jul 93. See Attachment 2 for the MDAs and associated efficiencies. No gamma contamination was found above 200 dpm for I-125 or above 2000 dpm for any other isotope.

The swipes were analyzed for beta contamination, utilizing the Beckman Liquid Scintillation Counter Model 6800 on 17 Jul 93. See Attachment 3 for the MDAs and associated efficiencies. No beta contamination was found above 200 dpm for any isotope.

FIXED CONTAMINATION

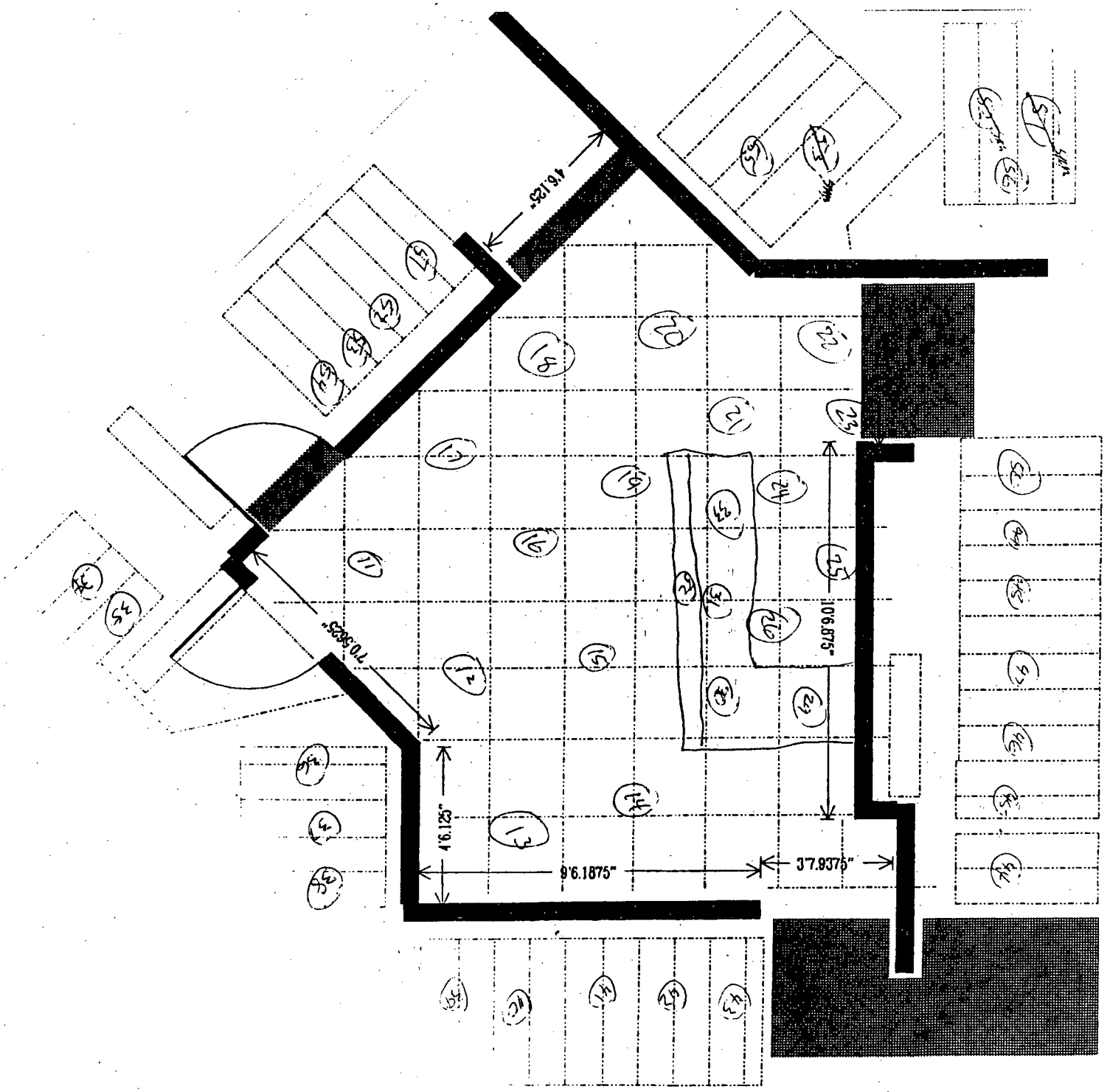
Fixed gamma surveys were conducted on 17 Jul by SSG Webster. The highest exposure rate found was 23.0 uR/hr. See Attachment 4 for the location of readings taken.

A fixed beta survey was conducted on 26 Jul 93 by SPC Brinley. The highest number of counts found during a one minute count-time was 52 cpm. The average number of counts found during a one minute count-time was approximately 40 cpm. See Attachment 5 for the location of readings taken.

As well as being reviewed at the time of the survey/receipt of laboratory results, all pertinent survey data was reviewed and compiled here by SFC Green on 9 Aug 93.

Key West Decommissioning Survey

Removable Contamination Survey-Reception Area
Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 17 Jul 93
Lab analysis by (gamma): SSG Koelker on 17 Jul 93
(beta) : SSG Koelker on 17 Jul 93

Reviewed by: Donald K Green on 10 Aug 93

Attachment 1

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:07/17/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	46 CPM	32.8 DPM	0.680 / I-125
CHANNEL 2:	194 CPM	724.5 DPM	0.063 / CR-51
BECKMAN:			
CHANNEL 1:	50 CPM	23.3 DPM	0.999 / I-125
CHANNEL 2:	198 CPM	393.6 DPM	0.118 / CR-51

ATTACHMENT 2

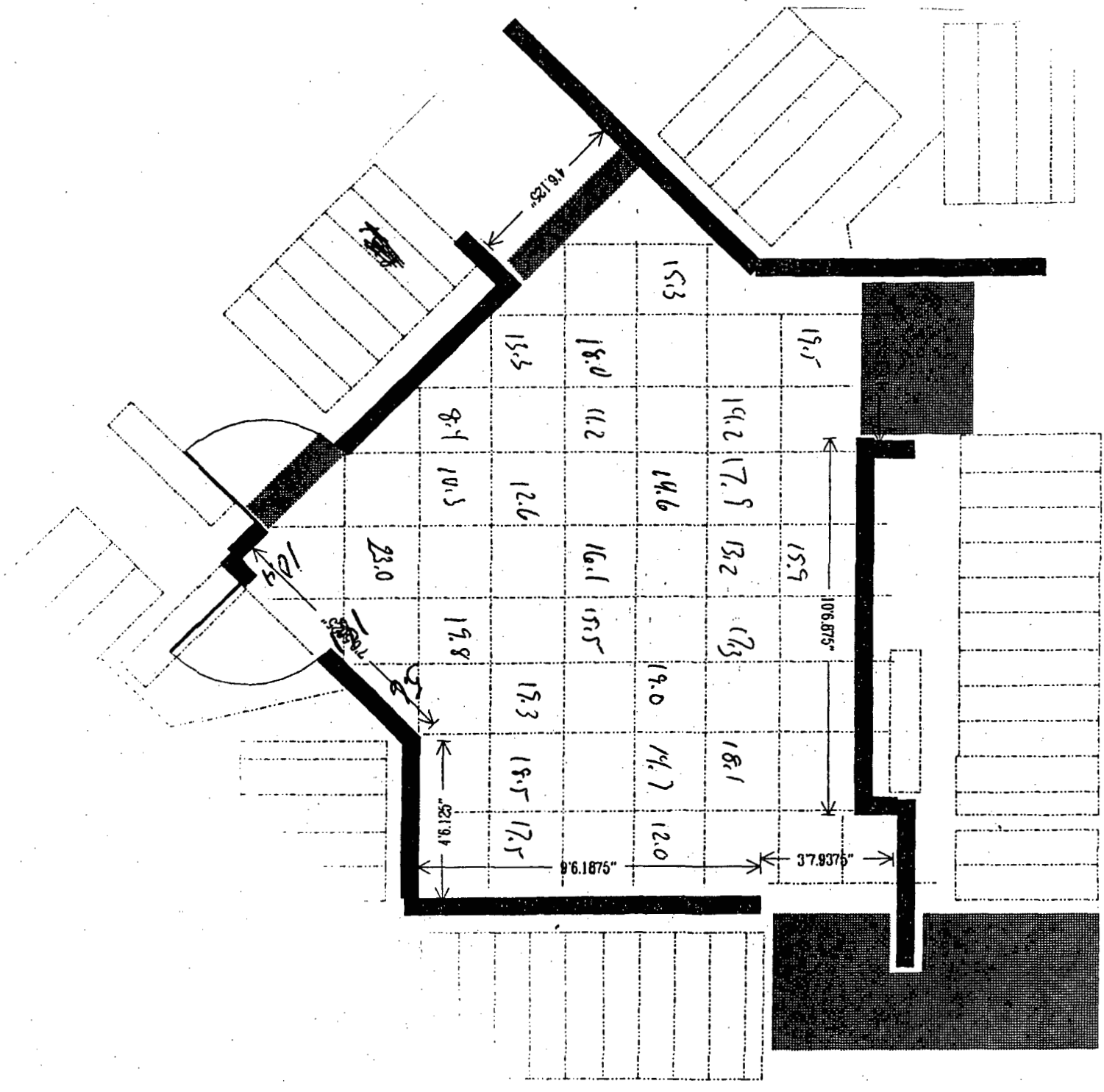
QUALITY ASSURANCE REPORT - BETA
FOR DATE:07/17/93

	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	31 CPM	28.8 DPM	0.636 / H-3
CHANNEL 2:	28 CPM	18.1 DPM	0.962 / C-14
CHANNEL 3:	25 CPM	16.5 DPM	1.004 / P-32
BECKMAN LS6800:			
CHANNEL 1:	33 CPM	32.4 DPM	0.583 / H-3
CHANNEL 2:	25 CPM	17.2 DPM	0.954 / C-14
CHANNEL 3:	21 CPM	14.9 DPM	1.011 / P-32

ATTACHMENT 3

Key W t Decommissioning Survey

Fixed Gamma Contamination Survey-Reception Area
Scale 1 inch = 4 feet



Conducted by: SSG Webster on 17 Jul 93
All Measurements are in uR/hr

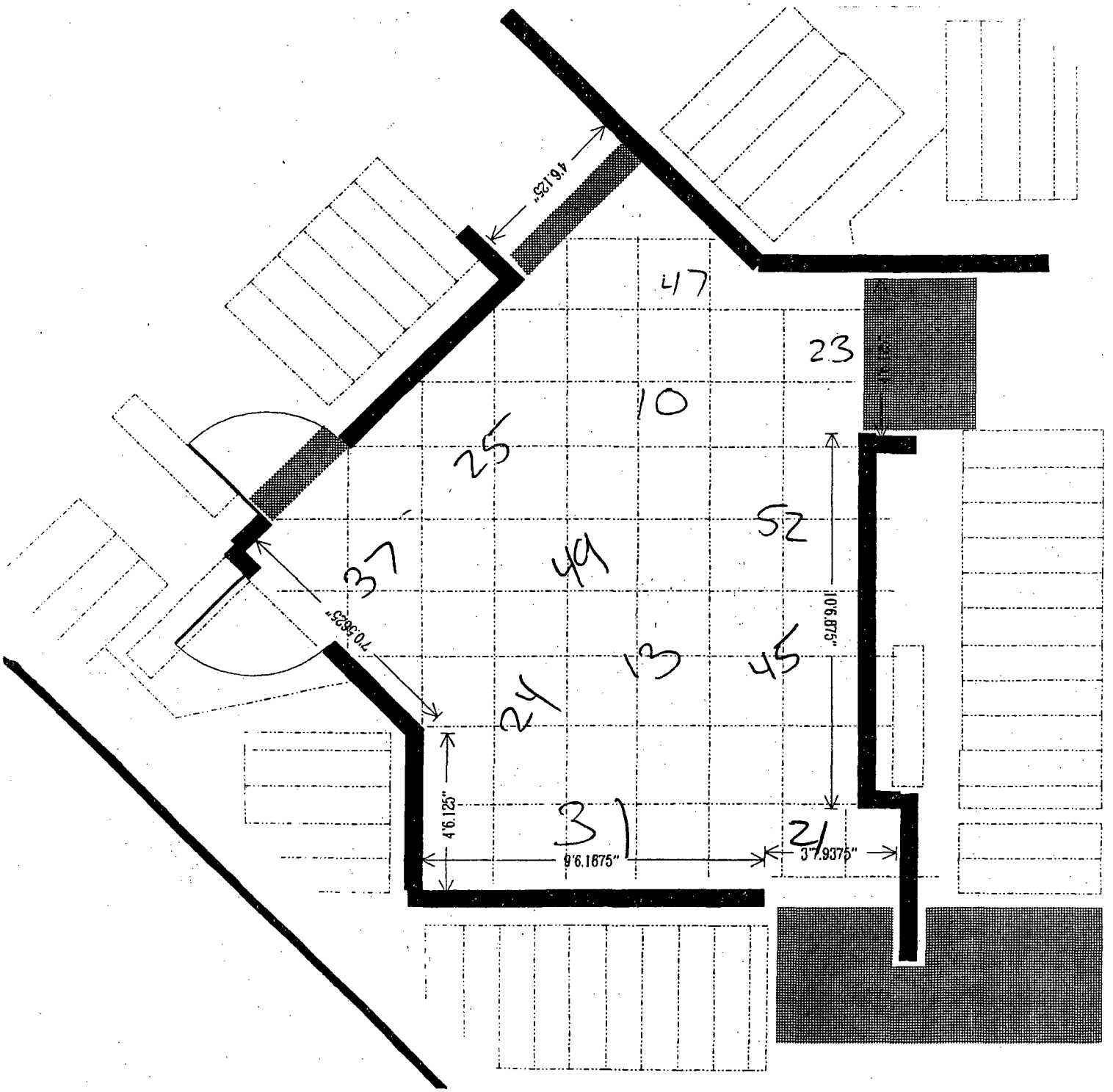
Reviewed by: Donald K Green on 10 Aug 93

Attachment 4

Key W[illegible]t Decommissioning Survey

Fixed Beta Contamination Survey-Reception Area

Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 26 Jul 93

All Measurements are Gross Counts in One Minute

Reviewed by: Donald K Green on 10 Aug 93

Attachment 5

KEY WEST DECOMMISSIONING SURVEY

ROOM VENTS

REMOVABLE CONTAMINATION

On 19 JUL 93 the following room vents were surveyed by SFC Green. Rooms 31, 33, 35, 36, female and male latrines, and female and male changing rooms had 1 vent per room. Room 34 had 2 vents. 1 sample per vent was taken for a total of 10 samples.

The samples were analyzed for gamma contamination utilizing the LKB Gammawell Counter on 20 JUL 93. See Attachment 1 for the MDAs and associated efficiencies. No gamma contamination was found above 200 dpm for I-125 or above 2000 dpm for any other isotope.

The samples were analyzed for beta contamination, utilizing the Beckman Liquid Scintillation Counter Model 6800 on 20 JUL 93. See Attachment 2 for the MDAs and associated efficiencies. No beta contamination was found above 200 dpm for any isotope.

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:07/20/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	46 CPM	32.8 DPM	0.680 / I-125
CHANNEL 2:	194 CPM	724.5 DPM	0.063 / CR-51
BECKMAN:			
CHANNEL 1:	50 CPM	23.3 DPM	0.999 / I-125
CHANNEL 2:	198 CPM	393.6 DPM	0.118 / CR-51

ATTACHMENT 1

QUALITY ASSURANCE REPORT - BETA
FOR DATE:07/20/93

	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	31 CPM	28.8 DPM	0.636 / H-3
CHANNEL 2:	28 CPM	18.1 DPM	0.962 / C-14
CHANNEL 3:	25 CPM	16.5 DPM	1.004 / P-32
BECKMAN LS6800:			
CHANNEL 1:	33 CPM	32.4 DPM	0.583 / H-3
CHANNEL 2:	25 CPM	17.2 DPM	0.954 / C-14
CHANNEL 3:	21 CPM	14.9 DPM	1.011 / P-32

ATTACHMENT 2

KEY WEST DECOMMISSIONING SURVEY

ROOM VENTS

REMOVABLE CONTAMINATION

On 09 JUL 93 air vents in the following rooms were surveyed for removable contamination by SFC Green. Rooms 1, 2, 3, 4, 5, 6, 7, 9, 10, 11, 12, 13, 14, 15, 16, 18, 20, 21, 22, 24, 28, 29, 30, 44, and 46 had 1 vent each and 1 sample per vent. Rooms 8, and 23 had 2 vents per room and 1 sample per vent were taken. The total number of samples is 29.

The samples were analyzed for gamma contamination, utilizing the LKB Gammawell Counter on 09 JUL 93. See Attachment 1 for the MDAs and associated efficiencies. No gamma contamination was found above 200 dpm for I-125 or above 2000 dpm for any other isotope.

The samples were analyzed for beta contamination, utilizing the Beckman Liquid Scintillation Counter Model 6800 on 09 JUL 93. See Attachment 2 for MDAs and associated efficiencies. No beta contamination was found above 200 dpm for any isotope.

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:07/09/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	55 CPM	36.9 DPM	0.660 / I-125
CHANNEL 2:	204 CPM	652.1 DPM	0.072 / CR-51
BECKMAN:			
CHANNEL 1:	50 CPM	23.7 DPM	0.982 / I-125
CHANNEL 2:	202 CPM	380.0 DPM	0.123 / CR-51

ATTACHMENT 1

QUALITY ASSURANCE REPORT - BETA
FOR DATE:07/09/93

	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	31 CPM	28.8 DPM	0.636 / H-3
CHANNEL 2:	28 CPM	18.1 DPM	0.962 / C-14
CHANNEL 3:	25 CPM	16.5 DPM	1.004 / P-32
BECKMAN LS6800:			
CHANNEL 1:	33 CPM	32.4 DPM	0.583 / H-3
CHANNEL 2:	25 CPM	17.2 DPM	0.954 / C-14
CHANNEL 3:	21 CPM	14.9 DPM	1.011 / P-32

ATTACHMENT 2

KEY WEST DECOMMISIIONING SURVEY

SINK AND SHOWER DRAINS

REMOVABLE CONTAMINATION

On 09 JUL 93 the following rooms with sinks were surveyed for removable contaimination from the sink drains by SSG Koelker. Rooms 9, 18, 19, 21, 23, and 24 for 1 sink per room. The female and male latrines for 2 sinks per room. The female and male changing rooms for 1 sink and 1 shower drain per room. There are 12 sink trap samples and 2 shower drain samples for a total of 14 samples taken this day.

The samples were analyzed for gamma contamination utilizing the LKB Gammawell Counter on 09 JUL 93. See attachment 1 for the MDAs and associated efficiencies. No gamma contamination was found above 200 dpm for I-125 or above 2000 dpm for any other isotope.

The samples were analyzed for beta contamination, utilizing the Beckman Liquid Scintillation Counter Model 6800 on 09 JUL 93. See attachment 2 for the MDAs and associated efficiencies. No beta contamination was found above 200 dpm for any isotope.

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:07/09/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	**55 CPM**	**36.9 DPM**	**0.660 / I-125**
CHANNEL 2:	**204 CPM**	**652.1 DPM**	**0.072 / CR-51**
BECKMAN:			
CHANNEL 1:	**50 CPM**	**23.7 DPM**	**0.982 / I-125**
CHANNEL 2:	**202 CPM**	**380.0 DPM**	**0.123 / CR-51**

ATTACHMENT 1

QUALITY ASSURANCE REPORT - BETA
FOR DATE:07/09/93

	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	31 CPM	28.8 DPM	0.636 / H-3
CHANNEL 2:	28 CPM	18.1 DPM	0.962 / C-14
CHANNEL 3:	25 CPM	16.5 DPM	1.004 / P-32
BECKMAN LS6800:			
CHANNEL 1:	33 CPM	32.4 DPM	0.583 / H-3
CHANNEL 2:	25 CPM	17.2 DPM	0.954 / C-14
CHANNEL 3:	21 CPM	14.9 DPM	1.011 / P-32

ATTACHMENT 2

KEY WEST DECOMMISSIONING SURVEY

SINK DRAINS

REMOVABLE CONTAMINATION

On 19 JUL 93 SFC Green sampled the sink traps in the following rooms for removable contamination. Rooms 31, 33, 34, and 36 had 1 sink per room and 1 sample per drain was taken for a total of 4 samples.

The samples were analyzed for gamma contamination, utilizing the LKB Gammawell Counter on 20 JUL 93. See Attachment 1 for the MDAs and associated efficiencies. No gamma contamination was found above 200 dpm for I-125 or above 2000 dpm for any other isotope.

The samples were analyzed for beta contamination, utilizing the Beckman Liquid Scintillation Counter Model 6800 on 20 JUL 93. See Attachment 2 for the MDAs and associated efficiencies. No beta contamination was found above 200 dpm for any isotope.

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:07/20/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	**46 CPM**	**32.8 DPM**	**0.680 / I-125**
CHANNEL 2:	**194 CPM**	**724.5 DPM**	**0.063 / CR-51**
BECKMAN:			
CHANNEL 1:	**50 CPM**	**23.3 DPM**	**0.999 / I-125**
CHANNEL 2:	**198 CPM**	**393.6 DPM**	**0.118 / CR-51**

ATTACHMENT 1

QUALITY ASSURANCE REPORT - BETA
FOR DATE:07/20/93

	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	31 CPM	28.8 DPM	0.636 / H-3
CHANNEL 2:	28 CPM	18.1 DPM	0.962 / C-14
CHANNEL 3:	25 CPM	16.5 DPM	1.004 / P-32
BECKMAN LS6800:			
CHANNEL 1:	33 CPM	32.4 DPM	0.583 / H-3
CHANNEL 2:	25 CPM	17.2 DPM	0.954 / C-14
CHANNEL 3:	21 CPM	14.9 DPM	1.011 / P-32

KEY WEST DECOMMISSIONING SURVEY

Sharps/Electrical Closets

REMOVABLE CONTAMINATION

The sharps and electrical closets were surveyed for removable contamination on 29 Jun 93 by SPC Brinley. A total of 49 swipes were taken. See Attachment 1 for the location of each swipe.

The swipes were analyzed for gamma contamination, utilizing the LKB Gammawell Counter on 29 Jun 93. See Attachment 2 for the MDAs and associated efficiencies. No gamma contamination was found above 200 dpm for I-125 or above 2000 dpm for any other isotope.

The swipes were analyzed for beta contamination, utilizing the Beckman Liquid Scintillation Counter Model 5000 on 29 Jun 93. See Attachment 3 for the MDAs and associated efficiencies. No beta contamination was found above 200 dpm for any isotope.

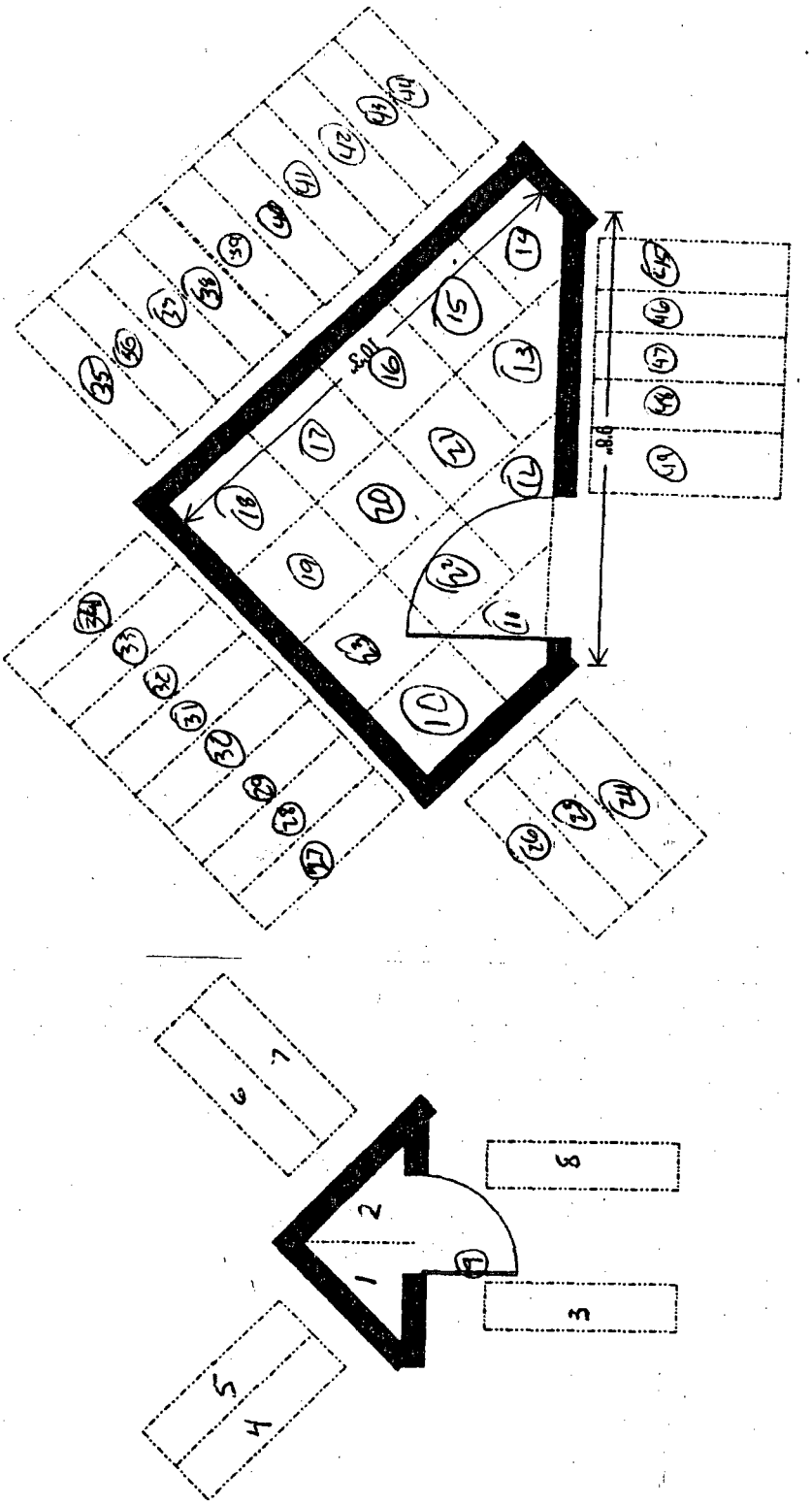
FIXED CONTAMINATION

Fixed gamma surveys were conducted on 29 Jun 93 by SPC Brinley. The highest exposure rate found was 18.9 uR/hr. See Attachment 4 for the location of readings taken.

A fixed beta survey was conducted on 26 Jul 93 by SPC Brinley. The highest number of counts found during a one minute count-time was 70 cpm. The average number of counts found during a one minute count-time was approximately 45 cpm. See Attachment 5 for the location of readings taken.

As well as being reviewed at the time of the survey/receipt of laboratory results, all pertinent survey data was reviewed and compiled here by SFC Green on 9 Aug 93.

Removable Contamination Survey-Sharps/Electrical Closets
Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 29 Jun 93
Lab analysis by (gamma): SSG Koelker on 29 Jun 93
(beta) : SSG Koelker on 29 Jun 93

Reviewed by: Donald K Gleason on 10 Aug 93

Attachment 1

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE: 06/29/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	47 CPM	31.2 DPM	0.722 / I-125
CHANNEL 2:	199 CPM	802.1 DPM	0.058 / CR-51
BECKMAN:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A

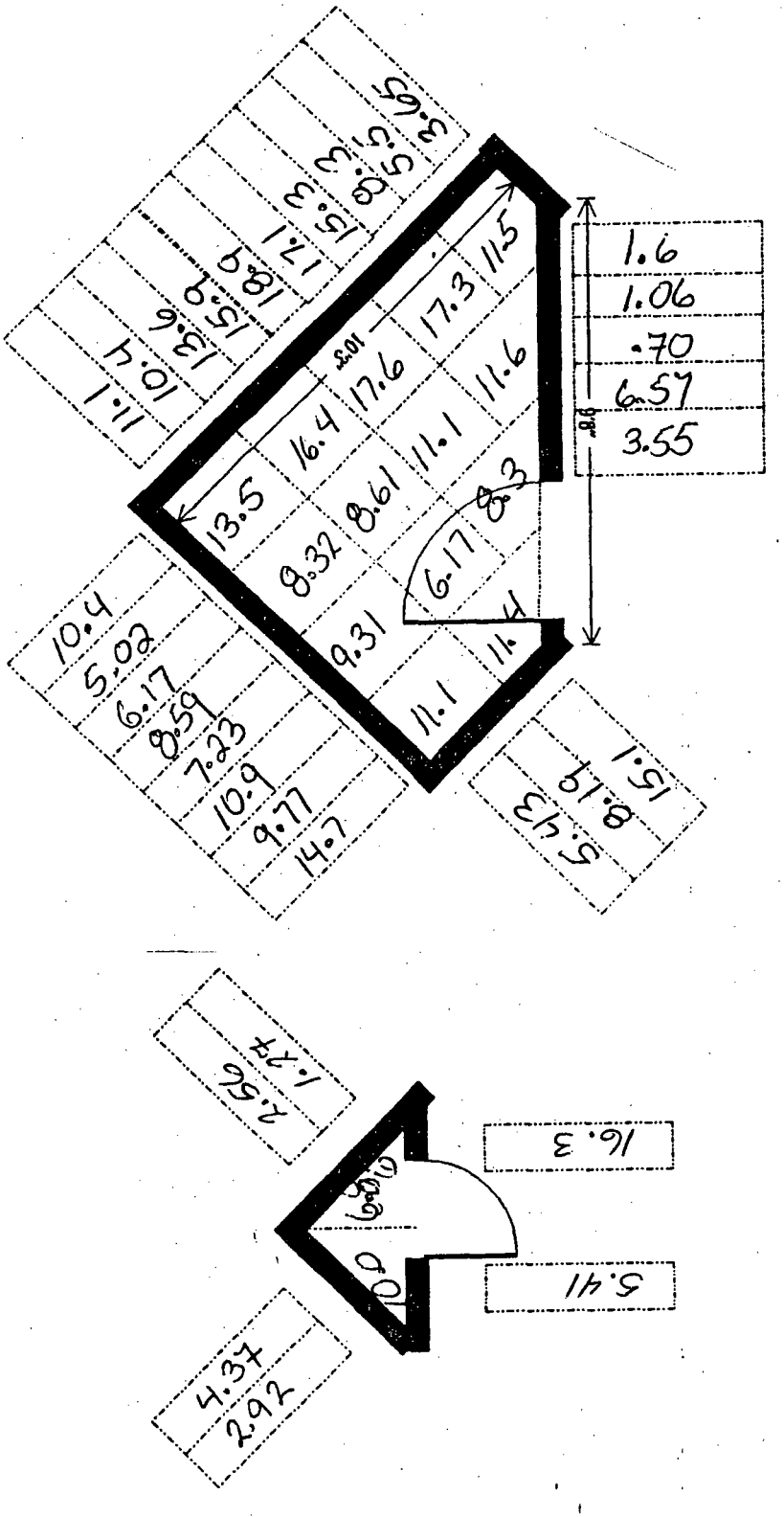
ATTACHMENT 2

QUALITY ASSURANCE REPORT - BETA
FOR DATE: 06/29/93

	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	32 CPM	29.4 DPM	0.633 / H-3
CHANNEL 2:	28 CPM	18.0 DPM	0.965 / C-14
CHANNEL 3:	26 CPM	N/A	N/A
BECKMAN LS6800:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A
CHANNEL 3:	N/A	N/A	N/A

Key W[illegible]t Decommissioning Survey

Fixed Gamma Contamination Survey-Sharps/Electrical Closets
Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 29 Jun 93
All Measurements are in uR/hr

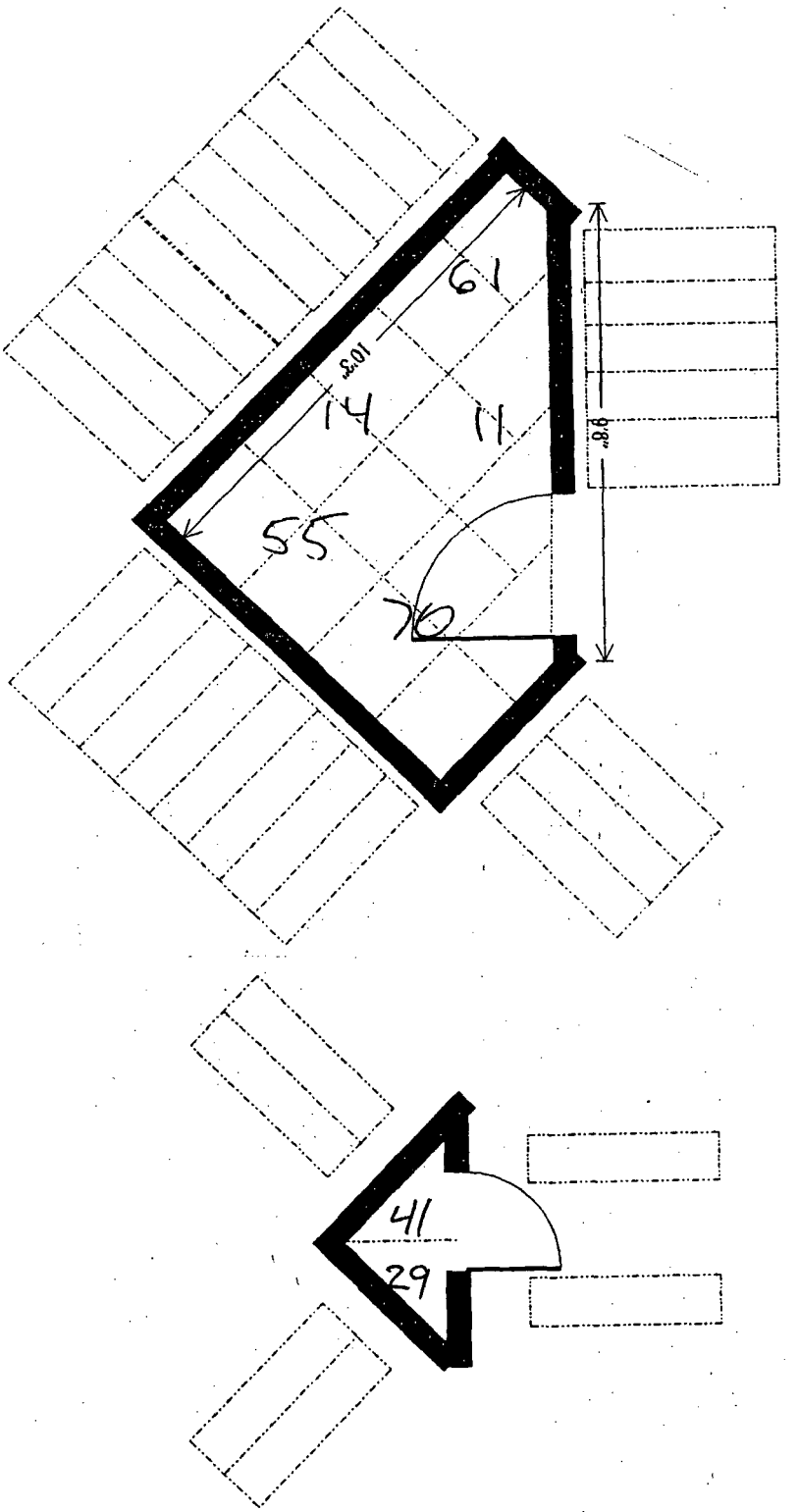
Reviewed by: Donald K Grain on 10 Aug 93

Attachment 4

Key West Decommissioning Survey

Fixed Beta Contamination Survey-Sharps/Electrical Closets

Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 26 Jul 93

All Measurements are Gross Counts in One Minute

Reviewed by: Donald K Green on 10 Aug 93

Attachment 5

KEY WEST DECOMMISSIONING SURVEY

Female Changing Room & elevator

REMOVABLE CONTAMINATION

The female changing room and elevator were surveyed for removable contamination on 14 Jul by SPC Brinley. A total of 100 swipes were taken. See Attachment 1 for the location of each swipe.

The swipes were analyzed for gamma contamination, utilizing the LKB Gammawell Counter on 14 Jul 93. See Attachment 2 for the MDAs and associated efficiencies. No gamma contamination was found above 200 dpm for I-125 or above 2000 dpm for any other isotope.

The swipes were analyzed for beta contamination, utilizing the Beckman Liquid Scintillation Counter Model 5000 on 14 Jul 93. See Attachment 3 for the MDAs and associated efficiencies. No beta contamination was found above 200 dpm for any isotope.

FIXED CONTAMINATION

Fixed gamma surveys were conducted on 14 Jul by SPC Brinley. The highest exposure rate found was 14.6 uR/hr. See Attachment 4 for the location of readings taken.

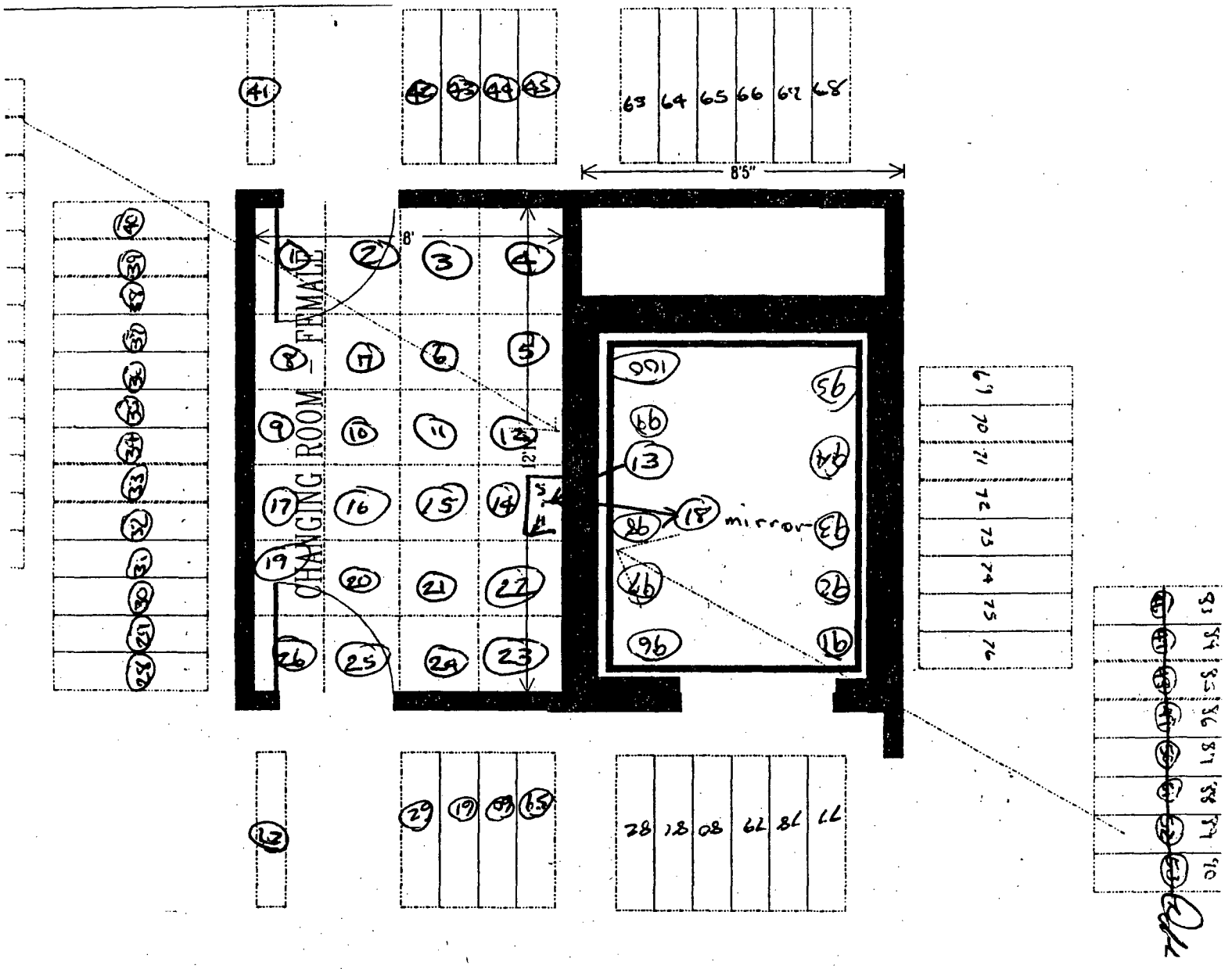
A fixed beta survey was conducted on 26 Jul 93 by SPC Brinley. The highest number of counts found during a one minute count-time was 115 cpm. The average number of counts found during a one minute count-time was approximately 80 cpm. See Attachment 5 for the location of readings taken.

As well as being reviewed at the time of the survey/receipt of laboratory results, all pertinent survey data was reviewed and compiled here by SFC Green on 9 Aug 93.

Key West Decommissioning Survey

Removable Contamination Survey- Female Changing Room

Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 14 Jun 93

Lab analysis by (gamma): SSG Koelker on 14 Jun 93

(beta) : SSG Koelker on 14 Jun 93

Reviewed by: Donald K Green on 10 Aug 93

Attachment 1

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:07/14/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	49 CPM	30.1 DPM	0.764 / I-125
CHANNEL 2:	197 CPM	676.4 DPM	0.068 / CR-51
BECKMAN:			
CHANNEL 1:	46 CPM	23.0 DPM	0.970 / I-125
CHANNEL 2:	194 CPM	440.0 DPM	0.104 / CR-51

ATTACHMENT 2

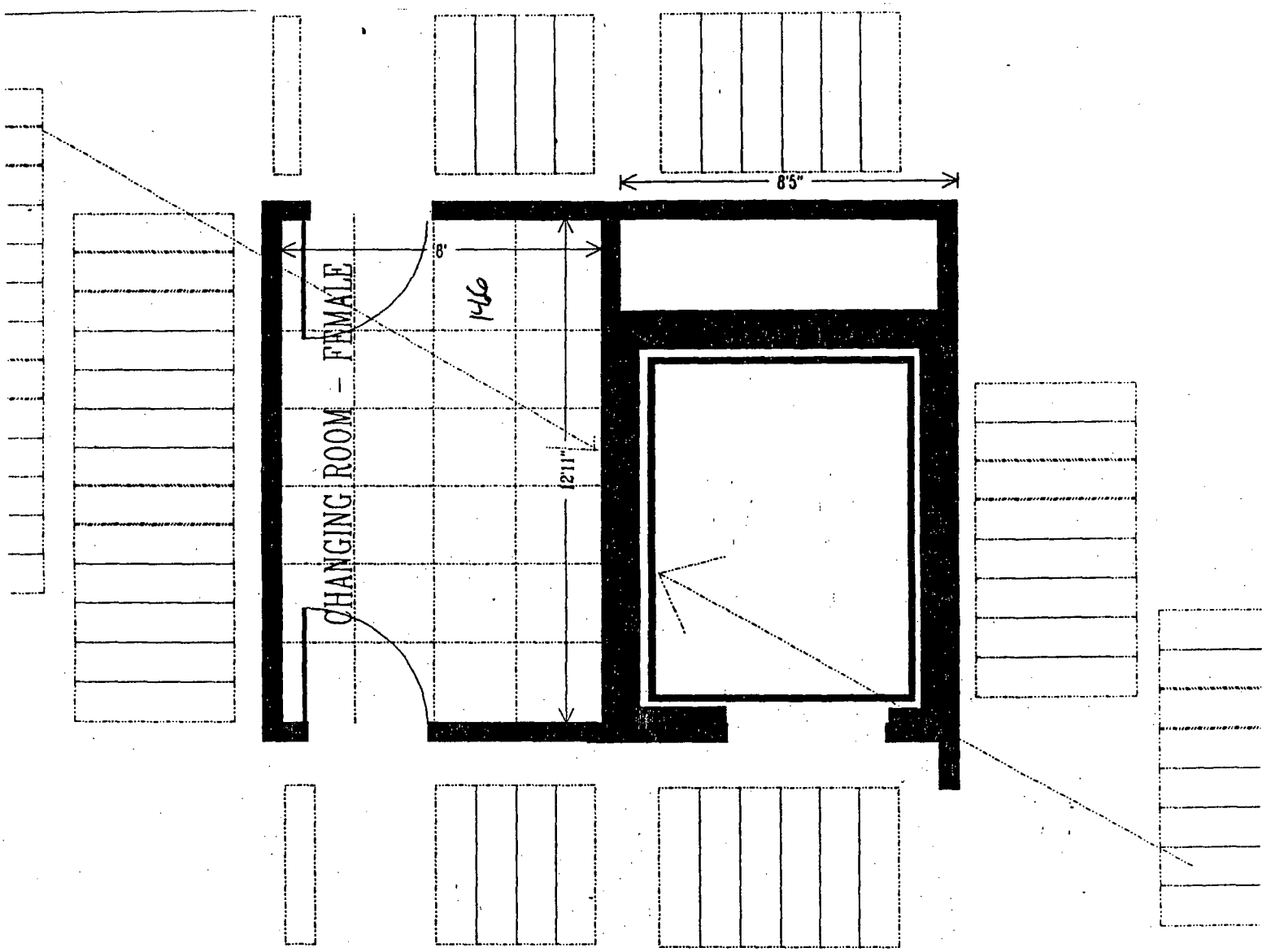
QUALITY ASSURANCE REPORT - BETA
FOR DATE:07/14/93

	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	31 CPM	28.8 DPM	0.636 / H-3
CHANNEL 2:	28 CPM	18.1 DPM	0.962 / C-14
CHANNEL 3:	25 CPM	16.5 DPM	1.004 / P-32
BECKMAN LS6800:			
CHANNEL 1:	33 CPM	32.4 DPM	0.583 / H-3
CHANNEL 2:	25 CPM	17.2 DPM	0.954 / C-14
CHANNEL 3:	21 CPM	14.9 DPM	1.011 / P-32

ATTACHMENT 3

Key West Decommissioning Survey

Fixed Gamma Contamination Survey-Female Changing Room
Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 14 Jun 93
All Measurements are in uR/hr

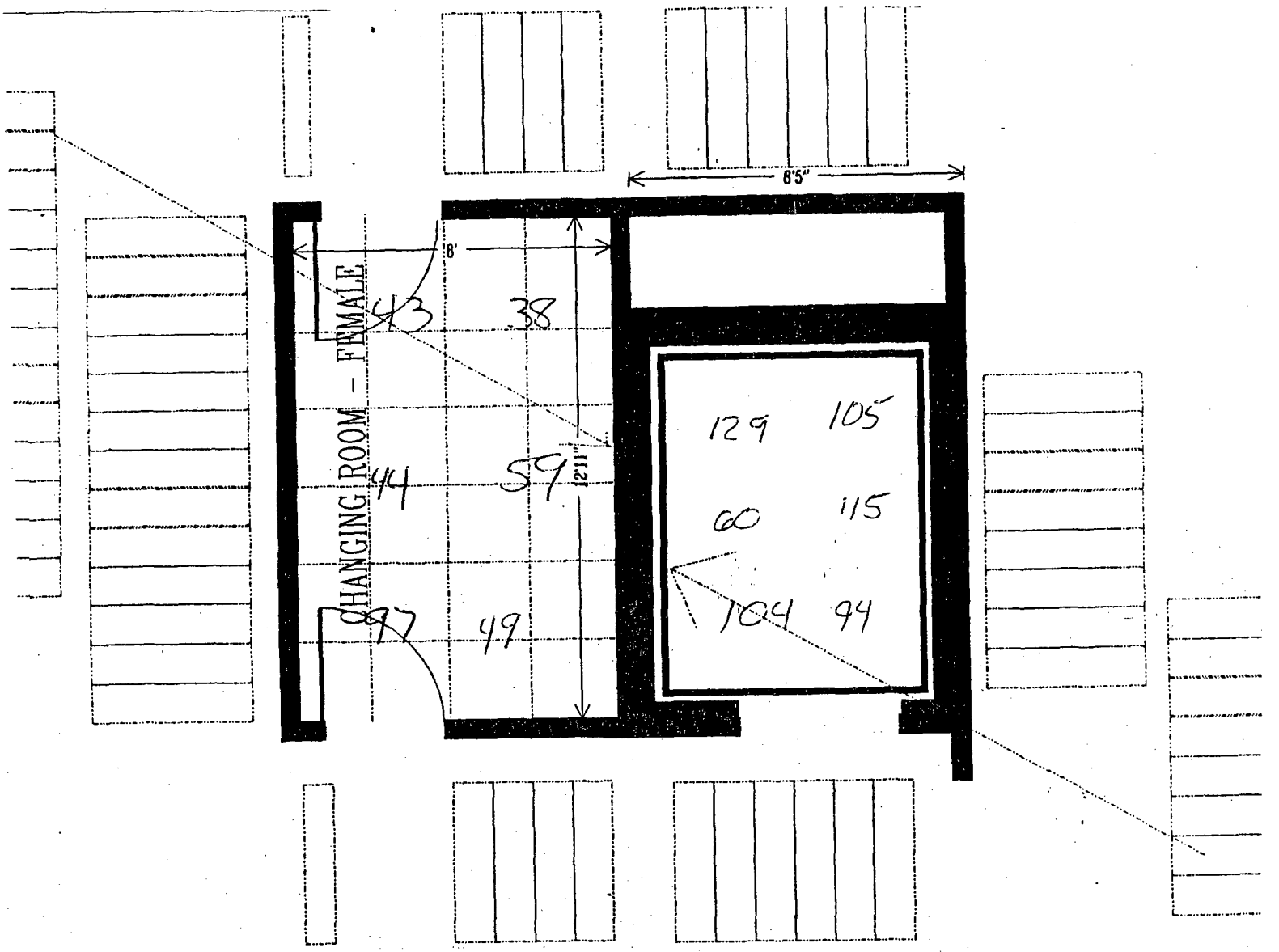
Reviewed by: Donald K Green on 10 Aug 93

Attachment 4

Key W t Decommissioning Survey

Fixed Beta Contamination Survey-Female Changing Room

Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 26 Jul 93

All Measurements are Gross Counts in One Minute

Reviewed by: Donald K Groom on 10 Aug 93

Attachment 5

KEY WEST DECOMMISSIONING SURVEY

Male Changing Room & Closets

REMOVABLE CONTAMINATION

The Male changing room and closets were surveyed for removable contamination on 14 Jul by SPC Brinley. A total of 115 swipes were taken. See Attachment 1 for the location of each swipe.

The swipes were analyzed for gamma contamination, utilizing the Beckman Gammawell Counter on 14 Jul 93. See Attachment 2 for the MDAs and associated efficiencies. No gamma contamination was found above 200 dpm for I-125 or above 2000 dpm for any other isotope.

The swipes were analyzed for beta contamination, utilizing the Beckman Liquid Scintillation Counter Model 5000 on 14 Jul 93. See Attachment 3 for the MDAs and associated efficiencies. No beta contamination was found above 200 dpm for any isotope.

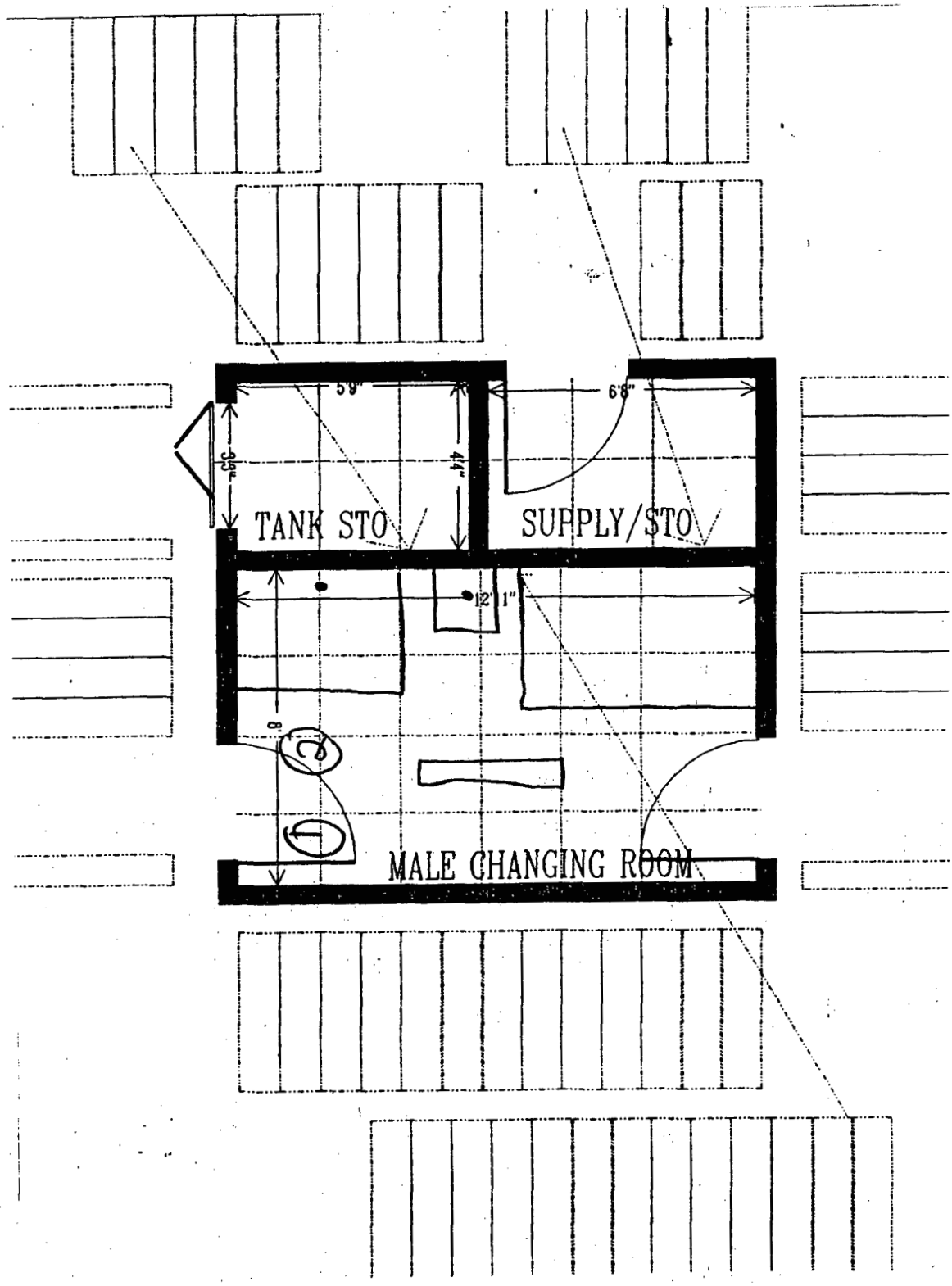
FIXED CONTAMINATION

Fixed gamma surveys were conducted on 14 Jul by SPC Brinley. The highest exposure rate found was 21.5 uR/hr. See Attachment 4 for the location of readings taken.

A fixed beta survey was conducted on 26 Jul 93 by SPC Brinley. The highest number of counts found during a one minute count-time was 79 cpm. The average number of counts found during a one minute count-time was approximately 48 cpm. See Attachment 5 for the location of readings taken.

As well as being reviewed at the time of the survey/receipt of laboratory results, all pertinent survey data was reviewed and compiled here by SFC Green on 9 Aug 93.

Removable Contamination Survey- Male Changing Room
Scale 1 inch = 4 feet



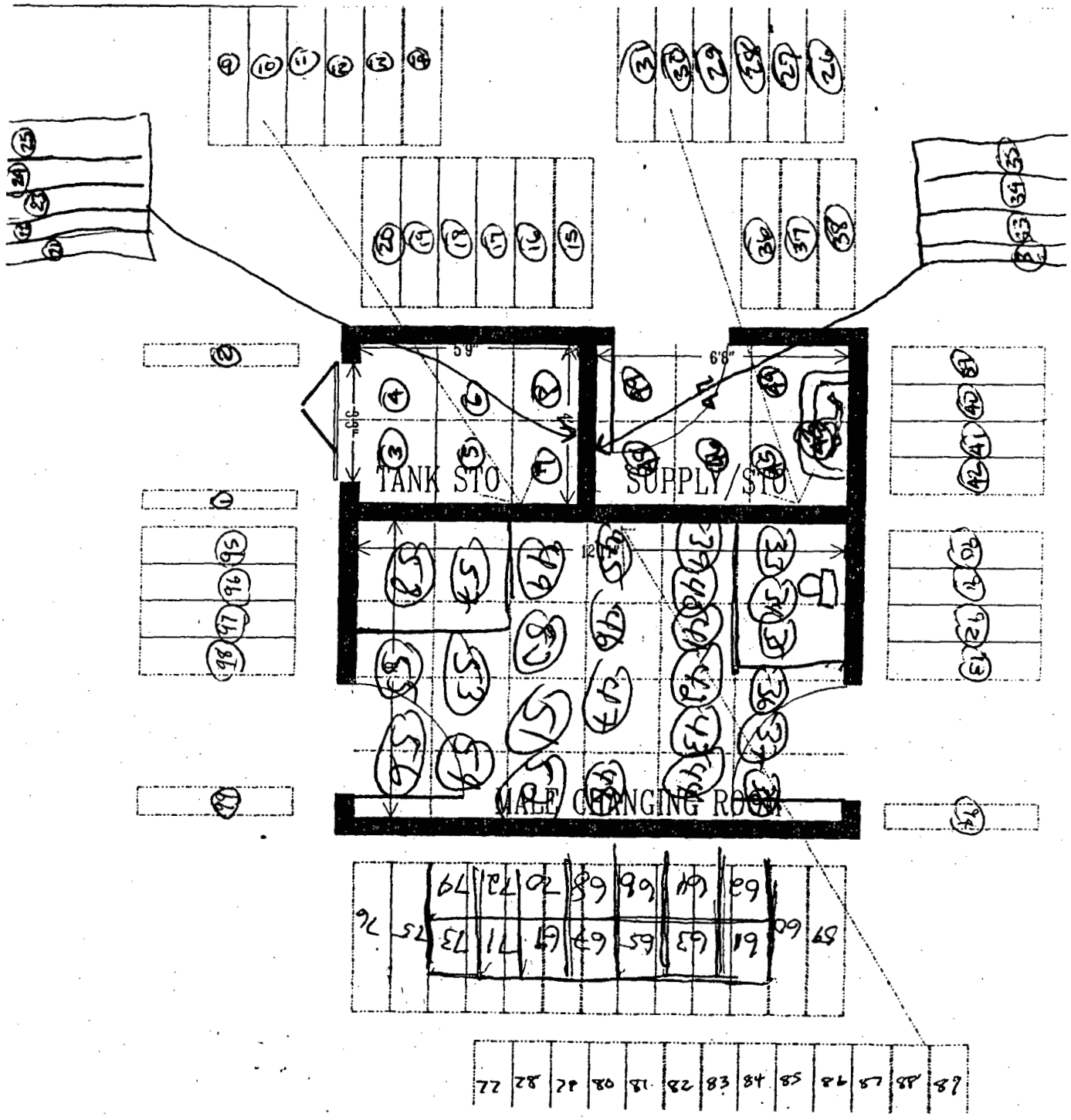
Conducted by: SPC Brinley on 14 Jun 93
Lab analysis by (gamma): SSG Koelker on 14 Jun 93
(beta) : SSG Koelker on 14 Jun 93

Reviewed by: Donald K Green on 16 Aug 93

Attachment 1

Key W[illegible]st Decommissioning Survey

Removable Contamination Survey- Male Changing Room
Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 14 Jun 93
Lab analysis by (gamma): SSG Koelker on 14 Jun 93
(beta) : SSG Koelker on 14 Jun 93

Reviewed by: Donald K Green on 10 Aug 93

Attachment 1

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:07/14/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	49 CPM	30.1 DPM	0.764 / I-125
CHANNEL 2:	197 CPM	676.4 DPM	0.068 / CR-51
BECKMAN:			
CHANNEL 1:	46 CPM	23.0 DPM	0.970 / I-125
CHANNEL 2:	194 CPM	440.0 DPM	0.104 / CR-51

ATTACHMENT 2

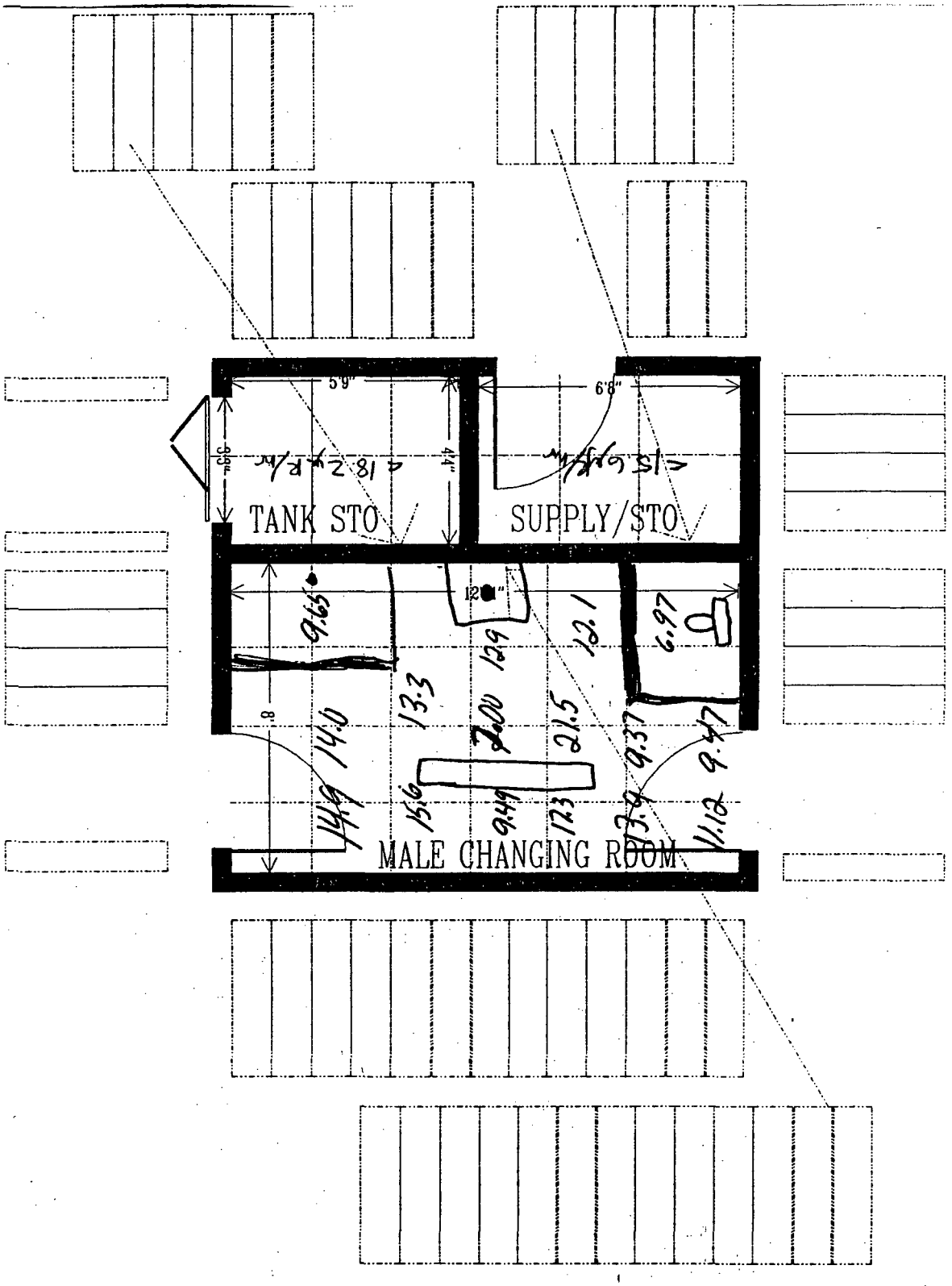
QUALITY ASSURANCE REPORT - BETA
FOR DATE:07/14/93

	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	31 CPM	28.8 DPM	0.636 / H-3
CHANNEL 2:	28 CPM	18.1 DPM	0.962 / C-14
CHANNEL 3:	25 CPM	16.5 DPM	1.004 / P-32
BECKMAN LS6800:			
CHANNEL 1:	33 CPM	32.4 DPM	0.583 / H-3
CHANNEL 2:	25 CPM	17.2 DPM	0.954 / C-14
CHANNEL 3:	21 CPM	14.9 DPM	1.011 / P-32

ATTACHMENT 3

Key W[illegible]st Decommissioning Survey

Fixed Gamma Contamination Survey-Male Changing Room
Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 14 Jun 93
All Measurements are in uR/hr

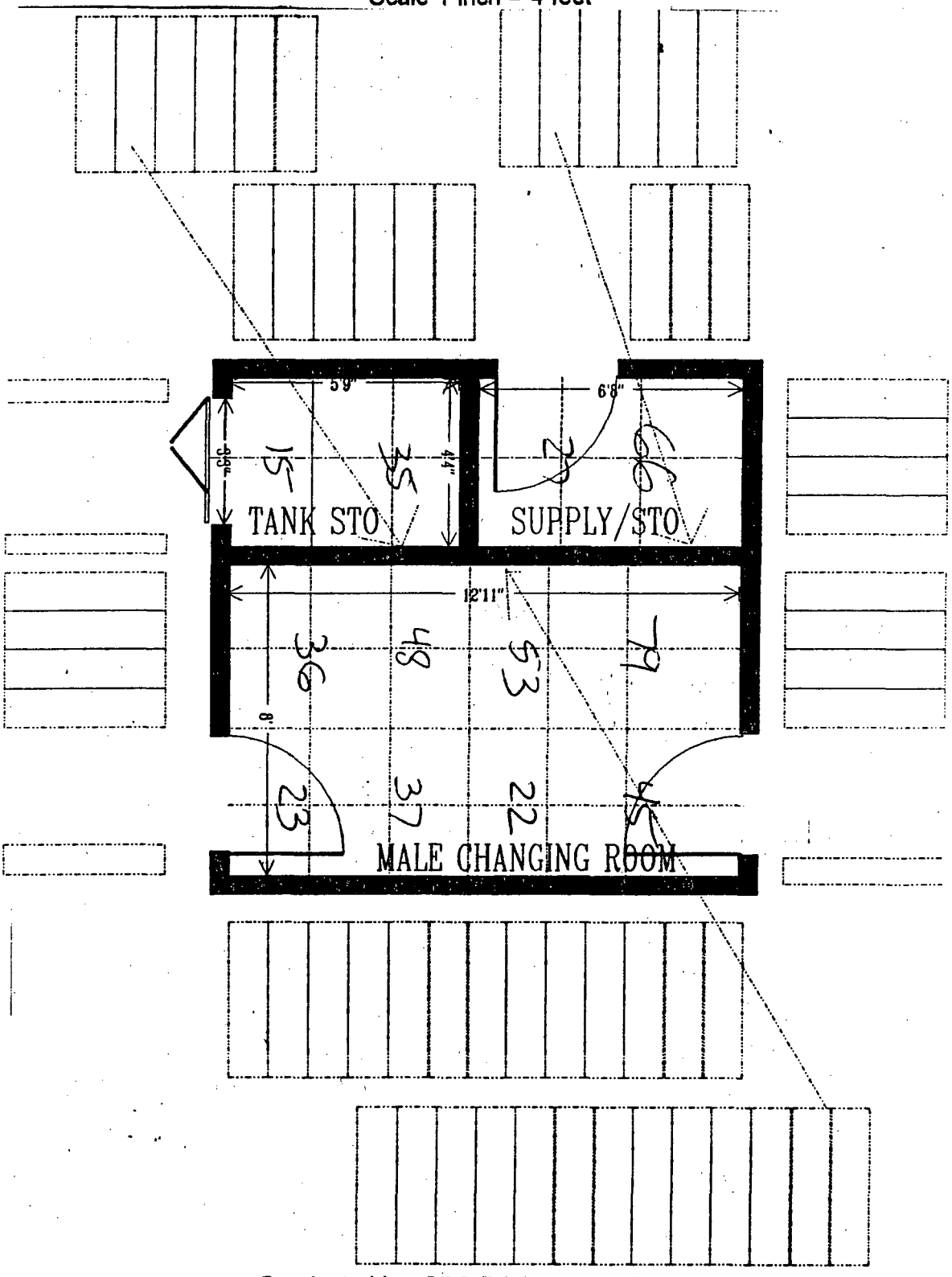
Reviewed by: Donald K Sloan on 10 Aug 93

Attachment 4

Key W t Decommissioning Survey

Fixed Beta Contamination Survey-Male Changing Room

Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 26 Jul 93

All Measurements are Gross Counts in One Minute

Reviewed by: Donald K Green on 10 Aug 93

Attachment 5

KEY WEST DECOMMISSIONING SURVEY

Female Restroom

REMOVABLE CONTAMINATION

The female restroom was surveyed for removable contamination on 6 Jul 93 by SSG Koelker. A total of 27 swipes were taken. See Attachment 1 for the location of each swipe.

The swipes were analyzed for gamma contamination, utilizing the LKB Gammawell Counter on 6 Jul 93. See Attachment 2 for the MDAs and associated efficiencies. No gamma contamination was found above 200 dpm for I-125 or above 2000 dpm for any other isotope.

The swipes were analyzed for beta contamination, utilizing the Beckman Liquid Scintillation Counter Model 5000 on 6 Jul 93. See Attachment 3 for the MDAs and associated efficiencies. No beta contamination was found above 200 dpm for any isotope.

FIXED CONTAMINATION

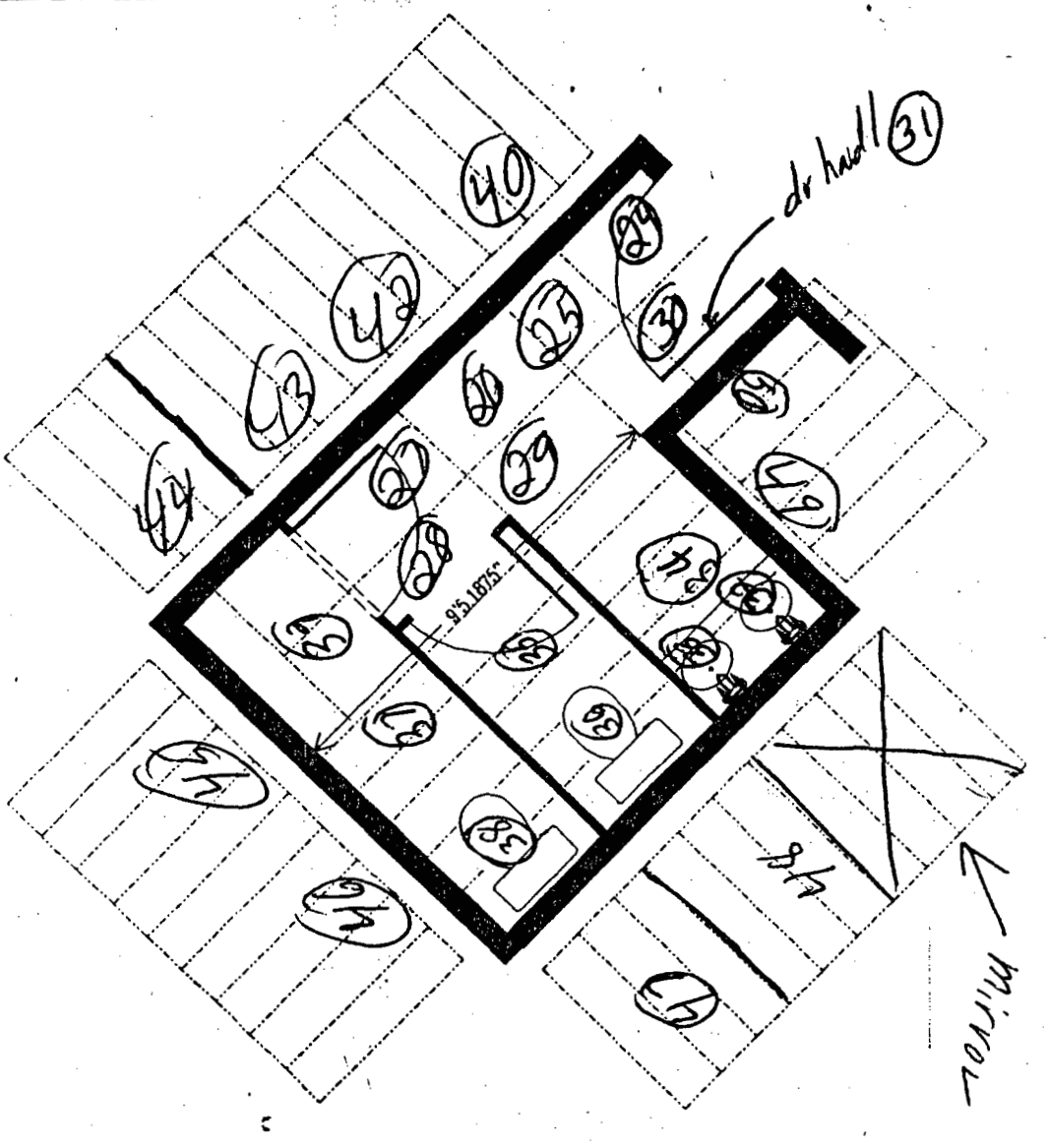
Fixed gamma surveys were conducted on 6 Jul 93 by SSG Koelker. The highest exposure rate found was 22.7 uR/hr. See Attachment 4 for the location of readings taken.

A fixed beta survey was conducted on 26 Jul 93 by SPC Brinley. The highest number of counts found during a one minute count-time was 53 cpm. The average number of counts found during a one minute count-time was approximately 34 cpm. See Attachment 5 for the location of readings taken.

As well as being reviewed at the time of the survey/receipt of laboratory results, all pertinent survey data was reviewed and compiled here by SFC Green on 9 Aug 93.

Key West Decommissioning Survey

Removable Contamination Survey-Female Restroom
Scale 1 inch = 4 feet



Conducted by: SSG Koelker on 06 Jul 93
Lab analysis by (gamma): SSG Koelker on 06 Jul 93
(beta) : SSG Koelker on 06 Jul 93

Reviewed by: Donald K Green on 10 Aug 93

Attachment 1

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:07/06/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	53 CPM	32.2 DPM	0.742 / I-125
CHANNEL 2:	198 CPM	709.2 DPM	0.065 / CR-51
BECKMAN:			
CHANNEL 1:	52 CPM	22.1 DPM	1.075 / I-125
CHANNEL 2:	198 CPM	452.3 DPM	0.102 / CR-51

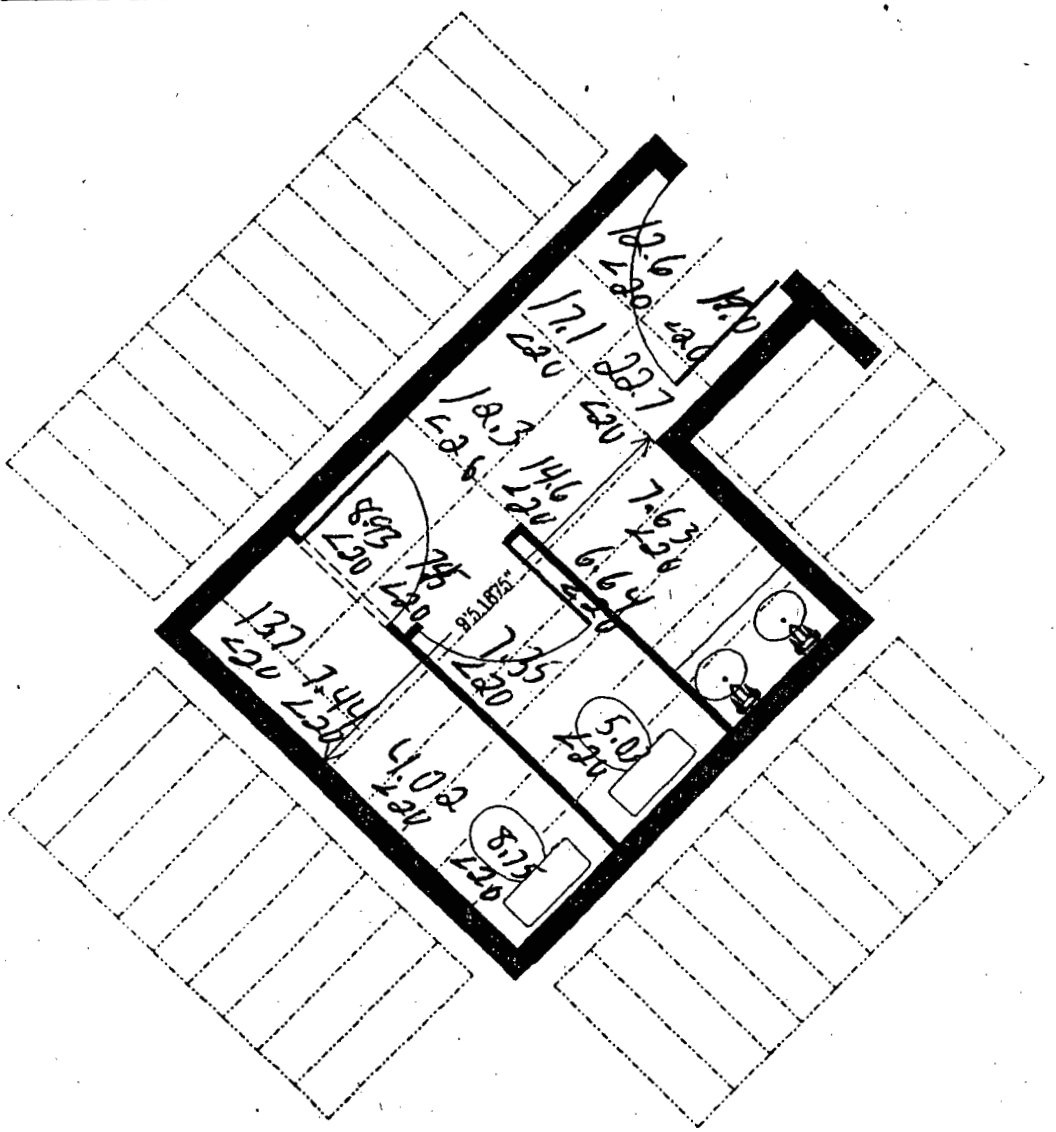
ATTACHMENT 2

QUALITY ASSURANCE REPORT - BETA
FOR DATE:07/06/93

	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	32 CPM	29.4 DPM	0.633 / H-3
CHANNEL 2:	28 CPM	18.0 DPM	0.965 / C-14
CHANNEL 3:	26 CPM	N/A	N/A
BECKMAN LS6800:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A
CHANNEL 3:	N/A	N/A	N/A

Key ! st Decommissioning Survey

Fixed Gamma Contamination Survey-Female Restroom
Scale 1 inch = 4 feet



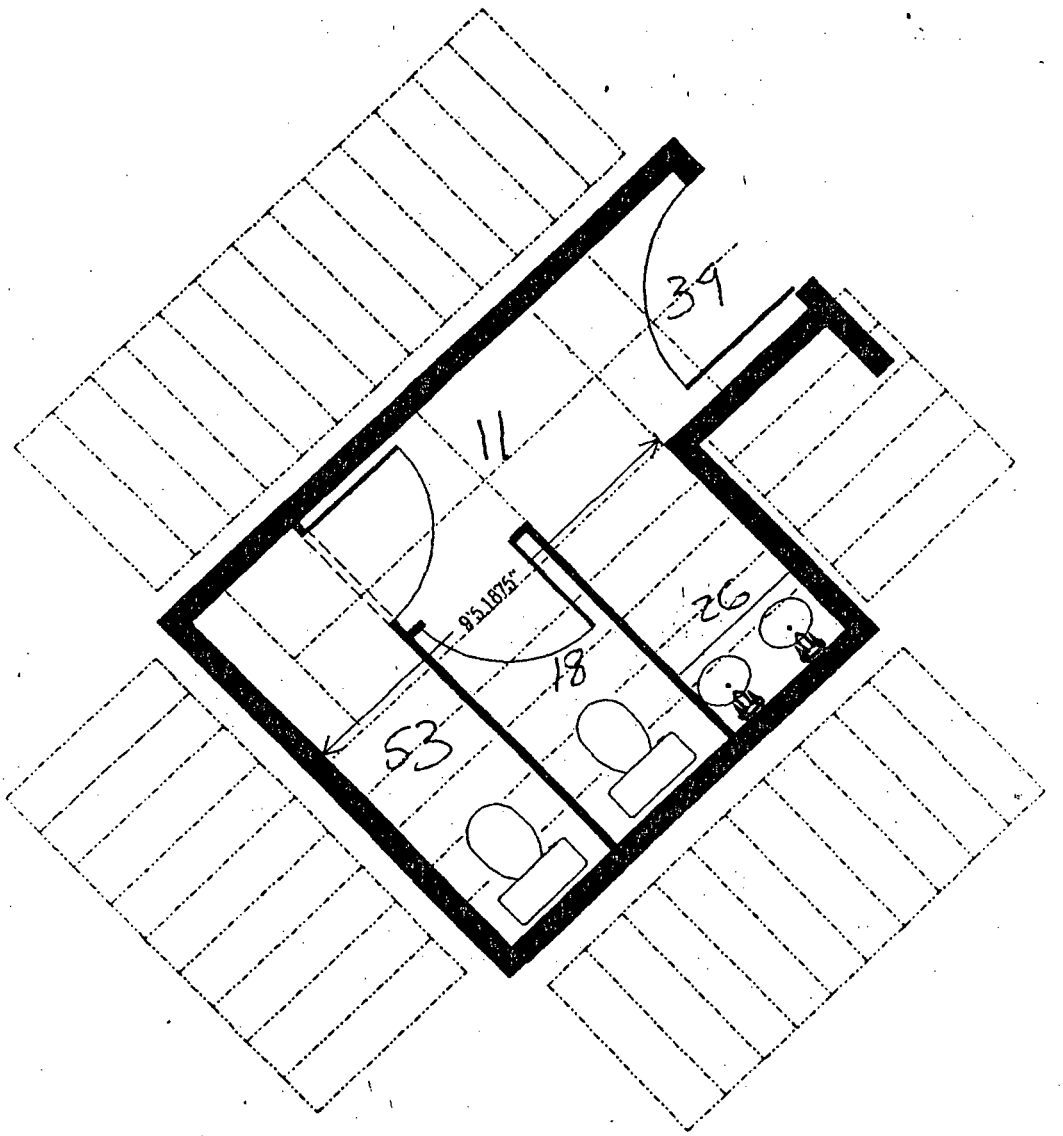
Conducted by: SSG Koelker on 06 Jul 93
All Measurements are in uR/hr

Reviewed by: Donald K Gloss on 6 Aug 93

Attachment 4

Key W[illegible]t Decommissioning Survey

Fixed Beta Contamination Survey-Female Restroom
Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 26 Jul 93
All Measurements are Gross Counts in One Minute
Reviewed by: Donald K Shem on 10 Aug 93

Attachment 5

KEY WEST DECOMMISSIONING SURVEY

Male Restroom

REMOVABLE CONTAMINATION

The male restroom was surveyed for removable contamination on 30 Jun 93 by SPC Brinley. A total of 31 swipes were taken. See Attachment 1 for the location of each swipe.

The swipes were analyzed for gamma contamination, utilizing the LKB Gammawell Counter on 6 Jul 93. See Attachment 2 for the MDAs and associated efficiencies. No gamma contamination was found above 200 dpm for I-125 or above 2000 dpm for any other isotope.

The swipes were analyzed for beta contamination, utilizing the Beckman Liquid Scintillation Counter Model 5000 on 6 Jul 93. See Attachment 3 for the MDAs and associated efficiencies. No beta contamination was found above 200 dpm for any isotope.

FIXED CONTAMINATION

Fixed gamma surveys were conducted on 6 Jul 93 by SPC Brinley. The highest exposure rate found was 16.5 uR/hr. See Attachment 4 for the location of readings taken.

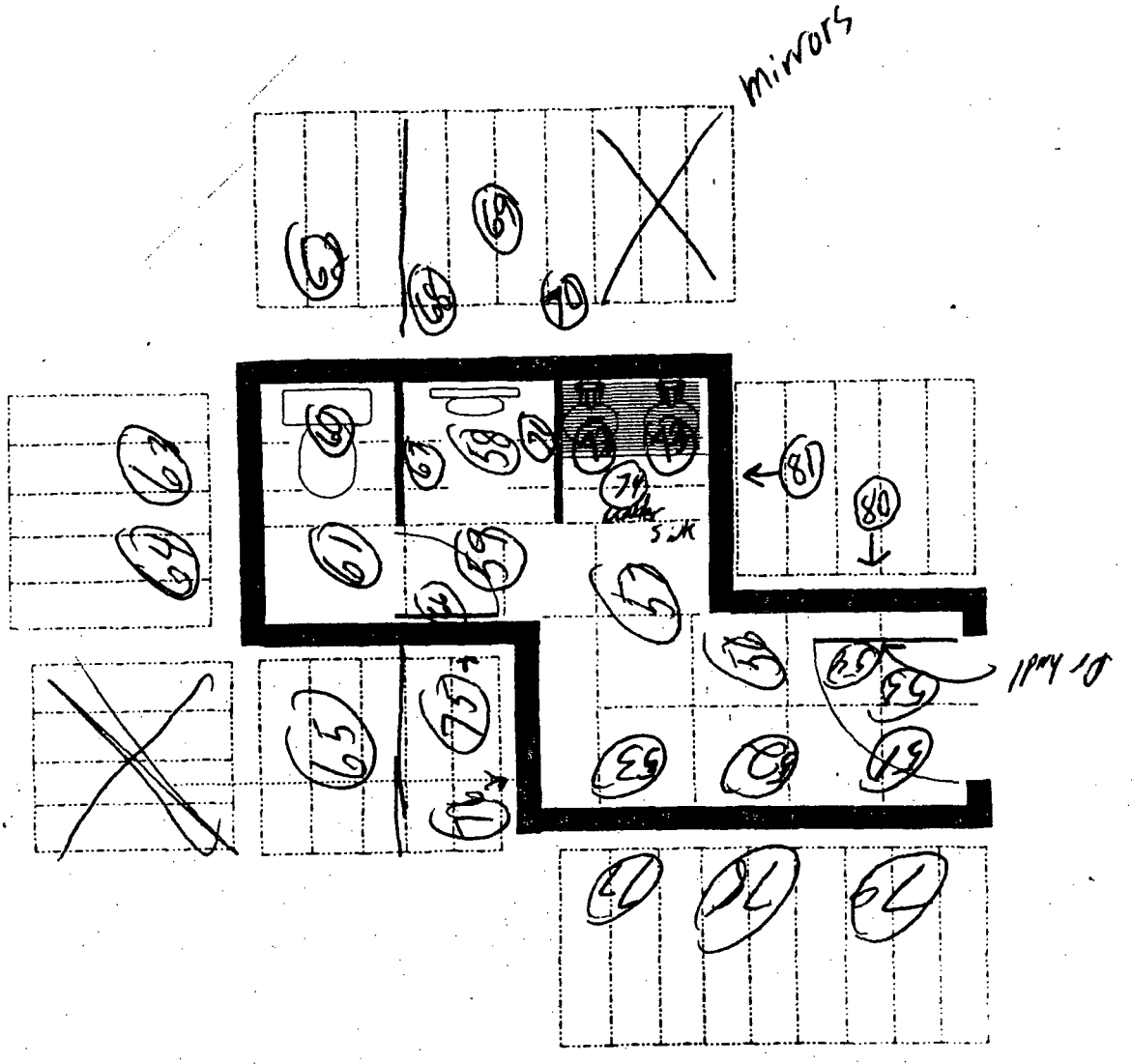
A fixed beta survey was conducted on 26 Jul 93 by SPC Brinley. The highest number of counts found during a one minute count-time was 52 cpm. The average number of counts found during a one minute count-time was approximately 30 cpm. See Attachment 5 for the location of readings taken.

As well as being reviewed at the time of the survey/receipt of laboratory results, all pertinent survey data was reviewed and compiled here by SFC Green on 9 Aug 93.

Key West Decommissioning Survey

Removable Contamination Survey-Male Restroom

Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 30 Jun 93

Lab analysis by (gamma): SSG Koelker on 06 Jul 93

(beta) : SSG Koelker on 06 Jul 93

Reviewed by: Donald K Green on 10 Aug 93

Attachment 1

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:07/06/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	53 CPM	32.2 DPM	0.742 / I-125
CHANNEL 2:	198 CPM	709.2 DPM	0.065 / CR-51
BECKMAN:			
CHANNEL 1:	52 CPM	22.1 DPM	1.075 / I-125
CHANNEL 2:	198 CPM	452.3 DPM	0.102 / CR-51

ATTACHMENT 2

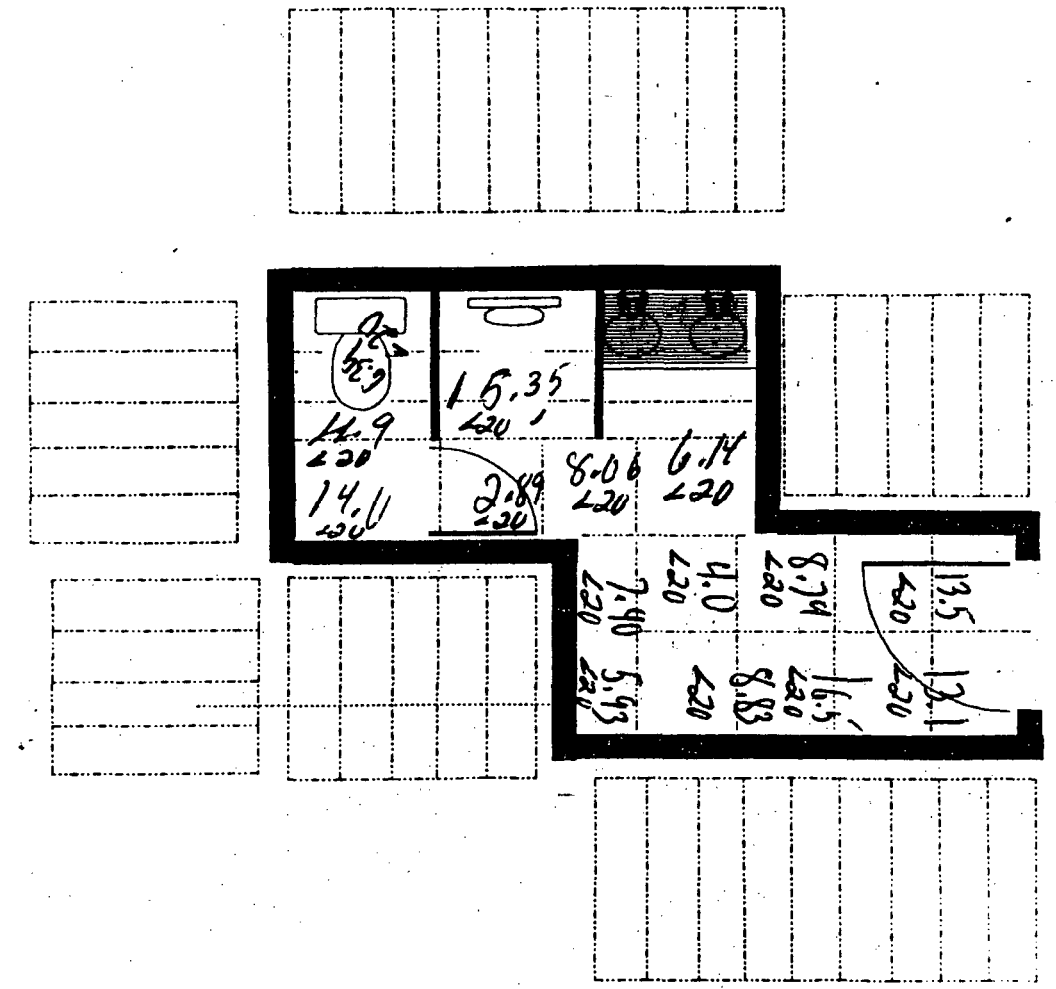
QUALITY ASSURANCE REPORT - BETA
FOR DATE:07/06/93

	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	32 CPM	29.4 DPM	0.633 / H-3
CHANNEL 2:	28 CPM	18.0 DPM	0.965 / C-14
CHANNEL 3:	26 CPM	N/A	N/A
BECKMAN LS6800:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A
CHANNEL 3:	N/A	N/A	N/A

ATTACHMENT 3

Key West Decommissioning Survey

Fixed Gamma Contamination Survey-Male Restroom
Scale 1 inch = 4 feet



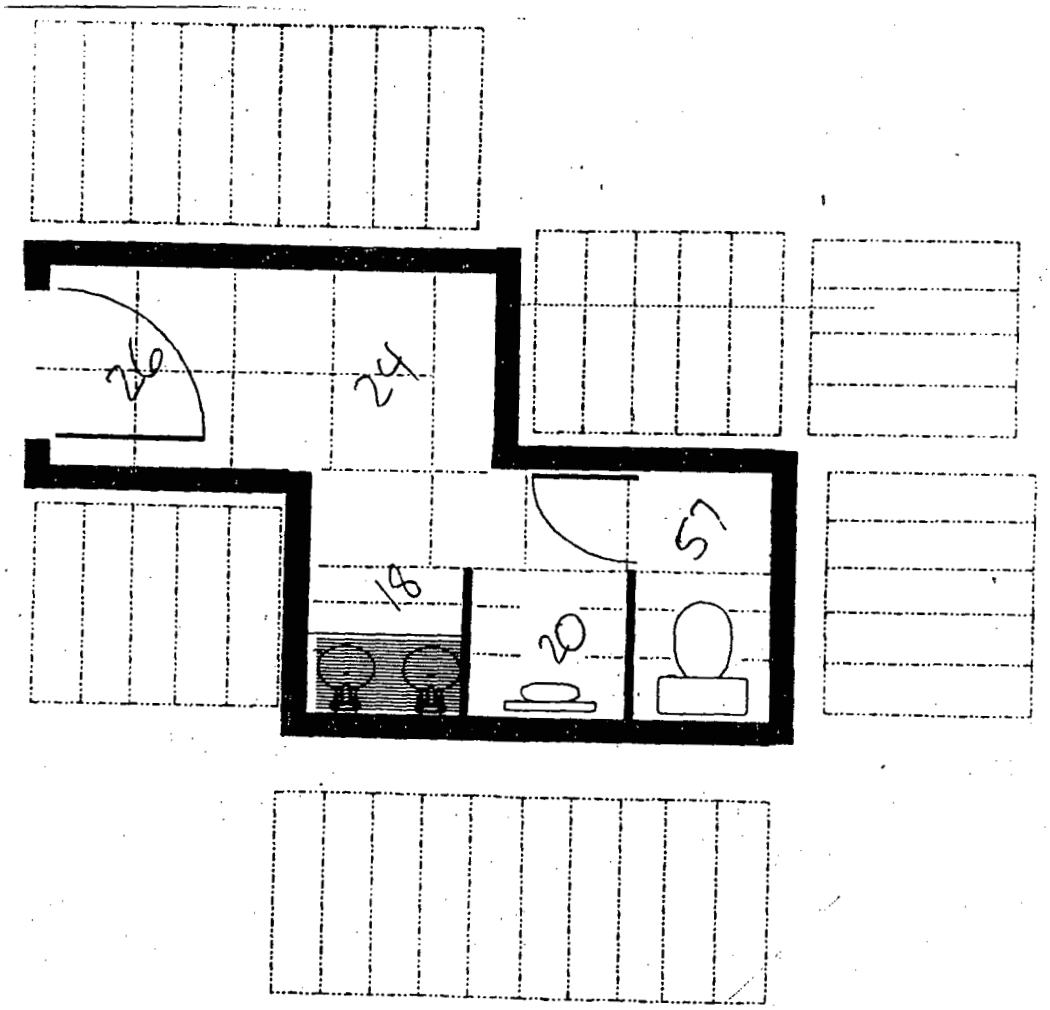
Conducted by: SPC Brinley on 06 Jul 93
All Measurements are in uR/hr

Reviewed by: Donald K Green on _____

Attachment 4

Key [illegible]st Decommissioning Survey

Fixed Beta Contamination Survey-Male Restroom
Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 26 Jul 93
All Measurements are Gross Counts in One Minute

Reviewed by: Donald K Green on 10 Aug 93

Attachment 5

KEY WEST DECOMMISSIONING SURVEY

Hallway - 1

REMOVABLE CONTAMINATION

Hallway Number 1 was surveyed for removable contamination on 6 Jul 93 by SPC Brinley. A total of 68 swipes were taken. See Attachment 1 for the location of each swipe.

The swipes were analyzed for gamma contamination, utilizing the LKB Gammawell Counter on 6 Jul 93. See Attachment 2 for the MDAs and associated efficiencies. No gamma contamination was found above 200 dpm for I-125 or above 2000 dpm for any other isotope.

The swipes were analyzed for beta contamination, utilizing the Beckman Liquid Scintillation Counter Model 5000 on 6 Jul 93. See Attachment 3 for the MDAs and associated efficiencies. No beta contamination was found above 200 dpm for any isotope.

FIXED CONTAMINATION

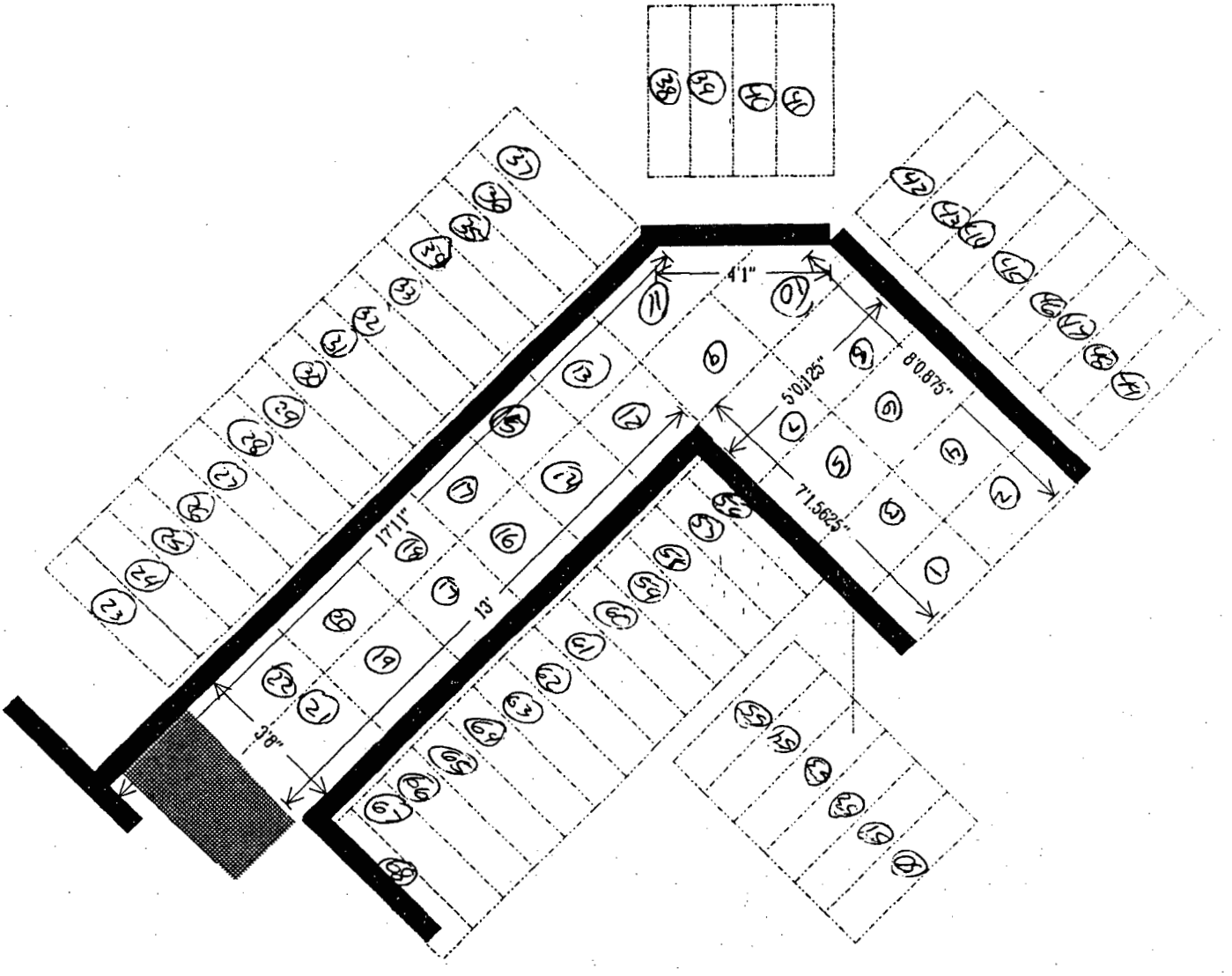
A fixed gamma survey was conducted on 6 Jul 93 by SPC Brinley. The highest exposure rate found was 19.3 uR/hr. The average exposure rate was approximately 18 uR/hr. See Attachment 4 for the location of readings taken.

A fixed beta survey was conducted on 26 Jul 93 by SPC Brinley. The highest number of counts found during a one minute count-time was 73 cpm. The average number of counts found during a one minute count-time was 45 cpm. See Attachment 5 for the location of readings taken.

As well as being reviewed at the time of the survey/receipt of laboratory results, all pertinent survey data was reviewed and compiled here by SFC Green on 8 Aug 93.

Key West Decommissioning Survey

Removable Contamination Survey-Hallway 1
Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 06 Jul 93
Lab analysis by (gamma): SSG Koelker on 06 Jul 93
(beta) : SSG Koelker on 06 Jul 93

Reviewed by: Donald K Green on 10 Aug 93

Attachment 1

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:07/06/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	53 CPM	32.2 DPM	0.742 / I-125
CHANNEL 2:	198 CPM	709.2 DPM	0.065 / CR-51
BECKMAN:			
CHANNEL 1:	52 CPM	22.1 DPM	1.075 / I-125
CHANNEL 2:	198 CPM	452.3 DPM	0.102 / CR-51

ATTACHMENT 2

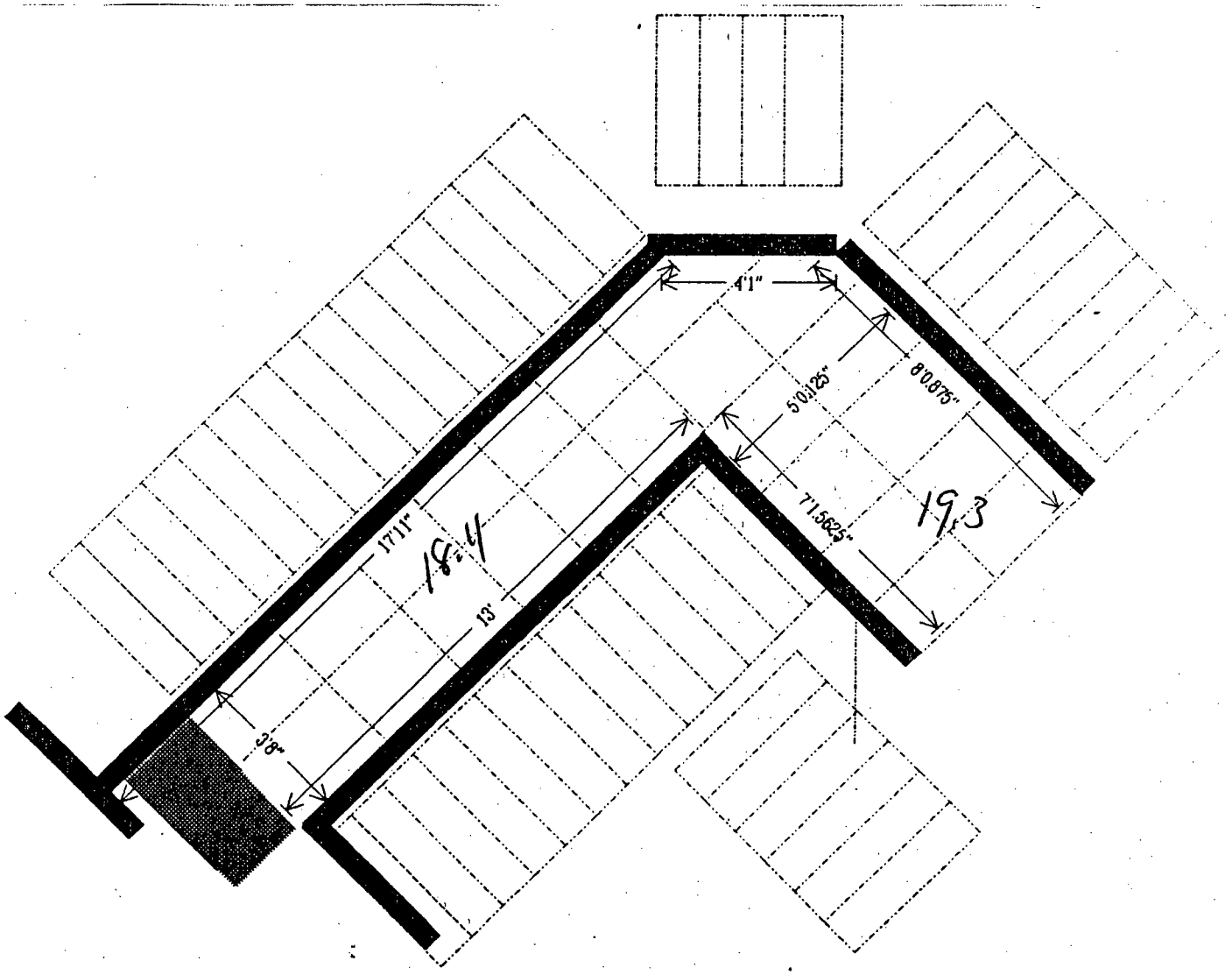
QUALITY ASSURANCE REPORT - BETA
FOR DATE:07/06/93

	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	32 CPM	29.4 DPM	0.633 / H-3
CHANNEL 2:	28 CPM	18.0 DPM	0.965 / C-14
CHANNEL 3:	26 CPM	N/A	N/A
BECKMAN LS6800:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A
CHANNEL 3:	N/A	N/A	N/A

Key W[illegible]t Decommissioning Survey

Fixed Gamma Contamination Survey-Hallway 1

Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 06 Jul 93

All Measurements are in uR/hr

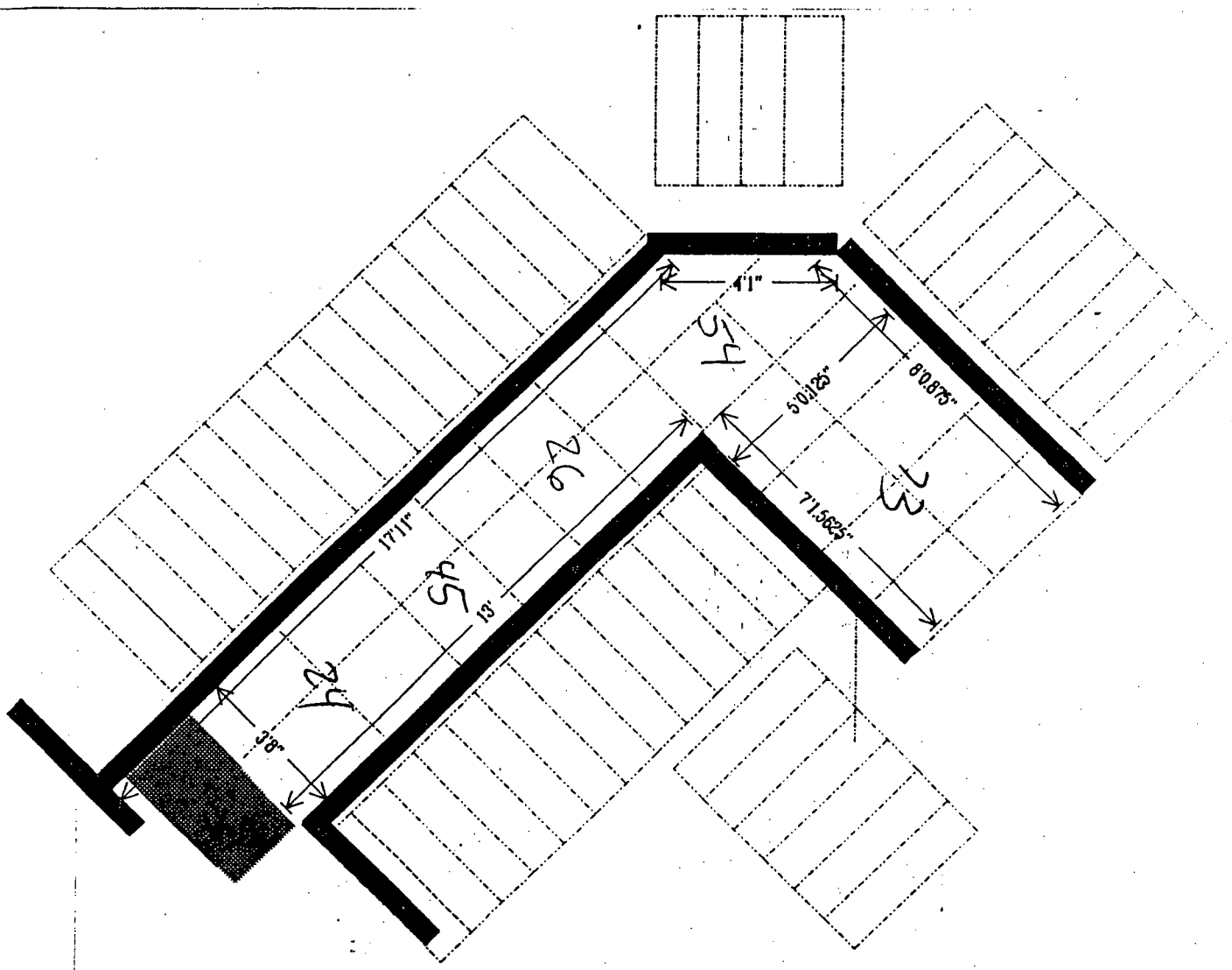
Reviewed by: Donald K Dean on 10 Aug 93

Attachment 4

Key V t Decommissioning Survey

Fixed Beta Contamination Survey-Hallway 1

Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 26 Jul 93

All Measurements are Gross Counts in One Minute

Reviewed by: Donald K Green on 10 Aug 93

Attachment 5

KEY WEST DECOMMISSIONING SURVEY

Hallway - 2

REMOVABLE CONTAMINATION

Hallway Number 2 was surveyed for removable contamination on 3 Jul 93 (South end) and 14 Jul 93 (North end) by SPC Brinley. A total of 125 (63 and 62 respectively) swipes were taken. See Attachment 1 for the location of each swipe.

The swipes were analyzed for gamma contamination, utilizing the LKB Gammawell Counter on 2 Jul and 14 Jul 93. See Attachment 2 for the MDAs and associated efficiencies. No gamma contamination was found above 200 dpm for I-125 or above 2000 dpm for any other isotope.

The swipes were analyzed for beta contamination, utilizing the Beckman Liquid Scintillation Counter Model 5000 on 2 and 14 Jul 93. See Attachment 3 for the MDAs and associated efficiencies. No beta contamination was found above 200 dpm for any isotope.

FIXED CONTAMINATION

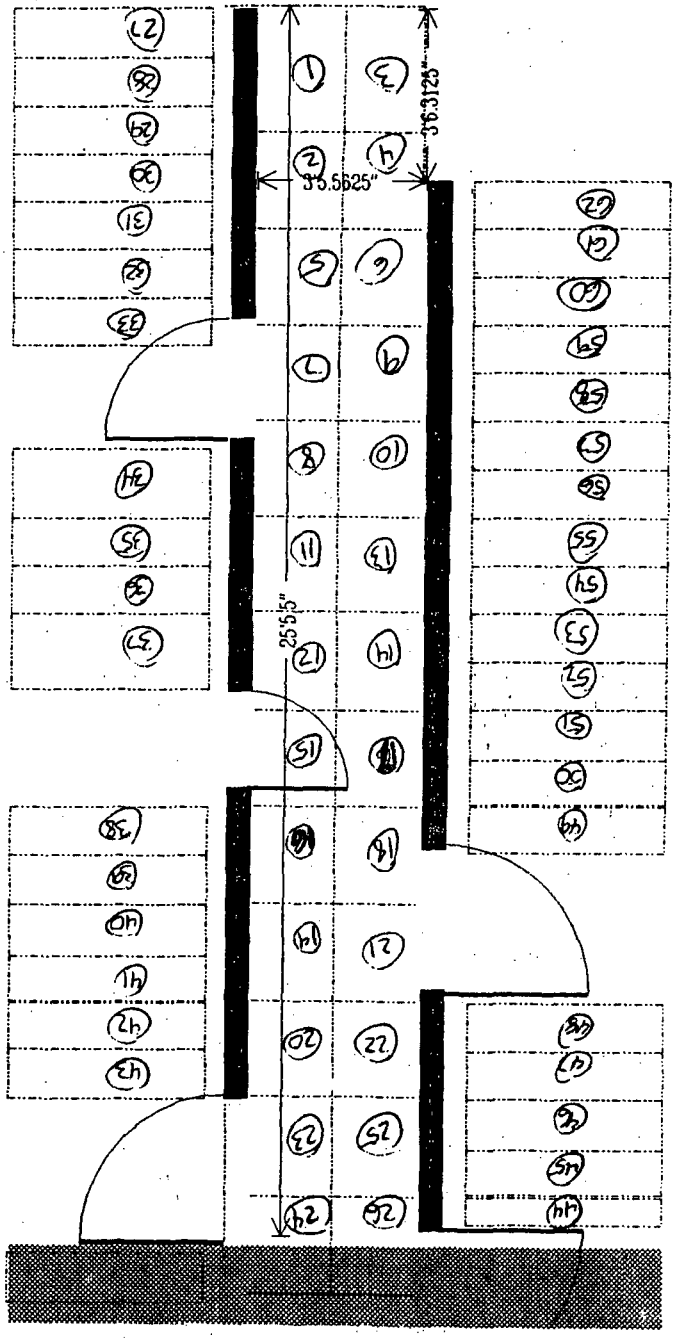
A fixed gamma survey was conducted on 2 Jul 93 by SPC Brinley and on 14 Jul 93 by SSG Webster. The highest exposure rate found was 26.1 uR/hr. The average exposure rate was approximately 18 uR/hr. See Attachment 4 for the location of readings taken.

A fixed beta survey was conducted on 26 Jul 93 by SPC Brinley. The highest number of counts found during a one minute count-time was 81 cpm. The average number of counts found during a one minute count-time was 50 cpm. See Attachment 5 for the location of readings taken.

As well as being reviewed at the time of the survey/receipt of laboratory results, all pertinent survey data was reviewed and compiled here by SFC Green on 9 Aug 93.

Key ...st Decommissioning Survey

Removable Contamination Survey-Hallway 2
Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 02 Jul 93 and 14 Jul 93
Lab analysis by (gamma): SSG Koelker on 03 Jul 93
(beta) : SSG Koelker on 03 Jul 93

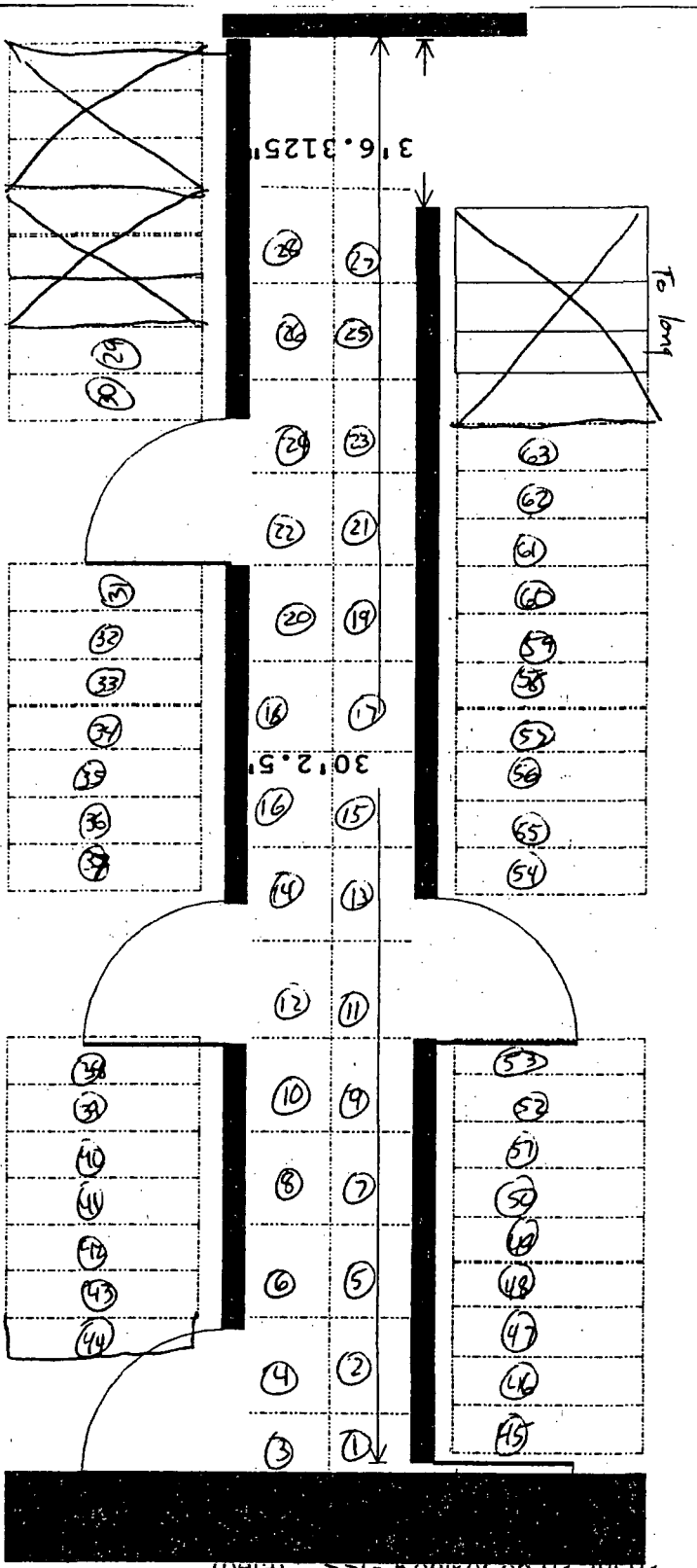
Reviewed by: Donald K Green on 10 Aug 93

Attachment 1

Key West Decommissioning Survey

Removable Contamination Survey-Hallway 2

Scale 1 inch = 4 feet



(beta) : SSG Koelker on 03 Jul 93

Reviewed by: Donald K. Lazon on 10 Aug 93

Attachment 1

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:07/02/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	53 CPM	32.2 DPM	0.742 / I-125
CHANNEL 2:	198 CPM	709.2 DPM	0.065 / CR-51
BECKMAN:			
CHANNEL 1:	52 CPM	22.1 DPM	1.075 / I-125
CHANNEL 2:	198 CPM	452.3 DPM	0.102 / CR-51

ATTACHMENT 2

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:07/14/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	49 CPM	30.1 DPM	0.764 / I-125
CHANNEL 2:	197 CPM	676.4 DPM	0.068 / CR-51
BECKMAN:			
CHANNEL 1:	46 CPM	23.0 DPM	0.970 / I-125
CHANNEL 2:	194 CPM	440.0 DPM	0.104 / CR-51

ATTACHMENT 2

QUALITY ASSURANCE REPORT - BETA
FOR DATE: 07/02/93

	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	32 CPM	29.4 DPM	0.633 / H-3
CHANNEL 2:	28 CPM	18.0 DPM	0.965 / C-14
CHANNEL 3:	26 CPM	N/A	N/A
BECKMAN LS6800:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A
CHANNEL 3:	N/A	N/A	N/A

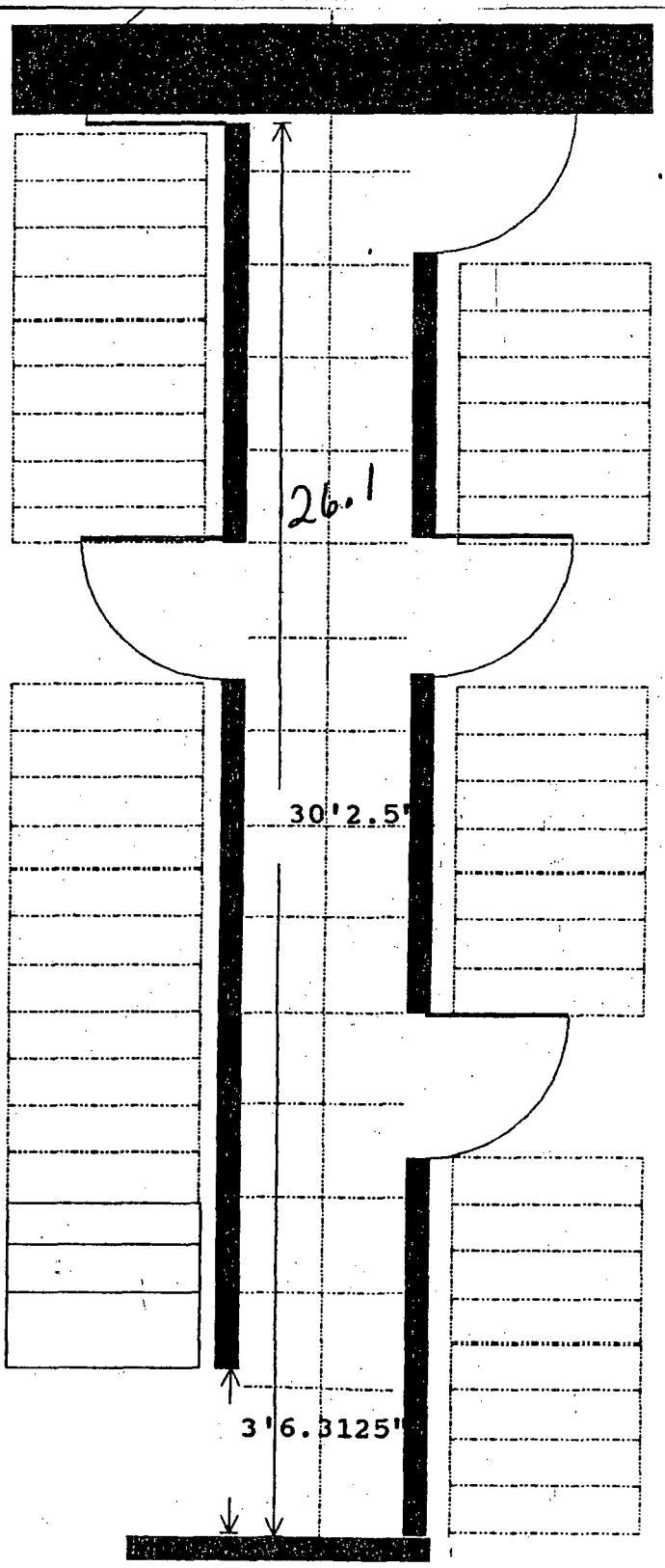
QUALITY ASSURANCE REPORT - BETA
FOR DATE:07/14/93

	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	31 CPM	28.8 DPM	0.636 / H-3
CHANNEL 2:	28 CPM	18.1 DPM	0.962 / C-14
CHANNEL 3:	25 CPM	16.5 DPM	1.004 / P-32
BECKMAN LS6800:			
CHANNEL 1:	33 CPM	32.4 DPM	0.583 / H-3
CHANNEL 2:	25 CPM	17.2 DPM	0.954 / C-14
CHANNEL 3:	21 CPM	14.9 DPM	1.011 / P-32

Ke West Decommissioning Survey

Fixed Gamma Contamination Survey-Hallway 2

Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 02 Jul 93 and 14 Jul 93

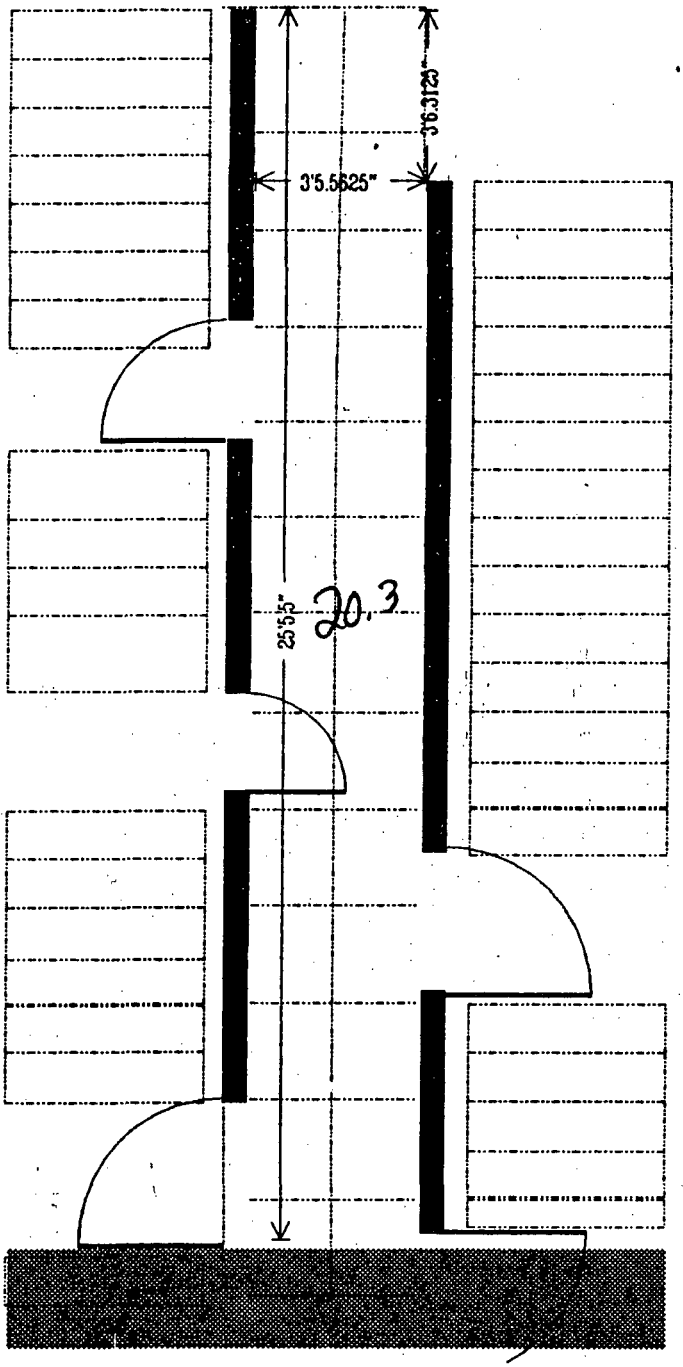
All Measurements are in uR/hr

Reviewed by: Donald K Thom on 10 Aug 93

Attachment 4

Ke[illegible]est Decommissioning Survey

Fixed Gamma Contamination Survey-Hallway 2
Scale 1 inch = 4 feet



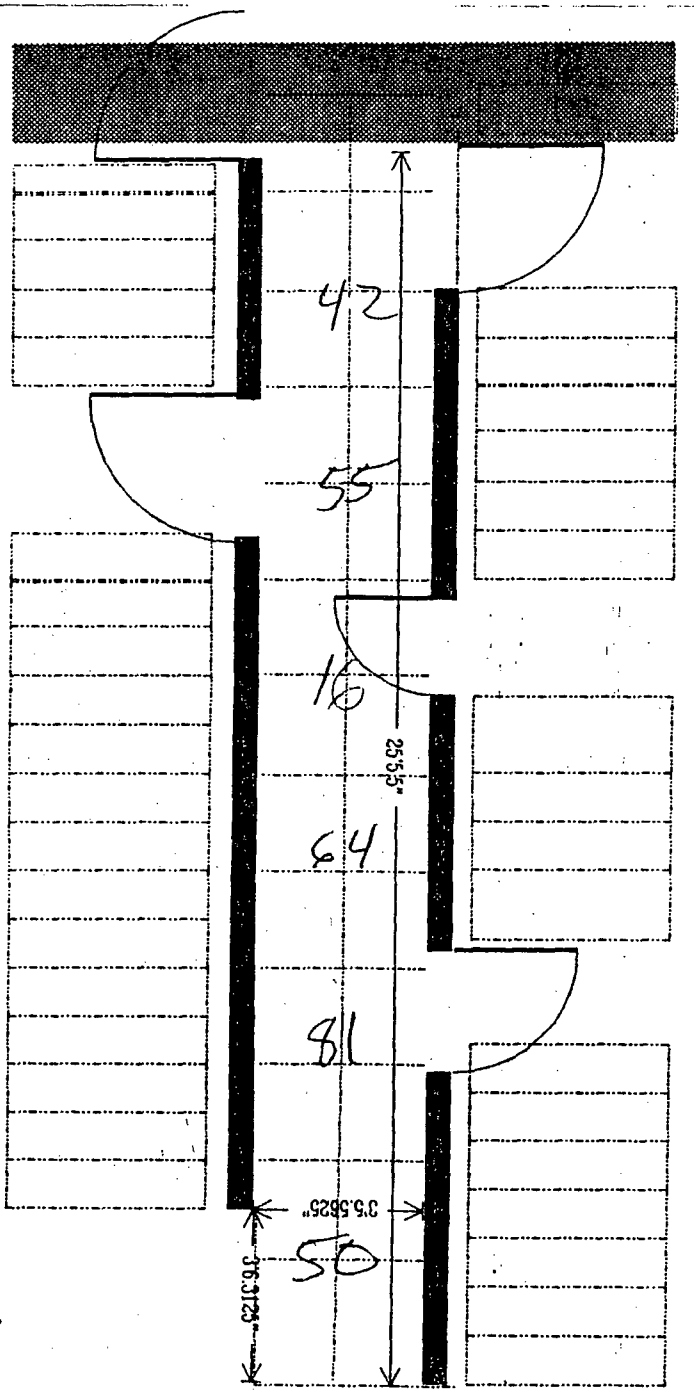
Conducted by: SPC Brinley on 02 Jul 93 and 14 Jul 93
All Measurements are in uR/hr

Reviewed by: Donald K Green on 10 Aug 93

Attachment 4

Key West Decommissioning Survey

Fixed Beta Contamination Survey-Hallway 2
Scale 1 inch = 4 feet

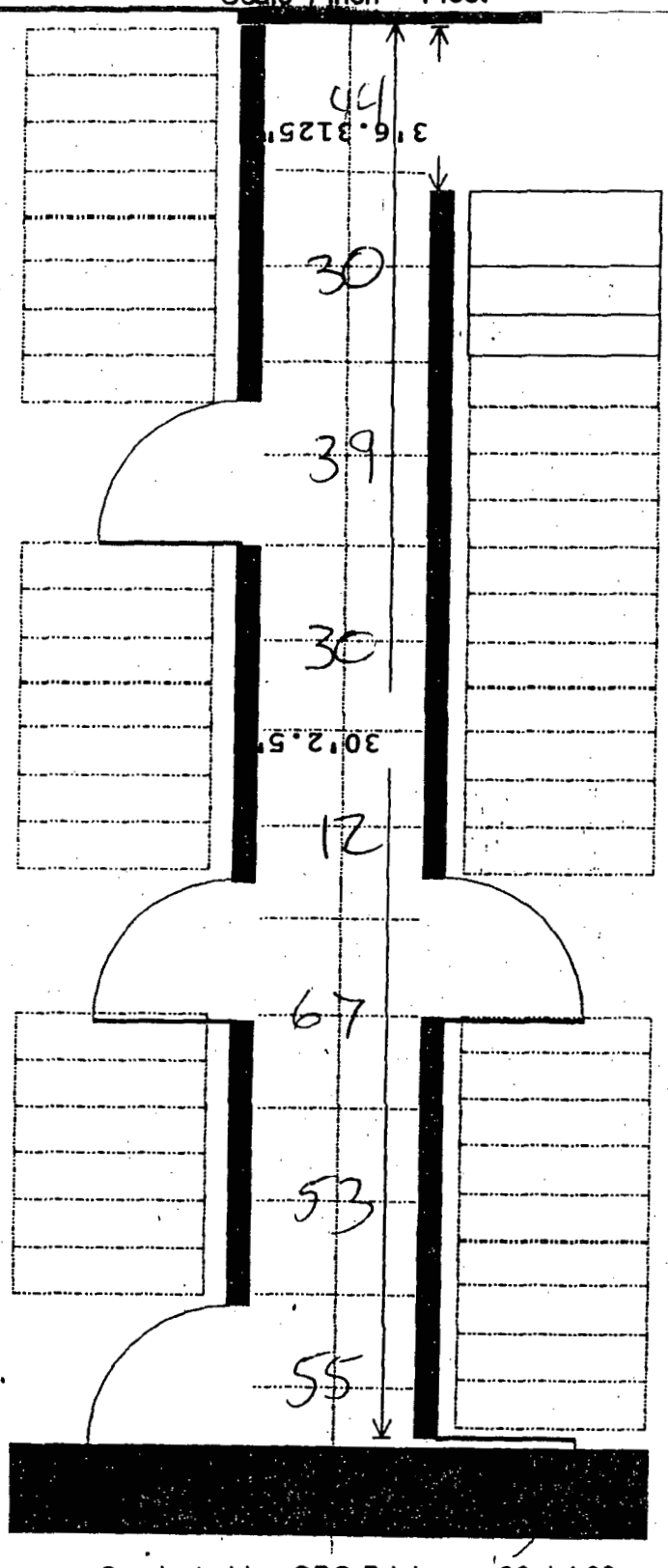


Conducted by: SPC Brinley on 26 Jul 93
All Measurements are Gross Counts in One Minute
Reviewed by: Donald K Green on 10 Aug 93

Attachment 5

Fixed Beta Contamination Survey-Hallway 2

Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 26 Jul 93

All Measurements are Gross Counts in One Minute

Reviewed by: Donald K Green on 10 Aug 93

KEY WEST DECOMMISSIONING SURVEY

Hallway - 3

REMOVABLE CONTAMINATION

Hallway Number 3 was surveyed for removable contamination on 21 Jun 93 by SPC Brinley. A total of 130 swipes were taken. See Attachment 1 for the location of each swipe.

The swipes were analyzed for gamma contamination, utilizing the LKB Gammawell Counter on 21 Jun 93. See Attachment 2 for the MDAs and associated efficiencies. No gamma contamination was found above 200 dpm for I-125 or above 2000 dpm for any other isotope.

The swipes were analyzed for beta contamination, utilizing the Beckman Liquid Scintillation Counter Model 5000 on 21 Jun 93. See Attachment 3 for the MDAs and associated efficiencies. No beta contamination was found above 200 dpm for any isotope.

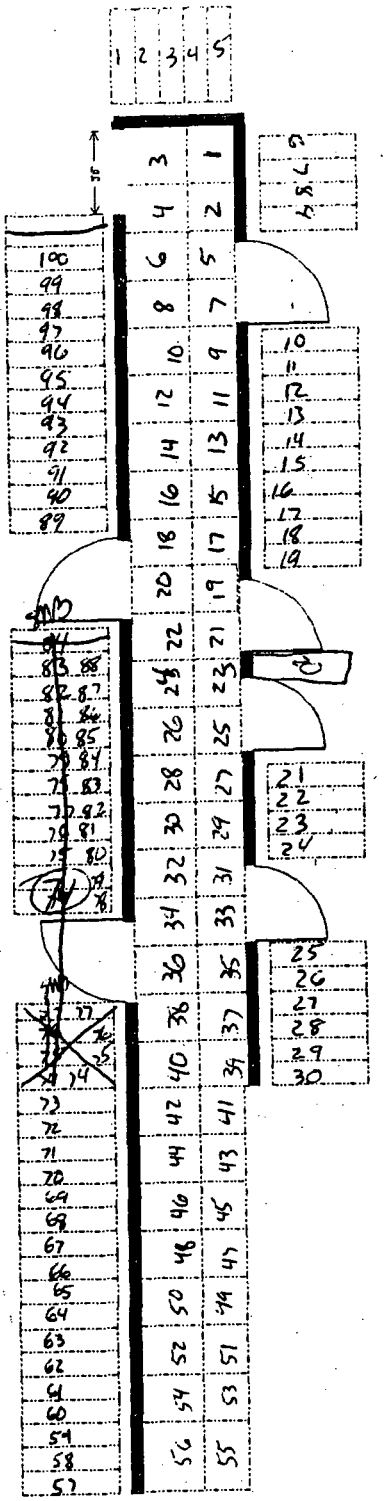
FIXED CONTAMINATION

A fixed gamma survey was conducted on 21 Jun 93 by SPC Brinley. The highest exposure rate found was 23.9 uR/hr. See Attachment 4 for the location of readings taken.

A fixed beta survey was conducted on 26 Jul 93 by SPC Brinley. The highest number of counts found during a one minute count-time was 70 cpm. The average number of counts found during a one minute count-time was 30 cpm. See Attachment 5 for the location of readings taken.

As well as being reviewed at the time of the survey/receipt of laboratory results, all pertinent survey data was reviewed and compiled here by SFC Green on 9 Aug 93.

Removable Contamination Survey-Hallway 3
Scale 1 inch = 8 feet



Conducted by: SPC Brinley on 21 Jun 93
Lab analysis by (gamma): SSG Koelker on 21 Jun 93
(beta) : SSG Koelker on 21 Jun 93

Reviewed by: Donald K Gran on 10 Aug 93

Attachment 1

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:06/21/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	53 CPM	32.2 DPM	0.742 / I-125
CHANNEL 2:	198 CPM	709.2 DPM	0.065 / CR-51
BECKMAN:			
CHANNEL 1:	52 CPM	22.1 DPM	1.075 / I-125
CHANNEL 2:	198 CPM	452.3 DPM	0.102 / CR-51

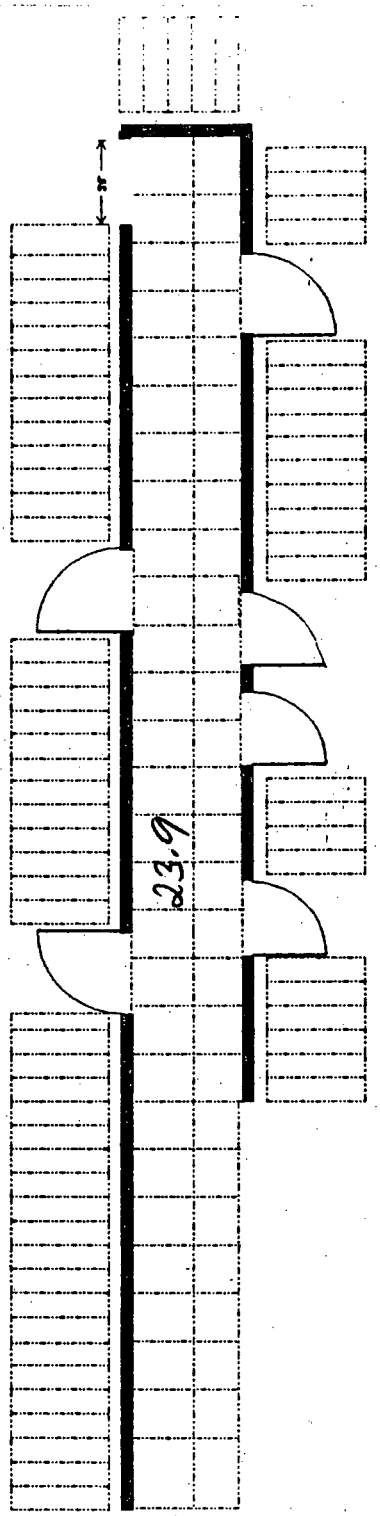
ATTACHMENT 2

QUALITY ASSURANCE REPORT - BETA
FOR DATE: 06/21/93

	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	32 CPM	29.4 DPM	0.633 / H-3
CHANNEL 2:	28 CPM	18.0 DPM	0.965 / C-14
CHANNEL 3:	26 CPM	N/A	N/A
BECKMAN LS6800:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A
CHANNEL 3:	N/A	N/A	N/A

Key West Decommissioning Survey

Fixed Gamma Contamination Survey-Hallway 3
Scale 1 inch = 8 feet



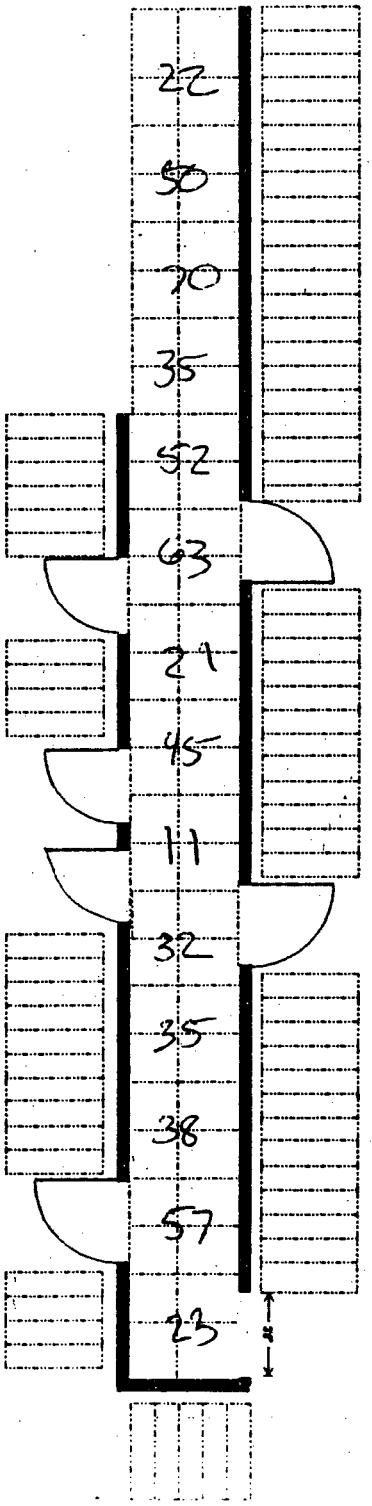
Conducted by: SPC Brinley on 21 Jun 93
All Measurements are in uR/hr

Reviewed by: Donald K Green on 10 Aug 93

Attachment 4

Key West Decommissioning Survey

Fixed Beta Contamination Survey-Hallway 3
Scale 1 inch = 8 feet



Conducted by: SPC Brinley on 26 Jul 93
All Measurements are Gross Counts in One Minute

Reviewed by: Donald K Green on 10 Aug 93

Attachment 5

KEY WEST DECOMMISSIONING SURVEY

Hallway - 4

REMOVABLE CONTAMINATION

Hallway Number 4 was surveyed for removable contamination on 19 Jul 93 by SFC Green. A total of 84 swipes were taken. See Attachment 1 for the location of each swipe.

The swipes were analyzed for gamma contamination, utilizing the LKB Gammawell Counter on 19 Jul 93. See Attachment 2 for the MDAs and associated efficiencies. No gamma contamination was found above 200 dpm for I-125 or above 2000 dpm for any other isotope.

The swipes were analyzed for beta contamination, utilizing the Beckman Liquid Scintillation Counter Model 5000 on 19 Jul 93. See Attachment 3 for the MDAs and associated efficiencies. No beta contamination was found above 200 dpm for any isotope.

FIXED CONTAMINATION

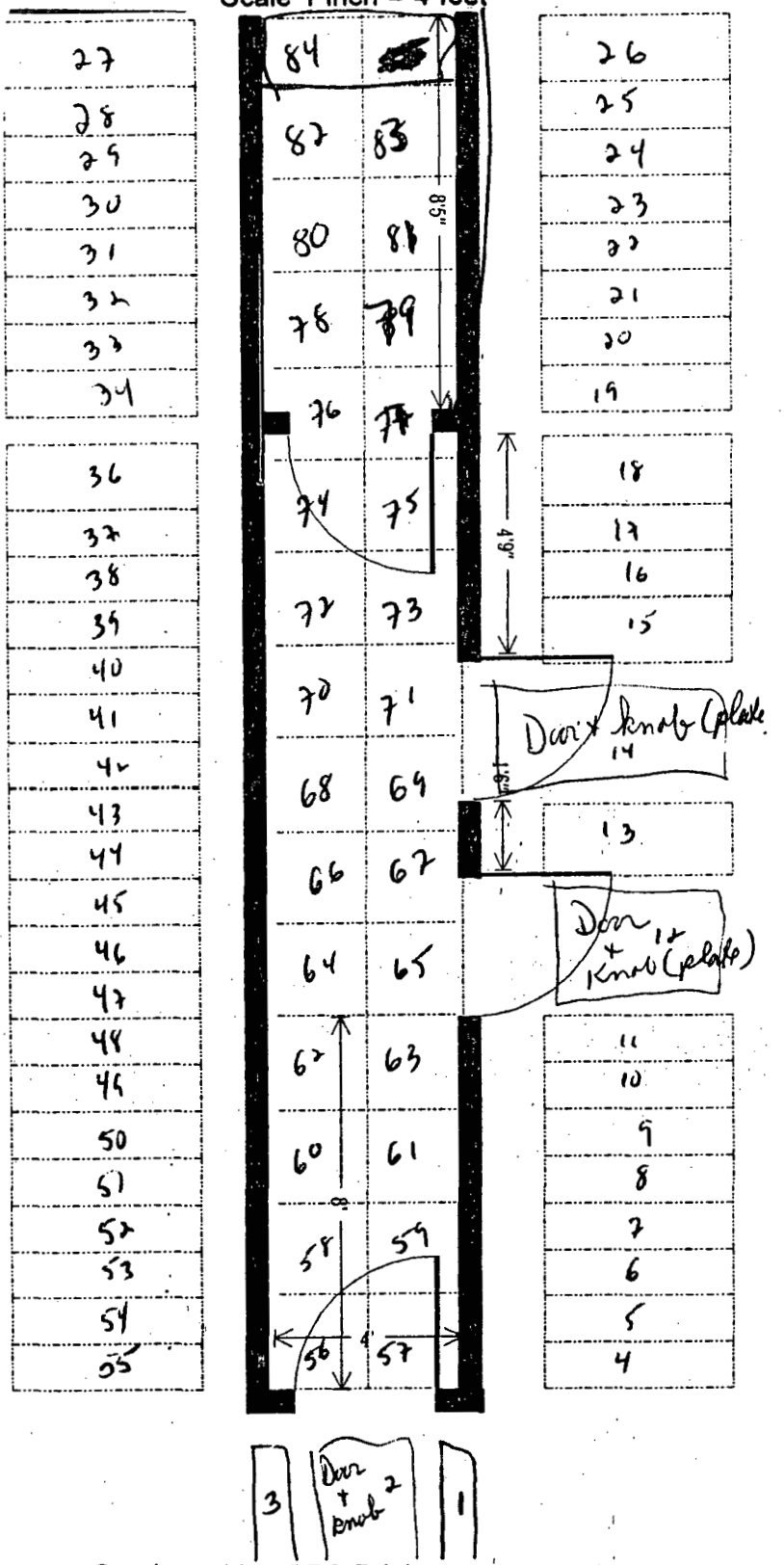
A fixed gamma survey was conducted on 19 Jul 93 by SPC Brinley. The highest exposure rate found was 29.4 uR/hr. See Attachment 4 for the location of readings taken.

A fixed beta survey was conducted on 26 Jul 93 by SPC Brinley. The highest number of counts found during a one minute count-time was 71 cpm. The average number of counts found during a one minute count-time was 40 cpm. See Attachment 5 for the location of readings taken.

As well as being reviewed at the time of the survey/receipt of laboratory results, all pertinent survey data was reviewed and compiled here by SFC Green on 9 Aug 93.

Removable Contamination Survey-Hallway 4

Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 19 Jul 93

Lab analysis by (gamma): SSG Koelker on 19 Jul 93

(beta) : SSG Koelker on 19 Jul 93

Reviewed by: Donald K Gleason on 10 Aug 93

Attachment 1

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:07/19/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	46 CPM	32.8 DPM	0.680 / I-125
CHANNEL 2:	194 CPM	724.5 DPM	0.063 / CR-51
BECKMAN:			
CHANNEL 1:	50 CPM	23.3 DPM	0.999 / I-125
CHANNEL 2:	198 CPM	393.6 DPM	0.118 / CR-51

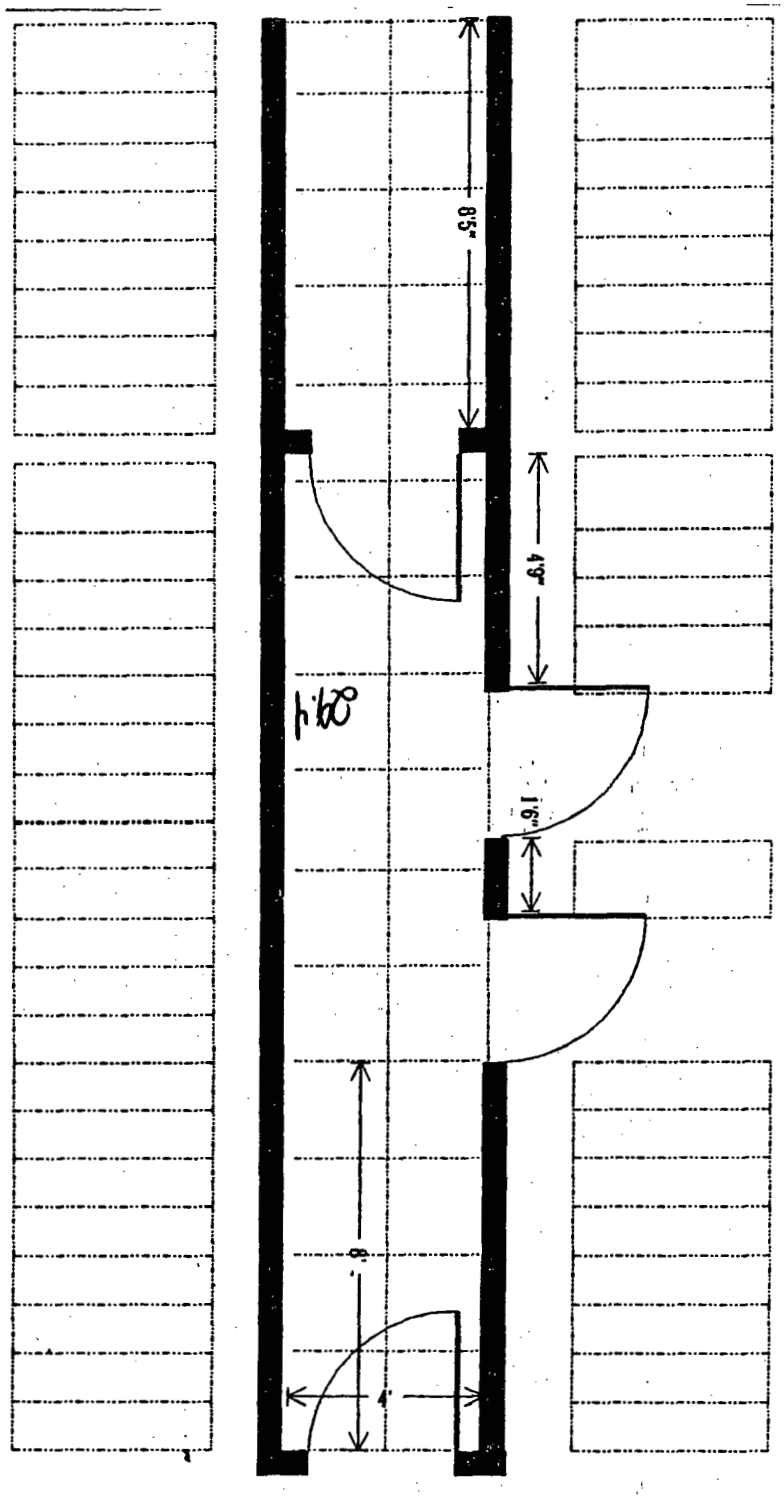
ATTACHMENT 2

QUALITY ASSURANCE REPORT - BETA
FOR DATE:07/19/93

	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	31 CPM	28.8 DPM	0.636 / H-3
CHANNEL 2:	28 CPM	18.1 DPM	0.962 / C-14
CHANNEL 3:	25 CPM	16.5 DPM	1.004 / P-32
BECKMAN LS6800:			
CHANNEL 1:	33 CPM	32.4 DPM	0.583 / H-3
CHANNEL 2:	25 CPM	17.2 DPM	0.954 / C-14
CHANNEL 3:	21 CPM	14.9 DPM	1.011 / P-32

Key West Decommissioning Survey

Fixed Gamma Contamination Survey-Hallway 4
Scale 1 inch = 4 feet



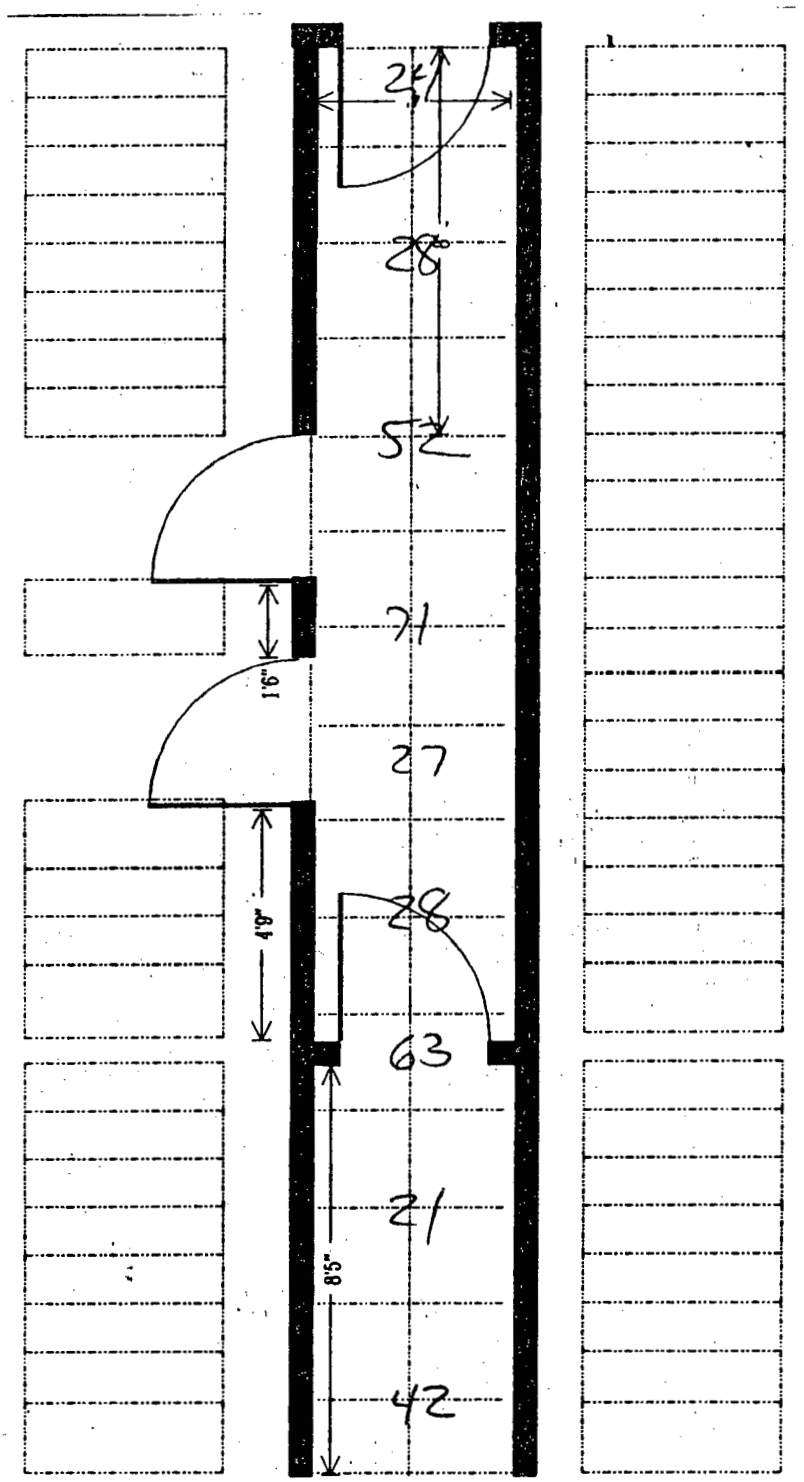
Conducted by: SPC Brinley on 19 Jul 93
All Measurements are in uR/hr

Reviewed by: Donald K Green on 10 Aug 93

Attachment 4

Key W st Decommissioning Survey

Fixed Beta Contamination Survey-Hallway 4
Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 26 Jul 93
All Measurements are Gross Counts in One Minute

Reviewed by: Donald K Thom on 26 Aug 93

Attachment 5

KEY WEST DECOMMISSIONING SURVEY

Hallway - 5

REMOVABLE CONTAMINATION

Hallway Number 5 was surveyed for removable contamination on 16 Jul 93 by SPC Brinley. A total of 120 swipes were taken. See Attachment 1 for the location of each swipe.

The swipes were analyzed for gamma contamination, utilizing the LKB Gammawell Counter on 16 Jul 93. See Attachment 2 for the MDAs and associated efficiencies. No gamma contamination was found above 200 dpm for I-125 or above 2000 dpm for any other isotope.

The swipes were analyzed for beta contamination, utilizing the Beckman Liquid Scintillation Counter Model 6800 on 16 Jul 93. See Attachment 3 for the MDAs and associated efficiencies. No beta contamination was found above 200 dpm for any isotope.

FIXED CONTAMINATION

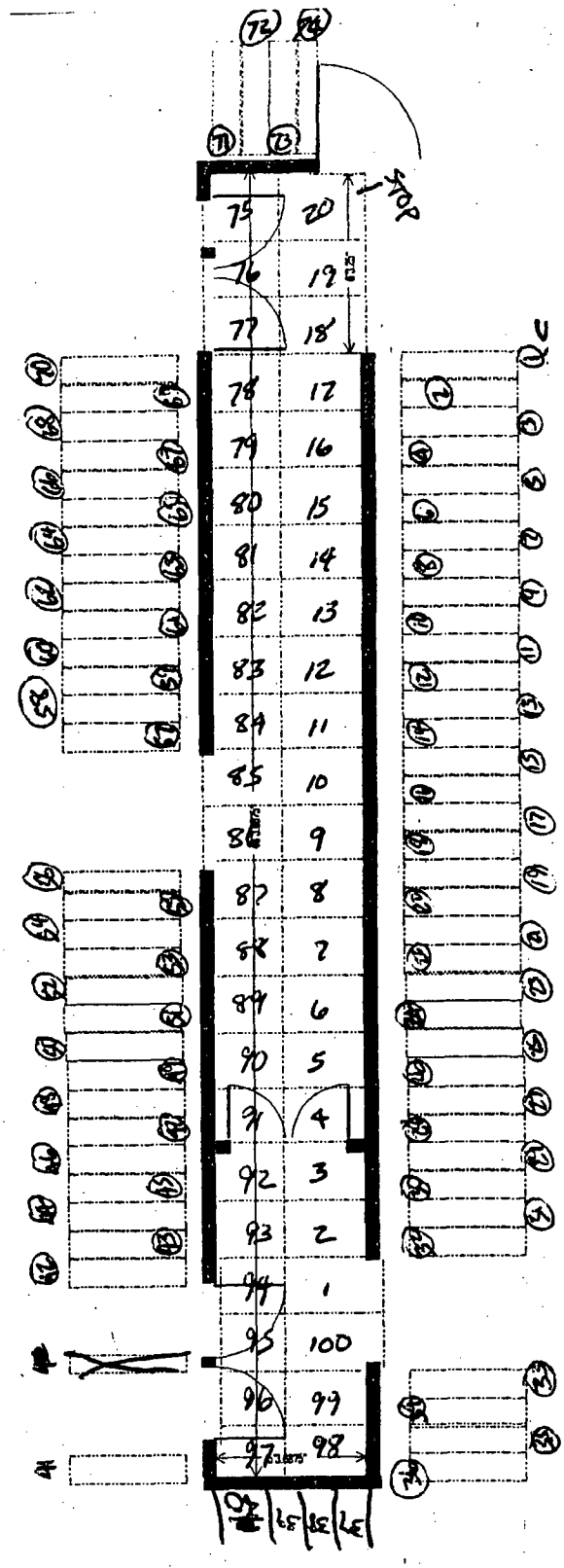
A fixed gamma survey was conducted on 16 Jul 93 by SPC Brinley. The highest exposure rate found was 19.2 uR/hr. See Attachment 4 for the location of readings taken.

A fixed beta survey was conducted on 26 Jul 93 by SPC Brinley. The highest number of counts found during a one minute count-time was 94 cpm. The average number of counts found during a one minute count-time was 45 cpm. See Attachment 5 for the location of readings taken.

As well as being reviewed at the time of the survey/receipt of laboratory results, all pertinent survey data was reviewed and compiled here by SFC Green on 9 Aug 93.

Removable Contamination Survey-Hallway 5

Scale 1 inch = 6.6 feet



Conducted by: SPC Brinley on 16 Jul 93

Lab analysis by (gamma): SSG Koelker on 16 Jul 93

(beta) : SSG Koelker on 16 Jul 93

Reviewed by: Donald K Green on 10 Aug 93

Attachment 1

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:07/16/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	46 CPM	32.8 DPM	0.680 / I-125
CHANNEL 2:	194 CPM	724.5 DPM	0.063 / CR-51
BECKMAN:			
CHANNEL 1:	50 CPM	23.3 DPM	0.999 / I-125
CHANNEL 2:	198 CPM	393.6 DPM	0.118 / CR-51

ATTACHMENT 2

QUALITY ASSURANCE REPORT - BETA
FOR DATE:07/16/93

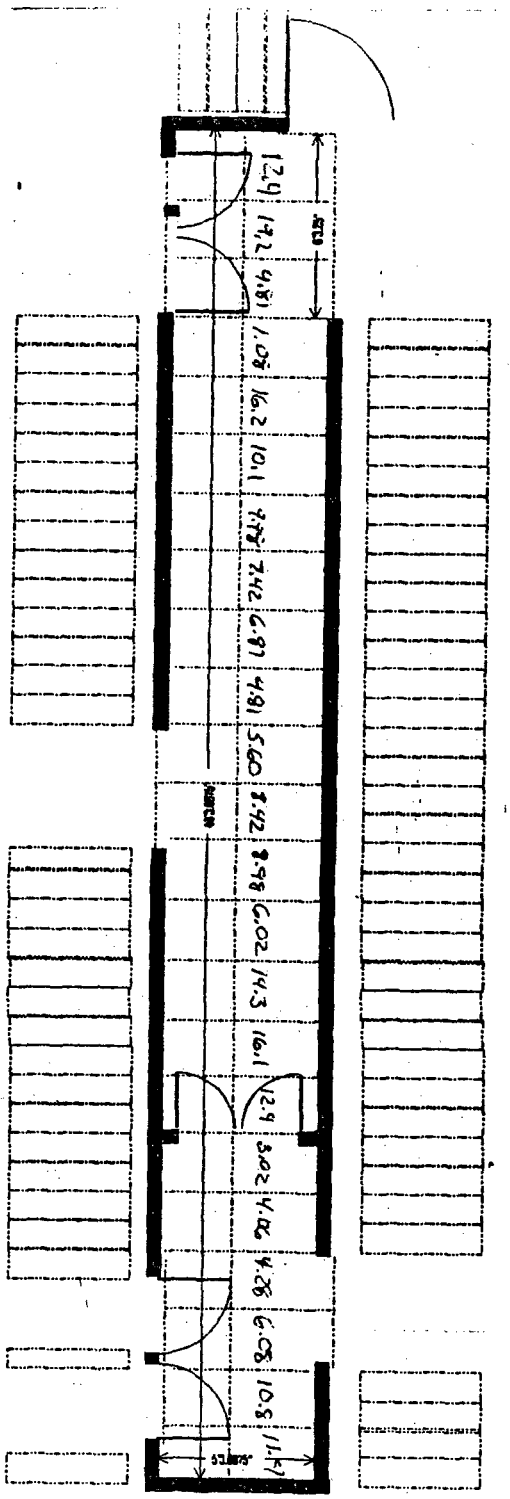
	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	31 CPM	28.8 DPM	0.636 / H-3
CHANNEL 2:	28 CPM	18.1 DPM	0.962 / C-14
CHANNEL 3:	25 CPM	16.5 DPM	1.004 / P-32
BECKMAN LS6800:			
CHANNEL 1:	33 CPM	32.4 DPM	0.583 / H-3
CHANNEL 2:	25 CPM	17.2 DPM	0.954 / C-14
CHANNEL 3:	21 CPM	14.9 DPM	1.011 / P-32

ATTACHMENT 3

Key West Decommissioning Survey

Fixed Gamma Contamination Survey-Hallway 5

Scale 1 inch = 6.6 feet



Conducted by: SPC Brinley on 16 Jul 93

All Measurements are in uR/hr

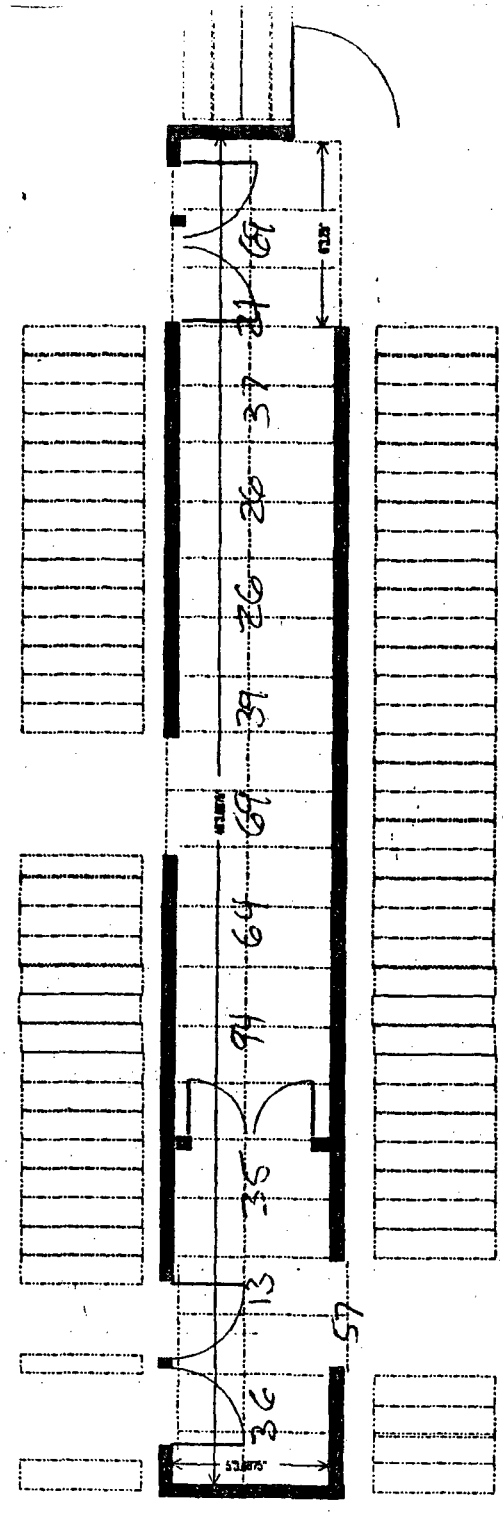
Reviewed by: Donald K Lewis on 16 Aug 93

Attachment 4

Key West Decommissioning Survey

Fixed Beta Contamination Survey-Hallway 5

Scale 1 inch = 6.6 feet



Conducted by: SPC Brinley on 26 Jul 93

All Measurements are Gross Counts in One Minute

Reviewed by: 10 Aug 93 Donald K Gross

Attachment 5

KEY WEST DECOMMISSIONING SURVEY

Hallway - 6

REMOVABLE CONTAMINATION

Hallway Number 6 was surveyed for removable contamination on 14 Jul 93 by SPC Brinley. A total of 40 swipes were taken. See Attachment 1 for the location of each swipe.

The swipes were analyzed for gamma contamination, utilizing the LKB Gammawell Counter on 14 Jul 93. See Attachment 2 for the MDAs and associated efficiencies. No gamma contamination was found above 200 dpm for I-125 or above 2000 dpm for any other isotope.

The swipes were analyzed for beta contamination, utilizing the Beckman Liquid Scintillation Counter Model 5000 on 14 Jul 93. See Attachment 3 for the MDAs and associated efficiencies. No beta contamination was found above 200 dpm for any isotope.

FIXED CONTAMINATION

A fixed gamma survey was conducted on 14 Jul 93 by SPC Brinley. The highest exposure rate found was 21.4 uR/hr. See Attachment 4 for the location of readings taken.

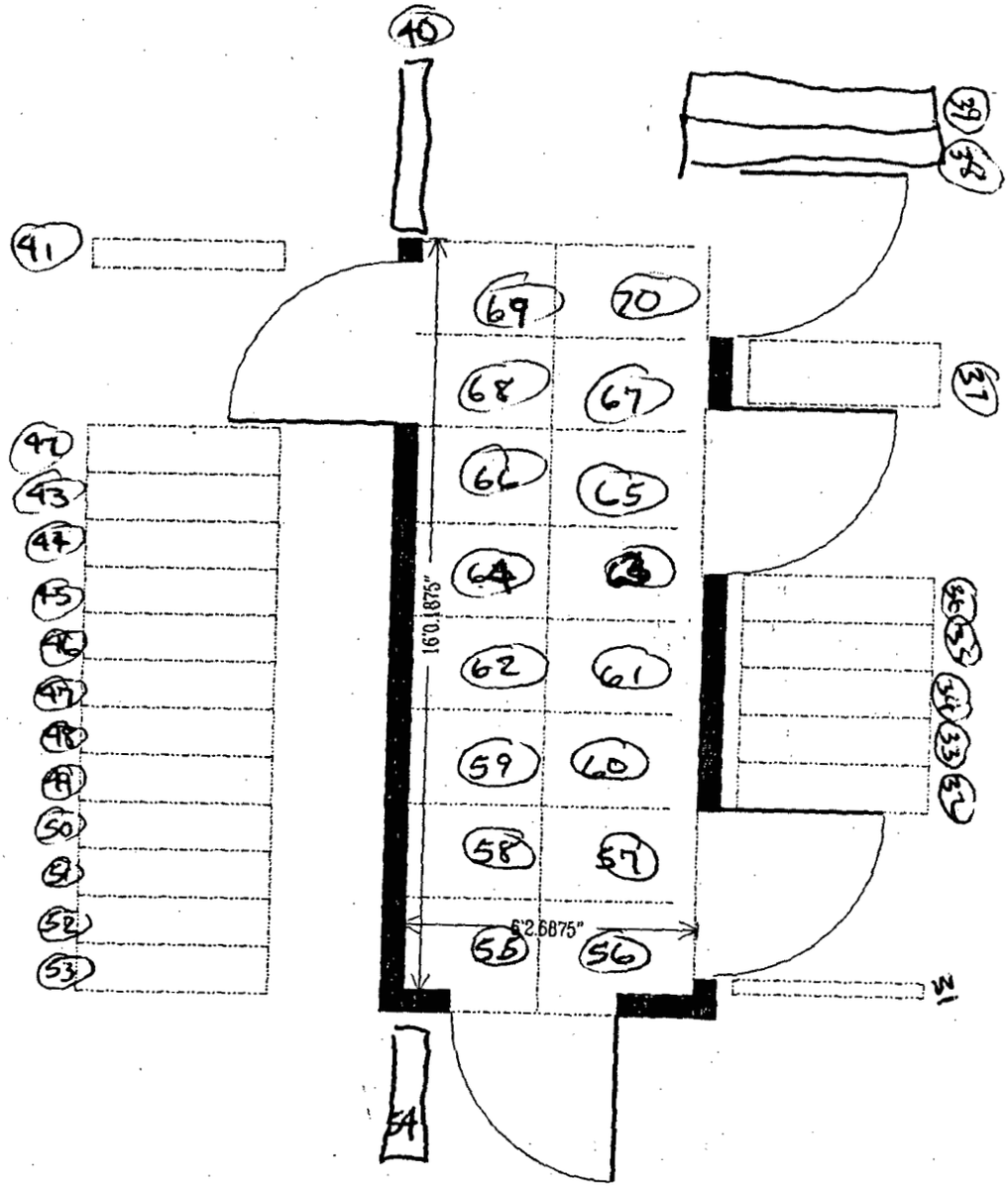
A fixed beta survey was conducted on 26 Jul 93 by SPC Brinley. The highest number of counts found during a one minute count-time was 43 cpm. The average number of counts found during a one minute count-time was 35 cpm. See Attachment 5 for the location of readings taken.

As well as being reviewed at the time of the survey/receipt of laboratory results, all pertinent survey data was reviewed and compiled here by SFC Green on 9 Aug 93.

Ke Vest Decommissioning Survey

Removable Contamination Survey-Hallway 6

Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 14 Jul 93
Lab analysis by (gamma): SSG Koelker on 14 Jul 93
(beta) : SSG Koelker on 14 Jul 93

Reviewed by: Donald K Grass on 10 Aug 93

Attachment 1

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:07/14/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	49 CPM	30.1 DPM	0.764 / I-125
CHANNEL 2:	197 CPM	676.4 DPM	0.068 / CR-51
BECKMAN:			
CHANNEL 1:	46 CPM	23.0 DPM	0.970 / I-125
CHANNEL 2:	194 CPM	440.0 DPM	0.104 / CR-51

ATTACHMENT 2

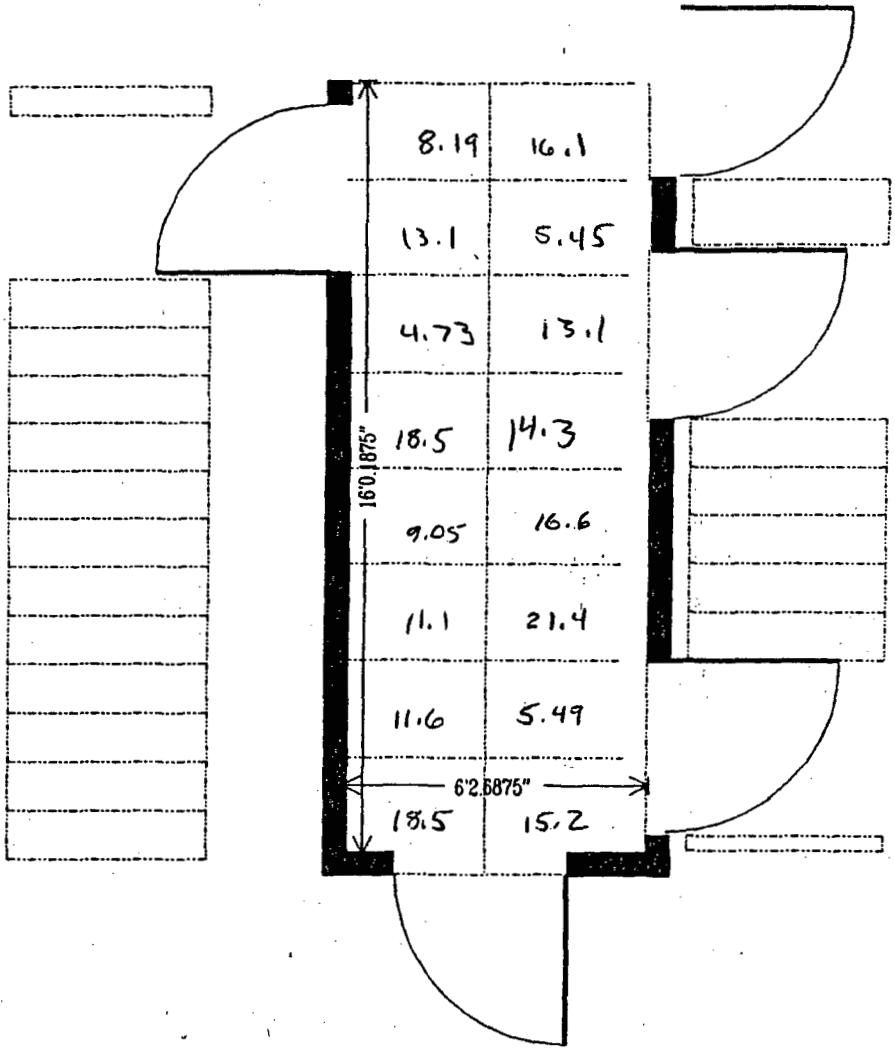
QUALITY ASSURANCE REPORT - BETA
FOR DATE:07/14/93

	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	31 CPM	28.8 DPM	0.636 / H-3
CHANNEL 2:	28 CPM	18.1 DPM	0.962 / C-14
CHANNEL 3:	25 CPM	16.5 DPM	1.004 / P-32
BECKMAN LS6800:			
CHANNEL 1:	33 CPM	32.4 DPM	0.583 / H-3
CHANNEL 2:	25 CPM	17.2 DPM	0.954 / C-14
CHANNEL 3:	21 CPM	14.9 DPM	1.011 / P-32

Ke Vest Decommissioning Survey

Fixed Gamma Contamination Survey-Hallway 6

Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 14 Jul 93

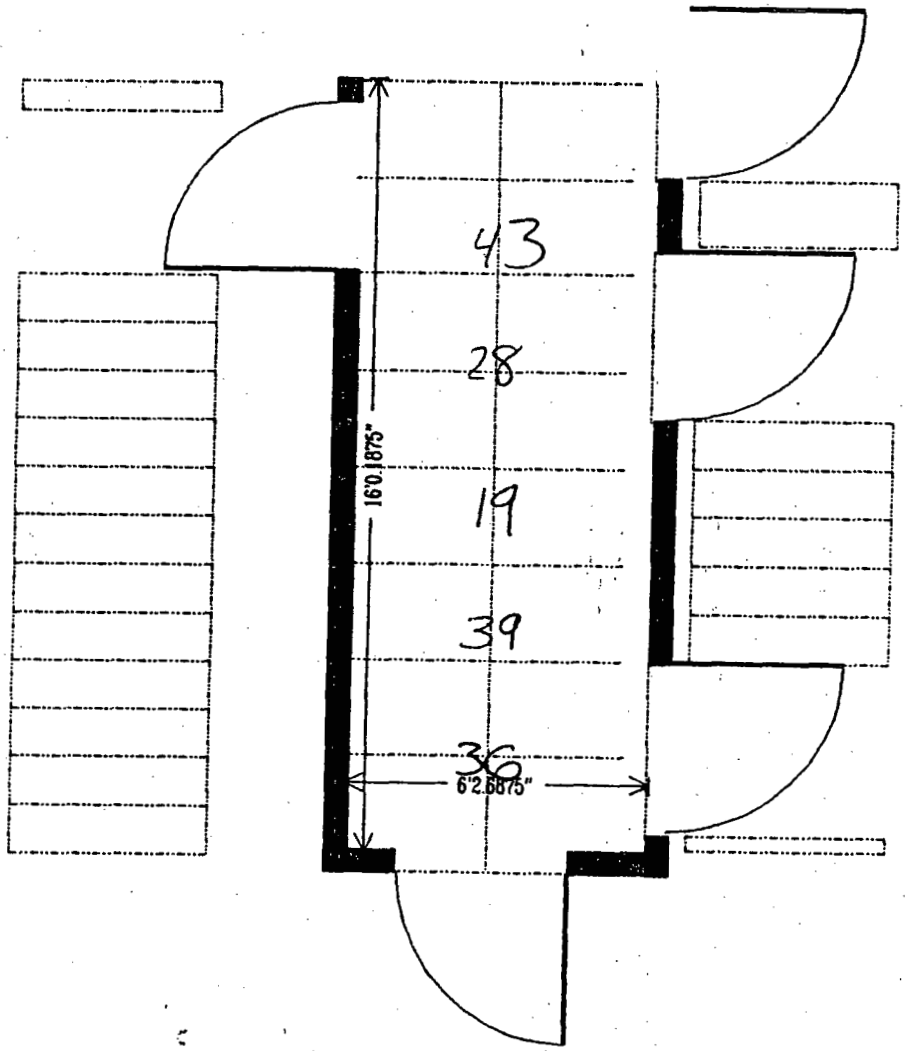
All Measurements are in uR/hr

Reviewed by: Donald L. Thaxton on 10 Aug 93

Attachment 4

Key est Decommissioning Survey

Fixed Beta Contamination Survey-Hallway 6
Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 26 Jul 93
All Measurements are Gross Counts in One Minute

Reviewed by: Donald K Green on 10 Aug 93

Attachment 5

KEY WEST DECOMMISSIONING SURVEY

Hallway - 7

REMOVABLE CONTAMINATION

Hallway Number 7 was surveyed for removable contamination on 14 Jul 93 by SPC Brinley. A total of 93 swipes were taken. See Attachment 1 for the location of each swipe.

The swipes were analyzed for gamma contamination, utilizing the LKB Gammawell Counter on 14 Jul 93. See Attachment 2 for the MDAs and associated efficiencies. No gamma contamination was found above 200 dpm for I-125 or above 2000 dpm for any other isotope.

The swipes were analyzed for beta contamination, utilizing the Beckman Liquid Scintillation Counter Model 6800 on 14 Jul 93. See Attachment 3 for the MDAs and associated efficiencies. No beta contamination was found above 200 dpm for any isotope.

FIXED CONTAMINATION

A fixed gamma survey was conducted on 14 Jul 93 by SSG Webster. The highest exposure rate found was 18.3 uR/hr. See Attachment 4 for the location of readings taken.

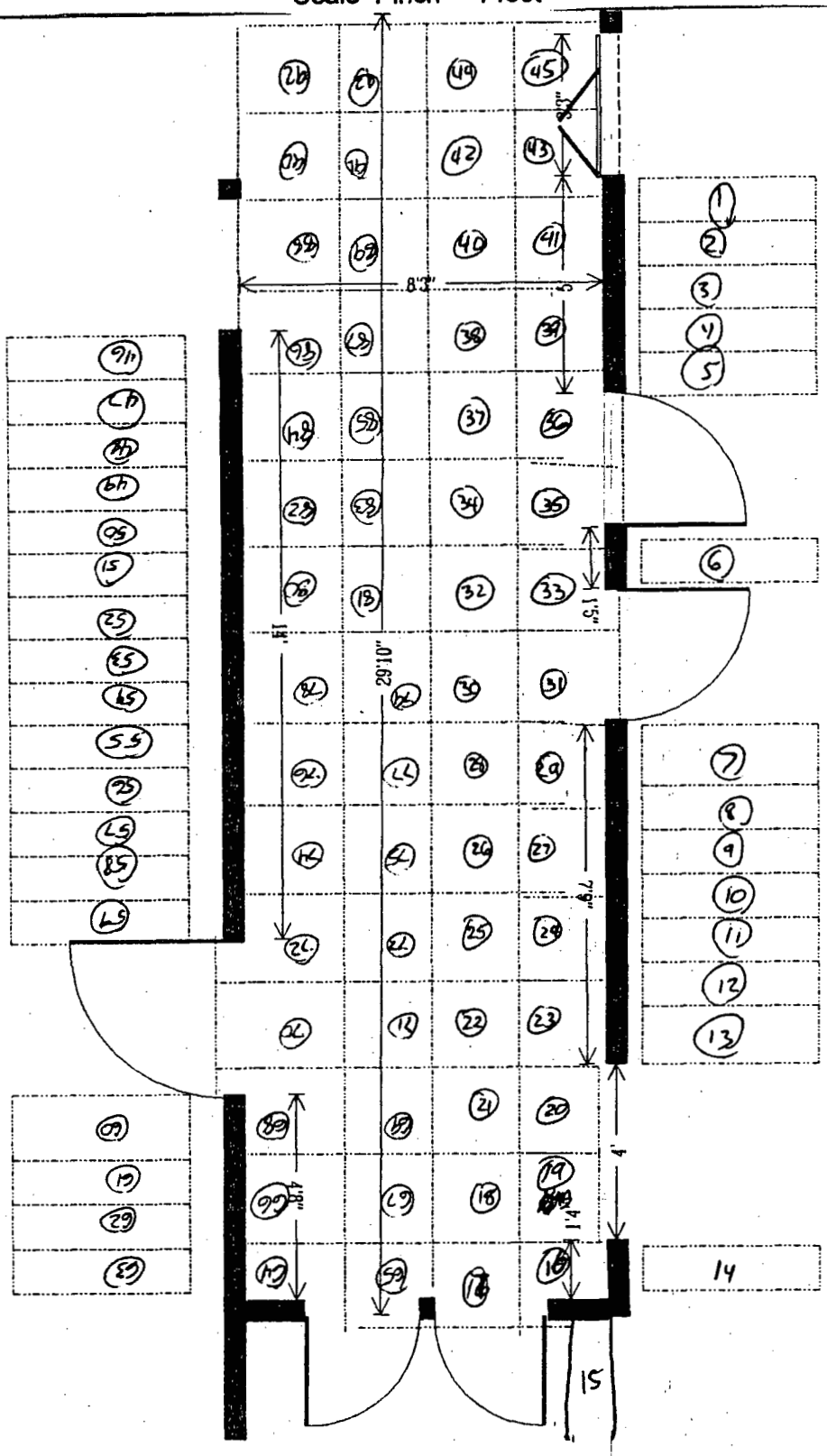
A fixed beta survey was conducted on 26 Jul 93 by SPC Brinley. The highest number of counts found during a one minute count-time was 88 cpm. The average number of counts found during a one minute count-time was 40 cpm. See Attachment 5 for the location of readings taken.

As well as being reviewed at the time of the survey/receipt of laboratory results, all pertinent survey data was reviewed and compiled here by SFC Green on 9 Aug 93.

Key W t Decommissioning Survey

Removable Contamination Survey-Hallway 7

Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 14 Jul 93

Lab analysis by (gamma): SSG Koelker on 14 Jul 93

(beta) : SSG Koelker on 14 Jul 93

Reviewed by: Donald K Heem on 10 Aug 93

Attachment 1

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:07/14/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	49 CPM	30.1 DPM	0.764 / I-125
CHANNEL 2:	197 CPM	676.4 DPM	0.068 / CR-51
BECKMAN:			
CHANNEL 1:	46 CPM	23.0 DPM	0.970 / I-125
CHANNEL 2:	194 CPM	440.0 DPM	0.104 / CR-51

ATTACHMENT 2

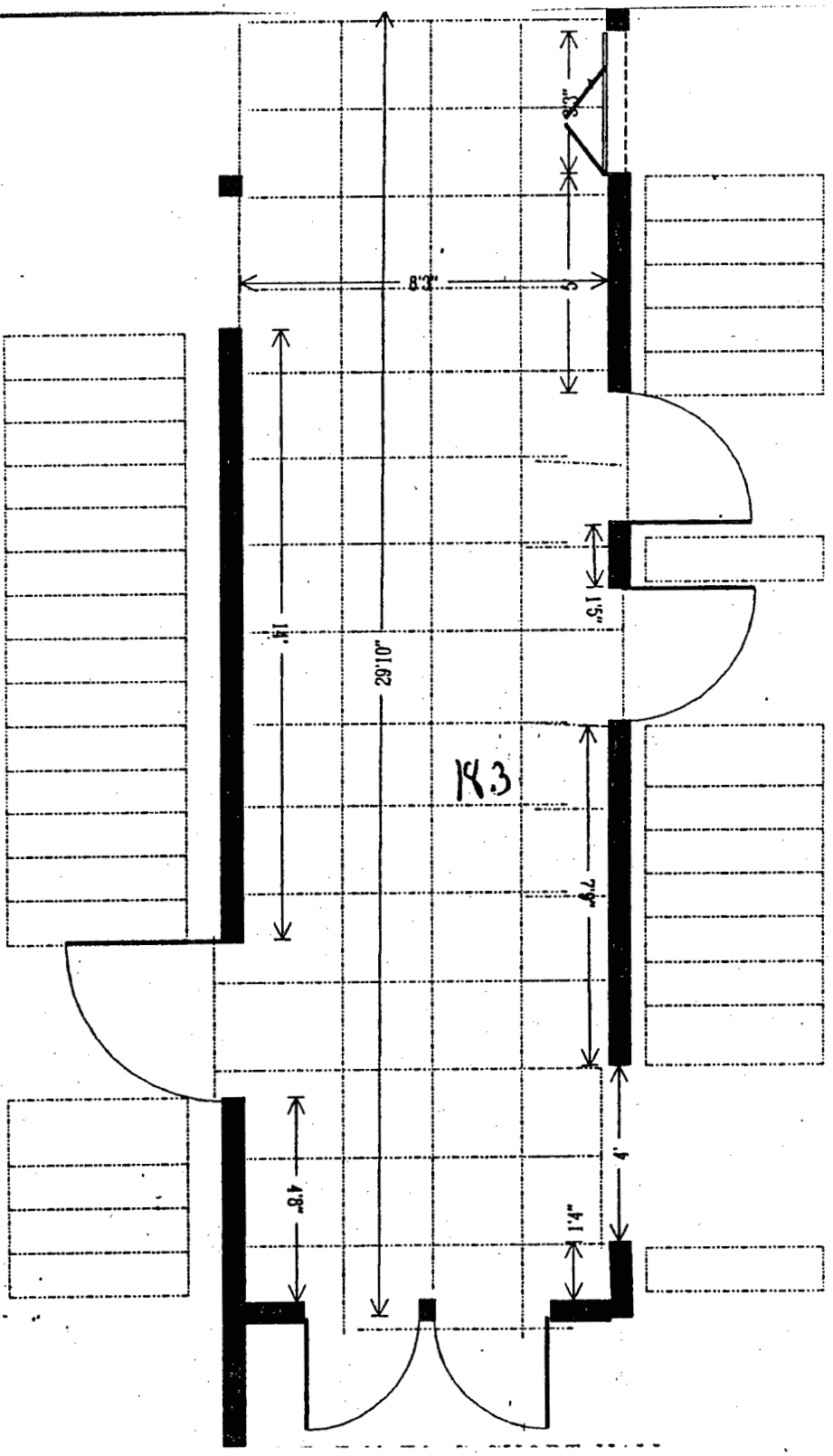
QUALITY ASSURANCE REPORT - BETA
FOR DATE: 07/14/93

	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	31 CPM	28.8 DPM	0.636 / H-3
CHANNEL 2:	28 CPM	18.1 DPM	0.962 / C-14
CHANNEL 3:	25 CPM	16.5 DPM	1.004 / P-32
BECKMAN LS6800:			
CHANNEL 1:	33 CPM	32.4 DPM	0.583 / H-3
CHANNEL 2:	25 CPM	17.2 DPM	0.954 / C-14
CHANNEL 3:	21 CPM	14.9 DPM	1.011 / P-32

Ke[illegible]est Decommissioning Survey

Fixed Gamma Contamination Survey-Hallway 7

Scale 1 inch = 4 feet



Conducted by: SSG Webster on 14 Jul 93

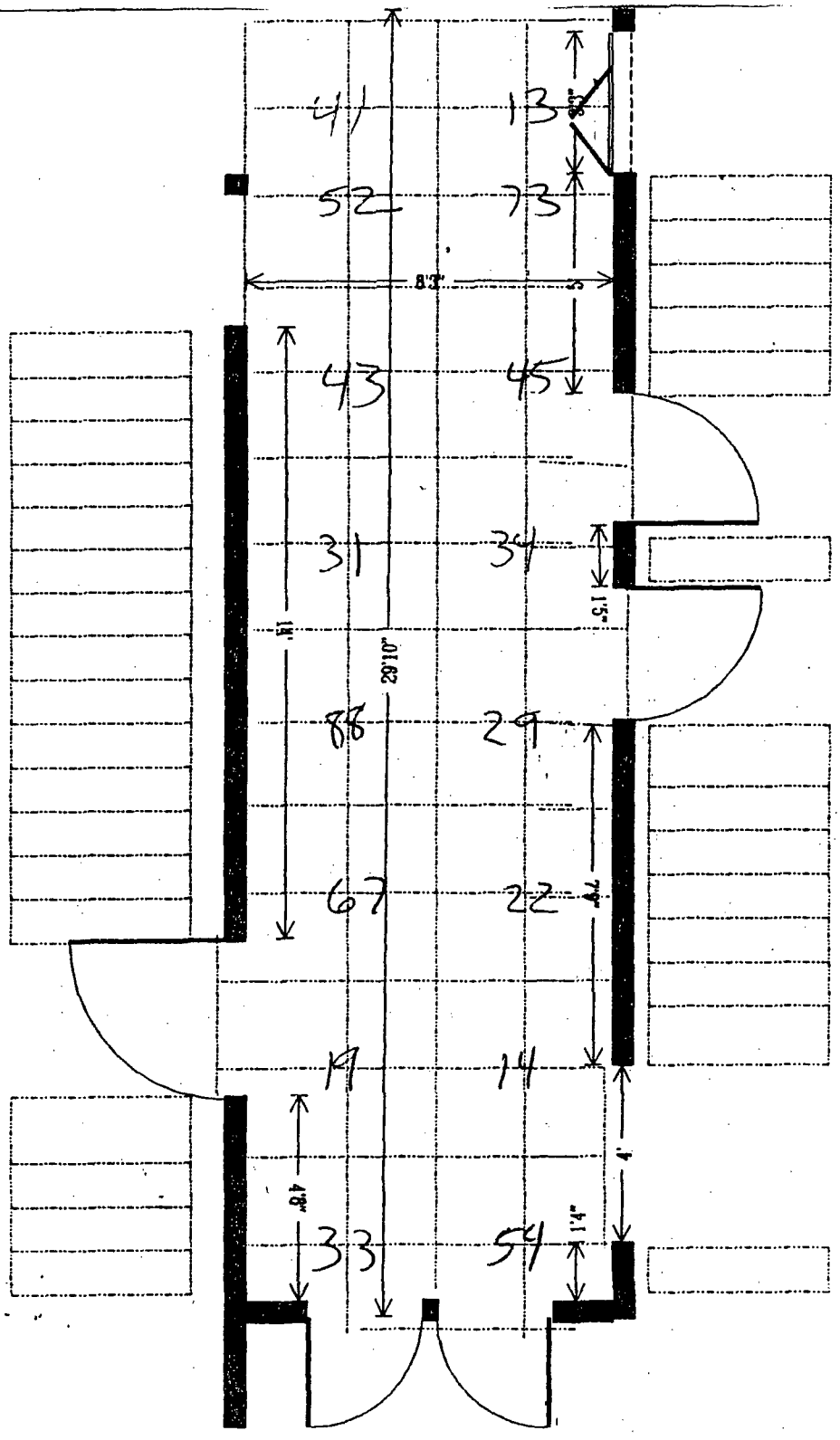
All Measurements are in uR/hr

Reviewed by: Donald K Green on 10 Aug 93

Attachment 4

Key st Decommissioning Survey

Fixed Beta Contamination Survey-Hallway 7
Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 26 Jul 93
All Measurements are Gross Counts in One Minute

Reviewed by: Donald K Green on 10 Aug 93

Attachment 5

KEY WEST DECOMMISSIONING SURVEY

Hallway - 8

REMOVABLE CONTAMINATION

Hallway Number 8 was surveyed for removable contamination on 21 Jun (South end) and 30 Jun (North end) 93 by SPC Brinley. A total of 118 swipes were taken. See Attachment 1 for the location of each swipe.

The swipes were analyzed for gamma contamination, utilizing the LKB Gammawell Counter on 21 and 30 Jun 93. See Attachment 2 for the MDAs and associated efficiencies. No gamma contamination was found above 200 dpm for I-125 or above 2000 dpm for any other isotope.

The swipes were analyzed for beta contamination, utilizing the Beckman Liquid Scintillation Counter Model 6800 on 21 and 30 Jun 93. See Attachment 3 for the MDAs and associated efficiencies. No beta contamination was found above 200 dpm for any isotope.

FIXED CONTAMINATION

A fixed gamma survey was conducted on 21 and 30 Jun 93 by SPC Brinley. The highest exposure rate found was 30.7 uR/hr. See Attachment 4 for the location of readings taken.

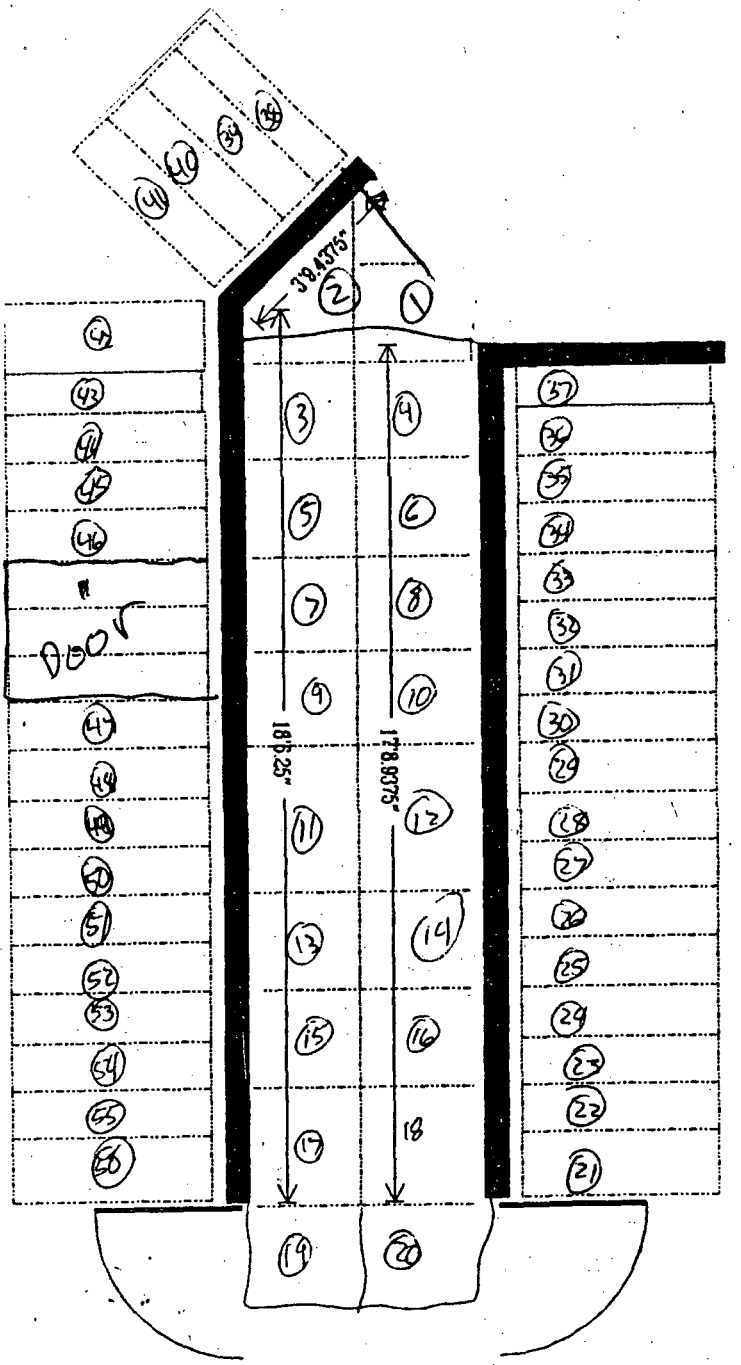
A fixed beta survey was conducted on 26 Jul 93 by SPC Brinley. The highest number of counts found during a one minute count-time was 79 cpm. The average number of counts found during a one minute count-time was 40 cpm. See Attachment 5 for the location of readings taken.

As well as being reviewed at the time of the survey/receipt of laboratory results, all pertinent survey data was reviewed and compiled here by SFC Green on 9 Aug 93.

Key West Decommissioning Survey

Removable Contamination Survey-Hallway 8

Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 21 Jun 93 and 30 Jun 93

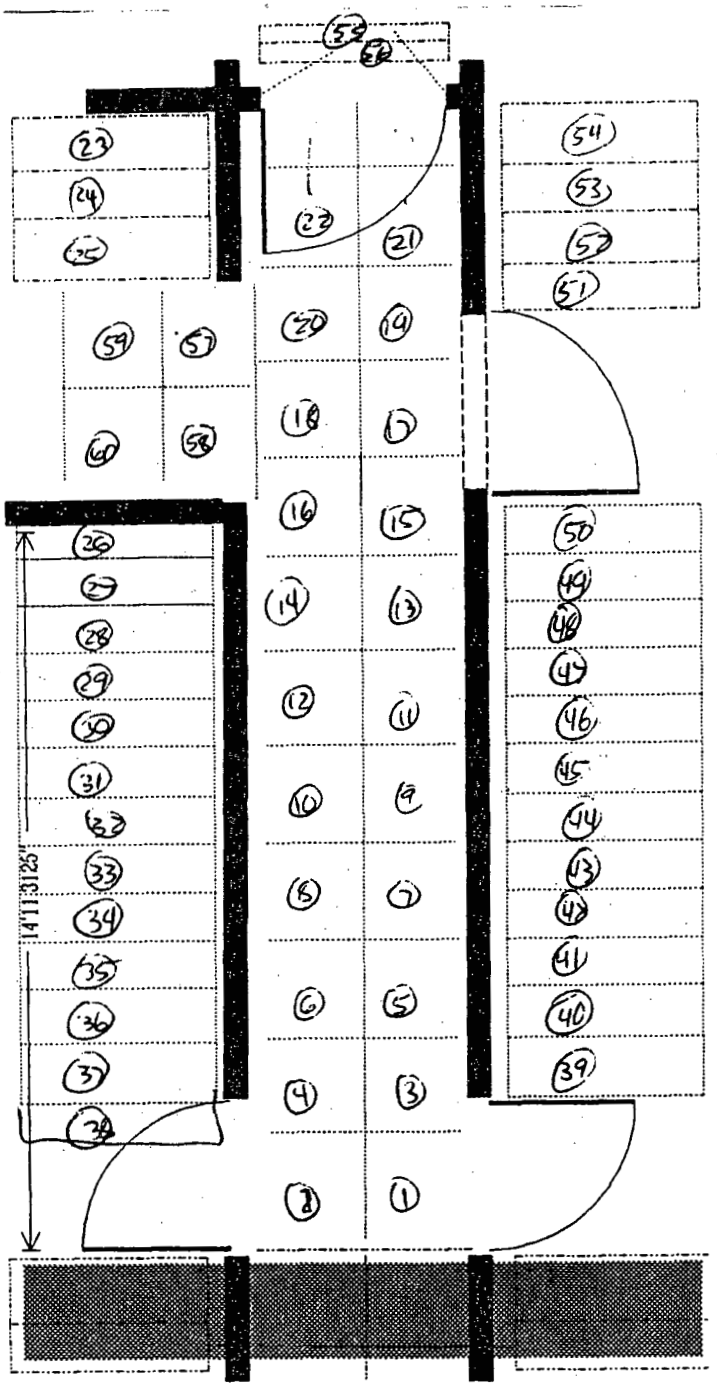
Lab analysis by (gamma): SSG Koelker on 21 Jun 93 and 30 Jun 93

(beta) : SSG Koelker on 21 Jun 93 and 30 Jun 93

Reviewed by: Donald K Gross on 10 Aug 93

Attachment 1

Removable Contamination Survey-Hallway 8
Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 21 Jun 93 and 30 Jun 93
Lab analysis by (gamma): SSG Koelker on 21 Jun 93 and 30 Jun 93
(beta) : SSG Koelker on 21 Jun 93 and 30 Jun 93

Reviewed by: Donald K Green on 10 Aug 93

Attachment 1

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:06/21/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	53 CPM	32.2 DPM	0.742 / I-125
CHANNEL 2:	198 CPM	709.2 DPM	0.065 / CR-51
BECKMAN:			
CHANNEL 1:	52 CPM	22.1 DPM	1.075 / I-125
CHANNEL 2:	198 CPM	452.3 DPM	0.102 / CR-51

ATTACHMENT 2

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:06/30/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	53 CPM	32.2 DPM	0.742 / I-125
CHANNEL 2:	198 CPM	709.2 DPM	0.065 / CR-51
BECKMAN:			
CHANNEL 1:	52 CPM	22.1 DPM	1.075 / I-125
CHANNEL 2:	198 CPM	452.3 DPM	0.102 / CR-51

ATTACHMENT 2

QUALITY ASSURANCE REPORT - BETA
FOR DATE:06/21/93

	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A
CHANNEL 3:	N/A	N/A	N/A
BECKMAN LS6800:			
CHANNEL 1:	29 CPM	28.1 DPM	0.630 / H-3
CHANNEL 2:	35 CPM	20.1 DPM	0.968 / C-14
CHANNEL 3:	41 CPM	20.9 DPM	1.007 / P-32

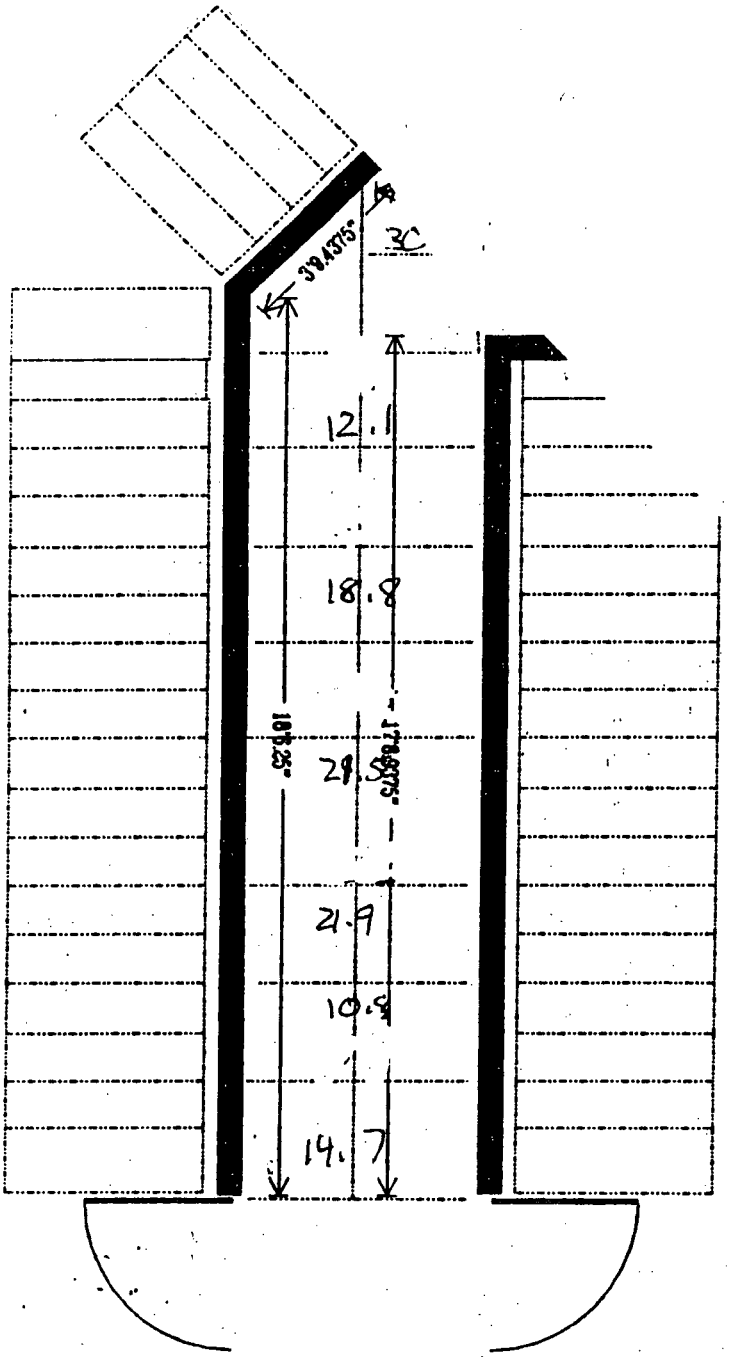
ATTACHMENT 3

QUALITY ASSURANCE REPORT - BETA
FOR DATE:06/30/93

	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A
CHANNEL 3:	N/A	N/A	N/A
BECKMAN LS6800:			
CHANNEL 1:	17 CPM	23.4 DPM	0.579/H-3
CHANNEL 2:	30 CPM	19.0 DPM	0.947/C-14
CHANNEL 3:	40 CPM	20.7 DPM	1.007/P-32

Key West Decommissioning Survey

Fixed Gamma Contamination Survey-Hallway 8
Scale 1 inch = 4 feet



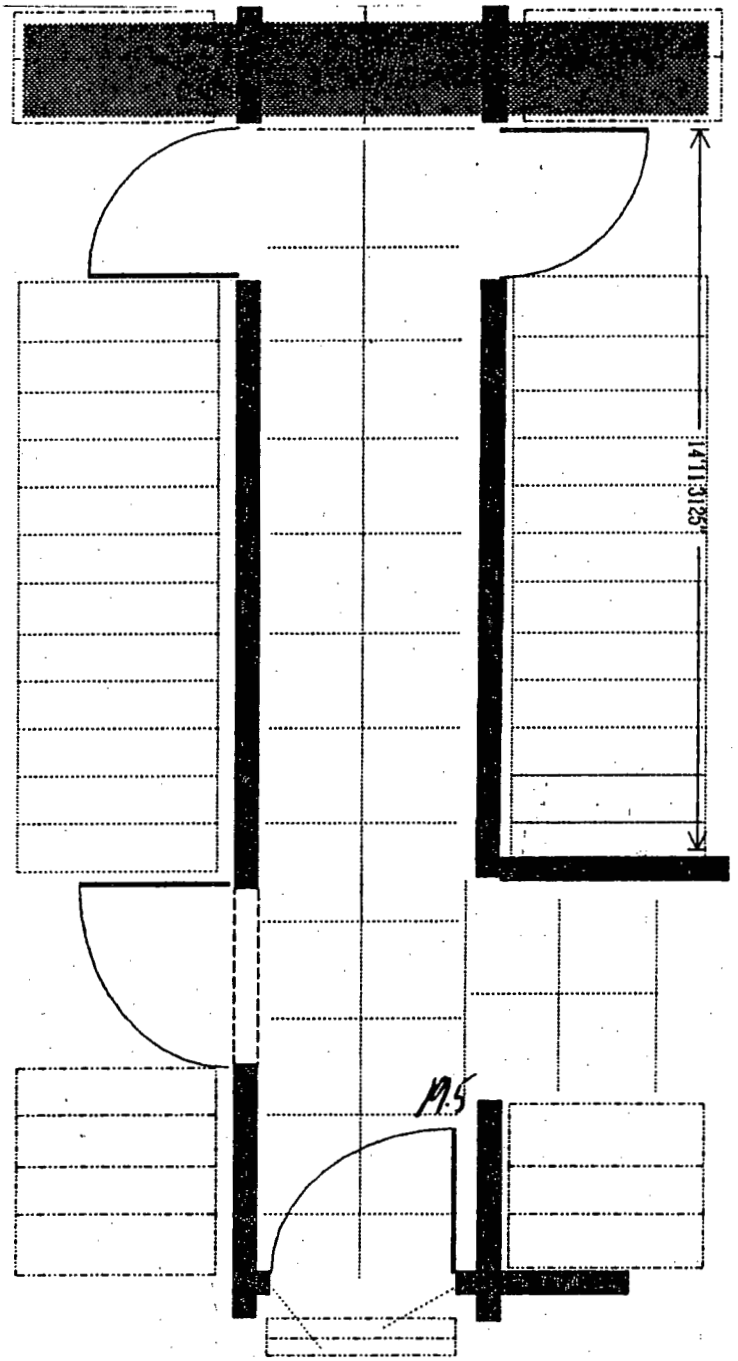
Conducted by: SPC Brinley on 21 Jun 93 and 30 Jun 93
All Measurements are in uR/hr

Reviewed by: Donald K Green on 10 Aug 93

Attachment 4

Key West Decommissioning Survey

Fixed Gamma Contamination Survey-Hallway 8
Scale 1 inch = 4 feet



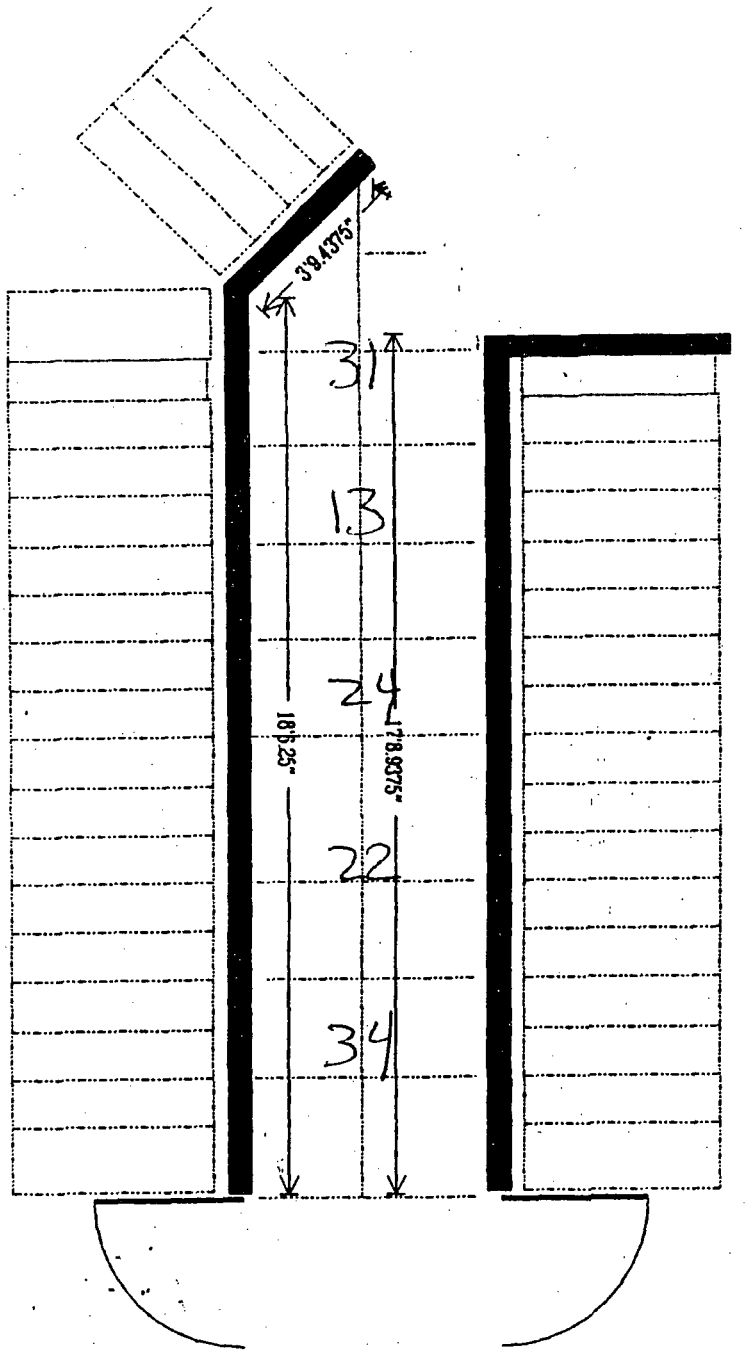
Conducted by: SPC Brinley on 21 Jun 93 and 30 Jun 93
All Measurements are in uR/hr

Reviewed by: Donald K Greene on 10 Aug 93

Attachment 4

Key West Decommissioning Survey

Fixed Beam Contamination Survey-Hallway 8
Scale 1 inch = 4 feet



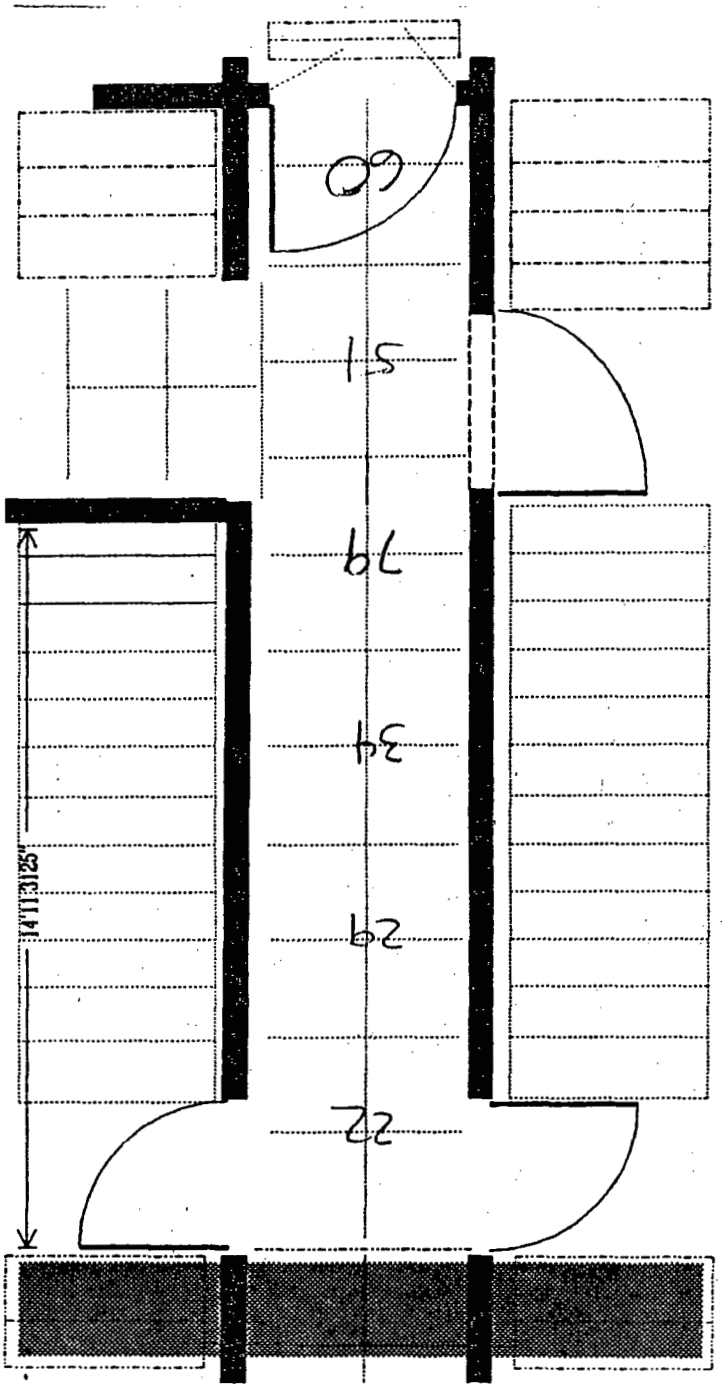
Conducted by: SPC Brinley on 26 Jul 93
All Measurements are Gross Counts in One Minute
Reviewed by: Donald K Grass on 10 Aug 93

Attachment 5

Key West Decommissioning Survey

Fixed Beta Contamination Survey-Hallway 8

Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 26 Jul 93

All Measurements are Gross Counts in One Minute

Reviewed by: Donald K Green on 10 Aug 93

Attachment 5

KEY WEST DECOMMISSIONING SURVEY

Hallway - 9

REMOVABLE CONTAMINATION

Hallway Number 9 was surveyed for removable contamination on 30 Jun (South end) and 2 Jul (Mid Section) and 6 Jul (North end) 93 by SPC Brinley. A total of 152 swipes were taken. See Attachment 1 for the location of each swipe.

The swipes were analyzed for gamma contamination, utilizing the LKB Gammawell Counter on 30 Jun, 2 and 6 Jul 93. See Attachment 2 for the MDAs and associated efficiencies. No gamma contamination was found above 200 dpm for I-125 or above 2000 dpm for any other isotope.

The swipes were analyzed for beta contamination, utilizing the Beckman Liquid Scintillation Counter Model 6800 on 30 Jun, 2 and 6 Jul 93. See Attachment 3 for the MDAs and associated efficiencies. No beta contamination was found above 200 dpm for any isotope.

FIXED CONTAMINATION

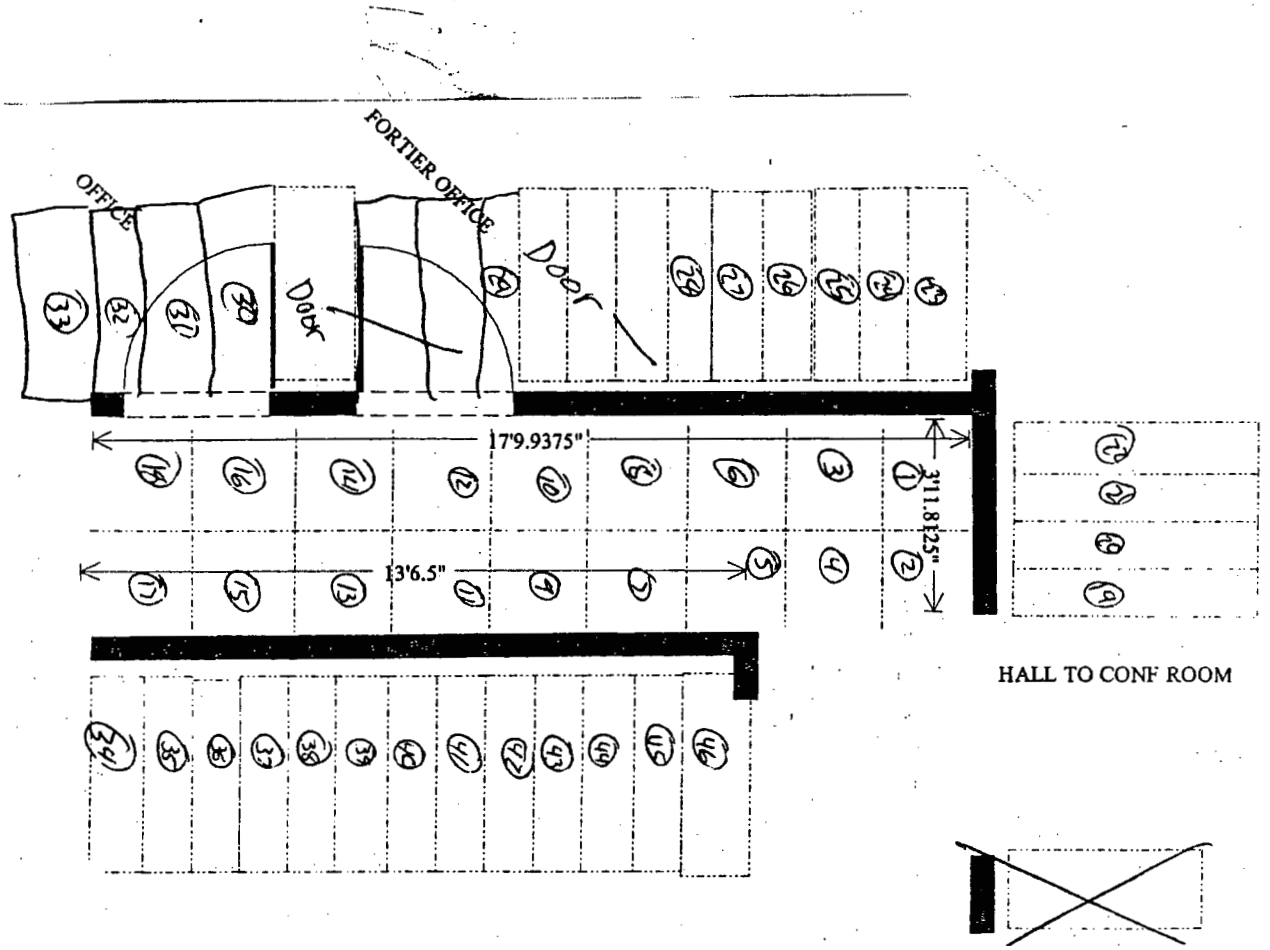
Fixed gamma surveys were conducted on 30 Jun, 2 and 6 Jul 93 by SSGs Webster and Koelker. The highest exposure rate found was 28.4 uR/hr. See Attachment 4 for the location of readings taken.

A fixed beta survey was conducted on 26 Jul 93 by SPC Brinley. The highest number of counts found during a one minute count-time was 67 cpm. The average number of counts found during a one minute count-time was 45 cpm. See Attachment 5 for the location of readings taken.

As well as being reviewed at the time of the survey/receipt of laboratory results, all pertinent survey data was reviewed and compiled here by SFC Green on 9 Aug 93.

Key West Decommissioning Survey

Removal Contamination Survey-Hallway 9
Scale 1 inch = 4 feet

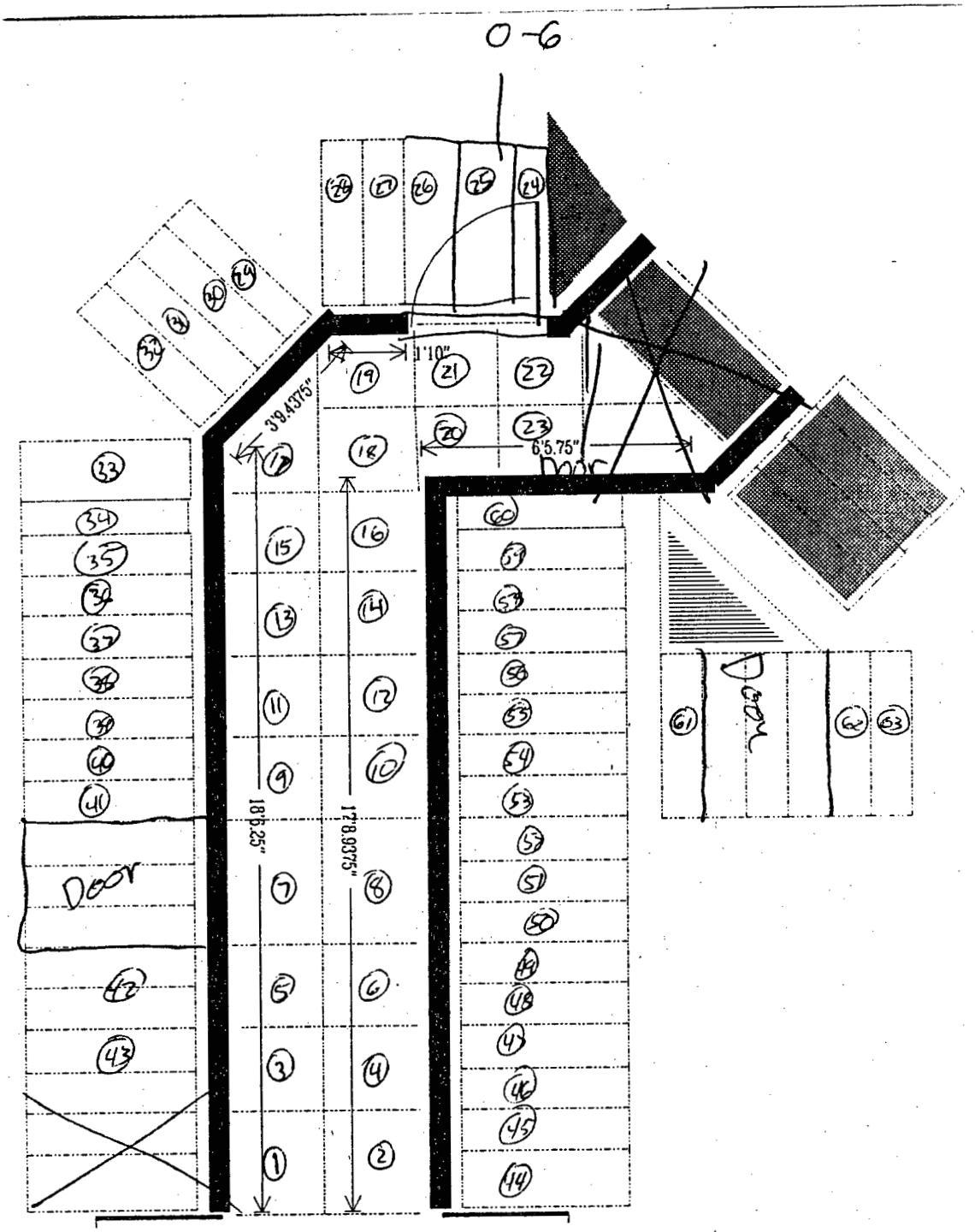


Conducted by: SPC Brinley on 30 Jun, 02 Jul and 06 Jul 93
Lab analysis by (gamma): SSG Koelker on 30 Jun, 02 Jul and 06 Jul 93
(~~beta~~) : SSG Koelker on 30 Jun, 02 Jul and 06 Jul 93

Reviewed by: Donald K Green on 10 Aug 93

Attachment 1

Removab Contamination Survey-Hallway 9
Scale 1 inch = 4 feet



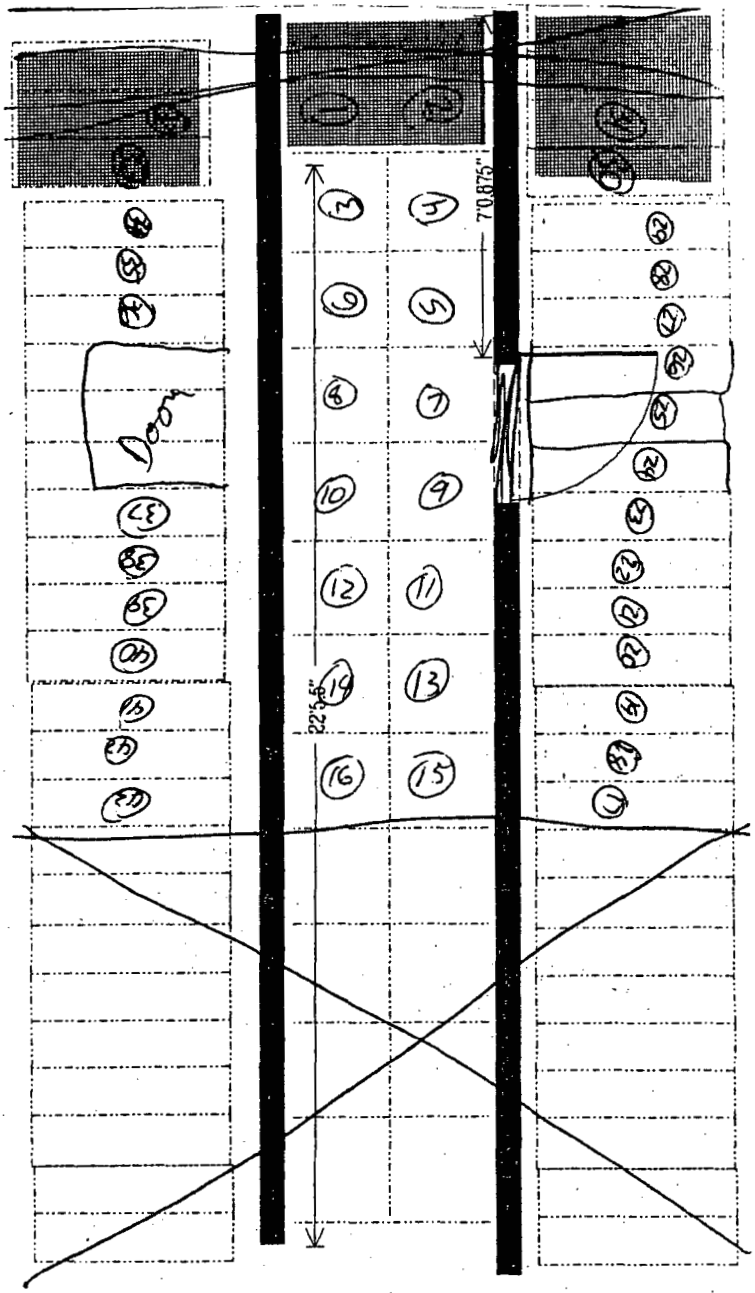
Conducted by: SPC Brinley on 30 Jun, 02 Jul and 06 Jul 93
Lab analysis by (gamma): SSG Koelker on 30 Jun, 02 Jul and 06 Jul 93
(beta) : SSG Koelker on 30 Jun, 02 Jul and 06 Jul 93

Reviewed by: Donald K Brown on 10 Aug 93

Attachment 1

Key West Decommissioning Survey

Removable Contamination Survey-Hallway 9
Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 30 Jun, 02 Jul and 06 Jul 93
Lab analysis by (gamma): SSG Koelker on 30 Jun, 02 Jul and 06 Jul 93
(beta) : SSG Koelker on 30 Jun, 02 Jul and 06 Jul 93

Reviewed by:_____ on _____

Attachment 1

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:06/30/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	53 CPM	32.2 DPM	0.742 / I-125
CHANNEL 2:	198 CPM	709.2 DPM	0.065 / CR-51
BECKMAN:			
CHANNEL 1:	52 CPM	22.1 DPM	1.075 / I-125
CHANNEL 2:	198 CPM	452.3 DPM	0.102 / CR-51

ATTACHMENT 2

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:07/02/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	53 CPM	32.2 DPM	0.742 / I-125
CHANNEL 2:	198 CPM	709.2 DPM	0.065 / CR-51
BECKMAN:			
CHANNEL 1:	52 CPM	22.1 DPM	1.075 / I-125
CHANNEL 2:	198 CPM	452.3 DPM	0.102 / CR-51

ATTACHMENT 2

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:07/06/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	53 CPM	32.2 DPM	0.742 / I-125
CHANNEL 2:	198 CPM	709.2 DPM	0.065 / CR-51
BECKMAN:			
CHANNEL 1:	52 CPM	22.1 DPM	1.075 / I-125
CHANNEL 2:	198 CPM	452.3 DPM	0.102 / CR-51

ATTACHMENT 2

QUALITY ASSURANCE REPORT - BETA
FOR DATE:06/30/93

	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A
CHANNEL 3:	N/A	N/A	N/A
BECKMAN LS6800:			
CHANNEL 1:	17 CPM	23.4 DPM	0.579/H-3
CHANNEL 2:	30 CPM	19.0 DPM	0.947/C-14
CHANNEL 3:	40 CPM	20.7 DPM	1.007/P-32

QUALITY ASSURANCE REPORT - BETA
FOR DATE: 07/02/93

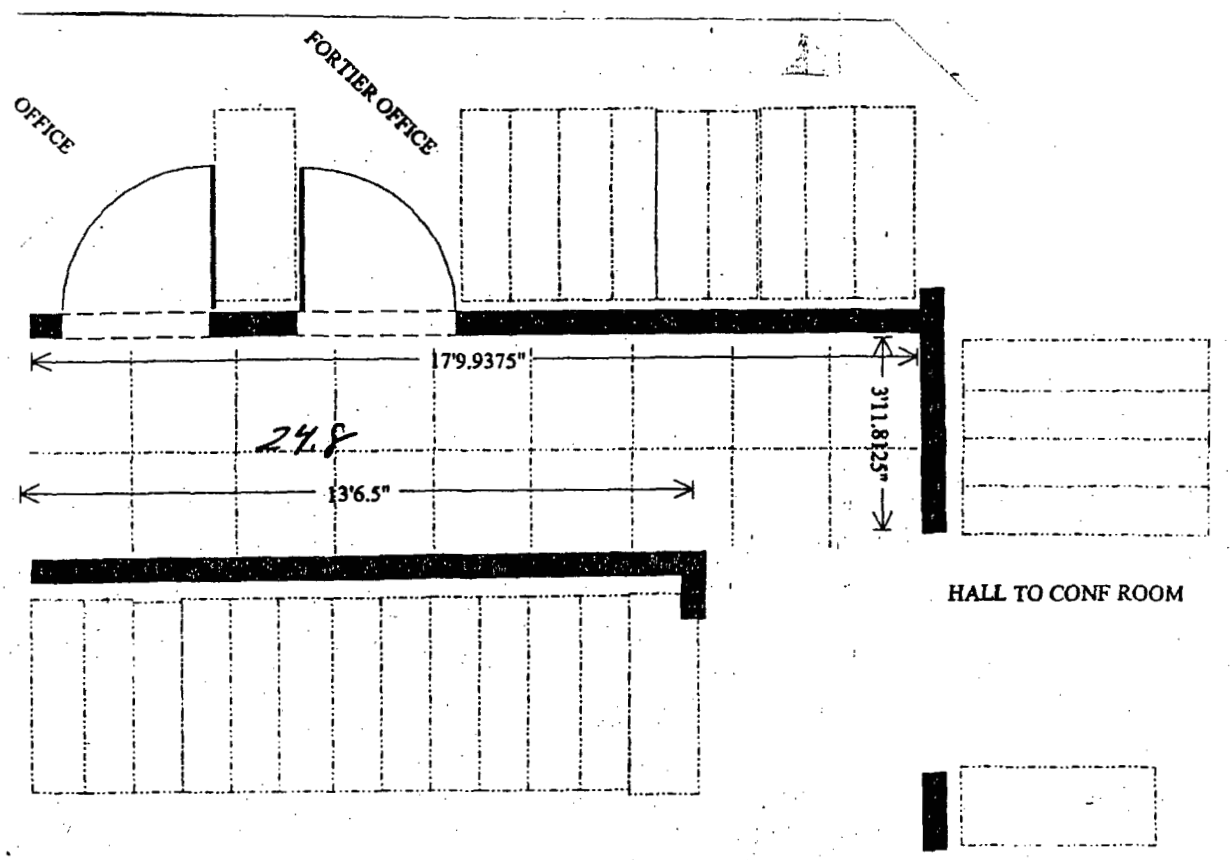
	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A
CHANNEL 3:	N/A	N/A	N/A
BECKMAN LS6800:			
CHANNEL 1:	17 CPM	23.4 DPM	0.579/H-3
CHANNEL 2:	30 CPM	19.0 DPM	0.947/C-14
CHANNEL 3:	40 CPM	20.7 DPM	1.007/P-32

QUALITY ASSURANCE REPORT - BETA
FOR DATE:07/06/93

	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A
CHANNEL 3:	N/A	N/A	N/A
BECKMAN LS6800:			
CHANNEL 1:	39 CPM	36.4 DPM	0.561 / H-3
CHANNEL 2:	26 CPM	17.6 DPM	0.950 / C-14
CHANNEL 3:	24 CPM	16.1 DPM	1.002 / P-32

ATTACHMENT 3

Fixed Gamma Contamination Survey-Hallway 9
Scale 1 inch = 4 feet



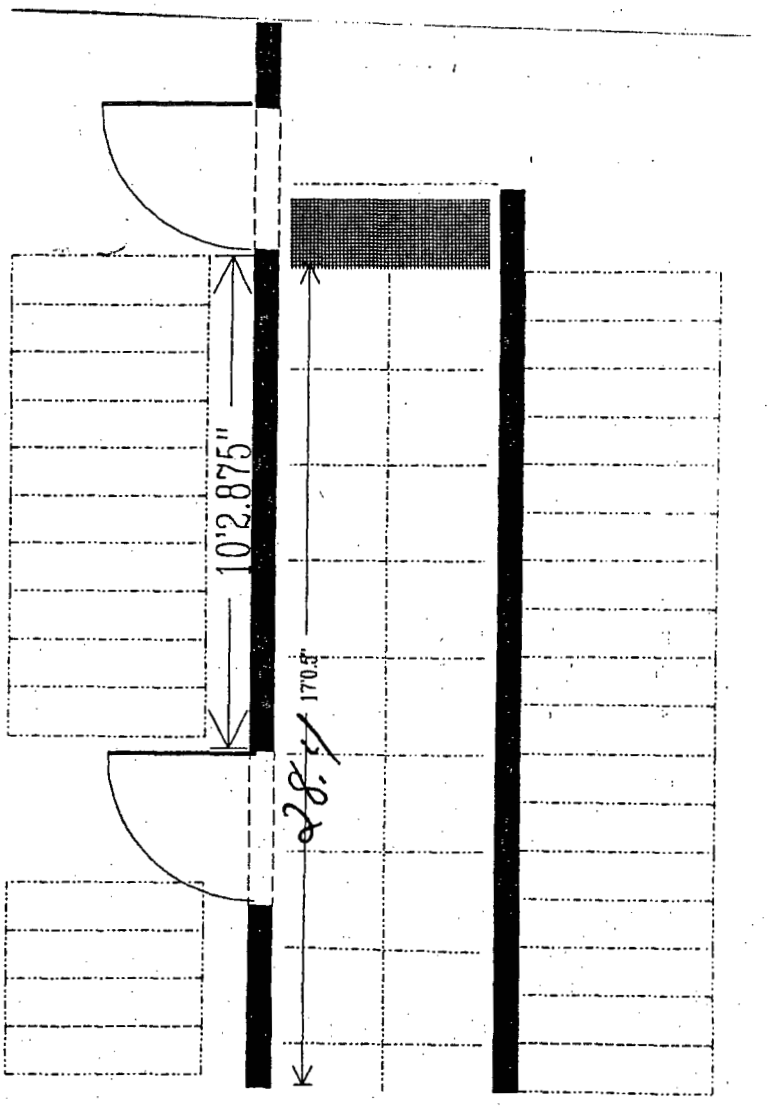
Conducted by: SSG Webster and SSG Koelker on 30 Jun, 02 Jul and 06 Jul 93
All Measurements are in uR/hr

Reviewed by: Donald K Green on 10 Aug 93

Attachment 4

Key West Decommissioning Survey

Fixed Gamma Contamination Survey-Hallway 9
Scale 1 inch = 4 feet

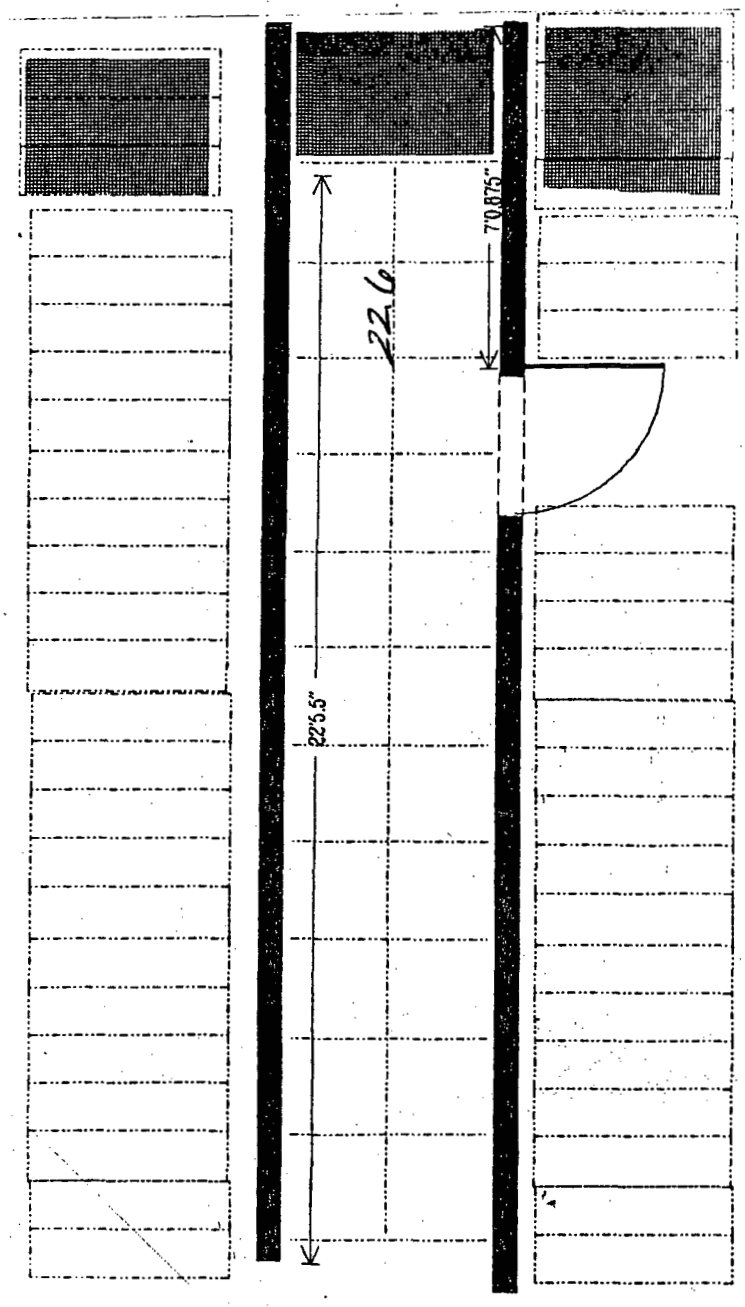


Conducted by: SSG Webster and SSG Koelker on 30 Jun, 02 Jul and 06 Jul 93
All Measurements are in uR/hr

Reviewed by: Donald L Green on 10 Aug 93

Attachment 4

Fixed Gam...a Contamination Survey-Hallway 9
Scale 1 inch = 4 feet



Conducted by: SSG Webster and SSG Koelker on 30 Jun, 02 Jul and 06 Jul 93
All Measure..ients are in uR/hr

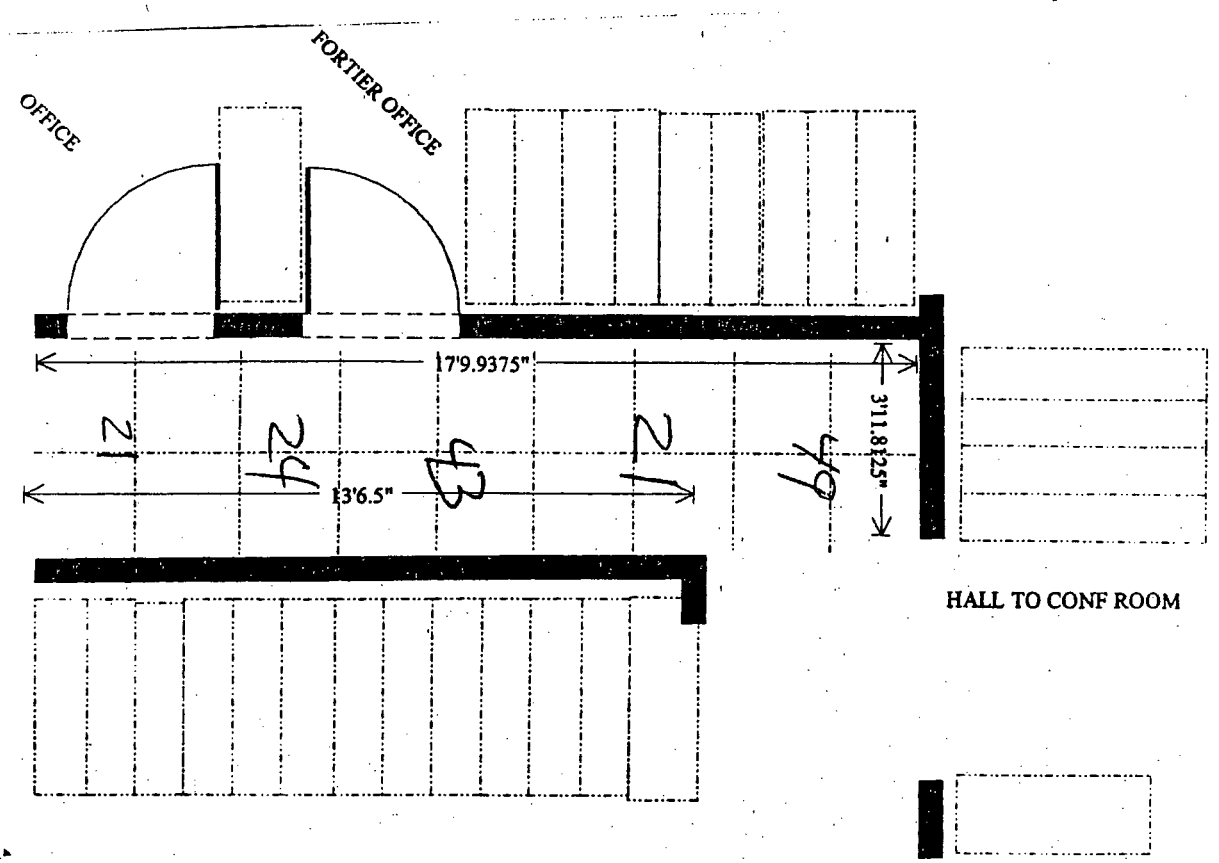
Reviewed by: Donald K Green on 10 Aug 93

Attachment 4

Key W[illegible]st Decommissioning Survey

Fixed Beta Contamination Survey-Hallway 9

Scale 1 inch = 4 feet



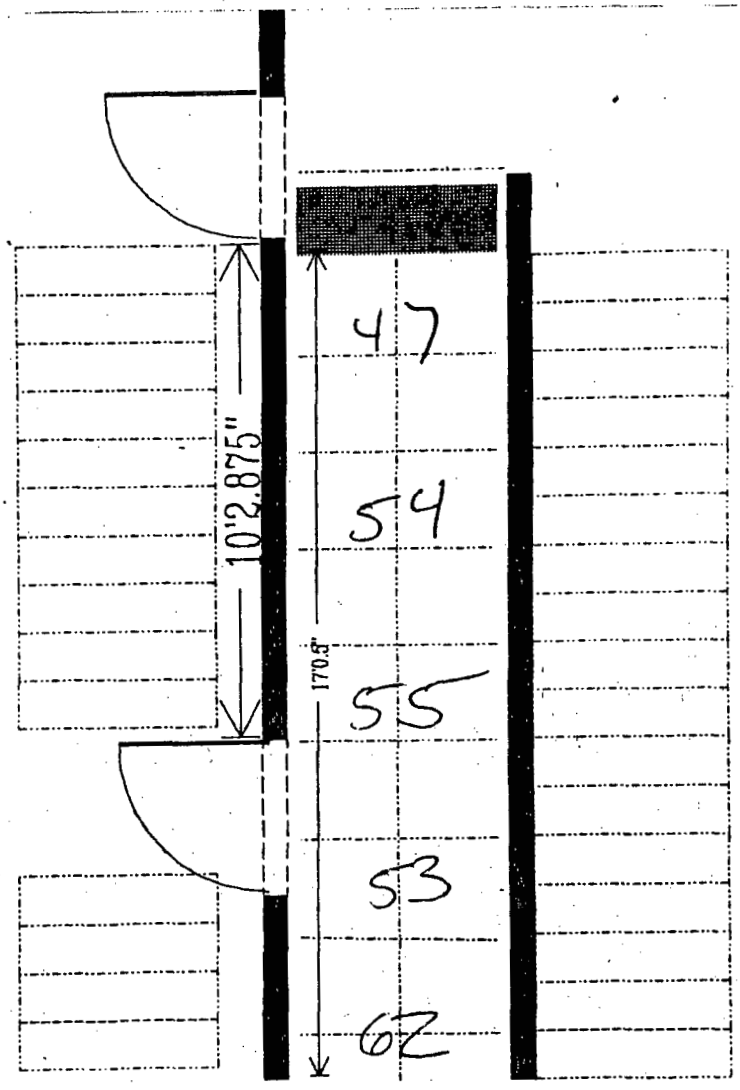
Conducted by: SPC Brinley on 26 Jul 93

All Measurements are Gross Counts in One Minute

Reviewed by: Donald L Thomson on 9 Aug 93

Attachment 5

Fixed Be.. Contamination Survey-Hallway 9
Scale 1 inch = 4 feet

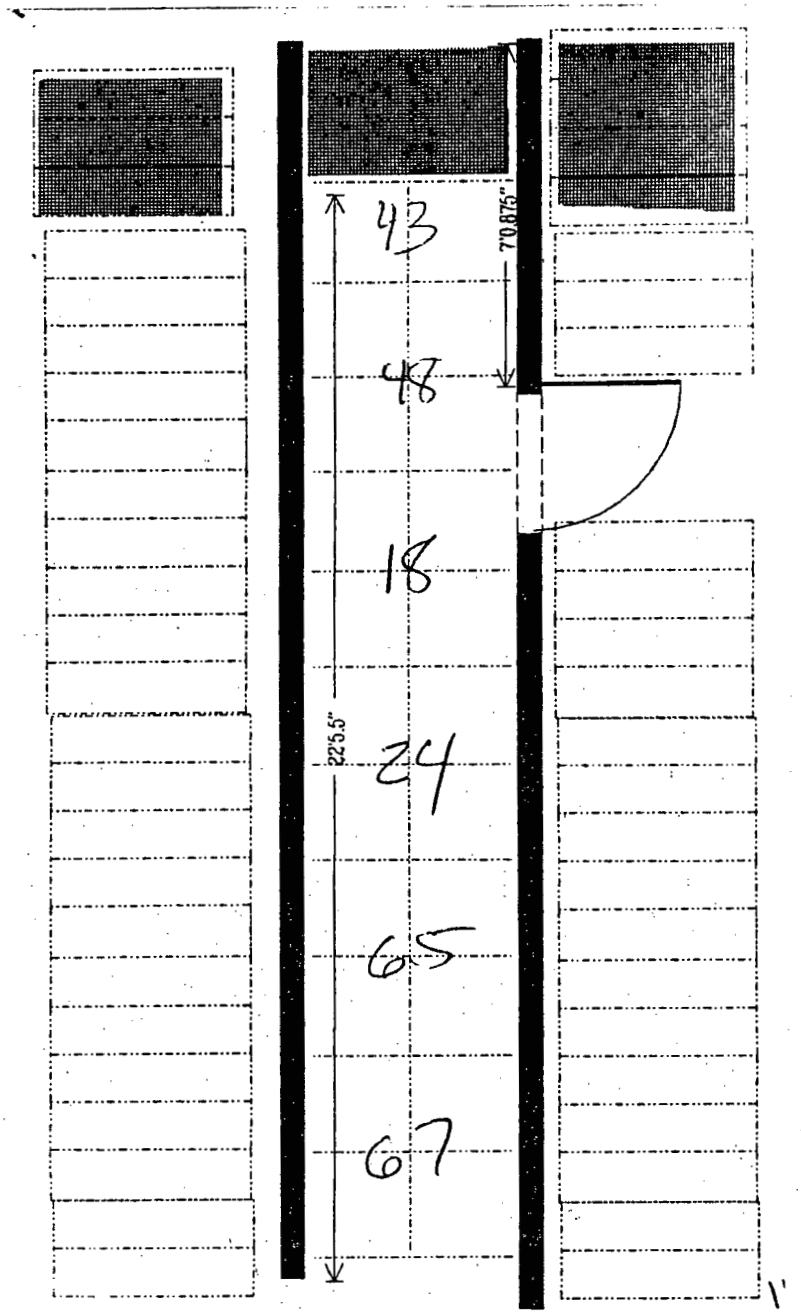


Conducted by: SPC Brinley on 26 Jul 93
All Measurements are Gross Counts in One Minute

Reviewed by: Donald K Thom on 10 Aug 93

Attachment 5

Fixed Be.. Contamination Survey-Hallway 9
Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 26 Jul 93
All Measurements are Gross Counts in One Minute

Reviewed by: Donald K Gram on 10 Aug 93

Attachment 5

KEY WEST DECOMMISSIONING SURVEY

Hallway - 10

REMOVABLE CONTAMINATION

Hallway Number 10 and Closet were surveyed for removable contamination on 14 Jul and 17 Jun 93(respectively) by SPC Brinley. A total of 44 swipes were taken. See Attachment 1 for the location of each swipe.

The swipes were analyzed for gamma contamination, utilizing the LKB Gammawell Counter on 17 Jun and 14 Jul 93. See Attachment 2 for the MDAs and associated efficiencies. No gamma contamination was found above 200 dpm for I-125 or above 2000 dpm for any other isotope.

The swipes were analyzed for beta contamination, utilizing the Beckman Liquid Scintillation Counter Model 6800 on 17 Jun and 14 Jul 93. See Attachment 3 for the MDAs and associated efficiencies. No beta contamination was found above 200 dpm for any isotope.

FIXED CONTAMINATION

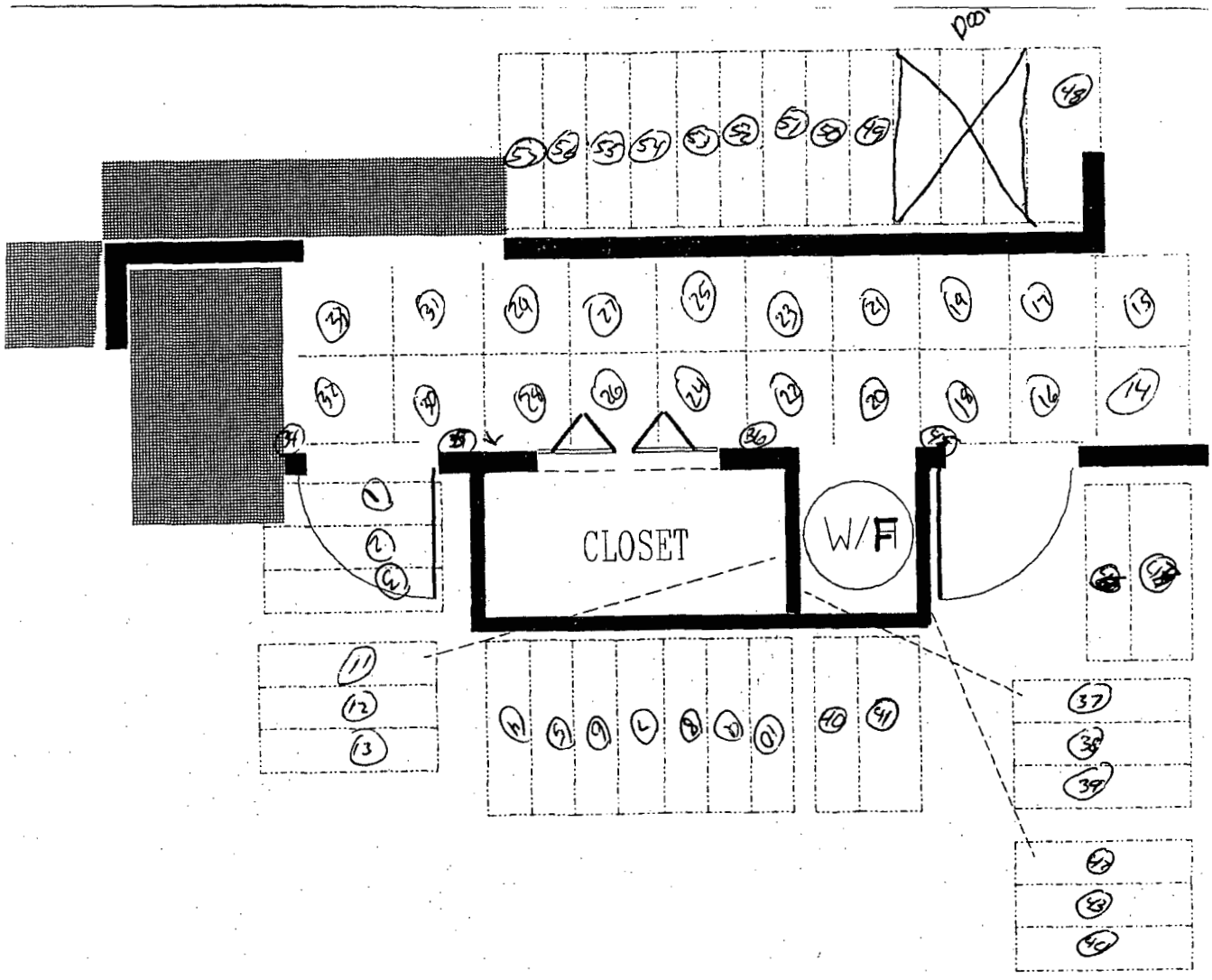
Fixed gamma surveys were conducted on 14 Jul 93 by SPC Brinley. The highest exposure rate found was 18.4 uR/hr. See Attachment 4 for the location of readings taken.

A fixed beta survey was conducted on 26 Jul 93 by SPC Brinley. The highest number of counts found during a one minute count-time was 89 cpm. The average number of counts found during a one minute count-time was 60 cpm. See Attachment 5 for the location of readings taken.

As well as being reviewed at the time of the survey/receipt of laboratory results, all pertinent survey data was reviewed and compiled here by SFC Green on 9 Aug 93.

Key West Decommissioning Survey

Removable Contamination Survey-Hallway 10
Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 17 Jun 93 and 14 Jul 93
Lab analysis by (gamma): SSG Koelker on 17 Jun 93 and 14 Jul 93
~~(beta)~~ : SSG Koelker on 17 Jun 93 and 14 Jul 93

Reviewed by: Donald K Green on 10 Aug 93

Attachment 1

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:06/17/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	51 CPM	33.2 DPM	0.707 / I-125
CHANNEL 2:	206 CPM	587.0 DPM	0.080 / CR-51
BECKMAN:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A

ATTACHMENT 2

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE: 07/14/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	49 CPM	30.1 DPM	0.764 / I-125
CHANNEL 2:	197 CPM	676.4 DPM	0.068 / CR-51
BECKMAN:			
CHANNEL 1:	46 CPM	23.0 DPM	0.970 / I-125
CHANNEL 2:	194 CPM	440.0 DPM	0.104 / CR-51

ATTACHMENT 2

QUALITY ASSURANCE REPORT - BETA
FOR DATE:06/17/93

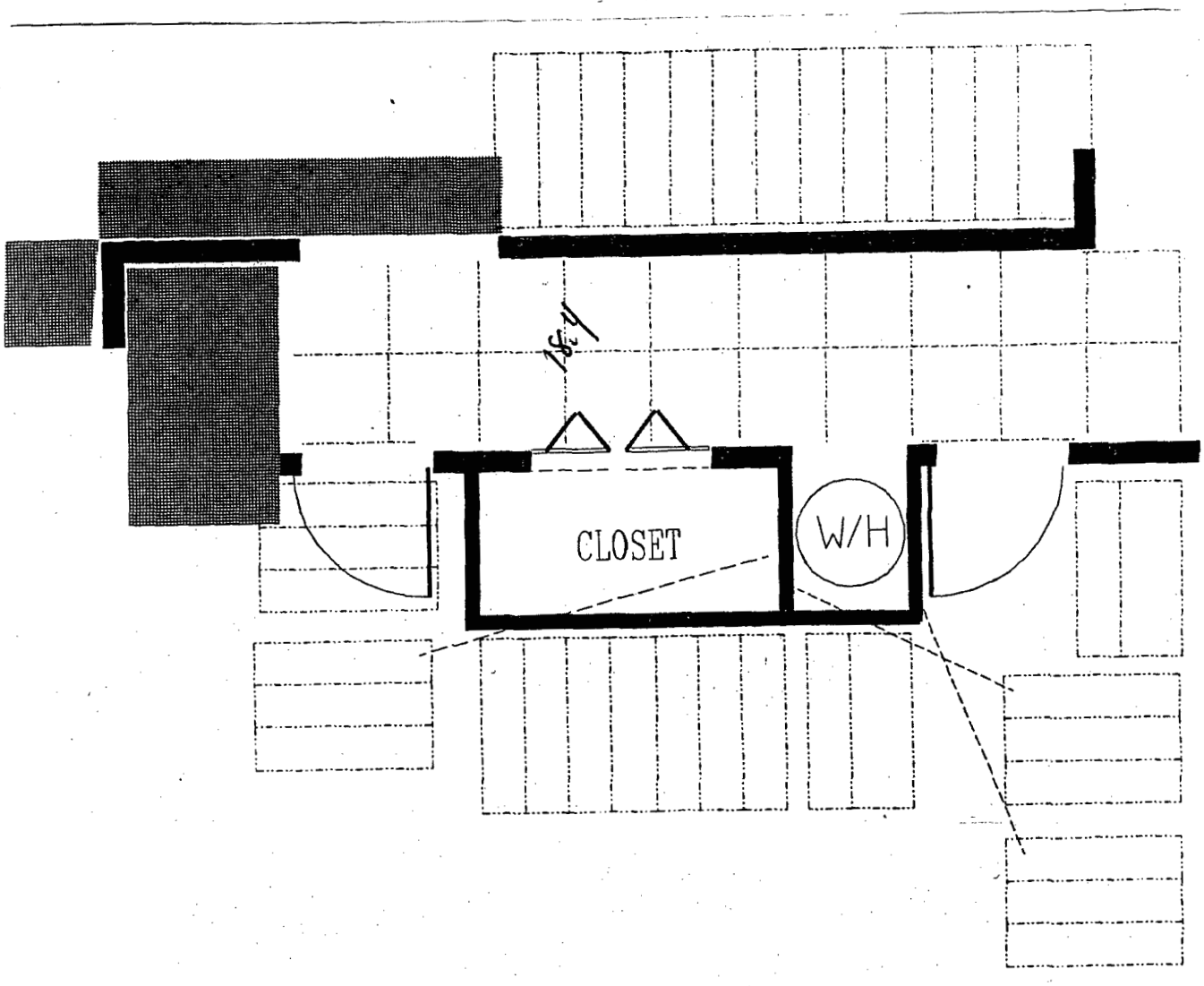
	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A
CHANNEL 3:	N/A	N/A	N/A
BECKMAN LS6800:			
CHANNEL 1:	29 CPM	28.1 DPM	0.630 / H-3
CHANNEL 2:	35 CPM	20.1 DPM	0.968 / C-14
CHANNEL 3:	41 CPM	20.9 DPM	1.007 / P-32

QUALITY ASSURANCE REPORT - BETA
FOR DATE:07/14/93

	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	31 CPM	28.8 DPM	0.636 / H-3
CHANNEL 2:	28 CPM	18.1 DPM	0.962 / C-14
CHANNEL 3:	25 CPM	16.5 DPM	1.004 / P-32
BECKMAN LS6800:			
CHANNEL 1:	33 CPM	32.4 DPM	0.583 / H-3
CHANNEL 2:	25 CPM	17.2 DPM	0.954 / C-14
CHANNEL 3:	21 CPM	14.9 DPM	1.011 / P-32

Key West Decommissioning Survey

Fixed Gamma Contamination Survey-Hallway 10
Scale 1 inch = 4 feet

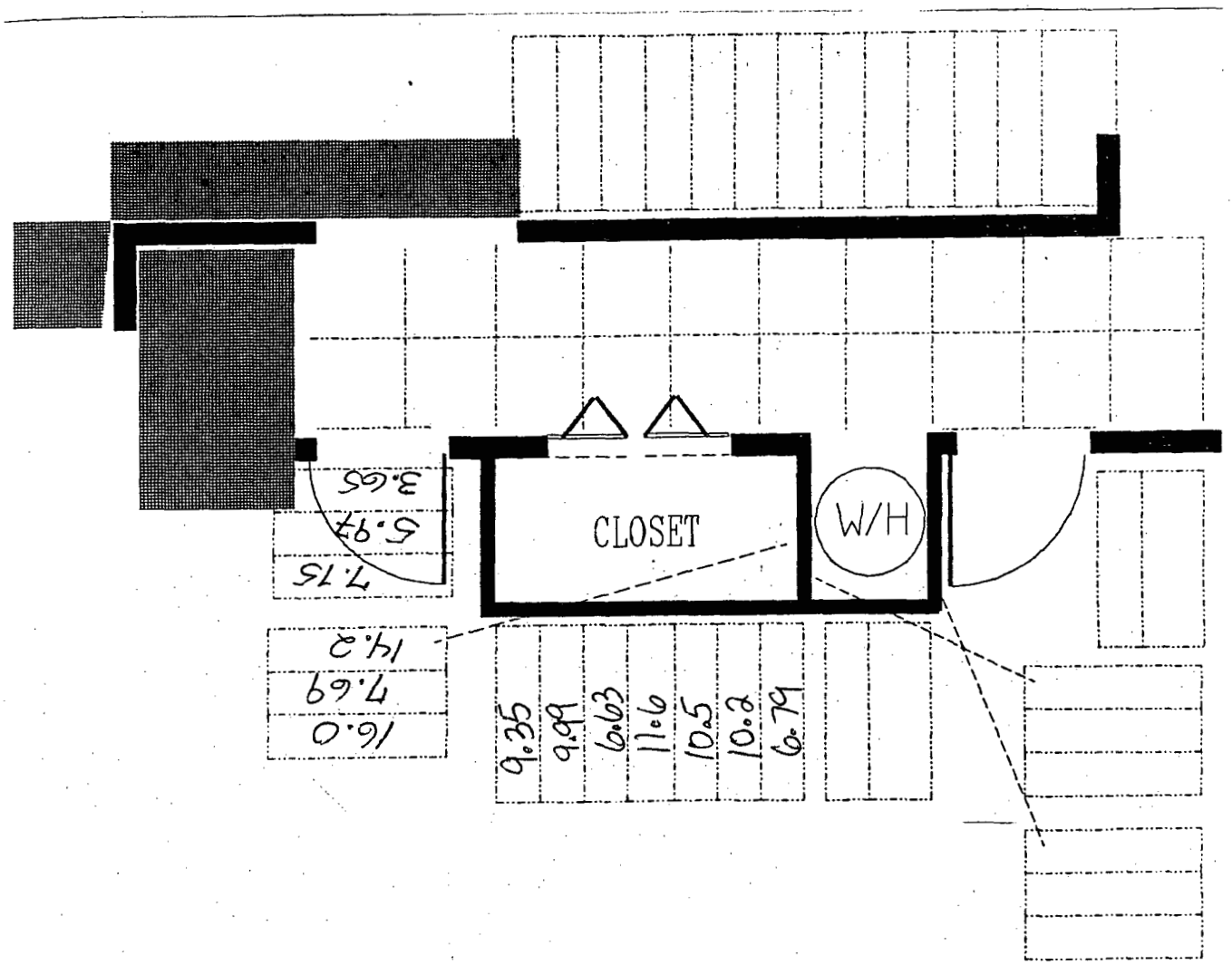


Conducted by: SPC Brinley on 14 Jul 93
All Measurements are in uR/hr
Reviewed by: Donald K Thom on 10 Aug 93

Attachment 4

Key West Decommissioning Survey

Fixed Gamma Contamination Survey-Hallway 10
Scale 1 inch = 4 feet

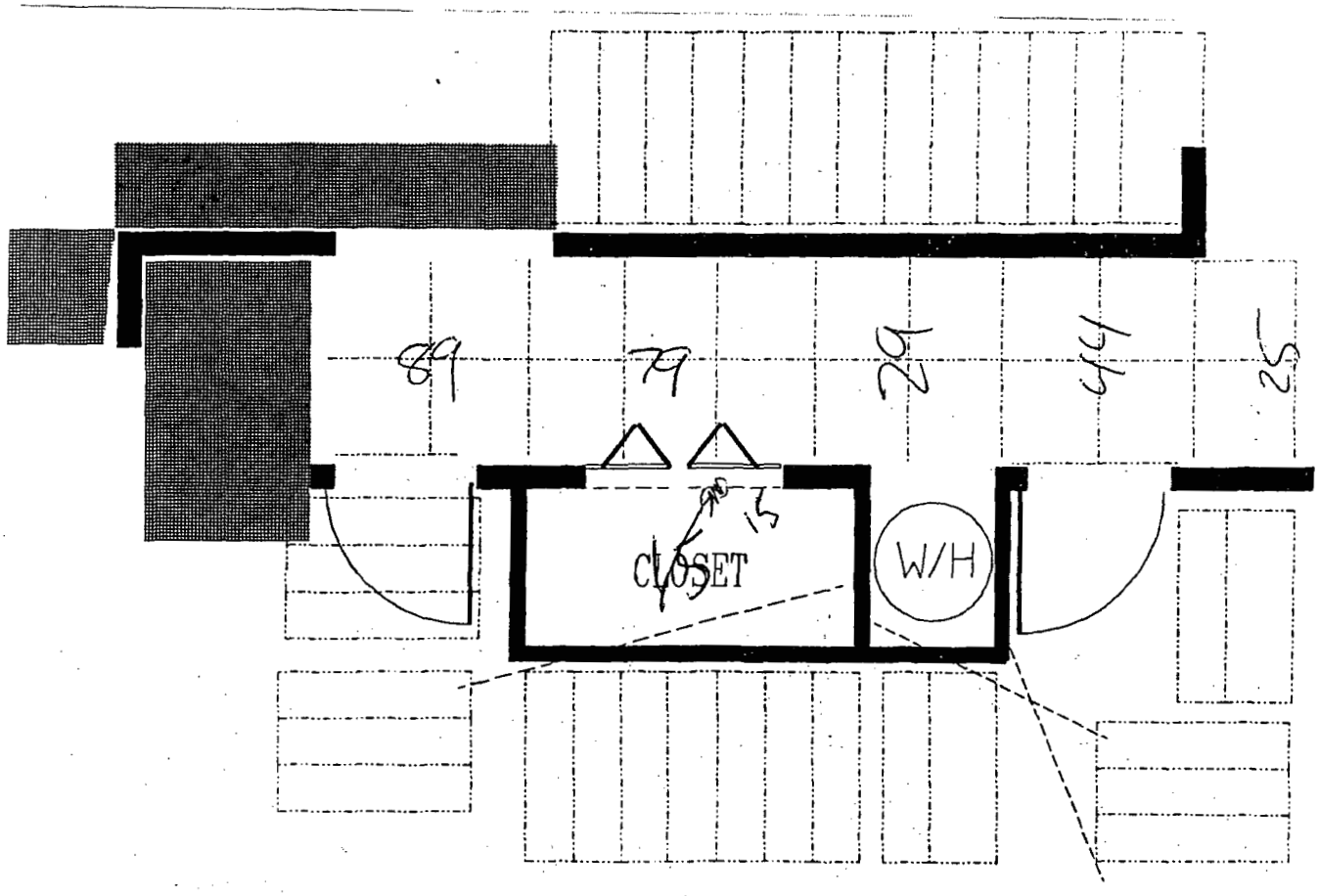


Conducted by: SPC Brinley on 14 Jul 93
All Measurements are in uR/hr
Reviewed by: Donald K Greene on 10 Aug 93

Attachment 4

Key ..est Decommissioning Survey

Fixed Beta Contamination Survey-Hallway 10
Scale 1 inch = 4 feet



Conducted by: Sr C Brinley on 26 Jul 93
All Measurements are Gross Counts in One Minute
Reviewed by: Donald L Green on 10 Aug 93

Attachment 5

KEY WEST DECOMMISSIONING SURVEY

Hallway - 11

REMOVABLE CONTAMINATION

Hallway Number 11 was surveyed for removable contamination on 2 Jul 93 by SPC Brinley. A total of 90 swipes were taken. See Attachment 1 for the location of each swipe.

The swipes were analyzed for gamma contamination, utilizing the LKB Gammawell Counter on 2 Jul 93. See Attachment 2 for the MDAs and associated efficiencies. No gamma contamination was found above 200 dpm for I-125 or above 2000 dpm for any other isotope.

The swipes were analyzed for beta contamination, utilizing the Beckman Liquid Scintillation Counter Model 6800 on 2 Jul 93. See Attachment 3 for the MDAs and associated efficiencies. No beta contamination was found above 200 dpm for any isotope.

FIXED CONTAMINATION

Fixed gamma surveys were conducted on 2 Jul 93 by SPC Brinley. The highest exposure rate found was 24.4 uR/hr. See Attachment 4 for the location of readings taken.

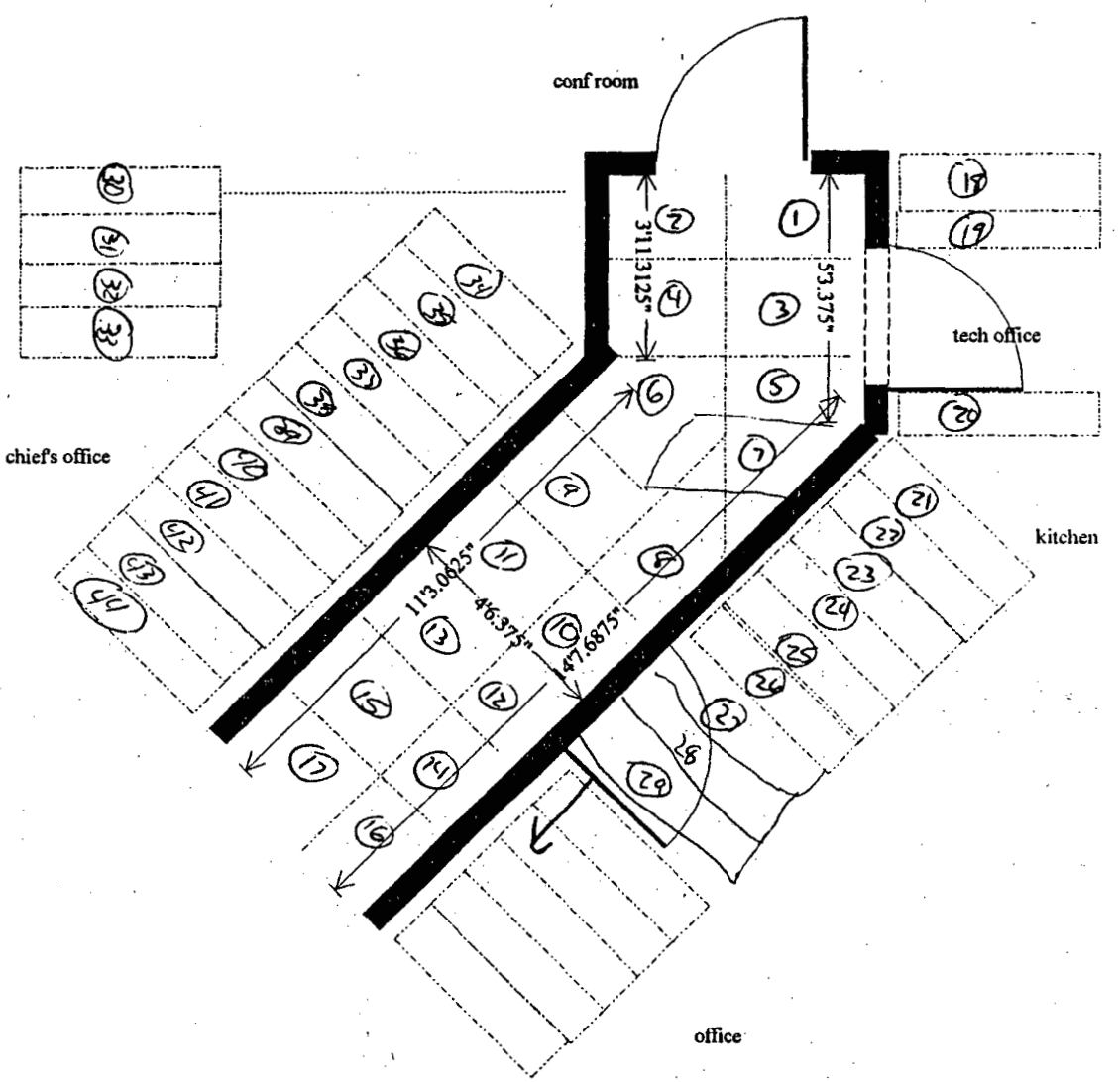
A fixed beta survey was conducted on 26 Jul 93 by SPC Brinley. The highest number of counts found during a one minute count-time was 48 cpm. The average number of counts found during a one minute count-time was 32 cpm. See Attachment 5 for the location of readings taken.

As well as being reviewed at the time of the survey/receipt of laboratory results, all pertinent survey data was reviewed and compiled here by SFC Green on 9 Aug 93.

Key West Decommissioning Survey

Removable Contamination Survey-Hallway 11

Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 02 Jul 93

Lab analysis by (gamma): SSG Koelker on 02 Jul 93

(beta) : SSG Koelker on 02 Jul 93

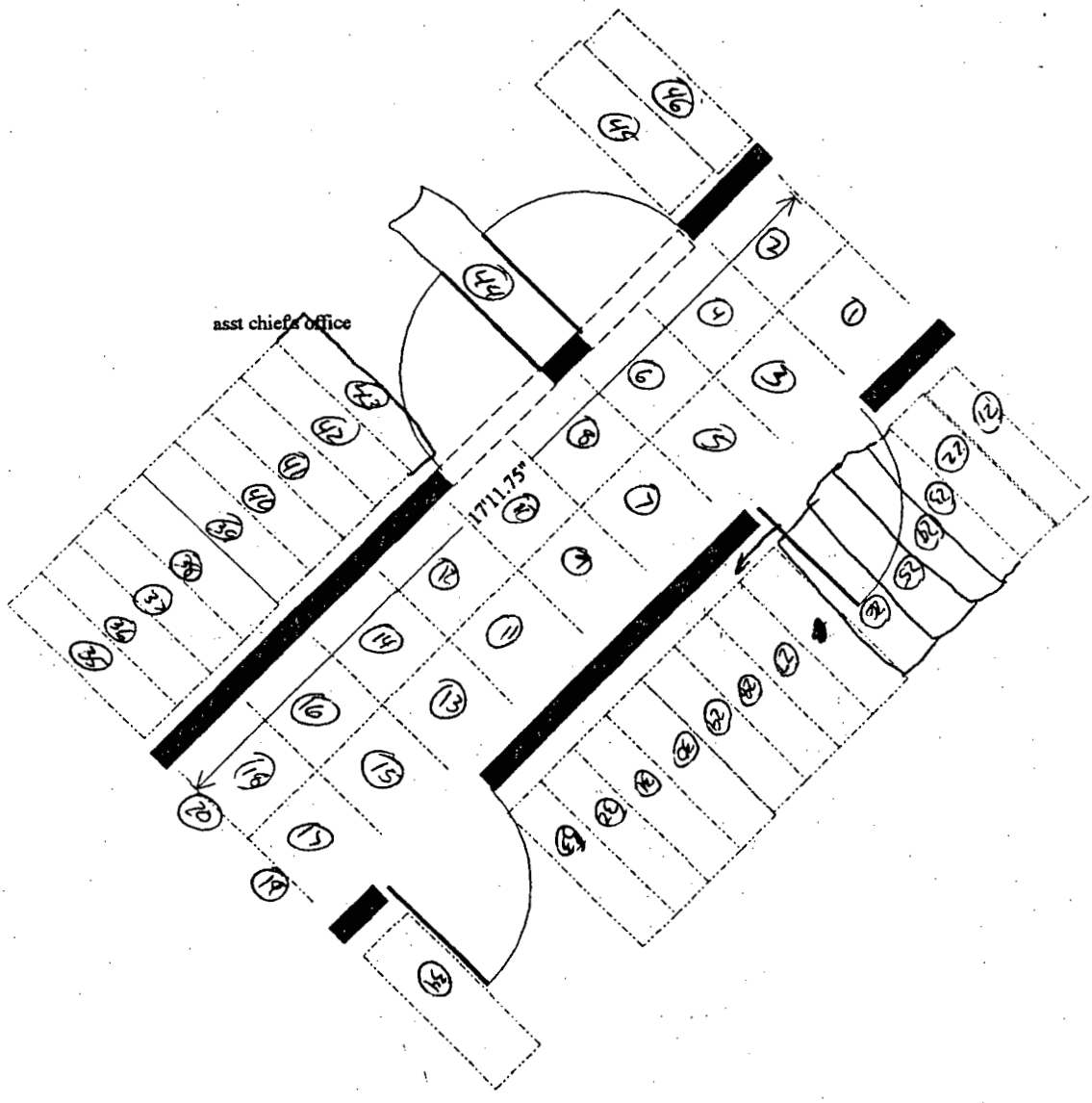
Reviewed by: Donald K Green on 10 Aug 93

Attachment 1

Key West Decommissioning Survey

Removable Contamination Survey-Hallway 11

Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 02 Jul 93

Lab analysis by (gamma): SSG Koelker on 02 Jul 93

(beta) : SSG Koelker on 02 Jul 93

Reviewed by: Donald K Thom on 10 Aug 93

Attachment 1

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:07/02/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	53 CPM	32.2 DPM	0.742 / I-125
CHANNEL 2:	198 CPM	709.2 DPM	0.065 / CR-51
BECKMAN:			
CHANNEL 1:	52 CPM	22.1 DPM	1.075 / I-125
CHANNEL 2:	198 CPM	452.3 DPM	0.102 / CR-51

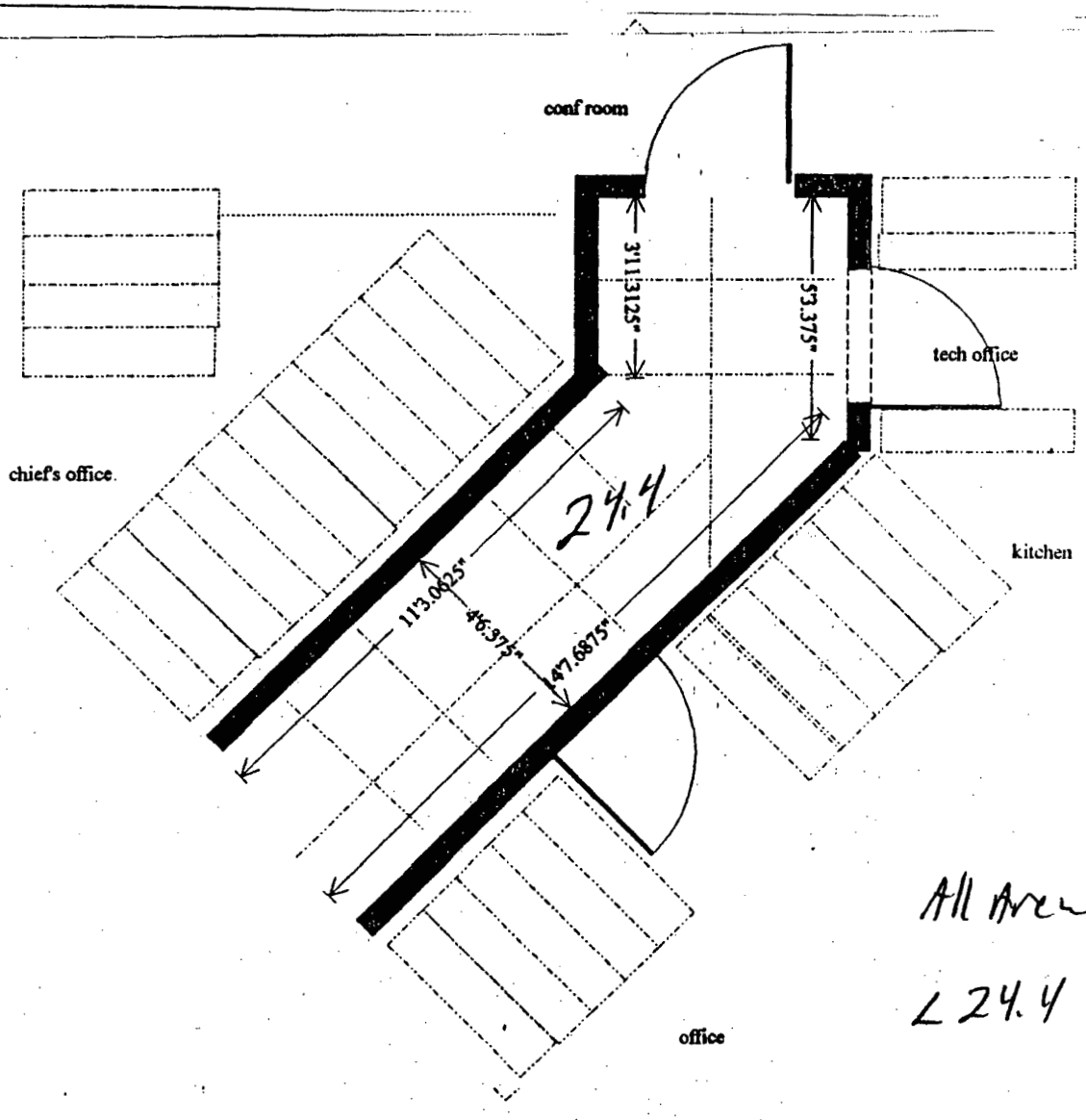
ATTACHMENT 2

QUALITY ASSURANCE REPORT - BETA
FOR DATE:07/02/93

	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A
CHANNEL 3:	N/A	N/A	N/A
BECKMAN LS6800:			
CHANNEL 1:	17 CPM	23.4 DPM	0.579/H-3
CHANNEL 2:	30 CPM	19.0 DPM	0.947/C-14
CHANNEL 3:	40 CPM	20.7 DPM	1.007/P-32

Key ' st Decommissioning Survey

Fixed Gamma Contamination Survey-Hallway 11
Scale 1 inch = 4 feet



All Areas
< 24.4 mr/hr

Conducted by: SPC Brinley on 07 Jul 93
All Measurements are in uR/hr

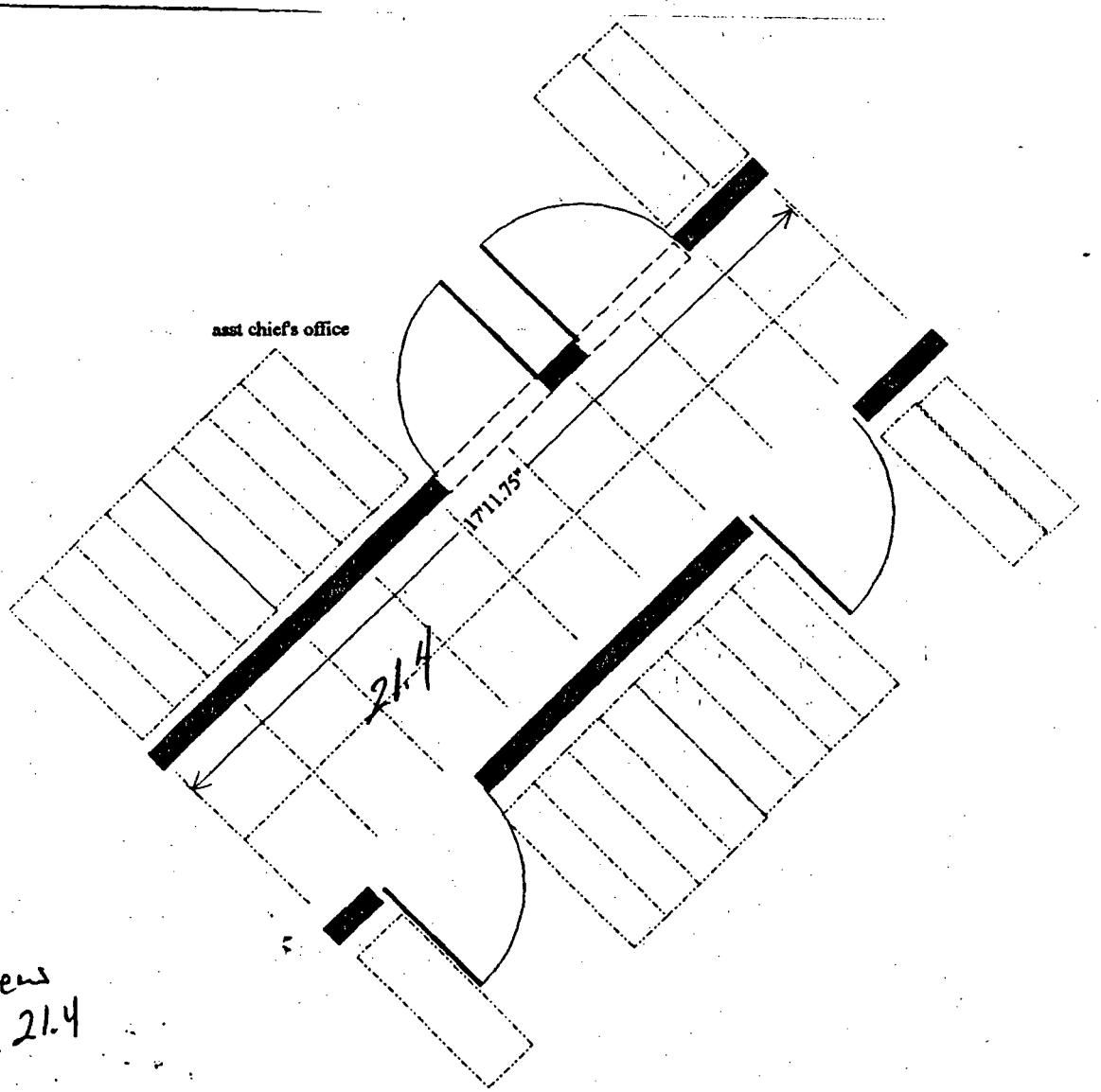
Reviewed by: Donald Green on 10 Aug 93

Attachment 4

Key West Decommissioning Survey

Fixed Gamma Contamination Survey-Hallway 11

Scale 1 inch = 4 feet



w/w

All Areas
≤ 21.4

Conducted by: SPC Brinley on 07 Jul 93

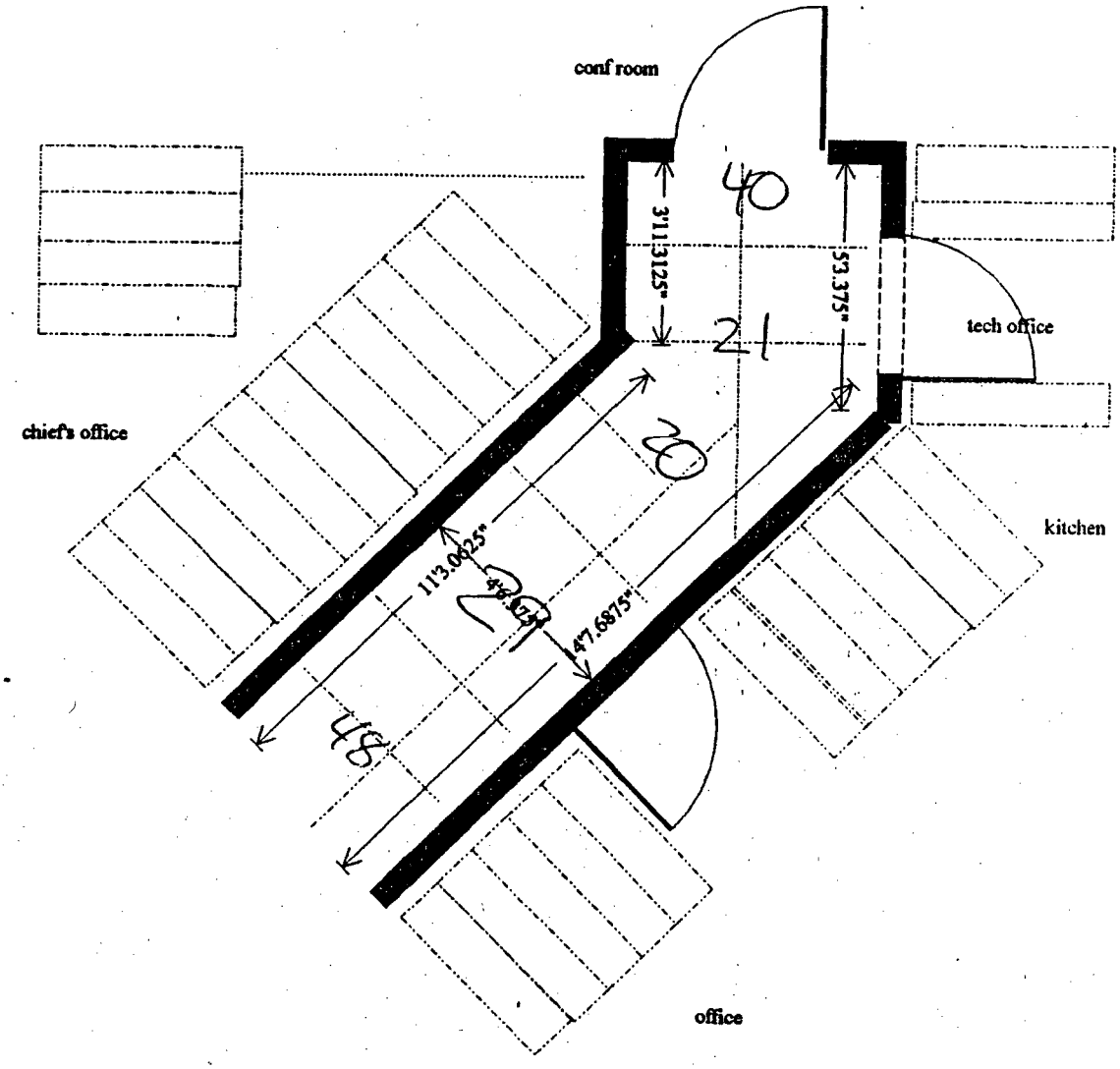
All Measurements are in uR/hr

Reviewed by: Donald Green on 10 Aug 93

Attachment 4

Key W[illegible]t Decommissioning Survey

Fixed Beta Contamination Survey-Hallway 11
Scale 1 inch = 4 feet



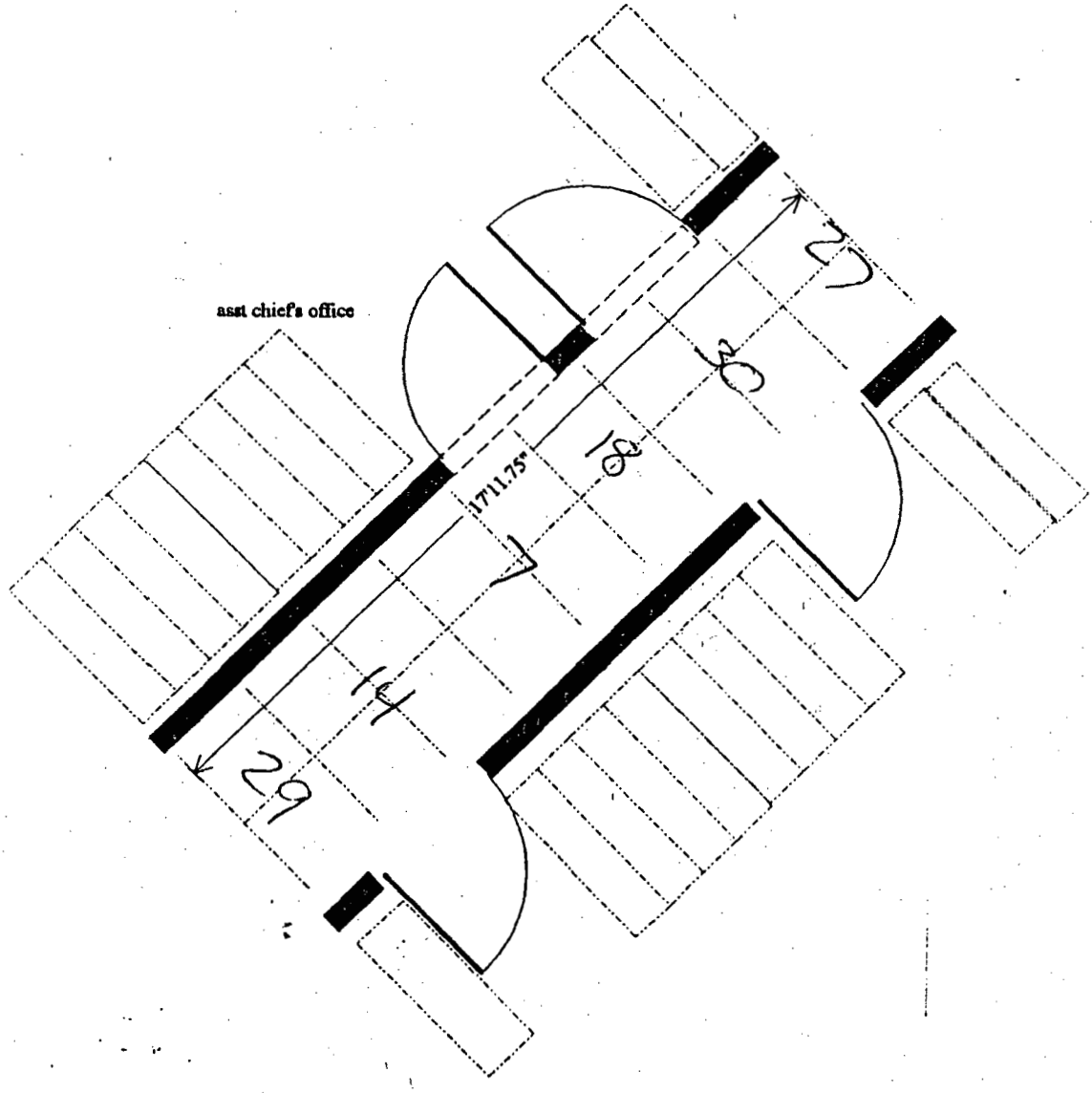
Conducted by: SPC Brinley on 26 Jul 93
All Measurements are Gross Counts in One Minute

Reviewed by: Donald K. Green on 10 Aug 93

Attachment 5

Key W[illegible]st Decommissioning Survey

Fixed Beta Contamination Survey-Hallway 11
Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 26 Jul 93
All Measurements are Gross Counts in One Minute
Reviewed by Donald K Green on 10 Aug 93

Attachment 5

KEY WEST DECOMMISSIONING SURVEY

Laboratory - 18

REMOVABLE CONTAMINATION

Laboratory Number 18 was surveyed for removable contamination on 16 Jun 93 by SSG Webster. A total of 141 swipes were taken. See Attachment 1 for the location of each swipe.

The swipes were analyzed for gamma contamination, utilizing the LKB Gammawell Counter on 16 Jun 93. See Attachment 2 for the MDAs and associated efficiencies. No gamma contamination was found above 200 dpm for I-125 or above 2000 dpm for any other isotope.

The swipes were analyzed for beta contamination, utilizing the Beckman Liquid Scintillation Counter Model 6800 on 16 Jun 93. See Attachment 3 for the MDAs and associated efficiencies. No beta contamination was found above 200 dpm for any isotope.

FIXED CONTAMINATION

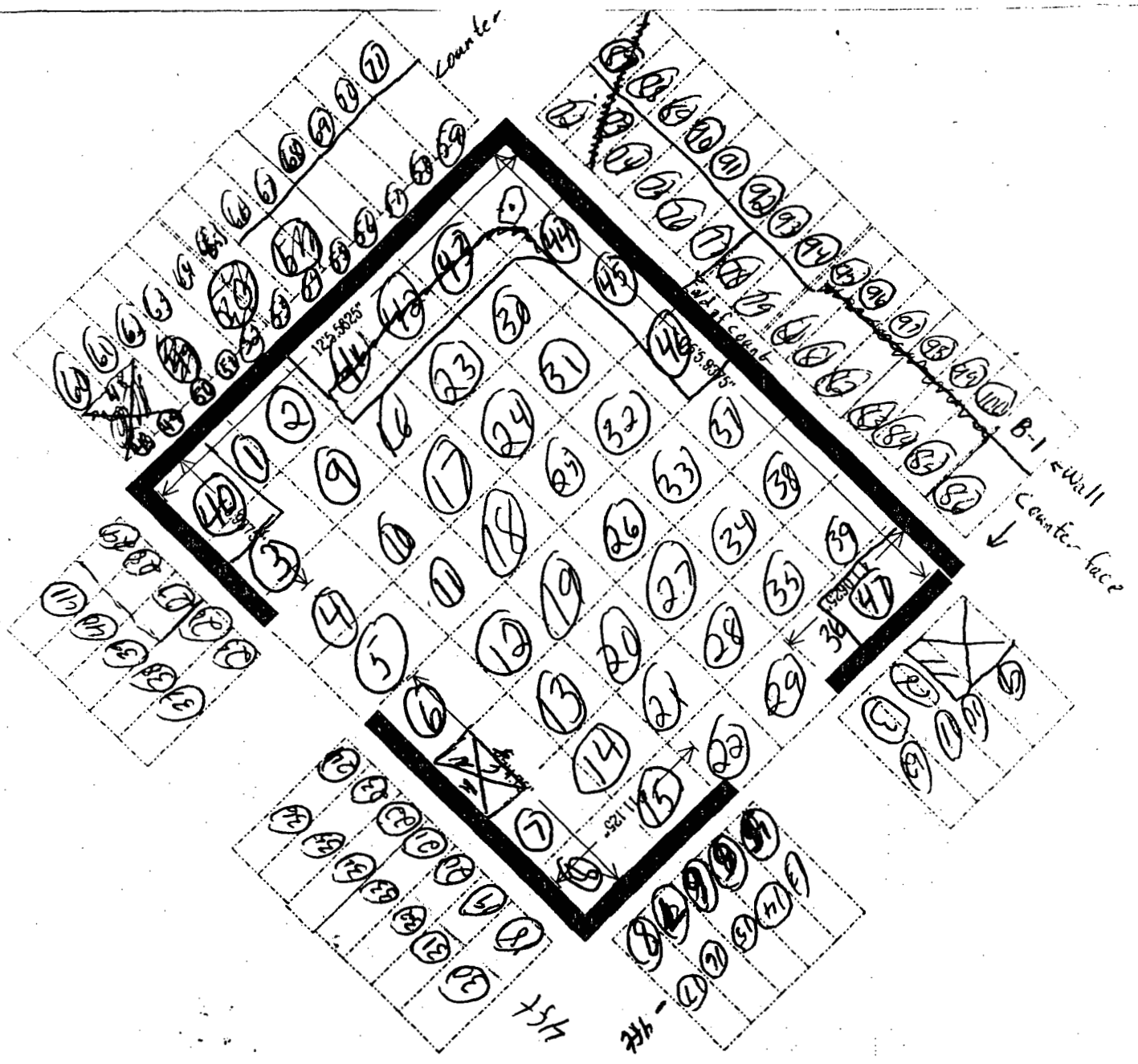
A fixed gamma survey was conducted on 16 Jun 93 by SPC Brinley. The highest exposure rate found was 22.0 uR/hr. The average exposure rate was approximately 11 uR/hr. See Attachment 4 for the location of readings taken.

A fixed beta survey was conducted on 23 Jul 93 by SPC Brinley. The highest number of counts found during a one minute count-time was 102 cpm. The average number of counts found during a one minute count-time was 55 cpm. See Attachment 5 for the location of readings taken.

As well as being reviewed at the time of the survey/receipt of laboratory results, all pertinent survey data was reviewed and compiled here by SFC Green on 8 Aug 93.

Key st Decommissioning Survey

Removable Contamination Survey-Laboratory 18
Scale 1 inch = 4 feet



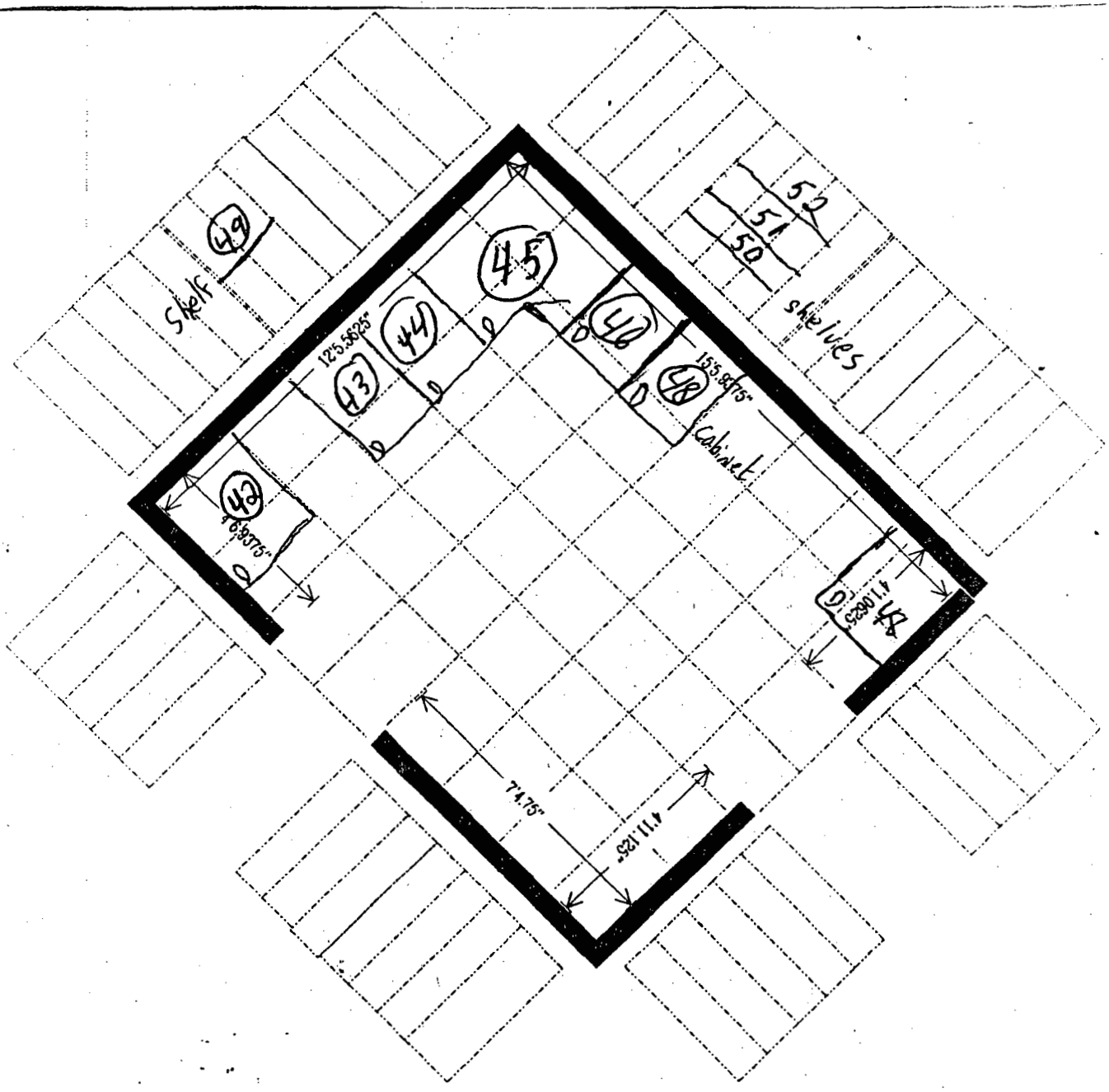
Conducted by: SSG Webster on 16 Jun 93
Lab analysis by (gamma): CPT Melanson on 16 Jun 93
(beta) : CPT Melanson on 16 Jun 93

Reviewed by: Donald K Shaw on 10 Aug 93

Attachment 1

Key est Decommissioning Survey

Removable Contamination Survey-Laboratory 18
Scale 1 inch = 4 feet



Conducted by: SSG Webster on 16 Jun 93
Lab analysis by (gamma): CPT Melanson on 16 Jun 93
(beta) : CPT Melanson on 16 Jun 93

Reviewed by: Donald K Green on 10 Aug 93

Attachment 1

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:06/16/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	48 CPM	29.9 DPM	0.762 / I-125
CHANNEL 2:	201 CPM	576.4 DPM	0.081 / CR-51
BECKMAN:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A

QUALITY ASSURANCE REPORT - BETA
FOR DATE:06/16/93

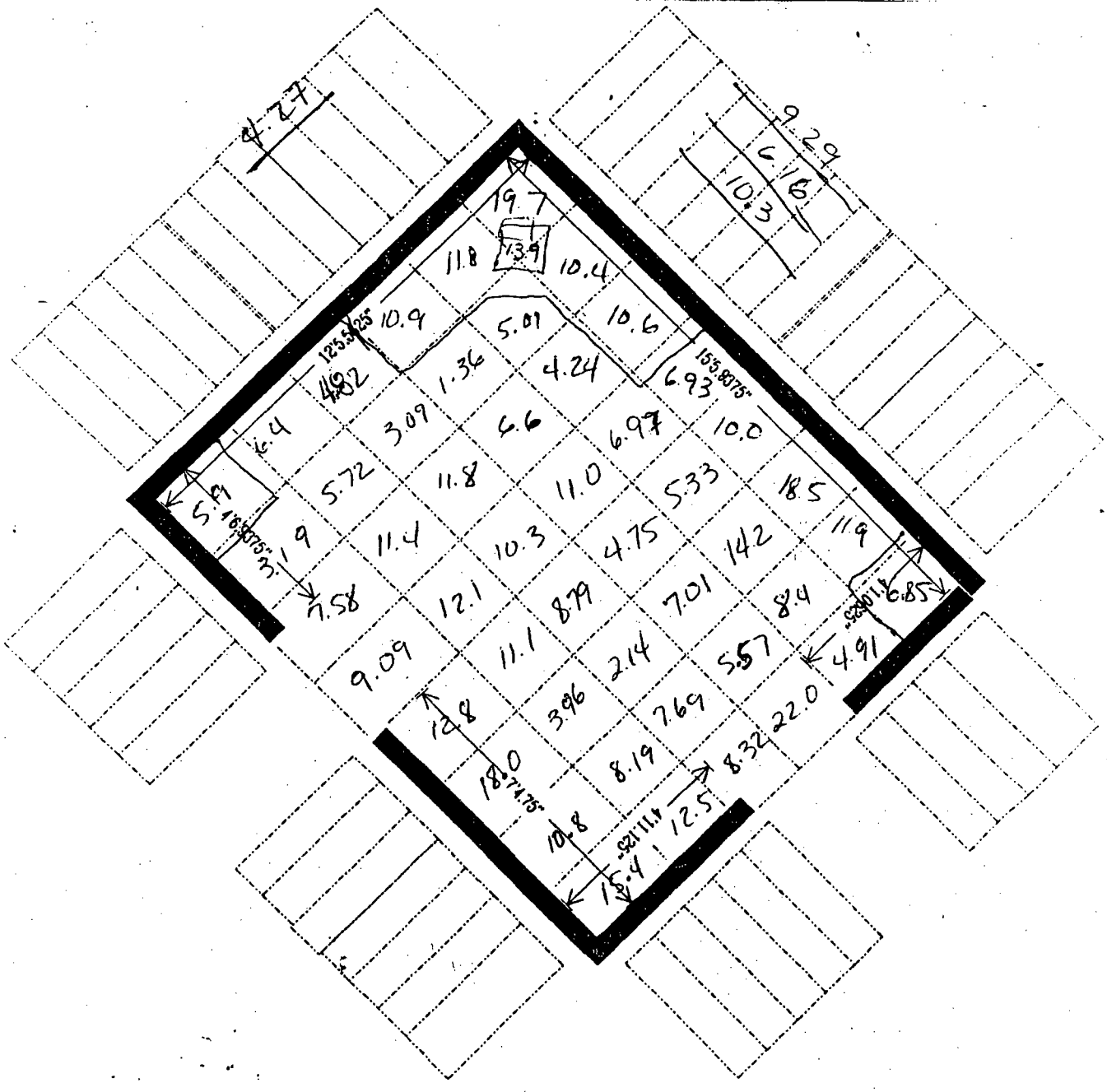
	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A
CHANNEL 3:	N/A	N/A	N/A
BECKMAN LS6800:			
CHANNEL 1:	29 CPM	28.1 DPM	0.630 / H-3
CHANNEL 2:	35 CPM	20.1 DPM	0.968 / C-14
CHANNEL 3:	41 CPM	20.9 DPM	1.007 / P-32

ATTACHMENT 3

Key st Decommissioning Survey

Fixed Gamma Contamination Survey-Laboratory 18

Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 16 Jun 93

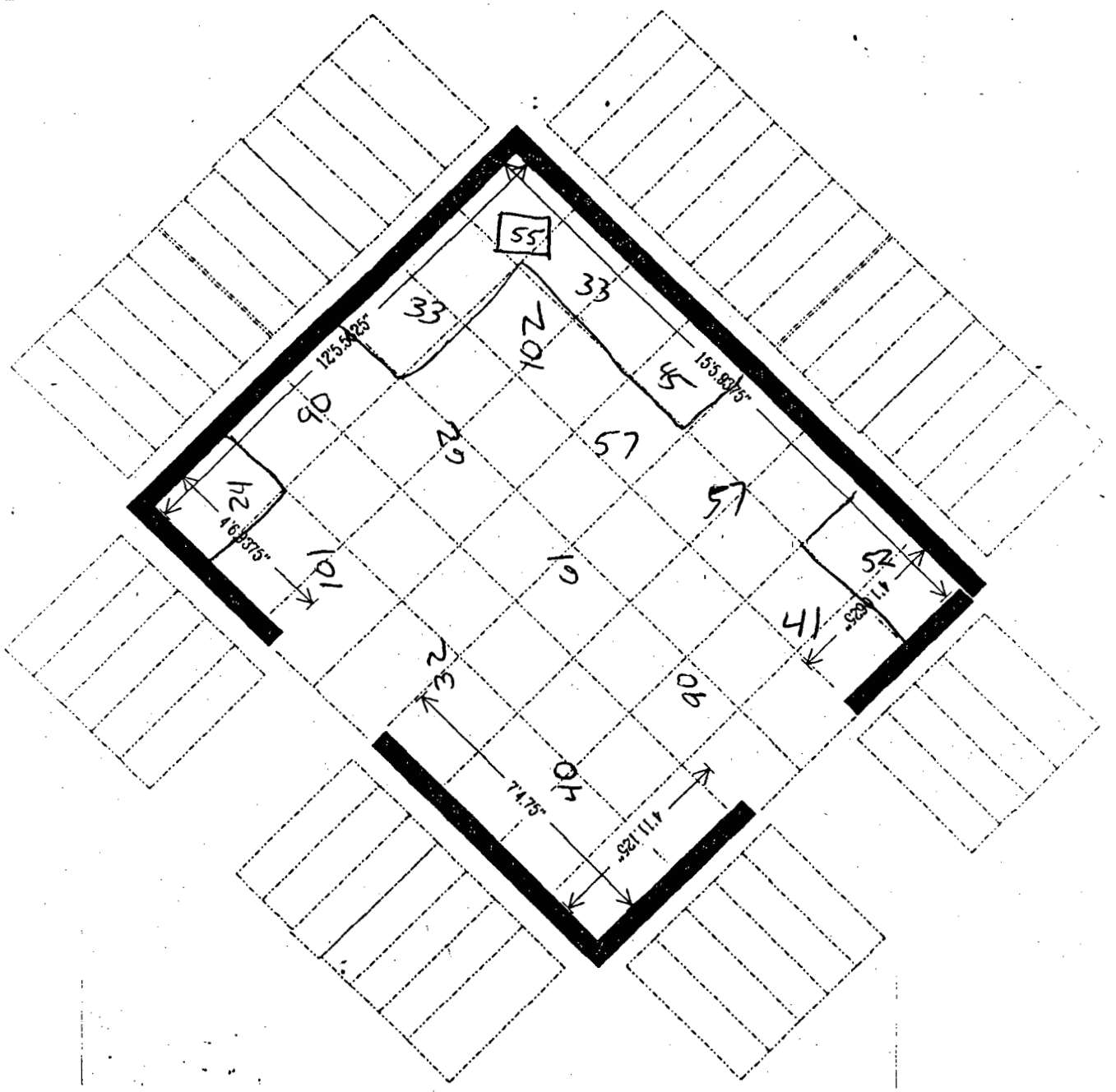
All Measurements are in uR/hr

Reviewed by: Donald K Green on 10 Aug 93

Attachment 4

Key \ st Decommissioning Survey

Fixed Beta Contamination Survey-Laboratory 18
Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 23 Jul 93
All Measurements are Gross Counts in One Minute

Reviewed by: Donald K Green on 10 Aug 93

Attachment 5

KEY WEST DECOMMISSIONING SURVEY

Laboratory - 19

REMOVABLE CONTAMINATION

Laboratory Number 19 was surveyed for removable contamination on 23 Jun 93 by SPC Brinley. A total of 205 swipes were taken. See Attachment 1 for the location of each swipe.

The swipes were analyzed for gamma contamination, utilizing the LKB Gammawell Counter on 23 Jun 93. See Attachment 2 for the MDAs and associated efficiencies. No gamma contamination was found above 200 dpm for I-125 or above 2000 dpm for any other isotope.

The swipes were analyzed for beta contamination, utilizing the Beckman Liquid Scintillation Counter Model 6800 on 23 Jun 93. See Attachment 3 for the MDAs and associated efficiencies. No beta contamination was found above 200 dpm for any isotope.

FIXED CONTAMINATION

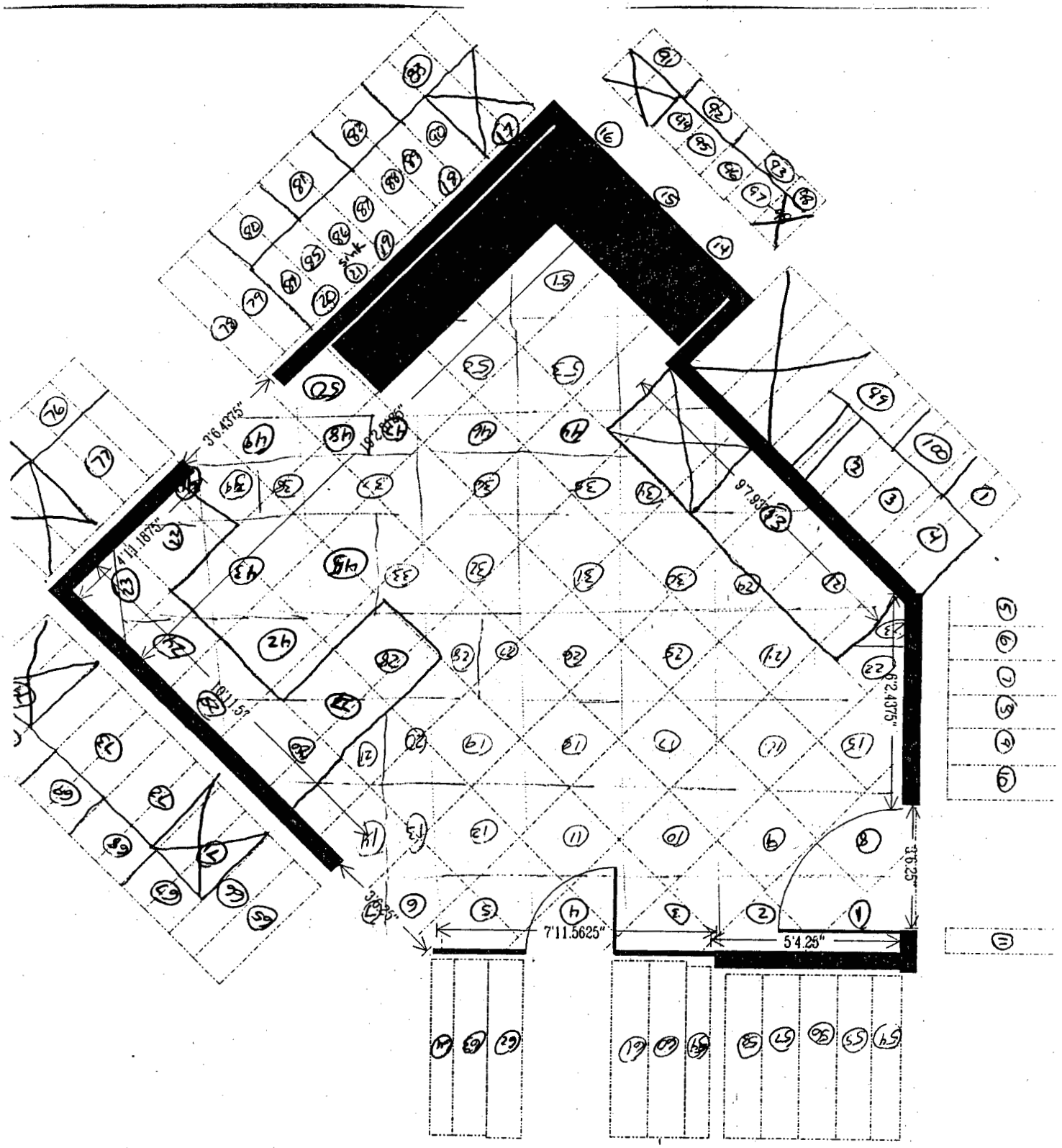
A fixed gamma survey was conducted on 23 Jun 93 by SPC Brinley. The highest exposure rate found was 26.1 uR/hr. The average exposure rate was approximately 10.5 uR/hr. See Attachment 4 for the location of readings taken.

A fixed beta survey was conducted on 23 Jul 93 by SPC Brinley. The highest number of counts found during a one minute count-time was 119 cpm. The average number of counts found during a one minute count-time was 60 cpm. See Attachment 5 for the location of readings taken.

As well as being reviewed at the time of the survey/receipt of laboratory results, all pertinent survey data was reviewed and compiled here by SFC Green on 8 Aug 93.

Key st Decommissioning Survey

Removable Contamination Survey-Laboratory 19
Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 23 Jun 93
Lab analysis by (gamma): SSG Koelker on 23 Jun 93
(beta) : SSG Koelker on 23 Jun 93

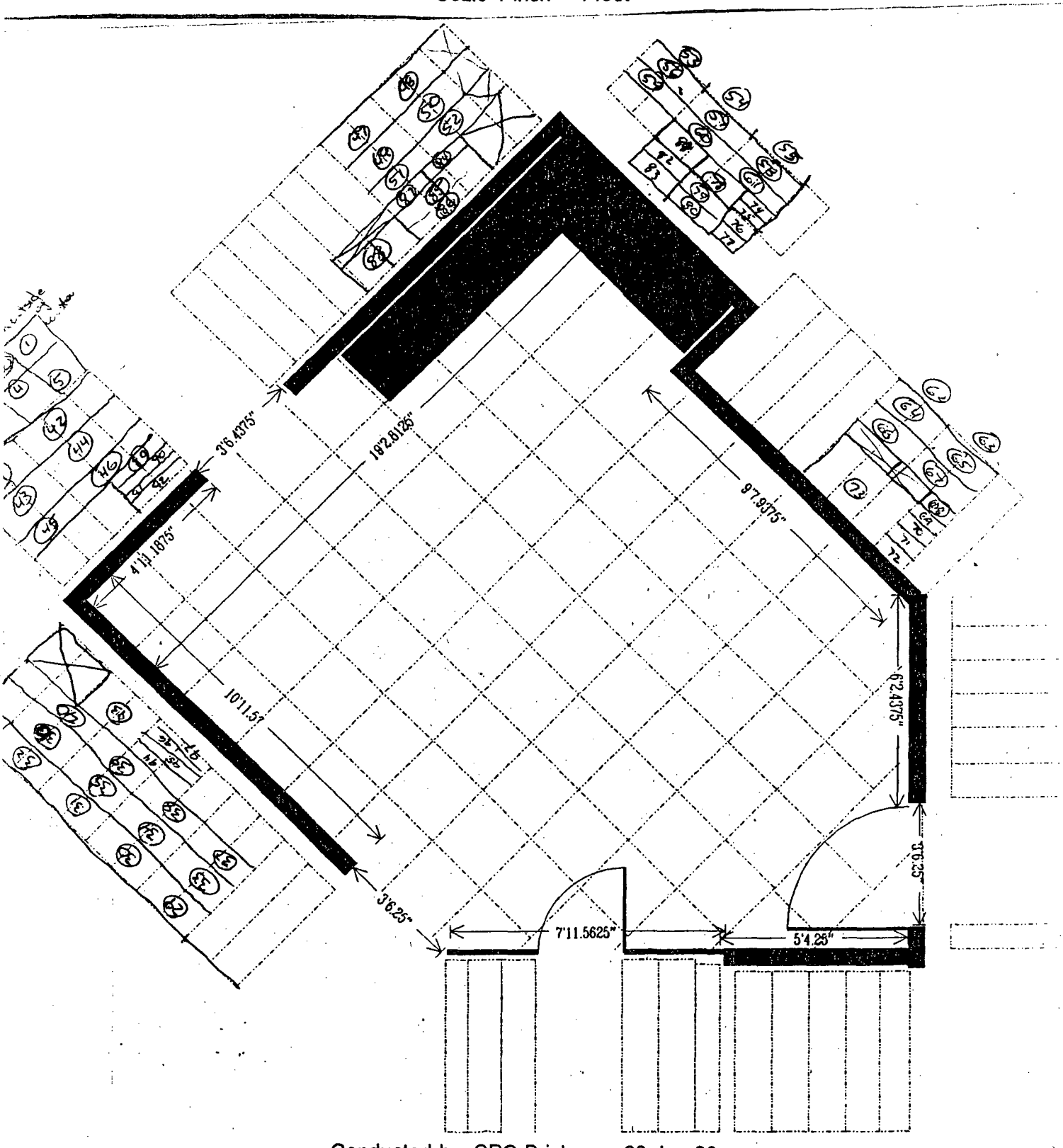
Reviewed by: Donald K Green on 10 Aug 93

Attachment 1

Key ...st Decommissioning Survey

Removable Contamination Survey-Laboratory 19

Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 23 Jun 93

Lab analysis by (gamma): SSG Koelker on 23 Jun 93

(beta) : SSG Koelker on 23 Jun 93

Reviewed by: Donald K Green on 10 Aug 93

Attachment 1

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:06/23/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	49 CPM	33.4 DPM	0.688 / I-125
CHANNEL 2:	200 CPM	676.8 DPM	0.069 / CR-51
BECKMAN:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A

ATTACHMENT 2

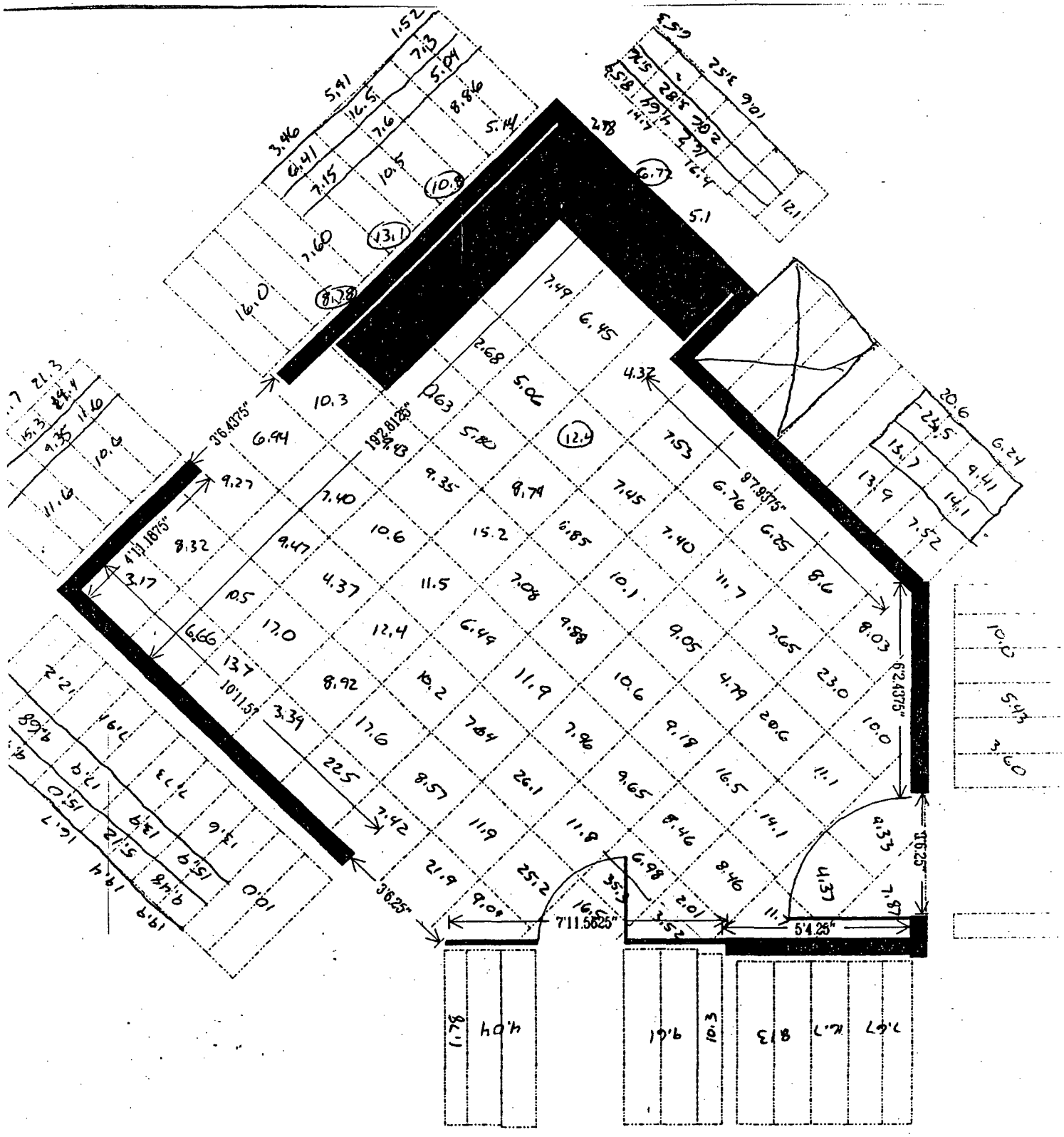
QUALITY ASSURANCE REPORT - BETA
FOR DATE:06/23/93

	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A
CHANNEL 3:	N/A	N/A	N/A
BECKMAN LS6800:			
CHANNEL 1:	29 CPM	28.1 DPM	0.630 / H-3
CHANNEL 2:	35 CPM	20.1 DPM	0.968 / C-14
CHANNEL 3:	41 CPM	20.9 DPM	1.007 / P-32

Key st Decommissioning Survey

Fixed Gamma Contamination Survey-Laboratory 19

Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 23 Jun 93

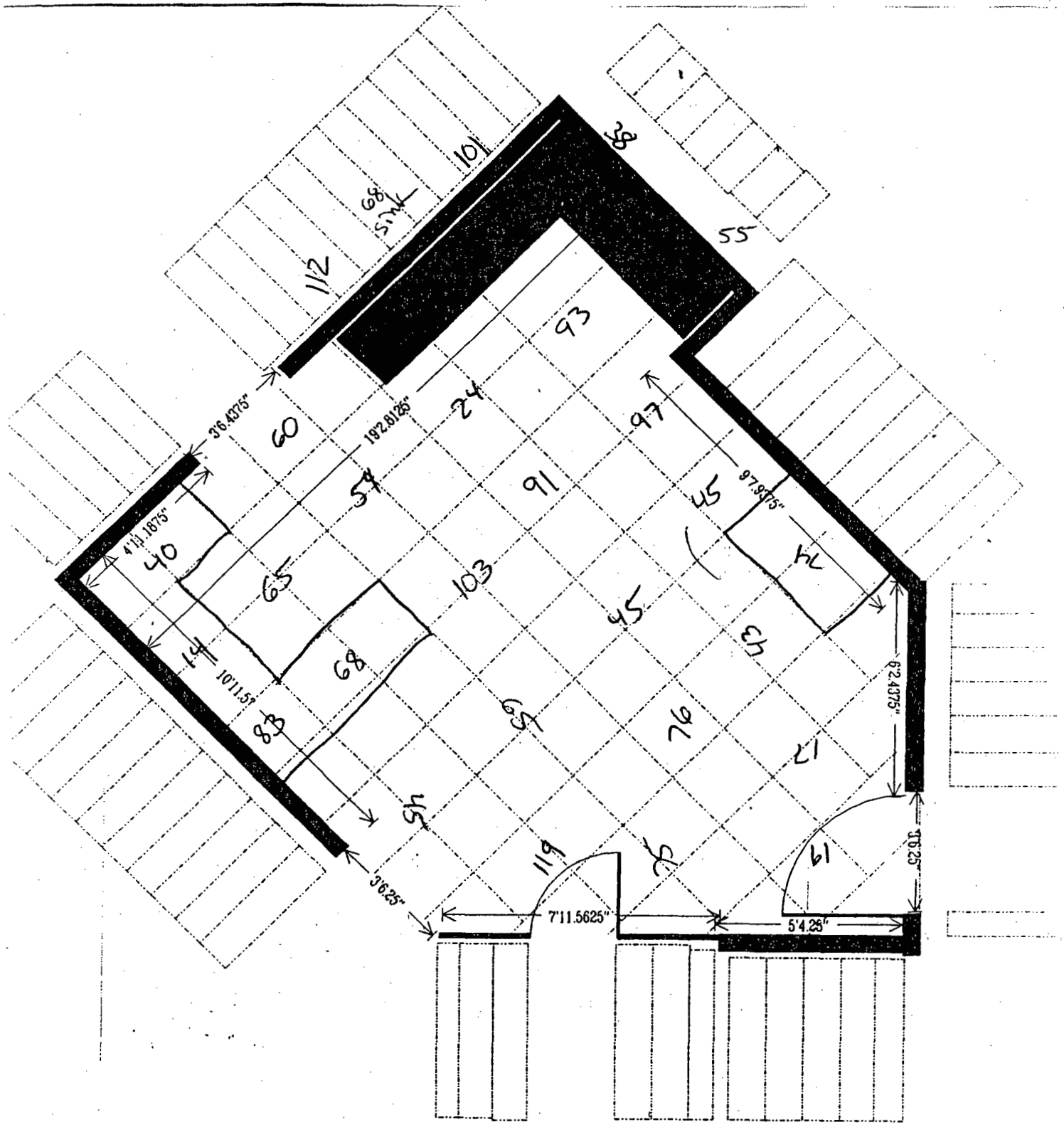
All Measurements are in uR/hr

Reviewed by: Donald K Green on 10 Aug 93

Key West Decommissioning Survey

Fixed Beta Contamination Survey-Laboratory 19

Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 23 Jul 93

All Measurements are Gross One Minute Counts

Reviewed by: Donald K Green on 10 Aug 93

Attachment 5

KEY WEST DECOMMISSIONING SURVEY

Laboratory - 20

REMOVABLE CONTAMINATION

Laboratory Number 20 was surveyed for removable contamination on 22 Jun 93 by SSG Webster. The walk-in refer adjoining it was surveyed on 25 Jul by SPC Brinley. A total of 76 swipes were taken. See Attachment 1 for the location of each swipe.

The swipes were analyzed for gamma contamination, utilizing the LKB Gammawell Counter on 22 Jun 93. See Attachment 2 for the MDAs and associated efficiencies for the 22 Jun survey. Laboratory analysis for the 25 Jul survey was conducted by the Technical Services Branch, HPO, rather than on-site. The Quality Assurance records for Technical Services is available for inspection at all times. No gamma contamination was found above 200 dpm for I-125 or above 2000 dpm for any other isotope.

The swipes were analyzed for beta contamination, utilizing the Beckman Liquid Scintillation Counter Model 6800 on 22 Jun 93. See Attachment 3 for the MDAs and associated efficiencies. Technical Services Branch also provided the analysis for the beta contamination for the 25 Jul survey. No beta contamination was found above 200 dpm for any isotope.

FIXED CONTAMINATION

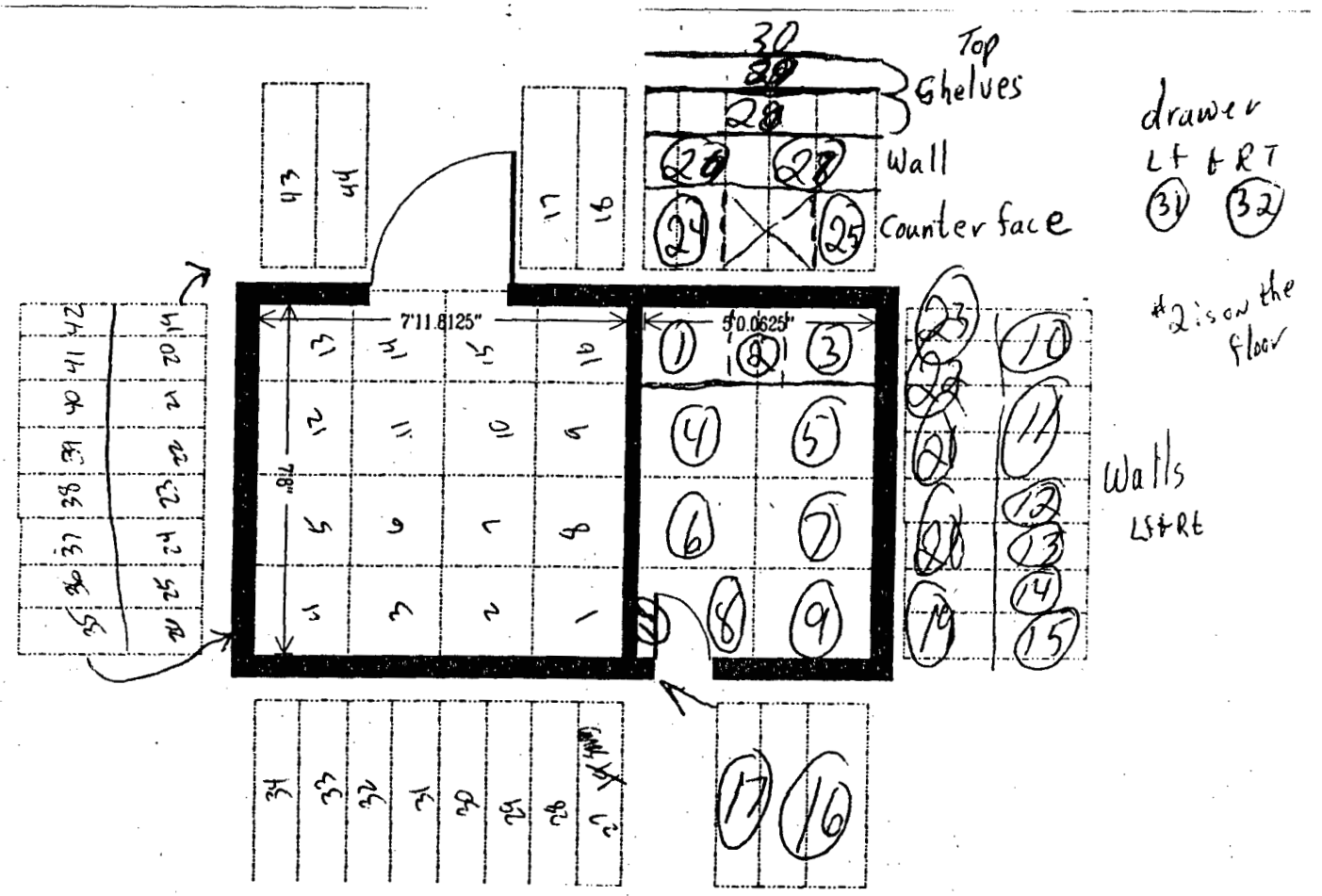
A fixed gamma survey was conducted on 22 Jun 93 by SPC Brinley. The highest exposure rate found was 20.7 uR/hr. The average exposure rate was approximately 9.4 uR/hr. See Attachment 4 for the location of readings taken.

A fixed beta survey was conducted on 23 Jul 93 by SPC Brinley. The highest number of counts found during a one minute count-time was 64 cpm. The average number of counts found during a one minute count-time was 50 cpm. See Attachment 5 for the location of readings taken.

As well as being reviewed at the time of the survey/receipt of laboratory results, all pertinent survey data was reviewed and compiled here by SFC Green on 8 Aug 93.

Key ... st Decommissioning Survey

Removable Contamination Survey-Laboratory 20
Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 22 Jun 93
Lab analysis by (gamma): SSG Koelker on 22 Jun 93
(beta) : SSG Koelker on 22 Jun 93

Reviewed by: Donald K Green on 10 Aug 93

Attachment 1

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:06/22/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	50 CPM	31.6 DPM	0.735 / I-125
CHANNEL 2:	203 CPM	950.9 DPM	0.049 / CR-51
BECKMAN:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A

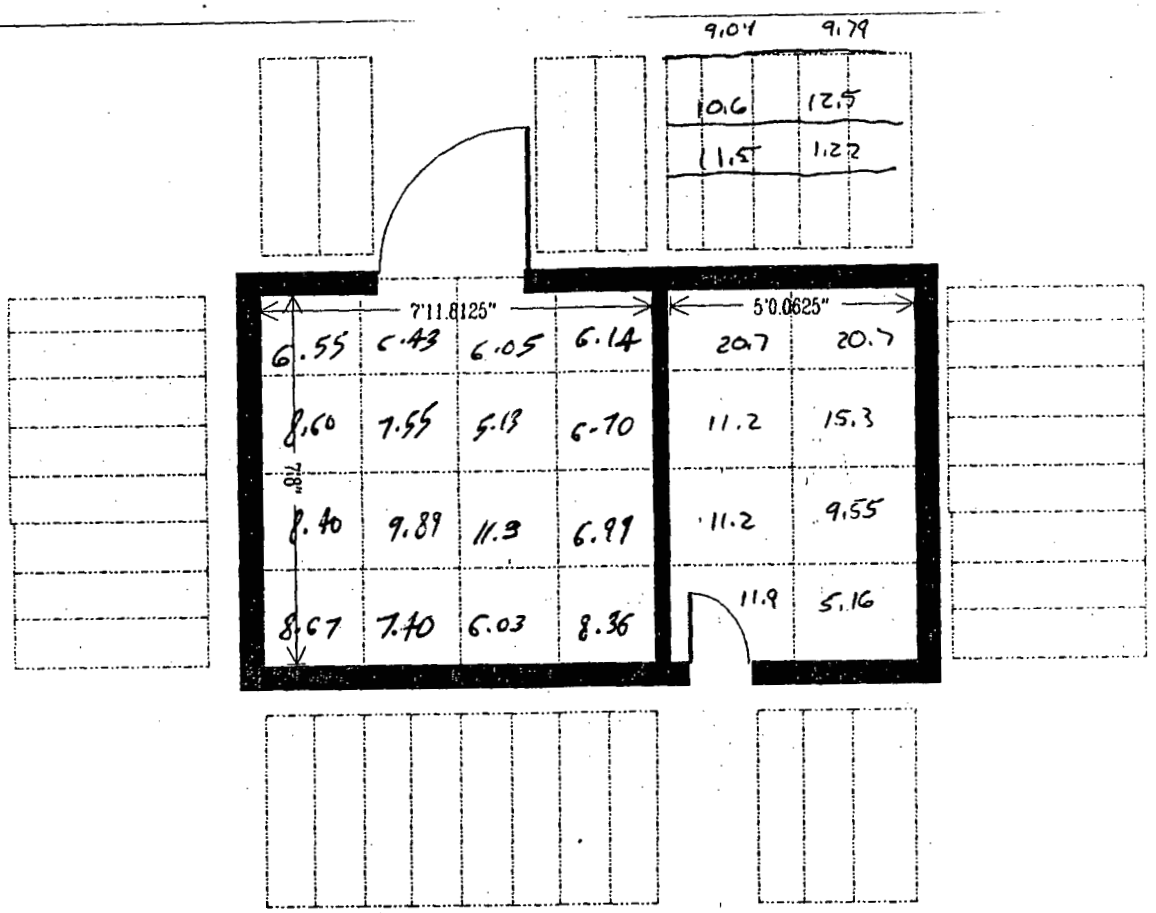
QUALITY ASSURANCE REPORT - BETA
FOR DATE:06/22/93

	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A
CHANNEL 3:	N/A	N/A	N/A
BECKMAN LS6800:			
CHANNEL 1:	29 CPM	28.1 DPM	0.630 / H-3
CHANNEL 2:	35 CPM	20.1 DPM	0.968 / C-14
CHANNEL 3:	41 CPM	20.9 DPM	1.007 / P-32

Ke_ Vest Decommissioning Survey

Fixed Gamma Contamination Survey-Laboratory 20

Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 22 Jun 93

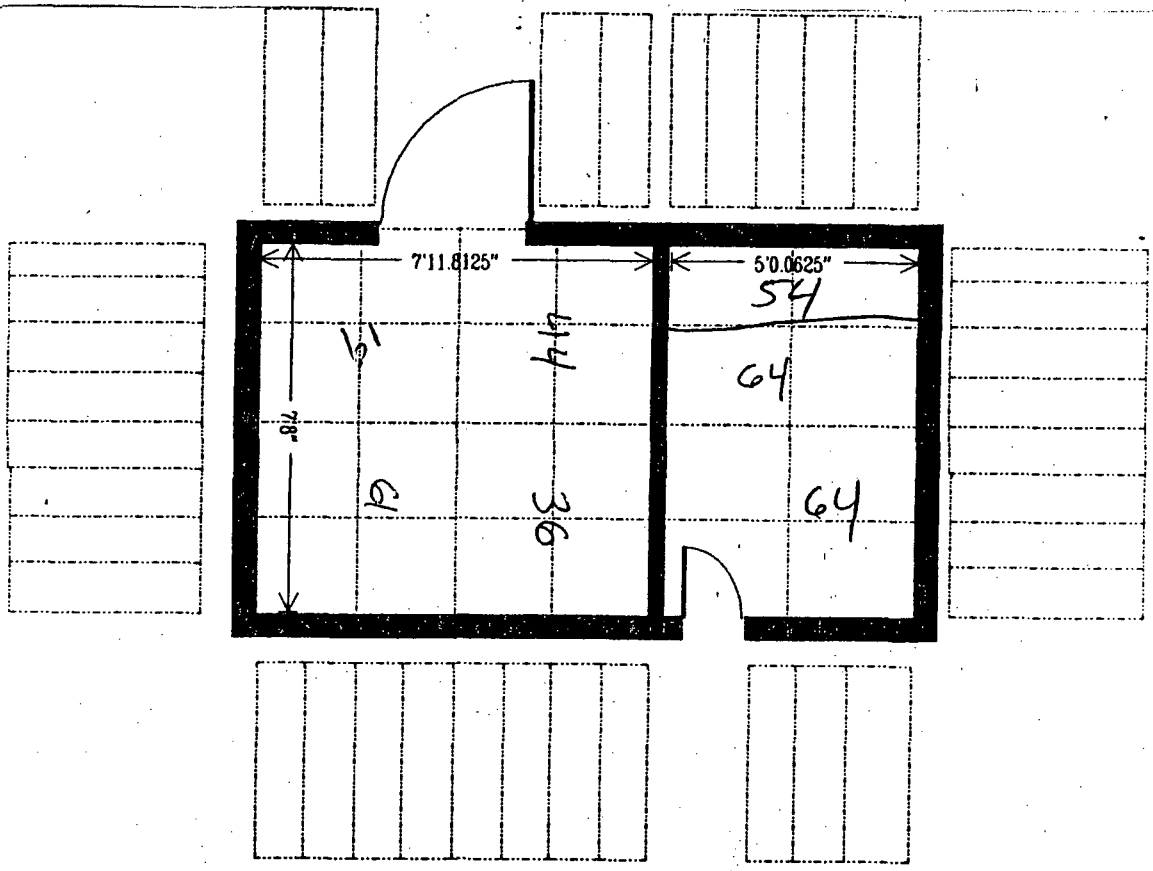
All Measurements are in uR/hr

Reviewed by Donald K Loom on 10 Aug 93

Attachment 4

Key ...est Decommissioning Survey

Fixed Beta Contamination Survey-Laboratory 20
Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 23 Jul 93
All Measurements are Gross Counts in One Minute
Reviewed by: Donald K Grant on 10 Aug 93

Attachment 5

KEY WEST DECOMMISSIONING SURVEY

Laboratory - 21

REMOVABLE CONTAMINATION

Laboratory Number 21 was surveyed for removable contamination on 30 Jun 93 by SPC Brinley. A total of 105 swipes were taken. See Attachment 1 for the location of each swipe.

The swipes were analyzed for gamma contamination, utilizing the LKB Gammawell Counter on 30 Jun 93. See Attachment 2 for the MDAs and associated efficiencies. No gamma contamination was found above 200 dpm for I-125 or above 2000 dpm for any other isotope.

The swipes were analyzed for beta contamination, utilizing the Beckman Liquid Scintillation Counter Model 6800 on 30 Jun 93. See Attachment 3 for the MDAs and associated efficiencies. No beta contamination was found above 200 dpm for any isotope.

FIXED CONTAMINATION

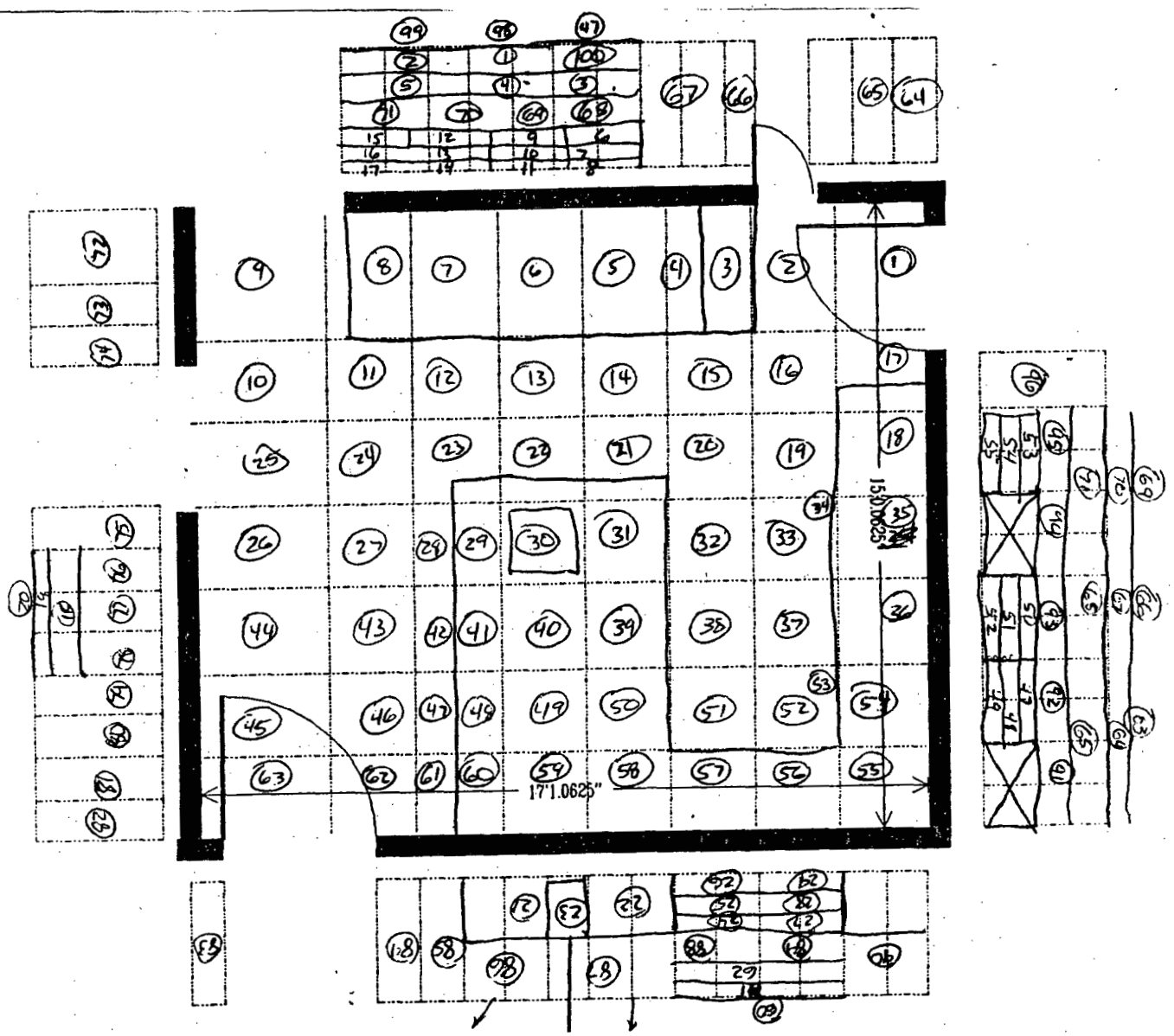
A fixed gamma survey was conducted on 30 Jun 93 by SPC Brinley. The highest exposure rate found was 22.2 uR/hr. The average exposure rate was approximately 9 uR/hr. See Attachment 4 for the location of readings taken.

A fixed beta survey was conducted on 23 Jul 93 by SPC Brinley. The highest number of counts found during a one minute count-time was 169 cpm. The average number of counts found during a one minute count-time was approximately 80 cpm. See Attachment 5 for the location of readings taken.

As well as being reviewed at the time of the survey/receipt of laboratory results, all pertinent survey data was reviewed and compiled here by SFC Green on 8 Aug 93.

Key ' st Decommissioning Survey

Removable Contamination Survey-Laboratory 21
Scale 1 inch = 4 feet



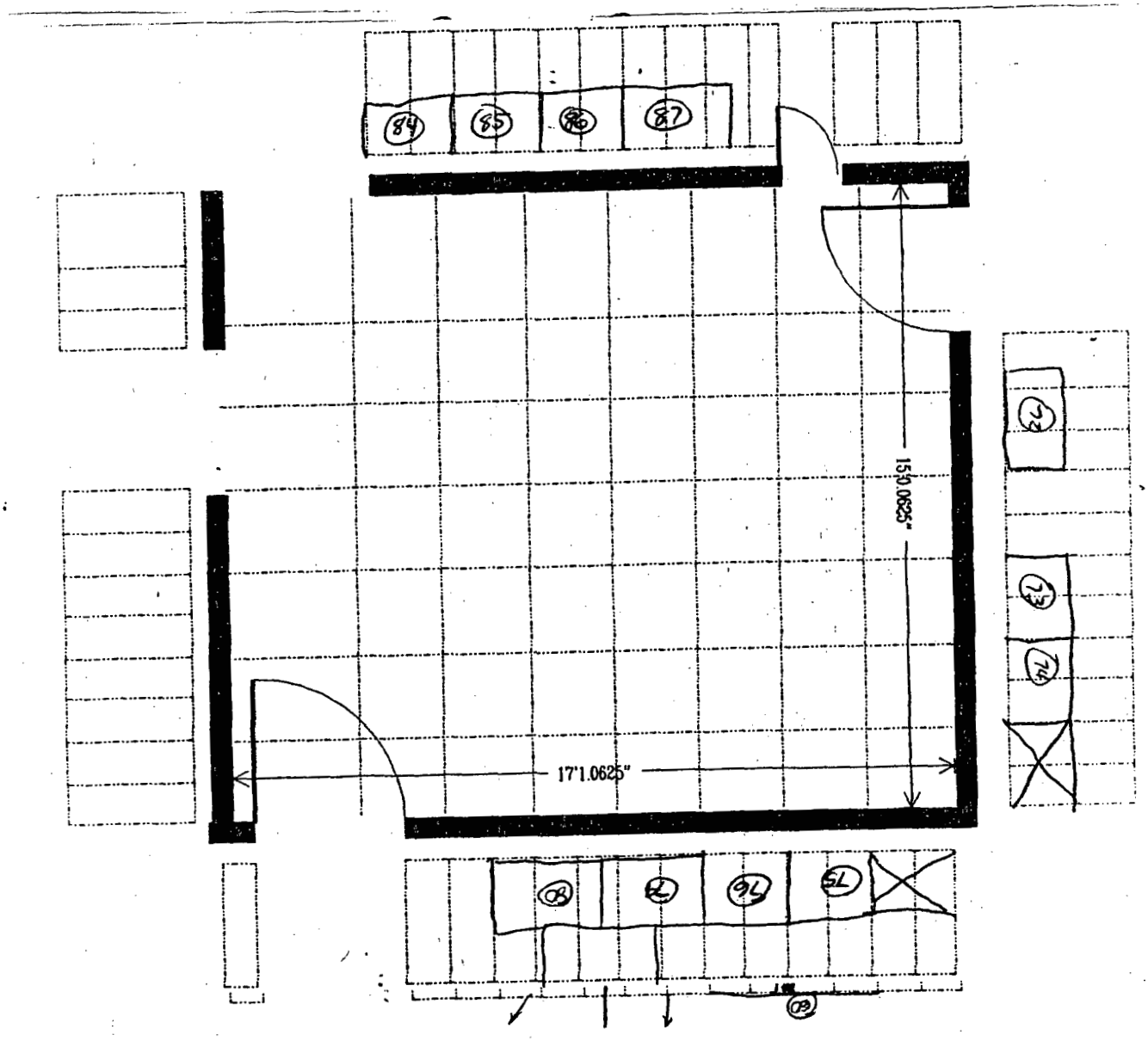
Conducted by: SPC Brinley on 30 Jun 93
Lab analysis by (gamma): SSG Koelker on 30 Jun 93
(beta) : SSG Koelker on 30 Jun 93

Reviewed by: Donald K. Green on 10 Aug 93

Attachment 1

Key st Decommissioning Survey

Removable Contamination Survey-Laboratory 21
Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 30 Jun 93
Lab analysis by (gamma): SSG Koelker on 30 Jun 93
(beta) : SSG Koelker on 30 Jun 93

Reviewed by: Donald K Lhear on 10 Aug 93

Attachment 1

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:06/30/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	54 CPM	45.5 DPM	0.530 / I-125
CHANNEL 2:	204 CPM	948.4 DPM	0.050 / CR-51
BECKMAN:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A

ATTACHMENT 2

QUALITY ASSURANCE REPORT - BETA
FOR DATE:06/30/93

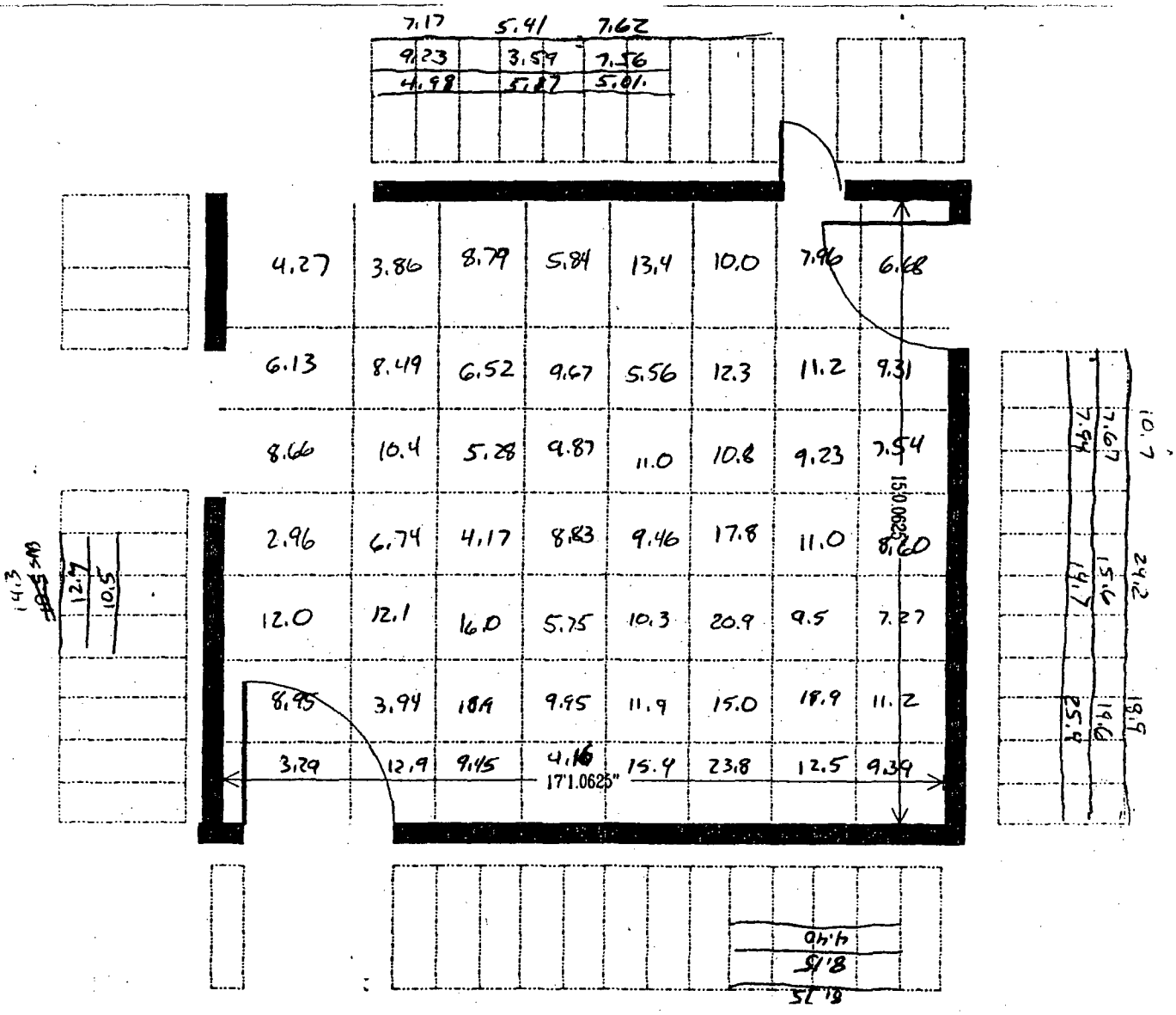
	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A
CHANNEL 3:	N/A	N/A	N/A
BECKMAN LS6800:			
CHANNEL 1:	17 CPM	23.4 DPM	0.579/H-3
CHANNEL 2:	30 CPM	19.0 DPM	0.947/C-14
CHANNEL 3:	40 CPM	20.7 DPM	1.007/P-32

ATTACHMENT 3

Key W[illegible] Decommissioning Survey

Fixed Gamma Contamination Survey-Laboratory 21

Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 30 Jun 93

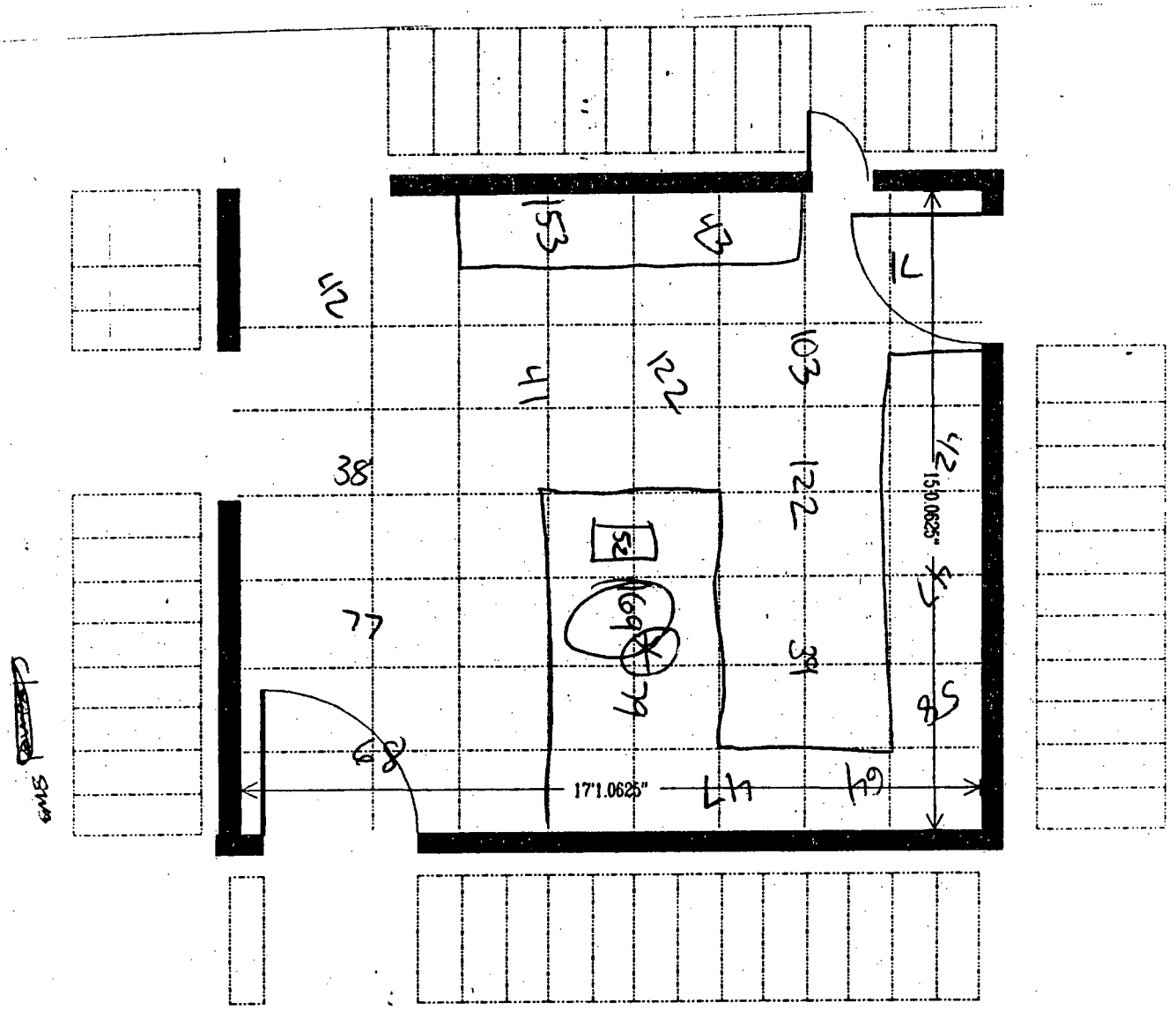
All Measurements are in uR/hr

Reviewed by: Donald K Green on 10 Aug 93

Attachment 4

Key ' st Decommissioning Survey

Fixed Beta Contamination Survey-Laboratory 21
Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 23 Jul 93
All Measurements are Gross One Minute Counts
Reviewed by: Donald K Dean on 10 Aug 93

Attachment 5

KEY WEST DECOMMISSIONING SURVEY

Laboratory - 22

REMOVABLE CONTAMINATION

Laboratory Number 22 was surveyed for removable contamination on 9 Jul by SSG Koelker. A total of 149 swipes were taken. See Attachment 1 for the location of each swipe.

The swipes were analyzed for gamma contamination, utilizing the LKB Gammawell Counter on 12 Jul 93. See Attachment 2 for the MDAs and associated efficiencies. No gamma contamination was found above 200 dpm for I-125 or above 2000 dpm for any other isotope.

The swipes were analyzed for beta contamination, utilizing the Beckman Liquid Scintillation Counter Model 6800 on 12 Jul 93. See Attachment 3 for the MDAs and associated efficiencies. No beta contamination was found above 200 dpm for any isotope.

FIXED CONTAMINATION

A fixed gamma survey was conducted on 9 Jul by SSG Koelker. The highest exposure rate found was 20.1 uR/hr. The average exposure rate was approximately 8 uR/hr. See Attachment 4 for the location of readings taken.

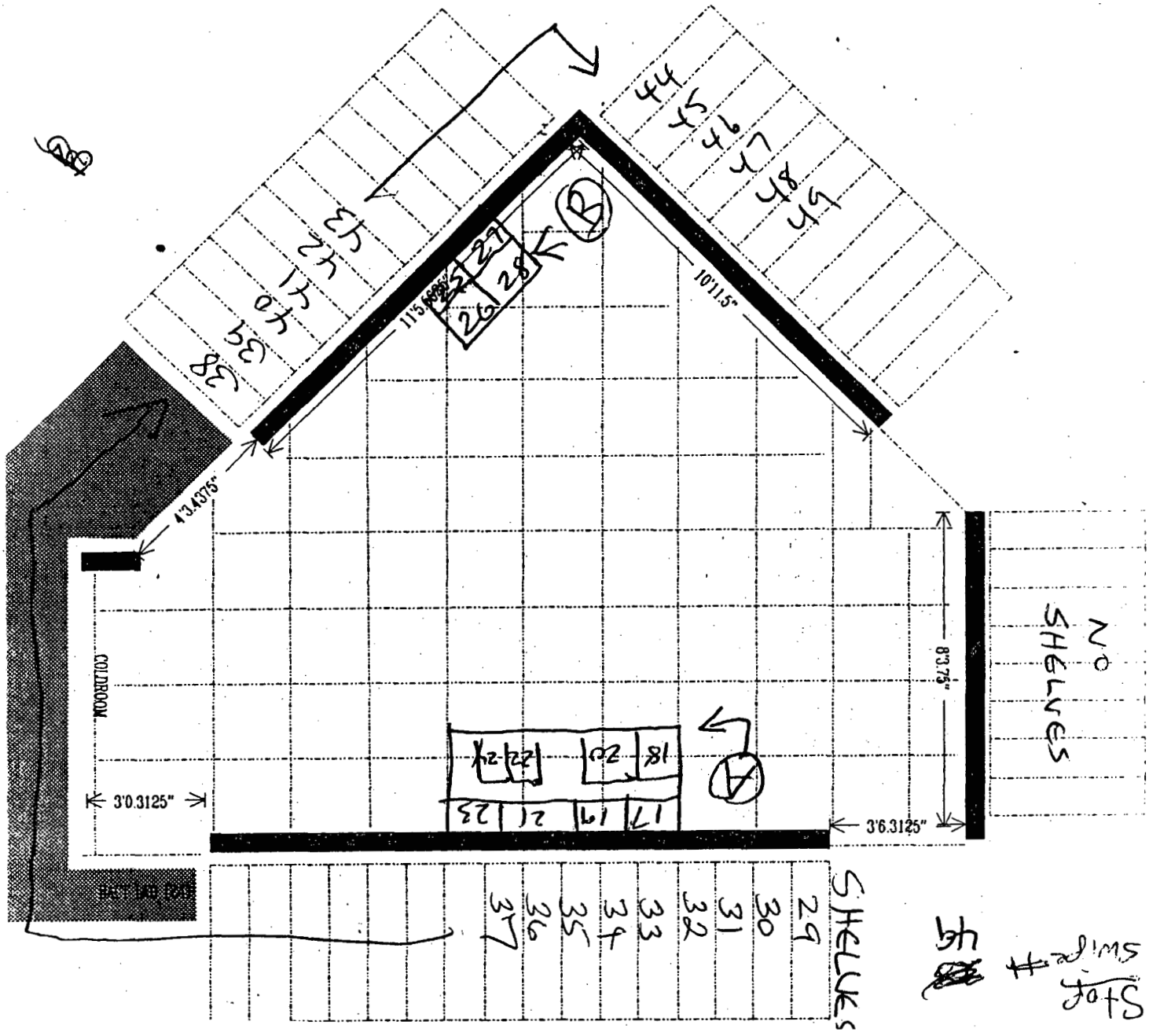
A fixed beta survey was conducted on 23 Jul 93 by SPC Brinley. The highest number of counts found during a one minute count-time was 87 cpm. The average number of counts found during a one minute count-time was approximately 50 cpm. See Attachment 5 for the location of readings taken.

As well as being reviewed at the time of the survey/receipt of laboratory results, all pertinent survey data was reviewed and compiled here by SFC Green on 8 Aug 93.

Key V t Decommissioning Survey

Removable Contamination Survey-Laboratory 22

Scale 1 inch = 4 feet



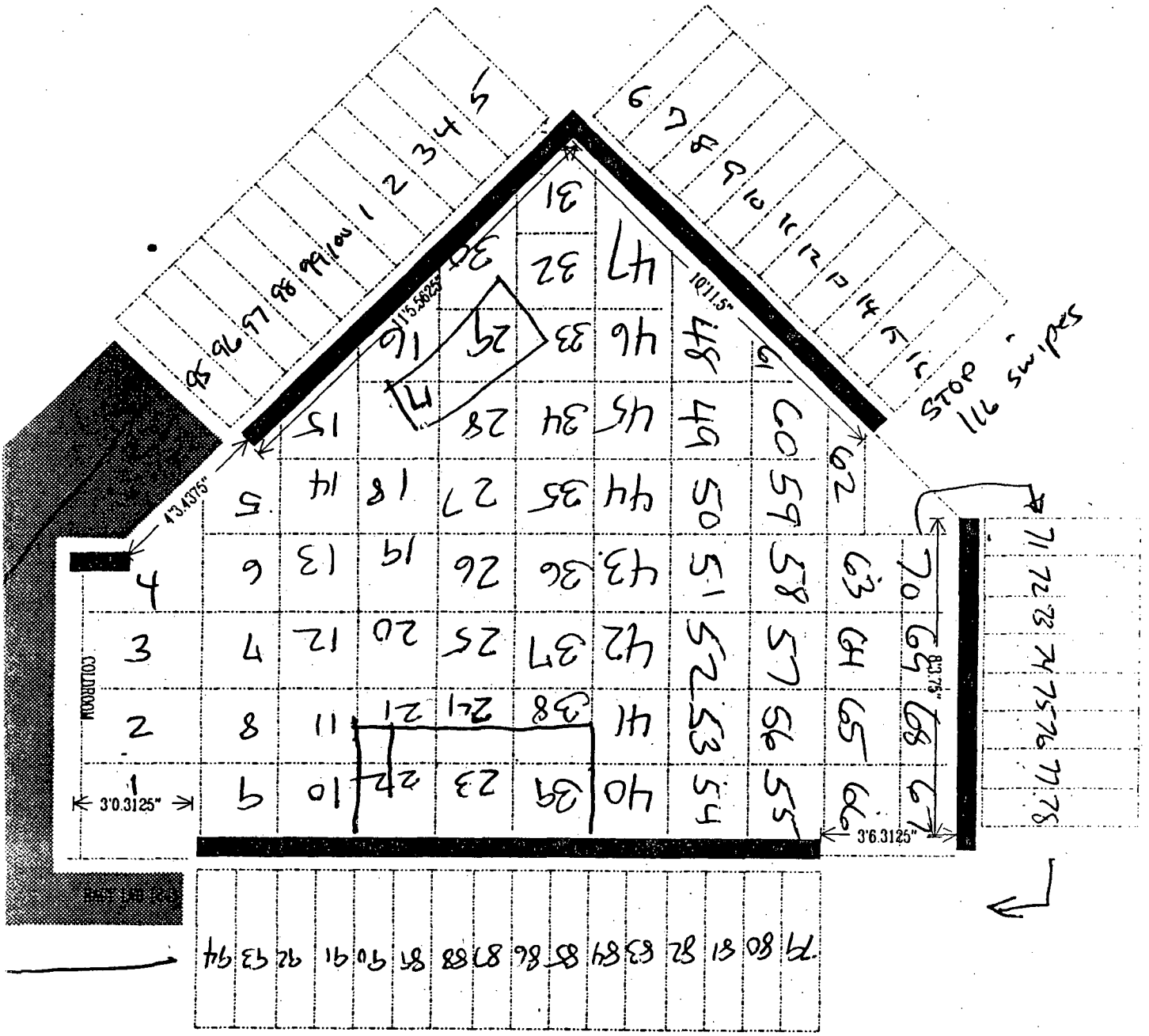
Conducted by: SSG Koelker on 09 Jul 93
Lab analysis by (gamma): SSG Koelker on 12 Jul 93
(beta) : SSG Koelker on 12 Jul 93

Reviewed by: Donald K Green on 10 Aug 93

Attachment 1

Key West Decommissioning Survey

Removable Contamination Survey-Laboratory 22
Scale 1 inch = 4 feet



Conducted by: SSG Koelker on 09 Jul 93
Lab analysis by (gamma): SSG Koelker on 12 Jul 93
(beta) : SSG Koelker on 12 Jul 93

Reviewed by: Donald K Green on 10 Aug 93

Attachment 1

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:07/12/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	52 CPM	30.9 DPM	0.767 / I-125
CHANNEL 2:	197 CPM	679.7 DPM	0.068 / CR-51
BECKMAN:			
CHANNEL 1:	48 CPM	25.0 DPM	0.912 / I-125
CHANNEL 2:	205 CPM	490.2 DPM	0.096 / CR-51

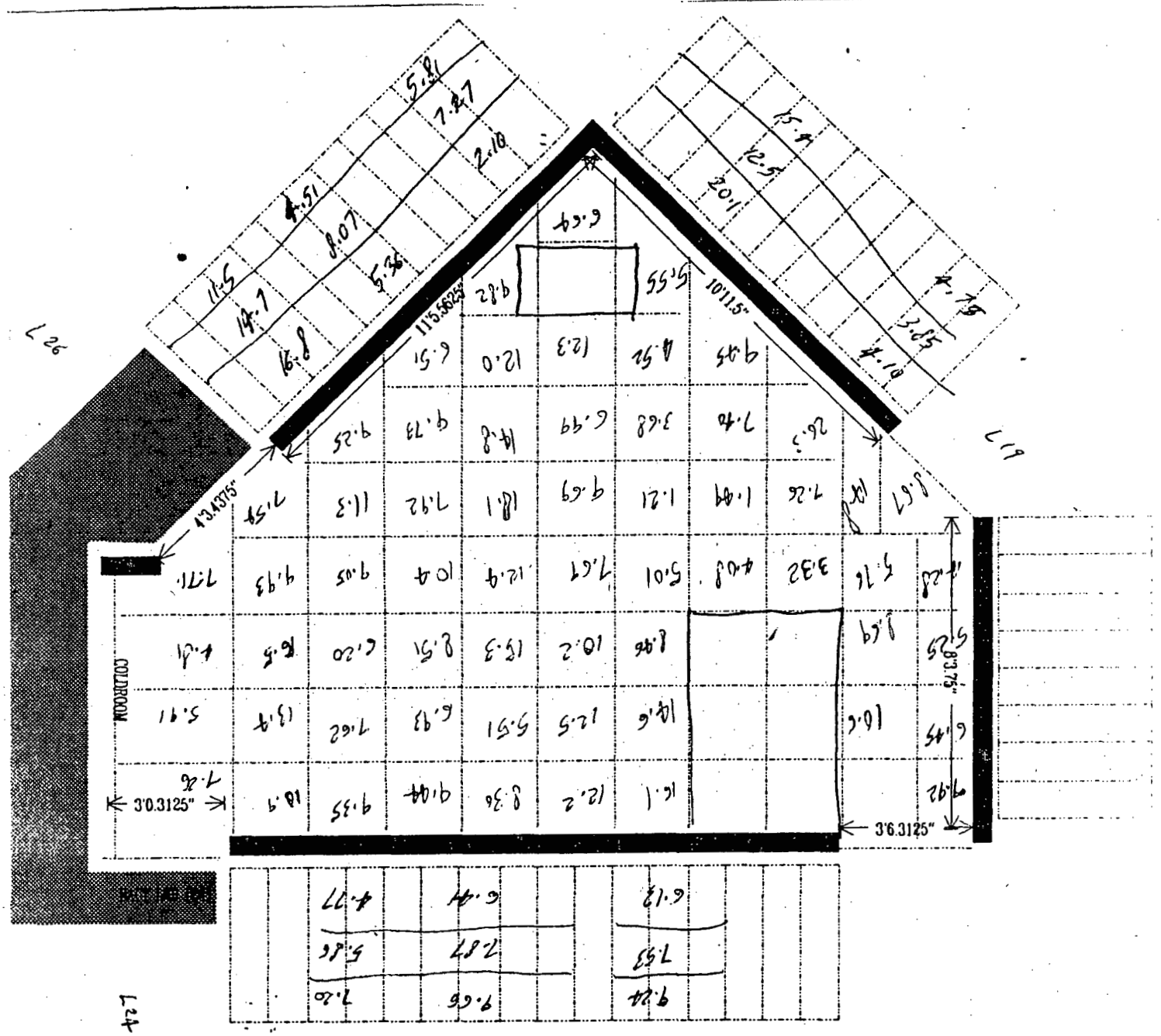
ATTACHMENT 2

QUALITY ASSURANCE REPORT - BETA
FOR DATE: 07/12/93

	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A
CHANNEL 3:	N/A	N/A	N/A
BECKMAN LS6800:			
CHANNEL 1:	17 CPM	23.4 DPM	0.579/H-3
CHANNEL 2:	30 CPM	19.0 DPM	0.947/C-14
CHANNEL 3:	40 CPM	20.7 DPM	1.007/P-32

Key \ st Decommissioning Survey

Fixed Gamma Contamination Survey-Laboratory 22
Scale 1 inch = 4 feet



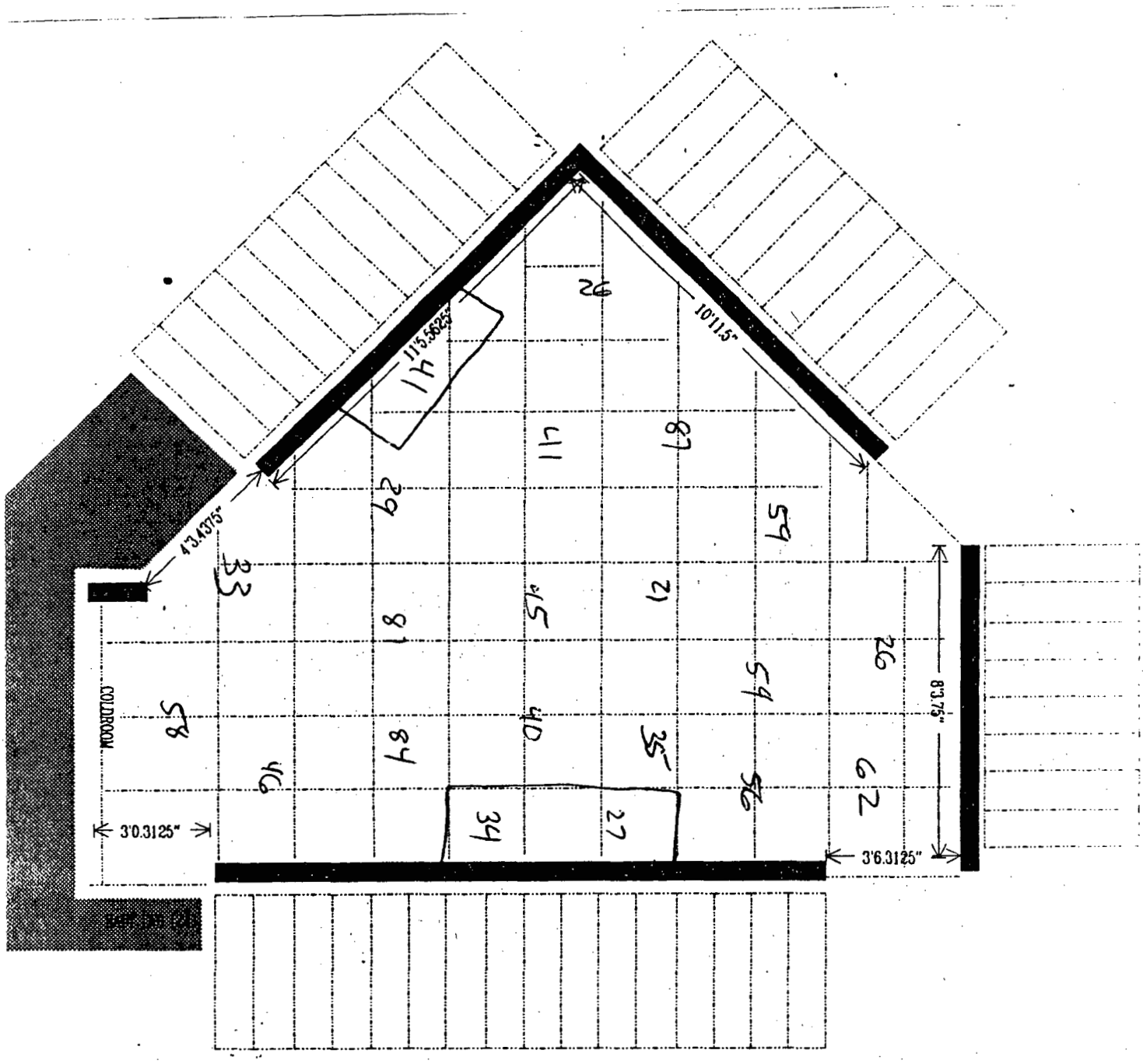
Conducted by: SSG Koelker on 09 Jul 93
All Measurements are in uR/hr

Reviewed by: Donald K Thomson on 10 Aug 93

Attachment 4

Key W[illegible]t Decommissioning Survey

Fixed Beta Contamination Survey-Laboratory 22
Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 23 Jul 93
All Measurements are Gross One Minute Counts

Reviewed by: 10 Aug 93 Donald K Shaw

Attachment 5

KEY WEST DECOMMISSIONING SURVEY

Laboratory - 23

REMOVABLE CONTAMINATION

Laboratory Number 23 was surveyed for removable contamination on 28 Jun by SPC Brinley. A total of 124 swipes were taken. See Attachment 1 for the location of each swipe.

The swipes were analyzed for gamma contamination, utilizing the LKB Gammawell Counter on 28 Jun 93. See Attachment 2 for the MDAs and associated efficiencies. No gamma contamination was found above 200 dpm for I-125 or above 2000 dpm for any other isotope.

The swipes were analyzed for beta contamination, utilizing the Beckman Liquid Scintillation Counter Model 5000 on 28 Jun 93. See Attachment 3 for the MDAs and associated efficiencies. Initial analysis indicated that 6 of the swipes were contaminated. These samples were re-counted and indicated no contamination. It was later discovered that the rubber seal on the sample elevator of the LSC had come off, and that the initial erroneous counts were due to the resulting light leak. No beta contamination was found above 200 dpm for any isotope.

FIXED CONTAMINATION

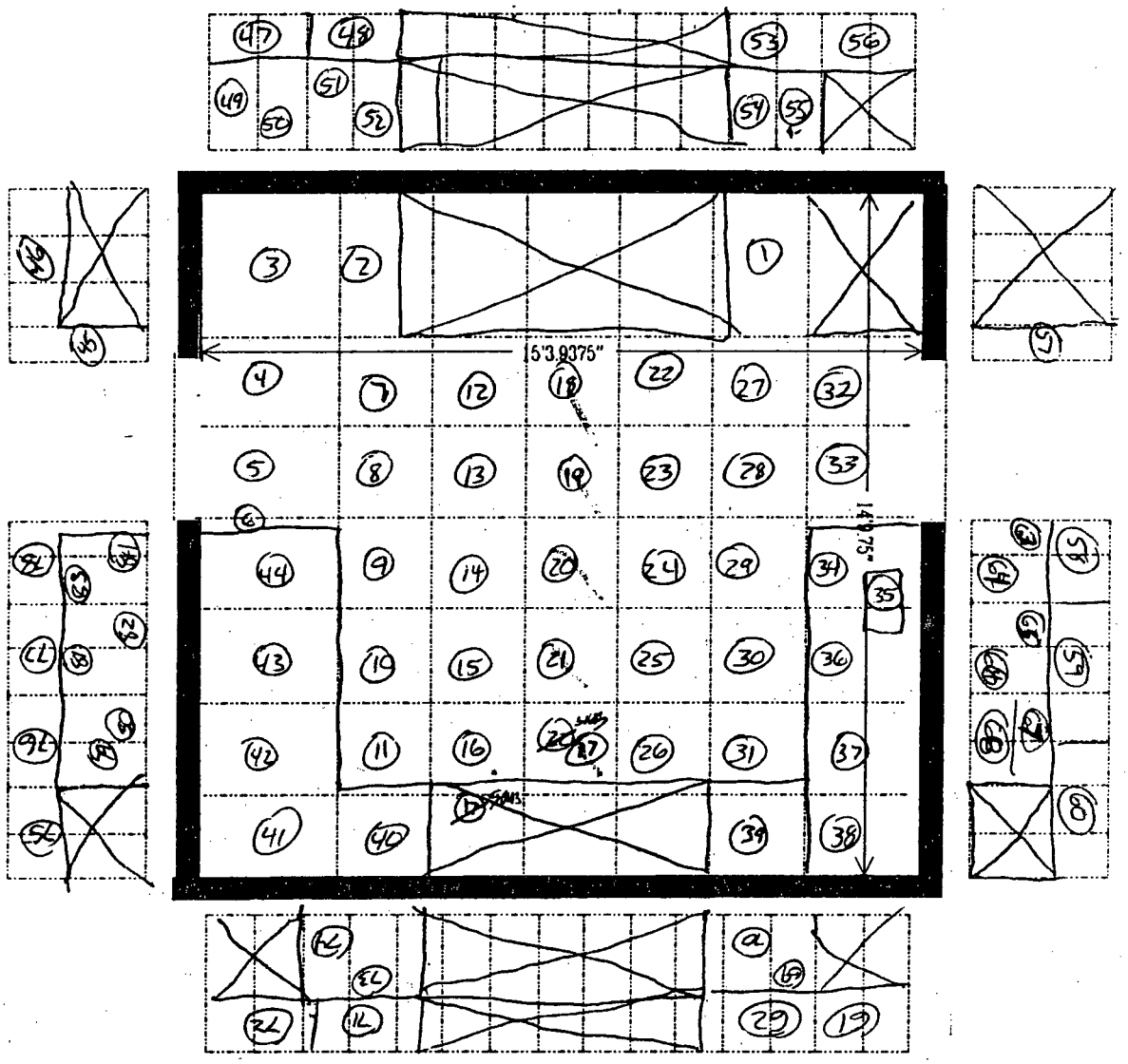
A fixed gamma survey was conducted on 28 Jun by SPC Brinley. The highest exposure rate found was 17.0 uR/hr. The average exposure rate was approximately 9 uR/hr. See Attachment 4 for the location of readings taken.

A fixed beta survey was conducted on 23 Jul 93 by SPC Brinley. The highest number of counts found during a one minute count-time was 86 cpm. The average number of counts found during a one minute count-time was approximately 50 cpm. See Attachment 5 for the location of readings taken.

As well as being reviewed at the time of the survey/receipt of laboratory results, all pertinent survey data was reviewed and compiled here by SFC Green on 8 Aug 93.

Key West Decommissioning Survey

Removable Contamination Survey-Laboratory 23
Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 28 Jun 93
Lab analysis by (gamma): SSG Koelker on 28 Jun 93
(beta) : SSG Koelker on 28 Jun 93

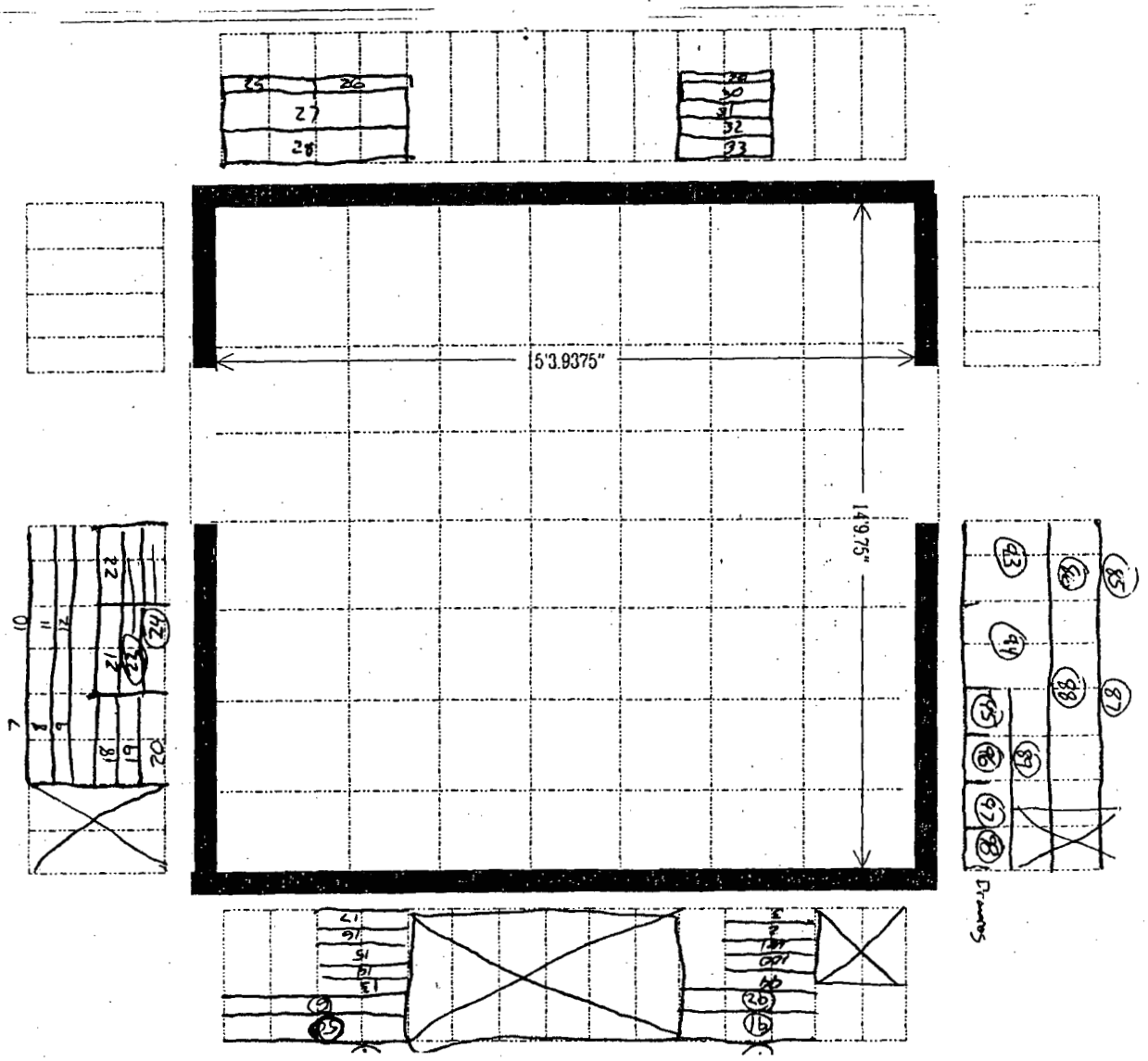
Reviewed by: Donald K Green on 10 Aug 93

Attachment 1

Key [illegible]est Decommissioning Survey

Removable Contamination Survey-Laboratory 23

Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 28 Jun 93

Lab analysis by (gamma): SSG Koelker on 28 Jun 93

(beta) : SSG Koelker on 28 Jun 93

Reviewed by: Donald K Brain on 10 Aug 93

Attachment 1

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:06/28/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	45 CPM	30.1 DPM	0.733 / I-125
CHANNEL 2:	194 CPM	669.3 DPM	0.068 / CR-51
BECKMAN:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A

ATTACHMENT 2

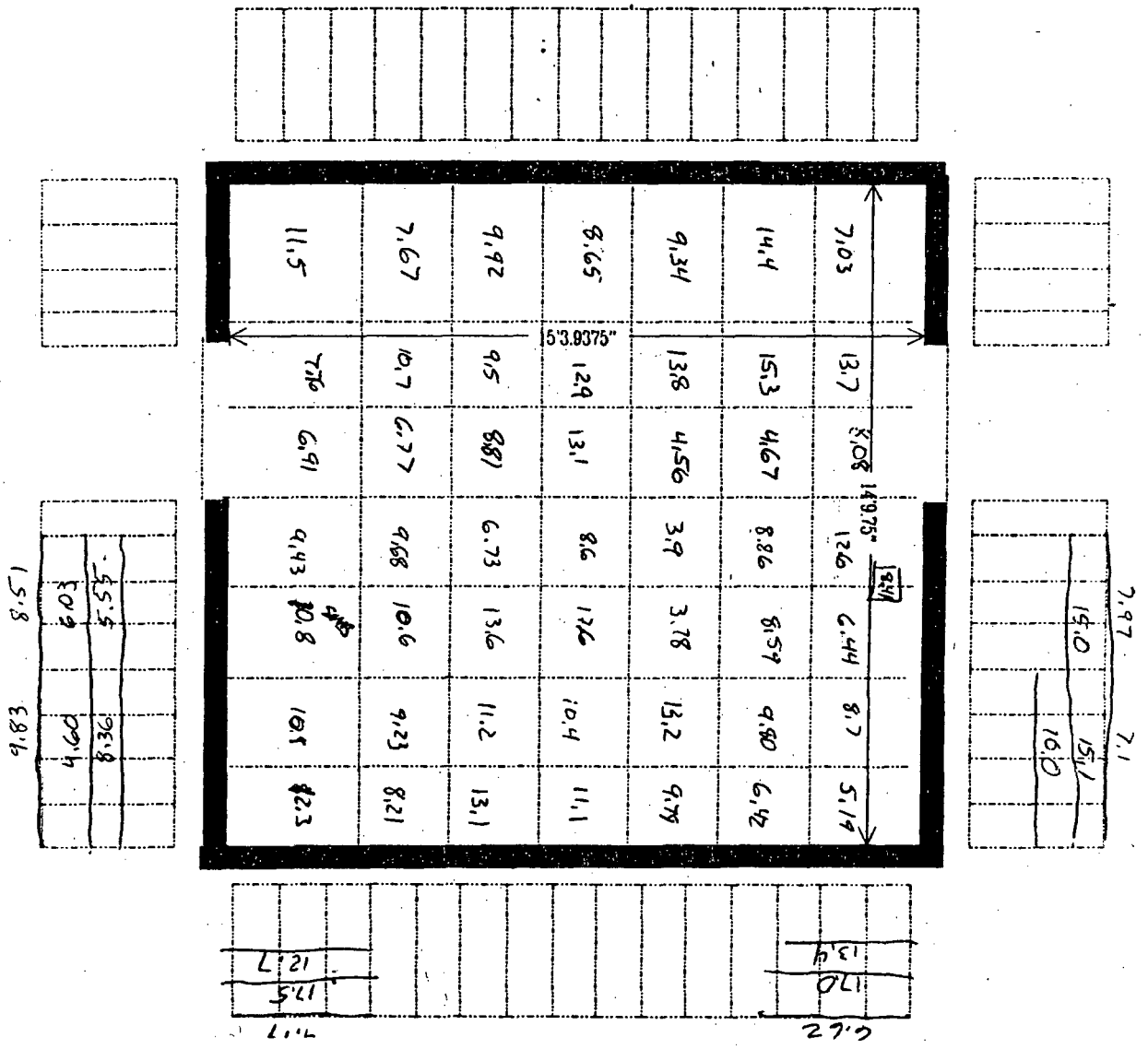
QUALITY ASSURANCE REPORT - BETA
FOR DATE:06/28/93

	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	32 CPM	29.4 DPM	0.633 / H-3
CHANNEL 2:	28 CPM	18.0 DPM	0.965 / C-14
CHANNEL 3:	26 CPM	N/A	N/A
BECKMAN LS6800:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A
CHANNEL 3:	N/A	N/A	N/A

Key [illegible]st Decommissioning Survey

Fixed Gamma Contamination Survey-Laboratory 23

Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 28 Jun 93

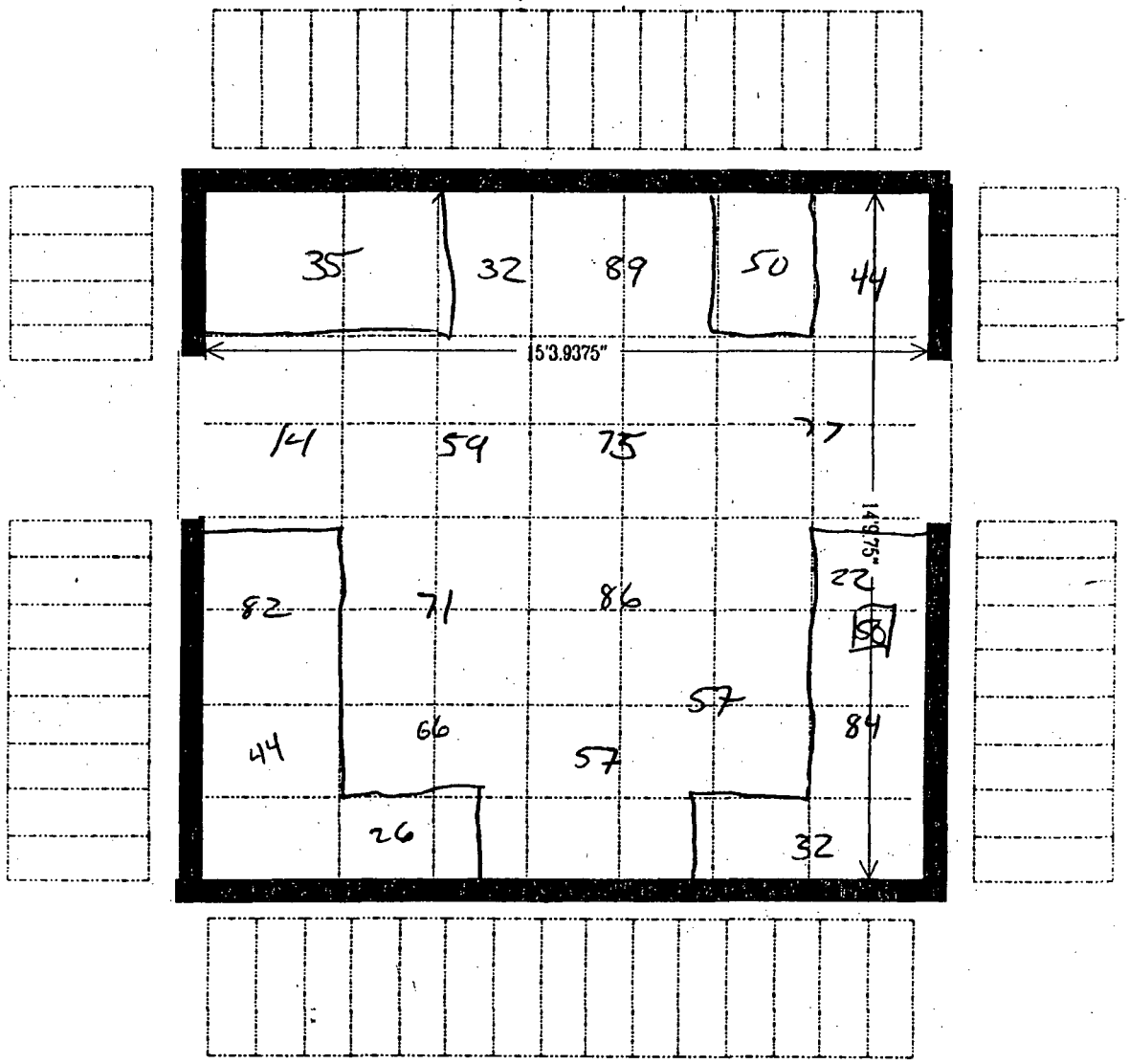
All Measurements are in uR/hr

Reviewed by Donald K Brown on 10 Aug 93

Attachment 4

Key ...st Decommissioning Survey

Fixed Beta Contamination Survey-Laboratory 23
Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 23 Jul 93
All Measurements are Gross One Minute Counts

Reviewed by: Donald K Green on 10 Aug 93

Attachment 5

KEY WEST DECOMMISSIONING SURVEY

Laboratory - 24

REMOVABLE CONTAMINATION

Laboratory Number 24 was surveyed for removable contamination on 24 Jun by SPC Brinley. A total of 195 swipes were taken. See Attachment 1 for the location of each swipe.

The swipes were analyzed for gamma contamination, utilizing the LKB Gammawell Counter on 24 Jun 93. See Attachment 2 for the MDAs and associated efficiencies. No gamma contamination was found above 200 dpm for I-125 or above 2000 dpm for any other isotope.

The swipes were analyzed for beta contamination, utilizing the Beckman Liquid Scintillation Counter Model 5000 on 24 Jun 93. See Attachment 3 for the MDAs and associated efficiencies. No beta contamination was found above 200 dpm for any isotope.

FIXED CONTAMINATION

A fixed gamma survey was conducted on 24 Jun by SPC Brinley. The highest exposure rate found was 21.3 uR/hr. The average exposure rate was approximately 12 uR/hr. See Attachment 4 for the location of readings taken.

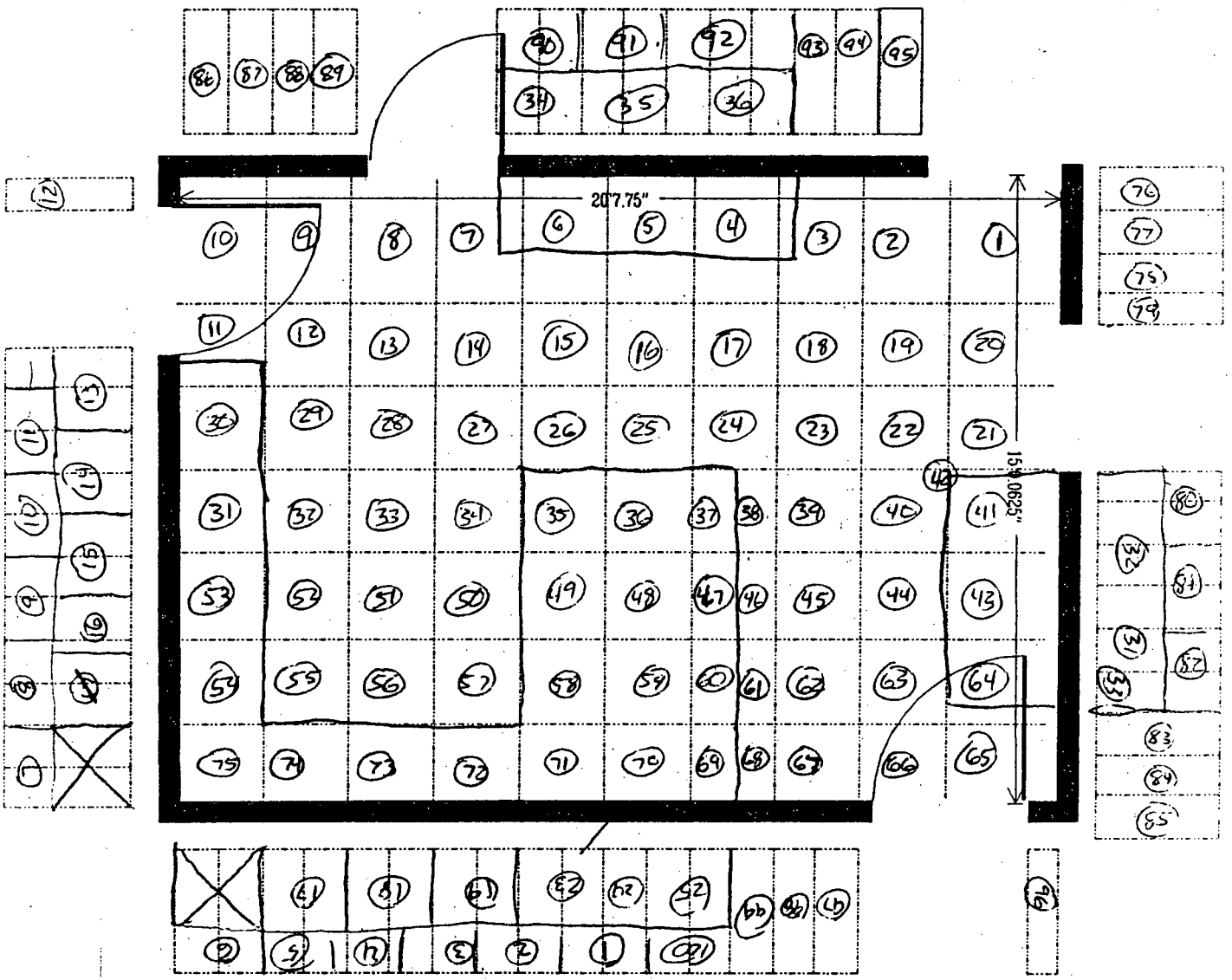
A fixed beta survey was conducted on 23 Jul 93 by SPC Brinley. The highest number of counts found during a one minute count-time was 152 cpm. The average number of counts found during a one minute count-time was approximately 60 cpm. See Attachment 5 for the location of readings taken.

As well as being reviewed at the time of the survey/receipt of laboratory results, all pertinent survey data was reviewed and compiled here by SFC Green on 8 Aug 93.

Key W t Decommissioning Survey

Removable Contamination Survey-Laboratory 24

Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 24 Jun 93

Lab analysis by (gamma): SSG Koelker on 24 Jun 93

(beta) : SSG Koelker on 24 Jun 93

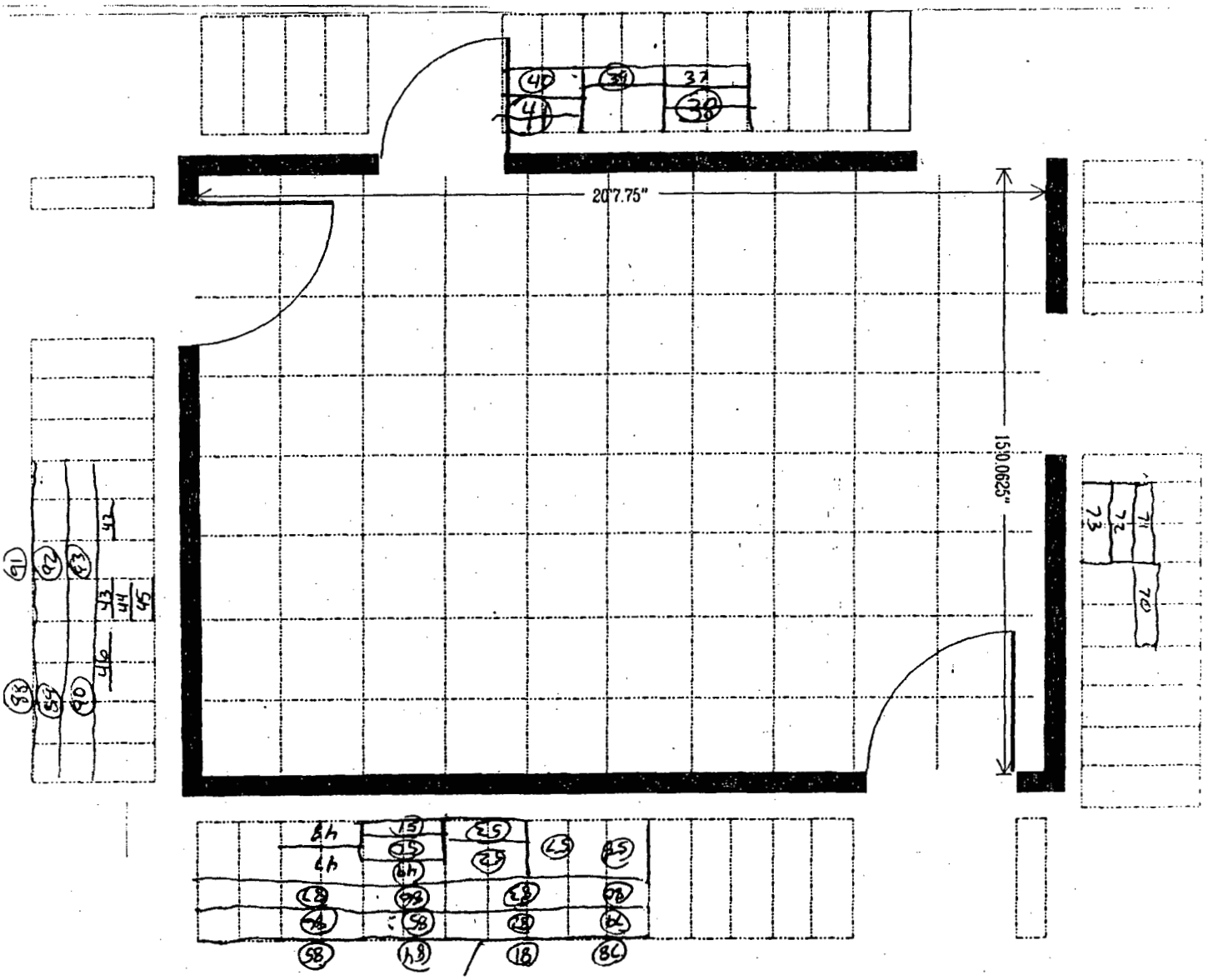
Reviewed by: Donald K Green on 10 Aug 93

Attachment 1

Key W[illegible]st Decommissioning Survey

Removable Contamination Survey-Laboratory 24

Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 24 Jun 93

Lab analysis by (gamma): SSG Koelker on 24 Jun 93

(beta) : SSG Koelker on 24 Jun 93

Reviewed by: Donald K Green on 10 Aug 93

Attachment 1

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:06/24/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	45 CPM	30.1 DPM	0.733 / I-125
CHANNEL 2:	194 CPM	669.3 DPM	0.068 / CR-51
BECKMAN:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A

ATTACHMENT 2

QUALITY ASSURANCE REPORT - BETA
FOR DATE:06/24/93

	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	21.0 CPM	23.8 DPM	0.627 / H-3
CHANNEL 2:	27.0 CPM	17.7 DPM	0.964 / C-14
CHANNEL 3:	36.0 CPM	N/A	N/A
BECKMAN LS6800:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A
CHANNEL 3:	N/A	N/A	N/A

ATTACHMENT 3

QUALITY ASSURANCE REPORT - BETA
FOR DATE:07/14/93

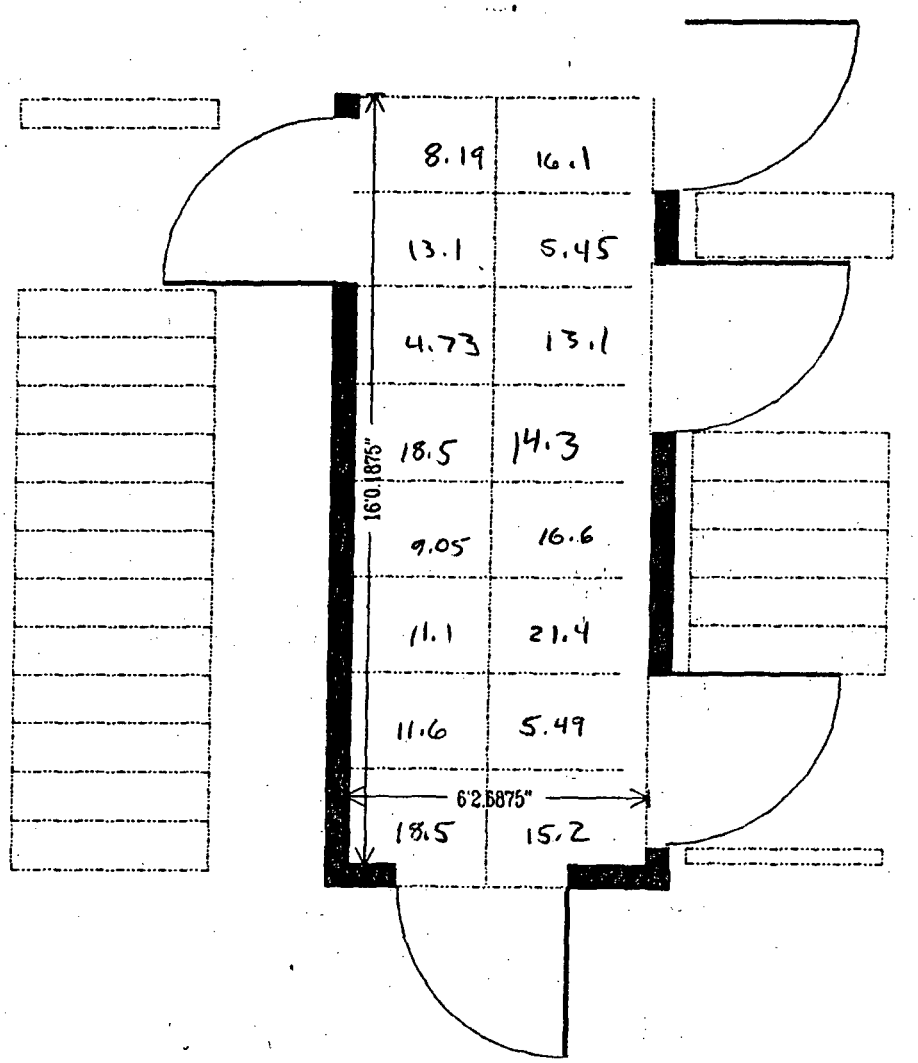
	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	31 CPM	28.8 DPM	0.636 / H-3
CHANNEL 2:	28 CPM	18.1 DPM	0.962 / C-14
CHANNEL 3:	25 CPM	16.5 DPM	1.004 / P-32
BECKMAN LS6800:			
CHANNEL 1:	33 CPM	32.4 DPM	0.583 / H-3
CHANNEL 2:	25 CPM	17.2 DPM	0.954 / C-14
CHANNEL 3:	21 CPM	14.9 DPM	1.011 / P-32

ATTACHMENT 3

Ke Vest Decommissioning Survey

Fixed Gamma Contamination Survey-Hallway 6

Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 14 Jul 93

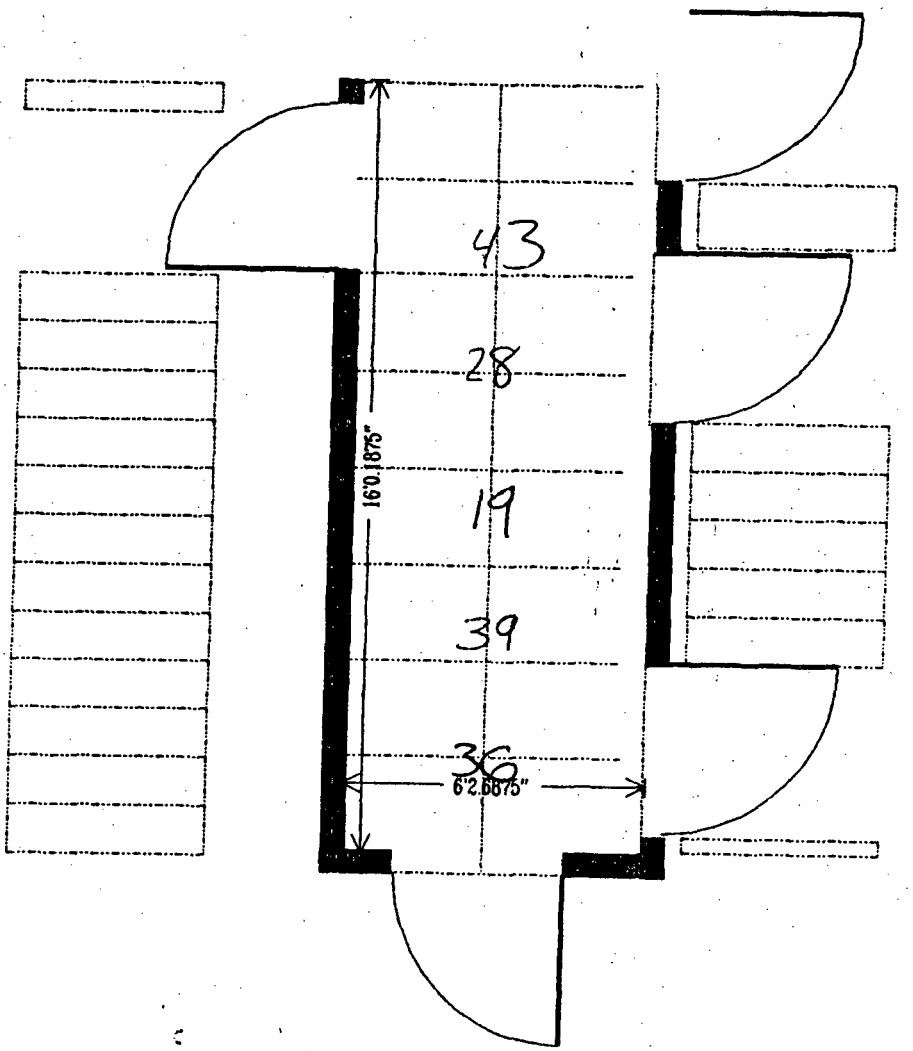
All Measurements are in uR/hr

Reviewed by: Donald K. Grain on 10 Aug 93

Attachment 4

Key ...est Decommissioning Survey

Fixed Beta Contamination Survey-Hallway 6
Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 26 Jul 93
All Measurements are Gross Counts in One Minute
Reviewed by Donald K Green on 10 Aug 93

Attachment 5

KEY WEST DECOMMISSIONING SURVEY

Hallway - 7

REMOVABLE CONTAMINATION

Hallway Number 7 was surveyed for removable contamination on 14 Jul 93 by SPC Brinley. A total of 93 swipes were taken. See Attachment 1 for the location of each swipe.

The swipes were analyzed for gamma contamination, utilizing the LKB Gammawell Counter on 14 Jul 93. See Attachment 2 for the MDAs and associated efficiencies. No gamma contamination was found above 200 dpm for I-125 or above 2000 dpm for any other isotope.

The swipes were analyzed for beta contamination, utilizing the Beckman Liquid Scintillation Counter Model 6800 on 14 Jul 93. See Attachment 3 for the MDAs and associated efficiencies. No beta contamination was found above 200 dpm for any isotope.

FIXED CONTAMINATION

A fixed gamma survey was conducted on 14 Jul 93 by SSG Webster. The highest exposure rate found was 18.3 uR/hr. See Attachment 4 for the location of readings taken.

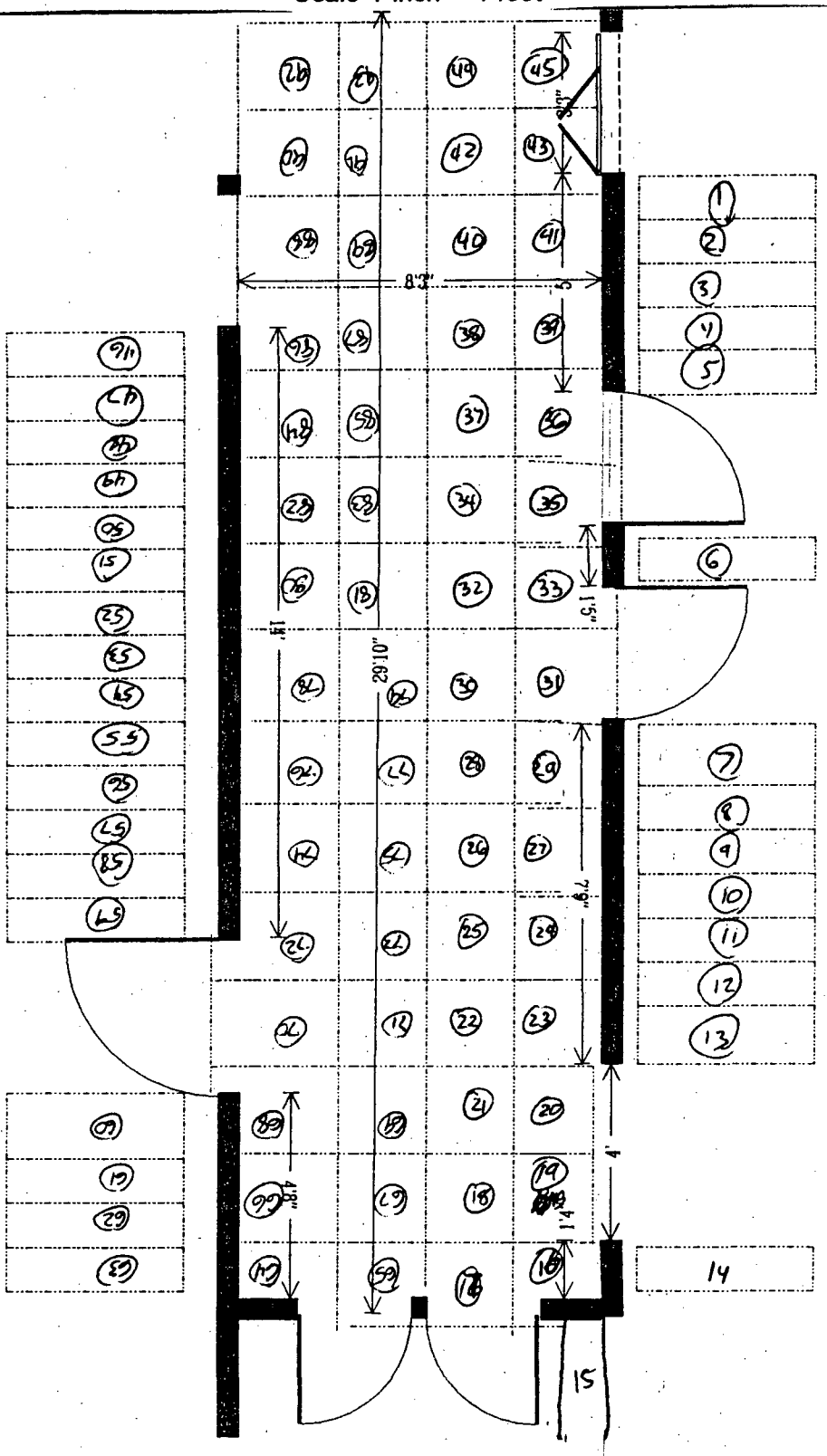
A fixed beta survey was conducted on 26 Jul 93 by SPC Brinley. The highest number of counts found during a one minute count-time was 88 cpm. The average number of counts found during a one minute count-time was 40 cpm. See Attachment 5 for the location of readings taken.

As well as being reviewed at the time of the survey/receipt of laboratory results, all pertinent survey data was reviewed and compiled here by SFC Green on 9 Aug 93.

Key V t Decommissioning Survey

Removable Contamination Survey-Hallway 7

Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 14 Jul 93

Lab analysis by (gamma): SSG Koelker on 14 Jul 93

(beta) : SSG Koelker on 14 Jul 93

Reviewed by: Donald K Green on 10 Aug 93

Attachment 1

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:07/14/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	49 CPM	30.1 DPM	0.764 / I-125
CHANNEL 2:	197 CPM	676.4 DPM	0.068 / CR-51
BECKMAN:			
CHANNEL 1:	46 CPM	23.0 DPM	0.970 / I-125
CHANNEL 2:	194 CPM	440.0 DPM	0.104 / CR-51

ATTACHMENT 2

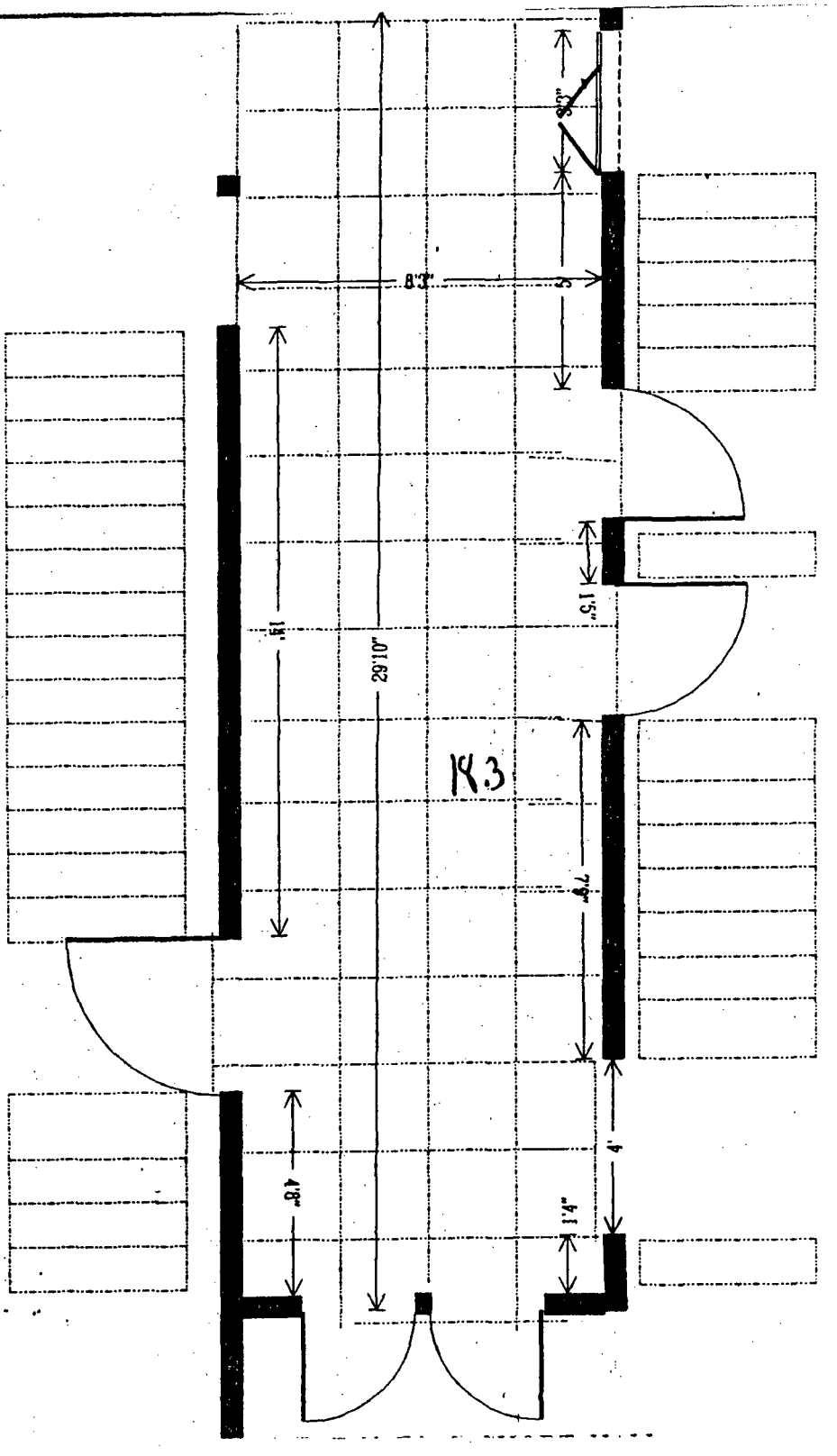
QUALITY ASSURANCE REPORT - BETA
FOR DATE:07/14/93

	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	31 CPM	28.8 DPM	0.636 / H-3
CHANNEL 2:	28 CPM	18.1 DPM	0.962 / C-14
CHANNEL 3:	25 CPM	16.5 DPM	1.004 / P-32
BECKMAN LS6800:			
CHANNEL 1:	33 CPM	32.4 DPM	0.583 / H-3
CHANNEL 2:	25 CPM	17.2 DPM	0.954 / C-14
CHANNEL 3:	21 CPM	14.9 DPM	1.011 / P-32

Ke Vest Decommissioning Survey

Fixed Gamma Contamination Survey-Hallway 7

Scale 1 inch = 4 feet



Conducted by: SSG Webster on 14 Jul 93

All Measurements are in uR/hr

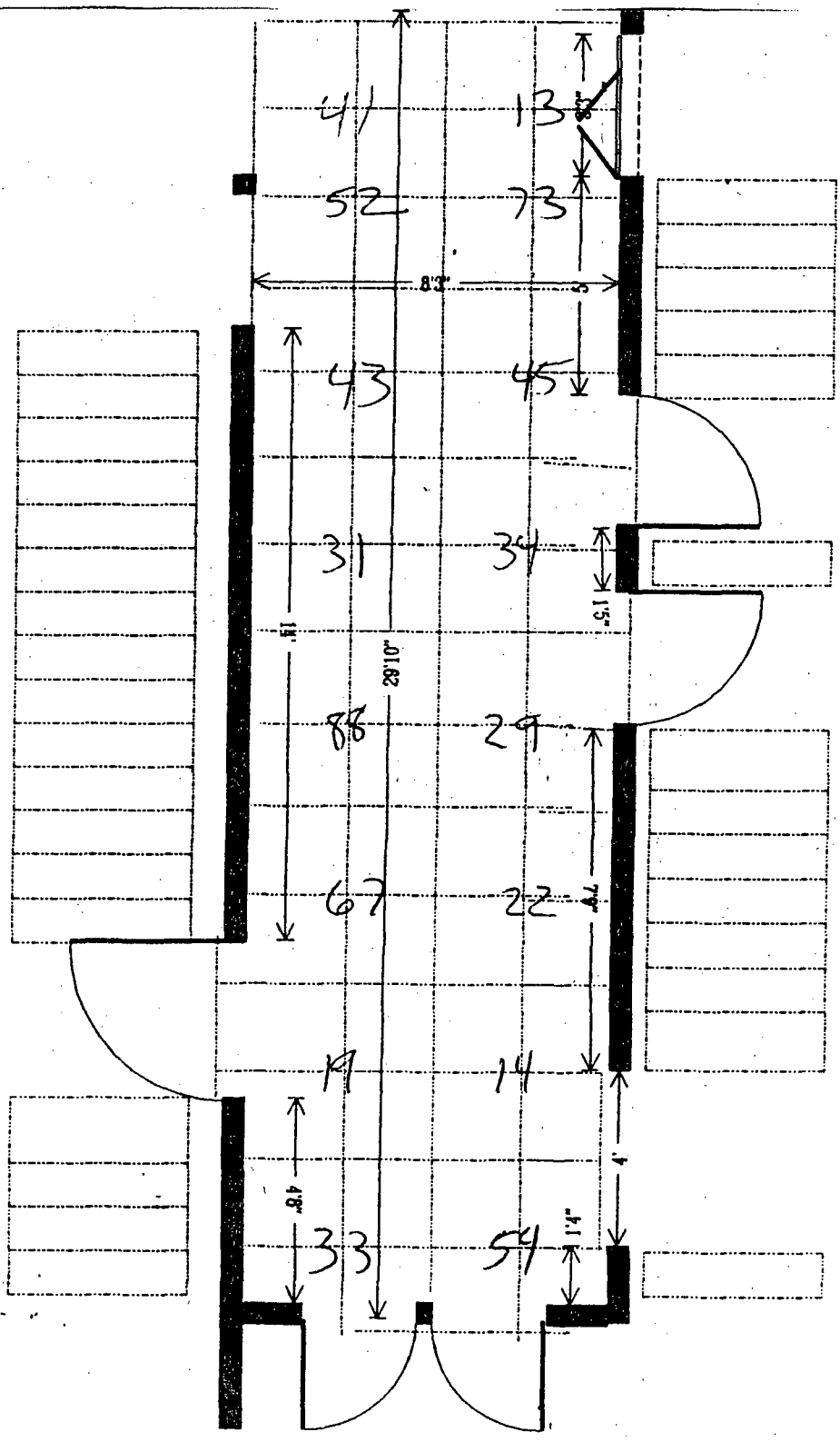
Reviewed by: Donald K Green on 10 Aug 93

Attachment 4

Key ...st Decommissioning Survey

Fixed Beta Contamination Survey-Hallway 7

Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 26 Jul 93

All Measurements are Gross Counts in One Minute

Reviewed by: Donald K Green on 10 Aug 93

Attachment 5

KEY WEST DECOMMISSIONING SURVEY

Hallway - 8

REMOVABLE CONTAMINATION

Hallway Number 8 was surveyed for removable contamination on 21 Jun (South end) and 30 Jun (North end) 93 by SPC Brinley. A total of 118 swipes were taken. See Attachment 1 for the location of each swipe.

The swipes were analyzed for gamma contamination, utilizing the LKB Gammawell Counter on 21 and 30 Jun 93. See Attachment 2 for the MDAs and associated efficiencies. No gamma contamination was found above 200 dpm for I-125 or above 2000 dpm for any other isotope.

The swipes were analyzed for beta contamination, utilizing the Beckman Liquid Scintillation Counter Model 6800 on 21 and 30 Jun 93. See Attachment 3 for the MDAs and associated efficiencies. No beta contamination was found above 200 dpm for any isotope.

FIXED CONTAMINATION

A fixed gamma survey was conducted on 21 and 30 Jun 93 by SPC Brinley. The highest exposure rate found was 30.7 uR/hr. See Attachment 4 for the location of readings taken.

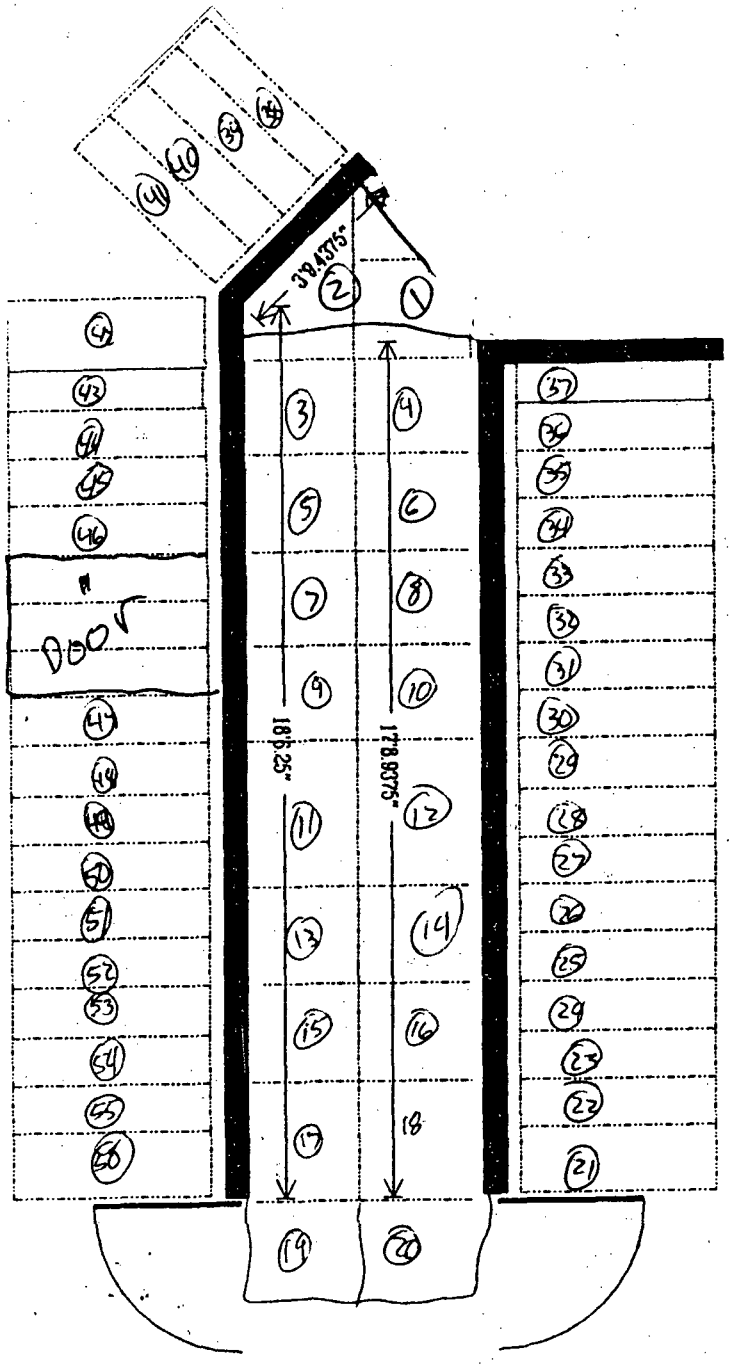
A fixed beta survey was conducted on 26 Jul 93 by SPC Brinley. The highest number of counts found during a one minute count-time was 79 cpm. The average number of counts found during a one minute count-time was 40 cpm. See Attachment 5 for the location of readings taken.

As well as being reviewed at the time of the survey/receipt of laboratory results, all pertinent survey data was reviewed and compiled here by SFC Green on 9 Aug 93.

Key West Decommissioning Survey

Removable Contamination Survey-Hallway 8

Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 21 Jun 93 and 30 Jun 93

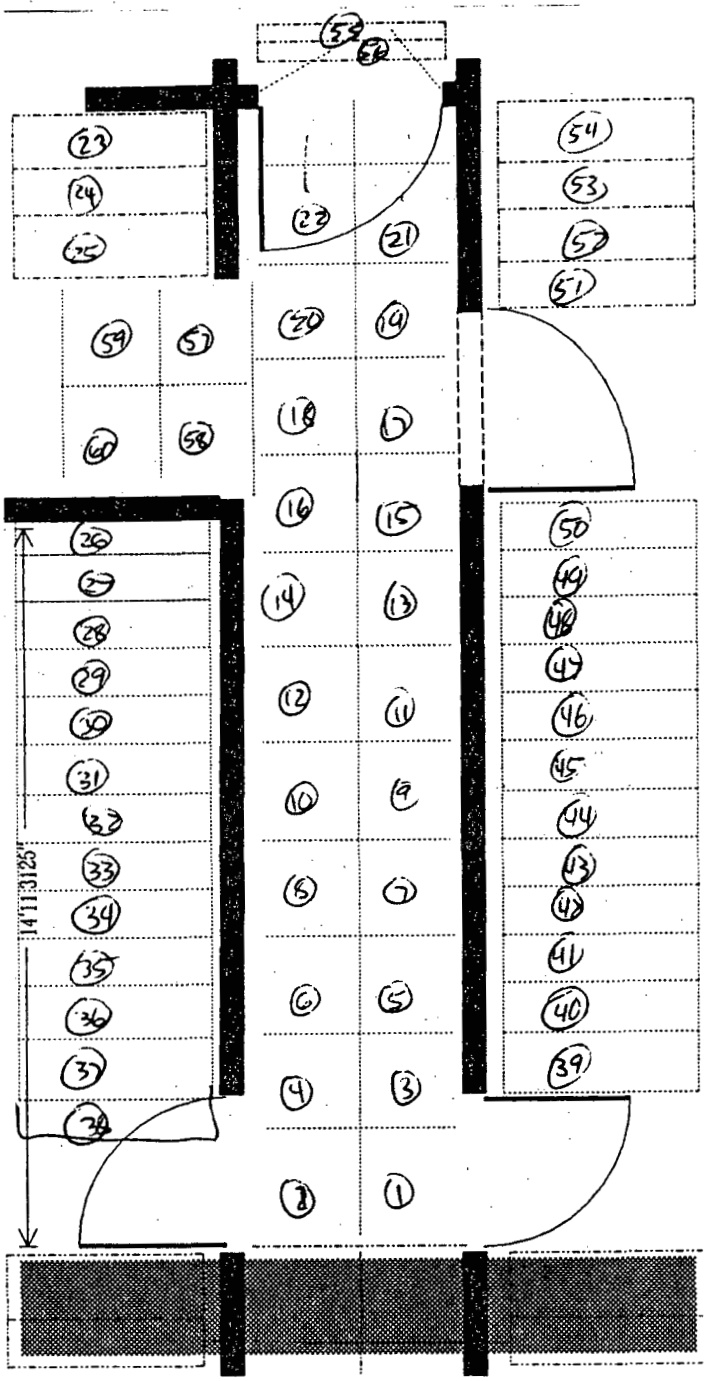
Lab analysis by (gamma): SSG Koelker on 21 Jun 93 and 30 Jun 93

(beta) : SSG Koelker on 21 Jun 93 and 30 Jun 93

Reviewed by: Donald K Green on 10 Aug 93

Attachment 1

Removable Contamination Survey-Hallway 8
Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 21 Jun 93 and 30 Jun 93
Lab analysis by (gamma): SSG Koelker on 21 Jun 93 and 30 Jun 93
(beta) : SSG Koelker on 21 Jun 93 and 30 Jun 93

Reviewed by: Donald K Green on 10 Aug 93

Attachment 1

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:06/21/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	53 CPM	32.2 DPM	0.742 / I-125
CHANNEL 2:	198 CPM	709.2 DPM	0.065 / CR-51
BECKMAN:			
CHANNEL 1:	52 CPM	22.1 DPM	1.075 / I-125
CHANNEL 2:	198 CPM	452.3 DPM	0.102 / CR-51

ATTACHMENT 2

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:06/30/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	53 CPM	32.2 DPM	0.742 / I-125
CHANNEL 2:	198 CPM	709.2 DPM	0.065 / CR-51
BECKMAN:			
CHANNEL 1:	52 CPM	22.1 DPM	1.075 / I-125
CHANNEL 2:	198 CPM	452.3 DPM	0.102 / CR-51

ATTACHMENT 2

QUALITY ASSURANCE REPORT - BETA
FOR DATE:06/21/93

	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	**N/A**	**N/A**	**N/A**
CHANNEL 2:	**N/A**	**N/A**	**N/A**
CHANNEL 3:	**N/A**	**N/A**	**N/A**
BECKMAN LS6800:			
CHANNEL 1:	**29 CPM**	**28.1 DPM**	**0.630 / H-3**
CHANNEL 2:	**35 CPM**	**20.1 DPM**	**0.968 / C-14**
CHANNEL 3:	**41 CPM**	**20.9 DPM**	**1.007 / P-32**

QUALITY ASSURANCE REPORT - BETA
FOR DATE:06/30/93

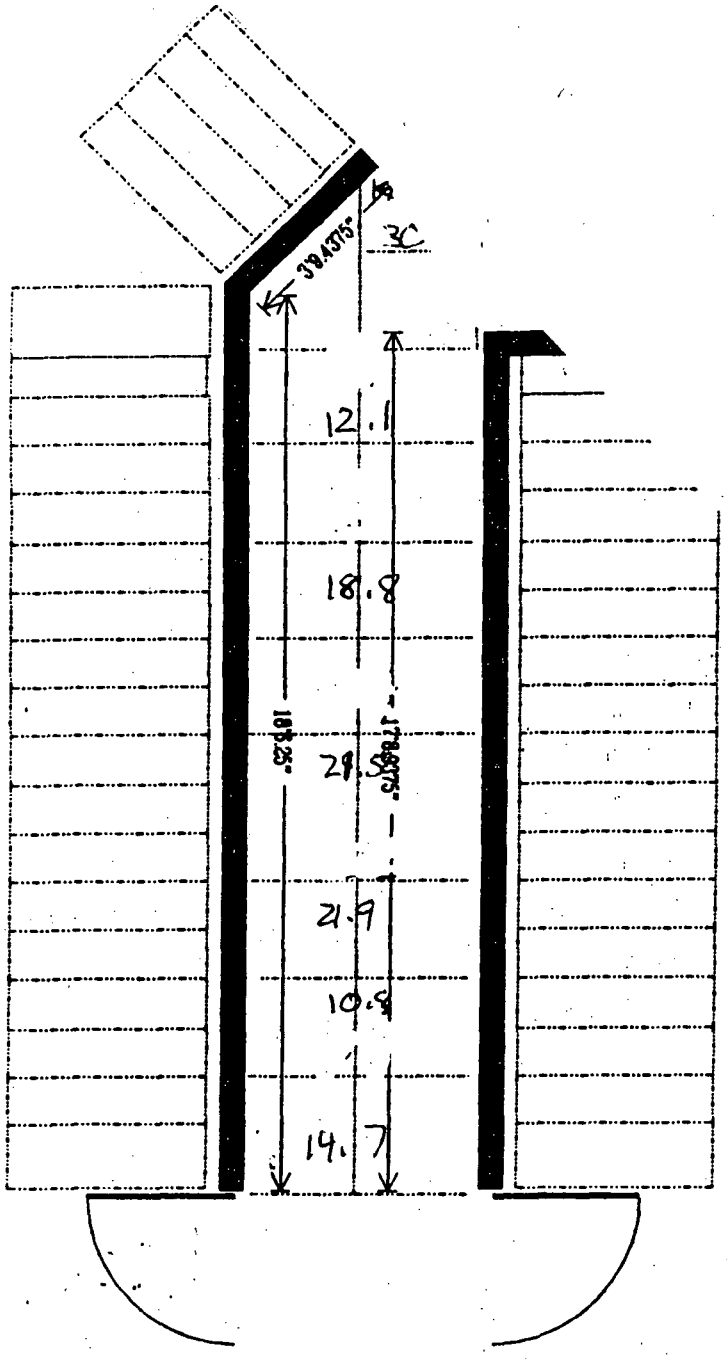
	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A
CHANNEL 3:	N/A	N/A	N/A
BECKMAN LS6800:			
CHANNEL 1:	17 CPM	23.4 DPM	0.579/H-3
CHANNEL 2:	30 CPM	19.0 DPM	0.947/C-14
CHANNEL 3:	40 CPM	20.7 DPM	1.007/P-32

ATTACHMENT 3

Key West Decommissioning Survey

Fixed Gamma Contamination Survey-Hallway 8

Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 21 Jun 93 and 30 Jun 93

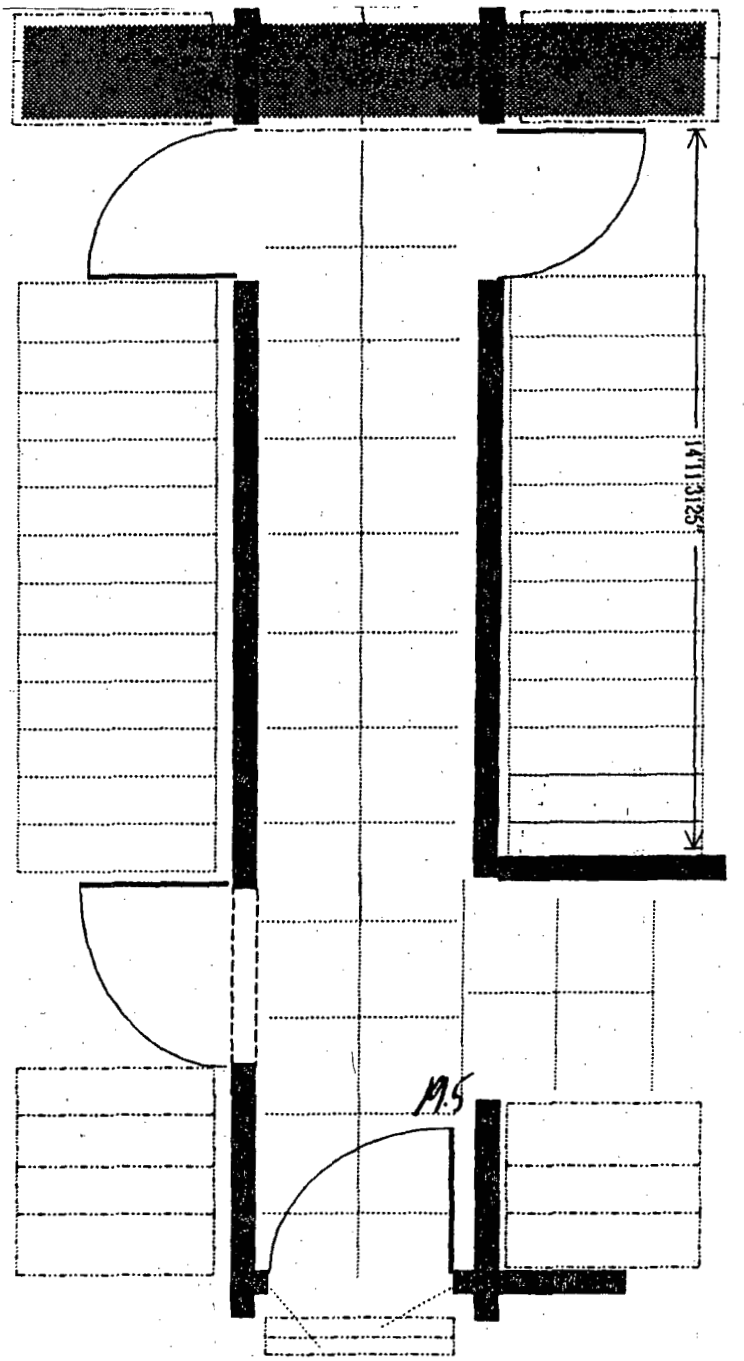
All Measurements are in uR/hr

Reviewed by: Donald K Green on 10 Aug 93

Attachment 4

Key West Decommissioning Survey

Fixed Gamma Contamination Survey-Hallway 8
Scale 1 inch = 4 feet

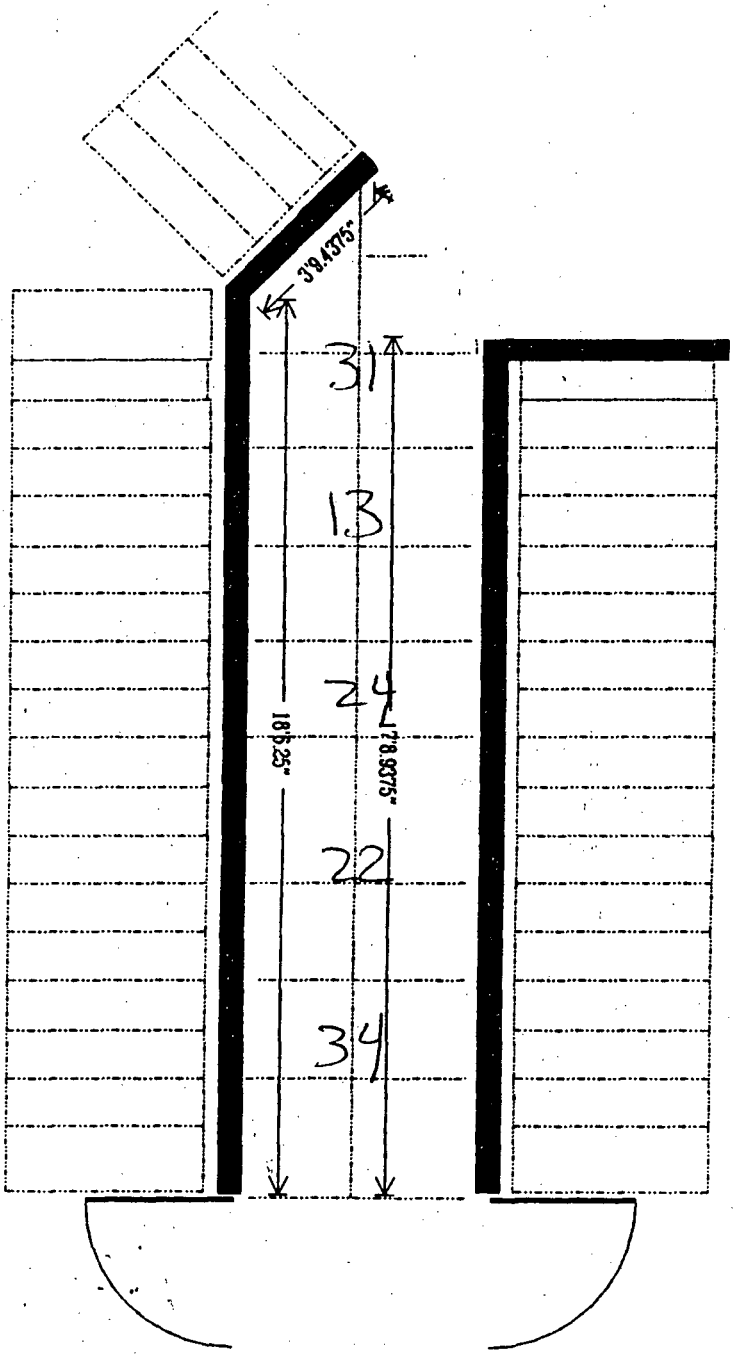


Conducted by: SPC Brinley on 21 Jun 93 and 30 Jun 93
All Measurements are in uR/hr

Reviewed by: Donald K Keene on 10 Aug 93

Attachment 4

Fixed Beam Contamination Survey-Hallway 8
Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 26 Jul 93
All Measurements are Gross Counts in One Minute

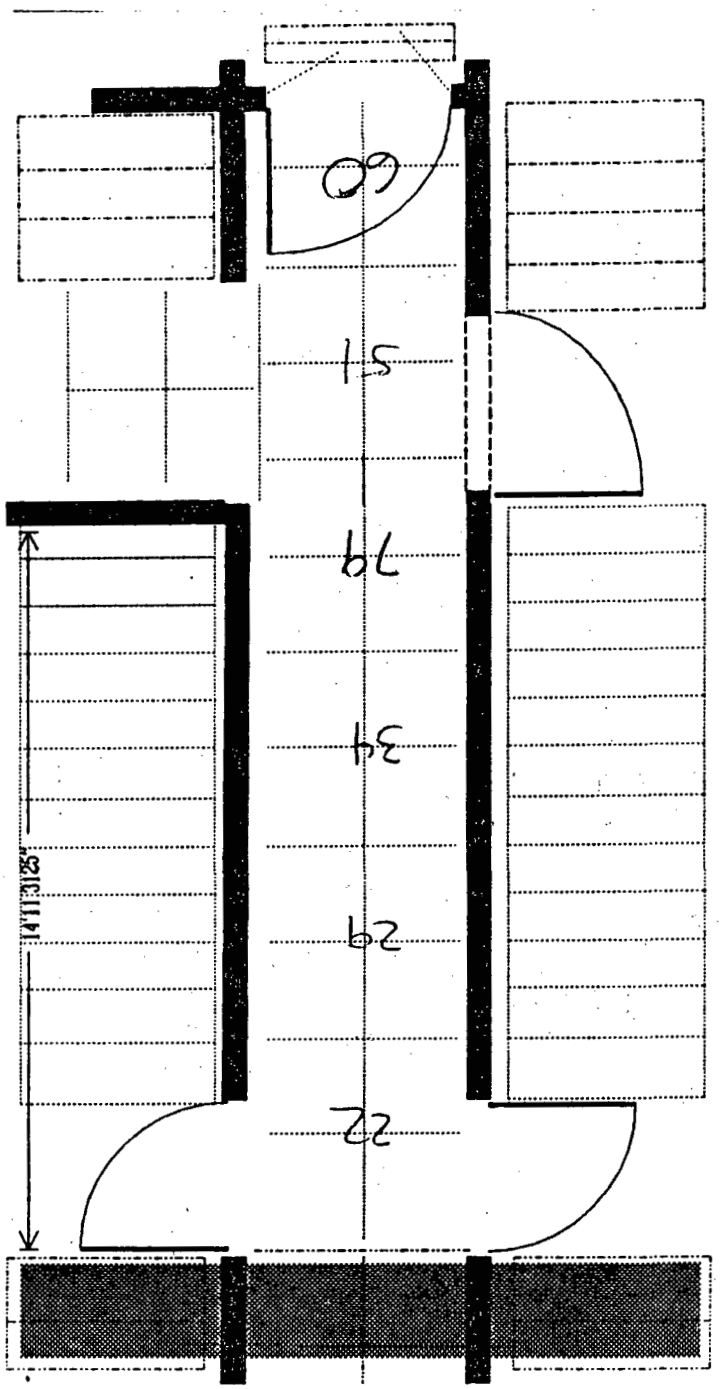
Reviewed by: Donald K Green on 10 Aug 93

Attachment 5

Key West Decommissioning Survey

Fixed Beta Contamination Survey-Hallway 8

Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 26 Jul 93

All Measurements are Gross Counts in One Minute

Reviewed by: Donald K Green on 10 Aug 93

Attachment 5

KEY WEST DECOMMISSIONING SURVEY

Hallway - 9

REMOVABLE CONTAMINATION

Hallway Number 9 was surveyed for removable contamination on 30 Jun (South end) and 2 Jul (Mid Section) and 6 Jul (North end) 93 by SPC Brinley. A total of 152 swipes were taken. See Attachment 1 for the location of each swipe.

The swipes were analyzed for gamma contamination, utilizing the LKB Gammawell Counter on 30 Jun, 2 and 6 Jul 93. See Attachment 2 for the MDAs and associated efficiencies. No gamma contamination was found above 200 dpm for I-125 or above 2000 dpm for any other isotope.

The swipes were analyzed for beta contamination, utilizing the Beckman Liquid Scintillation Counter Model 6800 on 30 Jun, 2 and 6 Jul 93. See Attachment 3 for the MDAs and associated efficiencies. No beta contamination was found above 200 dpm for any isotope.

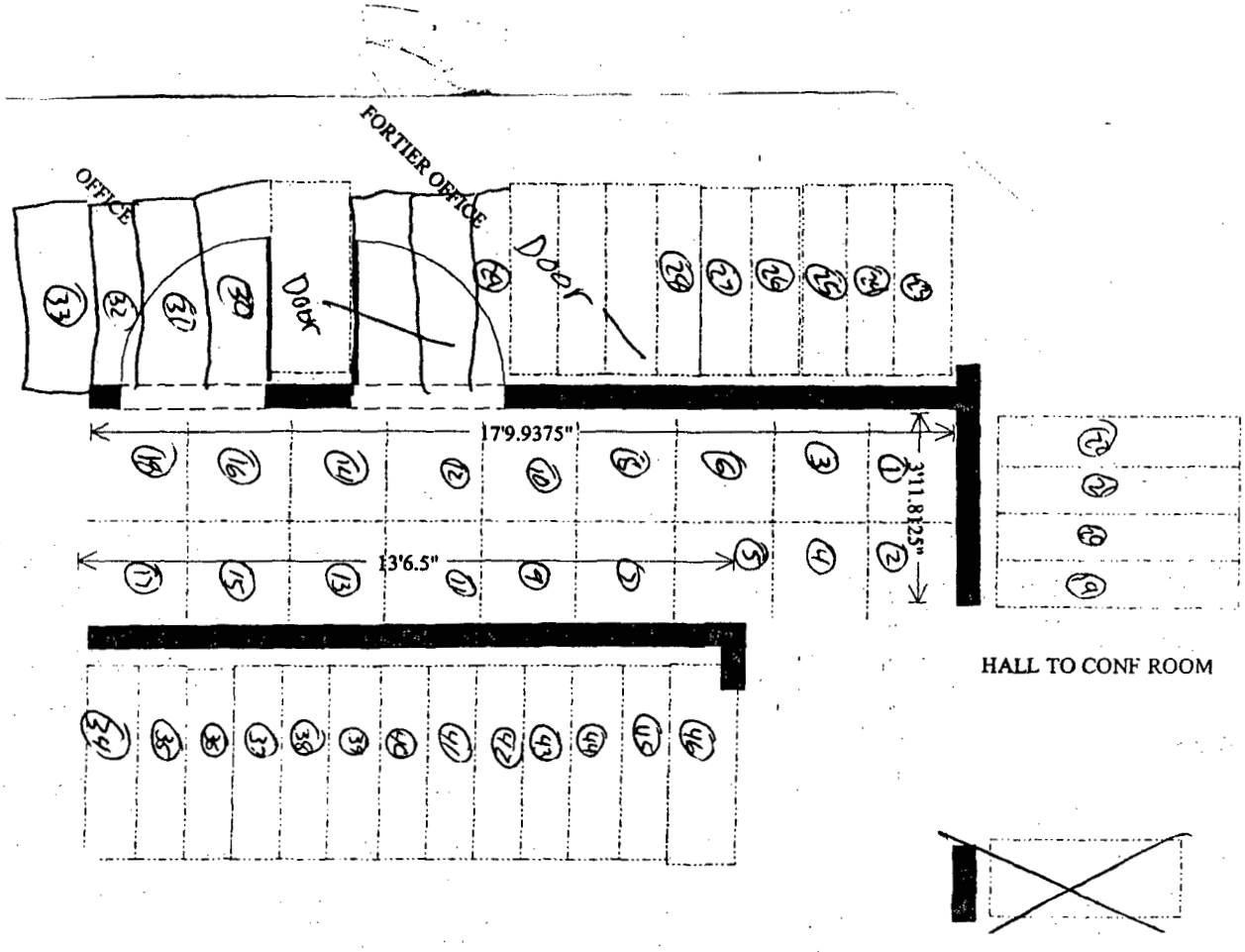
FIXED CONTAMINATION

Fixed gamma surveys were conducted on 30 Jun, 2 and 6 Jul 93 by SSGs Webster and Koelker. The highest exposure rate found was 28.4 uR/hr. See Attachment 4 for the location of readings taken.

A fixed beta survey was conducted on 26 Jul 93 by SPC Brinley. The highest number of counts found during a one minute count-time was 67 cpm. The average number of counts found during a one minute count-time was 45 cpm. See Attachment 5 for the location of readings taken.

As well as being reviewed at the time of the survey/receipt of laboratory results, all pertinent survey data was reviewed and compiled here by SFC Green on 9 Aug 93.

Removal Contamination Survey-Hallway 9
Scale 1 inch = 4 feet

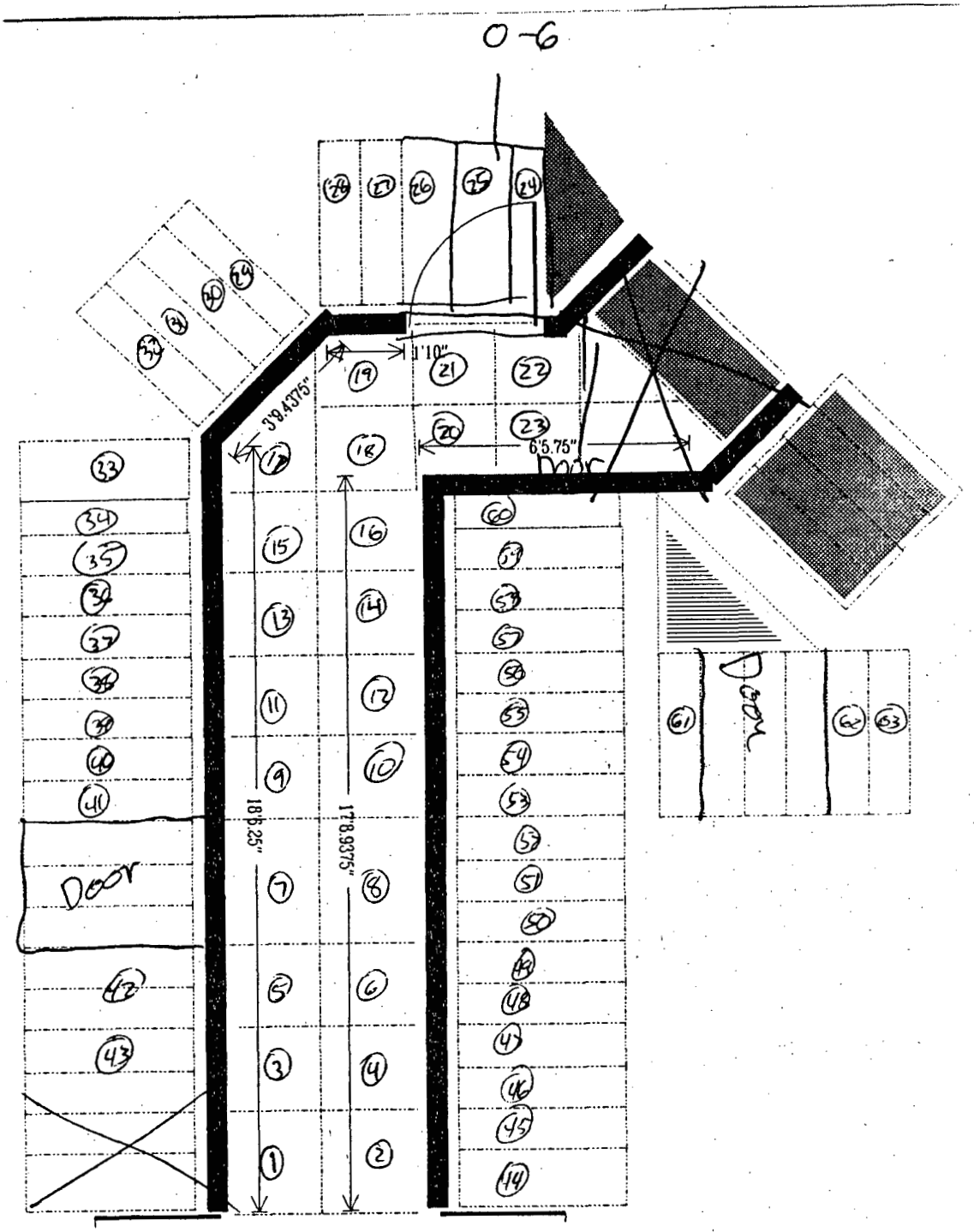


Conducted by: SPC Brinley on 30 Jun, 02 Jul and 06 Jul 93
Lab analysis by (gamma): SSG Koelker on 30 Jun, 02 Jul and 06 Jul 93
(beta) : SSG Koelker on 30 Jun, 02 Jul and 06 Jul 93

Reviewed by: Donald K Green on 10 Aug 93

Attachment 1

Removab Contamination Survey-Hallway 9
Scale 1 inch = 4 feet



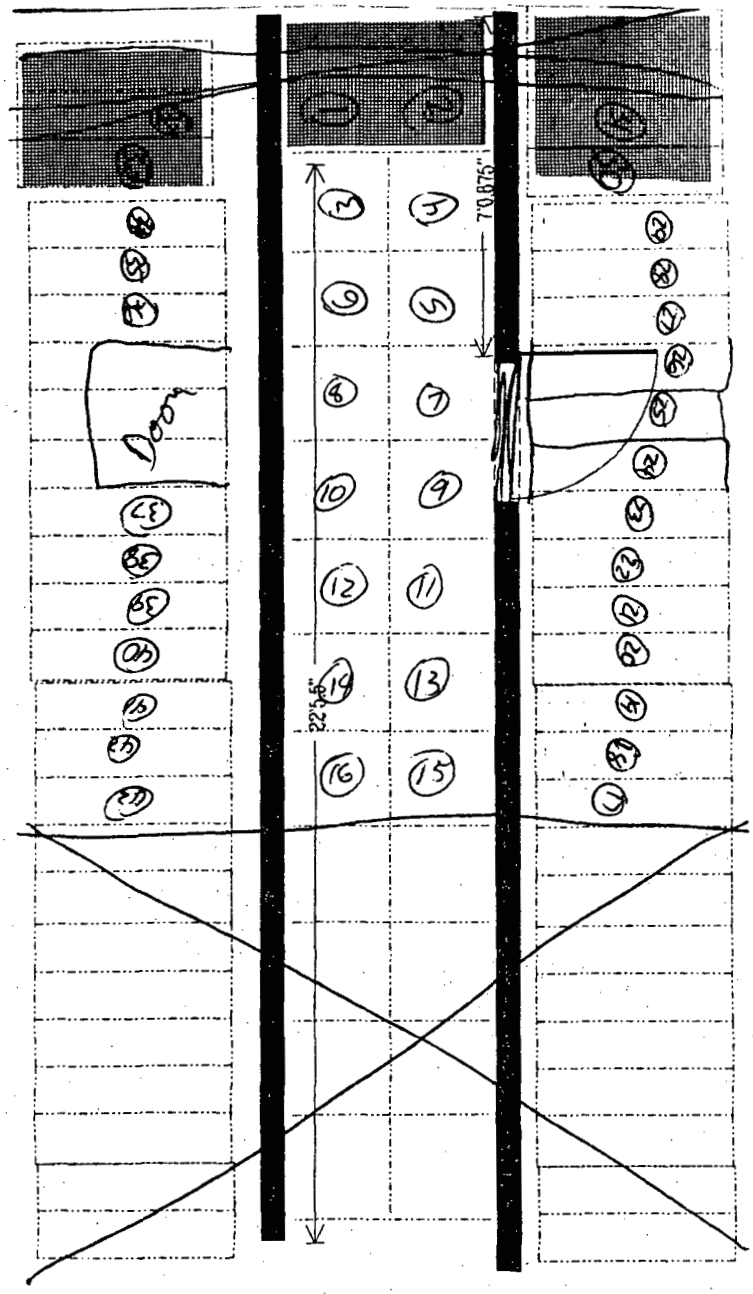
Conducted by: SPC Brinley on 30 Jun, 02 Jul and 06 Jul 93
Lab analysis by (gamma): SSG Koelker on 30 Jun, 02 Jul and 06 Jul 93
(beta) : SSG Koelker on 30 Jun, 02 Jul and 06 Jul 93

Reviewed by: Donald K Brown on 10 Aug 93

Attachment 1

Key West Decommissioning Survey

Removable Contamination Survey-Hallway 9
Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 30 Jun, 02 Jul and 06 Jul 93
Lab analysis by (gamma): SSG Koelker on 30 Jun, 02 Jul and 06 Jul 93
(beta) : SSG Koelker on 30 Jun, 02 Jul and 06 Jul 93

Reviewed by:_____ on _____

Attachment 1

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:06/30/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	53 CPM	32.2 DPM	0.742 / I-125
CHANNEL 2:	198 CPM	709.2 DPM	0.065 / CR-51
BECKMAN:			
CHANNEL 1:	52 CPM	22.1 DPM	1.075 / I-125
CHANNEL 2:	198 CPM	452.3 DPM	0.102 / CR-51

ATTACHMENT 2

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:07/02/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	53 CPM	32.2 DPM	0.742 / I-125
CHANNEL 2:	198 CPM	709.2 DPM	0.065 / CR-51
BECKMAN:			
CHANNEL 1:	52 CPM	22.1 DPM	1.075 / I-125
CHANNEL 2:	198 CPM	452.3 DPM	0.102 / CR-51

ATTACHMENT 2

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:07/06/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	53 CPM	32.2 DPM	0.742 / I-125
CHANNEL 2:	198 CPM	709.2 DPM	0.065 / CR-51
BECKMAN:			
CHANNEL 1:	52 CPM	22.1 DPM	1.075 / I-125
CHANNEL 2:	198 CPM	452.3 DPM	0.102 / CR-51

ATTACHMENT 2

QUALITY ASSURANCE REPORT - BETA
FOR DATE: 06/30/93

	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A
CHANNEL 3:	N/A	N/A	N/A
BECKMAN LS6800:			
CHANNEL 1:	17 CPM	23.4 DPM	0.579/H-3
CHANNEL 2:	30 CPM	19.0 DPM	0.947/C-14
CHANNEL 3:	40 CPM	20.7 DPM	1.007/P-32

ATTACHMENT 3

QUALITY ASSURANCE REPORT - BETA
FOR DATE: 07/02/93

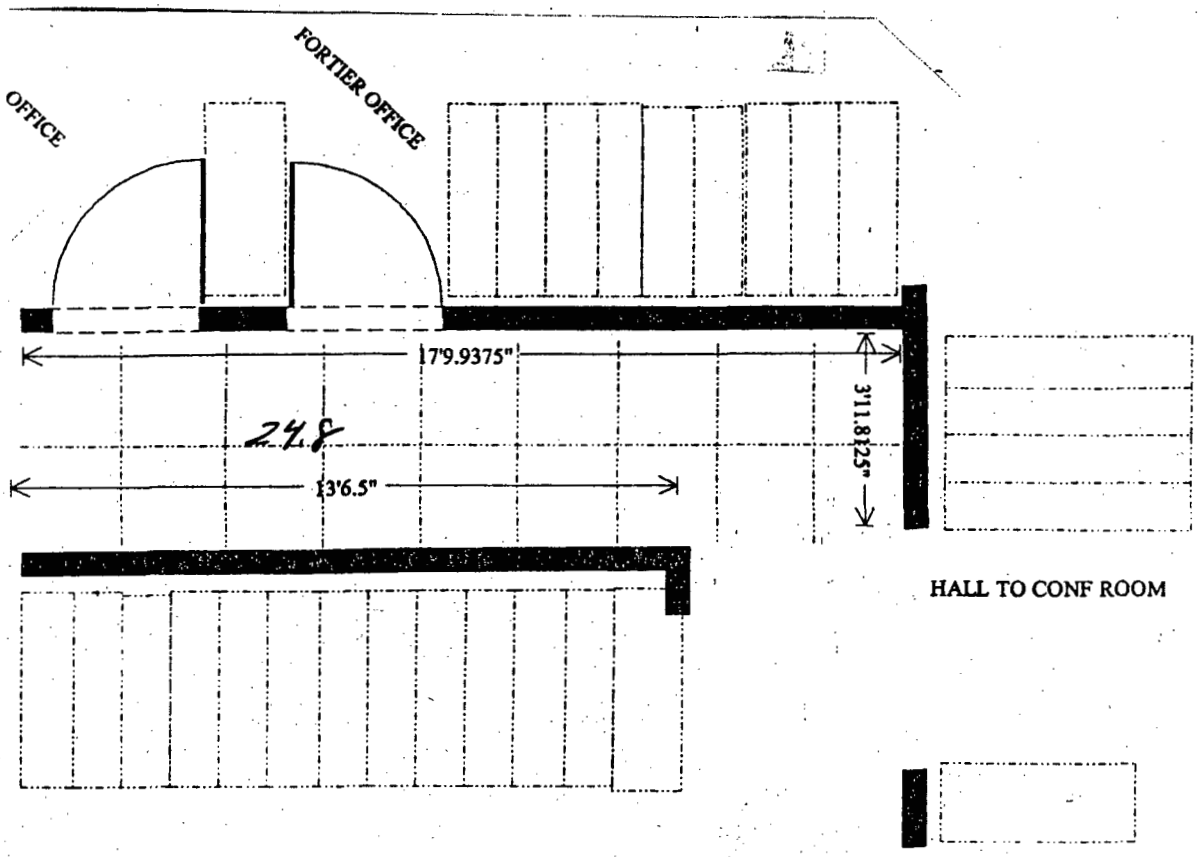
	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A
CHANNEL 3:	N/A	N/A	N/A
BECKMAN LS6800:			
CHANNEL 1:	17 CPM	23.4 DPM	0.579/H-3
CHANNEL 2:	30 CPM	19.0 DPM	0.947/C-14
CHANNEL 3:	40 CPM	20.7 DPM	1.007/P-32

QUALITY ASSURANCE REPORT - BETA
FOR DATE: 07/06/93

	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A
CHANNEL 3:	N/A	N/A	N/A
BECKMAN LS6800:			
CHANNEL 1:	39 CPM	36.4 DPM	0.561 / H-3
CHANNEL 2:	26 CPM	17.6 DPM	0.950 / C-14
CHANNEL 3:	24 CPM	16.1 DPM	1.002 / P-32

ATTACHMENT 3

Fixed Gamma Contamination Survey-Hallway 9
Scale 1 inch = 4 feet



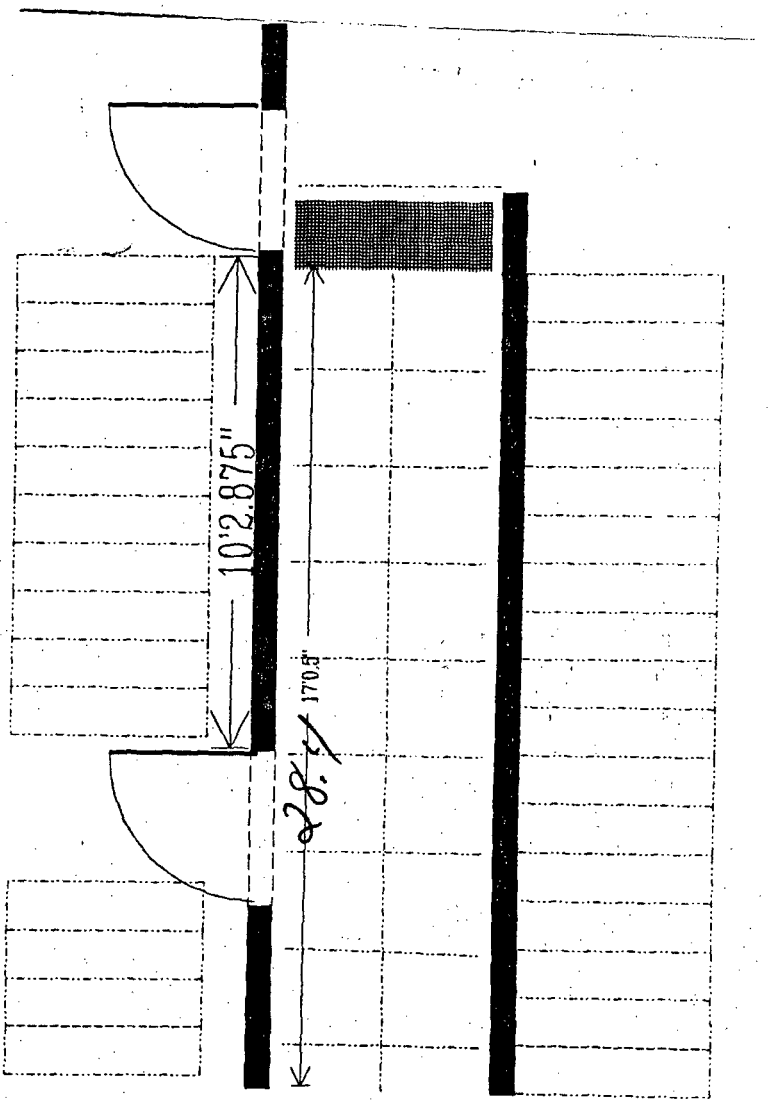
Conducted by: SSG Webster and SSG Koelker on 30 Jun, 02 Jul and 06 Jul 93
All Measurements are in uR/hr

Reviewed by: Donald K Green on 10 Aug 93

Attachment 4

Key West Decommissioning Survey

Fixed Gamma Contamination Survey-Hallway 9
Scale 1 inch = 4 feet

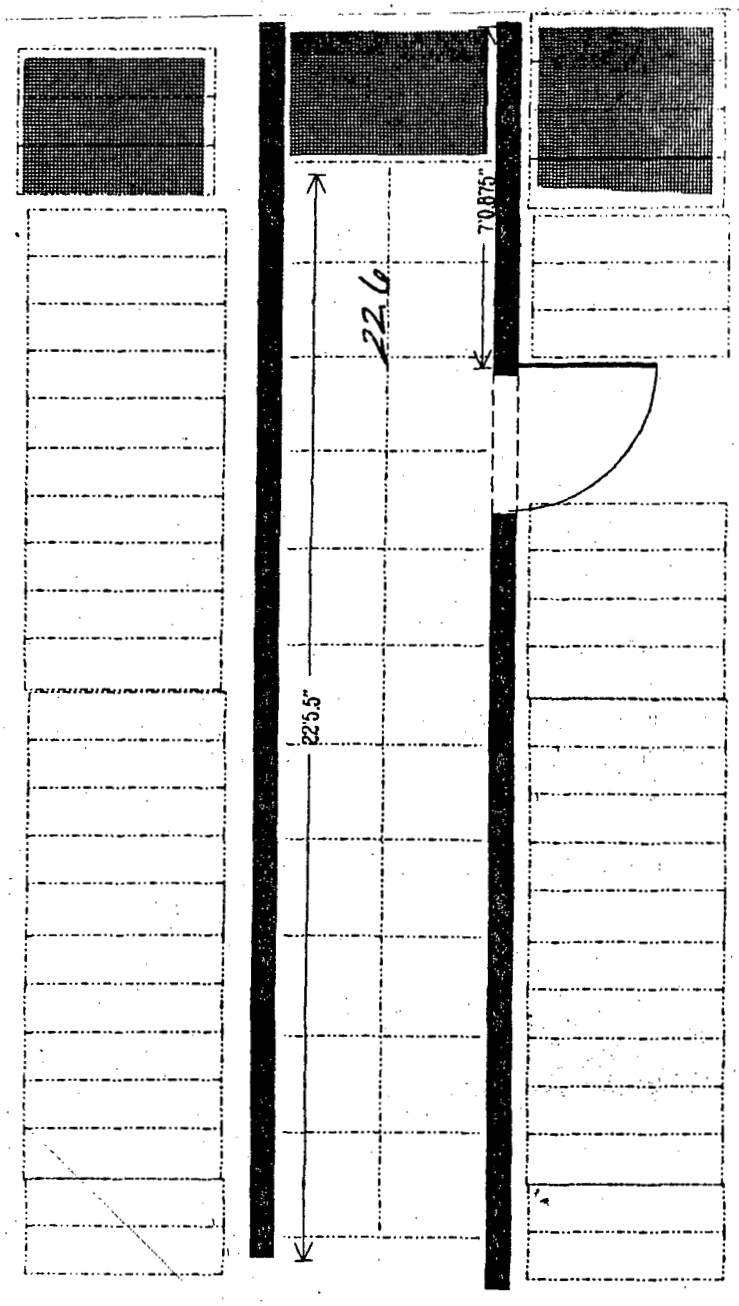


Conducted by: SSG Webster and SSG Koelker on 30 Jun, 02 Jul and 06 Jul 93
All Measurements are in uR/hr

Reviewed by: Donald L Green on 10 Aug 93

Attachment 4

Fixed Gam...a Contamination Survey-Hallway 9
Scale 1 inch = 4 feet



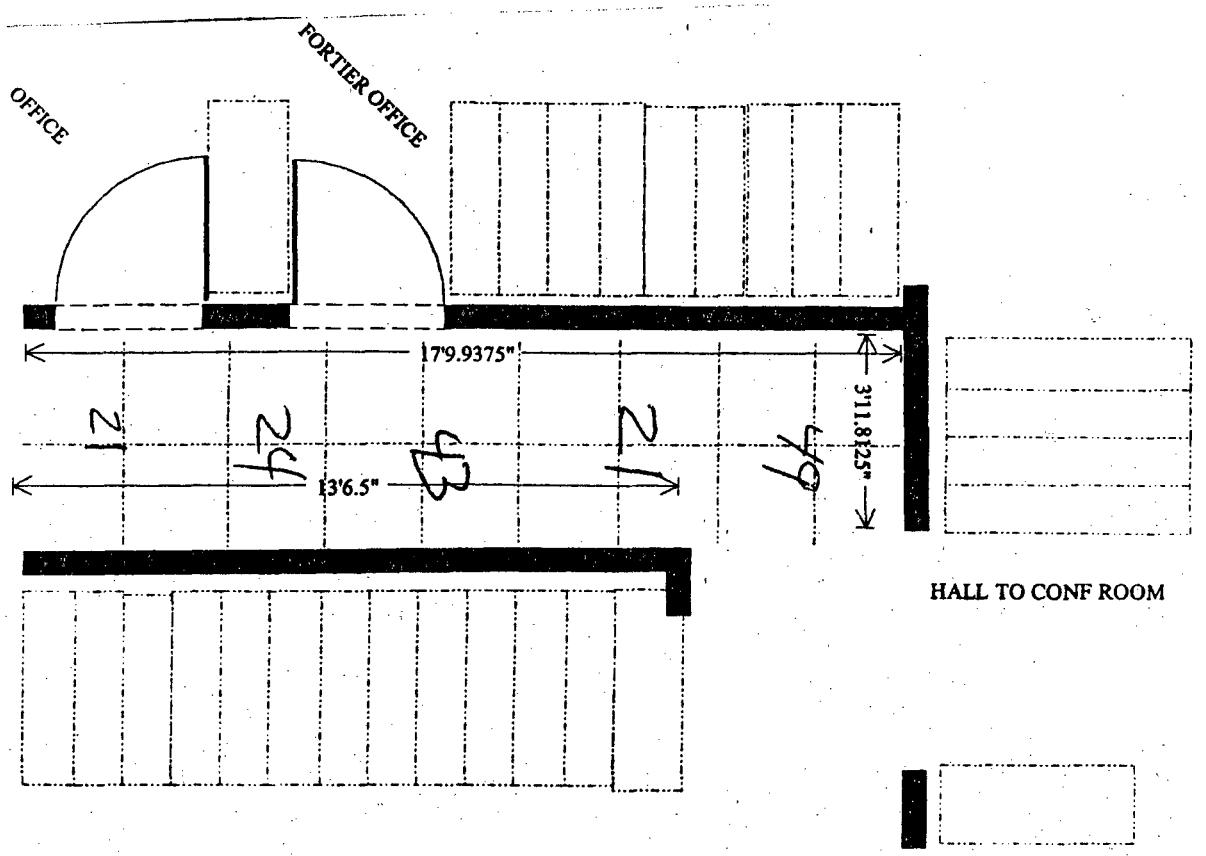
Conducted by: SSG Webster and SSG Koelker on 30 Jun, 02 Jul and 06 Jul 93
All Measure..ients are in uR/hr

Reviewed by: Donald K Green on 10 Aug 93

Attachment 4

Key West Decommissioning Survey

Fixed Beta Contamination Survey-Hallway 9
Scale 1 inch = 4 feet

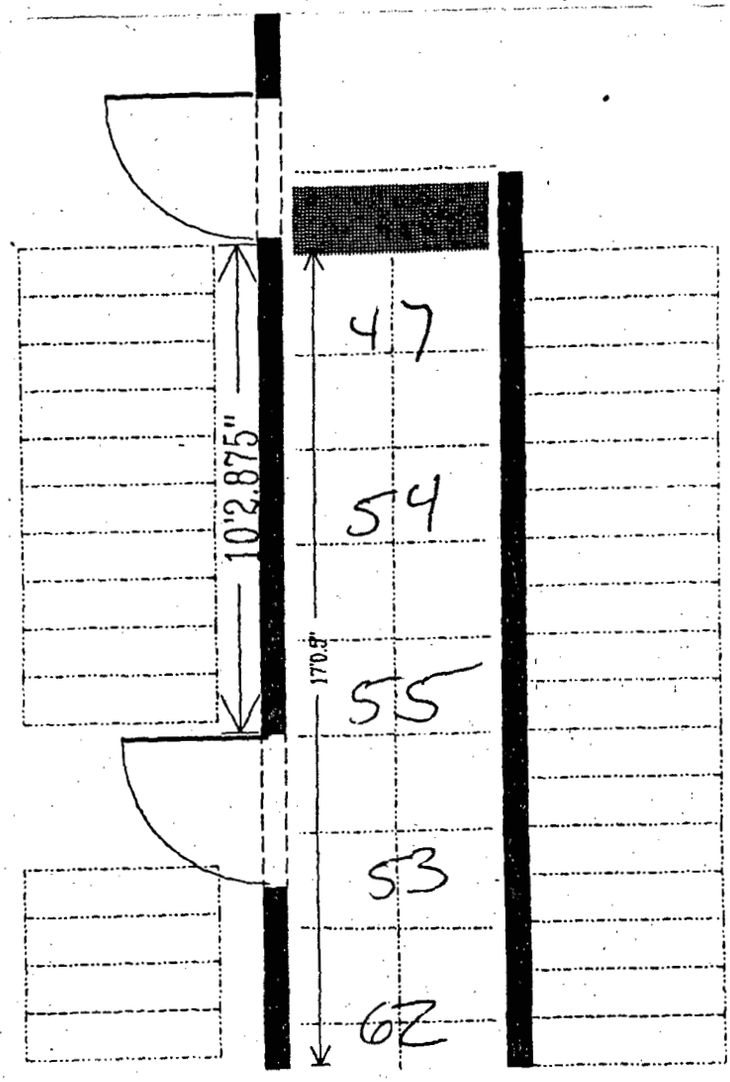


Conducted by: SPC Brinley on 26 Jul 93
All Measurements are Gross Counts in One Minute

Reviewed by: Donald L Thomson on 9 Aug 93

Attachment 5

Fixed Be.. Contamination Survey-Hallway 9
Scale 1 inch = 4 feet

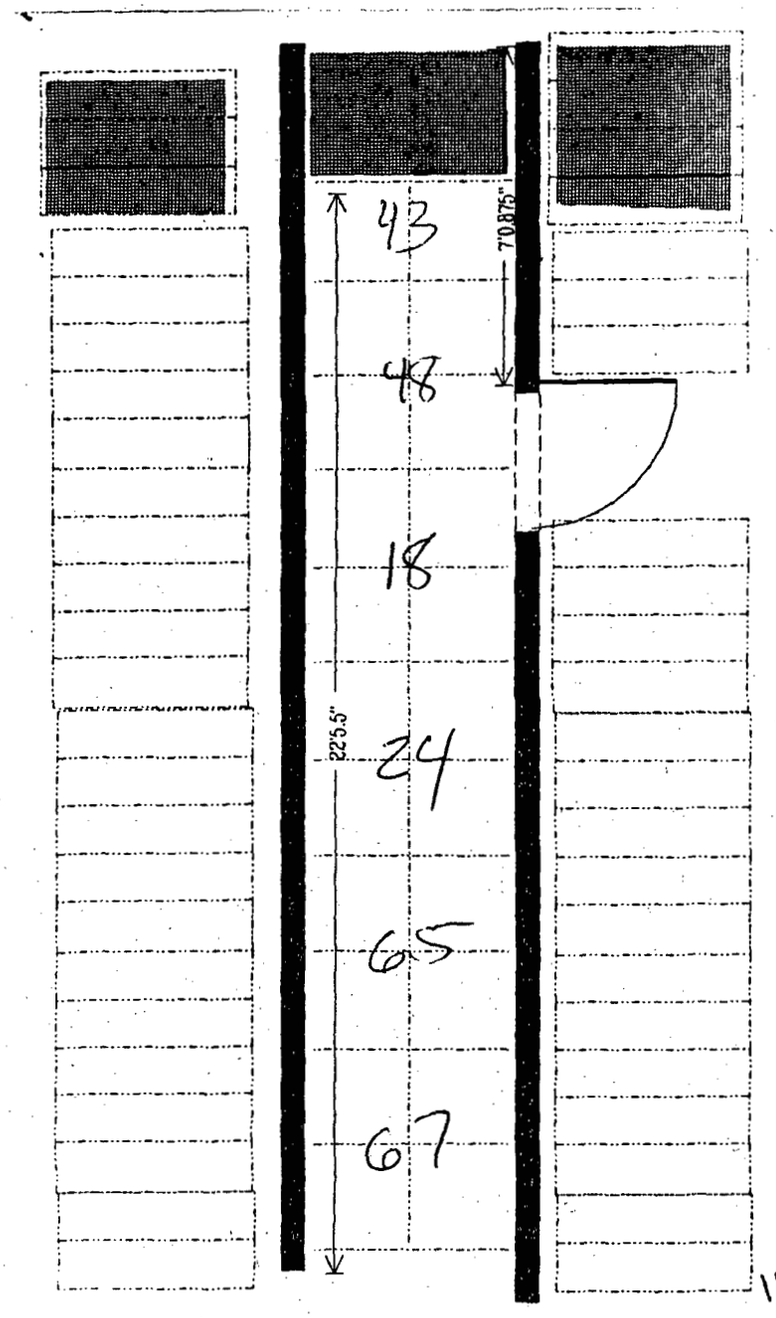


Conducted by: SPC Brinley on 26 Jul 93
All Measurements are Gross Counts in One Minute

Reviewed by: Donald K Green on 10 Aug 93

Attachment 5

Fixed Be[illegible]ontamination Survey-Hallway 9
Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 26 Jul 93
All Measurements are Gross Counts in One Minute

Reviewed by: Donald K Shaw on 10 Aug 93

Attachment 5

KEY WEST DECOMMISSIONING SURVEY

Hallway - 10

REMOVABLE CONTAMINATION

Hallway Number 10 and Closet were surveyed for removable contamination on 14 Jul and 17 Jun 93(respectively) by SPC Brinley. A total of 44 swipes were taken. See Attachment 1 for the location of each swipe.

The swipes were analyzed for gamma contamination, utilizing the LKB Gammawell Counter on 17 Jun and 14 Jul 93. See Attachment 2 for the MDAs and associated efficiencies. No gamma contamination was found above 200 dpm for I-125 or above 2000 dpm for any other isotope.

The swipes were analyzed for beta contamination, utilizing the Beckman Liquid Scintillation Counter Model 6800 on 17 Jun and 14 Jul 93. See Attachment 3 for the MDAs and associated efficiencies. No beta contamination was found above 200 dpm for any isotope.

FIXED CONTAMINATION

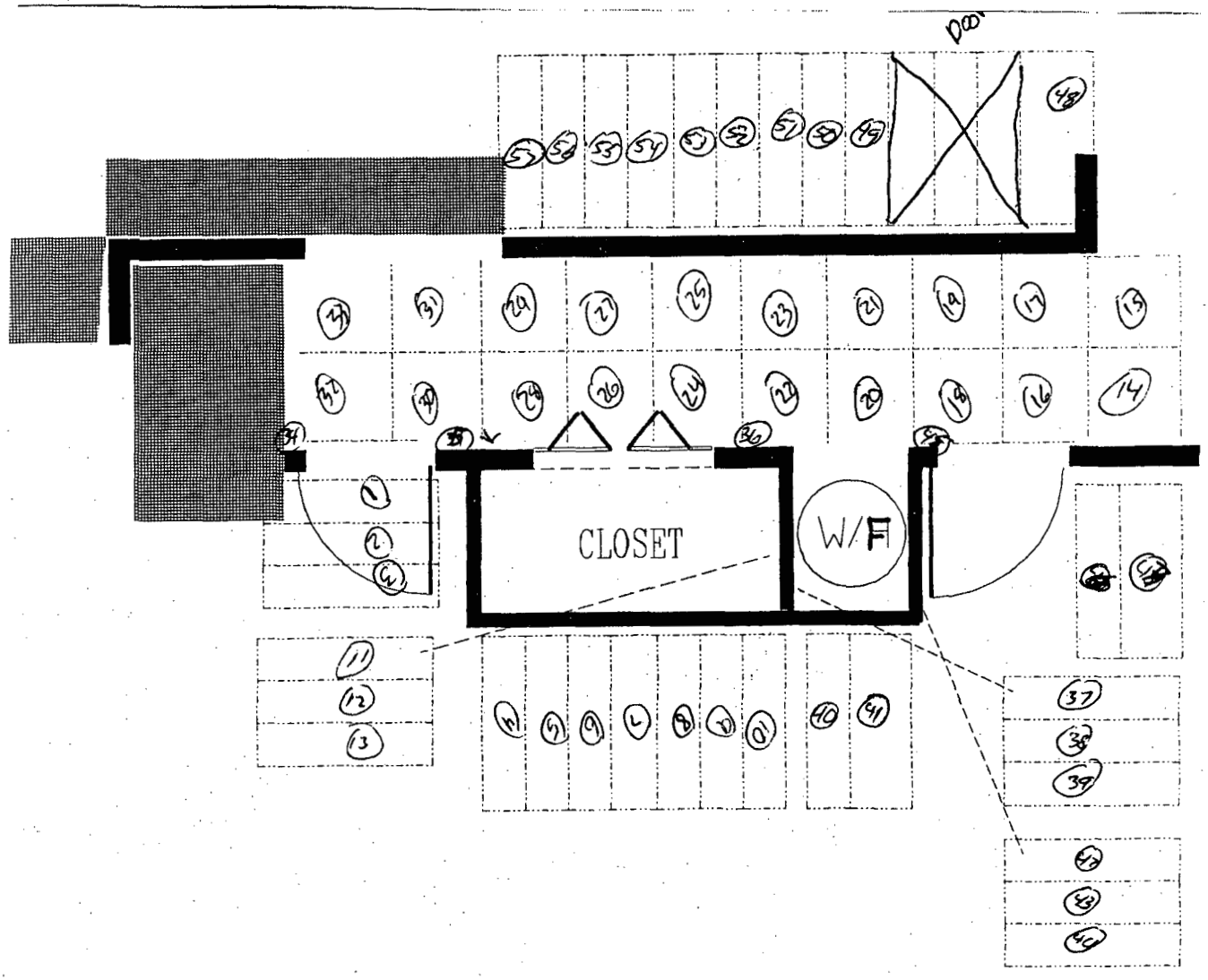
Fixed gamma surveys were conducted on 14 Jul 93 by SPC Brinley. The highest exposure rate found was 18.4 uR/hr. See Attachment 4 for the location of readings taken.

A fixed beta survey was conducted on 26 Jul 93 by SPC Brinley. The highest number of counts found during a one minute count-time was 89 cpm. The average number of counts found during a one minute count-time was 60 cpm. See Attachment 5 for the location of readings taken.

As well as being reviewed at the time of the survey/receipt of laboratory results, all pertinent survey data was reviewed and compiled here by SFC Green on 9 Aug 93.

Key West Decommissioning Survey

Removable Contamination Survey-Hallway 10
Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 17 Jun 93 and 14 Jul 93
Lab analysis by (gamma): SSG Koelker on 17 Jun 93 and 14 Jul 93
(beta) : SSG Koelker on 17 Jun 93 and 14 Jul 93

Reviewed by: Donald K Green on 10 Aug 93

Attachment 1

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:06/17/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	51 CPM	33.2 DPM	0.707 / I-125
CHANNEL 2:	206 CPM	587.0 DPM	0.080 / CR-51
BECKMAN:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A

ATTACHMENT 2

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:07/14/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	49 CPM	30.1 DPM	0.764 / I-125
CHANNEL 2:	197 CPM	676.4 DPM	0.068 / CR-51
BECKMAN:			
CHANNEL 1:	46 CPM	23.0 DPM	0.970 / I-125
CHANNEL 2:	194 CPM	440.0 DPM	0.104 / CR-51

ATTACHMENT 2

QUALITY ASSURANCE REPORT - BETA
FOR DATE:06/17/93

	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A
CHANNEL 3:	N/A	N/A	N/A
BECKMAN LS6800:			
CHANNEL 1:	29 CPM	28.1 DPM	0.630 / H-3
CHANNEL 2:	35 CPM	20.1 DPM	0.968 / C-14
CHANNEL 3:	41 CPM	20.9 DPM	1.007 / P-32

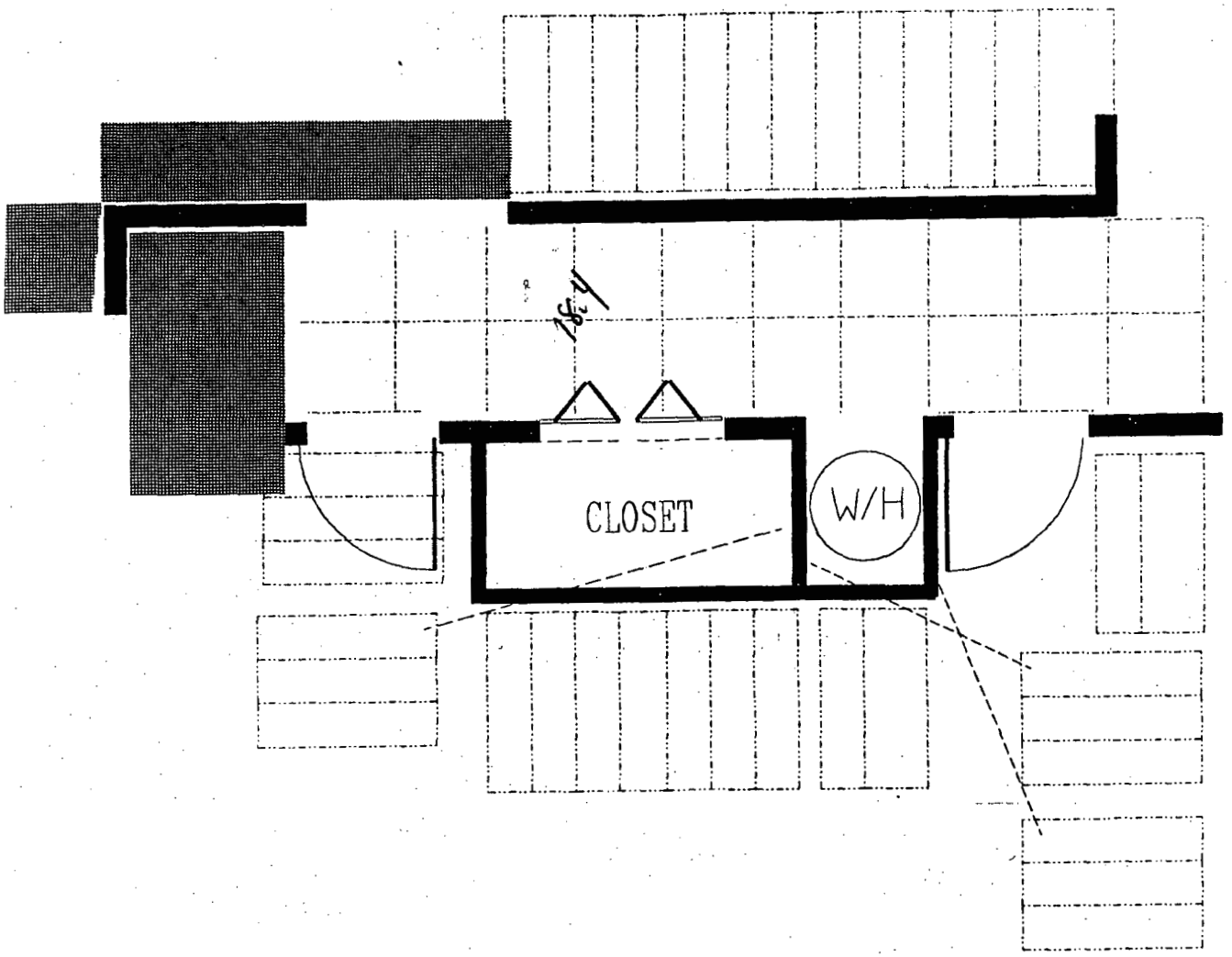
ATTACHMENT 3

QUALITY ASSURANCE REPORT - BETA
FOR DATE:07/14/93

	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	31 CPM	28.8 DPM	0.636 / H-3
CHANNEL 2:	28 CPM	18.1 DPM	0.962 / C-14
CHANNEL 3:	25 CPM	16.5 DPM	1.004 / P-32
BECKMAN LS6800:			
CHANNEL 1:	33 CPM	32.4 DPM	0.583 / H-3
CHANNEL 2:	25 CPM	17.2 DPM	0.954 / C-14
CHANNEL 3:	21 CPM	14.9 DPM	1.011 / P-32

Key West Decommissioning Survey

Fixed Gamma Contamination Survey-Hallway 10
Scale 1 inch = 4 feet



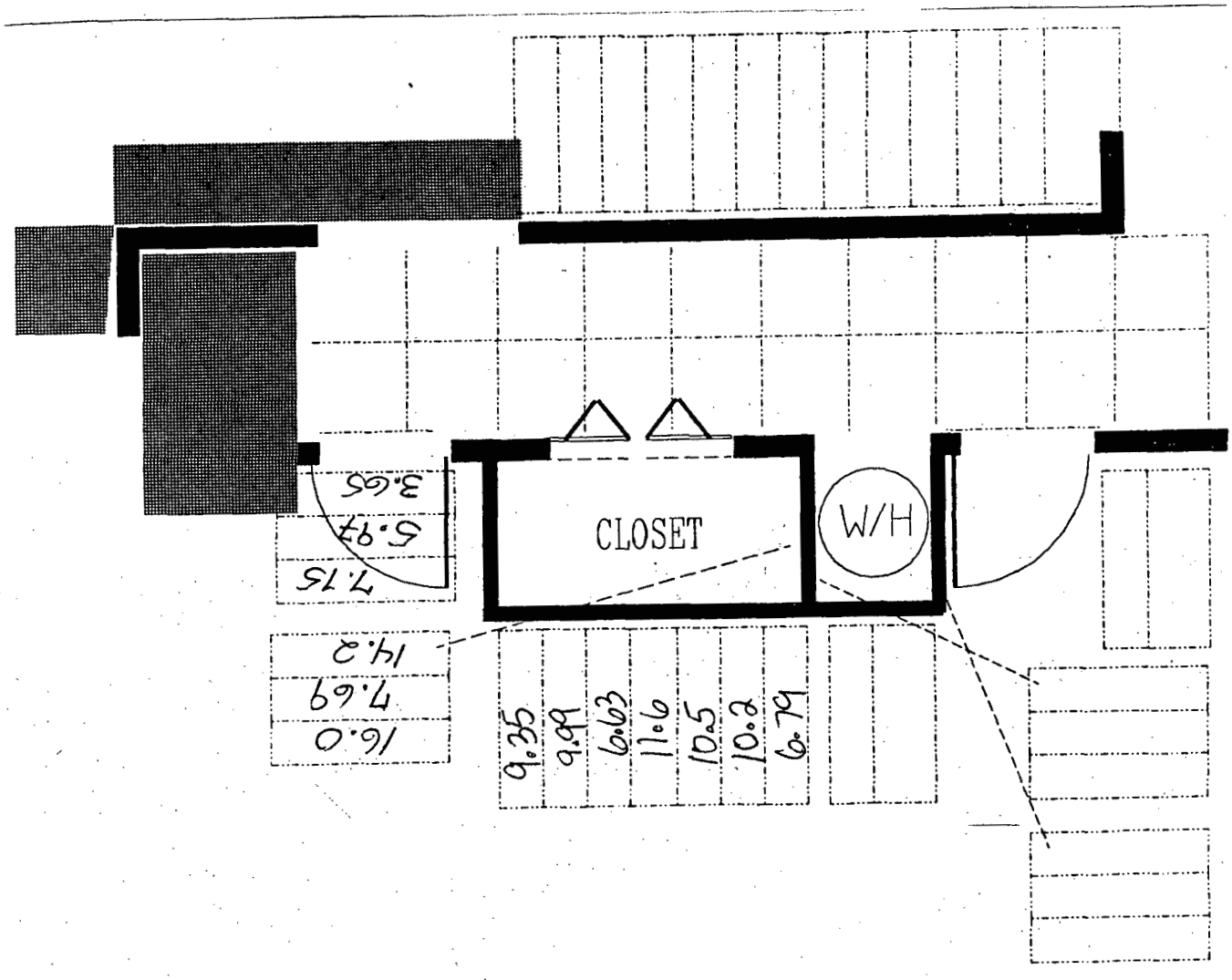
Conducted by: SPC Brinley on 14 Jul 93
All Measurements are in uR/hr

Reviewed by: Donald L. Thomas on 10 Aug 93

Attachment 4

Key West Decommissioning Survey

Fixed Gamma Contamination Survey-Hallway 10
Scale 1 inch = 4 feet



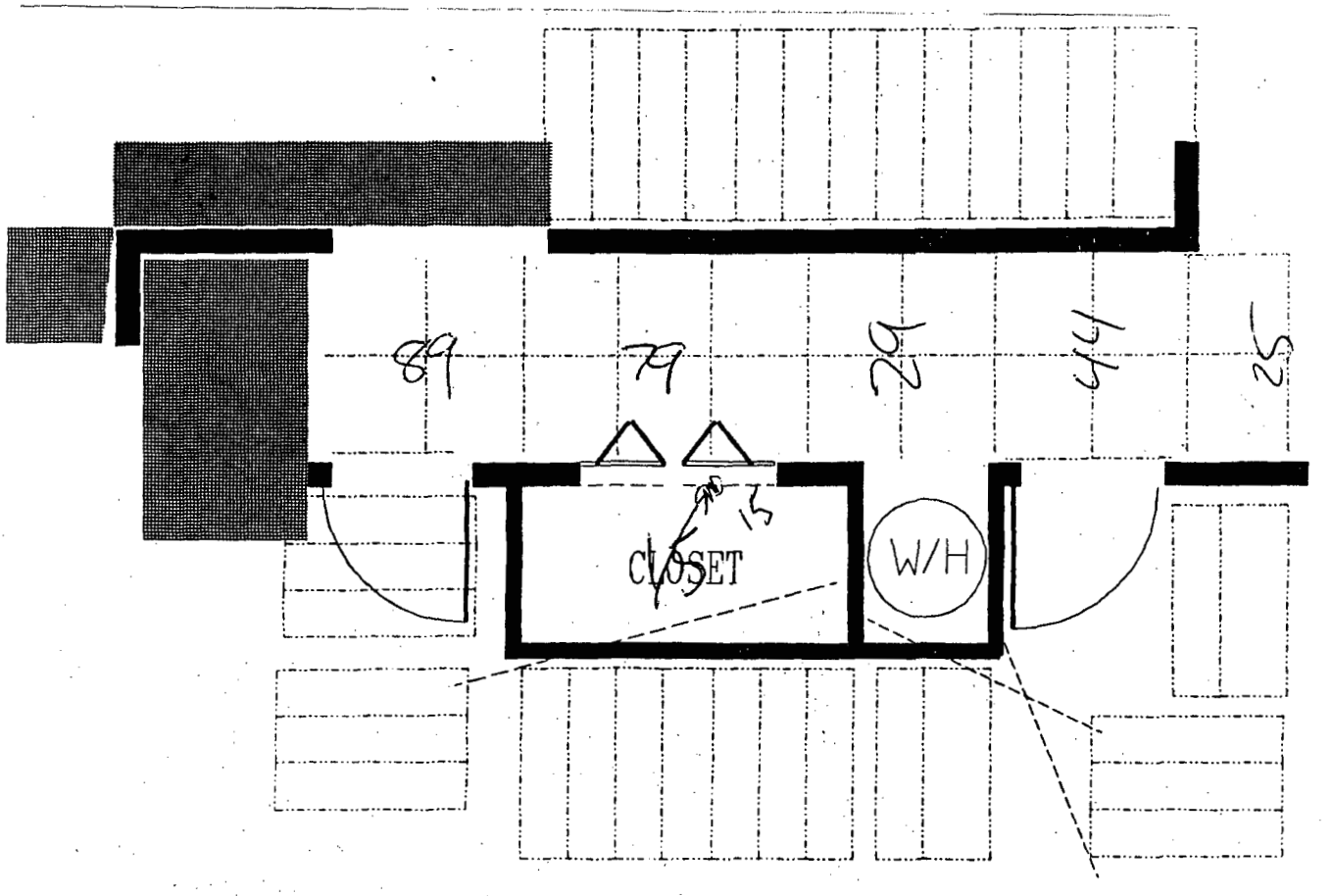
Conducted by: SPC Brinley on 14 Jul 93
All Measurements are in uR/hr

Reviewed by: Donald K Greene on 10 Aug 93

Attachment 4

Key ..est Decommissioning Survey

Fixed Beta Contamination Survey-Hallway 10
Scale 1 inch = 4 feet



Conducted by: Sr C Brinley on 26 Jul 93
All Measurements are Gross Counts in One Minute
Reviewed by: Donald L Green on 10 Aug 93

Attachment 5

KEY WEST DECOMMISSIONING SURVEY

Hallway - 11

REMOVABLE CONTAMINATION

Hallway Number 11 was surveyed for removable contamination on 2 Jul 93 by SPC Brinley. A total of 90 swipes were taken. See Attachment 1 for the location of each swipe.

The swipes were analyzed for gamma contamination, utilizing the LKB Gammawell Counter on 2 Jul 93. See Attachment 2 for the MDAs and associated efficiencies. No gamma contamination was found above 200 dpm for I-125 or above 2000 dpm for any other isotope.

The swipes were analyzed for beta contamination, utilizing the Beckman Liquid Scintillation Counter Model 6800 on 2 Jul 93. See Attachment 3 for the MDAs and associated efficiencies. No beta contamination was found above 200 dpm for any isotope.

FIXED CONTAMINATION

Fixed gamma surveys were conducted on 2 Jul 93 by SPC Brinley. The highest exposure rate found was 24.4 uR/hr. See Attachment 4 for the location of readings taken.

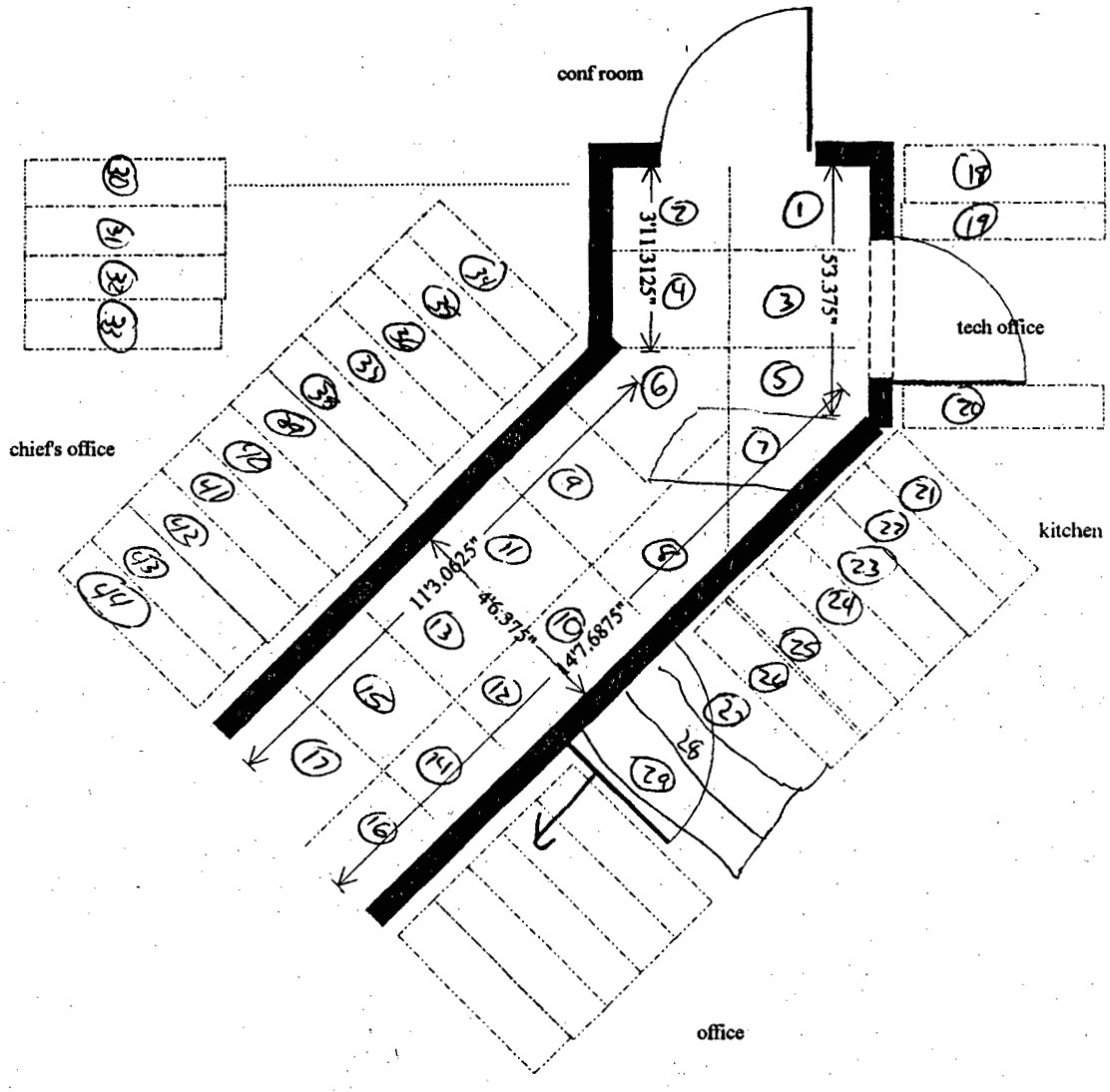
A fixed beta survey was conducted on 26 Jul 93 by SPC Brinley. The highest number of counts found during a one minute count-time was 48 cpm. The average number of counts found during a one minute count-time was 32 cpm. See Attachment 5 for the location of readings taken.

As well as being reviewed at the time of the survey/receipt of laboratory results, all pertinent survey data was reviewed and compiled here by SFC Green on 9 Aug 93.

Key West Decommissioning Survey

Removable Contamination Survey-Hallway 11

Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 02 Jul 93

Lab analysis by (gamma): SSG Koelker on 02 Jul 93

(beta) : SSG Koelker on 02 Jul 93

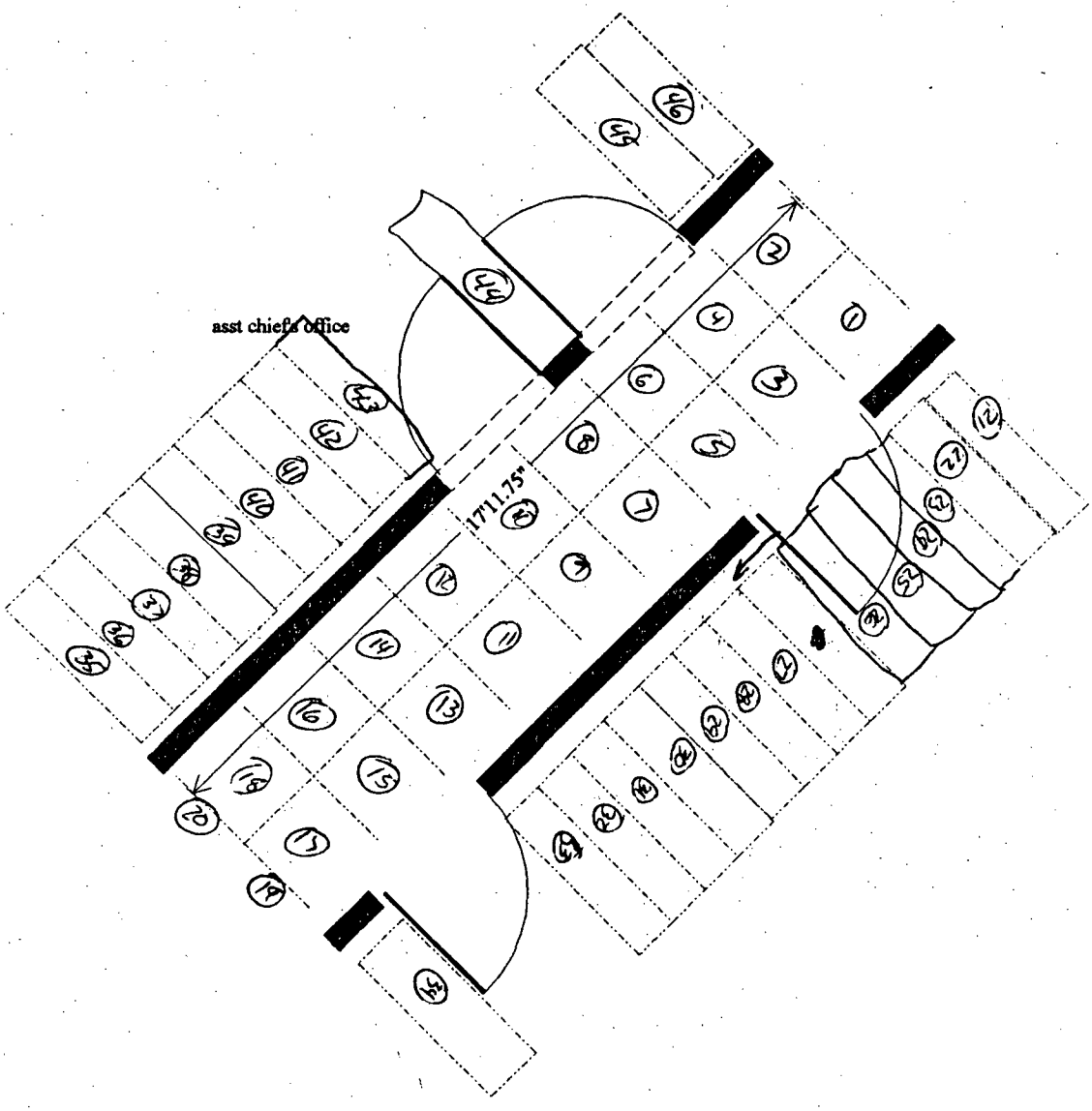
Reviewed by: Donald K Keen on 10 Aug 93

Attachment 1

Key West Decommissioning Survey

Removable Contamination Survey-Hallway 11

Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 02 Jul 93

Lab analysis by (gamma): SSG Koelker on 02 Jul 93

(beta) : SSG Koelker on 02 Jul 93

Reviewed by: Donald K Green on 10 Aug 93

Attachment 1

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:07/02/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	53 CPM	32.2 DPM	0.742 / I-125
CHANNEL 2:	198 CPM	709.2 DPM	0.065 / CR-51
BECKMAN:			
CHANNEL 1:	52 CPM	22.1 DPM	1.075 / I-125
CHANNEL 2:	198 CPM	452.3 DPM	0.102 / CR-51

ATTACHMENT 2

QUALITY ASSURANCE REPORT - BETA
FOR DATE:07/02/93

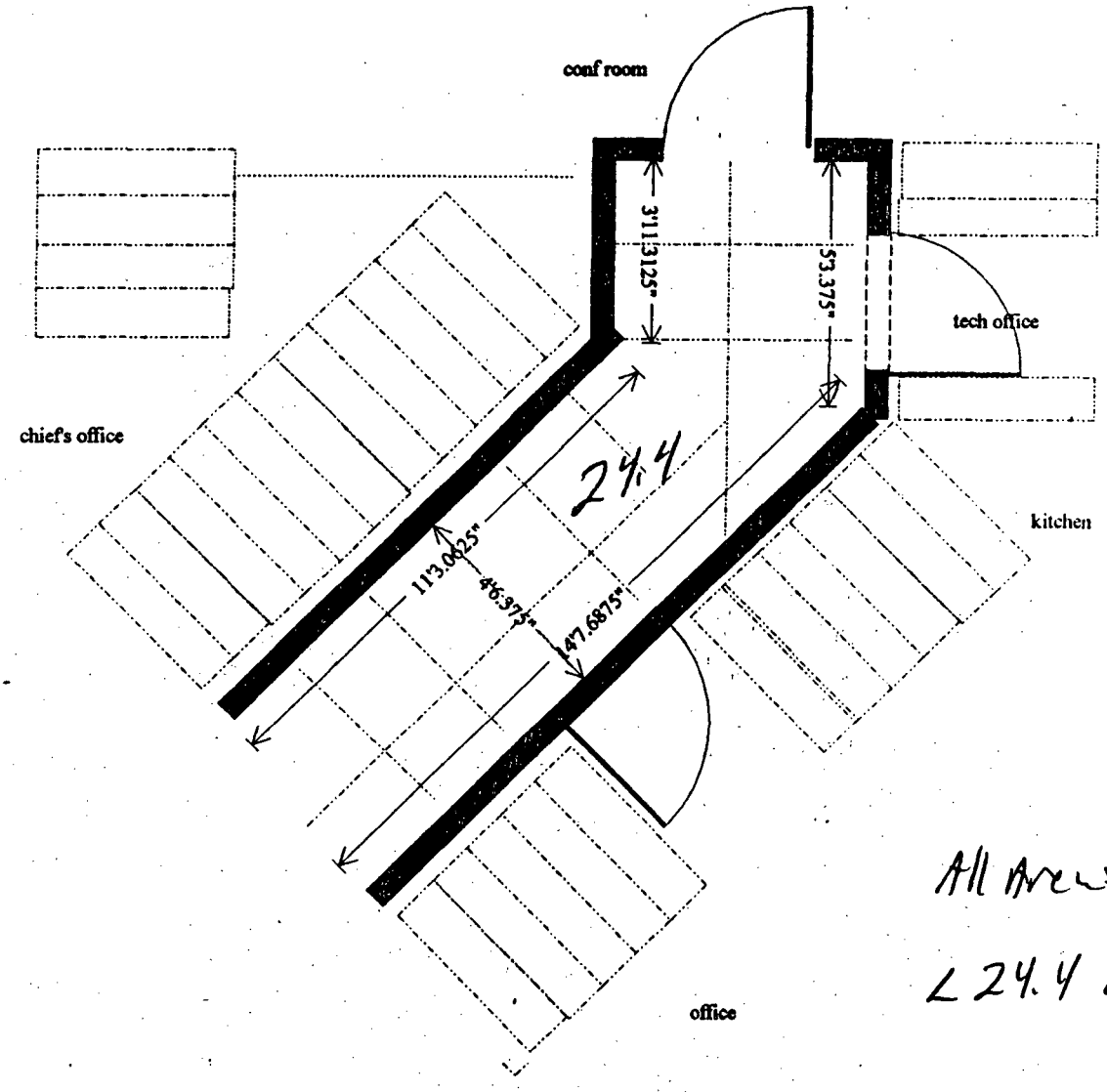
	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A
CHANNEL 3:	N/A	N/A	N/A
BECKMAN LS6800:			
CHANNEL 1:	17 CPM	23.4 DPM	0.579/H-3
CHANNEL 2:	30 CPM	19.0 DPM	0.947/C-14
CHANNEL 3:	40 CPM	20.7 DPM	1.007/P-32

ATTACHMENT 3

Key [illegible]st Decommissioning Survey

Fixed Gamma Contamination Survey-Hallway 11

Scale 1 inch = 4 feet



All Areas
< 24.4 u/hr

Conducted by: SPC Brinley on 07 Jul 93

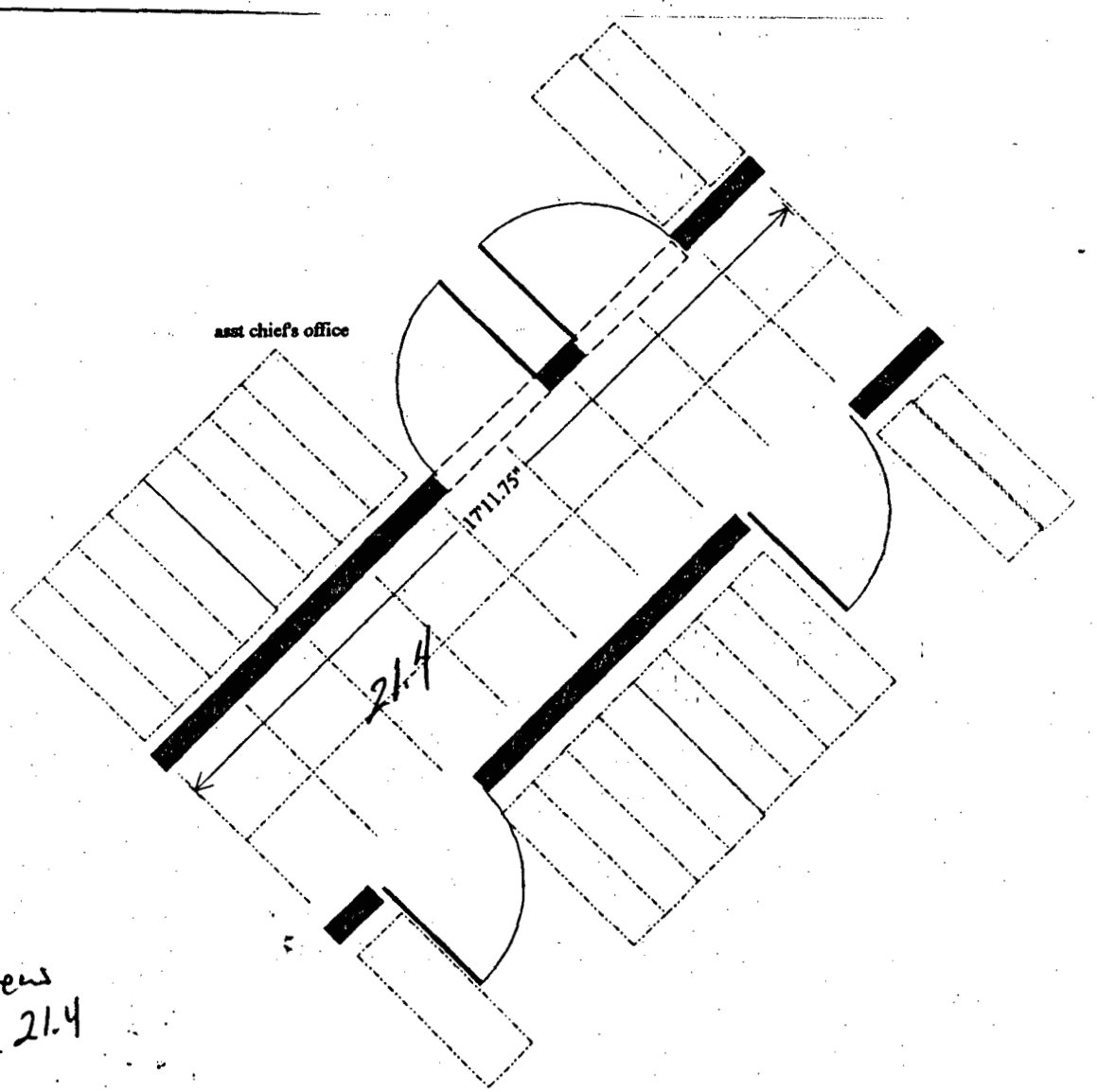
All Measurements are in uR/hr

Reviewed by: Donald Green on 10 Aug 93

Attachment 4

Key West Decommissioning Survey

Fixed Gamma Contamination Survey-Hallway 11
Scale 1 inch = 4 feet



w/hr

All Areas
21.4

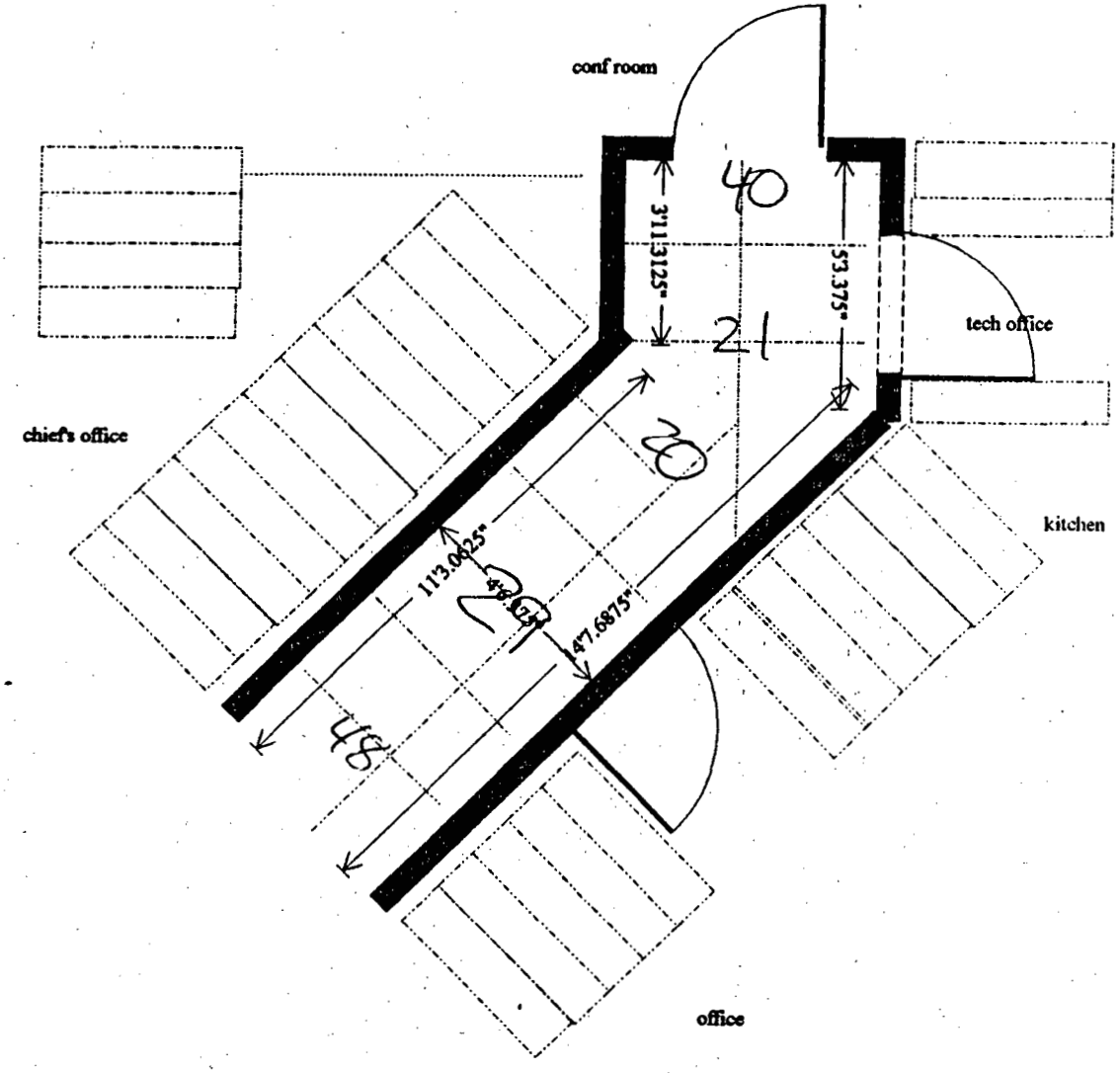
Conducted by: SPC Brinley on 07 Jul 93
All Measurements are in uR/hr

Reviewed by: Donald Green on 10 Aug 93

Attachment 4

Key W[illegible]t Decommissioning Survey

Fixed Beta Contamination Survey-Hallway 11
Scale 1 inch = 4 feet



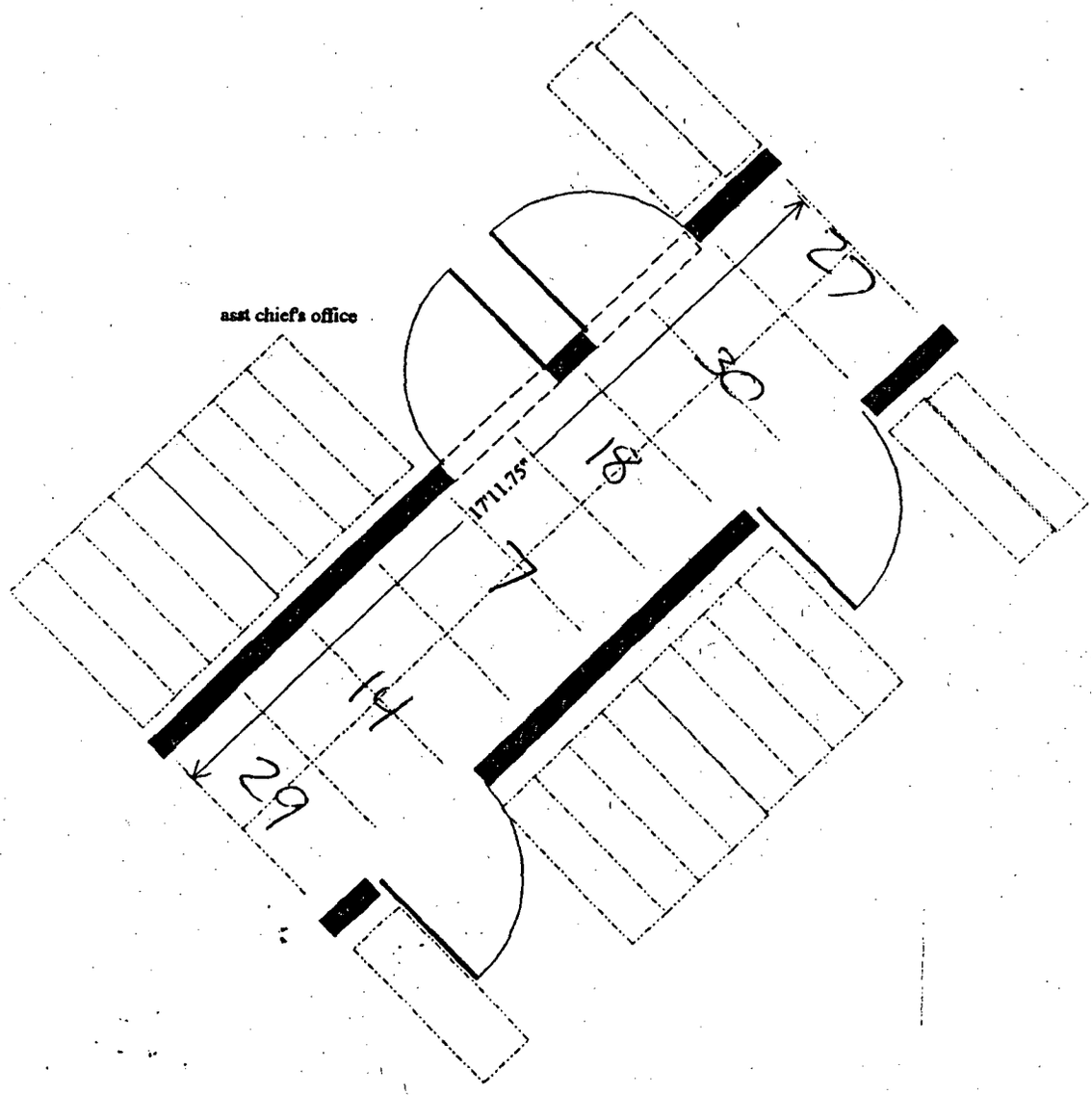
Conducted by: SPC Brinley on 26 Jul 93
All Measurements are Gross Counts in One Minute

Reviewed by: Donald K. Green on 10 Aug 93

Attachment 5

Key West Decommissioning Survey

Fixed Beta Contamination Survey-Hallway 11
Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 26 Jul 93
All Measurements are Gross Counts in One Minute

Reviewed by: Donald K Green on 10 Aug 93

Attachment 5

KEY WEST DECOMMISSIONING SURVEY

Laboratory - 18

REMOVABLE CONTAMINATION

Laboratory Number 18 was surveyed for removable contamination on 16 Jun 93 by SSG Webster. A total of 141 swipes were taken. See Attachment 1 for the location of each swipe.

The swipes were analyzed for gamma contamination, utilizing the LKB Gammawell Counter on 16 Jun 93. See Attachment 2 for the MDAs and associated efficiencies. No gamma contamination was found above 200 dpm for I-125 or above 2000 dpm for any other isotope.

The swipes were analyzed for beta contamination, utilizing the Beckman Liquid Scintillation Counter Model 6800 on 16 Jun 93. See Attachment 3 for the MDAs and associated efficiencies. No beta contamination was found above 200 dpm for any isotope.

FIXED CONTAMINATION

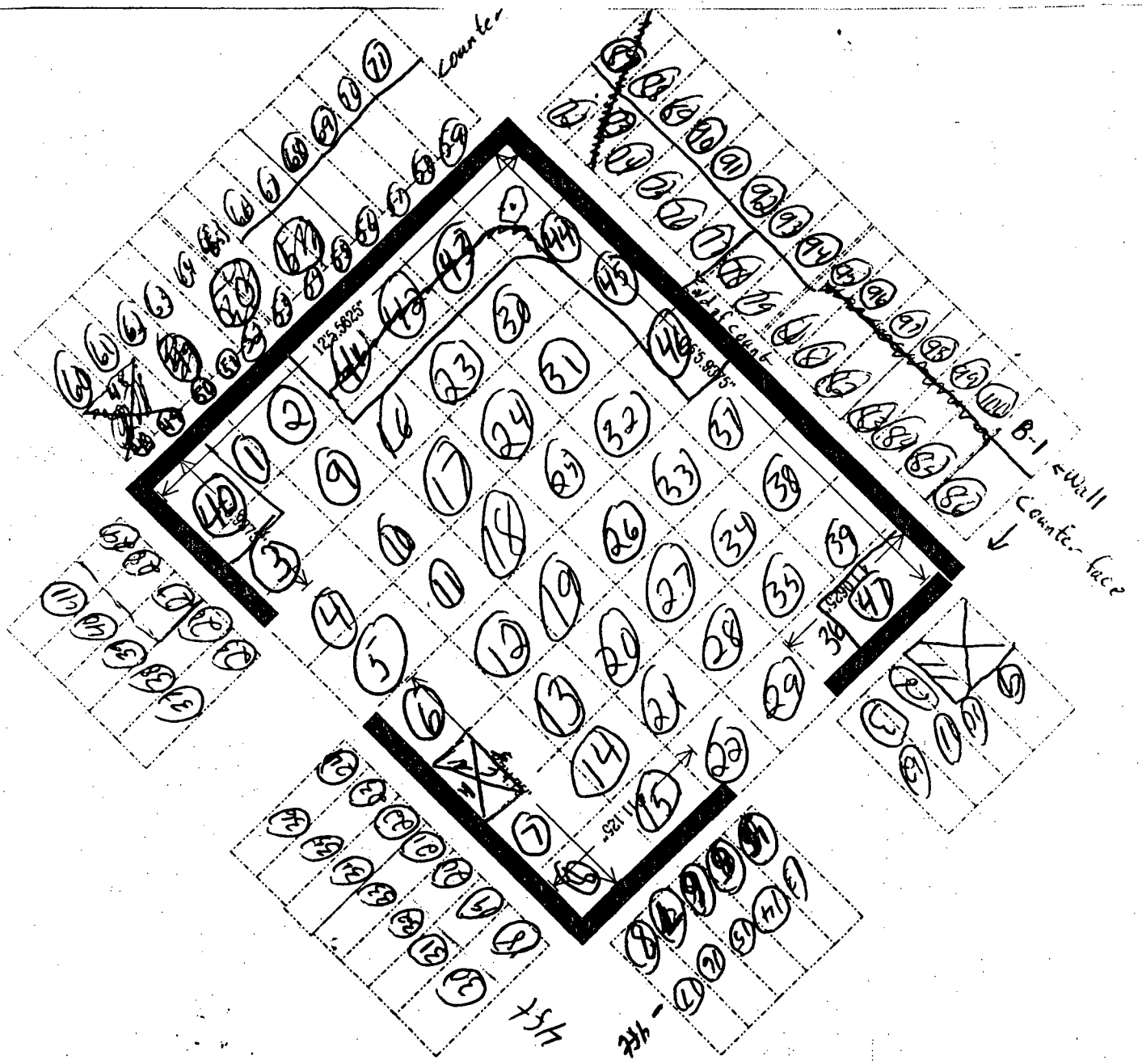
A fixed gamma survey was conducted on 16 Jun 93 by SPC Brinley. The highest exposure rate found was 22.0 uR/hr. The average exposure rate was approximately 11 uR/hr. See Attachment 4 for the location of readings taken.

A fixed beta survey was conducted on 23 Jul 93 by SPC Brinley. The highest number of counts found during a one minute count-time was 102 cpm. The average number of counts found during a one minute count-time was 55 cpm. See Attachment 5 for the location of readings taken.

As well as being reviewed at the time of the survey/receipt of laboratory results, all pertinent survey data was reviewed and compiled here by SFC Green on 8 Aug 93.

Key st Decommissioning Survey

Removable Contamination Survey-Laboratory 18
Scale 1 inch = 4 feet



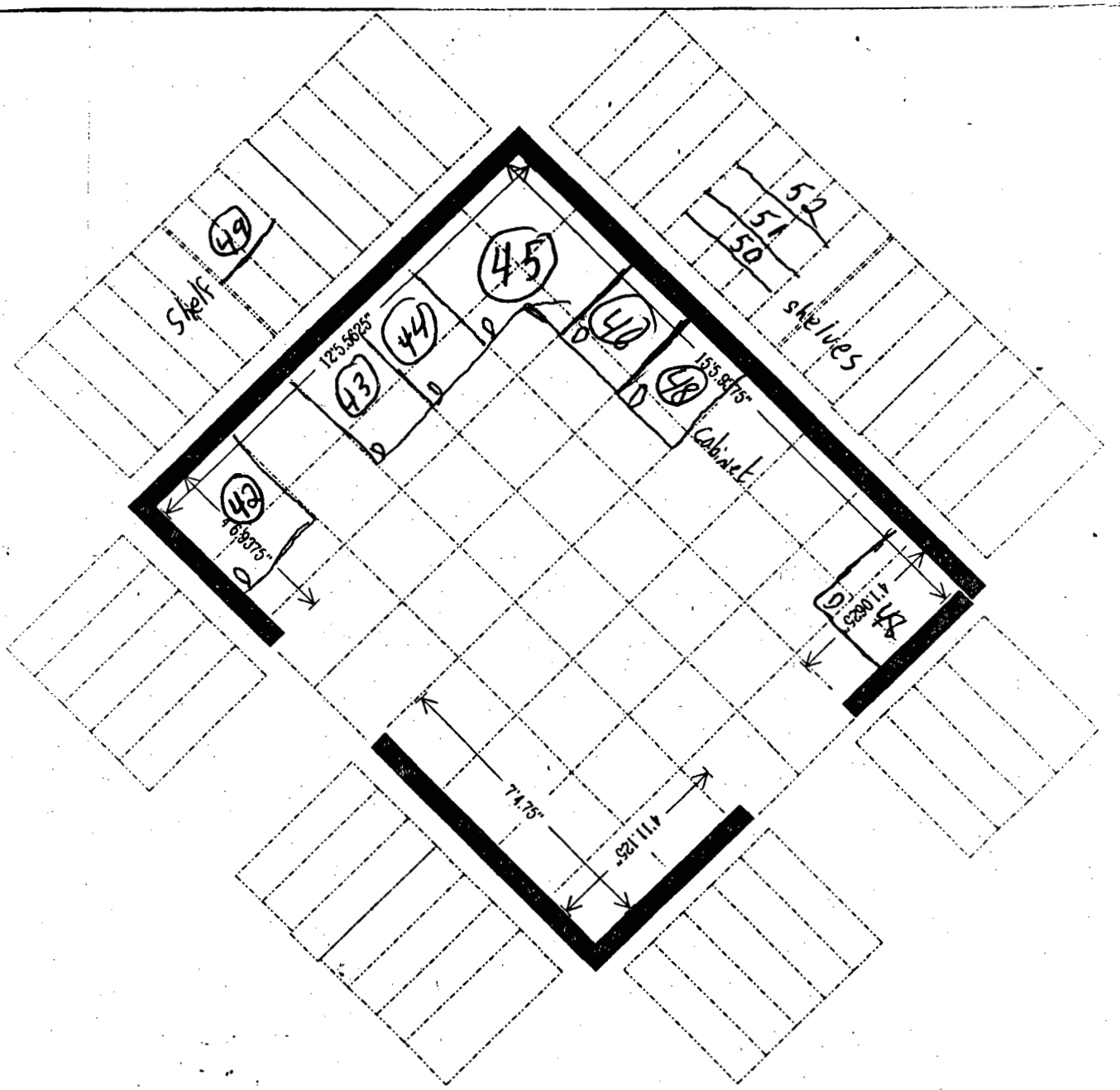
Conducted by: SSG Webster on 16 Jun 93
Lab analysis by (gamma): CPT Melanson on 16 Jun 93
(beta) : CPT Melanson on 16 Jun 93

Reviewed by: Donald K Shaw on 10 Aug 93

Attachment 1

Key West Decommissioning Survey

Removable Contamination Survey-Laboratory 18
Scale 1 inch = 4 feet



Conducted by: SSG Webster on 16 Jun 93
Lab analysis by (gamma): CPT Melanson on 16 Jun 93
(beta) : CPT Melanson on 16 Jun 93

Reviewed by: Donald K Green on 10 Aug 93

Attachment 1

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:06/16/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	48 CPM	29.9 DPM	0.762 / I-125
CHANNEL 2:	201 CPM	576.4 DPM	0.081 / CR-51
BECKMAN:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A

ATTACHMENT 2

QUALITY ASSURANCE REPORT - BETA
FOR DATE:06/16/93

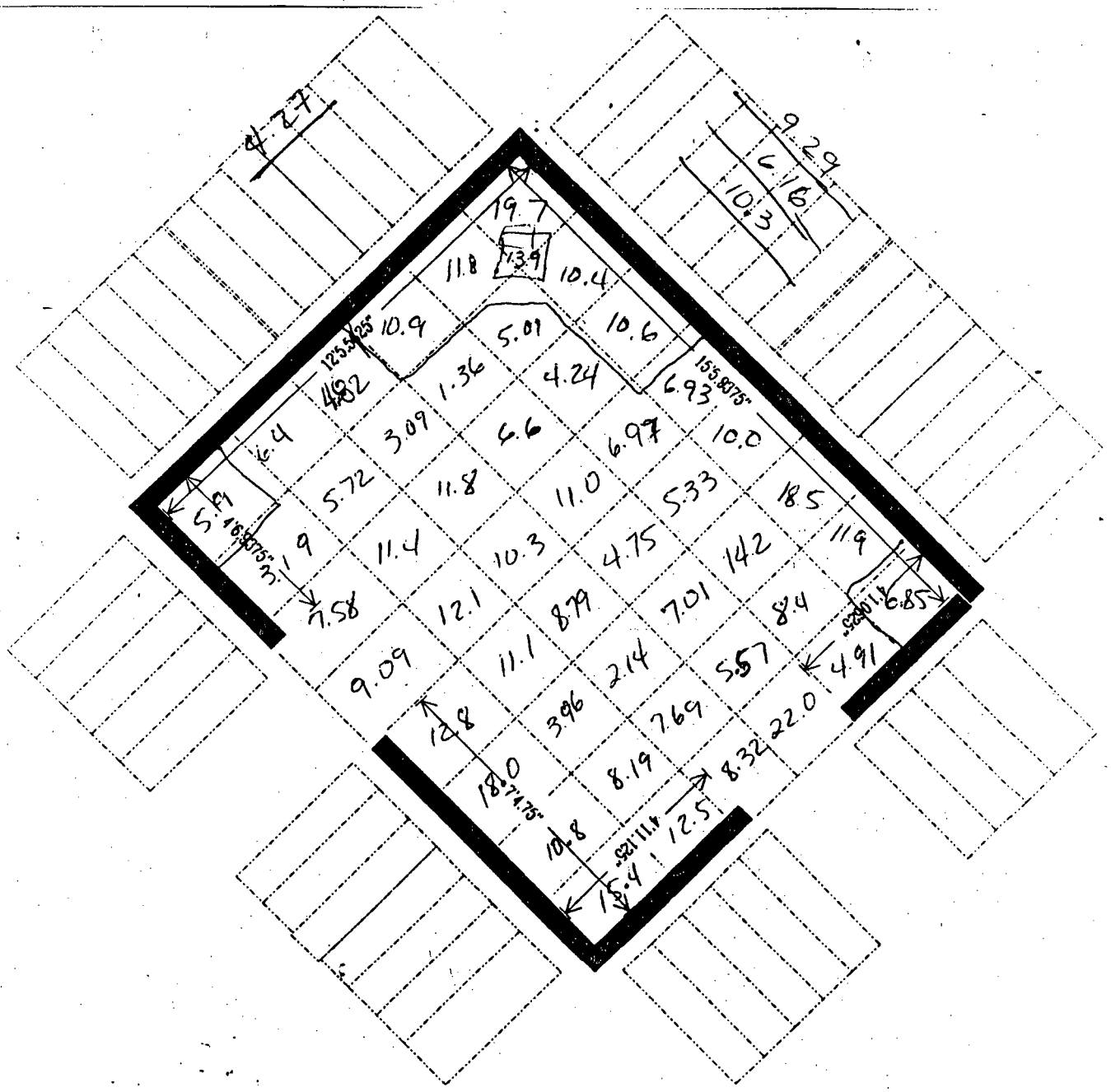
	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A
CHANNEL 3:	N/A	N/A	N/A
BECKMAN LS6800:			
CHANNEL 1:	29 CPM	28.1 DPM	0.630 / H-3
CHANNEL 2:	35 CPM	20.1 DPM	0.968 / C-14
CHANNEL 3:	41 CPM	20.9 DPM	1.007 / P-32

ATTACHMENT 3

Key st Decommissioning Survey

Fixed Gamma Contamination Survey-Laboratory 18

Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 16 Jun 93

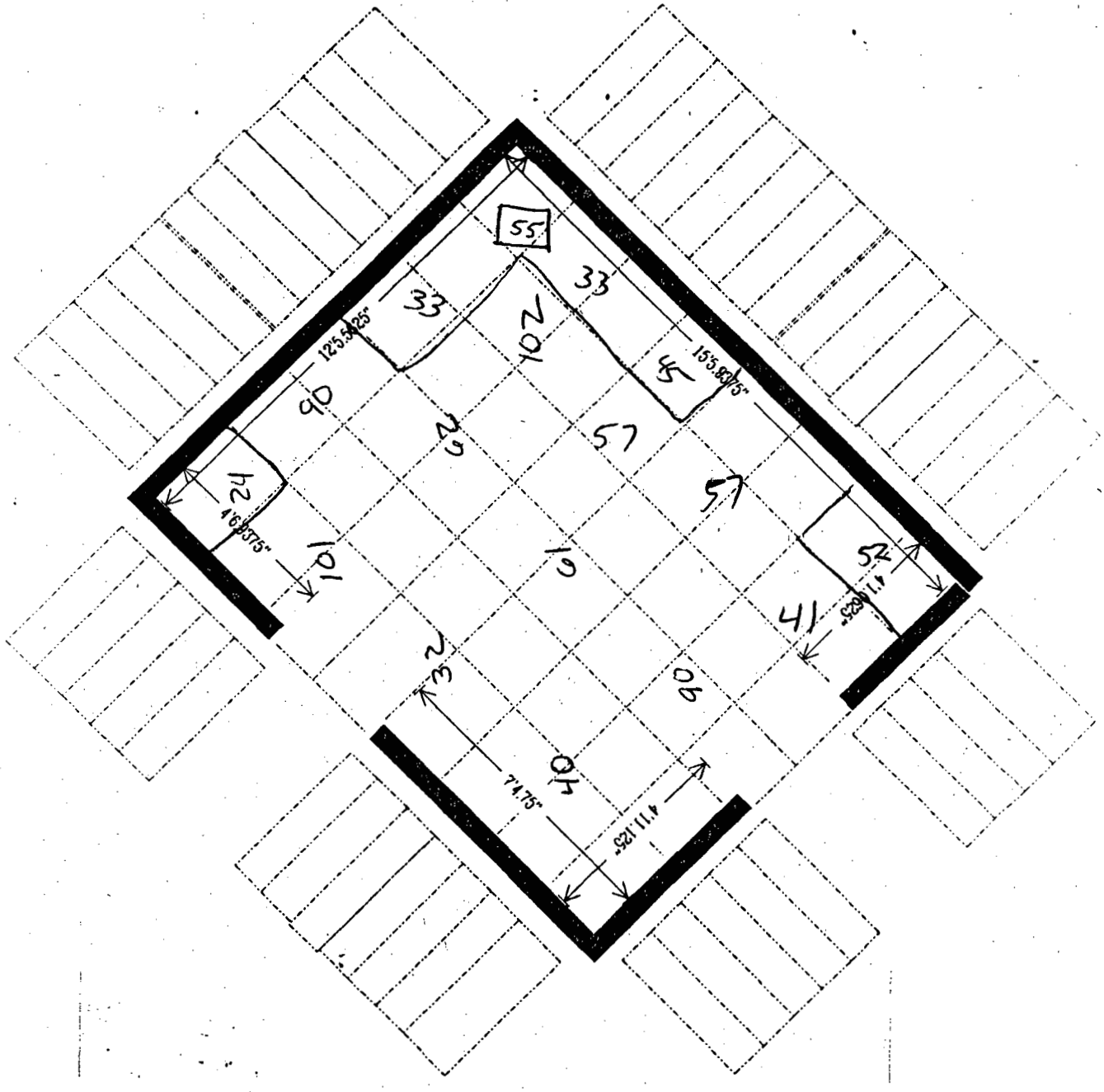
All Measurements are in uR/hr

Reviewed by: Donald K Green on 10 Aug 93

Attachment 4

Key \ st Decommissioning Survey

Fixed Beta Contamination Survey-Laboratory 18
Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 23 Jul 93
All Measurements are Gross Counts in One Minute

Reviewed by: Donald K Green on 10 Aug 93

Attachment 5

KEY WEST DECOMMISSIONING SURVEY

Laboratory - 19

REMOVABLE CONTAMINATION

Laboratory Number 19 was surveyed for removable contamination on 23 Jun 93 by SPC Brinley. A total of 205 swipes were taken. See Attachment 1 for the location of each swipe.

The swipes were analyzed for gamma contamination, utilizing the LKB Gammawell Counter on 23 Jun 93. See Attachment 2 for the MDAs and associated efficiencies. No gamma contamination was found above 200 dpm for I-125 or above 2000 dpm for any other isotope.

The swipes were analyzed for beta contamination, utilizing the Beckman Liquid Scintillation Counter Model 6800 on 23 Jun 93. See Attachment 3 for the MDAs and associated efficiencies. No beta contamination was found above 200 dpm for any isotope.

FIXED CONTAMINATION

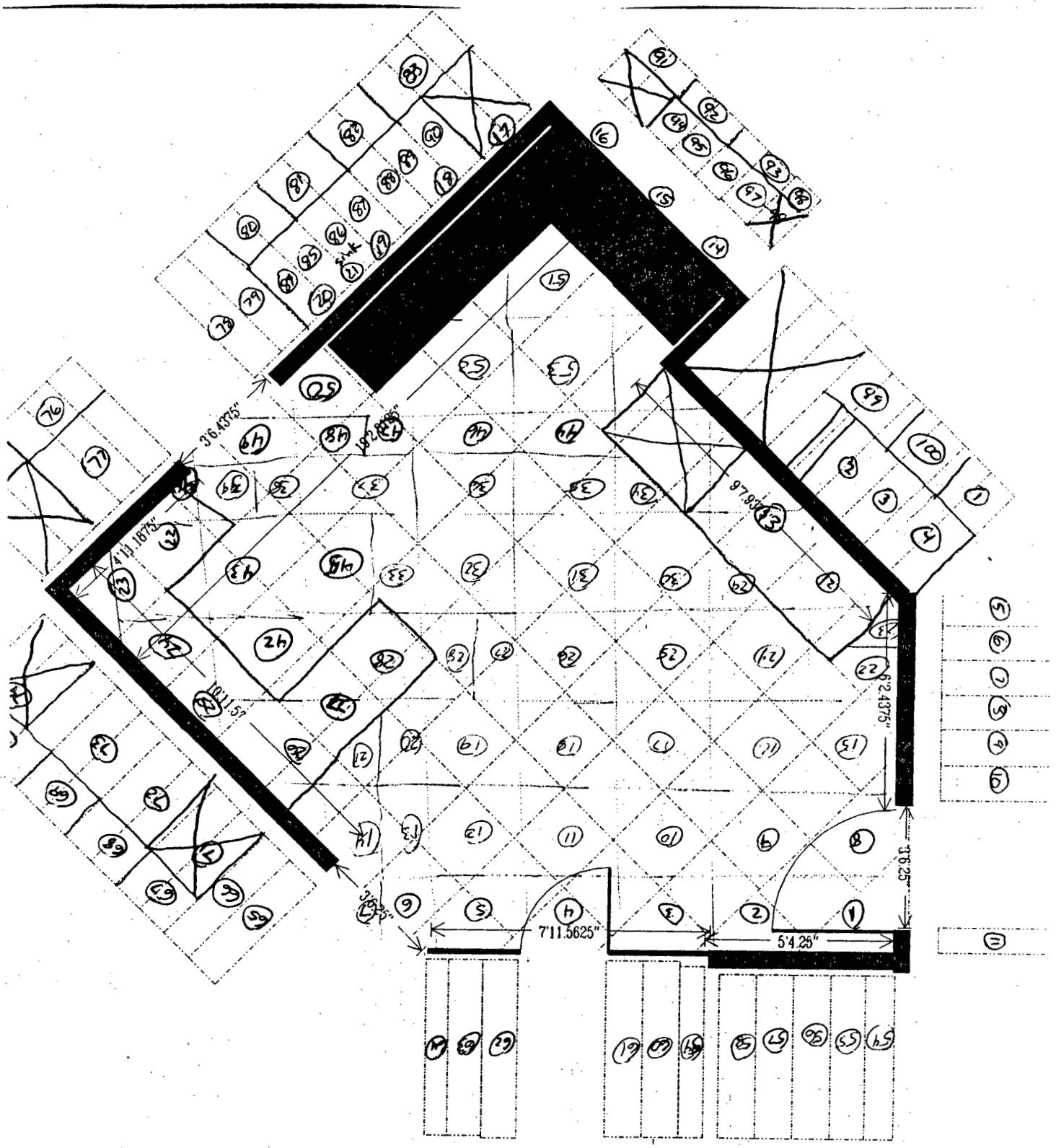
A fixed gamma survey was conducted on 23 Jun 93 by SPC Brinley. The highest exposure rate found was 26.1 uR/hr. The average exposure rate was approximately 10.5 uR/hr. See Attachment 4 for the location of readings taken.

A fixed beta survey was conducted on 23 Jul 93 by SPC Brinley. The highest number of counts found during a one minute count-time was 119 cpm. The average number of counts found during a one minute count-time was 60 cpm. See Attachment 5 for the location of readings taken.

As well as being reviewed at the time of the survey/receipt of laboratory results, all pertinent survey data was reviewed and compiled here by SFC Green on 8 Aug 93.

Key st Decommissioning Survey

Removable Contamination Survey-Laboratory 19
Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 23 Jun 93
Lab analysis by (gamma): SSG Koelker on 23 Jun 93
(beta) : SSG Koelker on 23 Jun 93

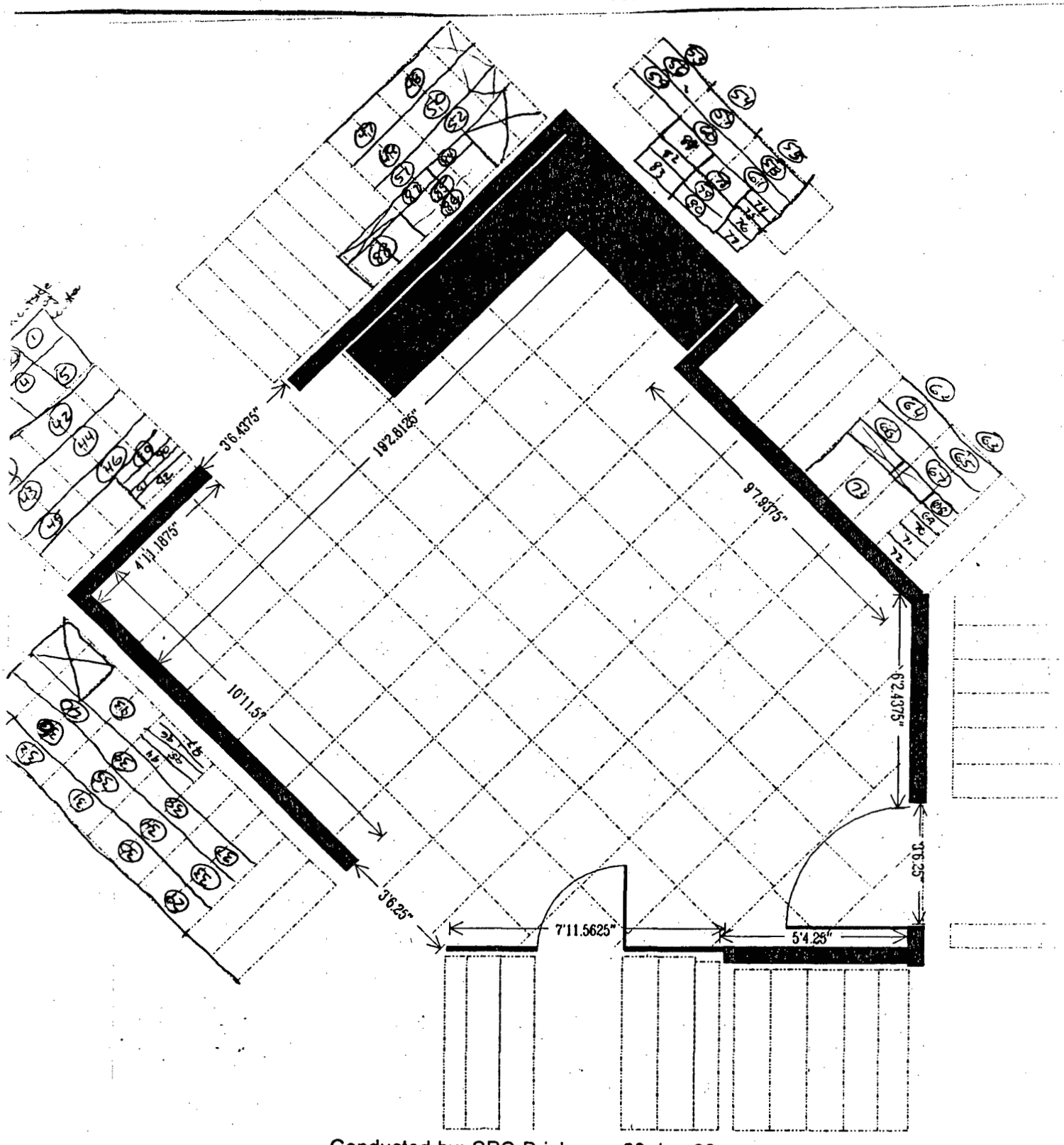
Reviewed by: Donald K Green on 10 Aug 93

Attachment 1

Key[illegible]est Decommissioning Survey

Removable Contamination Survey-Laboratory 19

Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 23 Jun 93

Lab analysis by (gamma): SSG Koelker on 23 Jun 93

(beta) : SSG Koelker on 23 Jun 93

Reviewed by: Donald K Green on 10 Aug 93

Attachment 1

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:06/23/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	49 CPM	33.4 DPM	0.688 / I-125
CHANNEL 2:	200 CPM	676.8 DPM	0.069 / CR-51
BECKMAN:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A

ATTACHMENT 2

QUALITY ASSURANCE REPORT - BETA
FOR DATE:06/23/93

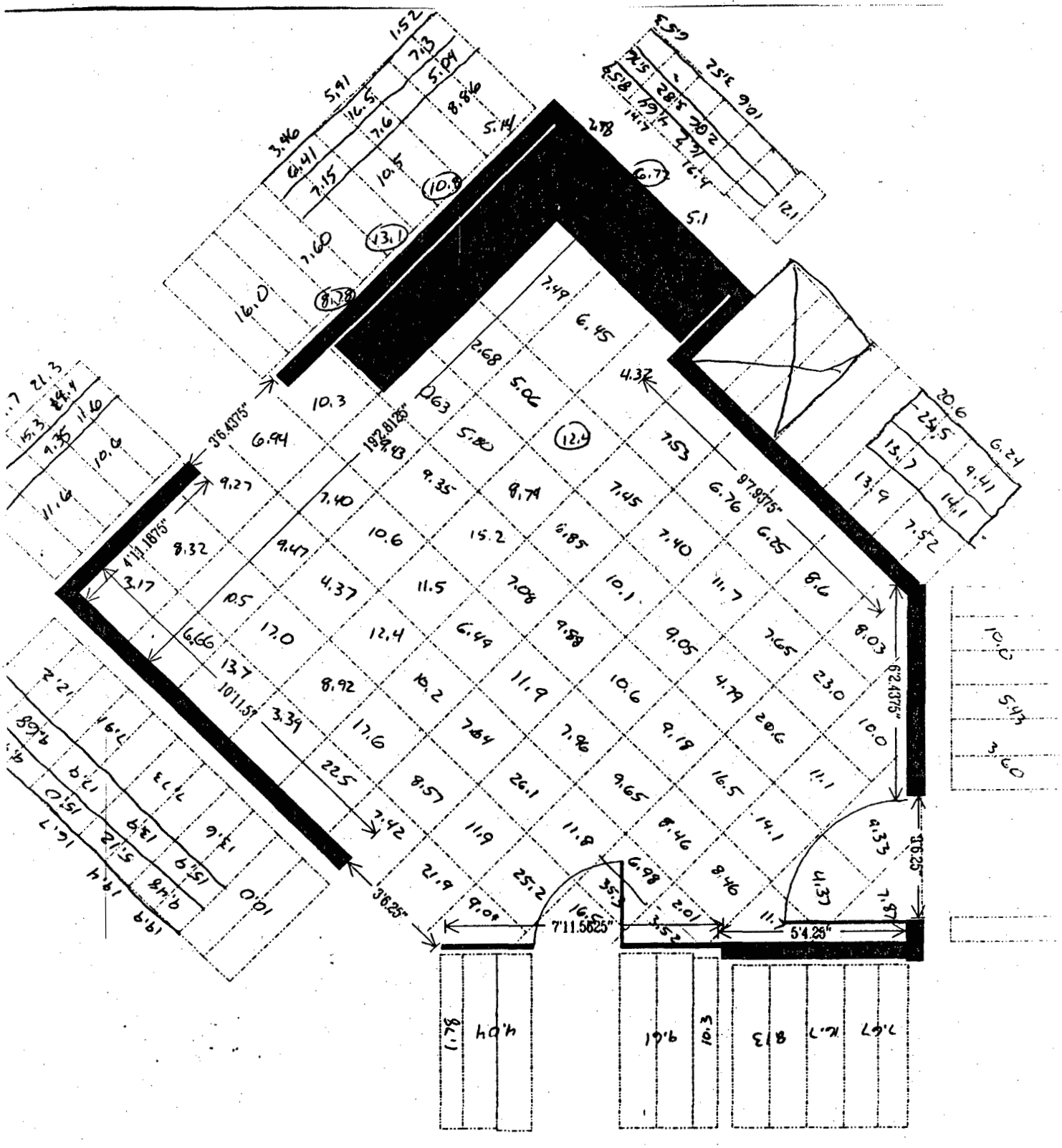
	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A
CHANNEL 3:	N/A	N/A	N/A
BECKMAN LS6800:			
CHANNEL 1:	29 CPM	28.1 DPM	0.630 / H-3
CHANNEL 2:	35 CPM	20.1 DPM	0.968 / C-14
CHANNEL 3:	41 CPM	20.9 DPM	1.007 / P-32

ATTACHMENT 3

Key st Decommissioning Survey

Fixed Gamma Contamination Survey-Laboratory 19

Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 23 Jun 93

All Measurements are in uR/hr

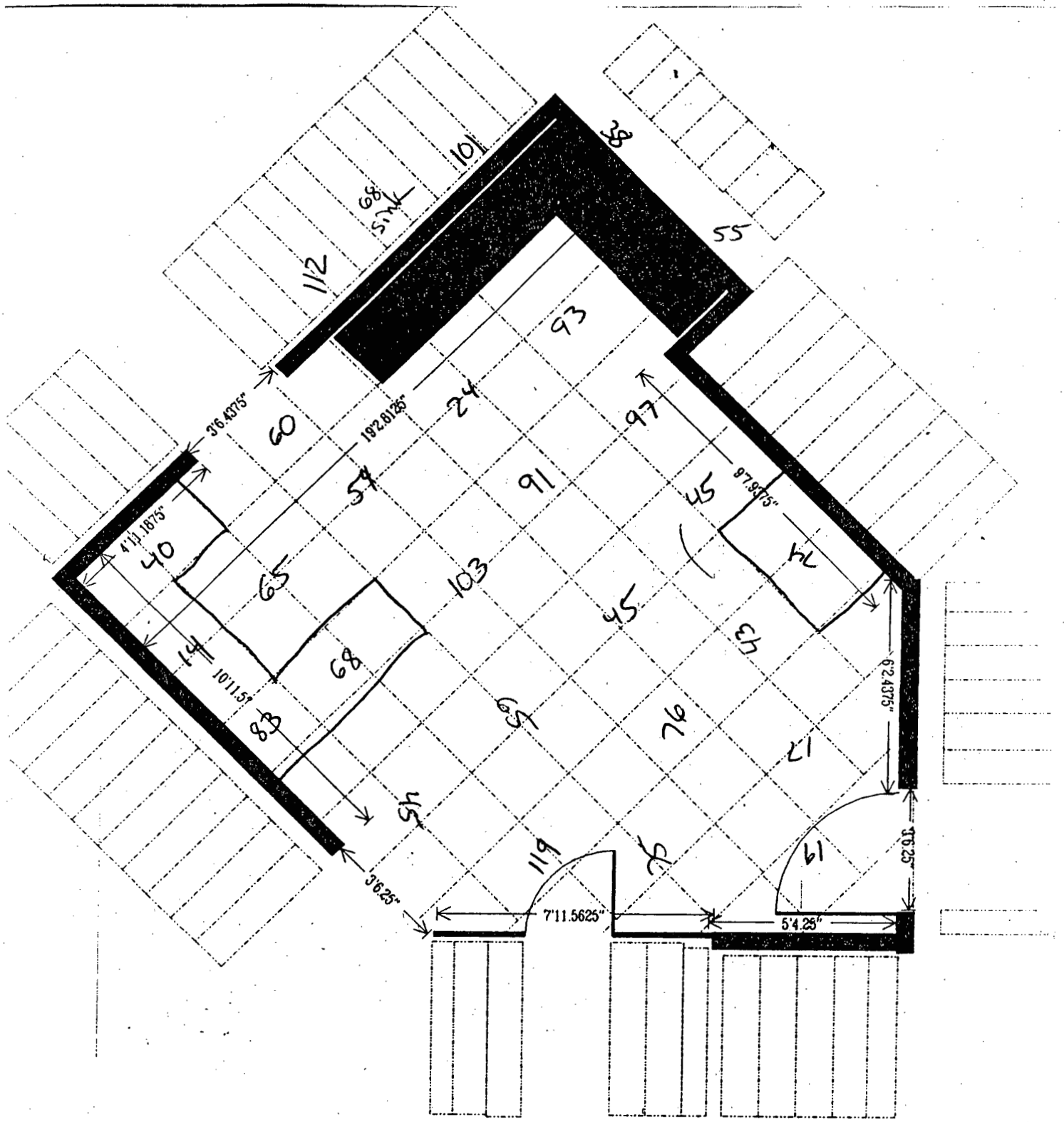
Reviewed by: Donald K Green on 10 Aug 93

Attachment 4

Key West Decommissioning Survey

Fixed Beta Contamination Survey-Laboratory 19

Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 23 Jul 93

All Measurements are Gross One Minute Counts

Reviewed by: Donald K Green on 10 Aug 93

Attachment 5

KEY WEST DECOMMISSIONING SURVEY

Laboratory - 20

REMOVABLE CONTAMINATION

Laboratory Number 20 was surveyed for removable contamination on 22 Jun 93 by SSG Webster. The walk-in refer adjoining it was surveyed on 25 Jul by SPC Brinley. A total of 76 swipes were taken. See Attachment 1 for the location of each swipe.

The swipes were analyzed for gamma contamination, utilizing the LKB Gammawell Counter on 22 Jun 93. See Attachment 2 for the MDAs and associated efficiencies for the 22 Jun survey. Laboratory analysis for the 25 Jul survey was conducted by the Technical Services Branch, HPO, rather than on-site. The Quality Assurance records for Technical Services is available for inspection at all times. No gamma contamination was found above 200 dpm for I-125 or above 2000 dpm for any other isotope.

The swipes were analyzed for beta contamination, utilizing the Beckman Liquid Scintillation Counter Model 6800 on 22 Jun 93. See Attachment 3 for the MDAs and associated efficiencies. Technical Services Branch also provided the analysis for the beta contamination for the 25 Jul survey. No beta contamination was found above 200 dpm for any isotope.

FIXED CONTAMINATION

A fixed gamma survey was conducted on 22 Jun 93 by SPC Brinley. The highest exposure rate found was 20.7 uR/hr. The average exposure rate was approximately 9.4 uR/hr. See Attachment 4 for the location of readings taken.

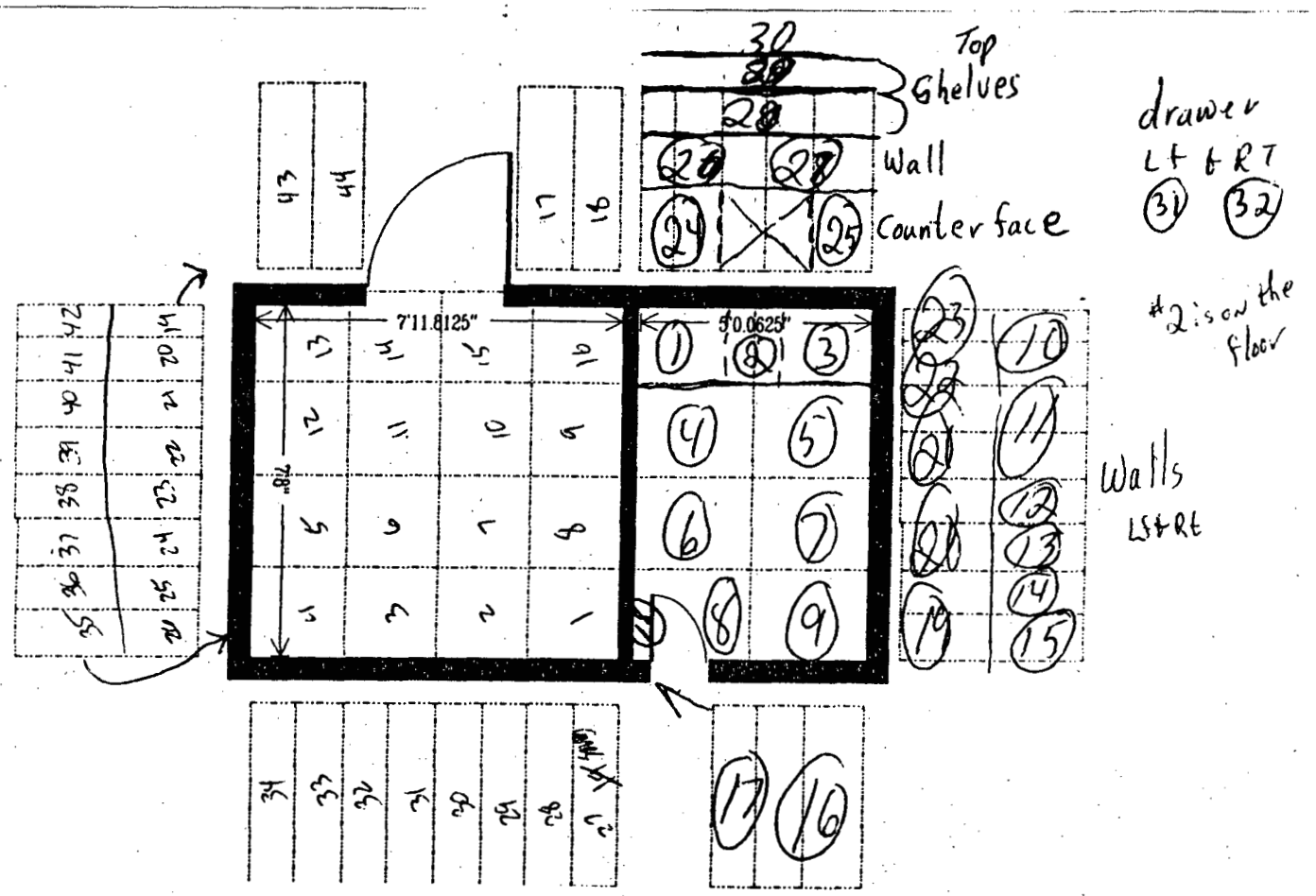
A fixed beta survey was conducted on 23 Jul 93 by SPC Brinley. The highest number of counts found during a one minute count-time was 64 cpm. The average number of counts found during a one minute count-time was 50 cpm. See Attachment 5 for the location of readings taken.

As well as being reviewed at the time of the survey/receipt of laboratory results, all pertinent survey data was reviewed and compiled here by SFC Green on 8 Aug 93.

Key st Decommissioning Survey

Removable Contamination Survey-Laboratory 20

Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 22 Jun 93

Lab analysis by (gamma): SSG Koelker on 22 Jun 93

(beta) : SSG Koelker on 22 Jun 93

Reviewed by: Donald K Green on 10 Aug 93

Attachment 1

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:06/22/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	50 CPM	31.6 DPM	0.735 / I-125
CHANNEL 2:	203 CPM	950.9 DPM	0.049 / CR-51
BECKMAN:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A

ATTACHMENT 2

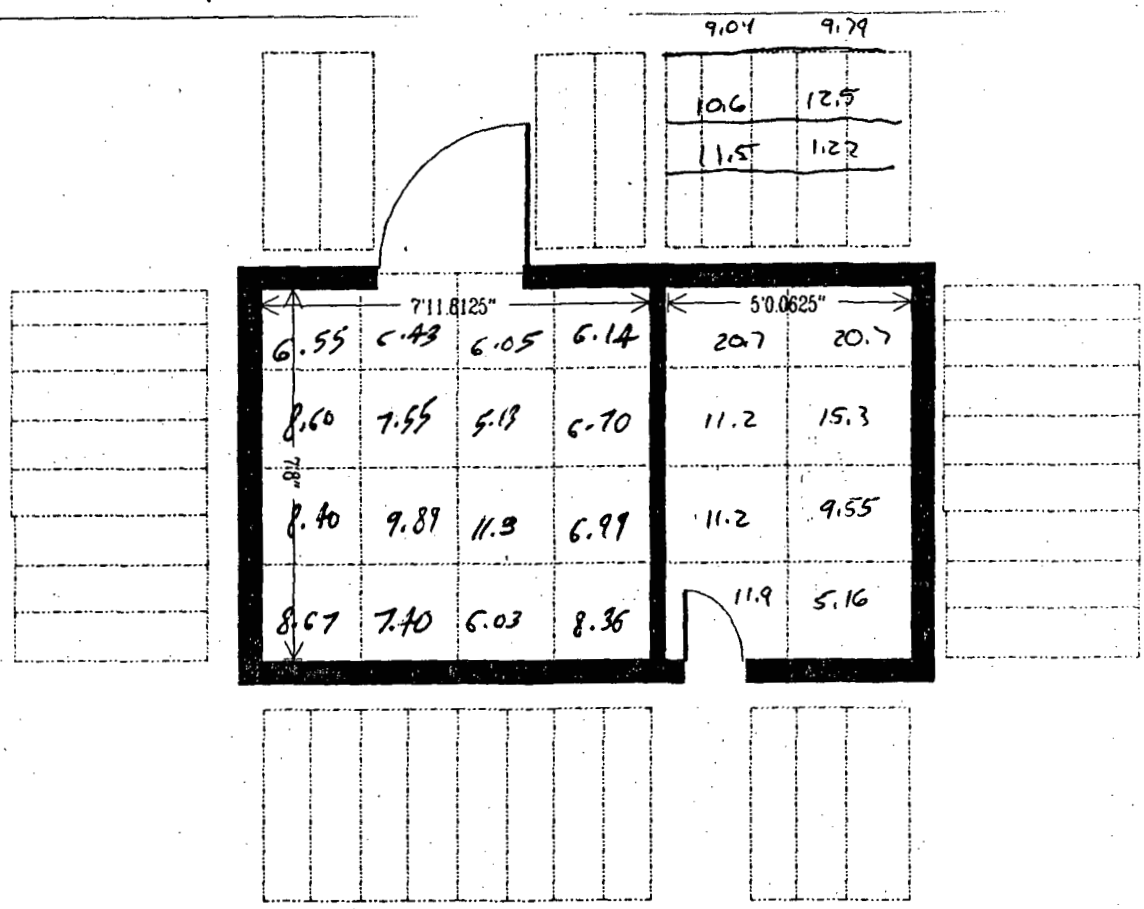
QUALITY ASSURANCE REPORT - BETA
FOR DATE:06/22/93

	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A
CHANNEL 3:	N/A	N/A	N/A
BECKMAN LS6800:			
CHANNEL 1:	29 CPM	28.1 DPM	0.630 / H-3
CHANNEL 2:	35 CPM	20.1 DPM	0.968 / C-14
CHANNEL 3:	41 CPM	20.9 DPM	1.007 / P-32

Ke_ Vest Decommissioning Survey

Fixed Gamma Contamination Survey-Laboratory 20

Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 22 Jun 93

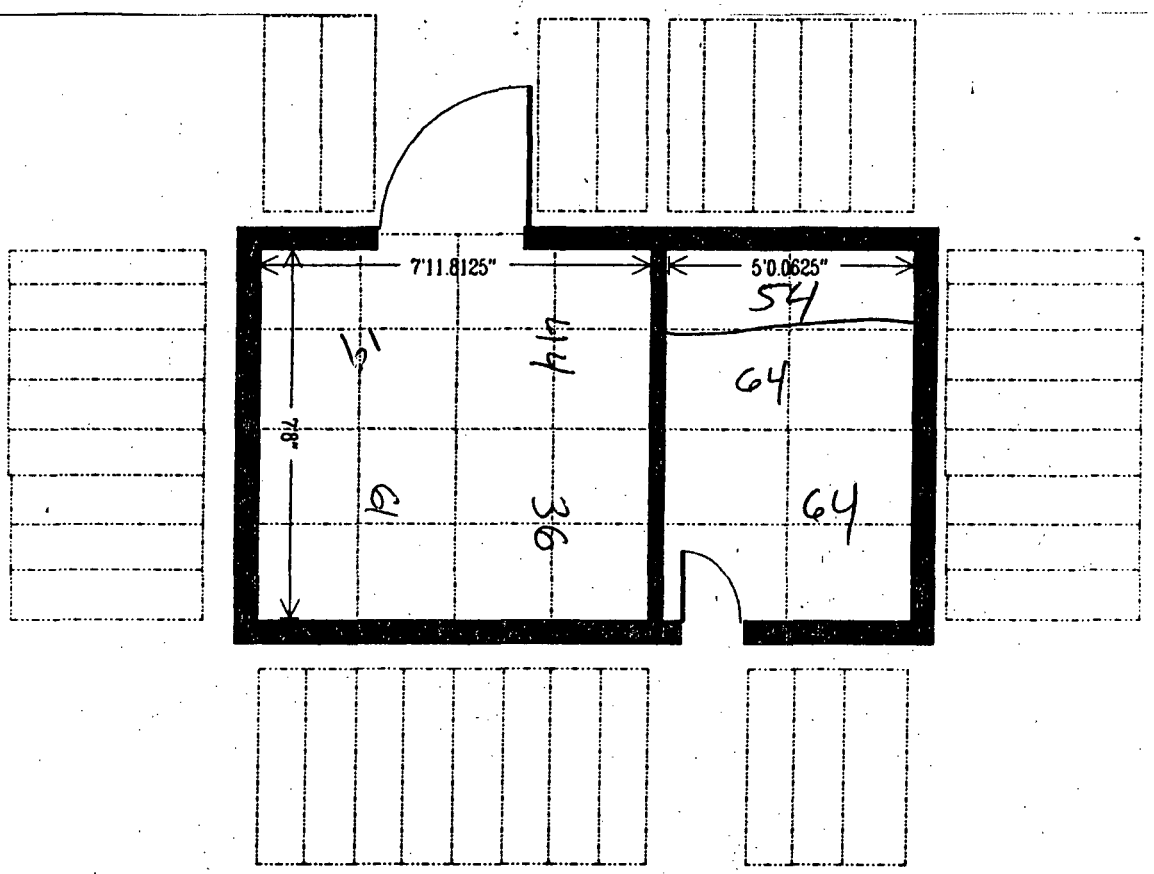
All Measurements are in uR/hr

Reviewed by: Donald K Olsen on 10 Aug 93

Attachment 4

Key ...est Decommissioning Survey

Fixed Beta Contamination Survey-Laboratory 20
Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 23 Jul 93
All Measurements are Gross Counts in One Minute
Reviewed by: Donald K Shaw on 10 Aug 93

Attachment 5

KEY WEST DECOMMISSIONING SURVEY

Laboratory - 21

REMOVABLE CONTAMINATION

Laboratory Number 21 was surveyed for removable contamination on 30 Jun 93 by SPC Brinley. A total of 105 swipes were taken. See Attachment 1 for the location of each swipe.

The swipes were analyzed for gamma contamination, utilizing the LKB Gammawell Counter on 30 Jun 93. See Attachment 2 for the MDAs and associated efficiencies. No gamma contamination was found above 200 dpm for I-125 or above 2000 dpm for any other isotope.

The swipes were analyzed for beta contamination, utilizing the Beckman Liquid Scintillation Counter Model 6800 on 30 Jun 93. See Attachment 3 for the MDAs and associated efficiencies. No beta contamination was found above 200 dpm for any isotope.

FIXED CONTAMINATION

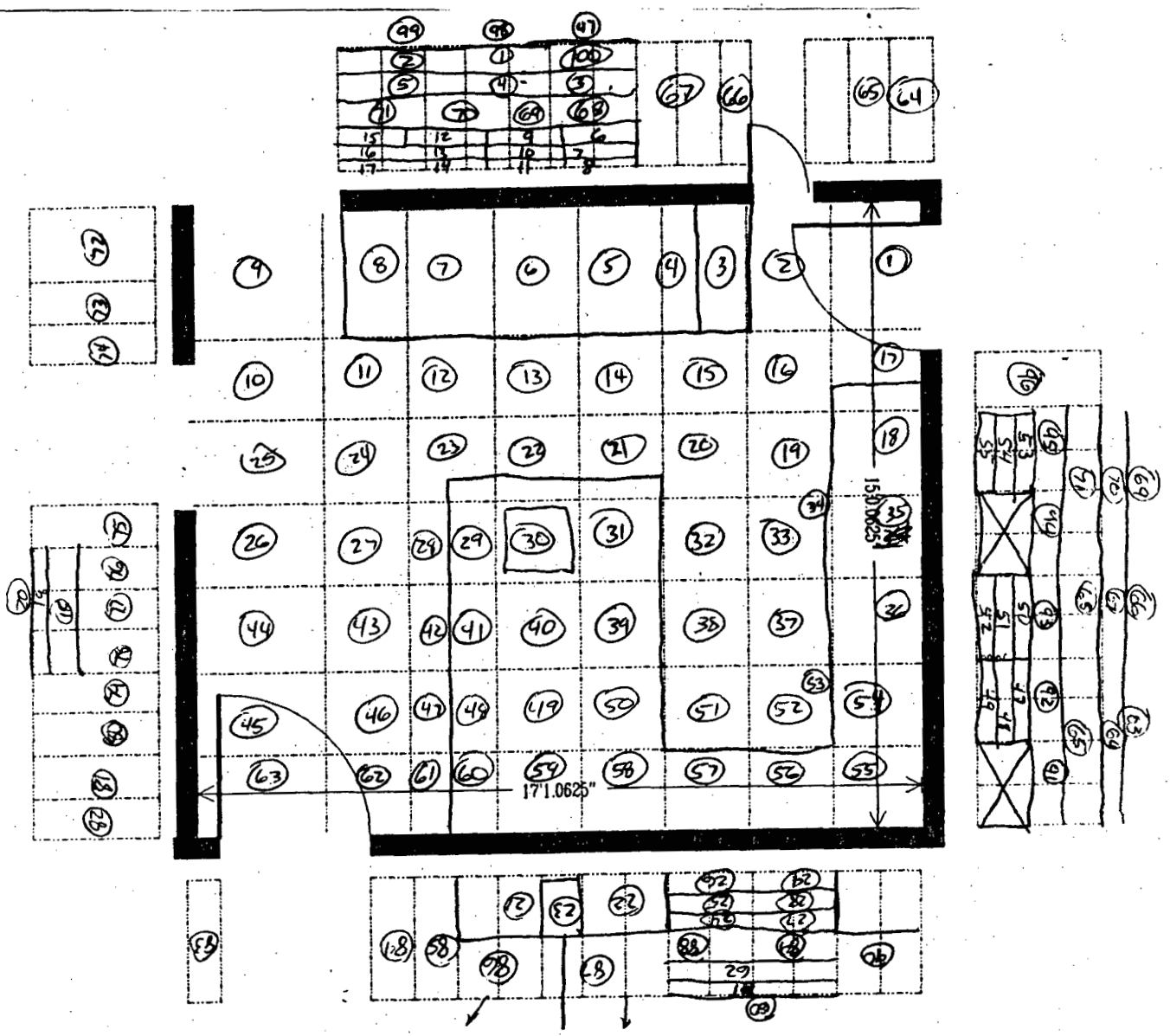
A fixed gamma survey was conducted on 30 Jun 93 by SPC Brinley. The highest exposure rate found was 22.2 uR/hr. The average exposure rate was approximately 9 uR/hr. See Attachment 4 for the location of readings taken.

A fixed beta survey was conducted on 23 Jul 93 by SPC Brinley. The highest number of counts found during a one minute count-time was 169 cpm. The average number of counts found during a one minute count-time was approximately 80 cpm. See Attachment 5 for the location of readings taken.

As well as being reviewed at the time of the survey/receipt of laboratory results, all pertinent survey data was reviewed and compiled here by SFC Green on 8 Aug 93.

Key West Decommissioning Survey

Removable Contamination Survey-Laboratory 21
Scale 1 inch = 4 feet

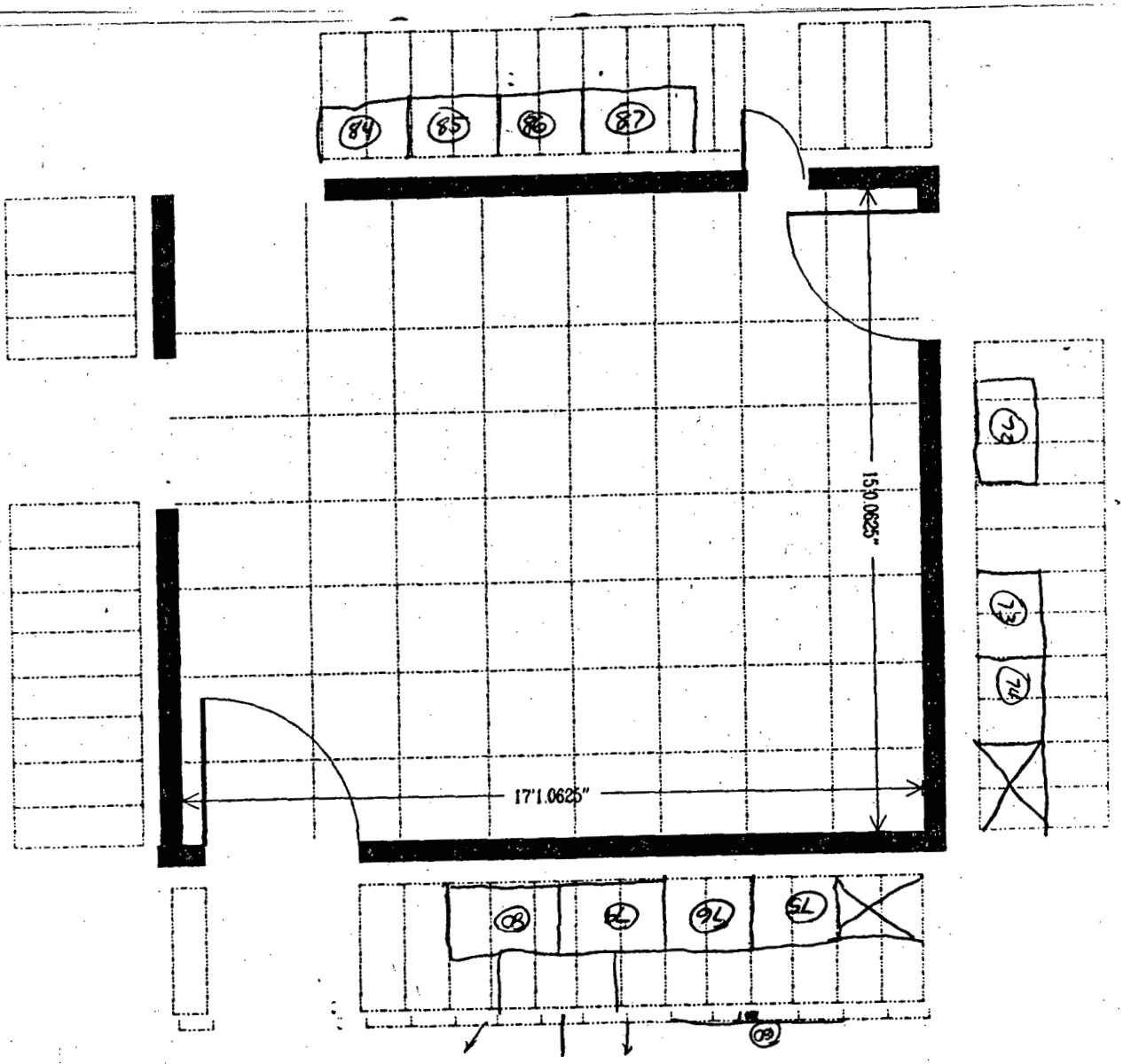


Conducted by: SPC Brinley on 30 Jun 93
Lab analysis by (gamma): SSG Koelker on 30 Jun 93
(beta) : SSG Koelker on 30 Jun 93
Reviewed by: Donald K Green on 10 Aug 93

Attachment 1

Key[illegible]st Decommissioning Survey

Removable Contamination Survey-Laboratory 21
Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 30 Jun 93
Lab analysis by (gamma): SSG Koelker on 30 Jun 93
(beta) : SSG Koelker on 30 Jun 93

Reviewed by: Donald K Shean on 10 Aug 93

Attachment 1

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:06/30/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	54 CPM	45.5 DPM	0.530 / I-125
CHANNEL 2:	204 CPM	948.4 DPM	0.050 / CR-51
BECKMAN:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A

ATTACHMENT 2

QUALITY ASSURANCE REPORT - BETA
FOR DATE:06/30/93

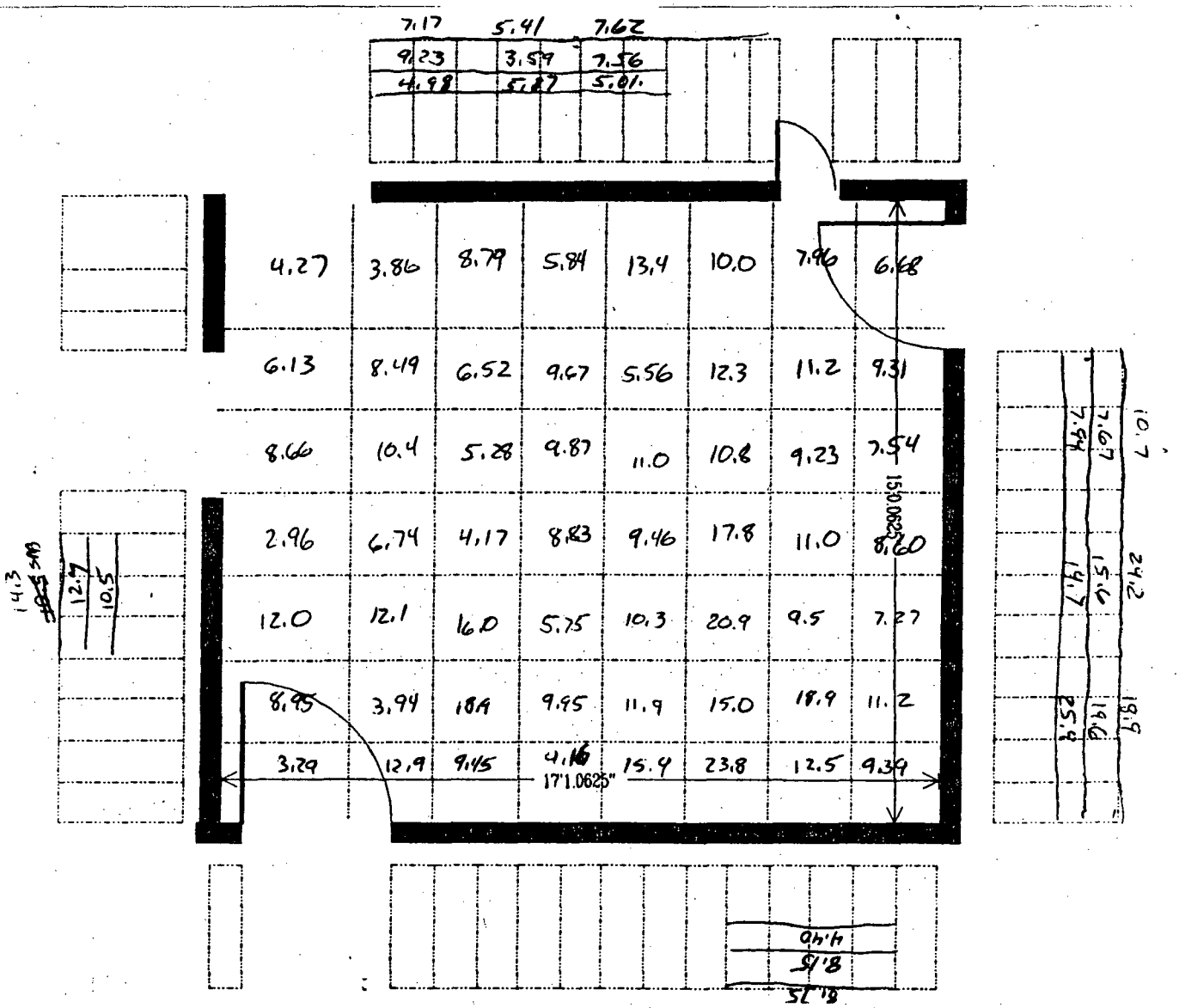
	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A
CHANNEL 3:	N/A	N/A	N/A
BECKMAN LS6800:			
CHANNEL 1:	17 CPM	23.4 DPM	0.579/H-3
CHANNEL 2:	30 CPM	19.0 DPM	0.947/C-14
CHANNEL 3:	40 CPM	20.7 DPM	1.007/P-32

ATTACHMENT 3

Key W[illegible]t Decommissioning Survey

Fixed Gamma Contamination Survey-Laboratory 21

Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 30 Jun 93

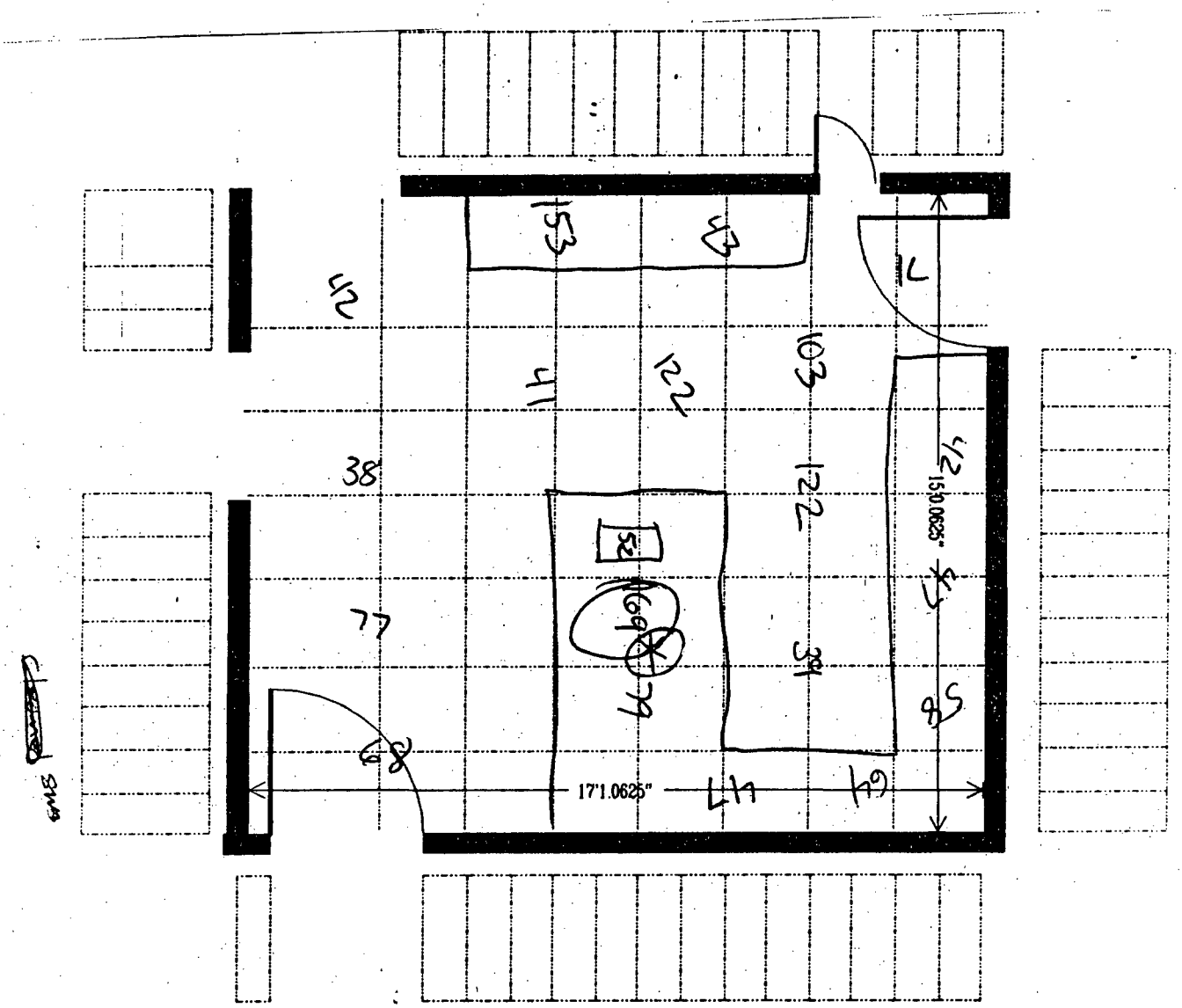
All Measurements are in uR/hr

Reviewed by: Donald K Green on 10 Aug 93

Attachment 4

Key ' st Decommissioning Survey

Fixed Beta Contamination Survey-Laboratory 21
Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 23 Jul 93
All Measurements are Gross One Minute Counts

Reviewed by: Donald K Green on 10 Aug 93

Attachment 5

KEY WEST DECOMMISSIONING SURVEY

Laboratory - 22

REMOVABLE CONTAMINATION

Laboratory Number 22 was surveyed for removable contamination on 9 Jul by SSG Koelker. A total of 149 swipes were taken. See Attachment 1 for the location of each swipe.

The swipes were analyzed for gamma contamination, utilizing the LKB Gammawell Counter on 12 Jul 93. See Attachment 2 for the MDAs and associated efficiencies. No gamma contamination was found above 200 dpm for I-125 or above 2000 dpm for any other isotope.

The swipes were analyzed for beta contamination, utilizing the Beckman Liquid Scintillation Counter Model 6800 on 12 Jul 93. See Attachment 3 for the MDAs and associated efficiencies. No beta contamination was found above 200 dpm for any isotope.

FIXED CONTAMINATION

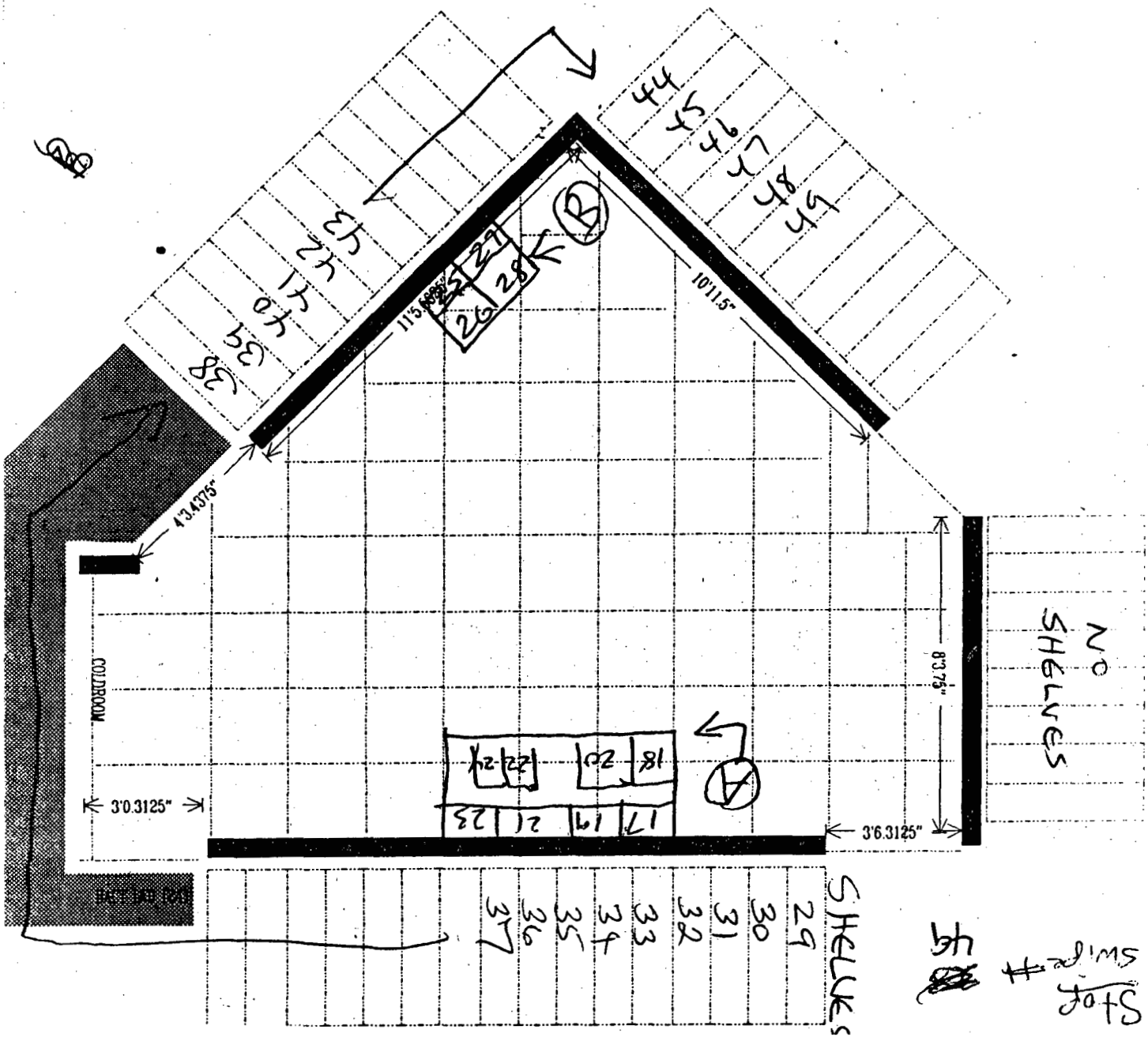
A fixed gamma survey was conducted on 9 Jul by SSG Koelker. The highest exposure rate found was 20.1 uR/hr. The average exposure rate was approximately 8 uR/hr. See Attachment 4 for the location of readings taken.

A fixed beta survey was conducted on 23 Jul 93 by SPC Brinley. The highest number of counts found during a one minute count-time was 87 cpm. The average number of counts found during a one minute count-time was approximately 50 cpm. See Attachment 5 for the location of readings taken.

As well as being reviewed at the time of the survey/receipt of laboratory results, all pertinent survey data was reviewed and compiled here by SFC Green on 8 Aug 93.

Key V t Decommissioning Survey

Removable Contamination Survey-Laboratory 22
Scale 1 inch = 4 feet



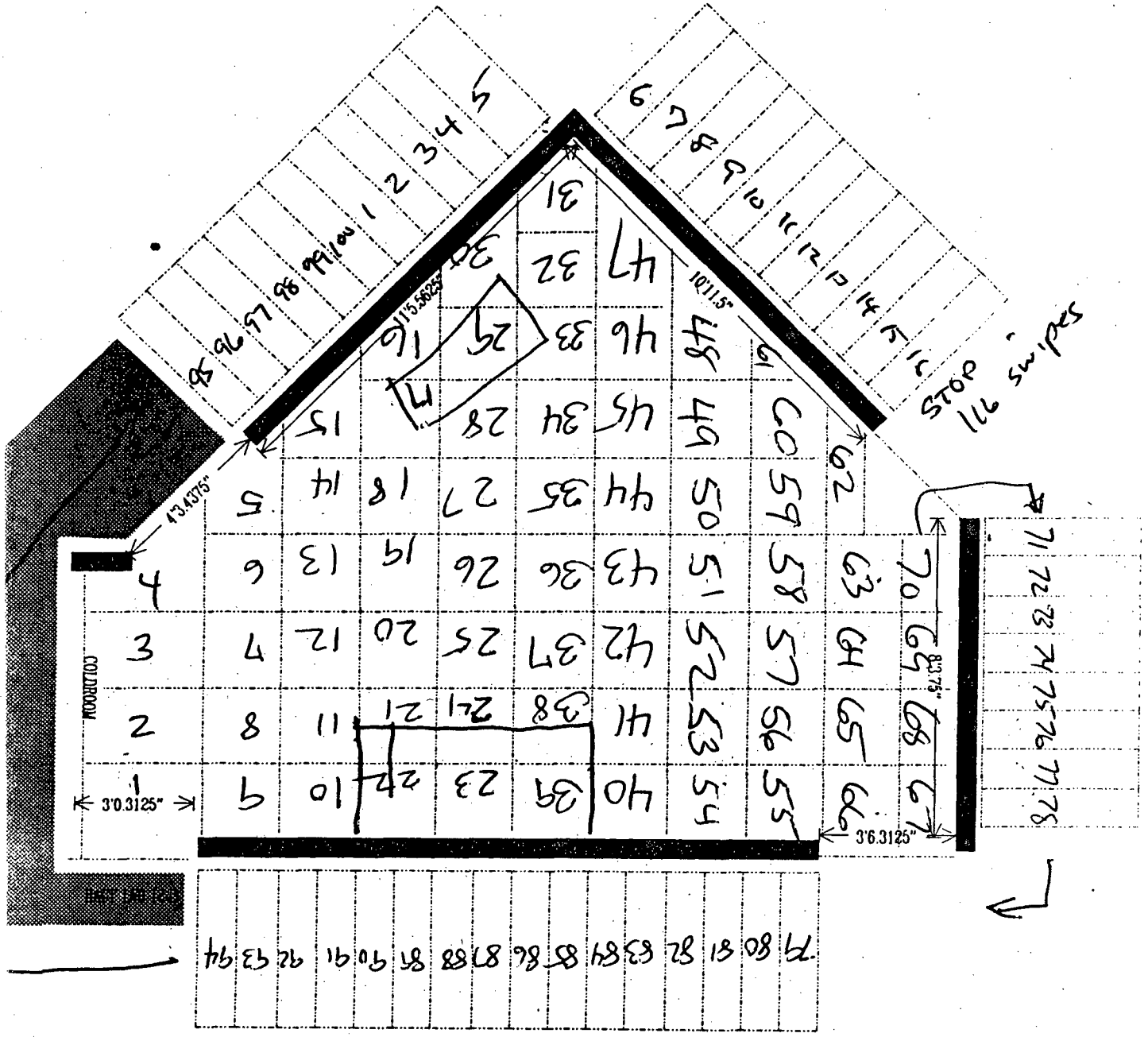
Conducted by: SSG Koelker on 09 Jul 93
Lab analysis by (gamma): SSG Koelker on 12 Jul 93
(beta) : SSG Koelker on 12 Jul 93

Reviewed by: Donald K Green on 10 Aug 93

Attachment 1

Key West Decommissioning Survey

Removable Contamination Survey-Laboratory 22
Scale 1 inch = 4 feet



Conducted by: SSG Koelker on 09 Jul 93
Lab analysis by (gamma): SSG Koelker on 12 Jul 93
(beta) : SSG Koelker on 12 Jul 93

Reviewed by: Donald K Green on 10 Aug 93

Attachment 1

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:07/12/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	52 CPM	30.9 DPM	0.767 / I-125
CHANNEL 2:	197 CPM	679.7 DPM	0.068 / CR-51
BECKMAN:			
CHANNEL 1:	48 CPM	25.0 DPM	0.912 / I-125
CHANNEL 2:	205 CPM	490.2 DPM	0.096 / CR-51

ATTACHMENT 2

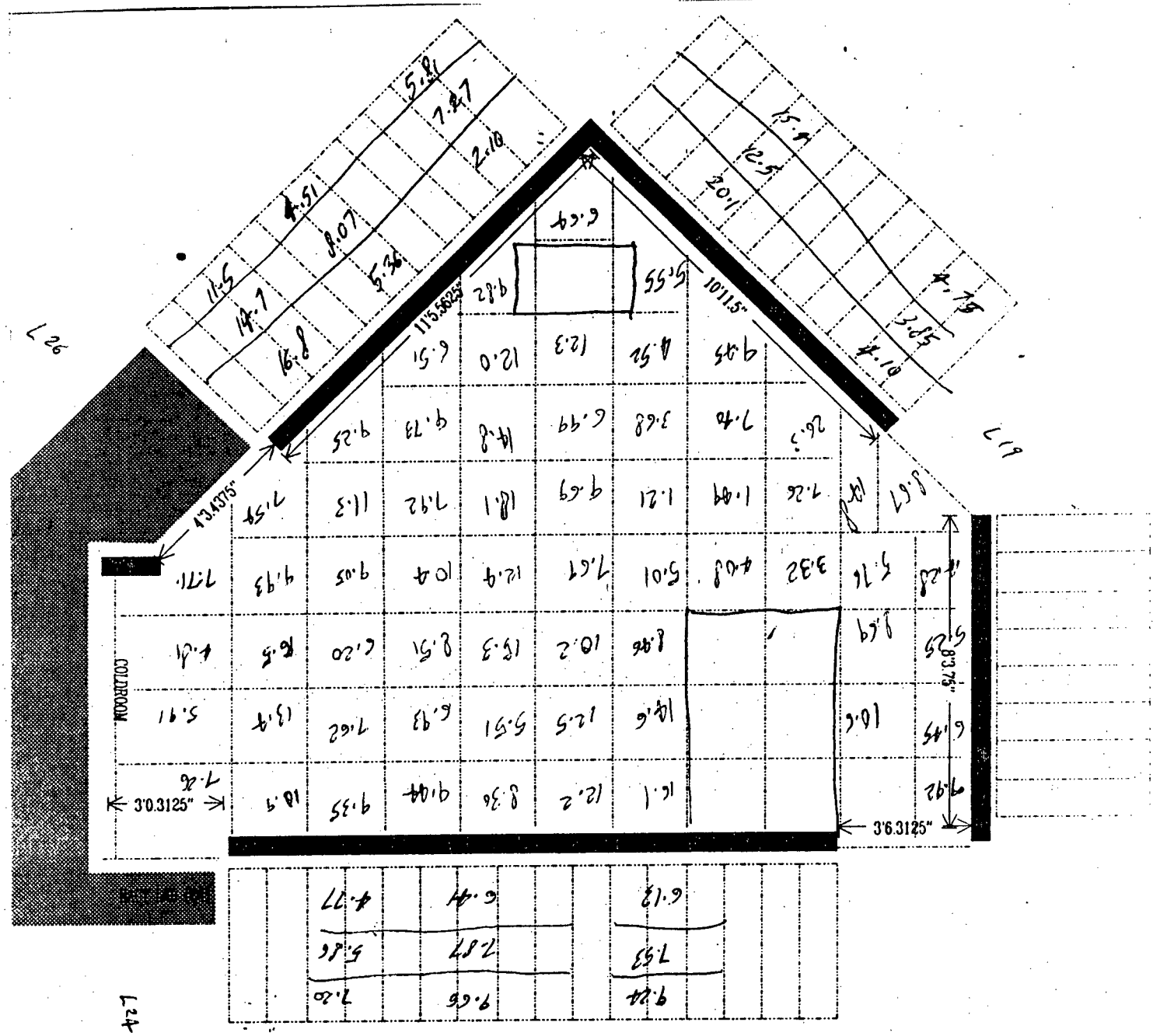
QUALITY ASSURANCE REPORT - BETA
FOR DATE: 07/12/93

	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A
CHANNEL 3:	N/A	N/A	N/A
BECKMAN LS6800:			
CHANNEL 1:	17 CPM	23.4 DPM	0.579/H-3
CHANNEL 2:	30 CPM	19.0 DPM	0.947/C-14
CHANNEL 3:	40 CPM	20.7 DPM	1.007/P-32

ATTACHMENT 3

Key l st Decommissioning Survey

Fixed Gamma Contamination Survey-Laboratory 22
Scale 1 inch = 4 feet



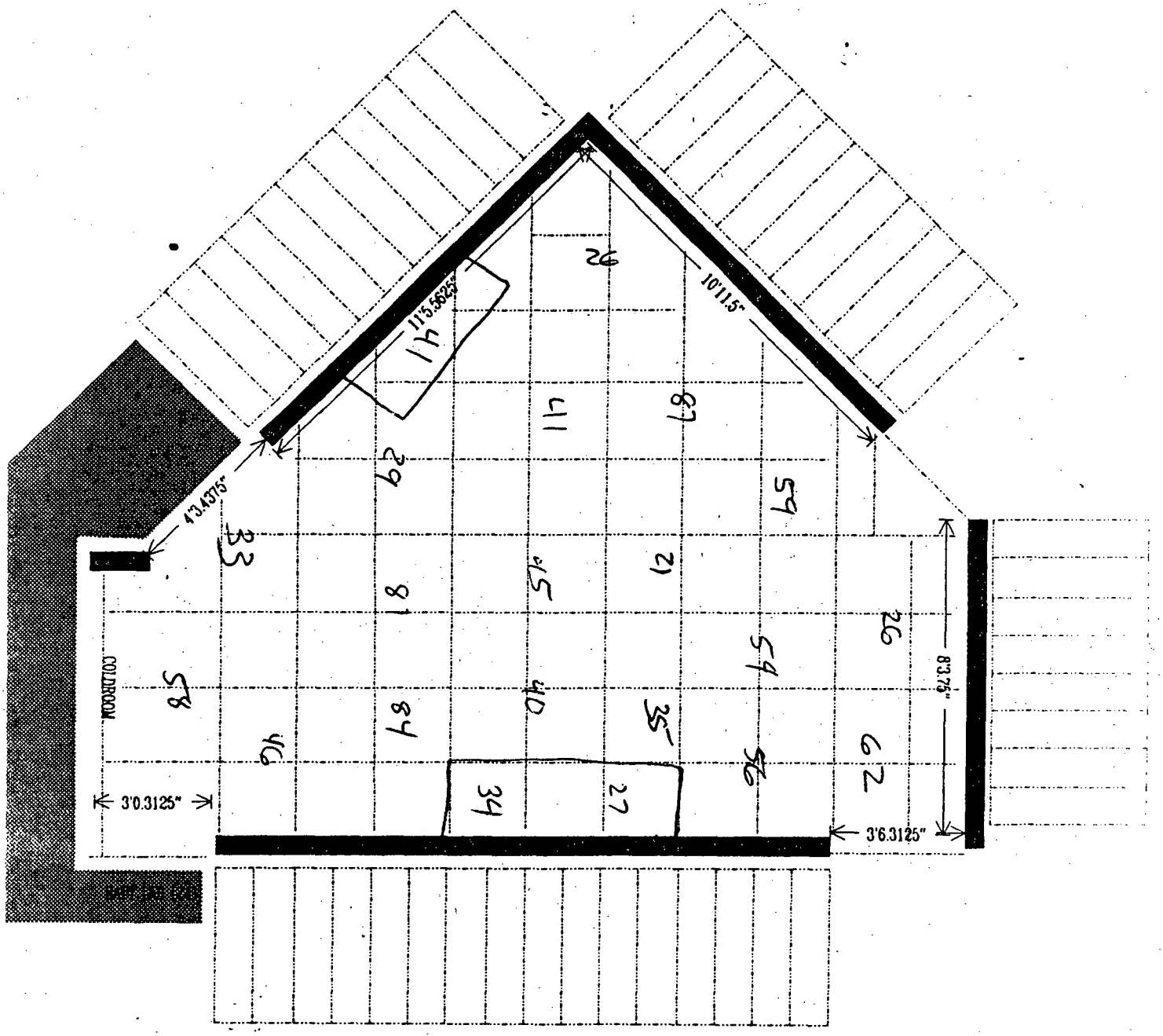
Conducted by: SSG Koelker on 09 Jul 93
All Measurements are in uR/hr

Reviewed by: Donald K Thomson 10 Aug 93

Attachment 4

Key V[illegible]t Decommissioning Survey

Fixed Beta Contamination Survey-Laboratory 22
Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 23 Jul 93
All Measurements are Gross One Minute Counts

Reviewed by: 10 Aug 93 Donald K Brown

Attachment 5

KEY WEST DECOMMISSIONING SURVEY

Laboratory - 23

REMOVABLE CONTAMINATION

Laboratory Number 23 was surveyed for removable contamination on 28 Jun by SPC Brinley. A total of 124 swipes were taken. See Attachment 1 for the location of each swipe.

The swipes were analyzed for gamma contamination, utilizing the LKB Gammawell Counter on 28 Jun 93. See Attachment 2 for the MDAs and associated efficiencies. No gamma contamination was found above 200 dpm for I-125 or above 2000 dpm for any other isotope.

The swipes were analyzed for beta contamination, utilizing the Beckman Liquid Scintillation Counter Model 5000 on 28 Jun 93. See Attachment 3 for the MDAs and associated efficiencies. Initial analysis indicated that 6 of the swipes were contaminated. These samples were re-counted and indicated no contamination. It was later discovered that the rubber seal on the sample elevator of the LSC had come off, and that the initial erroneous counts were due to the resulting light leak. No beta contamination was found above 200 dpm for any isotope.

FIXED CONTAMINATION

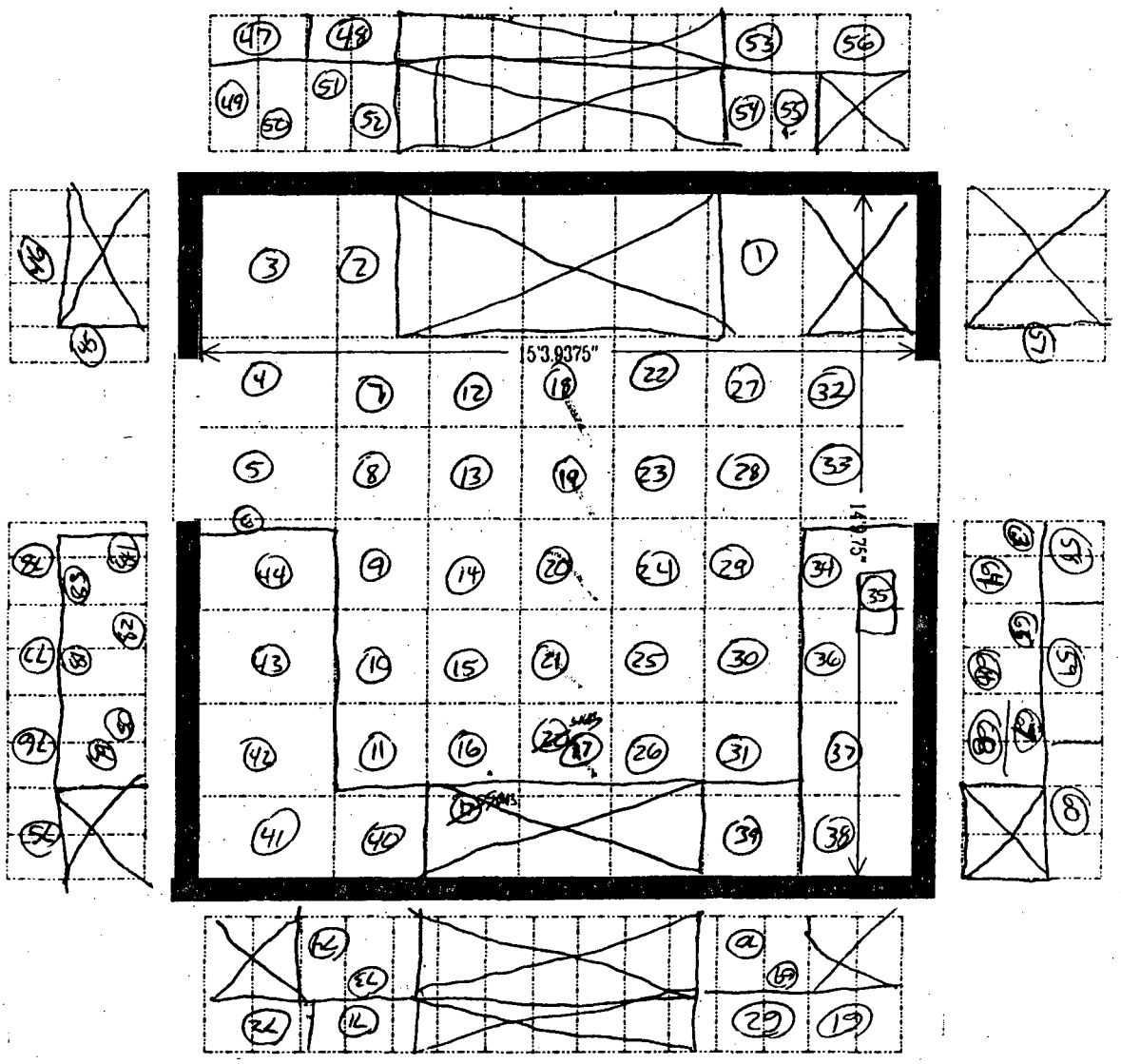
A fixed gamma survey was conducted on 28 Jun by SPC Brinley. The highest exposure rate found was 17.0 uR/hr. The average exposure rate was approximately 9 uR/hr. See Attachment 4 for the location of readings taken.

A fixed beta survey was conducted on 23 Jul 93 by SPC Brinley. The highest number of counts found during a one minute count-time was 86 cpm. The average number of counts found during a one minute count-time was approximately 50 cpm. See Attachment 5 for the location of readings taken.

As well as being reviewed at the time of the survey/receipt of laboratory results, all pertinent survey data was reviewed and compiled here by SFC Green on 8 Aug 93.

Key West Decommissioning Survey

Removable Contamination Survey-Laboratory 23
Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 28 Jun 93
Lab analysis by (gamma): SSG Koelker on 28 Jun 93
(beta) : SSG Koelker on 28 Jun 93

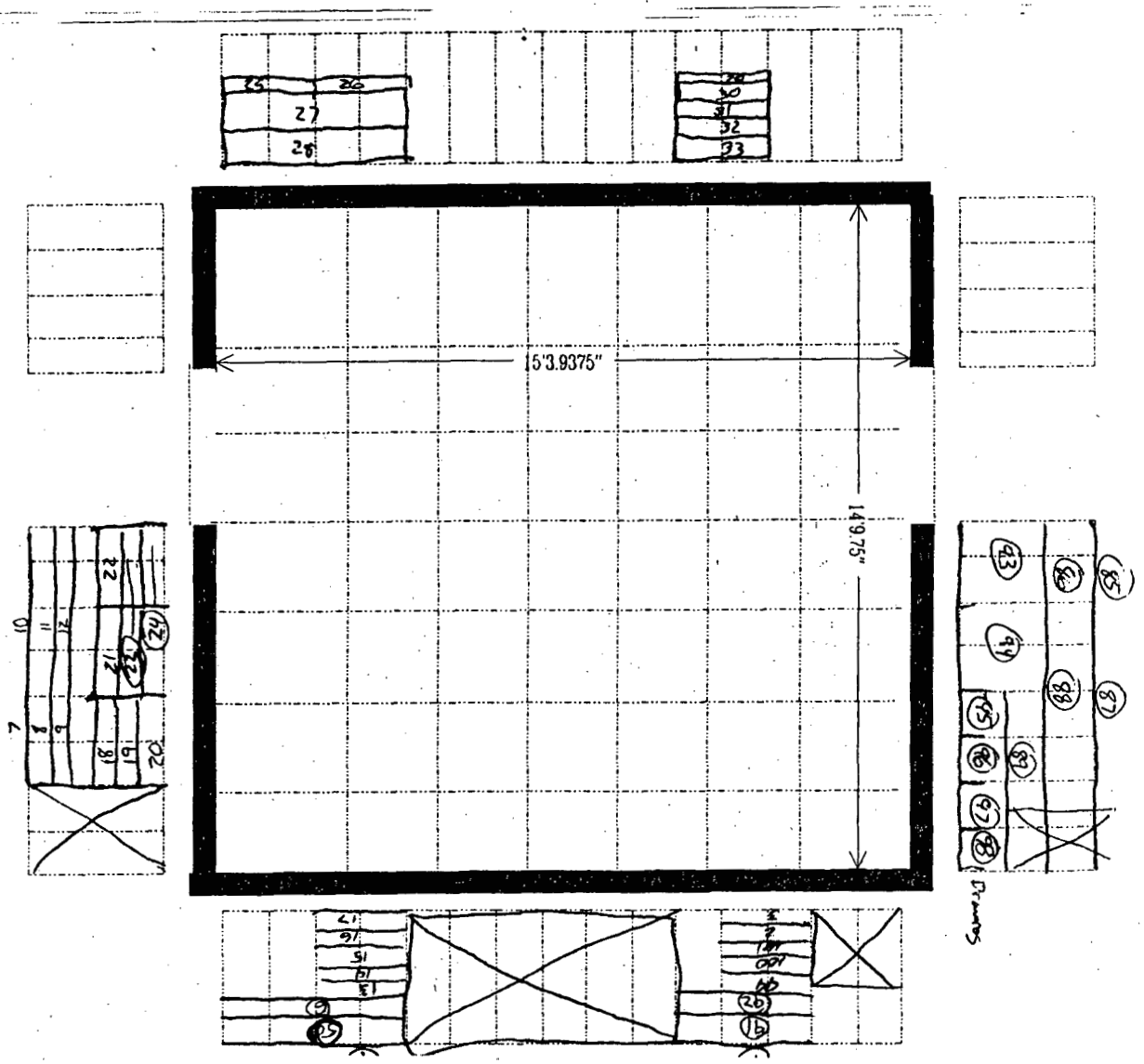
Reviewed by: Donald K Green on 10 Aug 93

Attachment 1

Key West Decommissioning Survey

Removable Contamination Survey-Laboratory 23

Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 28 Jun 93

Lab analysis by (gamma): SSG Koelker on 28 Jun 93

(beta) : SSG Koelker on 28 Jun 93

Reviewed by: Donald K Keen on 10 Aug 93

Attachment 1

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:06/28/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	45 CPM	30.1 DPM	0.733 / I-125
CHANNEL 2:	194 CPM	669.3 DPM	0.068 / CR-51
BECKMAN:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A

ATTACHMENT 2

QUALITY ASSURANCE REPORT - BETA
FOR DATE: 06/28/93

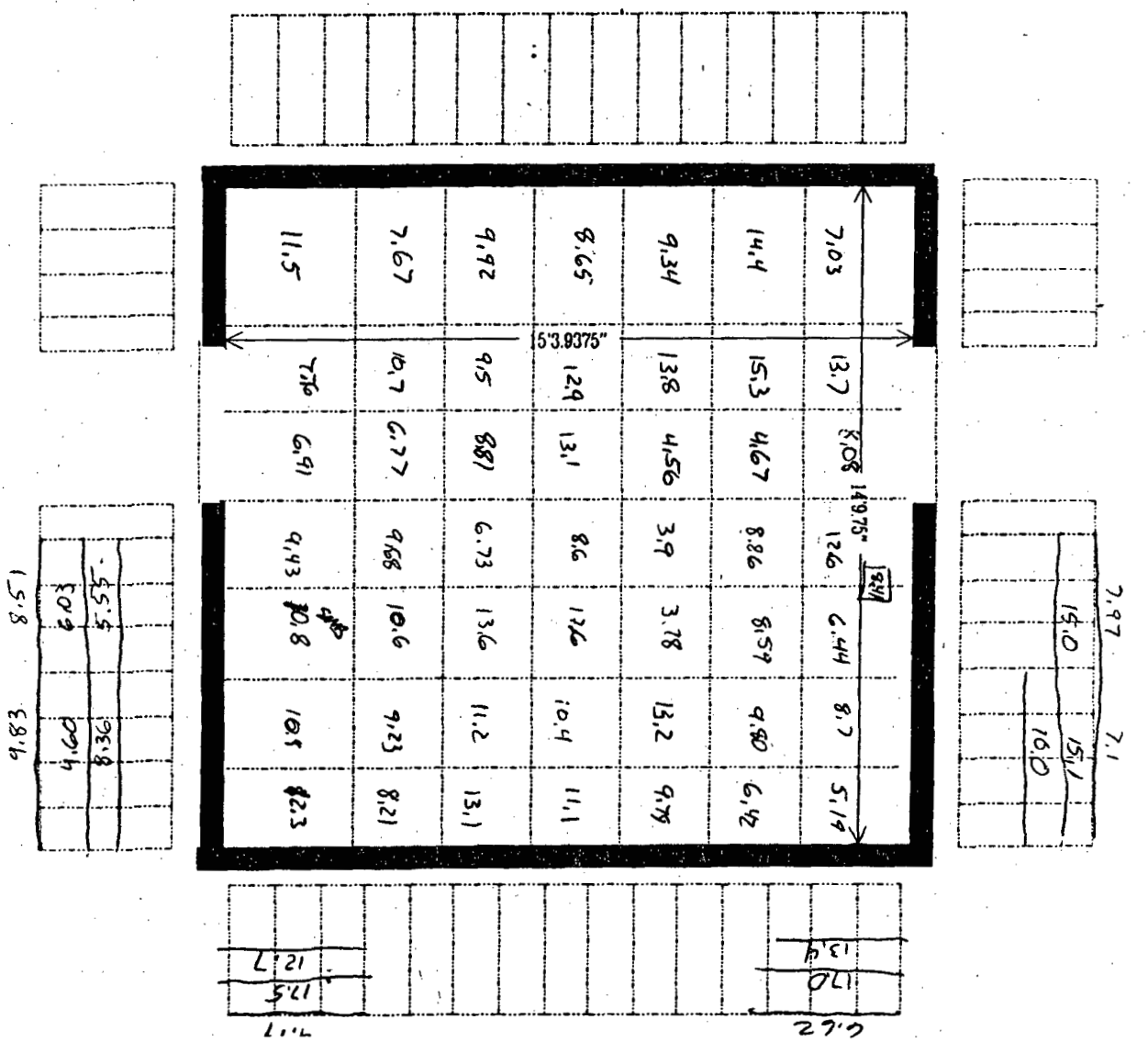
	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	32 CPM	29.4 DPM	0.633 / H-3
CHANNEL 2:	28 CPM	18.0 DPM	0.965 / C-14
CHANNEL 3:	26 CPM	N/A	N/A
BECKMAN LS6800:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A
CHANNEL 3:	N/A	N/A	N/A

ATTACHMENT 3

Key [illegible]st Decommissioning Survey

Fixed Gamma Contamination Survey-Laboratory 23

Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 28 Jun 93

All Measurements are in uR/hr

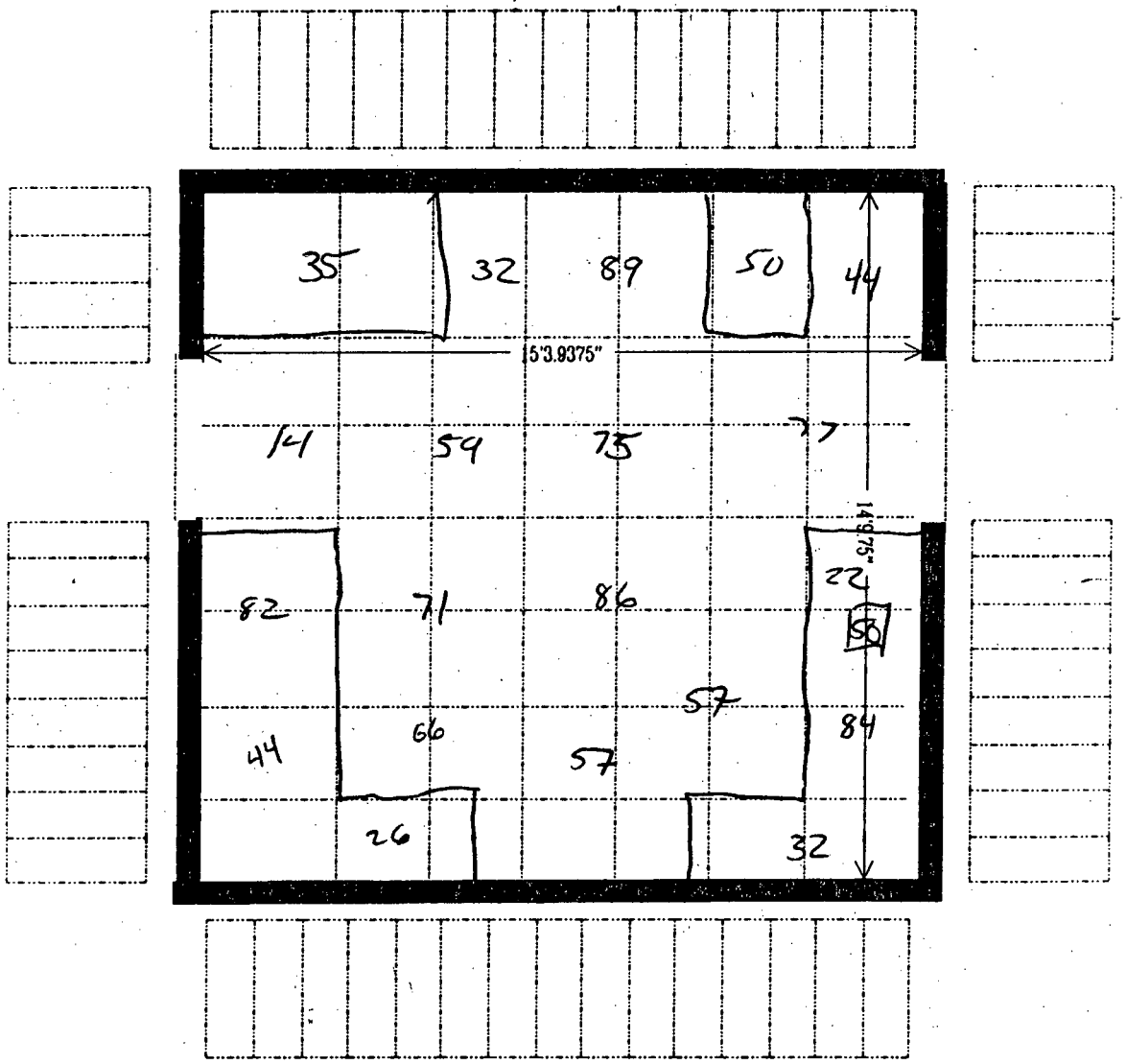
Reviewed by: Donald K Green on 10 Aug 93

Attachment 4

Key [illegible]st Decommissioning Survey

Fixed Beta Contamination Survey-Laboratory 23

Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 23 Jul 93

All Measurements are Gross One Minute Counts

Reviewed by: Donald K Green on 10 Aug 93

Attachment 5

KEY WEST DECOMMISSIONING SURVEY

Laboratory - 24

REMOVABLE CONTAMINATION

Laboratory Number 24 was surveyed for removable contamination on 24 Jun by SPC Brinley. A total of 195 swipes were taken. See Attachment 1 for the location of each swipe.

The swipes were analyzed for gamma contamination, utilizing the LKB Gammawell Counter on 24 Jun 93. See Attachment 2 for the MDAs and associated efficiencies. No gamma contamination was found above 200 dpm for I-125 or above 2000 dpm for any other isotope.

The swipes were analyzed for beta contamination, utilizing the Beckman Liquid Scintillation Counter Model 5000 on 24 Jun 93. See Attachment 3 for the MDAs and associated efficiencies. No beta contamination was found above 200 dpm for any isotope.

FIXED CONTAMINATION

A fixed gamma survey was conducted on 24 Jun by SPC Brinley. The highest exposure rate found was 21.3 uR/hr. The average exposure rate was approximately 12 uR/hr. See Attachment 4 for the location of readings taken.

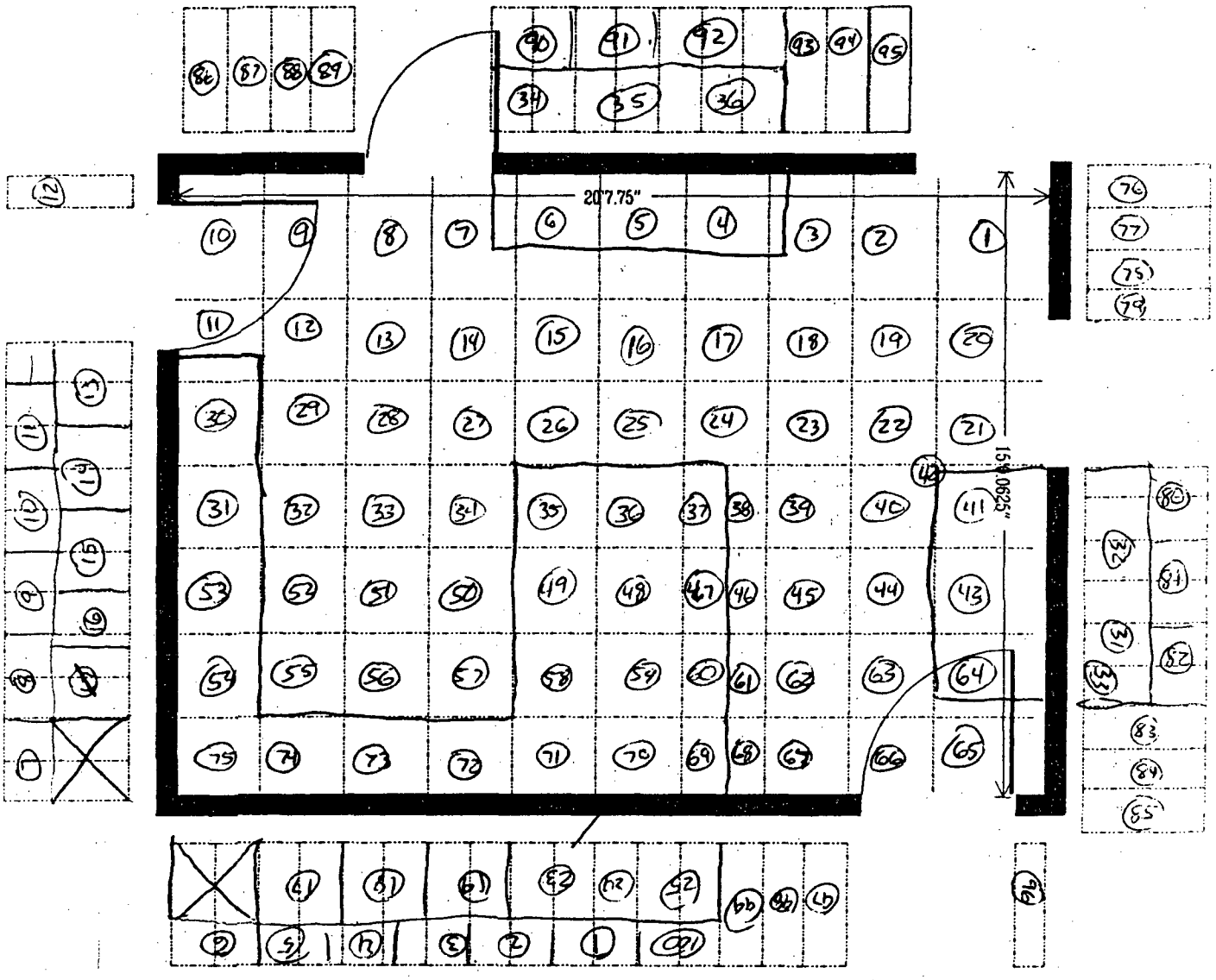
A fixed beta survey was conducted on 23 Jul 93 by SPC Brinley. The highest number of counts found during a one minute count-time was 152 cpm. The average number of counts found during a one minute count-time was approximately 60 cpm. See Attachment 5 for the location of readings taken.

As well as being reviewed at the time of the survey/receipt of laboratory results, all pertinent survey data was reviewed and compiled here by SFC Green on 8 Aug 93.

Key W t Decommissioning Survey

Removable Contamination Survey-Laboratory 24

Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 24 Jun 93

Lab analysis by (gamma): SSG Koelker on 24 Jun 93

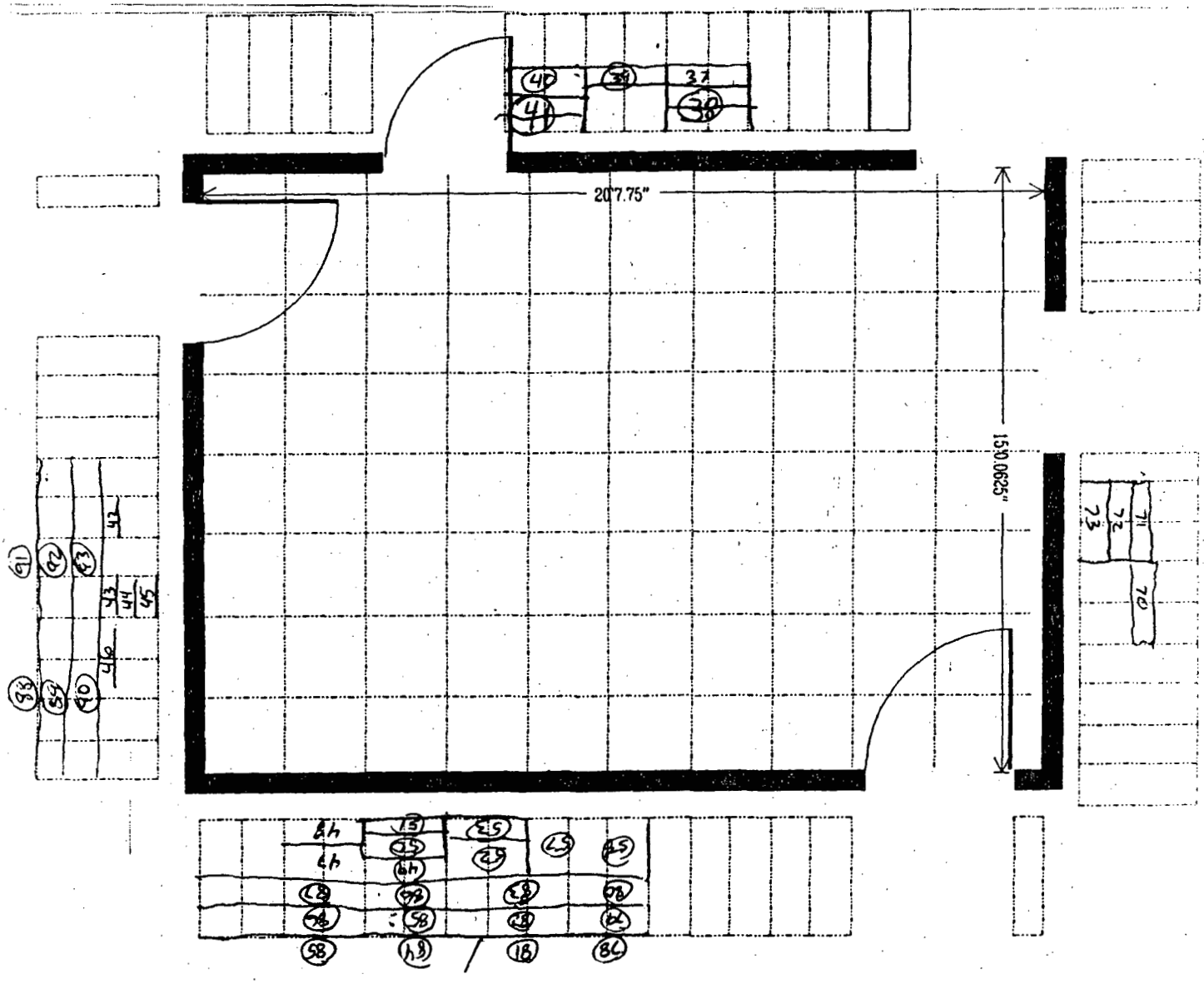
(beta) : SSG Koelker on 24 Jun 93

Reviewed by: Donald K Green on 10 Aug 93

Attachment 1

Key W[illegible]st Decommissioning Survey

Removable Contamination Survey-Laboratory 24
Scale 1 inch = 4 feet



Conducted by: SPC Brinley on 24 Jun 93
Lab analysis by (gamma): SSG Koelker on 24 Jun 93
(beta) : SSG Koelker on 24 Jun 93

Reviewed by: Donald K Green on 10 Aug 93

Attachment 1

QUALITY ASSURANCE REPORT - GAMMA
FOR DATE:06/24/93

	BKG	MDA	EFF / ISO
LKB:			
CHANNEL 1:	45 CPM	30.1 DPM	0.733 / I-125
CHANNEL 2:	194 CPM	669.3 DPM	0.068 / CR-51
BECKMAN:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A

ATTACHMENT 2

QUALITY ASSURANCE REPORT - BETA
FOR DATE:06/24/93

	BKG	MDA	EFF / ISO
BECKMAN L5000TD:			
CHANNEL 1:	21.0 CPM	23.8 DPM	0.627 / H-3
CHANNEL 2:	27.0 CPM	17.7 DPM	0.964 / C-14
CHANNEL 3:	36.0 CPM	N/A	N/A
BECKMAN LS6800:			
CHANNEL 1:	N/A	N/A	N/A
CHANNEL 2:	N/A	N/A	N/A
CHANNEL 3:	N/A	N/A	N/A

ATTACHMENT 3

NRC FORM 374
(10-89)

U.S. NUCLEAR REGULATORY COMMISSION

MATERIALS LICENSE

Amendment No. 65

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 February 28, 1994,

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

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License number: 08-01738-02
Docket or Reference number: 030-01317
Amendment No. 65

(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 and Gillette Building, 270 Research Center, 1413 Research Boulevard, Rockville, Maryland.

11. Radiation Safety Officer: CPT Mark A. Melanson, CHP.

Ex 2

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License number
08-01738-02
Docket or Reference number
030-01317

Amendment No. 65

(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. 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.

15. 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).

16. The licensee may transport licensed material in accordance with the provisions of 10 CFR 71, "Packaging and Transportation of Radioactive Material."

17. 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.

18. 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.

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.

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License number 08-01738-02

Docket or Reference number 030-01317

Amendment No. 65

(Continued) CONDITIONS

19. 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
R. Letter dated June 14, 1993

Date APR 15 1994

For the U.S. Nuclear Regulatory Commission
Original Signed By:
By Thomas K. Thompson
Nuclear Materials Safety Branch
Region I
King of Prussia, Pennsylvania 19406

APR 15 1994

License No. 08-01738-02
Docket No. 030-01317
Control No. 119389

Department of the Army
ATTN: Peter H. Myers, Lt. Colonel
HQDA (DASG-PSP)
5109 Leesburg Pike
Falls Church, Virgina 22041-3258

Dear Lt. Colonel:

Please review the enclosed document carefully and be sure that you understand all conditions. If there are any errors or questions, please notify the U.S. Nuclear Regulatory Commission, Region I office, the Licensing Assistance Section, (610) 337-5093 or 5239, so that we can provide appropriate corrections and answers.

Please be advised that your license expires at the end of the day, in the month, and year stated in the license. Until your license is terminated, you must conduct your program involving byproduct materials in accordance with the conditions of your NRC license, representations made in your license application, and NRC regulations. In particular, note that you must:

1. Operate in accordance with NRC regulations 10 CFR Part 19, "Notices, Instructions and Reports to Workers; Inspections," 10 CFR Part 20, "Standards for Protection Against Radiation," and other applicable regulations.

2. Notify NRC, in writing, within 30 days:

   a. when the licensee's mailing address changes (no fee is required if the location of byproduct material remains the same).

3. In accordance with 10 CFR 30.36(b) and/or license condition, notify NRC, promptly, in writing, and request termination of the license:

   a. when you decide to terminate all activities involving materials authorized under the license; or

b. if you decide not to complete the facility, acquire equipment, or possess and use authorized material.

4. Request and obtain a license amendment before you:

a. change Radiation Safety Officers;

b. order byproduct material in excess of the amount, or radionuclide, or form different than authorized on the license;

c. add or change the areas of use, or address or addresses of use identified in the license application or on the license; or

d. change ownership of your organization.

5. Submit a complete renewal application with proper fee or termination request at least 30 days before the expiration date of your license. You will receive a reminder notice approximately 90 days before the expiration date. Possession of byproduct material after your license expires is a violation of NRC regulations. A license will not normally be renewed, except on a case-by-case basis, in instances where licensed material has never been possessed or used.

In addition, please note that NRC Form 313 requires the applicant, by his/her signature, to verify that the applicant understands that all statements contained in the application are true and correct to the best of the applicant's knowledge. The signatory for the application should be the licensee or certifying official rather than a consultant.

You will be periodically inspected by the NRC. Failure to conduct your program in accordance with NRC regulations, license conditions, and representations made in your license application and supplemental correspondence with NRC will result in enforcement action against you. This could include issuance of a notice of violation, or 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.

Since serious consequences to employees and the public can result from failure to comply with NRC requirements, prompt and vigorous enforcement action will be taken when dealing with licensees who do not achieve the necessary meticulous attention to detail and the high standard of compliance which NRC expects of its licensees.

Thank you for your cooperation.

Sincerely,

Original signed By:
Thomas K. Thompson

Thomas K. Thompson
Senior Health Physicist
Nuclear Materials Safety Branch
Division of Radiation Safety
and Safeguards

Enclosures:
1. Amendment No. 65
2. Requirements for Materials Licensees

TKT
DRSS:RI
Thompson/srb

4/11 /94

OFFICIAL RECORD COPY - G:\WPS\MLTR\L0801738.02 - 04/07/94

DEPARTMENT OF THE ARMY
OFFICE OF THE SURGEON GENERAL
5109 LEESBURG PIKE
FALLS CHURCH, VA 22041-3258

REPLY TO
ATTENTION OF

February 28, 1994

030-01317

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, by appointing Captain Mark A. Melanson as Radiation Safety Officer.

Recommend approval.

Sincerely,

Peter H. Myers
Colonel, U.S. Army
Radiological Hygiene Consultant

Enclosure

CF: HQ, USAEHA, ATTN: HSHB-MR-H, APG, MD 21010-5422
HQ, USWRAMC, ATTN: HSHL-HP, Wash, DC 20307-5001

FEE EXEMPT

119389

ML 10 MAR 7 1994

OFFICIAL RECORD COPY

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

REPLY TO
ATTENTION OF:

HSHL-HP (385-11m) 17 February 1994

MEMORANDUM FOR U.S. Nuclear Regulatory Commission, Region I, Nuclear Material Safety Section A, 475 Allendale Road, King of Prussia, PA 19406

SUBJECT: Amendment of U.S. 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 Arthur G. Samiljan to CPT Mark A. Melanson, CHP. CPT Melanson has been assigned as the Chief, Health Physics Office at Walter Reed AMC since February 1994. Before that he was the Chief, Operations Branch of the Health Physics Office and alternate RSO at WRAMC since June 1991. A Training and Experience Form and a Curriculum Vitae for CPT Melanson are attached (Enclosures 1 and 2).

2. If any additional information is required please contact Mr. David Burton or CPT Melanson at (301) 427-5161.

FOR THE COMMANDER:

Earl S. Newsome

2 Encls

EARL S. NEWSOME III
LTC, MS
Executive Officer

CF:
CDR, HSC ATTN: HSCL-P
HQDA (SGPS-PSP-E)

030-01317

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

REPLY TO
ATTENTION OF:

HSHL-HP (385-11m)

17 February 1994

MS-16
K-8

MEMORANDUM FOR U.S. Nuclear Regulatory Commission, Region I, Nuclear Material Safety Section A, 475 Allendale Road, King of Prussia, PA 19406

SUBJECT: Amendment of U.S. 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 Arthur G. Samiljan to CPT Mark A. Melanson, CHP. CPT Melanson has been assigned as the Chief, Health Physics Office at Walter Reed AMC since February 1994. Before that he was the Chief, Operations Branch of the Health Physics Office and alternate RSO at WRAMC since June 1991. A Training and Experience Form and a Curriculum Vitae for CPT Melanson are attached (Enclosures 1 and 2).

2. If any additional information is required please contact Mr. David Burton or CPT Melanson at (301) 427-5161.

FOR THE COMMANDER:

Earl S. Newsome

2 Encls

EARL S. NEWSOME III
LTC, MS
Executive Officer

CF:
CDR, HSC ATTN: HSCL-P
HQDA (SGPS-PSP-E)

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Deficiency response 112749
FEB 24 1994

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CURRICULUM VITAE OF
MARK ALLEN MELANSON

PERSONAL DATA:

HOME ADDRESS: [redacted] Ex6

SSN:

CITIZENSHIP:

MARITAL STATUS:

EDUCATION:

COLLEGE: Dickinson College, Carlisle, PA
B.S. Nuclear Physics, Mathematics

[redacted] Ex6

GRADUATE SCHOOL: Johns Hopkins University
School of Hygiene and Public Health
M.S. Radiological Health

[redacted] Ex6

CERTIFICATION: Comprehensive, American Board of Health Physics

EXPERIENCE:

OCT 83 - DEC 86 Radiation Safety Officer and Medical Physicist
Department of Radiology
Landstuhl Army Regional Medical Center, Landstuhl, West Germany
4 Mammographic x-ray systems

DEC 86 - DEC 88 Consultant, Medical Physics
Medical Physics Branch
Health Physics Division
US Army Environmental Hygiene Agency
Aberdeen Proving Grounds, MD
40 Mammographic x-ray systems

JUN 91 - PRESENT Deputy Health Physics Officer
Walter Reed Army Medical Center
Washington, D.C.
10 Mammographic x-ray systems

Societies and Affiliations:

American Association of Physicists in Medicine
American Academy of Health Physics
Health Physics Society
Sigma Pi Sigma Physics Honor Society
Delta Omega Public Health Honor Society
Theta Chi Fraternity

Ex 6

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.)
MELANSON, Mark A.	N/A

RANK/GRADE	ORGANIZATION	ORGANIZATIONAL DIVISION	BLDG./ROOM NO.	WRAMC AUTHORIZATION NO.
CPT/O-3	HPO, WRAMC	HPO	186/5	221

3. CERTIFICATION

SPECIALTY BOARD A	CATEGORY B	MONTH AND YEAR CERTIFIED C
ABHP	Comprehensive	11/92

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.	Johns Hopkins (JHU)	MS/Rad Hlth Sci	MS/ EXC
b.	Dickinson College	BS	BS/
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	JHU / Dickinson	80 / 40	80 / 40
b. RADIATION PROTECTION	JHU / Dickinson	80 / 40	80 / 40
c. MATHEMATICS PERTAINING TO THE USE AND MEASUREMENT OF RADIOACTIVITY	JHU / Dickinson	80 / 40	80 / 40
d. RADIATION BIOLOGY	JHU / Dickinson	80 / 40	80 / 40
e. RADIOPHARMACEUTICAL CHEMISTRY	JHU / Dickinson	80 / 40	80 / 40

EX6

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
I-131	200 mCi	LARMC, FRG	9/83 - 12/86	Therapy
Tc-99m	50 mCi	LARMC, FRG	9/82 - 12/86	Imaging
Cs-139	25 mCi	" "	" "	Calibration
Tl-201	75 mCi	" "	" "	Imaging
Ba-133	500 mCi	" "	" "	Pa+ Ma ke
Co-57				
Co-58	10 mCi	LARMC FRG	9/83 - 12/86	Calibration
Ga-67	3 mCi	" "	" "	Imaging
In-111	500 mCi	" "	" "	" "
I-123	500 mCi	" "	" "	" "
C-11	2 Ci	JHU	7/89 - 5/91	Imaging
F-18	500 mCi	" "	" "	" "
Ra-226	50 mCi	" "	" "	Lab
H-3	2 Ci	AEHA	12/86 - 12/88	Special Project

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

DEVICE	WHERE EXPERIENCE WAS GAINED	DURATION OF EXPERIENCE	TYPE OF USE
Neutron Howitzer Pu-239 Be	Dickinson College	9/79 - 5/83	Research
Diagnostic X-Ray Systems	MHPS, HPD, AEHA	12/86 - 12/88	Compliance Surveys
Diagnostic X-Ray Systems	LARMC	9/83 - 12/86	" "
Cobalt-60 10 Ci	AEHA	12/86 - 12/88	Calibration
Blood Irradiator Cs-137 - 2,000 Ci	WRAMC	7/91 - Present	Blood Treatment

8. CERTIFICATION:

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

15 Feb 97
(Date Signed)

Mark C. Adams
(Signature of Applicant)

(10-89) U.S. NUCLEAR REGULATORY COMMISSION PAGES

MATERIALS LICENSE

Amendment No. 66

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)	In accordance with the application dated January 4, 1993, 3. License number 08-01738-02 is amended in its entirety to read as follows:
2. Washington, D.C. 20307-5001	4. Expiration date June 30, 1999
	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. Phosphorus 32	E. Any	E. 2 curies
F. Carbon 14	F. Any	F. 2 curies
G. Iodine 125	G. Any	G. 1 curie
H. Iridium 192	H. Any	H.
I. Chromium 51	I. Any	I. 750 millicuries
J. Sulfur 35	J. Any	J. 1 curie
K. Hydrogen 3	K. Any	K. 5 curies
L. Molybdenum 99	L. Molybdenum 99/ Technetium 99m Generators	L. 23 curies
M. Technetium 99m	M. Any	M. 23 curies
N. Strontium 90	N. Sealed sources	N.
O. Cesium 137	O. Sealed sources	O.
P. Gadolinium 153	P. Sealed sources	P.
Q. Iodine 125	Q. Sealed sources (3M Company seeds)	Q. 500 millicuries
R. Iodine 125	R. Sealed sources ((Norland Inst. Co., Model 178A591A or AECL Models C235 or C324, or Amersham Corp. Model IMC.P2)	R. 4 sources, not to exceed 300 millicuries each

Ex 2

KK120

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MATERIALS LICENSE
SUPPLEMENTARY SHEET

License number: 08-01738-02

Docket or Reference number: 030-01317

Amendment No. 66

(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
S. Cesium 137	S. Sealed sources	S.
T. Cobalt 60	T. Sealed sources	T.
U. Americium 241	U. Any	U. 100 microcuries
V. Americium 241	V. Sealed sources	V.
W. Nickel 63	W. Sealed sources and foils	W. 1 curie
X. Iodine 129	X. Sealed sources	X. 1 curie
Y. Thorium	Y. Any	Y. 5 kilograms
Z. Uranium	Z. Any	Z. 50 kilograms
AA. Cesium 137	AA. Sealed sources	AA.
BB. Americium 241	BB. Sealed sources	BB.
CC. Cesium 137	CC. Sealed source [redacted]	CC.
DD. Uranium depleted in Uranium 235	DD. Plated Metal	DD. 400 Kilograms

9. Authorized use

A. through CC. Medical diagnosis, therapy and research in humans in accordance with any applicable Food and Drug Administration (FDA) requirements. Research and development as defined in 10 CFR 30.4, including animal studies; instrument calibration; student instruction.

DD. Shielding

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 and Gillette Building, 270 Research Center, 1413 Research Boulevard, Rockville, Maryland.

11. A. Licensed material shall be used by, or under the supervision of, individuals designated in writing by the Radiation Safety Committee, Col. Joan T. Zajtchuk Chairperson.

Ex 2

B. The use of licensed material in or on humans shall be by a physician, dentist, or podiatrist as defined in 10 CFR 35.2.

C. Physicians, dentists, or podiatrists designated to use licensed material in or on humans shall meet the training criteria established in 10 CFR 35, Subpart J and shall be designated in writing by the licensee's Radiation Safety Committee.

D. The Radiation Safety Officer for this license is LTC William B. Johnson.

12. In addition to the possession limits in Item 8, the licensee shall further restrict the possession of licensed material at a single location to quantities below the limits specified in 10 CFR 30.72 which require consideration of the need for an emergency plan for responding to a release of licensed material.

13. Notwithstanding the requirements of 10 CFR 35.49(a) and (b), 35.100, 35.200, 35.300, 35.400 and 35.500 the licensee may use for any medical use any byproduct material or reagent kit. The licensee shall possess and use byproduct material for medical use in accordance with the prescriptive and performance criteria in the other sections of 10 CFR 35. This does not relieve the licensee from complying with applicable U.S. Food and Drug Administration (FDA) and other Federal and State requirements.

14. A. 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 the foil temperatures from exceeding that specified in the certificate of registration referred to in 10 CFR 32.210.

B. When in use, detector cells containing a titanium tritide foil or a scandium tritide foil shall be vented to the outside.

15. The licensee shall conduct a physical inventory every three months to account for all sealed sources and devices containing licensed material received and possessed pursuant to 10 CFR 35.59, 35.400 and 35.500 and every six months for all other sealed sources and devices.

16. A. Sealed sources and detector cells containing licensed material shall be tested for leakage and/or contamination at intervals not to exceed six months or at such other intervals as are specified by the certificate of registration referred to in 10 CFR 32.210, not to exceed three years.

B. Notwithstanding Paragraph A of this Condition, sealed sources designed to emit alpha particles shall be tested for leakage and/or contamination at intervals not to exceed three months.

C. In the absence of a certificate from a transferor indicating that a leak test has been made within six months prior to the transfer, a sealed source or detector cell received from another person shall not be put into use until tested.

D. Each sealed source fabricated by the licensee shall be inspected and tested for construction defects, leakage, and contamination prior to any use or transfer as a sealed source.

E. Sealed sources and detector cells need not be leak tested if:

(i) they contain only hydrogen-3; or

(ii) they contain only a radioactive gas; or

(iii) the half-life of the isotope is 30 days or less; or

(iv) they contain not more than 100 microcuries of beta and/or gamma emitting material or not more than 10 microcuries of alpha emitting material; or

(v) they are not designed to emit alpha particles, are in storage, and are not being used. However, when they are removed from storage for use or transfer to another person, and have not been tested within the required leak test interval, they shall be tested before use or transfer. No sealed source or detector cell shall be stored for a period of more than 10 years without being tested for leakage and/or contamination.

F. The test shall be capable of detecting the presence of 0.005 microcurie of radioactive material on the test sample. If the test reveals the presence of 0.005 microcurie or more of removable contamination, a report shall be filed with the U.S. Nuclear Regulatory Commission and the source or detector cell shall be removed immediately from service and decontaminated, repaired, or disposed of in accordance with Commission regulations. The report shall be filed within five days of the date the leak test result is known with the U.S. Nuclear Regulatory Commission, Region I, ATTN: Chief, Nuclear Materials Safety Branch, 475 Allendale Road, King of Prussia, Pennsylvania 19406. The report shall specify the source or detector cell involved, the test results, and corrective action taken.

G. The licensee is authorized to collect leak test samples for analysis by the licensee. Alternatively, tests for leakage and/or contamination may be performed by persons specifically licensed by the Commission or an Agreement State to perform such services.

17. Sealed sources or detector cells containing licensed material shall not be opened or sources removed from source holders by the licensee.

18. The licensee is authorized to hold radioactive material with a physical half-life of less than 65 days and Sulfur 35, Cobalt 58, Iridium 192, Scandium 46, for decay-in-storage before disposal in ordinary trash, provided:

    A. Waste to be disposed of in this manner shall be held for decay a minimum of ten half-lives.

    B. Before disposal as ordinary trash, the waste shall be surveyed at the container surface with the appropriate survey instrument set on its most sensitive scale and with no interposed shielding to determine that its radioactivity cannot be distinguished from background. All radiation labels shall be removed or obliterated.

    C. A record of each such disposal permitted under this License Condition shall be retained for three years. The record must include the date of disposal, the date on which the byproduct material was placed in storage, the radionuclides disposed, the survey instrument used, the background dose rate, the dose rate measured at the surface of each waste container, and the name of the individual who performed the disposal.

19. Experimental animals, or the products from experimental animals, that have been administered licensed materials shall not be used for human consumption.

20. The licensee shall possess and use byproduct material for human research in accordance with the prescriptive and performance criteria in all sections of 10 CFR Part 35 except sections 35.49(a) and (b), 35.100, 35.200, and 35.300.

21. The licensee is authorized to transport licensed material in accordance with the provisions of 10 CFR Part 71, "Packaging and Transportation of Radioactive Material."

22. The licensee shall not acquire licensed material in a sealed source or device unless the source or device has been registered with the U.S. Nuclear Regulatory Commission pursuant to 10 CFR 32.210 or equivalent regulations of an Agreement State.

23. Radioactive waste generated shall be stored in accordance with the statements, representations, and procedures included with the waste storage plan described in the licensee's letter/application dated September 9, 1993 and October 29, 1993.

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License number
08-01738-02

Docket or Reference number
030-01317

Amendment No. 66

24. 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, except for minor changes in the medical use radiation safety procedures as provided in 10 CFR 35.31. The U.S. 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 June 21, 1993
B. Letter dated September 9, 1993
C. Letter dated October 29, 1993
D. Letter dated December 9, 1993
E. Letter dated February 15, 1994
F. Letter dated June 2, 1994

Date JUN 14 1994

For the U.S. Nuclear Regulatory Commission
Original Signed By:
By Thomas K. Thompson
Nuclear Materials Safety Branch
Region I
King of Prussia, Pennsylvania 19406

JUN 14 1994

License No. 08-01738-02
Docket No. 030-01317
Control No. 117725

Department of the Army
ATTN: DASG-PSP-E(COL Peter Myers)
5109 Leesburg Pike
Washington, DC 20307-5001

Dear Colonel Myers:

Please review the enclosed document carefully and be sure that you understand all conditions. If there are any errors or questions, please notify the U.S. Nuclear Regulatory Commission, Region I office, the Licensing Assistance Section, (610) 337-5093 or 5239, so that we can provide appropriate corrections and answers.

Please be advised that your license expires at the end of the day, in the month, and year stated in the license. Until your license is terminated, you must conduct your program involving byproduct materials in accordance with the conditions of your NRC license, representations made in your license application, and NRC regulations. In particular, note that you must:

1. Operate in accordance with NRC regulations 10 CFR Part 19, "Notices, Instructions and Reports to Workers; Inspections," 10 CFR Part 20, "Standards for Protection Against Radiation," 10 CFR Part 35, "Medical Use of Byproduct Material," and other applicable regulations.

2. Notify NRC, in writing, within 30 days:

   a. when an authorized user, Radiation Safety Officer, Teletherapy Physicist, or Medical Physicist permanently discontinues performance of duties under the license or has a name change; or

   b. when the licensee's mailing address changes (no fee is required if the location of byproduct material remains the same).

3. In accordance with 10 CFR 30.36(b) and/or license condition, notify NRC, promptly, in writing, and request termination of the license when you decide to terminate all activities involving materials authorized under the license.

4. In accordance with 10 CFR 35.13, request and obtain a license amendment before you:

   a. receive or use byproduct material for a clinical procedure permitted under Part 35 but not permitted by your license issued pursuant to this Part;

   b. permit anyone, except a visiting authorized user described in 10 CFR 35.27, to work as an authorized user under the license;

c. change Radiation Safety Officers, Teletherapy Physicists or Medical Physicists;

d. order byproduct material in excess of the amount, or radionuclide, or form different than authorized on the license;

e. add or change the areas of use, or address or addresses of use identified in the license application or on the license.

5. Receive written approval from the NRC prior to any change ownership of your organization in accordance with 10 CFR 30.34(b).

6. Submit a complete renewal application with proper fee or termination request at least 30 days before the expiration date of your license. You will receive a reminder notice approximately 90 days before the expiration date. Possession of byproduct material after your license expires is a violation of NRC regulations. A license will not normally be renewed, except on a case-by-case basis, in instances where licensed material has never been possessed or used.

In addition, please note that NRC Form 313 requires the applicant, by his/her signature, to verify that the applicant understands that all statements contained in the application are true and correct to the best of the applicant's knowledge. The signatory for the application should be the licensee or certifying official rather than a consultant.

You will be periodically inspected by the NRC. Failure to conduct your program in accordance with NRC regulations, license conditions, and representations made in your license application and supplemental correspondence with NRC will result in enforcement action against you. This could include issuance of a notice of violation, or 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.

Since serious consequences to employees and the public can result from failure to comply with NRC requirements, prompt and vigorous enforcement actions will be taken when dealing with licensees who do not achieve the necessary meticulous attention to detail and the high standard of compliance which NRC expects of its licensees.

Thank you for your cooperation.

Sincerely,

Original Signed By:
Thomas K. Thompson

Thomas K. Thompson
Nuclear Materials Safety Branch
Division of Radiation Safety
and Safeguards

OFFICIAL RECORD COPY - G:\WPS\MLTR\L0801738.02 - 06/14/94

Enclosures:
1. Amendment No. 66

cc:
Walter Reed Army Medical Center (WRAMC)
ATTN: Major General Ronald R. Blanck
Commanding Officer
Washington, DC 20307-5001

DRSS:RI
Tkthompson

6/14/94

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

M56
P-7

REPLY TO
ATTENTION OF:

June 2, 1994

Health Physics Office

SUBJECT: Additional Information for Review of Renewal of U.S. Nuclear Regulatory Commission License No. 08-01738-02, mail control No. 117725

QMP
Removed

Nuclear Materials Safety Branch
Division of Radiation Safety and Safeguards
ATTENTION: Mr. Thomas K. Thompson
U.S. Nuclear Regulatory Commission, Region I
475 Allendale Road
King of Prussia, Pennsylvania 19406-1415

Dear Mr. Thompson:

In response to our phone conversation of May 25, 1994, pertaining to the renewal of License No. 08-01738-02, Control No. 117725, the following additional information is provided:

1. A memorandum dated 13 May 1994, was forwarded through Army channels requesting that NRC License No. 08-01738-02 and NRC License No. 08-01738-03 be amended to approve myself as the Radiation Safety Officer on both licenses. Headquarters, Department of the Army, Office of the Surgeon General, Falls Church, VA, forwarded the request to the NRC, Region I, per memorandum dated June 1, 1994. The memorandums with enclosures are provided as you requested as enclosure 1.

2. We have reviewed the provisions of 10 CFR 30.32(i). The limits for all conditions of 10 CFR 30.72, Schedule C have been reviewed, and under the current and requested license limits we do not exceed any specific activity limits. In addition, the sum of our license limits for any isotope divided by the Schedule C appropriate activity limit does not exceed 1. This would indicate that our license is exempt from the provisions of 10 CFR 30.32(i). This calculation will remain on file at the Health Physics Office.

3. The Nuclear Medicine Service has revised the Quality Management Program (QMP), and the revised QMP from the Nuclear Medicine Service dated March 22, 1994, is provided as enclosure 2. The Radiation Oncology Service QMP dealing with brachytherapy was extracted from the Radiation Oncology Service Policy and Procedure Manual and is provided as enclosure 3.

4. During our phone conversation on May 25, 1994, you indicated a new NRC policy precluded issuing a blanket statement

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JUN - 6 1994

for the decay-in-storage of any radioisotope with a half-life of less than 90 days, as is currently listed as Condition 18 of our license. As requested we submit the following information to support the decay-in-storage of radioactive material:

a. In addition to authorization to hold radioactive material with a half-life of less than 65 days for decay-in-storage before disposal in ordinary trash, we request approval for decay-in-storage for the following radioactive materials: cobalt-58, iridium-192, sulfur-35, and scandium-46. These radioactive materials all have half-life of greater than 65 days, but less than 90 days, and are currently authorized on our license for decay-in-storage.

b. Justification for decay-in-storage. This request will support reducing the volume of low level radioactive waste, which at some point in the future must be disposed of as low level radioactive waste. Sulfur-35, cobalt-58, iridium-192, and scandium-46, account for a significant volume of the low level radioactive waste generated at this facility. Allowing decay-in-storage, and then disposing of this waste after proper monitoring in ordinary trash would significantly reduce our volume of low level radioactive waste. With the unavailability of any low level radioactive waste site, all waste classified as radioactive waste must be stored on-site. Allowing us to decay the waste to background levels frees up space to accommodate radioactive waste that must be stored until the Pennsylvania low level radioactive waste site is operational. It will also significantly reduce the future costs incurred to dispose of low level radioactive material at Walter Reed Army Medical Center. As you know, the date that the Pennsylvania site will open is uncertain. Decay-in-storage of this waste will insure that we have sufficient space to hold radioactive waste prior to the opening of the Pennsylvania low level burial grounds. This request supports the mandates of Congress, the States, and U.S. Army policy to minimize the volume of low level radioactive waste generated, while adhering to strict safety standards that protect the general population and the environment.

I hope you will find the above information sufficient to complete your processing of our application. Any additional questions or comments pertaining the renewal of our license should be directed to the undersigned at (301) 427-5161.

William B. Johnson

Enclosures
as

WILLIAM B. JOHNSON
Lieutenant Colonel, U.S. Army
Chief, Health Physics Office

DEPARTMENT OF THE ARMY
OFFICE OF THE SURGEON GENERAL
5109 LEESBURG PIKE
FALLS CHURCH, VA 22041-3258

REPLY TO
ATTENTION OF

June 01, 1994

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, by appointing Lieutenant Colonel William B. Johnson as Radiation Safety Officer.

Recommend approval.

Sincerely,

Peter H. Myers
Colonel, U.S. Army
Radiological Hygiene Consultant

Enclosure

CF: HQ, USAEHA, ATTN: HSHB-MR-H, APG, MD 21010-5422
HQ, USWRAMC, ATTN: HSHL-HP, Wash, DC 20307-5001 (wo/encls)

Encl 1

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

REPLY TO
ATTENTION OF:

HSHL-HP (385-11)

13 May 1994

MEMORANDUM THRU

Commander, U.S. Army Health Services Command, ATTN: HSCL-P, Fort ~~Sam Houston, Texas 78234-6000~~ 26 MAY 94

HQDA (SGPS-PSP-E), 5109 Leesburg Pike, Falls Church, VA 22041-3258

FOR U.S. Nuclear Regulatory Commission, Region I, Nuclear Safety Section A, 475 Allendale Road, King of Prussia, PA 19406

SUBJECT: Amendment of US Nuclear Regulatory Commission Licenses No. 030-01317 and No. 030-06895

1. Request that NRC Licenses ~~030-01317~~ 08-01738-02 and ~~030-06896~~ 08-01738-03 be amended to reflect a change in the Radiation Safety Officer from CPT Mark A. Melanson to LTC William B. Johnson. LTC Johnson has been assigned as the Chief, Health Physics Office at Walter Reed Army Medical Center since 9 May 1994.

2. A Training and Experience Form and a Curriculum Vitae for LTC Johnson are attached (Enclosures 1 and 2).

3. POC for this matter is Mr. David W. Burton or LTC Johnson @ (301)-427-5104/5107.

FOR THE COMMANDER:

Earl S. Newsome

EARL S. NEWSOME III
LTC, MS
Executive Officer

2 Encls

NRC FORM 313M SUPPLEMEN. A US NUCLE. REGULATORY COMMISSION

TRAINING AND EXPERIENCE
AUTHORIZED USER OR RADIATION SAFETY OFFICER

1. NAME OF AUTHORIZED USER OR RADIATION SAFETY OFFICER WILLIAM B. JOHNSON, Ph.D.	2. STATE OR TERRITORY IN WHICH LICENSED TO PRACTICE MEDICINE: NOT APPLICABLE

3. CERTIFICATION

SPECIALTY BOARD A	CATEGORY B	MONTH & YEAR CERTIFIED C
NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE

4. TRAINING RECEIVED IN BASIC RADIOACTIVE HANDLING TECHNIQUES

FIELD OF TRAINING A	LOCATION AND DATE(S) OF TRAINING B	TYPE & LENGTH OF TRAINING	
		LECTURE/ LABORATORY COURSES (Hours) C	SUPERVISED LABORATORY EXPERIENCE (Hours) D
a. RADIATION PHYSICS AND INSTRUMENTATION	1) Univ of North Carolina, Chapel Hill, NC, 1980-1983 (3 years) 2) Tulane, New Orleans, LA, 1976 (1 year) 3) Ft. Belvoir, VA, 1970-1971 (1 year)	80 60 168	92
b. RADIATION PROTECTION	1) Reference 1 above 2) Reference 3 above	140 80	60 120
c. MATHEMATICS IN THE USE AND MEASUREMENT OF RADIOACTIVITY	1) Reference 1 above 2) Reference 3 above	125 60	
d. RADIATION BIOLOGY	1) Reference 1 above 2) Reference 3 above	40 40	
e. RADIOPHARMACEUTICAL CHEMISTRY	1) Reference 1 above 2) Reference 3 above	200	60 20

5. EXPERIENCE WITH RADIATION. (Actual use of Radioisotopes or Equivalent Experience)

ISOTOPE	MAXIMUM AMOUNT	WHERE EXPERIENCE GAINED	DURATION OF EXPERIENCE	TYPE OF USE
SM-1 Nuclear Power Reactor	1000 KW	SM-1, Ft. Belvoir, VA	1971 (1 year)	Health Physics Surveys; Reactor operations; Calibration

5. EXPERIENCE WITH RADIATION.(Actual use of Radioisotopes or Equivalent Experience)				
ISOTOPE	MAXIMUM AMOUNT	WHERE EXPERIENCE GAINED	DURATION OF EXPERIENCE	TYPE OF USE
^{235}U ^{238}U ^{239}Pu Pu-Be ^{241}Am ^{137}Cs ^{3}H	216 gm unsealed & soln. sources 3 gm unsealed source 43 gm, liquid sources 3 Ci, Sealed 600 mCi, Sealed 120 Ci, Sealed 110 Ci, Sealed	U.S. Army Environmental Hygiene Agency Aberdeen Proving Ground, MD NRC Byproduct Material License	1973-1974 (1 year)	Health Physics Surveys; Alternate RSO; Calibration
Atomic No. 3-83 ^{3}H ^{131}I ^{125}I ^{13}C	5 mCi each 10 mCi, liquid 10 mCi, liquid 1 Ci, liquid 1 Ci, liquid	US Army Medical Lab Ft. Sam Houston, TX Radiation Safety Officer NRC Byproduct Material License (Medical)	1974-1975 (1 year)	RSO, RIA kits, Iodinations, Health Physics Surveys; Wet Chemistry procedures
$^{99}Mo/^{99m}Tc$ Generator	2 Ci	North Carolina Memorial Hospital Chapel Hill, NC	1982 (1 month)	Clinical Training
Atomic No. 3-83 10 CFR 35 Gp I-II Gp III Gp IV-V ^{133}Xe ^{137}Cs ^{153}Gd	25 mCi each As needed 3 Ci each As needed 40 mCi 131 Ci 2 Ci	Dwight D. Eisenhower Army Medical Center, Fort Gordon, GA Radiation Safety Officer for Hybrid Broad Scope NRC Materials License (Medical) USNRC No. 10-12044-03	May 1983-June 1989 (6 years)	RSO, Radiation Safety Surveys, Medical Physics Surveys, Calibration
Atomic No. 3-83 ^{14}C, ^{3}H, ^{99}Mo, ^{99m}Tc ^{32}P, ^{125}I ^{137}Cs	15 Ci total, ≤ 200 mCi each 5 Ci each, any form 1 Ci each, any form 4200 Ci, sealed source	Uniformed Services University of the Health Sciences, Bethesda, MD Radiation Safety Officer for Broad Scope Type A NRC Material License (Medical) USNRC No. 19-23344-01	May 1989-June 1992 (3 years)	RSO, Health Physics Surveys, Calibration

5. EXPERIENCE WITH RADIATION.(Actual use of Radioisotopes or Equivalent Experience)				
ISOTOPE	MAXIMUM AMOUNT	WHERE EXPERIENCE GAINED	DURATION OF EXPERIENCE	TYPE OF USE
^{235}U ^{238}U ^{239}Pu Pu-Be ^{241}Am ^{137}Cs ^{3}H	216 gm unsealed & soln. sources 3 gm unsealed source 43 gm, liquid sources 3 Ci, Sealed 600 mCi, Sealed 120 Ci, Sealed 110 Ci, Sealed	U.S. Army Environmental Hygiene Agency Aberdeen Proving Ground, MD NRC Byproduct Material License	June 1992 - May 1994 (2 years)	Health Physics Surveys; Principle User, Member of the Radiation Control Committee

CURRICULUM VITAE

LTC WILLIAM B. JOHNSON, Ph.D, Medical Service Corps, US Army

Address:
Residence: [redacted]

Work:

Walter Reed Army Medical Center
Chief, Health Physics Office
Washington D.C. 20307-5001
Phone: (301) 427-5104

2
6

ACADEMIC AREAS OF INTEREST:

Health Physics, Medical Physics, Optimizing Medical Images, Quality Control in Radiology, Computers, Public Health

EDUCATION AND TRAINING:

CIVILIAN TRAINING:

University of North Carolina, Chapel Hill, NC, Ph.D., Radiological Hygiene, [redacted]

Tulane School of Public Health and Tropical Medicine, New Orleans, LA, MPH, Environmental Health, 1976.

Iowa State University, Ames, IA, BS, Mathematics, [redacted]

Medical X-Ray Protection Course, USPHS, Rockville, MD, 2 weeks, 1973.

Ionizing and Nonionizing Radiation in Medicine, University of Pennsylvania, Philadelphia, PA, 1 week, 1979.

Electronic Imaging in Medicine, University of Texas at San Antonio, TX, 1 week, 1983.

Health Physics Aspects of Nuclear Attack, Health Physics Summer School, Louisiana University, Hammond, LA, 1 week, 1984.

Health Physics In Radiation Accidents, Oak Ridge Associated Universities, Oak Ridge, TN, 1 week, 1985.

MRI Acceptance Testing and Quality Control, The Bowman Gray School of Medicine, Winston-Salem, NC, 1 week, 1988.

International Society for Optical Engineering Medical Imaging V Meeting, San Jose, CA, 1 week, 1991.

Ex 6

American College of Radiology's Mammographic Image Quality Course: Role of the Medical Physicist, January 1993, 18 CME credits awarded.

MILITARY TRAINING:

Nuclear Power Plant Operator Course (Health Physics Specialty), Ft. Belvoir, VA, 1 year, 1971.

AMEDD (MSC) Officer Basic Course, Ft. Sam Houston, TX, 9 weeks, 1972

AMEDD Officer Advanced Course, Ft. Sam Houston, TX, 24 weeks, 1975.

Command and General Staff Officer Course (Correspondence Option), 1 year, 1987.

Faculty Development Course, Academy of Health Sciences, Ft. Sam Houston, TX, 4 weeks, 1976.

Medical Effects of Nuclear Weapons, Armed Forces Radiobiology Research Institute, Bethesda, MD, 1 week, 1983.

Medical Physics and Military Medicine, US Army Environmental Hygiene Agency, Aberdeen Proving Ground, MD, 1 week, 1983, 1985, 1987, 1988, 1989, 1991, 1993.

TEACHING EXPERIENCE:

1990-1993, Assistant Professor of Preventive Medicine and Biometrics, Uniformed Services University of the Health Sciences, Bethesda, MD.

1977-1979, Instructor, Radiological Physics, Academy of Health Sciences, Ft. Sam Houston, TX.

1977-1979, Assistant Professor of Health Sciences, Baylor University at San Antonio, San Antonio, TX.

1969-1970, High School Teacher (Mathematics), Grant Community High School, Fox Lake, IL.

PROFESSIONAL EXPERIENCE:

1. June 1992 to May 1994, Chief, Health Physics Division, U.S. Army Environmental Hygiene Agency, Aberdeen Proving Ground, MD.

Duties: Leads and manages the Health Physics Division composed of the Medical Health Physics Branch, the Industrial Health Physics Branch and an Administrative Section. Directs the activities of

some 25 professional health physicists in world wide mission of support of U.S. Army Radiation Protection Programs. Support includes complete radiation protection program evaluations for compliance with Federal, Army, and Nuclear Regulatory Commission (NRC) Licenses for Medical and Industrial facilities, medical and industrial x-ray surveys, radiation dose assessments from bioassay data, assistance in preparation of documents to terminate NRC licenses, and conducting verification surveys for NRC License termination. Radiation protection policies are developed for the Army Surgeon General for implementation Army wide. Act as principle user of radioactive materials, supervisor of ^{137}Cs irradiator for calibration, and member of the Radiation Control Committee.

2. June 1989 to June 1992, Deputy Director, Environmental Health and Occupational Safety; Chief, Radiation Safety and Radiation Protection Officer, Uniformed Service University of the Health Sciences (USUHS), Bethesda, MD.

Duties: Responsible for the supervision and management of broad scope US Nuclear Regulatory Byproduct Materials License No. 19-23344-01. Supervises health physics personnel in the performance of laboratory radiation protection surveys, personnel dosimetry program, laboratory analysis, and radioactive material control. Provides technical advice to some 350 radiation workers working in about 150 radioisotope laboratories. Teaches in various graduate level courses in Preventive Medicine and Radiology. Provides technical consultation to Director and other Branch Chiefs. Acts as the Director when the Director is absent. Has been designated the Medical Physics Consultant on acquisition and acceptance testing of Computerized Tomography (CT) Systems and Magnetic Resonance Imaging (MRI) Systems for the Army Surgeon General. This CT and MRI mission is world wide.

3. June 1983-June 1989, Chief, Health Physics, Dwight D. Eisenhower Army Medical Center, Ft. Gordon, GA.

Duties: Served as Chief, Health Physics, and Radiation Protection Officer. Responsible for supervision and management of broad scope radiation protection program including management of US Nuclear Regulatory Byproduct Materials License No. 10-12044-03 and Department of Army Radioactive Materials Authorization No. 10-07-81. Served as Regional Consultant to DOD Health Region 10, which includes 9 Army Community Hospitals, and clinics in Panama and Puerto Rico. Performs Technical Surveys of radioactive materials and radiation producing devices to evaluate health hazards and performs medical physics evaluations to optimize imaging. Provides education support to professional staff. Supervises the personnel dosimetry program and performs dosimetry analysis of both radiation workers and patients. Is the Medical Physics Consultant on acquisition and acceptance testing of Computerized Tomography (CT)

Systems and Magnetic Resonance Imaging (MRI) Systems for the Army Surgeon General. This CT and MRI mission is world wide.

4. September 1976 - June 1980, Chief, X-Ray Branch, Academy of Health Sciences, Ft. Sam Houston, TX.

Duties: Programs, plans and supervises overall operation of branch, including performance of 36 instructors and about 430 students annually. Branch is responsible for teaching the x-ray technologist program (radiographic) for the US Army. Also coordinates, plans, and supervises clinical training. Serves as Chairman of X-Ray Specialist Curriculum Committee, and Chairman of Medicine and Surgery Division Physics and Biophysics Committee. Serves as subject matter expert in radiology for Combat Development and Health Care Systems.

5. January 1975 - July 1975, Chief, Health Physics Branch, US Army Environmental Hygiene Agency Regional Activity South, Ft. Sam Houston, TX.

Duties: Conducts radiation protection surveys of US Army installations containing or generating ionizing radiation. Geographical area of support is all states west of the Mississippi River. Also reviews NRC license and DA Authorization applications. Performs technical consultation on radiation safety hazards.

6. March 1974 - December 1974, Chief, Department of Nuclear Medical Sciences, US Army Medical Laboratory, Ft. Sam Houston, TX.

Duties: Supervises laboratory procedures and techniques of radiation biology, radiochemistry, and biophysics for regional reference laboratory. Geographic area of support includes United States, Pacific Region, Korea, and Panama. Supervises radiation detection measurements, preparation and analysis of radioisotopes in support of diagnostic and other clinical procedures. Provides support on environmental surveillance. Advises on radiological hygiene matters to prevent unnecessary exposure of personnel to ionizing radiation. Performs duty of Chairman, Radioisotope Committee, and Radiological Protection Officer. Manages all aspects of AEC License No. 42-06316-01, and Department of Army Authorization for Radioactive Materials. Performs Health Physics surveys and overall monitoring of all Laboratory Departments engaged in work involving radioactive material.

7. January 1973 - February 1974, Survey Officer, Health Physics Division, US Army Environmental Hygiene Agency, Aberdeen Proving Ground, MD.

Duties: Reviews AEC license and Department of Army Authorizations applications as well as drafts Army directives and technical publications pertaining to radiological health; evaluates proposed

in-system items containing or generating ionizing radiation; makes on-site surveys of Army diagnostic, industrial, and therapeutic x-ray facilities, radioactive sources, accelerators, human use of radioisotopes and other sources of ionizing radiation; prepares reports with recommendations for corrective action; assists in training activities. Performs as Alternate Radiological Protection Officer. This requires preparation and maintenance of records and reports on receipt, issue, use, inventory, storage, and disposal of radioactive materials. Performs health physics surveys of all agency divisions engaged in working with radioactive materials.

8. September 1972 - October 1972, Health Physics Technician, SM1 Nuclear Power Plant, Ft. Belvoir, VA.

Duties: Conducts radiological surveys, performs treatment to maintain proper process fluid conditions of nuclear power plant. Operates nuclear power plant controls and equipment. Assists in refueling operations and preparing spent fuel elements and demineralizers for storage and shipment. Monitors process fluids for radioactivity and performs chemical separations. Conducts radiological surveys of nuclear power plant personnel, equipment, work areas and reactor elements.

MEMBERSHIPS, PAPERS, PRESENTATIONS AND AWARDS:

Member, Health Physics Society (1973)
Member, Eta Chapter, Delta Omega Society (1977)

"The Final Step in Decommissioning of the SM-1A Nuclear Power Plant: A Closeout Survey," AEHA Report No. 43-001-74, Health Physics National Meeting, 1974.

"A Data Base Management System For Real-Time Monitoring of Operating Parameters of A Diagnostic X-Ray System," Ph.D. Dissertation, University of North Carolina, Chapel Hill, NC, 1983.

"Computerized Quality Assurance in Diagnostic Radiology," Health Physics National Meeting, Baltimore, MD, 1983.

"Acceptance Testing of Computerized Tomography Systems," Savannah River Chapter Health Physics Society Meeting, September 1985.

"Operational Problems for a Radiation Protection Program at A Major Medical Institution," Medical Physics in Military Medicine Course, AEHA, MD, September 1987.

"A Protocol to Comply With The Joint Commission of Accreditation of Health Care Organizations Requirements in Diagnostic Radiology," Medical Physics In Military Medicine Course, AEHA, MD, October 1988.

TELEPHONE CONVERSATON RECORD	Date: May 24, 1994	Time: 10:43
Mail Control No.: 11725	**License No.:** 08-01738-02	**Docket No.:**
Person Called: Lt. Colonel William B. Johnson	**Organization:** Walter Reed Army Med. Ctr.	**Telephone Number:** 412 427-5104
Person Calling: Thomas K. Thompson		
Subject: Some additional questions.		
Summary: Discussed with Colonel Johnson that I became aware that he desires to be named as RSO and that I need clarification on a few issues as follows: a) Please submitt the your credentials for RSO. b) Please identify and justify your need for decaying isotopes of > then 65 day half-life. c) Although you have not requested any specific byproduct material that would require an emergency plan the sum of ratios could put you over the values which do not require such a plan. Do you intend to limit the possession of byproduct materials to stay under the requirement for a plan or will you submit a plan? d) A preliminary check of your QM plan indicates you have not addressed sealed source therapy or radiopharmaceutical therapy other than I-131. Please provide this information.		
Action Required/Taken:		
Signature: R L Kompton	**Date:** 5/24/94	

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

REPLY TO
ATTENTION OF:

February 15, 1994

030-01317
P-7

Health Physics Office

SUBJECT: Additional Information for Review of U.S. Nuclear Regulatory Commission License No. 08-01738-02, Mail Control No. 117725

Nuclear Materials Safety Branch
Division of Radiation Safety and Safeguards
ATTENTION: Mr. Thomas K. Thompson
U.S. Nuclear Regulatory Commission, Region I
475 Allendale Road
King of Prussia, Pennsylvania 19406-1415

Dear Mr. Thompson:

In reviewing our licensing correspondence with your office I noticed an error concerning the survey criteria that we forwarded to your office in a memo dated 9 September 1993. In that correspondence we indicated that the health physics staff would conduct weekly surveys for users handling 200 uCi or more and monthly surveys for all other areas. That is incorrect.

We propose the following revision:

(1) Areas using 200 uCi or more will still receive weekly surveys from the Health Physics Office.

(2) Areas using less than 200 uCi but more than 10 percent of the values in 10 CFR Part 20, Appendix C will receive monthly surveys by the health physics staff and daily surveys by the user each day of use.

(3) Areas using less than 10 percent of the values in 10 CFR Part 20, Appendix C will receive quarterly surveys by the health physics staff and we will not require users to conduct daily surveys.

We feel that these criteria will ensure an adequate level of safety while avoiding onerous requirements on the part of our researchers. I hope you will find the above information sufficient to complete your processing of our application. Please feel free to contact me @ (301)-427-5104/5107 if you any questions.

Mark A. Melanson

MARK A. MELANSON, CHP
Captain, U.S. Army
Chief, Health Physics Office

117725
FEB 28 1994

OFFICIAL RECORD COPY ML 10

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

MS16
P-7

REPLY TO
ATTENTION OF:

December 9, 1993

Health Physics Office

SUBJECT: Additional Information for Review of Renewal of U.S. Nuclear Regulatory Commission License No. 08-01738-02, mail control No. 117725

Nuclear Materials Safety Branch
Division of Radiation Safety and Safeguards
ATTENTION: Mr. Thomas K. Thompson
U.S. Nuclear Regulatory Commission, Region I
475 Allendale Road
King of Prussia, Pennsylvania 19406-1415

Dear Mr. Thompson:

In response to your letter of November 30, 1993, pertaining to the renewal of License No. 08-0738-02, Control No. 117725, the following additional information is provided:

1. In addition to the audit elements described in our October 29, 1993 letter, independent room surveys are performed as described in paragraph 1, September 29, 1993 letter. Elements of these surveys include checking for posting of required documents, observing work habits of and discussion with technicians and users to ensure the general rules for the safe use of radioactive material are being followed, compliance with NRC and Army regulations and to evaluate training effectiveness. A written survey report listing deficiencies, recommended corrective actions, and/or helpful suggestions is provided the user.

2. Paragraph 3.a.(3) of the model ALARA program will be retained.

I hope you will find the above information sufficient to complete your processing of our application.

ARTHUR G. SAMILJAN
Lieutenant Colonel, U.S. Army
Chief, Health Physics Office

117725
DEC 17 1993

NOV 3 0 1993

License No. 08-01738-02
Docket No. 030-01317
Control No. 117725

Department of the Army
Walter Reed Army Medical Center
ATTN: Major General Ronald R. Blanck
Commanding Officer
Washington, DC 20307-5001

Dear Major General Blanck:

This is in reference to your application dated January 21, 1993 and your letter dated October 29, 1993 to renew License No. 08-01738-02. In order to continue our review, we need the following additional information:

1. The documentation you have provided on your radiation safety audits indicates that activities and work areas are reviewed in order to determine compliance with procedures possession limits, record keeping and posting. Your procedure appears to be weak in that your audits are announced and that most of the emphasis is on record keeping, posting and other administrative matters. In our September 1993 letter Items 3.(b. through d.) have not been addressed entirely in your submittal. You should provide additional information that demonstrates your audits cover more than record and inventory compliance, that audits will be unannounced reviews of radiation workers safety practices.

2. You have indicated that you want to delete paragraph 3.a.(3) from your proposed ALARA program. We do not recommend that you delete the quarterly audits of radiation surveys that are to be reported to the Radiation Safety Committee by the Radiation Safety Officer. This is a useful feature of the ALARA program and should be included. Please confirm you will retain such audits.

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ML W

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. 117725. If you have any technical questions regarding this deficiency letter please call the reviewer at (215) 337-5303.

Sincerely,

Original Signed By:
Thomas K. Thompson

Thomas K. Thompson
Senior Health Physicist
Nuclear Materials Safety Branch
Division of Radiation Safety
and Safeguards

DRSS:RI
Thompson/gc

12/30/93

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

MS16
P-7

REPLY TO
ATTENTION OF:

October 29, 1993

Health Physics Office

SUBJECT: Additional Information for Review of Renewal of U.S. Nuclear Regulatory Commission License No. 08-01738-02, mail control No. 117725

Nuclear Materials Safety Branch
Division of Radiation Safety and Safeguards
ATTENTION: Mr. Thomas K. Thompson
U.S. Nuclear Regulatory Commission, Region I
475 Allendale Road
King of Prussia, Pennsylvania 19406-1415

Dear Mr. Thompson:

In response to your letter of September 29, 1993, pertaining to the renewal of License No. 08-0738-02, Control No. 117725, the following additional information is provided:

1. The minimum requested information that is required of proposed users is detailed on the enclosed authorization application forms. (Enclosures 1-3)

2. The information indicated in Information Notice 90-09, Attachment 1 is provided at enclosure 4.

3. The minimum elements of our authorization audits are detailed in the Health Physics Office Standing Operating Procedure 1-26. (Enclosure 5) Performance of independent surveys was addressed in paragraph 1 of our September 9, 1993 letter.

4. The minimum information recorded for radiation safety training is date training was given, place, instructor, and names of attendees. The groups of workers who will receive training are listed at ATT 8.1 of original application.

5. Please change Item 10.2 of original application to read "We will establish and implement the model ALARA program in Appendix G to Regulatory Guide 10.8, Revision 2 except that paragraph 3.a.(3) is deleted".

6. Please change Item 10.5 of original application to read "We will establish and implement the model spill procedures in Appendix J to Regulatory Guide 10.8, Revision 2 except that the Alternate RSO will follow up on the cleanup of the spill and will attach an Incident Memorandum to the Contamination Survey.

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117725
NOV 0 8 1993

I hope you will find the above information sufficient to complete your processing of our application.

Enclosures
as

ARTHUR G. SAMILJAN
Lieutenant Colonel, U.S. Army
Chief, Health Physics Office

Encl

INSTRUCTIONS FOR PREPARATION OF APPLICATION FOR AUTHORIZATION TO USE RADIOACTIVE MATERIAL (NON-HUMAN USE)

WRAMC FORM 1662R (FEBRUARY 1979)

GENERAL INFORMATION

1. An applicant for an "Authorization to Use Radioactive Material (Non-Human Use)" should complete WRAMC Form 1662R in detail and submit in duplicate to the WRAMC Health Physics Office.

2. Application for gamma irradiators should include a copy of the proposed Standard Operating Procedures that will be implemented to assure personnel safety during routine operation and emergency situations.

3. All proposed locations where the applicant desires to use, store, or dispose of radioactive material should be coordinated with the Health Physics Office Reactor and Survey Branch prior to submission of the application in order to assure expeditious processing of the application. Submission of an incomplete application will often result in a delay in issuance of an authorization because of the correspondence necessary to obtain information requested on the application.

EXPLANATION OF WRAMC FORM 1662R (FEBRUARY 1979)

1. WRAMC Form 1662R is designed for use in supplying information on radioactive materials use programs of varying complexity. The applicant should provide complete information on his proposed program for the possession and use of radioactive material for those items that do not apply, indicate as N/A (not applicable).

2. Application for new authorizations and renewal of existing authorizations should be completed in their entirety. However, applications for amendment of existing authorizations may be completed as follows:

a. Complete Items 1, 2, 3, 11, and 12.
b. For those items that do not required amendment indicate as N/C (no change).
c. For those items that require amendment indicate the proposed changes to the current authorization.

3. Explanation of WRAMC Form 1662R Items:

1. Self explanatory.

2. The "Principal User" is the individual who bears ultimate responsibility for possession, inventory and implementation of the safety procedures necessary to assure the safe use of the materials specified in the application. He is directly responsible to the WRAMC Radiation Control Committee. Attach a completed WRAMC Form 1643 if a current copy is not on file with the Health Physics Office.

3. The applicant's address should include organization, activity, building, room number, and reference or office symbol.

4. A "Co-Worker" is an individual who possesses adequate training and experience with radioactive material to qualify him as a "Principal User". He works under the direction of and is responsible to the "Principal User for the safe and proper use of the materials specified in the application. List all Co-Workers alphabetically by last name. Each Co-Worker should be identified as follows: Last name, first name, middle initial and grade. Attach a completed WRAMC Form 1643 for each Co-Worker if a current copy is not on file with the Health Physics Office.

5. A "Trainee" is 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. List all trainees alphabetically by last name. Each Trainee should be identified as follows: Last name, first name, middle initial and grade.

6. A "Technician" is 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 use of materials specified in the application. He does not prossess suitable training and experience to be classified as a Principal User or Co-Worker, and is not undergoing training that would qualify him to attain either status. List all Technicians alphabetically by last name. Each Technician should be identified as follows: Last name, first name, middle initial and grade.

7-9. Self explanatory.

10a. List radioisotopes by ascending mass number, i.e., the isotope with the smallest mass number is placed at the top of the column and the isotope with the greatest mass number is placed at the bottom of the column.

10b. In addition to the chemical form of the radioisotope indicate whether it is in solid or liquid or gaseous form and whether it is a sealed or unsealed source. In order for radioactive material to qualify as a "sealed source" the radioactive source must be sealed in an impervious container which has sufficient mechanical strength to prevent contact with and dispersion of the radioactive material under the conditions of use and wear for which is was designed.

10c. State the maximum millicurie amount of each chemical form of the radioisotope that must be kept in the inventory in order to satisfy mission requirements.

10b. State the intended use of each chemical form of the radioisotopes listed in Column 10a.

11-12. Self explanatory.

APPLICATION FOR AUTHORIZATION TO USE RADIOACTIVE MATERIAL -- NON-HUMAN USE

1. APPLICATION FOR:	☐ NEW AUTHORIZATION	☐ RENEWAL OF AUTHORIZATION NUMBER	☐ AMENDMENT TO AUTHORIZATION NUMBER

2. APPLICANT'S NAME (Last, First, MI) (Principal User)	3. APPLICANT'S MAILING ADDRESS (Include Organization)
TELEPHONE NUMBER	

(IF MORE SPACE IS NEEDED FOR ANY ITEM, USE ADDITIONAL PROPERLY KEYED PAGES.)

4. List all COWORKERS	5. List all TRAINEES	6. List all TECHNICIANS

7. LOCATIONS WHERE MATERIAL WILL BE USED: *(Building and Associated Rooms)*

8. LOCATIONS WHERE MATERIAL WILL BE STORED: *(Building and Associated Rooms)*

9. RADIOACTIVE WASTE DISPOSAL SINK IN ROOM:

10. RADIOACTIVE MATERIAL DATA

A. RADIOISOTOPE	B. CHEMICAL AND/OR PHYSICAL FORM *(Sealed or Unsealed)*	C. POSSESSION LIMIT	D. USE

CERTIFICATE

(This item must be completed by applicant)

I certify that this application is prepared in conformity with WRAMC Regulations and that all information contained herein, including any supplements attached hereto, is true and correct to the best of my knowledge and belief.

11. I ACKNOWLEDGE MY RESPONSIBILITIES AS *PRINCIPAL USER* AS DEFINED IN WRAMC REGULATIONS.	12. ADMINISTRATIVE APPROVAL:
DATE *(Signature of Principal User)*	DATE *(Signature of Chief of Svc, Dept, or Div.)*

WRAMC RADIATION CONTROL COMMITTEE APPROVAL

APPROVED	APPROVED	AUTHORIZATION NO.:
HEALTH PHYSICS OFFICER, WRAMC	CHAIRPERSON SUBCOMMITTEE FOR NON-HUMAN USE: RADIATION CONTROL COMMITTEE, WRAMC	REVIEW DATE:

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.)*

RANK/GRADE	ORGANIZATION	ORGANIZATIONAL DIVISION	BLDG./ROOM NO.	WRAMC AUTHORIZATION NO.

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.			
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	SUPERVISED LABORATORY EXPERIENCE *(Hours)* D
a. RADIATION PHYSICS AND INSTRUMENTATION			
b. RADIATION PROTECTION			
c. MATHEMATICS PERTAINING TO THE USE AND MEASUREMENT OF RADIOACTIVITY			
d. RADIATION BIOLOGY			
e. RADIOPHARMACEUTICAL CHEMISTRY			

Encl 2

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

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

DEVICE	WHERE EXPERIENCE WAS GAINED	DURATION OF EXPERIENCE	TYPE OF USE

8. CERTIFICATION

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

(Date Signed) *(Signature of Applicant)*

HEALTH PHYSICS RADIOACTIVE PROTOCOL

a. Principal User	b. Telephone Number	c. Authorization Number

d. Coworkers	e. Trainees	f. Technicians

g. Radioisotope(s)	h. Physical/Chemical Form	i. Maximum Quantity per Experiment (mCi)

j. Title of Project

k. Beginning Date	l. Ending Date	m. Repetitive Study
		Yes ☐ No ☐

n. Life Cycle of Radioisotope Utilized for Research Procedure (Use block/flow diagram to show what, how, where, how much isotope is used from receipt to disposal; emphasize major steps (incubate over night, run gel, autoradiography, etc.), including kinds and volumes of waste generated.)

o. Labeling and Transport of Radioactive Material: All radioactive solutions, tissues, animals and waste will be identified by proper labels. Transport of radioactive material between authorized work areas will be conducted in a manner that precludes the spread of contamination and inadvertent exposure of non-participating personnel.

Encl 3

p. Laboratory Animal Usage: None ☐ If yes, complete following:

Species: Room: Bldg:
Disposition of animals:

q. Isotope Utilization Locations:

	(1)	(2)	(3)	(4)	(5)
Building					
Room					
Maximum Amount (mCi)					

	Bldg	Room	Maximum Amt (mCi)
r. Maximum Amount in Possession (mCi)			
s. Isotope Storage Location(s)			
t. Waste Storage Location(s)			
u. Animal/Tissue Storage Location			

v. All radioactive waste will be transfered to the Health Physics Office in accordance with Health Physics Condition No. 4.

w. All room surveys will be conducted in accordance with Health Physics Condition No. 2.

x. Personnel Dosimetry will be requested in accordance with Health Physics Condition No. 1. Assigned dosimetry monitors will be worn by all participating personnel.
Whole Body ☐ TLD Ring ☐

y. Are there any significant "NON-RADIATION" personnel hazards associated with this experiment; (Biological [Aids, etc.], Hazardous Chemicals [Toxic, Explosive, Corrosive etc.], Sharps, Lasers, Microwaves, electrical etc.) that may effect Health Physics personnel during routine inspections, surveys or waste handling procedures.
If yes specify: NO ☐ YES ☐

The Research Protocol described above is designed to ensure that occupational radiation exposures and the release of radioactive effluents to the environment will be "as low as reasonably achievable" (ALARA) during all phases of the research procedure.

Printed Name and Signature of Principal User: _____

Date: _____ Rank/GS grade _____

Title: _____

Telephone Number _____

INFORMATION NEEDED IN AN AMENDMENT REQUEST TO AUTHORIZE EXTENDED INTERIM STORAGE OF LOW-LEVEL RADIOACTIVE WASTE IN 90-09

1. Identification of Waste to be Stored:

a. None

b. H-3, 1.5 Ci; C-14, 0.2 Ci; 2,900 cubic feet in (380) 55-gallon drums.

c. (1) C
(2) solid
(3) volume reduction
(4) none

d. H-3, 200 mCi/yr, solid/dry; C-14, 30 mCi/yr, solid/dry; 440 cubic feet in (60) 55-gallon drums.

e. None

2. Plans for Final Disposal:

a. July 1994 for waste generated in Washington, DC and Maryland.

b. Texas for DC waste in 1996 and the Appalachian Compact for MD waste in 2000.

c. As soon as possible after site is available; 1-3 months.

3. Physical Description of Storage Area:

a. See attachment 1.

b. 500 drums, 60 drums/year.

c. Maintained decommissioned reactor facility.

d. Perimeter fence w/secured gate and secured brick and concrete building.

e. Forced air circulation system. This system has provided adequate ventilation for our LLRW storage and processing facility for the past several years. The additional drums of solid, long waste containing H-3 and C-14 will not require modification to this system.

f. The building has an alarm system, fire extinguishers, fire hydrant, and is inspected monthly by fire chief. The additional storage will not require additional safeguard systems or modifications to the existing systems.

Encl 4

g. The building has a heating and cooling system.

h. The building was designed and built as a reactor with low vulnerability to other hazards.

4. Packaging and Container Integrity:

a. Dry, solid waste compacted in steel, 55-gallon drums. No hazards to integrity of containers; indefinite storage life.

b. Weekly radiation and contamination surveys to include wipe samples and visual inspection.

c. Not applicable

5. Radiation Protection:

a. Area is currently used for LLRW storage and processing with proper posting, surveying, and monitoring. The extended interim storage of H-3 and C-14 will not present a significant radiation hazard nor a significant increase in personnel exposure. The current radiation safety and ALARA programs as described in the license application are adequate for this additional storage of H-3 and C-14.

b. none

c. The Walter Reed Army Medical Center (WRAMC) Emergency Preparedness Plan is activated by dialing (202) 576-3317. This is a central notification number for WRAMC police, fire, and emergency response. The extent of activation will be dependent upon the particular situation. The extended interim storage of H-3 and C-14 will not present significant hazards or risks.

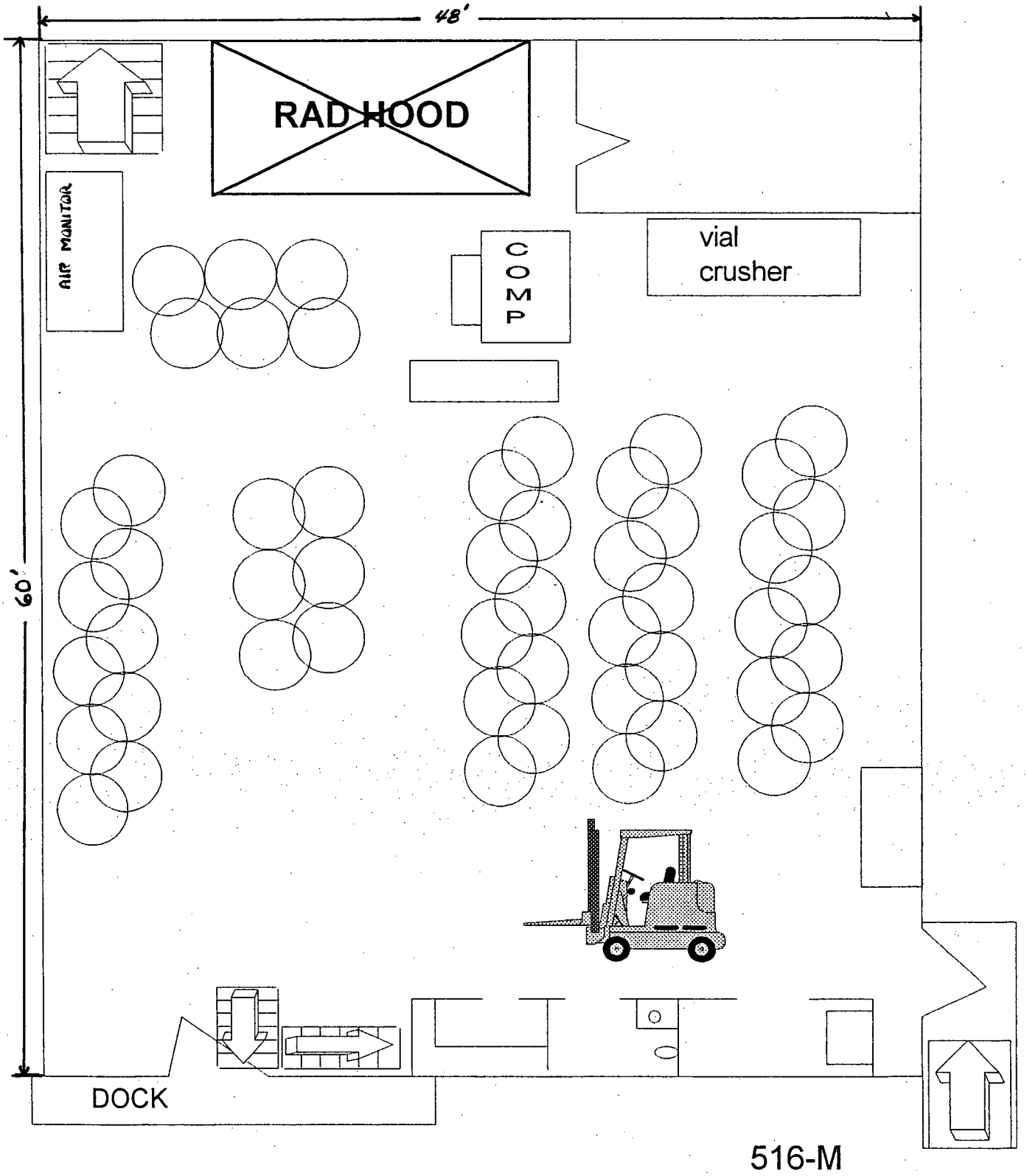
d. The radionuclides requiring extended interim storage are H-3 and C-14. The activity of the radionuclides contained in each waste package received is recorded in a log as a drum is packed. When the drum is filled and sealed the total quantity of each radionuclide is recorded on the drum's identification label. This information is also recorded and maintained on an electronic data file.

6. Training:

a. Health physics technicians attend weekly, one hour professional training classes which cover all aspects of the radiation safety program. Health Physics Office standing operating procedures are reviewed and discussed in detail as part of the training program.

7. Financial Assurance: See attached Statement of Intent.

8. Emergency Preparedness: Not required; however, WRAMC has an Emergency Preparedness Plan.



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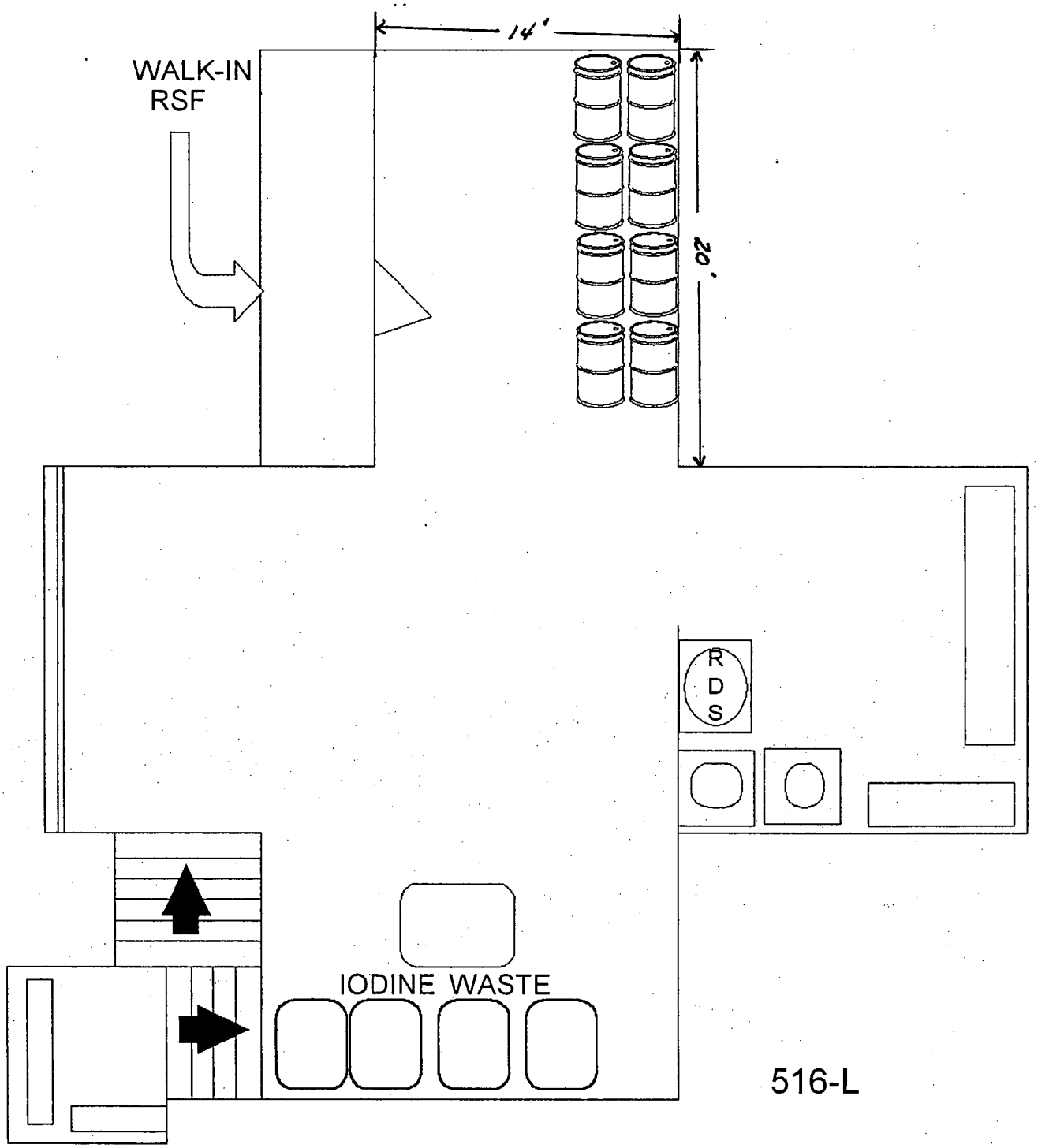
ATT 1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516-L

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

REPLY TO
ATTENTION OF:

Office of The
Commanding General

STATEMENT OF INTENT

1. I, Ronald R. Blanck, Commander of Walter Reed Army Medical Center, am the Official duly appointed by the Headquarters, Department of the Army, to represent my organization.

2. The Nuclear Regulatory Commission Licenses for which this Statement of Intent is being issued are:

(a) License Number 08-01738-02 (expiration date 30 Apr 93)

(b) License Number 08-01738-03 (expiration date 30 Nov 96)

3. The facilities for which this Statement of Intent is being issued are:

(a) Walter Reed Army Medical Center, Washington,District of Columbia;

(b) Walter Reed Army Medical Center, Forest Glen Section and Annex, Silver Springs, Maryland;

(c) Walter Reed Army Medical Center, Department of Pathology, Fort Meade, Maryland (U.S. Army Medical Laboratory);

(d) Walter Reed Army Institute of Research, Washington, District of Columbia;

(e) Walter Reed Army Institute of Research, Rickman Building, 13 Taft Court, Rockville, Maryland;

(f) Walter Reed Army Institute of Research, Gillette Building, 270 Research Center, 1413 Research Boulevard, Rockville, Maryland;

(g) Walter Reed Army Institute of Research Animal Holding Facility, Fort Meade, Maryland;

(h) U.S. Army Institute of Dental Research Facility, Fort Meade, Maryland;

4. In accordance with the requirements of 10 CFR 30.35, and in my capacity as the Commander of Walter Reed Army Medical Center, I am providing assurance that sufficient funds for decommissioning and disposal of stored radioactive waste will be obtained when necessary for the eventual decommissioning of WRAMC's NRC Licenses and disposal of stored radioactive waste.

Ronald R. Blanck
Major General, U.S. Army
Commander

HEALTH PHYSICS
WALTER REED ARMY MEDICAL CENTER
Washington, DC 20307-5001

HSHL-HP
SOP# 1-26

October 28, 1993

AUDIT OF RADIOACTIVE MATERIAL AUTHORIZATIONS

1. **GENERAL:** In accordance with AR 40-37 and 40-61, semiannual reviews of each WRAMC Radioactive Material Authorization must be performed. Site inspection of all authorized activities and work areas are reviewed in order to determine compliance with procedures, radioisotope possession limits, record keeping, and posting requirements.

2. **PURPOSE:** The purpose of this SOP is to:

a. Establish the review process used to audit an authorization.

b. Define the items to be audited and establish the criteria for exceptable compliance with Federal and WRAMC regulatory requirements.

c. List the documentation required.

3. **REQUIRED FORMS:**

a. The following forms must be used or reviewed when setting up, conducting, and/or following up on an audit of a Radioactive Material Authorization:

1. Memorandum: Health Physics Office "Audit of Radioactive Material" (Incl 1).

2. WRAMC Audit of Radioactive Material Form (Incl 2).

3. DA Form 3862: "Controlled Substances Stock Record" (Incl 3) or equivalent.

4. Authorization Program, Isotope Inventory Report Form (generated from the computer).

6. WRAMC Form 538 "Radiation Worker Briefing Card" (Incl 4).

7. Deficient Audit Form (Incl 5)

Encl 5

4. PREPARING FOR AUDIT:

a. Set up appointments with Principle Users (PU) by sending (or hand carrying) Memorandum from Health Physics Office "Audit of Radioactive Material". Audits should be scheduled in groups by location so the auditor can move from one audit to the next with a minimum of lost time. Most audits can be performed in 30 minutes, large authorizations may require more time and should be scheduled accordingly. Some rearranging will be necessary as PU's call to indicate conflicts with their schedules. The auditor should select a mutually agreeable time to reschedule when notified of a conflict.

b. Print a hard copy from the Authorization Program of the authorization you will be auditing, this will include:

(1) Administrative data

(2) Personnel and training dates

(3) Rooms

(4) Isotopes and limits authorized

c. Print Isotope Inventory Report Form from dBase Inventory data base, to list the isotope shipments received since the last audit and the isotopes still active from the previous audit. This will include the following information for each isotope shipment for the authorization requested:

(1) HPO tag number

(2) Chemical form

(3) Date received

(4) Original activity in millicuries

(5) A blank to list new activity in millicuries

(6) Last updated activity in millicuries

(7) Vendor

(8) Purchase order number

(9) Call number

(10) Remarks

d. Two copies of the Audit Form with a carbon are prepared so a signed copy can be left with the Principle User at the time of the audit.

e. The folder containing the previous inventory records for this authorization will be pulled from the HPO file.

5. CONDUCTING AN AUDIT: The material assembled in Item 4. b, c, d and e above will be taken by the auditor to the audit. The WRAMC "Audit of Radioactive Material" form will be used as a check list of the major areas of each authorization which need to be inspected. These are:

a. DA Form 3862 (or equivalent) Inventory Records: The authorizations inventory records will be compared to the "Isotope Inventory Report" (see item 4. c.) to ensure they include all shipments delivered to them by the HPO. Each entry in the inventory records shall contain: the isotope, the HPO tag number, date received, activity received, chemical form of compound, the activity used and disposed of, and the activity remaining. The "Isotope Inventory Report" will be completed at this time to show the new "updated activity" for each shipment. This form will be signed and dated at the bottom by the person providing the inventory information and will be used to update the inventory database at the HPO. It will remain on file as a permanent inventory record.

b. Within limits: The authorizations inventory records shall indicate a running balance of activity on hand for each isotope which is authorized. The PU is responsible for ensuring that the isotope limits of each isotope are not exceeded at any time and the auditor will check the running balance against the isotope limits listed on the computer generated copy of the authorization (see item 4. b. (4)).

c. Inventory Control Officer: The individual responsible for the inventory record keeping (PU or Technician).

d. WRAMC Reg 40-10: A copy must be available to radiation workers for information on the safe handling of radioactive material.

e. WRAMC Authorization: A copy of the approved authorization and any amendments most be maintained by the PU. At this time the computer generated copy of the information on the authorization (see item 4. b.) will be shown to the PU and any discrepancies clarified. Any changes which need to be made

in the authorization can be noted in items 11 or 12 on this form and it will be considered as an amendment request if signed by the PU.

f. General Provisions & Terms and Conditions: A copy must be maintained on file.

g. LSC - Source No. & Location: The location of any liquid scintillation counters with sealed source numbers will be noted.

h. WRAMC 538 "Radiation Worker Briefing Card": This form, required annually for each radiation worker, shall be requested if it has been determined that present records are not current (see item 4. f.).

i. Sink Log: A logbook listing amounts of radioactive material placed into the sanitary sewage system through a wash sink must be available for each wash sink on the authorization. Entries must be made at least monthly when no washes have been performed to indicate that fact. The monthly limit for wash sinks is 100 uCi.

j. Signs and Labels: Each controlled area shall be identified with the appropriate signs such that all employees and visitors who enter shall be informed of the pertinent requirements and procedures for the protection of themselves and fellow workers against internal and external exposure. The following areas and/or documents must be posted:

(1) Wash Sinks

(2) LSC

(3) Entrance/Exit

(4) NRC Form 3 (map)

(5) Notice to Employees Letter

(6) Parts 19&21 of 10CFR

k. Personnel Changes: Additions or deletions. The Audit Form can be used as a memo to make personnel changes if it is signed by the PU (no authorized representative can make amendments to the authorization).

1. General Comments: List pertinent information which should be communicated to the office such as: posting new equipment, renovations of labs, pregnant workers, computer changes, name changes, etc.

m. Signature & Date of Principal User or Authorized Representative: Signature of PU needed to amend the authorization.

6. DEFICIENT AUDIT FORM: Given if the authorization is being improperly maintained for any of the following reasons:

a. Not maintaining correct inventory records.

b. Not within possession limits.

c. Failure to amend authorization to reflect changes in personnel, rooms, etc.

d. Failure to adhere to proper work practices.

ARTHUR G. SAMILJAN
LTC, MS
Health Physics Officer

HSHL-H-HP (385-11i)

MEMORANDUM FOR

SUBJECT: Health Physics Office Audit of Radioactive Material Inventory for Authorization Number _____

1. This office is required to conduct periodic audits of the radioactive materials inventory for your Authorization.

2. You are scheduled to be audited on _____ at _____ hours. It is requested that the inventory officer for your Authorization be available to present inventory records and accompany the auditor during the inventory verification inspection.

3. If the date/time of the scheduled audit is not satisfactory, please contact Mr. David W. Burton, Chief, Radioactive Materials Control Branch, Telephone: 427-5104, to make alternate arrangements.

David W. Burton

DAVID W. BURTON
C, Radioactive Material Control Br.
Health Physics Office

Encl 5.1

WRAMC
Audit of Radioactive Material
(In accordance with AR 40-37 & 40-61)

Inspector:_____ Date:_____ Auth#_____

1. DA form 3862 [NO] [YES]
2. Within limits [NO] [YES]
3. Inventory Control Officer:_____
   Room:_____
4. WRAMC Regulation 40-10 [NO] [YES]
5. WRAMC Authorization on hand [NO] [YES]
6. General Provisions - Terms & Conditions [NO] [YES]
7. LSC - Source No. & Location:_____
8. WRAMC form 538 - current [NO] [YES]
9. Sink log [NO] [YES]
10. Signs & Labels:_____
11. Personnel [Additions] [Deletions]

    _____

12. General Comments:_____

    _____

Principal User:_____ Authorized Representative:

_____ _____
Signature Date

Encl 5.2

CONTROLLED SUBSTANCES STOCK RECORD

For use of this form, see AR 40-2; the proponent agency is Office of The Surgeon General.

STOCK NUMBER	DESCRIPTION	
UNIT AS RECEIVED	**CONVERSION FACTOR**	**ACCOUNTABLE UNIT**

DATE	DEBIT (*Receipts*)	DEBIT (*VO.*) OR CREDIT (*RX*) NO	CREDIT (*Expenditures*)	BALANCE ON HAND	DATE	DEBIT (*Receipts*)	DEBIT (*VO.*) OR CREDIT (*RX*) NO.	CREDIT (*Expenditures*)	BALANCE ON HAND

DA FORM 1 JUNE 72 3862

REPLACES DA FORM 8-235, 1 AUG 51, WHICH WILL BE USED.

NAME (Last, First, MI)

DUTY MAILING ADDRESS AND TELEPHONE NUMBER

As Principal User I have insured that the above named individual has received a briefing on the following subjects in accordance with Title 10 Code of Federal Regulations Part 19.

1. Walter Reed Army Medical Center's "NOTICE TO EMPLOYEES"
2. Form NRC-3
3. Title 10 Code of Federal Regulations Parts 19, 20 and 21.
4. Information concerning the storage, transfer and use of radioisotopes allowed under this authorization.
5. Authorization To Use Radioisotopes (WRAMC Form 1662R)
6. Hazards and protective measures associated with isotope usage.
7. Procedures for requesting a report of exposure to radiation.

DATE	PRINTED NAME AND SIGNATURE OF PRINCIPAL USER	AUTHORIZATION NUMBER

I have received and understand the above listed information.

DATE	SIGNATURE

Enc 15,4

RADIATION WORKER BRIEFING

HSHL-HP (385-11m)

MEMORANDUM FOR

SUBJECT: Isotope Audit of Authorization _____

1. On_____ an Isotope Audit of Authorization _____ was conducted by the Health Physics Office.

2. During the Audit, deficiencies were noted for the following reasons:

_____ Failure to maintain a central record of isotope receipt and usage.

_____ Isotope shipment delivered to authorization not noted on inventory records.

_____ Incorrect entries in the records in regards to the amounts of materials present.

_____ Not within possession limits.

_____ Failure to notify the Health Physics Office of changes in Authorization (MEMORANDUM stating Additions or Deletions) of personnel, rooms etc.

_____ Failure to adhere to all work practices as listed in WRAMC Regulation 40-10 and/or Authorization Terms and Conditions. Specifically:_____

_____

_____

_____

_____

_____

_____

3. Request receipt of a MEMO listing corrected deficiencies, and/or procedures which will ensure future compliance with regulations.

DAVID W. BURTON
Chief, Radioactive Material Branch
Health Physics Office

Encl 5.5

SEP 29 1993

License No. 08-01738-02
Docket No. 030-01317
Control No. 117725

Department of the Army
Walter Reed Army Medical Center
ATTN: Major General Ronald R. Blanck
Commanding Officer
Washington, DC 20307-5001

Dear Major General Blanck:

This is in reference to your application dated January 21, 1993 and a letter dated September 9, 1993 to renew License No. 08-01738-02. In order to continue our review, we need the following, additional information:

1. Although you have indicated that you use the criteria described in 10 CFR 33.15 to evaluate individual requests to use byproduct material, this criteria is not specific enough. We requested a copy of your authorized users application form in our August 11, 1993 letter. Please also provide the details of the minimum requested information that you would require of proposed users as stated in our August letter.

2. Please note that our indication that a condition will be put on your license limiting the holding time of byproduct material waste does not refer to those isotopes approved for decay-in-storage. You should indicate if the addition of such a condition on your license is acceptable or submit the information indicated in Information Notice 90-09, Attachment 1.

3. In answer to Question 4 of our August letter you have not been specific. We are interested in the minimum elements of your audits such as:

   a) Scope of your review of inventory and survey records of investigators.

   b) Evaluation that you will perform of user and technician training through discussion and observation.

   c) Performance of independent surveys.

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ML 10

d) Evaluation of compliance with the permit granted to the investigator and your safety manual.

e) Provision for instructions to users and technical staff based on performance.

Please provide the details of your audit program.

4) You have indicated that your training program will be as described in Appendix A of Regulatory Guide 10.8; however, you have not answered our specific question of what records will be maintained. Please provide a list of the minimum information that will be recorded and identify each group of workers who will receive the training.

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. 117725. If you have any technical questions regarding this deficiency letter please call me at (215) 337-5303.

Sincerely,

Original Signed By:
Thomas K. Thompson

Thomas K. Thompson
Senior Health Physicist
Nuclear Materials Safety Branch
Division of Radiation Safety
and Safeguards

DRSS:RI
Thompson/smh

9/29/93

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

MS16
P-7

REPLY TO
ATTENTION OF:

September 9, 1993

Health Physics Office

SUBJECT: Additional Information for Review of Renewal of U.S. Nuclear Regulatory Commission License No. 08-01738-02, mail control No. 117725

Nuclear Materials Safety Branch
Division of Radiation Safety and Safeguards
ATTENTION: Mr. Thomas K. Thompson
U.S. Nuclear Regulatory Commission, Region I
475 Allendale Road
King of Prussia, Pennsylvania 19406-1415

Dear Mr. Thompson:

In response to your letter of August 11, 1993, pertaining to the renewal of License No. 08-0738-02, Control No. 117725, the following additional information is provided:

a. The Radiation Control Committee (RCC) follows the criteria set down in 10 CFR 33.15 for evaluating physicians and other individuals to use radioactive material for nonhuman uses. After evaluations have been completed using the aforementioned criteria and additional information, the RCC makes a final decision to approve or disapprove an individual as an authorized user.

b. Information Notice 90-09 has been carefully reviewed. It does not state that license renewals not having an Interim Waste Storage Plan will have a condition placed on it which will only allow storage of LLW for a rolling two year period. It does state however, that "not all licensees who will need to store LLW onsite will need amendments to their licenses to do so". Our existing license has no condition limiting storage of radioactive material or waste, except by total activity. We intend to maintain our total inventory, to include storage of waste, below existing limits. A rolling two year LLW storage condition will conflict with our NRC approval for decay in storage of materials with half-lives of up to 90 days. This requires us to hold some waste for a minimum of 2.5 years with no upper limit specified. Our waste is processed and stored in a decommissioned research reactor building which is solely occupied and secured by the Health Physics Office. The waste consist of dry, solid lab material, which is compacted into 55-gallon steel drums properly labeled and ready for disposal. It is stored under dry, temperature controlled conditions on four-level warehouse racks, and secured in a locked building surrounded by a locked perimeter fence. This facility has capacity to safely hold 500 drums.

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117725

SEP 17 1993

c. Our request for a case by case exemption from the requirements of 10 CFR 35 Subpart J is hereby withdrawn.

d. Radiation safety office audits of the performance of radioactive material authorizations are conducted semiannually. The elements of each audit include compliance with Army and hospital regulations, terms and conditions of the NRC license, proper posting of signs and labels, activity on hand, location, inventory records, logs, procedures, and required personnel actions.

e. All protocols for the use of unbound radioactive iodine involve less than 10 mCi per experiment; however, iodination procedures are required to be performed in a designated glove box which is inside a chemical fume hood. Exhaust is pulled through a charcoal filter and HEPA filter before venting to the outside. The hood exhaust air and room air are periodically monitored to ensure compliance with federal standards. All nonhuman use labs use less than 100 mCi at any one time. Nuclear Medicine is the only location where quantities greater than 100 mCi are handled. One compactor is used at the Health Physics waste processing facility to compact dry, solid LLW in 55-gallon drums. The facility is secured by the Health Physics Office and routinely surveyed for contamination. The compactor is exhausted through a HEPA particulate filter and charcoal cartridge air samples are used to monitor the exhaust air for volatile gases.

f. The model training program that was published in Appendix A to Regulatory Guide 10.8 Revision 2 will be established for all radiation workers. Records will be maintained to demonstrate compliance with applicable regulations.

g. Animal holding facilities are maintained in clean areas. Animals are taken from the holding facility to a restricted area by authorized users for the introduction of radioactive material. Animals are then sacrificed, placed in a marked freezer, and picked up by Health Physics Office for appropriate disposal. Protocols requiring the holding of animals containing radioactive material greater than exempt quantities will include provisions to ensure that the holding facility is secured from unauthorized access. Only authorized users will handle animals, animal wastes and carcasses. Cages will be cleaned and decontaminated by authorized users to ensure proper disposal of radioactive material and that they are free of radioactive contamination.

h. Trigger levels for removable contamination will be >50% and >100% of Reg Guide 8.23, Table 2 limits. Trigger levels for radiation levels will be 2 times background or 1 mR/hr for gamma and 2 mR/hr or 25% of 10 CFR 20.101(a) limits.

i. Our request for authorization to decay in storage I-125 LLW for 5 half-lives rather than 10 half-lives is hereby withdrawn.

j. Amendment No. 63, dated June 22, 1993, added the Gillette building to our license. See enclosure.

k. It has been noted that M.1 and M.2 of Reg Guide 10.8, Revision 2 are missing some required information.

l. Minimum requirements for surveys in non-medical use areas will be determined by types and quantity of material. For gamma and high energy beta emitting material the users will survey daily with G-M survey meters. Health Physics will survey weekly when $\geq$200 uCi is used at any one time and monthly when <200 uCi is used. For soft beta emitting material the users will perform daily wipes at the end of each day of use when using >100 uCi at any one time. Health Physics will survey weekly when $\geq$200 uCi is used at any one time and monthly when <200 uCi is used.

I hope the above information adequately addresses your concerns pertaining to the renewal of our broad scope license. Please contact the undersigned at (301) 427-5161 if further information is required.

Enclosure
as

ARTHUR G. SAMILJAN
Lieutenant Colonel, U.S. Army
Chief, Health Physics Office

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)	In accordance with the letter dated March 26, 1993, 3. License number 08-01738-02 is amended in its entirety to read as follows:
2. Washington, D.C. 20307-5001	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 license may possess at any one time under this license
A. Any byproduct material with atomic numbers 1-83	A. Any	A. 400 millicuries of e radionuclide with a possession limit of 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 exc 300 millicuries each

Ex 2

Encl

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License number
08-01738-02
Docket or Reference number
030-01317

Amendment No. 63

(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 the 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 [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; 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
SUPPLEMENTARY SHEET

License number
08-01738-02
Docket or Reference number
030-01317
Amendment No. 63

. 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.

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

te JUN 2 2 1993

By David G. Mc
Nuclear Materials Safety Branch
Region I
King of Prussia, Pennsylvania 19406

AUG 11 1993

License No. 08-01738-02
Docket No. 030-01317
Control No. 117725

Department of The Army
Walter Reed Army Medical Center
ATTN: Major General Ronald R. Blanck
Commanding Officer
Washington, D.C. 20307-5001

Dear Major General Blanck:

This is in reference to your application dated January 21, 1993 to renew License No. 08-01738-02. In order to continue our review, we need the following additional information:

1. Please submit the Radiation Safety Committee's (RSC) procedures and criteria for making safe evaluations of proposed uses of radioactive material that will demonstrate the Committee's process for obtaining permission to use radionuclides. A typical "application for authorization" for human and non-human use submitted to the Committee for review should as a minimum take into account the radionuclides, physical/chemical form, and maximum activities requested by the applicant, the applicant's training and experience with the nuclides requested, the training and experience of personnel working for the applicant, the use of the requested nuclide, the applicant's facilities and equipment, and any specific hazard in the operations with the radionuclides. You should submit an example of your authorized user application and approval forms.

2. Please review the enclosed Information Notice 90-09. You may wish to develop an Interim Waste Storage Plan at this time. If you do not wish to develop an Interim Waste Storage Plan, a condition will continue to be placed on your license that allows storage of LLW for a rolling two year period. Submittal of an Interim Waste Storage Plan amendment in accordance with Information Notice 90-09 would be required to remove this condition from your license.

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ML 10

3. In your request for case by case exemption from the requirements in Subpart J please confirm that exceptions are only made for unique/non-routine clinical studies that are within the physician's field of expertise and exceptions are not used to circumvent the Part 35, Subpart J requirements for routine studies. Please also submit the minimum training and experience criteria that you will use for these exceptions.

4. Please describe in greater detail the frequency and elements of your radiation safety office audits of the performance of individual authorized investigators that will assure that your program is operating in accordance with your procedures.

5. Please describe any special use facilities and equipment such as iodination facilities $>$ 10 millicuries, large use labs $>$ 100 millicuries or compactors.

6. What records will you maintain of training and testing of personnel? Please also confirm that your training program will include instructions on emergency procedures and include provisions for periodic exercises.

7. Regarding your use of animals in research:

   a. Please describe the animals' housing facilities or the criteria that the RSC will follow in approving animal housing facilities.

   b. Please submit a copy of instructions provided to animal caretakers for handling of animals, animal wastes and carcasses.

   c. Please submit a copy of instructions on cleaning and decontamination of animal cages.

   d. Please submit your procedures for ensuring that animal rooms will be locked or otherwise secured unless attended by authorized users of byproduct material.

8. Please specify your trigger or action levels for removable contamination and radiation levels when performing radiation surveys.

9. With regard to your request for authorization to decay in storage materials with half-lives of less than 90 days for only 5 half-lives rather than 10 half-lives please provide the following additional information:

   a. For all byproduct materials with half-lives of greater than or equal to 65 days, you must specifically identify the isotopes desired and describe the instrumentation and monitoring procedures that will be used to determine that the waste is free of radioactive contamination at the end of the storage period.

b. For specific byproduct materials to be held only 5 half-lives, identify these separately and indicate how you will assure that the waste will contain less than the quantity of radioactive material specified in 10 CFR 20, Appendix C per waste container when placed in storage. Use the 1/R rule for multiple isotopes.

10. In Item 3 of your application you have added the Gillette building. Please provide a description of what byproduct materials uses and quantities will be used in this facility. You should indicate approximately how many laboratories you plan to establish and their general location.

11. Please note that M.1 and M.2 of Regulatory Guide 10.8, Revision 2 are missing some required information. M.1 should include the expiration date and M.2 should include expiration date and lot number.

12. Your described area radiation and contamination surveys may not be adequate for your non-medical use program. Please provide greater detail on your minimum requirements for surveys in the rest of your broad scope program. You should develop a plan for minimum survey frequencies for laboratories based on categories of risk as determined by types, quantities, and forms of byproduct material that will be handled. Please also include your action limits for survey results.

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. 117725. If you have any technical questions regarding this deficiency letter please call me at (215) 337-5303.

In order to continue prompt review of your application, we request that you submit your response to this letter within 30 calendar days from the date of this letter.

Sincerely,

Original Signed By:
Thomas K. Thompson

Thomas K. Thompson
Senior Health Physicist
Nuclear Materials Safety Branch
Division of Radiation Safety
and Safeguards

Enclosure:
Information Notice 90-09

DRSS:RI
Thompson/cmm

8/10/93

FEB 16 1993

Docket No. 030-01317
License No. 08-01738-02
Control No. 117725

Department of the Army
Walter Reed Army Medical Center
ATTN: Major General Ronald R. Blanck
Commanding Officer
Washington, DC 20307-5001

Dear Major General Blanck:

Subject: LICENSE RENEWAL APPLICATION

This is to acknowledge receipt of your application for renewal of material(s) license identified above. Your application is deemed timely filed, and accordingly, the license will not expire until final action has been taken by this office.

Any correspondence regarding the renewal application should reference the control number specified above.

Sincerely,

Original Signed By:
Sheryl Villar

Sheryl Villar, Chief
Licensing Assistance Section
Division of Radiation Safety
and Safeguards

MLP 2/16/93 (30) 2/16/93

S:\PENDING\DEPTARMY.DTL OFFICIAL RECORD COPY February 16, 1993

ML 10

30-01317

DEPARTMENT OF THE ARMY
OFFICE OF THE SURGEON GENERAL
5109 LEESBURG PIKE
FALLS CHURCH, VA 22041-3258

X

February 04, 1993

REPLY TO
ATTENTION OF

Preventive Medicine
Consultants Division

US Nuclear Regulatory Commission
Region I
475 Allendale
King of Prussia, Pennsylvania 19406

Dear Sir/Ma'am:

Enclosed are two copies of a request to renew in its entirety Byproduct Material License Number 08-01738-02, Walter Reed Army Medical Center, Washington, DC.

Recommend approval.

Should the need arise, you may speak to me by telephoning 703-756-0132.

Sincerely,

Peter H. Myers
Colonel, U.S. Army
Radiological Hygiene Consultant

Enclosure

CF: U.S. Army Environmental Hygiene Agency, Attention: Health Physics Division, Aberdeen Proving Ground, MD 21010-5422

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

REPLY TO
ATTENTION OF:

HSHL-HP (385-11m) 21 January 1993

MEMORANDUM THRU Commander, HQ, U,S. Army Health Services ~~Command~~, ~~ATTN: HSCL-P~~, Fort Sam Houston, TX 78234-6000 mlm 29 JAN 93

FOR Office of The Surgeon General, ATTN: DASG-PSP, Skyline Plaza 5, ~~5111~~ 5109 Leesburg Pike, Falls Church, VA 22041-3258

SUBJECT: NRC License Renewal

1. The enclosed NRC License renewal for Walter Reed Army Medical Center is provided IAW TB Med 525.

2. POC for this office is Mr. David Burton who can be reached at (301) 427-5107/5104 or AUTOVON 291-5107/5104.

ENCL

ARTHUR G. SAMILJAN
LTC, MS
Chief, Health Physics Office

EXHIBIT 1

030-01317

X

NRC FORM 313
(1-84)
10 CFR 30, 32, 33, 34, 35 and 40

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED BY OMB
3150-0120
Expires 5-31-87

APPLICATION FOR MATERIAL LICENSE

INSTRUCTIONS: SEE THE APPROPRIATE LICENSE APPLICATION GUIDE FOR DETAILED INSTRUCTIONS FOR COMPLETING APPLICATION. SEND TWO COPIES OF THE ENTIRE COMPLETED APPLICATION TO THE NRC OFFICE SPECIFIED BELOW.

FEDERAL AGENCIES FILE APPLICATIONS WITH:

U.S. NUCLEAR REGULATORY COMMISSION
DIVISION OF FUEL CYCLE AND MATERIAL SAFETY, NMSS
WASHINGTON, DC 20555

ALL OTHER PERSONS FILE APPLICATIONS AS FOLLOWS, IF YOU ARE LOCATED IN:

CONNECTICUT, DELAWARE, DISTRICT OF COLUMBIA, MAINE, MARYLAND, MASSACHUSETTS, NEW JERSEY, NEW YORK, PENNSYLVANIA, RHODE ISLAND, OR VERMONT, SEND APPLICATIONS TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION I
NUCLEAR MATERIAL SECTION B
631 PARK AVENUE
KING OF PRUSSIA, PA 19406

ALABAMA, FLORIDA, GEORGIA, KENTUCKY, MISSISSIPPI, NORTH CAROLINA, PUERTO RICO, SOUTH CAROLINA, TENNESSEE, VIRGINIA, VIRGIN ISLANDS, OR WEST VIRGINIA, SEND APPLICATIONS TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION II
MATERIAL RADIATION PROTECTION SECTION
101 MARIETTA STREET, SUITE 2900
ATLANTA, GA 30323

IF YOU ARE LOCATED IN:

ILLINOIS, INDIANA, IOWA, MICHIGAN, MINNESOTA, MISSOURI, OHIO, OR WISCONSIN, SEND APPLICATIONS TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION III
MATERIALS LICENSING SECTION
799 ROOSEVELT ROAD
GLEN ELLYN, IL 60137

ARKANSAS, COLORADO, IDAHO, KANSAS, LOUISIANA, MONTANA, NEBRASKA, NEW MEXICO, NORTH DAKOTA, OKLAHOMA, SOUTH DAKOTA, TEXAS, UTAH, OR WYOMING, SEND APPLICATIONS TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION IV
MATERIAL RADIATION PROTECTION SECTION
611 RYAN PLAZA DRIVE, SUITE 1000
ARLINGTON, TX 76011

ALASKA, ARIZONA, CALIFORNIA, HAWAII, NEVADA, OREGON, WASHINGTON, AND U.S. TERRITORIES AND POSSESSIONS IN THE PACIFIC, SEND APPLICATIONS TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION V
MATERIAL RADIATION PROTECTION SECTION
1450 MARIA LANE, SUITE 210
WALNUT CREEK, CA 94596

PERSONS LOCATED IN AGREEMENT STATES SEND APPLICATIONS TO THE U.S. NUCLEAR REGULATORY COMMISSION ONLY IF THEY WISH TO POSSESS AND USE LICENSED MATERIAL IN STATES SUBJECT TO U.S. NUCLEAR REGULATORY COMMISSION JURISDICTION.

1. THIS IS AN APPLICATION FOR (Check appropriate item)

- [ ] A. NEW LICENSE
- [ ] B. AMENDMENT TO LICENSE NUMBER _____
- [X] C. RENEWAL OF LICENSE NUMBER 08-01738-02

2. NAME AND MAILING ADDRESS OF APPLICANT (Include Zip Code)

Department of the Army
Walter Reed Army Medical Center
ATTN: Executive Officer, HSHL-XO
Washington, D.C. 20307-5001

3. ADDRESS(ES) WHERE LICENSED MATERIAL WILL BE USED OR POSSESSED

See Item #3

4. NAME OF PERSON TO BE CONTACTED ABOUT THIS APPLICATION — TELEPHONE NUMBER

Arthur G. Samiljan, Lieutenant Colonel, MS — (301) 427-5161

SUBMIT ITEMS 5 THROUGH 11 ON 8½ x 11" PAPER. THE TYPE AND SCOPE OF INFORMATION TO BE PROVIDED IS DESCRIBED IN THE LICENSE APPLICATION GUIDE.

5. RADIOACTIVE MATERIAL a. Element and mass number, b. chemical and/or physical form, and c. maximum amount which will be possessed at any one time.	6. PURPOSE(S) FOR WHICH LICENSED MATERIAL WILL BE USED.
7. INDIVIDUAL(S) RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR TRAINING AND EXPERIENCE.	8. TRAINING FOR INDIVIDUALS WORKING IN OR FREQUENTING RESTRICTED AREAS
9. FACILITIES AND EQUIPMENT	10. RADIATION SAFETY PROGRAM
11. WASTE MANAGEMENT.	12. LICENSEE FEES (See 10 CFR 170 and Section 170.31) FEE CATEGORY Exception — AMOUNT ENCLOSED $ (5) — 10CFR170.11(a)

13. CERTIFICATION (Must be completed by applicant) THE APPLICANT UNDERSTANDS THAT ALL STATEMENTS AND REPRESENTATIONS MADE IN THIS APPLICATION ARE BINDING UPON THE APPLICANT.

THE APPLICANT AND ANY OFFICIAL EXECUTING THIS CERTIFICATION ON BEHALF OF THE APPLICANT, NAMED IN ITEM 2, CERTIFY THAT THIS APPLICATION IS PREPARED IN CONFORMITY WITH TITLE 10, CODE OF FEDERAL REGULATIONS, PARTS 30, 32, 33, 34, 35, AND 40 AND THAT ALL INFORMATION CONTAINED HEREIN IS TRUE AND CORRECT TO THE BEST OF THEIR KNOWLEDGE AND BELIEF.

WARNING: 18 U.S.C. SECTION 1001 ACT OF JUNE 25, 1948, 62 STAT. 749 MAKES IT A CRIMINAL OFFENSE TO MAKE A WILLFULLY FALSE STATEMENT OR REPRESENTATION TO ANY DEPARTMENT OR AGENCY OF THE UNITED STATES AS TO ANY MATTER WITHIN ITS JURISDICTION.

SIGNATURE—CERTIFYING OFFICER	TYPED/PRINTED NAME	TITLE	DATE
Ronald R. Blanck	Ronald R. Blanck, Major General	Commanding Officer	4 Jan 93

14. ANNUAL RECEIPTS

- [ ] < $250K
- [ ] $250K–$500K
- [ ] $500K–$750K
- [ ] $750K–1M
- [ ] $1M–3.5M
- [ ] $3.5M–7M
- [ ] $7M–10M
- [ ] > $10M

15. NUMBER OF EMPLOYEES (Total for entire facility including portable contractors)

c. NUMBER OF SEDs

16. VOLUNTARY ECONOMIC DATA

WOULD YOU BE WILLING TO FURNISH COST INFORMATION (Dollar and/or staff hours) ON THE ECONOMIC IMPACT OF CURRENT NRC REGULATIONS OR ANY FUTURE PROPOSED NRC REGULATIONS THAT MAY AFFECT YOU? (NRC regulations permit it to protect confidential commercial or financial proprietary information furnished to the agency in confidence)

- [ ] YES
- [ ] NO

FOR NRC USE ONLY

TYPE OF FEE	FEE LOG	FEE CATEGORY	COMMENTS	APPROVED BY
			FEE EXEMPT	
AMOUNT RECEIVED	CHECK NUMBER			DATE

PRIVACY ACT STATEMENT ON THE REVERSE

EXH-3

117725

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ITEM #3: ADDRESS(ES) WHERE LICENSED MATERIAL WILL BE USED OR POSSESSED

Locations 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; 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 The Gillette Building, 1413 Research Boulevard, Rockville, Maryland.

ITEM #5 RADIOACTIVE MATERIAL and
ITEM #6 PURPOSE(S) FOR WHICH LICENSED MATERIAL WILL BE USED

CHEMICAL AND MASS NUMBER	CHEMICAL AND PHYSICAL FORM	MAXIMUM ACTIVITY	AUTHORIZED USE
A. Any byproduct material with atomic numbers 3-83	A. Any	A. 400 mCi of each radionuclide with a total possession limit of 26 curies	A. through R. Medical research, diagnosis, and therapy; research and development as defined in 10 CFR 30.4
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. Phosphorus 32	E. Any	E. 2 curies	
F. Carbon 14	F. Any	F. 2 curies	
G. Iodine 125	G. Any	G. 1 curie	
H. Iridium 192	H. Any	H.	
I. Chromium 51	I. Any	I. 750 mCi	
J. Sulfur 35	J. Any	J. 1 curie	
K. Hydrogen 3	K. Any	K. 5 curies	
L. Molybdenum 99	L. Molybdenum 99/Technetium 99m Generators	L. 23 curies	
M. Technetium 99m	M. Any	M. 23 curies	
N. Strontium 90	N. Sealed sources	N.	
O. Cesium 137	O. Sealed sources	O.	
P. Gadolinium 153	P. Sealed sources	P.	

Ex 2

CHEMICAL AND MASS NUMBER	CHEMICAL AND PHYSICAL FORM	MAXIMUM ACTIVITY	AUTHORIZED U
Q. Iodine 125	Q. Sealed sources (Norland model 178A591A, AECL Models C235 or C324, or Amersham Corp. Model IMC.P2)	Q. 4 sources, not to exceed 300 mCi each	
R. Iodine 125	R. Sealed sources (3M Company seeds)	R. 500 mCi	
S. Cesium 137	S. Sealed sources	S.	S. through X. Research and development as defined in 10 CFR 30.4; teaching
T. Cobalt 60	T. Sealed sources	T.	
U. Americium 241	U. Any	U. 100 uCi	
V. Americium 241	V. Sealed sources	V.	
W. Nickel 63	W. Sealed sources and foils	W. 1 curie	
X. Iodine 129	X. Sealed sources	X. 1 curie	
Y. Thorium	Y. Any	Y. 5 kgms	Y. and Z. Teaching and laboratory research
Z. Uranium	Z. Any	Z. 50 kgms	
AA. Uranium depleted in Uranium 235	AA. Plated metal	AA. 400 kgms	AA. Shielding
BB. Americium 241	BB. Sealed sources	BB.	BB. Standards and reference sources
CC. Cesium 137	CC. Sealed source	CC.	CC. In an Eberline Instrument Corp. Model 8150-150 CS for calibration of instruments
DD. Cesium 137	DD. Sealed sources	DD.	DD. instrument calibration

ITEM #7

7.1 and 7.2 Licensed material shall be used by or under the supervision of individuals designated by the Walter Reed Army Medical Center Radiation Control Committee. The training and experience of authorized users will be evaluated using the criteria in 10 CFR 35, Subpart J. The Radiation Control Committee may grant case-by-case exceptions.

Ex 2

CHEMICAL AND MASS NUMBER	CHEMICAL AND PHYSICAL FORM	MAXIMUM ACTIVITY	AUTHORIZED USE
Q. Iodine 125	Q. Sealed sources (Norland model 178A591A, AECL Models C235 or C324, or Amersham Corp. Model IMC.P2)	Q. 4 sources, not to exceed 300 mCi each	
R. Iodine 125	R. Sealed sources (3M Company seeds)	R. 500 mCi	
S. Cesium 137	S. Sealed sources	S.	S. through X. Research and development as defined in 10 CFR 30.4; teaching
T. Cobalt 60	T. Sealed sources	T.	
U. Americium 241	U. Any	U. 100 uCi	
V. Americium 241	V. Sealed sources	V.	
W. Nickel 63	W. Sealed sources and foils	W. 1 curie	
X. Iodine 129	X. Sealed sources	X. 1 curie	
Y. Thorium	Y. Any	Y. 5 kgms	Y. and Z. Teaching and laboratory research
Z. Uranium	Z. Any	Z. 50 kgms	
AA. Uranium depleted in Uranium 235	AA. Plated metal	AA. 400 kgms	AA. Shielding
BB. Americium 241	BB. Sealed sources	BB.	BB. Standards and reference sources
CC. Cesium 137	CC. Sealed source	CC.	CC. In an Eberline Instrument Corp. Model 8150-150 CS for calibration of instruments
DD. Cesium 137	DD. Sealed sources	DD.	DD. instrument calibration

ITEM #7

7.1 and 7.2 Licensed material shall be used by or under the supervision of individuals designated by the Walter Reed Army Medical Center Radiation Control Committee. The training and experience of authorized users will be evaluated using the criteria in 10 CFR 35, Subpart J. The Radiation Control Committee may grant case-by-case exceptions.

Ex 2

7.3 Radiation Safety Officer: Lieutenant Colonel Arthur G. Samiljan, Chief, Health Physics Office, Walter Reed Army Medical Center. Training and experience included at ATT 7.3.

ITEM #8 We will establish and implement the model training program that was published in Appendix A to Regulatory Guide 10.8, Revision 2, and have appended a table ATT 8.1 that identifies the groups of workers who will receive training and the method and frequency of training.

ITEM #9

9.1 Enclosed at ATT 9.1 are drawings of the nuclear medicine area, a detailed drawing of the nuclear pharmacy and the source storage area in radiation therapy. The research laboratories at Walter Reed are basic biomedical research facilities with impervious floors, walls and counter tops and whatever equipment is needed for the specific research and isotopes involved. All isotope laboratories are evaluated by the Health Physics Office and approved by the Radiation Control Committee.

9.2 We will establish and implement the model procedure for calibrating survey instruments that was published in Appendix B to Regulatory Guide 10.8, Revision 2.

9.3 We will establish and implement the model procedure for calibrating our dose calibrator that was published in Appendix C to Regulatory Guide 10.8, Revision 2.

9.4 We will establish and implement the model personnel external exposure monitoring program published in Appendix D to Regulatory Guide 10.8, Revision 2, with the exception that some of our personnel who have been shown to receive much less than the ALARA limit have their monitors changed on a quarterly basis.

9.5 NA

9.6 See ATT 9.6

ITEM #10

10.1 The Charter for the Radiation Control Committee and the delegation of authority for the Radiation Protection Officer are addressed in an ARMY Technical Bulletin (TB MED 525). The duties of each are included at ATT 10.1.1. Walter Reed AMC also has a regulation which lists all standing committees at WRAMC including the Radiation Control Committee. The Composition of the RCC will include:

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

We will also include any others required by 10 CFR 35. The orders delegating authority to Lieutenant Colonel Samiljan are included at ATT 10.1.2.

10.2 We will establish and implement the model ALARA program published in Appendix G to Regulatory Guide 10.8, Revision 2.

10.3 We will establish and implement the model procedure for leak-testing sealed sources that was published in Appendix H to Regulatory Guide 10.8, Revision 2.

10.4 We will establish and implement the model safety rules published in Appendix I to Regulatory Guide 10.8, Revision 2.

10.5 We will establish and implement the model spill procedures published in Appendix J to Regulatory Guide 10.8, Revision 2.

10.6 We will establish and implement the model guidance for ordering and receiving radioactive material that was published in Appendix K to Regulatory Guide 10.8, Revision 2.

10.7 We will establish and implement the model procedure for opening packages that was published in Appendix L to Regulatory Guide 10.8, Revision 2.

10.8 We will establish and implement the model procedure for a unit dosage record system that was published in Appendix M.1 to Regulatory Guide 10.8, Revision 2.

10.9 We will establish and implement the model procedure for a multidose vial record system that was published in Appendix M.2 to Regulatory Guide 10.8, Revision 2.

10.10 We will establish and implement the model procedure for measuring and recording molybdenum concentration that was published in Appendix M.3 to Regulatory Guide 10.8, Revision 2.

10.11 We will establish and implement the model procedure for keeping an inventory of implant sources that was published in Appendix M.4 to Regulatory Guide 10.8, Revision 2.

10.12 We will establish and implement the model procedure for area surveys that was published in Appendix N to Regulatory Guide 10.8, Revision 2.

10.13.1 We will collect spent noble gas in a shielded trap and monitor the trap effluent with an air contamination monitor that we will check regularly according to the manufacturer's instructions.

10.13.2 We will collect spent aerosol in a shielded, single-use trap.

10.13.3 We will follow the model procedure for calculating airborne effluent concentration that was published in Appendix O.2 to Regulatory Guide 10.8, Revision 2.

10.13.4 We will calculate spilled gas clearance times according to the procedure that was published in Appendix O.4 to Regulatory Guide 10.8, Revision 2.

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10.15 We will establish and implement the model procedure for radiation safety during implant therapy that was published in Appendix Q to Regulatory Guide 10.8, Revision 2.

10.16 General Safety Proceedures See ATT 10.16

ITEM #11

11.1 We will establish and implement the general guidance and model procedures for waste disposal that were published in Appendix R to Regulatory Guide 10.8, Revision 2, except for the provision to hold for decay-in-storage material with a physical half-life of less than 90 days, as previously approved by the NRC (see ATT 11.1.1, ATT 11.1.2, and ATT 11.1.3). We also generate a large volume of RIA waste at the Drug Testing Lab at Ft. Meade (25 drums per month and increasing) which we would like to be able to hold for decay for only 5 half-lifes and dispose of, if all other conditions are meet. This waste is mostly empty, washed test tubes which are only minimally contaminated prior to the decay in storage process. This waste is generated at a location were RIA kits are the only radioactive material use and the waste is kept segregated from all other laboratory waste in separate sealed 55 gal. drums.

11.2 See Item 11.1.

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.
LTC	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 H1th)	MS [illegible] EX 6
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	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			

CURRICULUM VITAE

for

ARTHUR G. SAMILJAN, Lieutenant Colonel

DATE AND PLACE OF BIRTH: [redacted]

YEARS OF ACTIVE MILITARY SERVICE: 20 years

PRESENT ASSIGNMENT: (21 Jun 91 to present)
Chief, Health Physics Office; 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 6

MILITARY EDUCATION (continued):

7. Management of Radiation Accidents and Emergency Preparedness 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 radioisotope 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)

7. Chief, Health Physics Office/Radiation Protection Officer
Jun 91 - Present
Health Physics Office
Walter Reed Army Medical Center
Washington, DC

(Manage 20 health physicists and health physics technicians providing radiation safety support to Walter Reed Army Medical Center, Walter Reed Army Institute of Research, Armed Forces Institute of Pathology, and other federal agencies in the Washington, DC regional area. Executive agent for two NRC Licenses.)

GROUP	METHOD	FREQUENCY
Authorized Users	Lecture	Annually
Ward Nursing Staff	Lecture or Video	Annually
Radiation Therapy	Lecture or Video	Annually
Housekeeping	Lecture or Video	Annually
Maintenance	Lecture or Video	Annually
Security	Lecture or Video	Annually
Firefighters	Lecture or Video	Annually

In addition to the Facilities described in Item 9.1 the following equipment and control systems are available as required for the safe handling of radioactive material:

o Remote handling equipment including jaws, vices, forceps, and remote handling tongs of varying lengths.

o Storage containers including steel safes, lead lined boxes, steel drums, lead pigs, and lead storage containers both fixed and movable.

o Shielding including movable lead shields for shielding patients, L shields both lead and plastic, and shielding materials (e.g. lead bricks, lead shot, lead wool, plastic sheet etc.).

o Radiation measuring and counting equipment including liquid scintillation counting systems, gamma well counting systems, alpha gas flow counting systems, portable surveys instruments including GM, Ion chamber, and Scintillation detectors.

o Ventilation Control systems including Fume hoods with HEPA particulate filters, and iodination filter boxes with charcoal filters and charcoal sampling systems for use with volatile isotopes.

f. The Radiation Control Committee will--

(1) Meet at least quarterly and at the call of the chairman.

(2) Recommend approval or disapproval of each type of radiation source from the standpoint of radiological health and safety of patients and working personnel and other factors established for the medical use of these sources.

(3) Recommend individual users for each type of procedure with each individual radionuclide and ensure that any physician authorized to use radioactive material in humans meets the criteria specified in part 35, title 10, Code of Federal Regulations (10 CFR 35). Recommendations will be consistent with the limits and conditions of the NRC license and DARA.

(4) Recommend individual pharmacists and individual compounding protocols for compounding radioactive drugs (radiopharmaceuticals) or radiopharmaceutical kits to be administered to patients (if the procedure is permitted to be performed by NRC license or DARA).

(5) Prescribe, if required, special conditions to be permitted in the work area and special procedures or work rules for use of radiation sources.

(6) Formulate and review the radiation protection training program.

(7) Monitor radiation exposures within the command and recommend actions to keep exposures as low as is reasonably achievable (ALARA). As a minimum, the collective dose to all radiation workers, average dose, and highest individual dose will be reviewed at quarterly meetings.

(8) Formally review, at least annually, the policies and procedures established to maintain low exposures.

(9) Approve the training and experience of the nuclear pharmacist.

g. The RPO, in addition to the responsibilities in 10 CFR 35, 21, will--

(1) Exercise staff supervision over the Radiation Protection Program.

(2) Provide consultation and advice on the degree of hazards associated with radiation and effectiveness of control measures.

(3) Advise and assist the commander and radiation workers in all matters pertaining to radiation protection, including instructing and training of workers (users) and others in the safe use of protective equipment and radiation producing devices.

(4) Ensure all radioactive materials are properly receipted, used, stored, handled, shipped, and disposed of according to applicable directives.

(5) Formulate and implement the Radiation Protection Program.

(6) Formulate, implement, and supervise an active, aggressive, documented program designed to keep radiation doses to levels which are ALARA.

(7) Review the current and proposed uses of radiation sources for compliance with regulations and approved procedures.

(8) Review standing operating procedures for operations involving sources of ionizing radiation before submission to the Radiation Control Committee.

(9) Review procurement of all radioactive materials to ensure compliance with NRC licenses or DARA conditions.

(10) Ensure radiation survey and/or detection instruments used in radiation protection are properly calibrated and are available to radiation workers.

(11) Ensure all radiation shields, containers, and handling equipment are maintained in satisfactory condition.

(12) Ensure the required radiation warning signs are posted.

(13) Ensure that a physical inventory of radioactive materials is conducted every 3 months.

(14) Ensure that radiation surveys are performed at least quarterly and that leak tests are performed semiannually (NRC Reg Guide No. 8.23).

(15) Evaluate hazard potential and adequacy of protective measures for existing and proposed operations.

(16) Monitor situations where higher than normal levels of radiation or radioactive contaminants are suspected.

(17) Investigate radiation accidents and incidents and overexposures to determine the cause and take steps to prevent recurrence.

(18) Terminate a program or procedure involving the use of radioactive material or radiation producing devices which are determined to be a medical threat to health and property.

(19) Keep all licenses and DARAs up to date and initiate amendments and requests for renewals when appropriate.

(20) Maintain a current registry of ionizing radiation producing devices, such as x-ray machines, per TB MED 521.

10.13.1 We will collect spent noble gas in a shielded trap and monitor the trap effluent with an air contamination monitor that we will check regularly according to the manufacturer's instructions.

10.13.2 We will collect spent aerosol in a shielded, single-use trap.

10.13.3 We will follow the model procedure for calculating airborne effluent concentration that was published in Appendix O.2 to Regulatory Guide 10.8, Revision 2.

10.13.4 We will calculate spilled gas clearance times according to the procedure that was published in Appendix O.4 to Regulatory Guide 10.8, Revision 2.

10.14 We will establish and implement the model ... for radiation safety during radiopharmaceutical thera... published in Appendix P to Regulatory Guide 10.8, except for the provision at ATT 10.14.

Continue exemption

10.15 We will establish and implement the model ... radiation safety during implant therapy that was ... Appendix Q to Regulatory Guide 10.8, Revision 2.

10.16 General Safety Proceedures See ATT 10.16

ITEM #11

11.1 We will establish and implement the general ... model procedures for waste disposal that were publ... Appendix R to Regulatory Guide 10.8, Revision 2, e... provision to hold for decay-in-storage material wi... half-life of less than 90 days, as previously apprc... (see ATT 11.1.1, ATT 11.1.2, and ATT 11.1.3). We a... large volume of RIA waste at the Drug Testing Lab a... (25 drums per month and increasing) which we would l... able to hold for decay for only 5 half-lifes and dis..., if all other conditions are meet. This waste is mostly empty, washed test tubes which are only minimally contaminated prior to the decay in storage process. This waste is generated at a location were RIA kits are the only radioactive material use and the waste is kept segregated from all other laboratory waste in separate sealed 55 gal. drums.

Decay to 5 lives & I stg Plan ✓

11.2 See Item 11.1.

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10.13.2 We will collect spent aerosol in a shielded, single-use trap.

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11.2 See Item 11.1.

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,

Thomas K. Thompson for

Jenny M. Johansen, Chief
Medical Licensing Section
Division of Radiation Safety
and Safeguards

Enclosure: Regulatory Guide 8.23

ATTACHMENT 10.14

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

ATTACHMENT 10.14

Following are general rules for the safe use of radioactive materials:

1. Wear laboratory coats or other protective clothing at all times in areas where radioactive materials are used.

2. Wear disposable gloves at all times while handling radioactive materials.

3. Monitor hands and clothing for contamination after each procedure or before leaving area.

4. Do not eat, drink smoke,or apply cosmetics in any area where radioactive material is stored or used.

5. 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.

6. Dispose of radioactive waste only in specifically designated receptacles.

7. Never pipette by mouth.

8. Confine radioactive solutions in covered containers plainly identified and labeled with name of compound, radionuclide, date activity, and radiation level, if applicable

9. Always transport radioactive materials in appropriate shielding and containers.

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

REPLY TO
ATTENTION OF:

19 JUN 1990

HSHL-H-HP (385-11m)

MEMORANDUM THRU

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

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

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

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

REPLY TO ATTENTION OF:

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

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 . 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

1 Encl

PETER H. MYERS
LTC, MS
Health Physics Officer

Ex 2

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: ≤ 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.

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.

CORRECTED COPY

MATERIALS LICENSE

Amendment No. 66

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)	In accordance with the application dated January 21, 1993, 3. License number 08-01738-02 is amended in its entirety to read as follows:
2. Washington, D.C. 20307-5001	4. Expiration date June 30, 1999
	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. Phosphorus 32	E. Any	E. 2 curies
F. Carbon 14	F. Any	F. 2 curies
G. Iodine 125	G. Any	G. 1 curie
H. Iridium 192	H. Any	H.
I. Chromium 51	I. Any	I. 750 millicuries
J. Sulfur 35	J. Any	J. 1 curie
K. Hydrogen 3	K. Any	K. 5 curies
L. Molybdenum 99	L. Molybdenum 99/ Technetium 99m Generators	L. 23 curies
M. Technetium 99m	M. Any	M. 23 curies
N. Strontium 90	N. Sealed sources	N.
O. Cesium 137	O. Sealed sources	O.
P. Gadolinium 153	P. Sealed sources	P.
Q. Iodine 125	Q. Sealed sources (3M Company seeds)	Q. 500 millicuries
R. Iodine 125	R. Sealed sources ((Norland Inst. Co., Model 178A591A or AECL Models C235 or C324, or Amersham Corp. Model IMC.P2)	R. 4 sources, not to exceed 300 millicuries each

Ex 2

KKH

ML101

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License number: 08-01738-02

Docket or Reference number: 030-01317

CORRECTED COPY

Amendment No. 66

(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
S. Cesium 137	S. Sealed sources	S.
T. Cobalt 60	T. Sealed sources	T.
U. Americium 241	U. Any	U. 100 microcuries
V. Americium 241	V. Sealed sources	V.
W. Nickel 63	W. Sealed sources and foils	W. 1 curie
X. Iodine 129	X. Sealed sources	X. 1 curie
Y. Thorium	Y. Any	Y. 5 kilograms
Z. Uranium	Z. Any	Z. 50 kilograms
AA. Cesium 137	AA. Sealed sources	AA.
BB. Americium 241	BB. Sealed sources	BB.
CC. Cesium 137	CC. Sealed source	CC.
DD. Uranium depleted in Uranium 235	DD. Plated Metal	DD. 400 Kilograms

9. Authorized use

A. through CC. Medical diagnosis, therapy and research in humans in accordance with any applicable Food and Drug Administration (FDA) requirements. Research and development as defined in 10 CFR 30.4, including animal studies; instrument calibration; student instruction.

DD. Shielding in linear accelerators.

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 and Gillette Building, 270 Research Center, 1413 Research Boulevard, Rockville, Maryland.

11. A. Licensed material shall be used by, or under the supervision of, individuals designated in writing by the Radiation Safety Committee, Col. Joan T. Zajtchuk Chairperson.

B. The use of licensed material in or on humans shall be by a physician, dentist, or podiatrist as defined in 10 CFR 35.2.

Ex-2

C. Physicians, dentists, or podiatrists designated to use licensed material in or on humans shall meet the training criteria established in 10 CFR 35, Subpart J and shall be designated in writing by the licensee's Radiation Safety Committee.

D. The Radiation Safety Officer for this license is LTC William B. Johnson.

12. In addition to the possession limits in Item 8, the licensee shall further restrict the possession of licensed material at a single location to quantities below the limits specified in 10 CFR 30.72 which require consideration of the need for an emergency plan for responding to a release of licensed material.

13. Notwithstanding the requirements of 10 CFR 35.49(a) and (b), 35.100, 35.200, 35.300, 35.400 and 35.500 the licensee may use for any medical use any byproduct material or reagent kit. The licensee shall possess and use byproduct material for medical use in accordance with the prescriptive and performance criteria in the other sections of 10 CFR 35. This does not relieve the licensee from complying with applicable U.S. Food and Drug Administration (FDA) and other Federal and State requirements.

14. A. 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 the foil temperatures from exceeding that specified in the certificate of registration referred to in 10 CFR 32.210.

B. When in use, detector cells containing a titanium tritide foil or a scandium tritide foil shall be vented to the outside.

15. The licensee shall conduct a physical inventory every three months to account for all sealed sources and devices containing licensed material received and possessed pursuant to 10 CFR 35.59, 35.400 and 35.500 and every six months for all other sealed sources and devices.

16. A. Sealed sources and detector cells containing licensed material shall be tested for leakage and/or contamination at intervals not to exceed six months or at such other intervals as are specified by the certificate of registration referred to in 10 CFR 32.210, not to exceed three years.

B. Notwithstanding Paragraph A of this Condition, sealed sources designed to emit alpha particles shall be tested for leakage and/or contamination at intervals not to exceed three months.

C. In the absence of a certificate from a transferor indicating that a leak test has been made within six months prior to the transfer, a sealed source or detector cell received from another person shall not be put into use until tested.

D. Each sealed source fabricated by the licensee shall be inspected and tested for construction defects, leakage, and contamination prior to any use or transfer as a sealed source.

E. Sealed sources and detector cells need not be leak tested if:

(i) they contain only hydrogen-3; or

(ii) they contain only a radioactive gas; or

(iii) the half-life of the isotope is 30 days or less; or

(iv) they contain not more than 100 microcuries of beta and/or gamma emitting material or not more than 10 microcuries of alpha emitting material; or

(v) they are not designed to emit alpha particles, are in storage, and are not being used. However, when they are removed from storage for use or transfer to another person, and have not been tested within the required leak test interval, they shall be tested before use or transfer. No sealed source or detector cell shall be stored for a period of more than 10 years without being tested for leakage and/or contamination.

F. The test shall be capable of detecting the presence of 0.005 microcurie of radioactive material on the test sample. If the test reveals the presence of 0.005 microcurie or more of removable contamination, a report shall be filed with the U.S. Nuclear Regulatory Commission and the source or detector cell shall be removed immediately from service and decontaminated, repaired, or disposed of in accordance with Commission regulations. The report shall be filed within five days of the date the leak test result is known with the U.S. Nuclear Regulatory Commission, Region 1, ATTN: Chief, Nuclear Materials Safety Branch, 475 Allendale Road, King of Prussia, Pennsylvania 19406. The report shall specify the source or detector cell involved, the test results, and corrective action taken.

G. The licensee is authorized to collect leak test samples for analysis by the licensee. Alternatively, tests for leakage and/or contamination may be performed by persons specifically licensed by the Commission or an Agreement State to perform such services.

17. Sealed sources or detector cells containing licensed material shall not be opened or sources removed from source holders by the licensee.

18. The licensee is authorized to hold radioactive material with a physical half-life of less than 65 days and Sulfur 35, Cobalt 58, Iridium 192, Scandium 46, for decay-in-storage before disposal in ordinary trash, provided:

A. Waste to be disposed of in this manner shall be held for decay a minimum of ten half-lives.

B. Before disposal as ordinary trash, the waste shall be surveyed at the container surface with the appropriate survey instrument set on its most sensitive scale and with no interposed shielding to determine that its radioactivity cannot be distinguished from background. All radiation labels shall be removed or obliterated.

C. A record of each such disposal permitted under this License Condition shall be retained for three years. The record must include the date of disposal, the date on which the byproduct material was placed in storage, the radionuclides disposed, the survey instrument used, the background dose rate, the dose rate measured at the surface of each waste container, and the name of the individual who performed the disposal.

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License number
08-01738-02

Docket or Reference number
030-01317

CORRECTED COPY

Amendment No. 66

19. Experimental animals, or the products from experimental animals, that have been administered licensed materials shall not be used for human consumption.

20. The licensee shall possess and use byproduct material for human research in accordance with the prescriptive and performance criteria in all sections of 10 CFR Part 35 except sections 35.49(a) and (b), 35.100, 35.200, and 35.300.

21. The licensee is authorized to transport licensed material in accordance with the provisions of 10 CFR Part 71, "Packaging and Transportation of Radioactive Material."

22. The licensee shall not acquire licensed material in a sealed source or device unless the source or device has been registered with the U.S. Nuclear Regulatory Commission pursuant to 10 CFR 32.210 or equivalent regulations of an Agreement State.

23. Radioactive waste generated shall be stored in accordance with the statements, representations, and procedures included with the waste storage plan described in the licensee's letter/application dated September 9, 1993 and October 29, 1993.

24. Notwithstanding the requirements of 10 CFR 35.315(a)(7), the licensee may control contamination in rooms used to house radiopharmaceutical therapy patients in accordance with the commitments and procedures contained in the letters dated April 8, 1992 and November 24, 1992.

25. 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, except for minor changes in the medical use radiation safety procedures as provided in 10 CFR 35.31. The U.S. 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 January 21, 1993
B. Letter dated September 9, 1993
C. Letter dated October 29, 1993
D. Letter dated December 9, 1993
E. Letter dated February 15, 1994
F. Letter dated June 2, 1994

For the U.S. Nuclear Regulatory Commission
Original Signed By:
Francis M. Costello

Date OCT 13 1994

By _____
Nuclear Materials Safety Branch
Region I
King of Prussia, Pennsylvania 19406

NRC FORM 374 (10-89)

U.S. NUCLEAR REGULATORY COMMISSION

CORRECTED COPY

MATERIALS LICENSE

Amendment No. 66

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)	In accordance with the application dated January 21, 1993, 3. License number 08-01738-02 is amended in its entirety to read as follows:
2. Washington, D.C. 20307-5001	4. Expiration date June 30, 1999
	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. Phosphorus 32	E. Any	E. 2 curies
F. Carbon 14	F. Any	F. 2 curies
G. Iodine 125	G. Any	G. 1 curie
H. Iridium 192	H. Any	H. [redacted]
I. Chromium 51	I. Any	I. 750 millicuries
J. Sulfur 35	J. Any	J. 1 curie
K. Hydrogen 3	K. Any	K. 5 curies
L. Molybdenum 99	L. Molybdenum 99/ Technetium 99m Generators	L. 23 curies
M. Technetium 99m	M. Any	M. 23 curies
N. Strontium 90	N. Sealed sources	N. [redacted]
O. Cesium 137	O. Sealed sources	O. [redacted]
P. Gadolinium 153	P. Sealed sources	P. [redacted]
Q. Iodine 125	Q. Sealed sources (3M Company seeds)	Q. 500 millicuries
R. Iodine 125	R. Sealed sources ((Norland Inst. Co., Model 1788591A or AICI Models C235 or C324, or Amersham Corp. Model IMC.P2)	R. 4 sources, not to exceed 300 millicuries each

STATE OF MARYLAND RADIOACTIVE MATERIALS LICENSE NO. [illegible]

EX 2

OFFICIAL RECORD COPY ML 10

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License number: 08-01738-02
Docket or Reference number: 030-01317

CORRECTED COPY

Amendment No. 66

(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
S. Cesium 137	S. Sealed sources	S. [redacted]
T. Cobalt 60	T. Sealed sources	T.
U. Americium 241	U. Any	U. 100 microcuries
V. Americium 241	V. Sealed sources	V. [redacted]
W. Nickel 63	W. Sealed sources and foils	W. 1 curie
X. Iodine 129	X. Sealed sources	X. 1 curie
Y. Thorium	Y. Any	Y. 5 kilograms
Z. Uranium	Z. Any	Z. 50 kilograms
AA. Cesium 137	AA. Sealed sources	AA. [redacted]
BB. Americium 241	BB. Sealed sources	BB.
CC. Cesium 137	CC. Sealed source (American Nuclear Corporation Model 127)	CC.
DD. Uranium depleted in Uranium 235	DD. Shielding	DD. 100 Kilograms

9. Authorized use

A. through CC. Medical diagnosis, therapy and research in humans in accordance with any applicable Food and Drug Administration (FDA) requirements. Research and development as defined in 10 CFR 30.4, including animal studies; instrument calibration; student instruction.

DD. Shielding in linear accelerators.

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 and Gillette Building, 270 Research Center, 1413 Research Boulevard, Rockville, Maryland.

11. A. Licensed material shall be used by, or under the supervision of, individuals designated in writing by the Radiation Safety Committee, Col. Joan T. Zajtchuk Chairperson.

B. The use of licensed material in or on humans shall be by a physician, dentist, or podiatrist as defined in 10 CFR 35.2.

C. Physicians, dentists, or podiatrists designated to use licensed material in or on humans shall meet the training criteria established in 10 CFR 35, Subpart J and shall be designated in writing by the licensee's Radiation Safety Committee.

D. The Radiation Safety Officer for this license is LTC William B. Johnson.

12. In addition to the possession limits in Item 8, the licensee shall further restrict the possession of licensed material at a single location to quantities below the limits specified in 10 CFR 30.72 which require consideration of the need for an emergency plan for responding to a release of licensed material.

13. Notwithstanding the requirements of 10 CFR 35.49(a) and (b), 35.100, 35.200, 35.300, 35.400 and 35.500 the licensee may use for any medical use any byproduct material or reagent kit. The licensed shall possess and use byproduct material for medical use in accordance with the prescriptive and performance criteria in the other sections of 10 CFR 35. This does not relieve the licensee from complying with applicable U.S. Food and Drug Administration (FDA) and other federal and State requirements.

14. A. 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 the foil temperatures from exceeding that specified in the certificate of registration referred to in 10 CFR 32.210.

B. When in use, detector cells containing titanium tritide foil or a scandium tritide foil shall be heated to [illegible] tritide.

15. The licensee shall conduct a physical inventory every three months to account for all sealed sources and devices containing licensed material received and possessed pursuant to 10 CFR 35.59, 35.400 and 35.500, and every six months for all other sealed sources and devices.

16. A. Sealed sources and detector cells containing licensed material shall be tested for leakage and/or contamination at intervals not to exceed six months or at such other intervals as are specified by the certificate of registration referred to in 10 CFR 32.210, not to exceed three years.

B. Notwithstanding Paragraph A of this Condition, sealed sources designed to emit alpha particles shall be tested for leakage and/or contamination at intervals not to exceed three months.

C. In the absence of a certificate from a transferor indicating that a leak test has been made within six months prior to the transfer, a sealed source or detector cell received from another person shall not be put into use until tested.

D. Each sealed source fabricated by the licensee shall be inspected and tested for construction defects, leakage, and contamination prior to any use or transfer as a sealed source.

E. Sealed sources and detector cells need not be leak tested if:

(1) they contain only hydrogen-3; or

(ii) they contain only a radioactive gas; or

(iii) the half-life of the isotope is 30 days or less; or

(iv) they contain not more than 100 microcuries of beta and/or gamma emitting material or not more than 10 microcuries of alpha emitting material; or

(v) they are not designed to emit alpha particles, are in storage, and are not being used. However, when they are removed from storage for use or transfer to another person, and have not been tested within the required leak test interval, they shall be tested before use or transfer. No sealed source or detector cell shall be stored for a period of more than 10 years without being tested for leakage and/or contamination.

F. The test shall be capable of detecting the presence of 0.005 microcurie of radioactive material on the test sample. If the test reveals the presence of 0.005 microcurie or more of removable contamination, a report shall be filed with the U.S. Nuclear Regulatory Commission and the source or detector cell shall be removed immediately from service and decontaminated, repaired, or disposed of in accordance with Commission regulations. The report shall be filed within five days of the date the leak test result is known with the U.S. Nuclear Regulatory Commission, Region I, ATTN: Chief, Nuclear Materials Safety Branch, 475 Allendale Road, King of Prussia, Pennsylvania 19406. The report shall specify the source or detector cell involved, the test results, and corrective action taken.

G. The licensee is authorized to collect leak test samples for analysis by the licensee. Alternatively, tests for leakage and/or contamination may be performed by persons specifically licensed by the Commission or an Agreement State to perform such services.

17. Sealed sources or detector cells containing licensed material shall not be opened or sources removed from source holders by the licensee.

18. The licensee is authorized to hold radioactive material with a physical half-life of less than 65 days and Sulfur 35, Cobalt 58, Iridium 192, Scandium 46, for decay-in-storage before disposal in ordinary trash, provided:

A. Waste to be disposed of in this manner shall be held for decay a minimum of ten half-lives.

B. Before disposal as ordinary trash, the waste shall be surveyed at the container surface with the appropriate survey instrument set on its most sensitive scale and with no interposed shielding to determine that its radioactivity cannot be distinguished from background. All radiation labels shall be removed or obliterated.

C. A record of each such disposal permitted under this License Condition shall be retained for three years. The record must include the date of disposal, the date on which the byproduct material was placed in storage, the radionuclides disposed, the survey instrument used, the background dose rate, the dose rate measured at the surface of each waste container, and the name of the individual who performed the disposal.

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License number: 08-01738-02
Docket or Reference number: 030-01317

CORRECTED COPY

Amendment No. 66

19. Experimental animals, or the products from experimental animals, that have been administered licensed materials shall not be used for human consumption.

20. The licensee shall possess and use byproduct material for human research in accordance with the prescriptive and performance criteria in all sections of 10 CFR Part 35 except sections 35.49(a) and (b), 35.100, 35.200, and 35.300.

21. The licensee is authorized to transport licensed material in accordance with the provisions of 10 CFR Part 71, "Packaging and Transportation of Radioactive Material."

22. The licensee shall not acquire licensed material in a sealed source or device unless the source or device has been registered with the U.S. Nuclear Regulatory Commission pursuant to 10 CFR 32.210 or equivalent regulations of an Agreement State.

23. Radioactive waste generated shall be stored in accordance with the statements, representations, and procedures included with the waste storage plan described in the licensee's letter/application dated September 9, 1993 and October 29, 1993.

24. Notwithstanding the requirements of 10 CFR 35.315(a)(7), the licensee may control contamination in rooms used to house radiopharmaceutical therapy patients in accordance with the commitments and procedures contained in the letters dated April 8, 1992 and November 24, 1992.

25. 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, except for minor changes in the medical use radiation safety procedures as provided in 10 CFR 35.31. The U.S. 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 January 22, 1993
B. Letter dated September 9, 1993
C. Letter dated October 29, 1993
D. Letter dated December 9, 1993
E. Letter dated February 15, 1994
F. Letter dated June 2, 1994

Date OCT 13 1994

For the U.S. Nuclear Regulatory Commission
Original Signed By:
Francis M. Costello
By

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

OCT 13 1994

License No. 08-01738-02
Docket No. 030-01317
Control No. 117725

Headquarters
U.S. Army Medical Command
ATTN: Colonel Peter Myers
MCHO-CL-W
2050 Worth Road
Fort Sam Houston, Texas 78234-6000

Dear Colonel Myers:

Enclosed is the Corrected Copy of Amendment No. 66 for License No. 08-01738-02. As discussed during your recent inspection, the condition granting an exemption to the decontamination requirements of 10 CFR 35.315(a)(7) has been added to the amendment and the date of the renewal application has been corrected.

We apologize for any inconvenience this error may have caused.

Sincerely,

Original Signed By:
Francis M. Costello

Francis M. Costello, Chief
Medical Licensing Section
Nuclear Materials Safety Branch
Division of Radiation Safety
and Safeguards

Enclosure:
Corrected Copy of Amendment No. 66

bcc:
Department of the Army
Walter Reed Army Medical Center
ATTN: Lt. Col. William B. Johnson
Radiation Safety Officer
2681 Linden Lane
Silver Springs, Maryland 20910

~~DRSS:RI~~	DRSS:RI
Brown/kdb	Costello
10/ 5 /94	10/ 13 /94

OFFICIAL RECORD COPY - S:\NMSB\L0801738.02 - 10/05/94

ML 10

NOV 21 1994

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

ATTN: WILLIAM B. JOHNSON

RE: Docket Number: 030-01317
License Number: 08-01738-02

Dear Col. Johnson:

This letter acknowledges receipt of your letter dated November 1, 1994, in response to our letter which addressed deficiencies in your Quality Management Program (QMP). Your implementation of the QMP and its adequacy will be reviewed as part of the next NRC inspection. This inspection will include a review of your letter referenced above and any resulting changes to your QMP.

This QMP will not be incorporated into your license by condition. You have the flexibility to make changes to your quality management program without obtaining prior NRC approval. However, modifications to your program must be submitted to this Office within 30 days as required by 10 CFR 35.32(e).

Thank you for your cooperation in this matter; no reply is required in response to this letter.

Sincerely,

ORIGINAL SIGNED BY:
JENNY M. JOHANSEN
Jenny M. Johansen
Quality Management Program Coordinator
Region I

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09094

ML 10

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

REPLY TO
ATTENTION OF:

1 November 1994

Health Physics Office

SUBJECT: Quality Management Program (QMP), Reference Docket Number 030-01317, License Number 08-01738-02, QMP File Date of 27 January 1992, Region I

Nuclear Materials Safety Branch
Division of Radiation Safety and Safeguards
ATTENTION: QMP Coordinator/Mr. James P. Dwyer
U.S. Nuclear Regulatory Commission, Region I
475 Allendale Road
King of Prussia, Pennsylvania 19406-1415

Dear Mr. Dwyer:

Your letter of 28 September 1994, subject as above, was received by the Health Physics Office, Walter Reed Army Medical Center, Washington, D.C, on 27 October 1994. The referenced letter requested that we immediately update the Quality Management Program (QMP), which was dated 27 January 1992, and submit the new QMP to the NRC, Region I.

Since the QMP dated 27 January 1992, the following revisions and actions of the QMP have taken place:

a. A memorandum, dated 2 June 1994, subject: Additional Information for Review of Renewal of USNRC License No. 08-01738-02, mail control number 117725, was submitted to USNRC Office, Region I. Enclosure 2 of this memorandum provided the QMP for the Nuclear Medicine Service, Walter Reed Army Medical Center (WRAMC), dated 22 March 1994. Also the QMP for brachytherapy from the Radiation Oncology Service, WRAMC, was provided.

b. A new Brachytherapy QMP was approved and became effective on 1 September 1994. The revised brachytherapy QMP was forwarded to USNRC, Region I, by memorandum dated 15 September 1994, subject: QMP Revision.

Since the QMP has been completely revised from the document that was reviewed, request that the NRC review the current QMP for WRAMC to meet the objectives of 10 CFR 35.32. A copy of our current QMP is enclosed. The point of contact for questions regarding this submittal is the undersigned at 301 427-5104.

Enclosure
As Stated

WILLIAM B. JOHNSON
Colonel, U.S. Army
Chief, Health Physics Office &
Radiation Protection Officer

BRACHYTHERAPY QUALITY MANAGEMENT PROGRAM SOP

I. Quality Management Program

A. The five objectives which this program aims to achieve with high confidence are:

1. Written directive given prior to administration.
2. Patient I.D. verified by more than one method.
3. Final plan of treatment and dosimetry calculations are in accordance with the written directive.
4. Source loading, prior to implantation, in accordance with written directive.
5. Any unintended deviation from the written directive is identified, evaluated, and appropriate action taken.

B. Periodic review of the QMP includes:

1. All misadministrations.
2. All recordable events.
3. All brachytherapy procedures.
4. Frequency of review at least annually.
5. Retain records for three years.

II. QMP for Brachytherapy

A. Written Directive -- A written directive must be signed and dated by the authorized user prior to administration of the brachytherapy dose. This must include:

1. Name of patient.
2. Radionuclide.
3. Treatment site.
4. Applicator.
5. Cumulative dose and anatomical dose point.

B. Oral Directives -- Oral directives will generally not be issued. However, if an oral directive is given to modify a written directive, then the recommendations for documentation as specified in NRC Guide 8.33 will be followed.

C. Dosimetry Plan -- A (computer) dosimetry plan must be accepted by the authorized user prior to implantation. This plan must include:

1. Radiographic localization of sources (either actual or dummy) as the basis for verifying position of the sources and for calculating exposure time (or total dose).
2. Listing of source information, including radionuclide, position, and strength.
3. Dose or dose rate at selected anatomical points.
4. Initials and date of the authorized user.

Encl

D. Source Loading -- The individual loading the sources into the applicator (before implantation) must document the exact distribution and identity of the sources in the applicator. He must also check for consistency of:

1. Physical loading of sources in applicator
2. Dosimetry plan, and
3. Written directive.

A single-page form (see attached) will be used for this purpose, i.e., for ensuring consistency of the written directive, the dosimetry plan, and the actual loading of the sources in the applicator. The form requires the signature of the physician both before and after implantation, as well as the individual who loads the sources into the applicator.

E. Patient Identity -- The user and/or his designee will verify the patient's identity by asking his name and confirming the name and at least one of the following with the patient's record:

1. Birth date
2. Social security number
3. Address
4. Signature
5. ID bracelet
6. Hospital ID card
7. Military ID card.

The method of secondary identification will be documented.

F. Questions About Procedure -- The worker (e.g., technologist, dosimetrist, physicist) shall be encouraged to ask questions if there is any confusion or uncertainty regarding the details of the procedure, and will be instructed to not proceed if any discrepancy is noted.

G. Records -- Records generated by the QMP's procedures will be retained for a period of five years.

III. Annual Review

A. Methodology of review -- A review of the QM program will be conducted at least annually and will include ALL brachytherapy procedures done during the review period. The annual review will be conducted by a committee or designated individual such that an authorized user reviews his/her own procedures. Specifically, the review will include verification of the following:

1. Prior to implantation:

   a. Radionuclide
   b. Number of sources
   c. Source strengths
   d. Treatment site

2. After implantation but prior to completion of procedure:

   a. Radionuclide
   b. Total source strength
   c. Treatment site
   d. Exposure time (or equivalently, total dose);

B. Misadministrations -- The review will include all misadministrations and corrective actions taken.

C. Recordable events -- The review will include all recordable events and corrective actions taken.

D. Recommendations -- The existing QM program's policies and procedures will be reevaluated for effectiveness following the annual review. Actions which are required to make the program more effective will be identified in writing as part of the review.

E. Revisions to the QMP — Revisions to the QMP following the annual review will be submitted to the facility Radiation Safety Officer for subsequent submittal to the NRC regional office.

F. Records of Annual Review -- Records of the annual review, misadministrations, and recordable events will be retained as required by 10 CFR Part 35. The Chief Medical Physicist will be responsible for maintaining these records in an auditable form.

Merle B. Sprague

MERLE B. SPRAGUE
LTC, MC
Chief, Radiation Oncology Service

Walter Reed Army Medical Center
Radiation Oncology Service

TANDEM & OVOIDS IMPLANT WITH CESIUM-137

PATIENT: _____ ID: _____ DATE: _____

To Be Completed By Dosimetrist Before Loading of Sources:

LOADING (actual source strengths)

Tandem:	Tip:	_____	_____	_____	_____
Ovoids:	Rt/Lt:	_____	_____		
Caps:		_____	_____		

Total Number of Sources: _____ Total mg Ra eq: _____

Is this the loading used for the computer dosimetry plan? _____
Is this loading consistent with the written directive? _____

DOSIMETRIST: _____ *ONCOLOGIST:* _____
DATE: _____ *DATE:* _____

To Be Completed By Dosimetrist/Physicist After Loading Sources and Before Implantation:

	mg Ra eq	I.D.	Location	Color
Tandem:	_____	_____	_____	_____
	_____	_____	_____	_____
	_____	_____	_____	_____
	_____	_____	_____	_____
Ovoids:	_____	_____	_____	_____
	_____	_____	_____	_____

Does this loading agree with the dosimetrist's plan above? _____

DOSIMETRIST/PHYSICIST: _____ *DATE:* _____

To Be Completed By Oncologist After Implantation But Before Completion of Procedure:

D
I
A
G
R
A
M

Insertion date & time:	_____
Treatment site:	_____
Patient ID confirmed by:	_____
Number of sources implanted:	_____
Record loading sequence to left	_____
Sources implanted as listed above?	_____
Total number of hours (planned):	_____
Total mg x hours:	_____
Date & time for removal:	_____

ADDITIONAL INSTRUCTIONS: _____

ONCOLOGIST: _____ *DATE:* _____

To Be Completed After Removal of Implant:

Date & time of actual removal: _____
Number of sources removed: _____

INDIVIDUAL REMOVING SOURCES: _____ *DATE:* _____

9/94

Walter Reed Army Medical Center
Radiation Oncology Service

BRACHYTHERAPY TREATMENT WITH CESIUM-137

PATIENT: _____ ID: _____ DATE: _____

To Be Completed By Dosimetrist Before Loading of Sources:
(Based on Approved Computer Plan)

APPLICATOR:				
SOURCE:				
STRENGTH:				
POSITION:				

Total Number of Sources: _____
Total mg-Ra-eq: _____

Is this the loading used for the computer dosimetry plan? _____
Is this loading consistent with the written directive? _____

DOSIMETRIST: _____ *ONCOLOGIST:* _____
DATE: _____ *DATE:* _____

To Be Completed By Dosimetrist/Physicist After Loading Sources and Before Implantation:

	mg Ra eq	I.D.	Location	Color
Tandem:				
Ovoids:				

Does this loading agree with the dosimetrist's plan above? _____

DOSIMETRIST/PHYSICIST: _____ *DATE:* _____

To Be Completed By Oncologist After Implantation But Before Completion of Procedure:

D I A G R A M

Insertion date & time: _____
Treatment site: _____
Patient ID confirmed by: _____
Number of sources implanted: _____
Record loading sequence to left _____
Sources implanted as listed above? _____
Total number of hours (planned): _____
Total mg x hours: _____
Date & time for removal: _____

ADDITIONAL INSTRUCTIONS: _____
ONCOLOGIST: _____ *DATE:* _____

To Be Completed After Removal of Implant:

Date & time of actual removal: _____
Number of sources removed: _____

INDIVIDUAL REMOVING SOURCES: _____ *DATE:* _____

9/94

Walter Reed Army Medical Center
Radiation Oncology Service

PERMANENT SEED IMPLANT WITH GOLD-198

PATIENT: _____ **ID:** _____ **DATE:** _____

To Be Completed By Dosimetrist Before Loading of Sources:

LOADING

Location of Implant: _____

Number of seeds: _____ **Activity per seed:** _____

Total activity: _____

Is this the loading used for the computer dosimetry plan? _____
Is this loading consistent with the written directive? _____

DOSIMETRIST: _____ ***ONCOLOGIST:*** _____
DATE: _____ ***DATE:*** _____

To Be Completed By Dosimetrist/Physicist After Loading Sources and Before Implantation:

Number of seeds: _____ **Activity per seed:** _____

Total activity: _____

Does this loading agree with the dosimetrist's plan above? _____

DOSIMETRIST/PHYSICIST: _____ ***DATE:*** _____

To Be Completed By Oncologist After Implantation But Before Completion of Procedure:

	Insertion date & time:	_____
D	Treatment site:	_____
I	Patient ID confirmed by:	_____
A	Number of seeds implanted:	_____
G	Total activity implanted:	_____
R	Record loading sequence to left	_____
A	Seeds implanted as listed above?	_____
M		

ADDITIONAL INSTRUCTIONS: _____

ONCOLOGIST: _____ ***DATE:*** _____

Walter Reed Army Medical Center
Radiation Oncology Service

PERMANENT SEED IMPLANT WITH IODINE-125

PATIENT: _____ **ID:** _____ **DATE:** _____

To Be Completed By Dosimetrist Before Loading of Sources:

LOADING

Location of Implant: _____

Number of seeds: _____ **Activity per seed:** _____

Total activity: _____

Is this the loading used for the computer dosimetry plan? _____
Is this loading consistent with the written directive? _____

DOSIMETRIST: _____ ***ONCOLOGIST:*** _____
DATE: _____ ***DATE:*** _____

To Be Completed By Dosimetrist/Physicist After Loading Sources and Before Implantation:

Number of seeds: _____ **Activity per seed:** _____

Total activity: _____

Does this loading agree with the dosimetrist's plan above? _____

DOSIMETRIST/PHYSICIST: _____ ***DATE:*** _____

To Be Completed By Oncologist After Implantation But Before Completion of Procedure:

D
I
A
G
R
A
M

Insertion date & time: _____
Treatment site: _____
Patient ID confirmed by: _____
Number of seeds implanted: _____
Total activity implanted: _____
Record loading sequence to left _____
Seeds implanted as listed above? _____

ADDITIONAL INSTRUCTIONS: _____

ONCOLOGIST: _____ ***DATE:*** _____

HSHL-XN 22 March 1994

QUALITY MANAGEMENT

I. Quality Management Program, WRAMC Nuclear Medicine Service

A. The five objectives are:

1. Written directive given prior to administration.
2. Patient I.D. verified by more than one method.
3. Final plans of treatment and calculations are in accordance with written directives.
4. Each administration in accordance with written directives.
5. Any unintended deviation from written directives is I.D.'d, evaluated, and appropriate action is taken.

B. Develop procedures for and conduct a review of the QMP including:

1. All misadministration.
2. All recordable events.
3. A sampling of patient administrations... at intervals no greater than 12 months.
4. Retain records for three years.

II. Radiopharmaceutical QMP

C. For all Radiopharmaceutical Therapies and Diagnostic Iodine 131 & 125; Iodine MIBG & NP59; Strontium-89 Chloride, and Phosphorus-32 IV.

1. Authorized user - Sign and date written directive (Radiopharmaceutical, Dosage, Route of Administration) before administration. (Delays, oral directives and revisions OK under certain circumstances. 10 CFR 35.32(a)(1).).

2. User and/or Designee verify patient identity by more than one method:

a) Ask patient name, confirm, and,
b) Birth date, or
c) Social security number, or
d) Address, or
e) Signature, or
f) ID Bracelet, or
g) Hospital ID card, or
h) Military ID card.

II. Radiopharmaceutical QMP cont.

3. Person administering dose verify details of administration:
   a) Radiopharmaceutical
   b) Dose
   c) Route of Administration

4. Encourage worker to ask questions.

5. User or supervised person date and sign/initial written record (chart).

See enclosure Radiopharmaceutical Administration Checklist

III. Annual Review

6. At least annually the QMP review will consist of:

   a) Random Sample of therapies representative of the following patient administrations:

Lot size	Sample size	Acceptance No.
20	ALL	0
21 - 100	20	0
>100	20%	0

   b) All misadministration
   c) All recordable events.

For each patient case, compare administered vs. prescribed for

   a) Written directive complete
   b) Patient identity verified
   c) Radiopharmaceutical
   d) Dose
   e) Route of administration

Ana A. Rodriguez

ANA A. RODRIGUEZ
COL, MC
CHIEF, NUCLEAR MEDICINE SERVICE

1 encl

RADIOPHARMACEUTICAL ADMINISTRATION CHECKLIST

(To be filled out by individuals administering a therapeutic dosage of any radiopharmaceutical other than sodium iodine I-125 or I-131 (SR-89 MIBG, NP-59, P-32), or any dosage greater than 30 microcuries of sodium iodide I-125 or I-131).

PLACE RADIOPHARMACEUTICAL STICKER HERE

DIRECTIONS: Complete the items below in the order listed, and initial each item when completed. If you do not fully understand how to carry out the written directive (PRESCRIPTION/CONSENT FORM) for this administration, halt the procedure and contact the Chief, Nuclear Medicine Service, or other authorized user immediately.

PART I - BEFORE ADMINISTRATION

Attach a copy of the written directive (PRESCRIPTION/CONSENT FORM) for the dosage prepared. _____ initials

The written directive (PRESCRIPTION/CONSENT FORM) is signed and dated by an authorized user. _____ initials

The patient's identity checked verbally and confirmed as the individual named in the written directive (PRESCRIPTION/CONSENT FORM) by comparison with corresponding information in the patient's record using at least one of the following means of identification. _____ initials
(Listed in order of preference. Check applicable means.)

1._____Military ID card
2._____Name on the patient's ID bracelet
3._____Drivers license photo
4._____Other (__SSAN __Birth date __Address __Signature)

The radiopharmaceutical to be administered is the same as that identified on the written directive (PRESCRIPTION/CONSENT FORM). _____ initials

Route of administration (circle): I.V. I.M. P.O. Other_____ (what?)

The dosage to be administered is the same as that identified on the written directive (PRESCRIPTION/CONSENT FORM). _____ initials

Laboratory test results (Beta HCG, TSH, CBC, etc) have been reviewed. _____ initials

PART II - AFTER ADMINISTRATION

Date and time of dose administration: _____ DATE _____ TIME

Record, date, and initial the administered dosage on the patients's consult, and place in the Nuclear Medicine Folder. _____ initials

REVIEWED BY (AUTHORIZED USER):

_____ SIGNATURE _____ DATE

SEP 2 8 1994

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

ATTN: LTC ARTHUR G. SAMILJAN,

RE: Docket Number: 030-01317
License Number: 08-01738-02
Plan File Date: 27-JAN-92
Region Number: 1

Dear Mr. Samiljan:

This refers to the review of your written Quality Management Program (QMP) submitted in accordance with 10 CFR 35.32. A review of the QMP was performed to determine whether policies and procedures have been developed to meet the objectives of the rule. Based on this submission, there appear to be significant weaknesses and potential substantial failure of your QMP to meet the objectives in 10 CFR 35.32 in that:

Regarding Brachytherapy

1 A written QMP must be established and maintained for each Brachytherapy use as required in 10 CFR 35.32(f)(1). Please submit your QMP for your Brachytherapy program.

2 Please be advised that multiple misadministrations and other errors have occurred due to sources that are inaccurately placed or have moved. In addition, wrong organs have been irradiated as a result of unintentional and undetected movement of the source, once implanted. Each licensee should review their procedures to ensure that source positions are verified and frequently checked.

Regarding I-125 and /or I-131 > 30 microcuries

1 A written QMP must be established and maintained for each I-125 and /or I-131 > 30 microcuries use as required in 10 CFR 35.32(f)(1). Please provide your QMP for your NaI I-125 or I-131 >30 microcuries.

Regarding Therapeutic Radiopharmaceutical other than I-125 and/or I-131

1 A written QMP must be established and maintained for use of Radiopharmaceuticals for therapy other than I-125 and I-131 as required in 10 CFR35.32(f)(1). Please submit your QMP for your Radiopharmaceutical therapy.

To meet the requirements in 10 CFR 35.32, you may choose to utilize the procedures described in Regulatory Guide 8.33(enclosed), or submit procedures that are equivalent. If you choose to use Regulatory Guide 8.33, be certain that the procedures you select are adjusted to meet the specific needs of your program as necessary. Additionally, you are reminded that training and/or instruction of supervised individuals in your QMP is required by 10 CFR 35.25.

Due to the apparent failure of your written QMP to meet the objectives in 10 CFR 35.32, you must immediately modify your written QMP to address the items listed above, and provide those modifications to your NRC regional office within 30 days of the date of this letter. NRC will review these matters during your next routine NRC inspection to determine whether violations of NRC requirements have occurred. Enforcement action may be taken at that time for failure to meet the requirements of 10 CFR 35.32.

Please be advised that this QMP will not be incorporated into your license by condition. This allows you the flexibility to make changes to your quality management program without obtaining prior NRC approval. When modifications are made to your program, You should submit any changes to your QMP to this Office within 30 days as required by 10 CFR 35.32(e).

Your QMP was reviewed by an NRC contractor following a standard review plan and related checklist provided by the NRC staff. This letter outlining the findings of that review was prepared by the contractor utilizing standard paragraphs previously reviewed and approved by NRC headquarters and regional management. If you have any questions about this review, you may call me at (610)337-5309. Thank you for your cooperation in this matter.

Sincerely,

James P. Dwyer
Quality Management Program Coordinator
Region I

Enclosure: As stated

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

REPLY TO
ATTENTION OF:

September 15, 1994

Health Physics Office

030-01317

SUBJECT: Quality Management Program (QMP) Revision

Nuclear Materials Safety Branch
Division of Radiation Safety and Safeguards
ATTENTION: QMP Coordinator
U.S. Nuclear Regulatory Commission, Region I
475 Allendale Road
King of Prussia, Pennsylvania 19406-1415

Dear QMP Coordinator

Walter Reed Army Medical Center uses radioactive material authorized by US Nuclear Regulatory Commission Byproduct Material License Number 08-01738-02 with an expiration date of June 30, 1999. This a medical broadscope Type A license for human use and research.

The Radiation Oncology Service has just completed a comprehensive review and total revision of the Brachytherapy Quality Management Program SOP. The new Brachytherapy QMP was approved and became effective September 1, 1994. Please note that the Radiopharmaceutical QMP, dated 22 March 1994, has not been changed. This revision only effects the Brachytherapy QMP.

The Brachytherapy QMP and supporting forms are submitted as required by 10 CFR 35.32(e). If you have any questions regarding this submittal, please contact the undersigned at 301 427-5104.

William B. Johnson

WILLIAM B. JOHNSON
Lieutenant Colonel, U.S. Army
Chief, Health Physics Office

Enclosures
as

ML 10
SEP 23 1994

BRACHYTHERAPY QUALITY MANAGEMENT PROGRAM SOP

I. Quality Management Program

A. The five objectives which this program aims to achieve with high confidence are:

1. Written directive given prior to administration.
2. Patient I.D. verified by more than one method.
3. Final plan of treatment and dosimetry calculations are in accordance with the written directive.
4. Source loading, prior to implantation, in accordance with written directive.
5. Any unintended deviation from the written directive is identified, evaluated, and appropriate action taken.

B. Periodic review of the QMP includes:

1. All misadministrations.
2. All recordable events.
3. All brachytherapy procedures.
4. Frequency of review at least annually.
5. Retain records for three years.

II. QMP for Brachytherapy

A. Written Directive -- A written directive must be signed and dated by the authorized user prior to administration of the brachytherapy dose. This must include:

1. Name of patient.
2. Radionuclide.
3. Treatment site.
4. Applicator.
5. Cumulative dose and anatomical dose point.

B. Oral Directives -- Oral directives will generally not be issued. However, if an oral directive is given to modify a written directive, then the recommendations for documentation as specified in NRC Guide 8.33 will be followed.

C. Dosimetry Plan -- A (computer) dosimetry plan must be accepted by the authorized user prior to implantation. This plan must include:

1. Radiographic localization of sources (either actual or dummy) as the basis for verifying position of the sources and for calculating exposure time (or total dose).
2. Listing of source information, including radionuclide, position, and strength.
3. Dose or dose rate at selected anatomical points.
4. Initials and date of the authorized user.

D. Source Loading -- The individual loading the sources into the applicator (before implantation) must document the exact distribution and identity of the sources in the applicator. He must also check for consistency of:

1. Physical loading of sources in applicator
2. Dosimetry plan, and
3. Written directive.

A single-page form (see attached) will be used for this purpose, i.e., for ensuring consistency of the written directive, the dosimetry plan, and the actual loading of the sources in the applicator. The form requires the signature of the physician both before and after implantation, as well as the individual who loads the sources into the applicator.

E. Patient Identity -- The user and/or his designee will verify the patient's identity by asking his name and confirming the name and at least one of the following with the patient's record:

1. Birth date
2. Social security number
3. Address
4. Signature
5. ID bracelet
6. Hospital ID card
7. Military ID card.

The method of secondary identification will be documented.

F. Questions About Procedure -- The worker (e.g., technologist, dosimetrist, physicist) shall be encouraged to ask questions if there is any confusion or uncertainty regarding the details of the procedure, and will be instructed to not proceed if any discrepancy is noted.

G. Records -- Records generated by the QMP's procedures will be retained for a period of five years.

III. Annual Review

A. Methodology of review -- A review of the QM program will be conducted at least annually and will include ALL brachytherapy procedures done during the review period. The annual review will be conducted by a committee or designated individual such that an authorized user reviews his/her own procedures. Specifically, the review will include verification of the following:

1. Prior to implantation:

a. Radionuclide
b. Number of sources
c. Source strengths
d. Treatment site

2. After implantation but prior to completion of procedure:

   a. Radionuclide
   b. Total source strength
   c. Treatment site
   d. Exposure time (or equivalently, total dose);

B. Misadministrations -- The review will include all misadministrations and corrective actions taken.

C. Recordable events -- The review will include all recordable events and corrective actions taken.

D. Recommendations -- The existing QM program's policies and procedures will be reevaluated for effectiveness following the annual review. Actions which are required to make the program more effective will be identified in writing as part of the review.

E. Revisions to the QMP — Revisions to the QMP following the annual review will be submitted to the facility Radiation Safety Officer for subsequent submittal to the NRC regional office.

F. Records of Annual Review -- Records of the annual review, misadministrations, and recordable events will be retained as required by 10 CFR Part 35. The Chief Medical Physicist will be responsible for maintaining these records in an auditable form.

Merle B. Sprague

MERLE B. SPRAGUE
LTC, MC
Chief, Radiation Oncology Service

Walter Reed Army Medical Center
Radiation Oncology Service

TANDEM & OVOIDS IMPLANT WITH CESIUM-137

PATIENT: _____ **ID:** _____ **DATE:** _____

To Be Completed By Dosimetrist Before Loading of Sources:

LOADING (actual source strengths)

Tandem:	**Tip:**	_____	_____	_____	_____
Ovoids:	**Rt/Lt:**	_____	_____		
Caps:		_____	_____		

Total Number of Sources: _____ **Total mg Ra eq:** _____

Is this the loading used for the computer dosimetry plan? _____
Is this loading consistent with the written directive? _____

DOSIMETRIST: _____ ***ONCOLOGIST:*** _____
DATE: _____ ***DATE:*** _____

To Be Completed By Dosimetrist/Physicist After Loading Sources and Before Implantation:

	mg Ra eq	I.D.	Location	Color
Tandem:	_____	_____	_____	_____
	_____	_____	_____	_____
	_____	_____	_____	_____
	_____	_____	_____	_____
Ovoids:	_____	_____	_____	_____
	_____	_____	_____	_____

Does this loading agree with the dosimetrist's plan above? _____

DOSIMETRIST/PHYSICIST: _____ ***DATE:*** _____

To Be Completed By Oncologist After Implantation But Before Completion of Procedure:

D	Insertion date & time:	_____
I	Treatment site:	_____
A	Patient ID confirmed by:	_____
G	Number of sources implanted:	_____
R	Record loading sequence to left	_____
A	Sources implanted as listed above?	_____
M	Total number of hours (planned):	_____
	Total mg x hours:	_____
	Date & time for removal:	_____

ADDITIONAL INSTRUCTIONS: _____

ONCOLOGIST: _____ ***DATE:*** _____

To Be Completed After Removal of Implant:

Date & time of actual removal: _____
Number of sources removed: _____

INDIVIDUAL REMOVING SOURCES: _____ ***DATE:*** _____

9/94

Walter Reed Army Medical Center
Radiation Oncology Service

BRACHYTHERAPY TREATMENT WITH CESIUM-137

PATIENT: _____ ID: _____ DATE: _____

To Be Completed By Dosimetrist Before Loading of Sources:
(Based on Approved Computer Plan)

APPLICATOR:	_____	_____	_____	_____
SOURCE:	_____	_____	_____	_____
STRENGTH:	_____	_____	_____	_____
POSITION:	_____	_____	_____	_____

Total Number of Sources: _____
Total mg-Ra-eq: _____

Is this the loading used for the computer dosimetry plan? _____
Is this loading consistent with the written directive? _____

DOSIMETRIST: _____ *ONCOLOGIST:* _____
DATE: _____ *DATE:* _____

To Be Completed By Dosimetrist/Physicist After Loading Sources and Before Implantation:

	mg Ra eq	I.D.	Location	Color
Tandem:	_____	_____	_____	_____
	_____	_____	_____	_____
	_____	_____	_____	_____
	_____	_____	_____	_____
Ovoids:	_____	_____	_____	_____
	_____	_____	_____	_____

Does this loading agree with the dosimetrist's plan above? _____

DOSIMETRIST/PHYSICIST: _____ *DATE:* _____

To Be Completed By Oncologist After Implantation But Before Completion of Procedure:

DIAGRAM

Insertion date & time: _____
Treatment site: _____
Patient ID confirmed by: _____
Number of sources implanted: _____
Record loading sequence to left _____
Sources implanted as listed above? _____
Total number of hours (planned): _____
Total mg x hours: _____
Date & time for removal: _____

ADDITIONAL INSTRUCTIONS: _____
ONCOLOGIST: _____ *DATE:* _____

To Be Completed After Removal of Implant:

Date & time of actual removal: _____
Number of sources removed: _____

INDIVIDUAL REMOVING SOURCES: _____ *DATE:* _____

9/94

Walter Reed Army Medical Center
Radiation Oncology Service

PERMANENT SEED IMPLANT WITH GOLD-198

PATIENT: _____ **ID:** _____ **DATE:** _____

To Be Completed By Dosimetrist Before Loading of Sources:

LOADING

Location of Implant: _____

Number of seeds: _____ **Activity per seed:** _____

Total activity: _____

Is this the loading used for the computer dosimetry plan? _____
Is this loading consistent with the written directive? _____

DOSIMETRIST: _____ ***ONCOLOGIST:*** _____
DATE: _____ ***DATE:*** _____

To Be Completed By Dosimetrist/Physicist After Loading Sources and Before Implantation:

Number of seeds: _____ **Activity per seed:** _____

Total activity: _____

Does this loading agree with the dosimetrist's plan above? _____

DOSIMETRIST/PHYSICIST: _____ ***DATE:*** _____

To Be Completed By Oncologist After Implantation But Before Completion of Procedure:

DIAGRAM

Insertion date & time: _____
Treatment site: _____
Patient ID confirmed by: _____
Number of seeds implanted: _____
Total activity implanted: _____
Record loading sequence to left _____
Seeds implanted as listed above? _____

ADDITIONAL INSTRUCTIONS: _____

ONCOLOGIST: _____ ***DATE:*** _____

Written directives for brachytherapy, other than high-dose-rate remote afterloading brachytherapy, as defined in 10CFR35.2, must include: the radioisotope, number of sources, and source strengths; and after implantation, but prior to completion of the procedure: the radioisotope, treatment site, and total source strength and exposure time (or, equivalently, the total dose). Your QMP must include a written policy/procedure which requires that any written directives for brachytherapy doses will include all treatment parameters prior to administration. Your QMP is missing procedures to require that the written directive include:

(a)Order for a specific patient.
(b)Dated and signature of authorized user
(c)Prior to implantation:
(d) the radioisotope,
(e) number of sources,
(f) source strengths;.
(g)After implantation, but prior to completion of the procedure:
(h) the radioisotope,
(i) treatment site,
(j) total source strength and exposure time (or, equivalently, the total dose)

60. Documentation of oral revisions and oral directives: _ YES √ NO (18a)

a. Policies/Procedures for documentation of oral revisions to existing written directive signed and dated by an a.u. or physician under the supervision of an a.u. within 48 hours of the oral revision

A footnote to 10 CFR 35.32(a)(1) provides that an oral revision to a written directive is acceptable if, because of the patient's condition, a delay in order to provide a written revision to an existing written directive would jeopardize the patient's health. Oral revisions must be documented immediately in the patient's record and a revised written directive must be signed and dated by an authorized user or physician under the supervision of an authorized user within 48 hours of the oral revision. Please include such a policy in your QMP.

b. If, a delay in order to provide a written directive would jeopardize the patients health, an oral directive will be acceptable, provided that information is documented immediately in the patient's record and a written directive is prepared within 24 hours of the oral directive. Please include such a provision in your QMP _ YES √ NO (18b)

If, because of the emergent nature of the patient's condition, a delay in order to provide a written directive would jeopardize the patients health, an oral directive will be acceptable, provided that the information provided in the oral directive is documented immediately in the patient's record and a written directive is prepared within 24 hours of the oral directive.

61. Revisions to written directives dated and signed by a.u. prior to administration of brachytherapy dose or next fraction of brachytherapy dose _ YES √ NO (22)

Revisions to written directives for brachytherapy may be made provided that the revision is dated and signed by an authorized user prior to the administration of the brachytherapy dose or the next brachytherapy fractional dose. Your QMP must include a policy/procedure that requires that revisions to written directives will be made prior to administration of the brachytherapy dose or next fractional brachytherapy dose.

OBJECTIVE 2 - PATIENT IDENTITY VERIFICATION [10 CFR 35.32 (a)(2)]

62. Procedure to verify patient's identity by more than one method prior to administration _ YES √ NO (23d)

Procedures to verify the patient's identity by more than one method prior to administration, as required by 10 CFR 35.32(a)(2) have not been adequately addressed

in your QMP. Your QMP must include a policy/procedure to require that, prior to each Brachytherapy administration, the patient's identity will be verified by more than one method as the individual named in the written directive as required by 10 CFR 35.32(a)(2).

OBJECTIVE 3 - TREATMENT PLANS VERIFICATION (NOT APPLICABLE TO RADIOPHARMACEUTICAL THERAPY)

63. For brachytherapy other than high-dose-rate remote afterloaders:

a. a plan of treatment will be prepared in accordance with the respective written directive. _ YES X NO (24a)

b. procedures for performing a check of dose calculations (i.e., computer-generated dose calculations and/or manual dose calculations). Dose calculations checked by an authorized user or a qualified person under the supervision of an authorized user (e.g., a radiation therapy physicist, oncology physician, dosimetrist, or radiation therapy technologist), who whenever possible did not make the original calculations. _ YES X NO (24b)

c. verification of the position of dummy sources or fixed geometry applicators prior to inserting sealed sources _ YES X NO (24c)

d. performance of acceptance testing on each treatment planning or dose calculating computer program that could be used for dose calculations, and checking computer generated dose calculations _ YES X NO (24d)

Your submittal does not include policies/procedures that ensure that final plans of treatment and related calculations for brachytherapy are in accordance with the written directive as required by 10 CFR 35.32(a)(3). Your procedures should require that:

a. a plan of treatment will be prepared in accordance with the respective written directive.

b. procedures for performing a check of dose calculations (i.e., computer-generated dose calculations and/or manual dose calculations) are prepared. Procedures for checking the dose calculations before administration of the prescribed brachytherapy dose. An authorized user or a qualified person under the supervision of an authorized user (e.g., a radiation therapy physicist, oncology physician, dosimetrist, or radiation therapy technologist), who whenever possible did not make the original calculations, should check the dose calculations.

c. verification of the position of dummy sources or fixed geometry applicators prior to inserting sealed sources, is accomplished

d. acceptance testing on each treatment planning or dose calculating computer program that could be used for dose calculations, and checking computer generated dose calculations is performed.

OBJECTIVE 4 - VERIFICATION PRIOR TO ADMINISTRATION TO WRITTEN DIRECTIVE [10 CFR 35.32(a)(4)]

64a. Procedures to ensure, before administration, that each administration is in accordance with the written directive. _ YES X NO (29d)

Your submittal for brachytherapy does not include policies/procedures that ensure that each administration is in accordance with the written directive as required by 10CFR35.32(a)(4). Please include such a provision in your QMP.

64b. The person administering the brachytherapy treatment should confirm the prescribed radioisotope, number of sources, source strengths, treatment site, loading sequence, total dose. (*Reviewer, if any one item is missing, mark "no") _ YES Y NO (29e)

Your procedures should include a requirement for verification, before administering each brachytherapy dose, that the specific details of the administration are in accordance with the written directive and plan of treatment. The prescribed radioisotope, number of sources, source strengths, treatment site, loading sequence, and total dose should be confirmed by the person administering the brachytherapy treatment to verify agreement with the written directive and treatment plan.

64c. Prompt recording, by the authorized user, of the number of sources and the actual loading sequence of the radioactive sources implanted (e.g., location of each sealed source in a tube, tandem, or cylinder) and sign or initial the patient's chart or appropriate record. _ YES Y NO (29f)

Your procedures should include a requirement for prompt recording, by the authorized user, of the number of sources and the actual loading sequence of the radioactive sources implanted (e.g., location of each sealed source in a tube, tandem, or cylinder) and sign or initial the patient's chart or appropriate record.

65. Commitment for all workers to seek guidance if they do not understand how to carry out the written directive _ YES Y NO (31)

Your QMP must include a policy for instruction of all workers to seek guidance if they do not understand how to carry out the written directive. Please include such a provision in your QMP.

66. A written directive and records of each administered Brachytherapy must be maintained for three years. _ YES Y NO (33)

Your QMP must include a commitment to retain each written directive and a record of each administered radiation dose for three years after the date of administration as required in 10 CFR 35.32(d). Describe the procedure for a qualified individual under the supervision of an authorized user (e.g., an oncology physician, radiation therapy physicist, dosimetrist, or radiation therapy technologist), after administering a dose or dose fraction, to make, date, and sign or initial a written record. Your procedure should describe what this record will include.

OBJECTIVE 5 - UNINTENDED DEVIATIONS [10 CFR 35.32(a)(5)]

67. Policies/Procedures for identification and evaluation of unintended deviations from the written directive _ YES X NO (34d)

Your QMP for **Brachytherapy** must include policies/procedures to identify and evaluate any unintended deviations from a written directive and to institute corrective actions to be taken after the deviation has been identified as required by 10 CFR 35.32(a)(5). Please include such a provision in your QMP.

68a. Institution of corrective actions to be taken after the deviation has been identified _ YES Y NO (35)

Your QMP must include policies/procedures to institute corrective actions to be taken after an unintended deviation has been identified

EVALUATION AND RESPONSE TO RECORDABLE EVENTS [10 CFR 35.32(c)]

68b. Commitment for evaluation and response to each recordable event by: (i) assembling the relevant facts including the cause; (ii) identifying what, if any, corrective action is required to prevent recurrence; and (iii) retaining a record, in an auditable form, for three years, of the relevant facts and what corrective action was taken. _ YES X NO (1)

As required in 10 CFR35.32(c), the licensee shall evaluate and respond, within 30 days after discovery of the recordable event, to each recordable event by:(i) assembling the relevant facts including the cause; (ii) identifying what, if any, corrective action is required to prevent recurrence; and (iii) retaining a record, in an auditable form, for three years, of the relevant facts and what corrective action was taken.

PERIODIC REVIEWS OF THE QM PROGRAM [10 CFR 35.32(b)]

69. Time intervals (intervals not to exceed 12 months) _ YES X NO (36d)

Your submittal for Brachytherapy does not provide adequate procedures to conduct periodic reviews of your QMP as required by 10 CFR 35.32(b). You must include the time intervals for your reviews These reviews should be conducted at intervals no greater than 12 months.

70. Review includes an evaluation of acceptable representative sample of all patient administrations, all recordable events, and misadministrations _ YES X NO (37)

Your QMP review does not provide an evaluation of (i) an adequate representative sample of patient administrations (ii) all recordable events, and (iii) all misadministrations since the last review as required in 10 CFR 35.32(b)(1). The number of patient cases to be sampled should be based on the principles of statistical acceptance sampling and should represent each modality performed in the institution (e.g., radiopharmaceutical, teletherapy, brachytherapy, and gamma stereotactic radiosurgery). You may develop a sampling procedure of your own; use the chart provided in 10 CFR 32.110 (assuming an error rate of 2 percent); or a representative sample may be selected including (at a minimum): 20% if the number of cases performed is greater than 100, 20 cases if the number of cases is between 20 and 100, and all, if the number of cases is less than 20.) Provide a copy of your revised QMP to include this provision.

71. Includes procedure to expand review if recordable events or misadministration is uncovered during the periodic review of your QMP. _ YES X NO (38)

According to guidance provided by Regulatory Guide 8.33, your QMP should include a procedure to expand the number of cases reviewed when a misadministration or recordable event is uncovered during the periodic review of your QMP. Please include this provision in your QMP.

72. Procedures for determining the effectiveness of the QM program and, if necessary, making modifications to meet the objectives of the program _ YES X NO (39)

Describe your procedures to evaluate the effectiveness of the QMP, and, if necessary, to make modifications to meet the objectives of the program as required by 10 CFR 35.32(b)(2).

73. Modifications to QM program submitted to NRC within 30 days after modification has been made _ YES ✓ NO (40)

Please provide assurance that modifications to your QMP will be submitted to the NRC within 30 days after the modification has been made as required by 10 CFR 35.32 (e).

74. Records of each review and evaluation to be maintained for 3 years _ YES ✓ NO (41)

Please provide assurance that records of each review and evaluation will be maintained for three years as required in 10 CFR 35.32 (b)(3).

COMMENTS: No binding QMP

Quality Management Program for I-125 and/or I-131 > 30uCi

75. A written QMP for I-125 and/or I-131>30 uCi was provided. _ YES _ NO (3e)

A written QMP must be established and maintained for each I-125 and/or I-131>uCi use as required in 10 CFR 35.32(f)(1). Please provide your QMP for your **NaI I-125 or I-131 >30 microCi.**

76. Written certification that QM program has been implemented _ YES _ NO (4)

Each applicable Part 35 licensee is required to submit a written certification that their QMP has been implemented along with a copy of their plan, pursuant to 10 CFR 35.32(f)(2). Please provide written certification that your QMP has been implemented.

OBJECTIVE 1 - WRITTEN DIRECTIVE [10 CFR 35.32(a)(1)]

77a. A written directive is prepared for administration of greater than 30 uCi of I-125 and/or I-131 _ YES _ NO (7)

The preparation of written directives prior to the administration of quantities greater than 30 microcuries of either sodium iodide I-125 or I-131 is required by 10 CFR 35.32(a)(1). Your QMP must include a written policy that requires that such a written directive be prepared prior to each patient administration.

The QMP provides procedures to require that the written directive include:

77b. an order for a specific patient..... _ YES _ NO (8a)
77c. date and signature of authorized user..... _ YES _ NO (8b)
77d. dosage to be administered..... _ YES _ NO (8c)

The written directive must be an order for a specific patient, dated and signed by an authorized user or physician under the supervision of an authorized user, and , for any administration of quantities greater than 30 microcuries of either I-125 or I-131, the dosage. Your QMP is missing procedures to require that the written directive for I-125 and/or I-131>30 uCi:

(a) be an order for a specific patient
(b) is dated and signed by the authorized user
(c) contains the dosage to be administered.

78. Documentation of oral revisions and oral directives: _ YES _ NO (18a)

a. Documentation of oral revisions to existing written directive signed and dated by an a.u. or physician under the supervision of an a.u. <u>within 48 hours of the oral revision</u>

A footnote to 10 CFR 35.32(a)(1) provides that an oral revision to a written directive is acceptable if, because of the patient's condition, a delay in order to provide a written revision to an existing written directive would jeopardize the patient's health. Oral revisions must be documented immediately in the patient's record and a revised written directive must be signed and dated by an authorized user or physician under the supervision of an authorized user <u>within 48 hours of the oral revision</u>. Please include such a policy in your QMP.

b. If, a delay in order to provide a written directive would jeopardize the patients health, an oral directive will be acceptable, provided that information is documented immediately in the patient's record and a written directive is prepared within 24 hours of the oral directive. Please include such a provision in your QMP _ YES √ NO (18b)

If, because of the emergent nature of the patient's condition, a delay in order to provide a written directive would jeopardize the patients health, an oral directive will be acceptable, provided that the information provided in the oral directive is documented immediately in the patient's record and a written directive is prepared within 24 hours of the oral directive.

79. Revisions to written directives dated and signed by a.u. prior to administration of a radiopharmaceutical dosage _ YES _ NO (19)

Revisions to written directives may be made for any diagnostic or therapeutic procedure provided that the revision is dated and signed by an authorized user prior to the administration of the radiopharmaceutical dosage. Your QMP must include a policy/procedure that requires that revisions to written directives will be made prior to administration.

OBJECTIVE 2 - PATIENT IDENTITY VERIFICATION [10 CFR 35.32 (a)(2)]

80. Procedure to verify patient's identity by more than one method prior to administration _ YES _ NO (23e)

Procedures to verify the patient's identity by more than one method prior to administration, as required by 10 CFR 35.32(a)(2) have not been adequately addressed in your QMP. Your QMP must include a policy/procedure to require that, prior to each NaI I-125 or I-131 >30 microCi administration, the patient's identity will be verified by more than one method as the individual named in the written directive as required by 10 CFR 35.32(a)(2).

OBJECTIVE 3 - TREATMENT PLANS VERIFICATION (NOT APPLICABLE TO RADIOPHARMACEUTICAL ADMINISTRATION)

OBJECTIVE 4 - VERIFICATION PRIOR TO ADMINISTRATION TO WRITTEN DIRECTIVE [10 CFR 35.32(a)(4)]

81a. Procedures to ensure, before administration, that each administration is in accordance with the written directive. _ YES _ NO (27a)

Your submittal for I-125 and/or I-131 > 30uCi administration does not include policies/procedures that ensure that each administration is in accordance with the written directive as required by 10 CFR 35.32(a)(4). Describe your policy/procedure to verify, before administering the byproduct material, that the specific details of the administration are in accordance with the written directive.

81b. For I-125 and/or I-131 > 30uCi:

Dosage measured in dose calibrator and results compared with the prescribed dosage in the written directive X YES _ NO (27b) 10,8-27

According to guidance provided by Regulatory Guide 8.33, the dosage, should be confirmed by the person administering the radiopharmaceutical to verify agreement with the written directive, that is, the dosage should be measured in the dose calibrator and the results compared with the prescribed dosage in the written directive. Please provide such (or similar) procedures in your QMP.

82. Commitment for all workers to seek guidance if they do not understand how to carry out the written directive — _ YES _ NO (31)

Your QMP must include a policy for instruction of all workers to seek guidance if they do not understand how to carry out the written directive. Please include such a provision in your QMP.

83. A written directive and records of each administered I-125 and/or I-131>30 uCi must be maintained for three years. — _ YES X NO (32)

A commitment to retain each written directive and a record of each administered radiopharmaceutical dosage for three years after the date of administration is required in 10 CFR 35.32(d). Describe the procedure for an authorized user or a qualified individual under the supervision of an authorized user (e.g., a nuclear medicine physician, physicist, or technologist), after administering a radiopharmaceutical, to make, date, sign or initial a written record that documents the administered dosage in an auditable form.

OBJECTIVE 5 - UNINTENDED DEVIATIONS [10 CFR 35.32(a)(5)]

84. Policies/Procedures for identification and evaluation of unintended deviations from the written directive — _ YES X NO (34e)

Your QMP for NaI I-125 or I-131 >30 microCi must include policies/procedures to identify and evaluate any unintended deviations from a written directive and to institute corrective actions to be taken after the deviation has been identified as required by 10 CFR 35.32(a)(5). Please include such a provision in your QMP.

85a. Institution of corrective actions to be taken after the deviation has been identified — _ YES _ NO (35)

Your QMP must include policies/procedures to institute corrective actions to be taken after an unintended deviation has been identified.

EVALUATION AND RESPONSE TO RECORDABLE EVENTS [10 CFR 35.32(c)]

85b. Commitment for evaluation and response to each recordable event by: (i) assembling the relevant facts including the cause; (ii) identifying what, if any, corrective action is required to prevent recurrence; and (iii) retaining a record, in an auditable form, for three years, of the relevant facts and what corrective action was taken. — _ YES X NO (1)

As required in 10 CFR35.32(c), the licensee shall evaluate and respond, within 30 days after discovery of the recordable event, to each recordable event by:(i) assembling the relevant facts including the cause; (ii) identifying what, if any, corrective action is required to prevent recurrence; and (iii) retaining a record, in an auditable form, for three years, of the relevant facts and what corrective action was taken.

PERIODIC REVIEWS OF THE QM PROGRAM [10 CFR 35.32(b)]

86. Time intervals (intervals not to exceed 12 months) — _ YES X NO (36e)

Your submittal for NaI I-125 or I-131 >30 microCi does not provide adequate procedures to conduct periodic reviews of your QMP as required by 10 CFR 35.32(b). You must include the time intervals for your reviews. These reviews should be conducted at intervals no greater than 12 months.

Walter Reed Army Medical Center
Radiation Oncology Service

PERMANENT SEED IMPLANT WITH IODINE-125

PATIENT: _____ **ID:** _____ **DATE:** _____

To Be Completed By Dosimetrist Before Loading of Sources:

LOADING

Location of Implant: _____

Number of seeds: _____ **Activity per seed:** _____

Total activity: _____

Is this the loading used for the computer dosimetry plan? _____
Is this loading consistent with the written directive? _____

DOSIMETRIST: _____ ***ONCOLOGIST:*** _____
DATE: _____ ***DATE:*** _____

To Be Completed By Dosimetrist/Physicist After Loading Sources and Before Implantation:

Number of seeds: _____ **Activity per seed:** _____

Total activity: _____

Does this loading agree with the dosimetrist's plan above? _____

DOSIMETRIST/PHYSICIST: _____ ***DATE:*** _____

To Be Completed By Oncologist After Implantation But Before Completion of Procedure:

DIAGRAM

Insertion date & time: _____
Treatment site: _____
Patient ID confirmed by: _____
Number of seeds implanted: _____
Total activity implanted: _____
Record loading sequence to left _____
Seeds implanted as listed above? _____

ADDITIONAL INSTRUCTIONS: _____

ONCOLOGIST: _____ ***DATE:*** _____

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

LICENSE NO. 08-01738-02 DOCKET NO. 030-01317

HSHL-XN 22 March 1994

QUALITY MANAGEMENT

I. Quality Management Program, WRAMC Nuclear Medicine Service

A. The five objectives are:

1. Written directive given prior to administration.
2. Patient I.D. verified by more than one method.
3. Final plans of treatment and calculations are in accordance with written directives.
4. Each administration in accordance with written directives.
5. Any unintended deviation from written directives is I.D.'d, evaluated, and appropriate action is taken.

B. Develop procedures for and conduct a review of the QMP including:

1. All misadministration.
2. All recordable events.
3. A sampling of patient administrations... at intervals no greater than 12 months.
4. Retain records for three years.

II. Radiopharmaceutical QMP

C. For all Radiopharmaceutical Therapies and Diagnostic Iodine 131 & 125; Iodine MIBG & NP59; Strontium-89 Chloride, and Phosphorus-32 IV.

1. Authorized user - Sign and date written directive (Radiopharmaceutical, Dosage, Route of Administration) before administration. (Delays, oral directives and revisions OK under certain circumstances. 10 CFR 35.32(a)(1).).

2. User and/or Designee verify patient identity by more than one method:

a) Ask patient name, confirm, and,
b) Birth date, or
c) Social security number, or
d) Address, or
e) Signature, or
f) ID Bracelet, or
g) Hospital ID card, or
h) Military ID card.

Encl 2

JUN 0 6 1994

II. Radiopharmaceutical QMP cont.

3. Person administering dose verify details of administration:
   a) Radiopharmaceutical
   b) Dose
   c) Route of Administration

4. Encourage worker to ask questions.

5. User or supervised person date and sign/initial written record (chart).

See enclosure Radiopharmaceutical Administration Checklist

III. Annual Review

6. At least annually the QMP review will consist of:

   a) Random Sample of therapies representative of the following patient administrations:

Lot size	Sample size	Acceptance No.
20	ALL	0
21 - 100	20	0
>100	20%	0

   b) All misadministration
   c) All recordable events.

For each patient case, compare administered vs. prescribed for

   a) Written directive complete
   b) Patient identity verified
   c) Radiopharmaceutical
   d) Dose
   e) Route of administration

Ana A. Rodriguez

ANA A. RODRIGUEZ
COL, MC
CHIEF, NUCLEAR MEDICINE SERVICE

1 encl

RADIOPHARMACEUTICAL ADMINISTRATION CHECKLIST

(To be filled out by individuals administering a therapeutic dosage of any radiopharmaceutical other than sodium iodine I-125 or I-131 (SR-89 MIBG, NP-59, P-32), or any dosage greater than 30 microcuries of sodium iodide I-125 or I-131).

PLACE RADIOPHARMACEUTICAL STICKER HERE

DIRECTIONS: Complete the items below in the order listed, and initial each item when completed. If you do not fully understand how to carry out the written directive (PRESCRIPTION/CONSENT FORM) for this administration, halt the procedure and contact the Chief, Nuclear Medicine Service, or other authorized user immediately.

PART I - BEFORE ADMINISTRATION

Attach a copy of the written directive (PRESCRIPTION/CONSENT FORM) for the dosage prepared. _____ initials

The written directive (PRESCRIPTION/CONSENT FORM) is signed and dated by an authorized user. _____ initials

The patient's identity checked verbally and confirmed as the individual named in the written directive (PRESCRIPTION/CONSENT FORM) by comparison with corresponding information in the patient's record using at least one of the following means of identification. _____ initials
(Listed in order of preference. Check applicable means.)

1._____Military ID card
2._____Name on the patient's ID bracelet
3._____Drivers license photo
4._____Other (__SSAN __Birth date __Address __Signature)

The radiopharmaceutical to be administered is the same as that identified on the written directive (PRESCRIPTION/CONSENT FORM). _____ initials

Route of administration (circle): I.V. I.M. P.O. Other_____ (what?)

The dosage to be administered is the same as that identified on the written directive (PRESCRIPTION/CONSENT FORM). _____ initials

Laboratory test results (Beta HCG, TSH, CBC, etc) have been reviewed. _____ initials

PART II - AFTER ADMINISTRATION

Date and time of dose administration: _____ DATE _____ TIME

Record, date, and initial the administered dosage on the patients's consult, and place in the Nuclear Medicine Folder. _____ initials

REVIEWED BY (AUTHORIZED USER):

_____ SIGNATURE _____ DATE

QUALITY MANAGEMENT PROGRAM - BRACHYTHERAPY

The following is an extract from Chapter 3, the Radiation Oncology Service Policy and Procedure Manual, Walter Reed Army Medical Center.

3.2.7.11 Quality Management Program for WRAMC Radioactive Material Permit Program. The NRC has amended Part 35 of its regulations governing the therapeutic administration of radiation and radioactive material covered by the hospital's WRAMC Radioactive Materials Permit. A complete copy of the affected changes is located in Federal Register, Volume 56, Number 143, of 25 July 1991, pages 34120-34122. These changes affect brachytherapy procedures with Radiation Oncology. The changes effected are summarized here:

1. Definitions. In radiation oncology, MISADMINISTRATION means the administration of a brachytherapy radiation dose:

   a. Involving the wrong patient, wrong radioisotope, or wrong treatment site (excluding, for permanent implants, seeds that were implanted in the correct site but migrated outside the treatment site);

   b. Involving a sealed source that is leaking;

   c. When for a temporary implant, one or more sealed sources are not removed upon completion of the procedure; or

   d. When the calculated administered dose differs from the prescribed dose by more than 20 percent of the prescribed dose.

   RECORDABLE EVENT means the administration of:

   a. Radiation without a written directive (see definition below) where a written directive is required;

   b. A brachytherapy radiation dose when the calculated administered dose differs from the prescribed dose by more than 10 percent of the prescribed dose.

Encl 3

Extract of the Quality Management Program for Brachytherapy, Chapter 3, Policy & Procedure Manual, Radiation Oncology, WRAMC, September 1993

WRITTEN DIRECTIVE means an order in writing for a specific patient, dated and signed by an authorized user prior to the administration of radiation, containing the following information:

a. For high-dose-rate remote afterloading brachytherapy: the radioisotope, treatment site, and total dose; or

b. For all other brachytherapy:

(1) Prior to implantation: the radioisotope, number of sources, and source strengths; and

(2) After implantation but prior to completion of the procedure: the radioisotope, treatment site, and total source strength and exposure time (or, equivalently, the total dose).

ORAL DIRECTIVES AND REVISIONS TO WRITTEN DIRECTIVES: A footnote to 10 CFR 35.32(a)(1) reads as follows:

"If, because of the patient's medical condition, a delay in order to provide a written directive would jeopardize the patient's health, an oral revision to an existing written directive will be acceptable, provided that the oral revision is documented immediately in the patient's record and a revised written directive is dated and signed by the authorized user within 48 hours of the oral directive.

Also, a written revision to an existing written directive may be made for any diagnostic or therapeutic procedure provided that the revision is dated and signed by an authorized user prior to the administration of the radiopharmaceutical dosage, the brachytherapy dose, the gamma stereotactic radiosurgery dose, the teletherapy dose or the next teletherapy fractional dose.

If, because of the emergent nature of the patient's medical condition, a delay in order to provide a written directive would jeopardize the patient's health and oral directive will be acceptable, provided that the information contained in the oral directive is documented immediately in the patient's record and a written directive is prepared within 24 hours of the oral directive."

3.2.7.12 QUALITY MANAGEMENT PROGRAM. Major aspects of the Brachytherapy Quality Management Program a WRAMC includes:

a. A written directive is required for and must be written prior to any brachytherapy radiation dose.

b. Prior to each administration the patient's identity must be verified by more than one method as the individual named in the written directive.

c. All workers must seek guidance if they do not understand how to carry out the written directive.

d. Final plans of treatment and related calculations for brachytherapy must be in accordance with the respective written directive.

e. Each administration must be in accordance with the written directive.

f. For temporary and permanent implants radiographs or other comparable images (e.g. CT) of the brachytherapy radioactive sources (or dummies) shall be obtained for verifying the position of the sources and calculation of dose. This may not be necessary for fixed geometry applicators (e.g., templates).

g. The authorized user will promptly record in the patient's chart the actual loading sequence of the radioactive sources implanted.

h. After insertion of the brachytherapy sources but prior to completion of the procedure, the authorized user will enter in the patient's record the radioisotope, treatment site, and total source strength and exposure time (or, equivalently, the total dose).

i. Within 24-hours of the implant or before the total prescribed brachytherapy dose has been administered, computer and manual calculation shall be checked.

j. Any unintended deviation from the written directive must be identified and evaluated as a recordable event or misadministration. An investigation and evaluation with the division is required and recommendations for corrective action will be implemented. Appropriate action must be taken. A summary of evaluation will be presented to the quarterly meeting of the Radiation Control Committee. A copy of the evaluation of recordable events will be sent within thirty days to Health Services Command.

k. A review of the quality management program must be conducted at intervals no greater than 12 months.

QUALITY MANAGEMENT (QM) PROGRAM CHECKLIST

1. *NAME OF LICENSEE: [illegible]

Date QM Plan submitted to NRC [illegible]

*License No.: 08-01[illegible]

*Docket No.: [illegible]

Telephone No.: ( )

LLNL Authorization Reviewer# 16

Reviewer# [illegible] Reviewer Loc (UCSF or other) [illegible]

2nd Reviewer# 54 Reviewer Loc (UCSF or other) UCSF

LLNL Reviewer#

Reviewer's Notes:

[illegible]

Send to UCSF with $2.95 and complete usual docket

NO QAP for St. Jo.

Reviewers: Cross out comments which are no longer relevant. Date and initial comments. This information will not be stored in database. These are comments to the tracking office.

*R.S.O. [illegible] (include title ,e.g. Dr., Mr., Ms., etc.)

*Department [illegible] (e.g., Nuclear Med., Radiation Oncology, etc.)

*Street or P.O. Box [illegible]

*City Washington State DC Zip Code [illegible]

*Reviewer: Take this information from license only.

2a. Authorized user for Teletherapy (35.600)..... ☐ YES ☒ NO ☐ U

2b. Authorized user for Gamma Stereotactic Radiosurgery..... ☐ YES ☒ NO ☐ U

2c. Authorized user for High-Dose-Rate Remote Afterloading Brachytherapy (HDR)..... ☐ YES ☒ NO ☐ U

2d. Authorized user for Brachytherapy (35.400)..... ☒ YES ☐ NO ☐ U

2e. Authorized user for I-125 and/or I-131> 30 uCi

Any or all of 35.100, 35.200, 35.300, unless both I-125 and I-131 are excluded or not included in section 6 of license ..... ☒ YES ☐ NO ☐ U

2f. Authorized user for Radiopharmaceutical Therapy other than I-125 and/or I-131 (35.300)..... ☒ YES ☐ NO ☐ U

Reviewer: U means that the licensee is authorized for this modality but has stated in a letter that the facility will not be using this modality in practice.

Quality Management Program for Brachytherapy

57. A written QMP for Brachytherapy was provided. _ YES X NO (3d)

A written QMP must be established and maintained for each Brachytherapy use as required in 10 CFR 35.32(f)(1). Please provide your QMP for your Brachytherapy program

58. Written certification that QM program has been implemented _ YES _ NO (4)

Each applicable Part 35 licensee is required to submit a written certification that their QMP has been implemented long with a copy of their plan, pursuant to 10 CFR 35.32(f)(2). Please provide written certification that your QMP has been implemented.

OBJECTIVE 1 - WRITTEN DIRECTIVE [10 CFR 35.32(a)(1)]

59a. A written directive is prepared for Brachytherapy, other than high-dose-rate: _ YES X NO (11)

10 CFR 35.32(a)(1) requires that QMPs for brachytherapy include a procedure for the preparation of written directives prior to administration of any brachytherapy dose. The written directive must be an order for a specific patient, dated and signed by an authorized user or physician under the supervision of an authorized user. Your QMP must include a written policy that requires that such a written directive be prepared for each patient.

The QMP provides procedures to require that the written directive include: (12)

59b. Order for a specific patient..... _ YES X NO (12a)
59c. Dated and signed by authorized user ..... _ YES X NO (12b)

Prior to implantation: (12c)

59d. the radioisotope, ... _ YES X NO (12d)
59e. number of sources,..... _ YES X NO (12e)
59f. source strengths;..... _ YES X NO (12f)

After implantation, but prior to completion of the procedure: (12g)

59g. the radioisotope, ... _ YES X NO (12h)
59h. treatment site, ... _ YES X NO (12i)
59i. total source strength and exposure time (or, equivalently, the total dose)..... _ YES X NO (12j)

87. Review includes an evaluation of acceptable representative sample of all patient administrations, all recordable events, and misadministrations. _ YES _ NO (37)

Your QMP review does not provide an evaluation of (i) an adequate representative sample of patient administrations (ii) all recordable events, and (iii) all misadministrations since the last review as required in 10 CFR 35.32(b)(1). The number of patient cases to be sampled should be based on the principles of statistical acceptance sampling and should represent each modality performed in the institution (e.g., radiopharmaceutical, teletherapy, brachytherapy, and gamma stereotactic radiosurgery). You may develop a sampling procedure of your own; use the chart provided in 10 CFR 32.110 (assuming an error rate of 2 percent); or a representative sample may be selected including (at a minimum): 20% if the number of cases performed is greater than 100, 20 cases if the number of cases is between 20 and 100, and all, if the number of cases is less than 20.) Provide a copy of your revised QMP to include this provision.

88. Includes procedure to expand review if recordable events or misadministration is uncovered during the periodic review of your QMP. _ YES _ NO (38)

According to guidance provided by Regulatory Guide 8.33, your QMP must include a procedure to expand the number of cases reviewed when a misadministration or recordable event is uncovered during the periodic review of your QMP. Please include such a provision in your QMP.

89. Procedures for determining the effectiveness of the QM program and, if necessary, making modifications to meet the objectives of the program. _ YES _ NO (39)

Describe your procedures to evaluate the effectiveness of the QMP, and, if necessary, to make modifications to meet the objectives of the program as required by 10 CFR 35.32(b)(2).

90. Modifications to QM program submitted to NRC within 30 days after modification has been made _ YES _ NO (40)

Please provide assurance that modifications to your QMP will be submitted to the NRC within 30 days after the modification has been made as required by 10 CFR 35.32(e).

91. Records of each review and evaluation to be maintained for 3 years _ YES _ NO (41)

Please provide assurance that records of each review and evaluation will be maintained for three years as required in 10 CFR 35.32 (b)(3).

COMMENTS: No mod plan submitted

Quality Management Program for Therapeutic Radiopharmaceutical other than I-125 or I-131

92. A written QMP for Therapeutic Radiopharmaceutical other than I-125 or I-131 was provided. _ YES X NO (3f)

A written QMP must be established and maintained for Radiopharmaceutical use as required in 10 CFR 35.32(f)(1). Please submit your QMP for your Radiopharmaceutical therapy.

93. Written certification that QM program has been implemented X YES _ NO (4)

Each applicable Part 35 licensee is required to submit a written certification that their QMP has been implemented along with a copy of their plan, pursuant to 10 CFR 35.32.f)(2). Please provide written certification that your QMP has been implemented.

OBJECTIVE 1 - WRITTEN DIRECTIVE [10 CFR 35.32(a)(1)]

94a. A written directive is prepared for administration of therapeutic radiopharmaceutical other than I-125 and/or I-131 _ YES X NO (9)

10 CFR 35.32(a)(1) requires a QMP to include policies and procedures for the preparation of a written directive, prior to the administration of any therapeutic radiopharmaceutical, other than sodium iodide I-125 or I-131. Please provide such a policy in your QMP.

The QMP provides procedures to require that the written directive include:

94b. Radiopharmaceutical..... _ YES X NO (10a)
94c. Dosage..... _ YES X NO (10b)
94d. Route of administration..... _ YES X NO (10c)
94e. Order for a specific patient..... _ YES X NO (10d)
94f. Dated and signed by authorized user..... _ YES X NO (10e)

The written directive must be an order for a specific patient, dated and signed by an authorized user or physician under the supervision of an authorized user, and, for a therapeutic use of a radiopharmaceutical other than I-125 or I-131, the radiopharmaceutical, dosage, and route of administration. Your QMP is missing procedures to require that the written directive for therapeutic radiopharmaceutical other than I-125 and/or I-131 include:

(a) Radiopharmaceutical
(b) Dosage
(c) Route of administration
(d) Order for a specific patient
(e) Date and signed by authorized user

95. Documentation of oral revisions and oral directives:

a. Policies/Procedures for documentation of oral revisions to existing written directive signed and dated by an a.u. or physician under the supervision of an a.u. within 48 hours of the oral revision — _ YES X NO (18a)

A footnote to 10 CFR 35.32(a)(1) provides that an oral revision to a written directive is acceptable if, because of the patient's condition, a delay in order to provide a written revision to an existing written directive would jeopardize the patient's health. Oral revisions must be documented immediately in the patient's record and a revised written directive must be signed and dated by an authorized user or physician under the supervision of an authorized user within 48 hours of the oral revision. Please include such a policy in your QMP.

b. If, a delay in order to provide a written directive would jeopardize the patients health, an oral directive will be acceptable, provided that information is documented immediately in the patient's record and a written directive is prepared within 24 hours of the oral directive. Please include such a provision in your QMP. — _ YES _ NO (18b)

If, because of the emergent nature of the patient's condition, a delay in order to provide a written directive would jeopardize the patients health, an oral directive will be acceptable, provided that the information provided in the oral directive is documented immediately in the patient's record and a written directive is prepared within 24 hours of the oral directive.

96. Revisions to written directives dated and signed by a.u. prior to administration of a radiopharmaceutical dosage — _ YES _ NO (19)

Revisions to written directives may be made for any diagnostic or therapeutic procedure provided that the revision is dated and signed by an authorized user prior to the administration of the radiopharmaceutical dosage. Your QMP must include a policy/procedure that requires that revisions to written directives will be made prior to administration.

OBJECTIVE 2 - PATIENT IDENTITY VERIFICATION [10 CFR 35.32 (a)(2)]

97. Procedure to verify patient's identity by more than one method prior to administration — _ YES X NO (23f)

Procedures to verify the patient's identity by more than one method prior to administration, as required by 10 CFR 35.32(a)(2) have not been adequately addressed in your QMP. Your QMP must include a policy/procedure to require that, prior to each Therapeutic Radiopharmaceutical other than I-125 or I-131 administration, the patient's identity will be verified by more than one method as the individual named in the written directive as required by 10 CFR 35.32(a)(2).

OBJECTIVE 3 - TREATMENT PLANS VERIFICATION (NOT APPLICABLE TO RADIOPHARMACEUTICAL THERAPY)

OBJECTIVE 4 - VERIFICATION PRIOR TO ADMINISTRATION TO WRITTEN DIRECTIVE [10 CFR 35.32(a)(4)]

98a. Procedures to ensure, before administration, that each administration is in accordance with the written directive. _ YES _ NO (27c)

Your submittal for administration of therapeutic radiopharmaceutical other than I-125 or I-131 does not include policies/procedures that ensure that each administration is in accordance with the written directive as required by 10 CFR 35.32(a)(4). Describe your policy/procedure to verify , before administering the byproduct material, that the specific details of the administration are in accordance with the written directive.

98b. Confirm the radiopharmaceutical, dosage and route of administration

Dosage measured in dose calibrator and results compared with the prescribed dosage in the written directive _ YES _ NO (27d)

According to guidance provided by Regulatory Guide 8.33, the radiopharmaceutical, dosage, and route of administration should be confirmed by the person administering the radiopharmaceutical to verify agreement with the written directive, that is, the dosage should be measured in the dose calibrator and the results compared with the prescribed dosage in the written directive. Please provide such (or similar) procedures in your QMP.

99. Commitment for all workers to seek guidance if they do not understand how to carry out the written directive _ YES _ NO (31)

Your QMP must include a policy for instruction of all workers to seek guidance if they do not understand how to carry out the written directive. Please include such a provision in your QMP.

100. A written directive and records of each administered Therapeutic Radiopharmaceutical other than I-125 or I-131 must be maintained for three years. _ YES _ NO (32)

A commitment to retain each written directive and a record of each administered radiopharmaceutical dosage for three years after the date of administration is required in 10 CFR 35.32(d)(2). Describe the procedure for an authorized user or a qualified individual under the supervision of an authorized user (e.g., a nuclear medicine physician, physicist, or technologist), after administering a radiopharmaceutical, to make, date, sign or initial a written record that documents the administered dosage in an auditable form.

OBJECTIVE 5 - UNINTENDED DEVIATIONS [10 CFR 35.32(a)(5)]

101. Policies/Procedures for identification and evaluation of unintended deviations from the written directive _ YES _ NO (34f)

Your QMP for **Therapeutic Radiopharmaceutical other than I-125 or I-131** must include policies/procedures to identify and evaluate any unintended deviations from a written directive and to institute corrective actions to be taken after the deviation has been identified as required by 10 CFR 35.32(a)(5). Please include such a provision in your QMP.

102a. Institution of corrective actions to be taken after the deviation has been identified _ YES _ NO (35)

Your QMP must include policies/procedures to institute corrective actions to be taken after an unintended deviation has been identified

EVALUATION AND RESPONSE TO RECORDABLE EVENTS [10 CFR 35.32(c)]

102b. Commitment for evaluation and response to each recordable event by: (i) assembling the relevant facts including the cause; (ii) identifying what, if any, corrective action is required to prevent recurrence; and (iii) retaining a record, in an auditable form, for three years, of the relevant facts and what corrective action was taken. _ YES _ NO (1)

As required in 10 CFR35.32(c), the licensee shall evaluate and respond, within 30 days after discovery of the recordable event, to each recordable event by:(i) assembling the relevant facts including the cause; (ii) identifying what, if any, corrective action is required to prevent recurrence; and (iii) retaining a record, in an auditable form, for three years, of the relevant facts and what corrective action was taken.

PERIODIC REVIEWS OF THE QM PROGRAM [10 CFR 35.32(b)]

103. Time intervals (intervals not to exceed 12 months) _ YES _ NO (36f)

Your submittal for **Therapeutic Radiopharmaceutical other than I-125 or I-131** does not provide adequate procedures to conduct periodic reviews of your QMP as required by 10 CFR 35.32(b). You must include the time intervals for your reviews. These reviews should be conducted at intervals no greater than 12 months.

104. Review includes an evaluation of acceptable representative sample of all patient administrations, all recordable events, and misadministrations _ YES _ NO (37)

Your QMP review does not provide an evaluation of (i) an adequate representative sample of patient administrations (ii) all recordable events, and (iii) all misadministrations since the last review as required in 10 CFR 35.32(b)(1). The number of patient cases to be sampled should be based on the principles of statistical acceptance sampling and should represent each modality performed in the institution (e.g., radiopharmaceutical, teletherapy, brachytherapy, and gamma stereotactic radiosurgery). You may develop a sampling procedure of your own; use the chart provided in 10 CFR 32.110 (assuming an error rate of 2 percent); or a representative sample may be selected including (at a minimum): 20% if the number of cases performed is greater than 100, 20 cases if the number of cases is between 20 and 100, and all, if the number of cases is less than 20.) Provide a copy of your revised QMP to include this provision.

105. Includes procedure to expand review if recordable events or misadministration is uncovered during the periodic review of your QMP. _ YES _ NO (38)

According to guidance provided by Regulatory Guide 8.33, your QMP should include a procedure to expand the number of cases reviewed when a misadministration or recordable event is uncovered during the periodic review of your QMP. Please include such a provision in your QMP.

106. Procedures for determining the effectiveness of the QM program and, if necessary, making modifications to meet the objectives of the program _ YES _ NO (39)

Describe your procedures to evaluate the effectiveness of the QMP, and, if necessary, to make modifications to meet the objectives of the program as required by 10 CFR 35.32(b)(2).

107. Modifications to QM program submitted to NRC within 30 days after modification has been made _ YES _ NO (40)

Please provide assurance that modifications to your QMP will be submitted to the NRC within 30 days after the modification has been made as required by 10 CFR 35.32 (e)

108. Records of each review and evaluation to be maintained for 3 years _ YES _ NO (41)

Please provide assurance that records of each review and evaluation will be maintained for three years as required in 10 CFR 35.32 (b)(3).

COMMENTS: No real plan here.

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

REPLY TO ATTENTION OF:

January 10, 1992

Nuclear Medicine Service

030-01317
08-01738-02

United States Nuclear Regulatory Commission
Region I
475 Allendale Road
King of Prussia, Pennsylvania 19406

Gentlemen:

Pursuant to Title 10, Chapter 1, Code of Federal Regulations, Part 35, Section 35.32(f)(2), we provide you with written certification that a Quality Management Program, or continuous Quality Improvement (CQI) Plan, is implemented at Walter Reed Army Medical Center.

Referenced in paragraph 1 of the CQI are the written policies and procedures which make up the plan (Enclosure). Also enclosed is a copy of the Nuclear Medicine Service Pharmacy Standing Operating Procedures (SOP) which contain the specific objectives as established in 10 CFR 35.

Sincerely,

Roy D. Quick, Jr.
Major, U.S. Army
Executive Officer

Enclosures

WR Dpt. of the Army
RSO HP Office
2681 Linden Ln
Silver Spring

JAN 27 1992

NUCLEAR MEDICINE SERVICE
DEPARTMENT OF RADIOLOGY
WALTER REED ARMY MEDICAL CENTER

CONTINOUS QUALITY IMPROVEMENT (CQI) PLAN (REV, 03/01/92)

1. References:
   a. AR-40-66
   b. WRAMC REG 40-60
   c. WRAMC REG 40-92
   d. JCAH MANUAL
   e. JCAH QUALITY REVIEW BULLETIN, SEP 1986
   f. QA PLAN, DEPT OF RADIOLOGY 1990
   g. WRAMC NUCLEAR MEDICINE SERVICE PHARMACY SOP
   h. U.S. NRC REGULATORY GUIDE 10.8, AUGUST 1987 (rev 2)
   I. WRAMC NUCLEAR MEDICINE IMAGING SOP

2. Responsibility: Colonel Jay H. Anderson, MC, Chief, Nuclear Medicine Service has been appointed the Quality Assurance Officer for the Nuclear Medicine Service. He shall be responsible for coordinating all monitoring and evaluation of the quality and appropriateness of care in the Nuclear Medicine Service.

3. Scope: The Nuclear Medicine Service provides diagnostic nuclear medicine procedures, both imaging and non-imaging, for in-patients and out-patients, interprets these studies and performs radionuclide therapy in accordance with appropriate standards of practice and governing regulations.

4. Important Aspects of Care:

(A). Assessing patient condition to determine special needs for supervision.

(B). Assessing risk factors in the following patient population:
   (1). Patients with fractures or limitation of motion.
   (2). Cardiac patients being tested by stress testing.
   (3). Pediatric patients.
   (4). Women during childbearing years.
   (5). Senile patients.
   (6). Disoriented or comatose patients.

(C). Staff performance during procedures:
   (1). Radiopharmaceutical dose preparation.
   (2). Administering radiopharmaceuticals.
   (3). Patient imaging
   (4). Computer analysis of studies.
   (5). Providing patient with specific instructions as to the risks, benefits and side affects of specific treatments.
   (6). Alievating patients fears about radioactivity.

5. Indicators: See attached appendix A.

6. Criteria: See attached appendix A.

7. Data Collection: See attached appendix A.

8. Problem Solving:

a. A monthly Nuclear Medicine Service CQI meeting will address ongoing indicators and identify new problems, which if validated will be entered into the tracking system.

b. Based on the nature of the problem, an individual or a group of individuals will be given responsibility to investigate the problem and recommend corrective action where necessary.

9. Reports: The minutes of the Nuclear Medicine Service CQI Committee will be forwarded to the CQI committee of the Dept of Radiology. A copy will be maintained by the NMS.

10. The CQI coordinator will be responsible for an annual review and update of the Total Quality Management plan (January), including the monthly Peer Review, and CQI minutes. The CQI Plan incorporates the reccomendations published in the Federal Register (10CFR 35.32) on July 25 1991. Specific issues are addressed in the references cited at the top of this document.

11. The Nuclear Medicine Parmacist will be responsible for maintaining optimal radiopharmacy practices, and will provide an annual review of the NMS SOP to include quality control and radiation safety which will be updated and modified to comply with federal regulations.

12. The Technical Director and the Imaging Supervisor will be responsible for an annual review and update of the Imaging SOP, monthly technologist peer review, and supervising the instrument quality control on a daily basis. A consulting physicist will review these procedures at least bi-annually.

13. The RIA Supervisory Technologist is responsible for maintainance of optimal practices and an annual review of the SOP.

14.Confidentiality: All Quality Assurance activities, all committee members and all personnel engaged in the Quality Assurance program will be bound by the confidentiality Policy.

15. Reports, minutes, and other findings may not be released to or discussed with any person or agency except those mandated by Chief, Nuclear Medicine Service. These activities may be reviewed by JCAHO or any professional surveyor for the purpose of accreditation. Such professional accreditation review will be the sole exception to the confidentality policy.

Jay H. Anderson
COL, MC
Chief, Nuclear Medicine Service

DEPARTMENT OF RADIOLOGY -- NUCLEAR MEDICINE SERVICE
ON-GOING QUALITY ASSURANCE MONITORING PROGRAM

INDICATOR	CRITERIA	HOW MONITORED	WHO MONITORS	MONITORING FREQUENCY	RESULTS
Misadministration of radionuclides	No more than 3 per 12 months (< 3 / 10000)	Review of each administration by Health Physics Office	Radiopharmacist	Semiannually (Feb and Oct)	No misadministsrations indetified during the past 12 months
Patient Waiting Times (appointment delays)	3 days inpatient 3 weeks outpatients	Weekly review of scheduling times	Receptionist and QA Coordinator	Semiannually (Mar and Sep)	
Patient satisfaction	< 5% dissatisfied	Review of patient survey questionaries	NM QA Coordinator and service chief	Semiannually (Mar and Sep)	
Pathologic confirmation of thyroid malignancy prior to 131-I therapy	< 2 per year (2 / 10 to 12		NM Staff physicians	Annually	
Monthly case (peer review) results	< 5% overall disagreement on an annualized basis	Independent monthly case review by all NM staff physicians and fellows	Assistant Chief, NM service	Annually (Jun)	Less than 1 case per 2 weeks (< 1/200) All identified reporting discrepencies corrected immediately
Weekly case conference	No reporting discrepencies	Joint weekly case review by NM staff physicians and fellows	NM Fellows and service chief	Monthly	
Instrument Down Time	Being Established	Monthly log	Tech Supervisor	Monthly	
Infiltrated Doses which require reinjection	< 1%	Pharmacy log	Radiopharmacy	Semiannually	

INTENT

THE INTENT OF THIS SOP IS TO PROVIDE GUIDANCE FOR THE OPERATION OF THE NUCLEAR PHARMACY

SECTION I. NUCLEAR PHARMACY SOP

TABLE OF CONTENTS

SECTION II.

FORMULA RECORD WORKSHEETS

SECTION II.

NUCLEAR MEDICINE SERVICE DIRECTIVES

NUCLEAR PHARMACY SOP

1. PURPOSE: The purpose of this SOP is to describe the procurement, compounding, quality control, and dispensing of radiopharmaceuticals to include investigational new agents.

2. FUNCTIONS OF NUCLEAR PHARMACIST:

a. Assure safety, effectiveness and correctness of radioactive drugs used in patients at WRAMC through biological, chemical, physical, and radiological testing and radioactive drug use surveillance.

b. Assists in clinical and laboratory investigations using radioactive drugs through consultation, drug formulation and safety testing, assisting principal investigators with the preparation of research protocols, and INDs and carrying out the portion of the Pharmacy Service's responsibility to the WRAMC investigational drug program that pertains to the use of radioactive drugs in humans.

c. Provides didactic and laboratory instruction and examination in nuclear pharmacy courses and programs in support of nuclear medicine, nuclear medicine technology, radiation health physics, and clinical nuclear pharmacy courses, programs, residencies, and clerkships.

d. Develops and evaluates new radiopharmaceuticals and new radiopharmaceutical compounding and testing procedures and evaluates those developed by other institutions and by manufacturers.

e. Provides nuclear pharmacy services within the WRAMC Nuclear Medicine Services:

(1) Maintains a continuous inventory of the best quality radiopharmaceuticals available at the least practical cost; includes commercial and in-house formulations.

(2) Prepares and dispenses quality control tested radiopharmaceuticals in precalibrated doses ready for patient administration.

(3) Orders, receives, assays and stores radioactive drugs IAW WRAMC, DA, and federal regulations.

(4) Maintains prescription, formulation, receipt, inventory, use and disposal records pertaining to approved and investigational radioactive drugs as required by military, federal, and WRAMC rules and regulations.

(5) Monitors and reduces laboratory radiation levels and surveys for and decontaminates spilled radioactive material in cooperation with WRAMC Health Physics Officer.

(6) Instructs Nuclear Medicine Service personnel in laboratory techniques for safe handling of radioactive materials.

(7) Conducts Nuclear Pharmacy laboratory training for nuclear medicine technologists and nuclear medicine residents.

3. QUALIFICATIONS AND DUTIES OF NUCLEAR PHARMACIST:

a. The nuclear pharmacist should be certified by the American Pharmaceutical Association, Board of Pharmaceutical Specialties as a Nuclear Pharmacist. As a minimum the radiopharmacist will be a registered pharmacist with training and experience in nuclear pharmacy, nuclear medical science, and radiation health physics.

b. Serves as a member of the WRAMC Radiation Control Committee.

c. Has operational control of nuclear medicine technologists and technicians working in the Nuclear Pharmacy laboratory.

d. Supervises radiation safety procedures, laboratory, and personnel radiation monitoring, radioactive waste handling and related health physics operations within the nuclear pharmacy in close cooperation with the WRAMC Health Physics officer.

e. Coordinates storage, preparation, use, disposal and records-keeping for human use, radioactive, investigational new drugs, with the Pharmacy Service, Nuclear Medicine Service, and Dept of Clinical Investigations.

HSHN-XN 18 Jul 1991

SOP RP # 1

MANDATORY WORK RULES

1. Disposable gloves and lab coats will be worn as protective garments when working with radioactive materials.

2. Technetium-99m radiopharmaceutical solutions will be tested by radiochromatography and pH before dispensing individual doses.

3. Doses of radiopharmaceuticals will be within 10% of the prescribed radioactivity at the time of administration to patients.

4. All student prepared doses of radiopharmaceuticals will be checked for correctness by a staff member prior to dispensing. The staff member who checks a dose prepared by a student will initial the consultation and dose label. The staff member must observe the student while the dose is being prepared or the student must leave out for inspection all vials and paraphernalia needed to prepare the dose.

5. Records will be completed and doses of radiopharmaceuticals will be prepared and available for administration to patients by 0730 daily, when appropriate.

6. All appropriate labeling and record entries will be completed before workers leave the radiopharmaceutical laboratory area.

7. All radiopharmaceutical doses will have a dose label attached to the syringe for parenteral doses or dispensing vial for oral doses.

8. Work areas will be surveyed at close of business daily with an appropriate portable radiation detection instrument. Results will be recorded in the record book designated for this purpose.

9. Syringe and vial shields will be utilized for the preparation of radiopharmaceutical vials. Syringe shields will be utilized for administration of doses to patients except in circumstances where their use would compromise the patient's well being.

10. Workers will insure that radioactive materials are either secured or under supervision of clinic personnel at all times, and that non-clinic personnel are accompanied whenever they venture into controlled areas.

11. The clinic will be locked after duty hours.

12. For each dose prepared, review the consultation sheet and radiopharmacy order to insure that you understand it. Select the one correct radiopharmaceutical from the storage area and place it in the work area. Read the label. Prepare the dose consistent with the activity required for the study. Read the label. Replace the vial back into the storage area. Read the label. One and only one radiopharmaceutical will be in the work area at a time.

SOP RP # 2

PREPARING TECHNETIUM-99m RADIOPHARMACEUTICALS

1. Technetium-99m radiopharmaceuticals are prepared according to the directions given in WRAMC Nuclear Pharmacy Formula Record Worksheets.

2. Quality control tests will be initiated before preparing individual precalibrated doses and will be completed before dispensing doses for administration to patients. Radiochemical purity of products will comply with guidance given in the current United States Pharmacopeia (U.S.P.). In cases where no U.S.P. guidance exist, doses will not be dispensed if there is more than 10% of the radionuclide in an undesirable radiochemical form.

SOP RP # 3

MONITORING AND INITIAL RECORDS KEEPING UPON RECEIPT OF RADIOACTIVE MATERIALS

1. Radiopharmaceuticals intended for use at Walter Reed AMC Nuclear Medicine Service may be received directly from a local centralized nuclear pharmacy during duty hours. They will be monitored, inspected, and wipe tested where appropriate. Radiopharmaceuticals ordered from a manufacturer will be received by Health Physics Office located at Forest Glen Section and subsequently delivered to Nuclear Medicine.

2. Follow the attached receipt procedure for initial log in of radiopharmaceuticals into the radiopharmacy record system.

3. The vial should be placed in the lead container and the radiopharmaceutical stored in the shielded radiopharmaceutical storage area.

4. If the radiopharmaceutical requires refrigeration, it should be placed in the shielded refrigerator designated for radioactive materials.

5. Upon receipt of RIA kits, the type, lot number, date of expiration, and control number will be assigned in the RIA log.

SOP RP # 4

RECORDS KEEPING

1. The purpose of these records is:

a. A history of each radioactive item received from date of receipt, through use, to final disposition as radioactive waste or as decayed to background radiation level.

b. A record of patients to whom radioactive materials are administered,including lot numbers of component ingredients.

c. A record of doses prescribed on the individual consultation sheet, individual worksheet, or daily batch worksheet.

d. Consent record for use of investigational or therapeutic radioactive drugs in all patients.

e. Record of calibration checks on radiation dose measuring devices.

f. Record of compounding radiolabeling kits.

2. Several records are kept from one Nuclear Regulatory Commission inspection to the next or for three years or longer, as appropriate. These records include:

a. A radiopharmaceutical stock record which documents the lot number, use, and disposition of radiopharmaceuticals and also gives individual radionuclide dose measurements for each dose of radioactive material administered to patients. (Stock Record Sheet)

b. A Nuclear Pharmacy laboratory record which gives a chronological record of radiation dose calibrator checks.

c. Patient consent forms are filed in the nuclear pharmacy.

3. Records of all misadministrations of radiopharmaceuticals shall be preserved until the Nuclear Regulatory Commission authorizes their disposition.

SOP RP # 5

RADIATION SAFETY

1. The WRAMC Health Physics Office has principal responsibility for formulating radiation safety procedures and for records keeping for WRAMC. These procedures, which are given in WRAMC Regulation 40-10 , must be perused and followed by persons assigned to the Nuclear Pharmacy Service.

2. In addition to the directives and guides in WRAMC Reg 40-10, the following rules will be followed:

a. Latex gloves and lab coats will be worn when handling radioactive materials.

b. Work surfaces will be lined with absorbent paper before handling radioactive materials.

c. After handling radioactive materials, hands and immediate work areas should be checked with a radiation monitor before leaving the radiopharmacy laboratory.

d. All pharmacy personnel will wear a film badge, and a TLD ring when working in the Nuclear Pharmacy laboratory or with radioactive patients.

e. The Nuclear Pharmacy laboratory will be continuously monitored with radiation detectors. Monitoring should reveal improper storage of radioactive material and poor handling techniques of workers.

f. A radiation survey will be conducted in the Nuclear Pharmacy daily at close of business with an appropriate portable radiation detection instrument. Routine surveys of the radiopharmacy and dose room will include the areas indicated on the Health Physics Laboratory Survey Form (WRAMC 708) included as addendum one to this annex.

g. The procedure for handling spills of radioactive materials in the radiopharmacy is outlined in addendum to this SOP.

NUCLEAR MEDICINE SERVICE
DEPARTMENT OF RADIOLOGY
WALTER REED ARMY MEDICAL CENTER
WASHINGTON, D.C. 20307-5001

HSHL-XN1 19 August 1987

RADIONUCLIDE ACCIDENT EMERGENCY PROCEDURES

A. Purpose: To define actions to be taken in event of an accident involving radioactive materials.

B. Minor Spills Involving No Radiation Hazard to Personnel:

1. Notify all other persons in the room at once.
2. Permit only the minimum number of persons necessary to deal with the spill into the area.
3. Confine the spill immediately.

Liquid spills:

Don protective gloves
Drop absorbent paper on spill

Dry Materials Contamination:

Don protective gloves
Dampen thoroughly, taking care not to spread the contamination

4. Notify the Health Physics Office as soon as possible.
5. Decontaminate.
6. Monitor all persons involved in the spill and cleaning.
7. Permit no person to resume work in the area until survey is made, and approval of the Health Physics Officer is secured.
8. Prepare a complete history of the accident and subsequent activity relating thereto for the Health Physics Office.

C. Major Spills involving Radiation Hazard to Personnel:

1. Notify all persons involved in the spill to vacate the room at once.
2. If the spill is liquid, and the hands are protected, right the contanier.
3. If the spill is on the skin, flush thoroughly.
4. If the spill is on the clothing, discard outer or protective clothing at once.
5. Switch off all fans.
6. Vacate the room.
7. Notify the Health Physics Office as soon as possible.
8. Take immediate steps to decontaminate personnel involved as necessary.
9. Decontaminate the area. (Personnel involved in decontamination must be adequately protected).

SOP RP # 6

QUALITY CONTROL PROCEDURES

1. The purpose of quality control procedures is to insure that the correct radionuclide in the correct radiochemical form is administered in the correct dose of radioactivity.

2. Sterility and nonpyrogenicity, if appropriate, is assured by either the manufacturer or by compounding procedures given in SOP RP #8 (Compounding Radiopharmaceuticals).

3. The correct radiochemical form for drugs purchased in precalibrated final dose form is assured by the supplier. Spot checks may be done by the Nuclear Pharmacy if the radiochemical form usually has short stability or if the quality control procedures of the supplier are not considered adequate. Quality control tests for radiochemical form of technetium-99m compounds are given in SOP RP #2 (Preparing Technetium-99m Radiopharmaceuticals) and in SOP RP #8 (Compounding Radiopharmaceuticals).

4. Highly important quality control and radiation safety procedures are given in SOP RP #1 (Mandatory Work Rules).

5. Quality control tests for dose calibrators are performed IAW NRC Reg Guide 10.8, Appendix C.

6. Quality control tests for in-house compounded radiolabeling kits are described in SOP RP #8 (Compounding Radiopharmaceuticals).

NUCLEAR MEDICINE
QUALITY ASSURANCE PROGRAM

RADIOPHARMACY

The radiopharmacy receives, performs Q.C. and measurements, and dispenses all radiopharmaceutical doses for the Nuclear Medicine Service.

Ongoing indicators are related to instrumentation, radiation protection, and product quality control as well as dispensing and patient considerations. Special indicators and data searches are developed at the request of Nuc Med Svc QA committee.

INDICATOR	THRESHOLD	FREQUENCY
DOSE CALIBRATOR QC		
CONSTANCY	1/MONTH	QUARTERLY
LINEARITY	0	"
ACCURACY	0	ANNUALLY
GEOMETRY	0	AS NEEDED
RECEIPT OF ISOTOPES		
MONITOR	PER DOT	SEMI-ANNUAL
WIPE TEST	NMT 2000 DPM	"
PRODUCT QC		
RADIONUCLIDE	< 1% REQUIRE RECOM-	QUARTERLY
RADIOCHEMICAL	POUNDING	"
CHEMICAL		"
PATIENT DOSES		
MISADMINISTRATION	0	ANNUALLY
DOCUMENT EACH MISAD	ALL	"
RP DOSE TO PREGNANT PT	Extreme Conditions	"
ADVERSE RESPONSE TO RP	< 1 PER 1000	"
MEASURED PRIOR TO ADMIN	ALL	"
RADIATION PROTECTION		
UNTIMELY BIOASSAY	NMT 1 PER QUARTER	QUARTERLY
ALARA BIOASSAY	NMT 1 PER YEAR	ANNUALLY
ALARA DOSIMETRY	NMT 1 PER YEAR	ANNUALLY
ROOM MONITOR	>500 CPM - 1 PER WEEK	QUARTERLY

SOP RP # 7

RADIATION WASTE MANAGEMENT AND DISPOSAL

1. Records of radiopharmaceuticals transferred to "rad waste" are kept on the radiopharmaceutical stock record sheet.

2. Radioactive waste is separated into two lead-lined containers. One container contains needles, syringes, and other paraphernalia presenting a chemical or bio-hazard to waste handlers. Other radioactive waste is placed in the second container.

3. The waste containers are collected as needed on Wednesday afternoon by Health Physics.

SOP RP # 8

COMPOUNDING RADIOPHARMACEUTICALS

1. Radiolabeling kits will be compounded by a pharmacist who has satisfied the WRAMC Radiation Control Committee that he is competent to compound radiopharmaceuticals and to handle radioactive materials.

2. A record will be maintained of each lot of radiolabeling kits compounded. The record will show the ingredients and lot numbers, method of compounding and quality control test results.

3. The compounding of radiolabeling kits for investigational new drugs will require submission of a research protocol through the Radiation Control Committee and the Clinical Investigation Committee and final review by the OTSG Human Use Review Board as appropriate. Formulations for radiolabeling kits compounded for clinical use at WRAMC will be reviewed by the Human Use Subcommittee of the RCC with a recommendation to the plenary RCC.

4. Quality control procedures may include, as appropriate, testing for radionuclidic purity by spectrum analysis, radiochemical purity by radiochromatography, sterility and nonpyrogenicity by U.S.P. designated tests, particle size by microscopic examination, and pH by pH meter or pH paper.

Product: Tc-99m DMSA (Succimer Kit) by MPI May 1988

KIT PREPARATION INSTRUCTIONS

1. Latex gloves should be worn during this preparation.
2. Hold the ampule of DMSA reagent in one hand and open it by applying pressure above the score line on the narrow part of the neck of the ampule.
3. Pull up 2 ml. of DMSA and inject into the shielded mixing vial and withdraw an equal volume of air.
4. Calculate the volume of pertechnetate needed for 20 mCi. of activity. Pull up this volume and if necessary add sufficient normal saline to make 2 ml. of pertechnetate solution. Print the appropriate subtraction and product tickets.
5. Aseptically inject the pertechnetate into the mixing vial and withdraw an equal volume of air. This will give a **final volume of 4 ml.** Mix the solution thoroughly.
6. Incubate the labeled product at room temperature for at least 10 minutes before dispensing.
7. Check the pH. and record (3.0 - 4.0)
8. Perform ITLC using silica gel (SG) paper with acetone as solvent. Do not use the product if less than 85% label.
9. **DO NOT USE THE PRODUCT MORE THAN TWO HOURS FROM THE TIME OF PREPARATION. REPEAT QC PRIOR TO EACH DOSE WHEN USED OVER 30 MINUTES FROM PREPARATION TIME.**

TECHNETIUM Tc-99m PENTETATE KIT (MPI DTPA by Medi-Physics)

KIT PREPARATION INSTRUCTIONS

1. Waterproof gloves should be worn during the preparation procedure.
2. Remove the central plastic disc from the MPI DTPA vial and swab the tip of the vial closure with alcohol to sanitize the surface.
3. Place the vial in a suitable radiation shield.
4. Calculate the required amount of TcO_4 (range 15 to 250 mCi.) and draw this amount into a shielded syringe. If required, add sufficient normal saline to five a final volume of 4 ml. Place the syringe in the dose calibrator to measure the radioactivity and print the product ticket.
5. Slowly inject the TcO_4 into the vial which had been placed in the shield.
6. Prior to removing the needle, withdraw an equal volume of air as was injected into the vial.
7. Swirl the contents of the vial for one minute and let stand 1 or 2 minutes.
8. Determine pH of the product. (3.8 - 7.5)
9. Perform ITLC chromatography using Silica Gel (SG) paper with acetone for the solvent. The desired product will stay at the origin. Record the results. Do not use if chromatography indicates more than 10% free TcO_4 is present.
10. Examine vial contents for particulates prior to injection. If cloudy, do not use.
11. Use within eight hours of preparation.

Product: Tc-99m Gluceptate by Mallinckrodt May 1988

KIT PREPARATION INSTRUCTIONS

1. Latex gloves should be worn during the preparation.
2. Calculate the required amount of TcO_4 to add to the vial. Usually add 80 mCi in a total of 2 ml..
3. Aseptically add the pertechnetate to the shielded reaction vial and remove an equal volume of air to maintain a negative pressure. Swirl for 30 seconds.
4. Assay and print the appropriate dose calibrator tickets to account of TcO_4 Using proper shielding visually inspect to insure that the solution is clear and free of particulate matter. Do not use if either is present.
5. Check and record the pH. (5.5 - 7)
6. Perform ITLC chromatography using silica gel (SG) paper with acetone as solvent. Do not use if less that a 90% label.
7. Use within eight hours from time of preparation.

HSHN-XN 5 Mar 1990

JUL 1987

Technetium-99m DISOFENIN (HEPATOLITE BY NEN)

KIT PREPARATION INSTRUCTIONS

1. Assemble the following items prior to preparation: 1 vial od Disofenin, vial shield, 3 ml syringe, normal saline without bacteriostatic agent.
2. Latex gloves should be worn during the preparation.
3. Remove the plastic disc from the vial, swab the top of the vial closure with alcohol and let the alcohol dry.
4. Place the vial in a suitable radiation shield.
5. With a sterile shielded syringe, aseptically obtain not more than 100mCi TcO_4 solution in 2 to 3 ml. **THE GOAL IS 20mCi/ml.**
6. Aseptically add the TcO_4 to the vial in the lead shield and withdraw an equal amount of air from the vial.
7. Swirl the contents of the vial for 1 minute and let stand 1 to 2 minutes
8. Print appropriate calibrator dose tickets to account for TcO_4 used and to create a product ticket for disofenin.
9. Examine vial contents for particulates prior to injection.
10. Check pH.
11. Perform ITLC chromatography using polysilicic acid gel (SA) paper with 20% saline as the solvent. Record the results. Do not use if less than 90% label.
12. Use within eight (8) hours from the time of preparation.

Product: Tc-99m Macroaggreated Albumin (MAA) (Pulmolite by NEN or MPI MAA by Medi-Physics) May 1988

KIT PREPARATION INSTRUCTIONS

1. Latex gloves should be worn during the preparation.
2. Calculate the amount of TcO_4 to be added aseptically to the shielded vial. Recommend maximum of 60 mCi. (Usually use 60 mCi. TcO_4 and add sufficient normal saline U.S.P. to make 6 ml total volume. This gives a concentration of about 1 million particles per milliliter.) Draw this amount into the shielded syringe. Place the syringe in the dose calibrator to measure the radioactivity and print product and subtract ticket.
3. Add TcO_4 down the side of the vial and withdraw air from the vial to maintain negative pressure.
4. After addition of the pertechnetate, swirl for a few seconds and allow to stand for five (5) minutes. During the mixing process do not shake the product enough to cause foaming of the solution.
5. Determine the pH of the product. (3.8 - 8.0).
6. Perform ITLC chromatography using Silica Gel (SG) paper with normal saline as solvent. The desired product will stay at the origin. Do not use the product if less than a 90% label.
7. Prior to withdrawing a dose, the contents of the vial should be sufficiently agitated to effect homogenous suspension of the aggregated albumin.
8. Store the vial in the shield in the refrigerator at 2 to 8 degrees C.
9. Discard the solution after six(6) hours from time of preparation.
10. **SPECIAL NOTE: DO NOT EXCEED 1 ML VOLUME PER SINGLE PATIENT DOSE.**

Product: Tc99m Medronate (Tc-MDP by Medi-Physics Inc) May 88

KIT PREPARATION INSTRUCTIONS

1. Latex gloves should be worn during the preparation procedure.
2. Remove the central plastic disc from the MPI MDP Kit vial and swab the top of the vial closure with alcohol to sanitize the surface.
3. Place the vial in a suitable radiation shield.
4. Calculate the required amount of TcO_4 (range 15 to 500 mCi.) and draw this amount into a shielded syringe. If required, add sufficient normal saline to give a final volume of 6 ml. Place the syringe in the dose calibrator to measure the radioactivity and print the product ticket.
5. Slowly inject the TcO_4 into the vial which had been placed in the shield.
6. Prior to removing the needle withdraw an equal volume air from the vial.
7. Swirl the contents of the vial for one minute and let stand 1 or 2 minutes.
8. Determine the product pH. (4.0-7.4)
9. Perform ITLC chromatography using Silica Gel (SG) paper with acetone for the solvent. The desired product will stay at the origin. Record the results. Do not use if more than 10% free TcO_4 is present.
10. Examine the vial contents for particulates prior to injection. If cloudy do not use.
11. Use within eight hours of preparation.

Product: Stannous Pyrophosphate for **BLOOD POOL IMAGINE** TechnescanPYP by Mallinckrodt. May 1988

KIT PREPARATION INSTRUCTIONS

1. Reconstitute the PYP vial with 2.4 ml. of normal saline
2. Shake the reaction vial sufficiently to bring the lyophilized powder into solution. Allow to stand until all particles are dissolved and in solution. This is usually less than five minutes. The resulting solution should be clear and colorless. If not the vial should not be used.
3. Administer 1 ml. per patient dose by direct venepuncture.
4. Write the time and date of preparation on the vial. Store the vial at room temperature under the laminar flow hood and use within 6 hours after reconstitution.

Product: Technetium 99m pyrophosphate (Technescan PYP by Mallinckrodt) May 1988

KIT PREPARATION INSTRUCTIONS

1. Latex gloves should be worn during the preparation.
2. Calculate the amount of pertechnetate solution required. (Use 60 mCi. in a total of 2 ml.). Pull up the required activity, make the dilution if needed, and assay the activity. Make the required subtraction and product tickets in the dose calibrator.
3. Aseptically add the pertechnetate solution to the shielded mixing vial and remove an equal volume of air.
4. Mix thoroughly and allow to stand at room temperature for 5 minutes.
5. Check the pH. (4.5 - 6.0)
6. Perform ITLC using silica gel (SG) paper and acetone. If the label is less than 90% do not use the product.
7. Store in the shielded vial at room temperature and use within 6 hours.

Product: Tc-99m Sulfur Colloid (TechneColl by Mallinckrodt) Jul 87

KIT PREPARATION INSTRUCTIONS

1. Latex gloves should be worn during the preparation procedure
2. Assemble the following items prior to preparation: Technecoll kit from Mallinckrodt which contains a reaction vial (2 ml. of phosphoric acid, 100 mg.) syringe I (1.1 ml with 12 mg. gelatin and 9 mg. sodium chloride also 0.5 ml with 12 mg. sodium thiosulfate, and syringe II (0.6 ml. with 36 mg. gelatin and 9 mg of sodium chloride also 1.0 ml with 544 mg sodium acetate and 5 mg edetate disodium).
3. Start the water bath and heat water to boiling.
4. Calculate the required amount of TcO_4 (range 5mCi to 120 mCi in a maximum of 5 ml.) and draw this amount into the syringe noting the volume used. Place the syringe in the dose calibrator to measure the radioactivity and print product ticket. Note: There is 5 ml in the reaction vial and the 2 syringes.
5. Place the reaction vial into the shield and add the TcO_4.
6. Immediately add syringe I.
7. Place the reaction vial in the boiling water for 8 minutes.
8. Remove the reaction vial from the water bath (solution will appear milky white) and using a 20 ml. syringe, vent the pressure from the reaction vial.
9. Add syringe II to the reaction vial.
10. Place the reaction vial in boiling water for 2 minutes.
11. Remove the reaction vial from the water bath and cool.
12. Determine the pH of the product (4.0 - 7.5).
13. Perform ITLC using SG paper with normal saline as the solvent. The desired product will stay at the origin. Record the results. Do not use if less than 92% label.
14. Use with 8 hours of preparation.

HSHN-XN 5 Mar 1990

Product: Tc-99m Sulfur Colloid (TechneColl by Mallinckrodt) Jul 87

KIT PREPARATION INSTRUCTIONS

1. Latex gloves should be worn during the preparation procedure
2. Assemble the following items prior to preparation: Technecoll kit from Mallinckrodt which contains a reaction vial (2 ml. of phosphoric acid, 100 mg.) syringe I (1.1 ml with 12 mg. gelatin and 9 mg. sodium chloride also 0.5 ml with 12 mg. sodium thiosulfate, and syringe II (0.6 ml. with 36 mg. gelatin and 9 mg of sodium chloride also 1.0 ml with 544 mg sodium acetate and 5 mg edetate disodium).
3. Start the water bath and heat water to boiling.
4. Calculate the required amount of TcO_4 (range 5mCi to 120 mCi in a maximum of 5 ml.) and draw this amount into the syringe noting the volume used. Place the syringe in the dose calibrator to measure the radioactivity and print product ticket. Note: There is 5 ml in the reaction vial and the 2 syringes.
5. Place the reaction vial into the shield and add the TcO_4.
6. Immediately add syringe I.
7. Place the reaction vial in the boiling water for 8 minutes.
8. Remove the reaction vial from the water bath (solution will appear milky white) and using a 20 ml. syringe, vent the pressure from the reaction vial.
9. Add syringe II to the reaction vial.
10. Place the reaction vial in boiling water for 2 minutes.
11. Remove the reaction vial from the water bath and cool.
12. Determine the pH of the product (4.0 - 7.5).
13. Perform ITLC using SG paper with normal saline as the solvent. The desired product will stay at the origin. Record the results. Do not use if less than 92% label.
14. Use with 8 hours of preparation.

Product: Tc-99m HMPAO (Tc-Ceretec by Amersham Inc.)

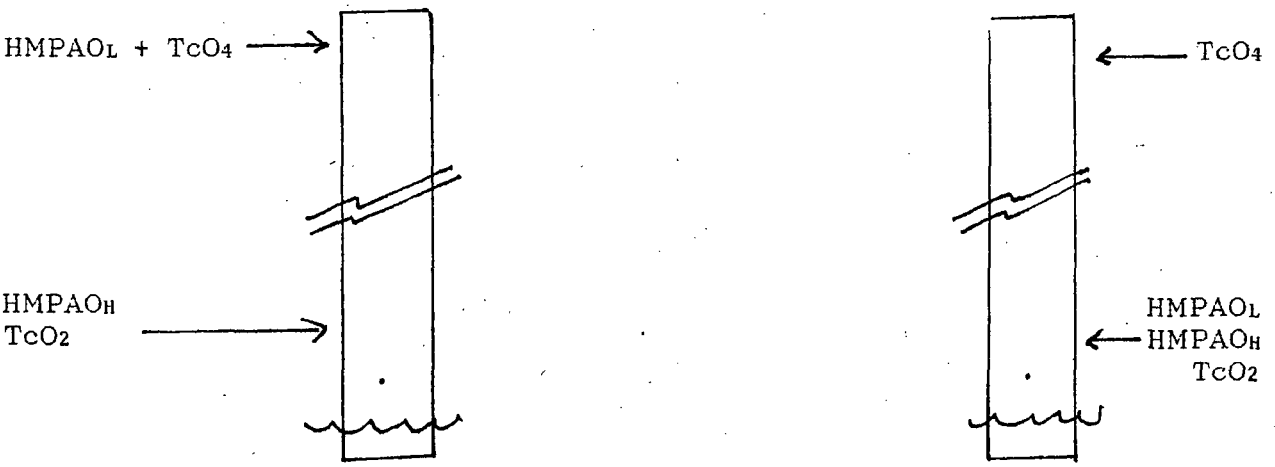
KIT PREPARATION INSTRUCTIONS

1. Latex gloves should be worn during the preparation procedure.
2. Remove the center disc from the CERETEC vial and swab with alcohol.
3. Place the vial in a vial shield.
4. Using a 10 ml. shielded syringe prepare 30 mCi of TcO_4 in 5 ml. of normal saline.[1] Place the syringe in the dose calibrator and prepare a product ticket.
5. Inject the activity into the shielded vial and withdraw an equal volume of headspace.
6. Proceed with QC within 5 minutes of product preparation.
7. Use the product within 30 minutes of preparation time.

QUALITY CONTROL OF HMPAO

1. Prepare a vial with 0.5 cm of Methyl Ethyl Ketone (MEK) in it.
2. Use the normal saline QC flask for a second strip.
3. Use SG ITLC paper for both tests.
4. Place a drop of Tc-HMPAO about 1 cm from the bottom of each strip.
5. Allow the strips to run and cut them in half.
6. Lipophilic HMPAO ($HMPAO_L$) should be at least 80%

The distribution of the substituents are as follows:



Percent $HMPAO_L$ = % $HMPAO_L$ + TcO_4 (MEK strip)
minus - % TcO_4 (NaCl strip)

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1 Generator must have been eluted within TWO HOURS of preparation time of HMPAO

Technetium-Mertiatide (MAG3) by Mallinckrodt

KIT PREPARATION INSTRUCTIONS

1. Put on Latex Gloves
2. Swab the top of the vial rubber septum with ispropyl alcohol
3. Prepare a rolling water bath.
4. a. Insert a filtered venting needle into the septum.
   b. Inject **100 mCi. of TcO4 in a volume of 4 ml** into the vial.
   c. After adding the TcO4 draw 2 ml of air back into the syringe.
5. Withdraw the venting needle and syringe from the vial; invert the vial several times to fully dissolve the powder.
6. Place the reaction vial into the boiling **water bath for 10 minutes.**
7. a. Remove from bath and cool for 10 minutes.
   b. Inspect the solution for clarity and particulate matter. If it is cloudy or if particulates are present do not use.
8. Label the vial and store at room temperature. Use within six hours.
9. Radiochemical purity must be checked prior to use. If the radiochemical purity is less than 90% do not use.

QUALITY CONTROL

PREPARATION OF SEP-PAK CARTRIDGE

a. Using a 3 ml syringe, push 1 ml of ethanol thru the cartridge; discard the eluate.

b. Push 1 ml of 0.001N HCl solution thru the cartridge; discard the eluate.

c. Push 3 ml of air thru the cartridge; discard the eluate.

QUALITY CONTROL TESTING

a. Using a 1 cc tuberculin syringe, withdraw a sample of MAG3 and insert 0.1 ml into the longer end of the cartridge.

b. Slowly push (dropwise) 3 ml of 0.001N HCl solution thru the cartridge; collect the eluate in a test tube and assay. This eluate contains the hydrophilic (TcO4) forms of radiochemical contaminate.

c. Slowly push (dropwise) 3 ml of 1:1 ethanol/saline solution thru the cartridge; collect in a test tube and assay. This eluate contains the MAG3.

d. Place the cartridge in a test tube and assay. This contains reduced-hydrolyzed technetium.

CALCULATIONS

$$\%Tc99m-MAG3=\frac{(Actofethanol/saline)}{(totalAct)}X100$$

$$\%TcO4=\frac{(ActofHClelution)}{(totalAct)}X100$$

$$\%RH-Tc=\frac{(ActonCartridge)}{(totalAct)}X100$$

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TM

KIT PREPARATION INSTRUCTIONS

CARDIOLITE

1. Put on latex gloves
2. Place the reaction vial in a vial shield.
3. Swab the top of the rubber septum with isopropyl alcohol.
4. Using a syringe shield prepare **150 mCi. of Tco_4 in 3 ml of normal saline.**
5. Measure the activity in the syringe and prepare a product ticket.
6. Add the TcO_4 to the reaction vial and withdraw an equal volume headspace.
7. Swirl the vial several times.
8. Place the vial in a boiling water bath for **10 minutes.**
9. Remove the vial from the water bath, shield, and **cool for 15 minutes.**
10. Visually inspect the vial contents. It must be clear and colorless.
11. Use within 6 hours.

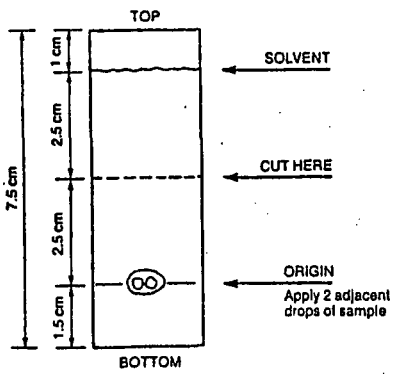
12. RADIOCHEMICAL QC
    a. Use Aluminum Oxide coated plastic TLC plate (Baker # 1 B-F)
    b. Apply 1 drop of ethanol 1.5 cm up the strip.
    c. Immediately add 2 drops of cardiolite side by side on the ethanol.
    d. Evaporate to dryness with compressed air line.
    e. Place the strip in a covered TLC tank containing ethanol.
    f. Develop the strip to within 1 cm. of the end of the strip.
    g. Calculate the % Cardiolite as follows:

$$\%Tc99m\text{-}Sestamibi = \left(\frac{(uCiTop)}{(uCiTop + Bottom)}\right) X 100$$

13. Illustration of QC step:

$$\%\ \text{Tc99m Sestamibi} = \frac{\mu\text{Ci Top Piece}}{\mu\text{Ci Both Pieces}} \times 100$$

TLC Plate Diagram



JUL 1988

Technetium-99m MEBROFENIN (CHOLETEC BY SQUIBB)

DIRECTIONS FOR MANUFACTURE

1. Assemble the following items prior to preparation: 1 vial of mebrofenin, vial shield, 3 ml syringe, normal saline without bacteriostatic agent.
2. Latex gloves should be worn during the preparation.
3. Remove the plastic disc from the vial, swab the top of the vial closure with alcohol and let the alcohol dry.
4. Place the vial in a suitable radiation shield.
5. With a sterile shielded syringe, aseptically obtain not more than 100mCi TcO_4 solution in 2 to 5 ml. **THE GOAL IS 20mCi/ml.**
6. Print appropriate calibrator dose tickets to account for TcO_4 used and to create a product ticket for mebrofenin.
7. Aseptically add the TcO_4 to the vial in the lead shield and withdraw an equal amount of air from the vial.
8. Swirl the contents of the vial gently for 1 minute and **LET STAND FOR 15 MINUTES.**
9. Examine vial contents for particulates prior to injection.
10. Check pH. (range is 4.2 TO 5.7)
11. Perform ITLC chromatography using polysilicic acid gel (SA) paper with 20% saline as the solvent. Record the results. Do not use if less than 90% label.
12. **USE WITHIN EIGHTEEN (18) HOURS** from the time of preparation.

SOP RP # 9

Accountability of Sealed Source Markers

1. Sealed source markers are used in nuclear medicine to establish anatomical position and size of underlying structures. Therefore, markers are maintained in the nuclear medicine clinic and must be readily available to imaging technologists.

2. In order to maintain control of these markers a log sheet is kept in the radiopharmacy. This log titled " SIGN OUT LOG FOR SEALED POINT & STRING SOURCES" (attached) identifies the technologist, source, and room where the source is used. Proper use of this log will identify the location of all sealed sources and will provide an indication of use for point and string sources.

3. The log described above must be completed in a timely manner. This means all sources must be returned to the radiopharmacy and log entries completed prior to the close of the business day.

4. The technologist who signs out the source is responsible for its return. However, when a source cannot be found the technologist working in the pharmacy or the nuclear pharmacist should be notified immediately.

FYI - PJP

Dr. Bruce H. Mock
Division of Nuclear Medicine
UH-P16
Indiana University Medical Center
926 West Michigan St
Indianapolis, IN 46223

Dear Sir;

We wish to produce ^{123}I-MIBG in-house especially to image children with neuroblastoma. I have read with interest your article in Appl. Radiat. Isot.(39:939-942, 1988). If possible could I obtain a copy of your current labelling method, information regarding your source of unlabeled MIBG and requesting an IND, and suggestions toward avoiding pitfalls with this procedure. Thank you for your time and assistance.

Sincerely,

Patrick J. Peller MD
Nuclear Medicine Fellow

Commander
Chief, Nuclear Medicine
ATTN: MAJ PELLER
Walter Reed AMC
Washington, DC 20307-5001

NUCLEAR MEDICINE SERVICE

SIGN OUT LOG FOR SEALED POINT & STRING SOURCES

DATE & TIME OUT	SOURCE #	CAMERA ROOM	TECHNOLOGIST SIGNATURE	DATE & TIME IN	INITIALS

White Cell Separation and Labeling with In-111 Oxine

ALL PROCEDURES ARE DONE IN

THE VERTICAL HOOD

1. Collect 90ml. of venous blood in two 50-60 ml. syringes containing 1,000 units of heparin and 10 cc of 6% hetastarch (Hespan®) in each syringe (Note: If the patient has a WBC count of greater than 8 x 10^3, one 50-60 ml. syringeful of blood may be drawn.)

2. Place each syringe of blood into the ringstand mount at a 45° angle. Take care not to allow the blood to come into contact with the top of the syringe as additional contamination with RBC can result.

3. Allow the red blood cells to settle to the bottom of the syringe for at least one hour.

4. Remove supernatant (platelets, plasma and WBC's), and centrifuge the supernatant at 450g for five minutes.

5. Pour off the supernatant (platelets, and plasma also called platelet rich plasma or PRP) and save. Resuspend the WBC buttons with 3 ml. of normal saline using a sterile plastic pipette. Combine the two WBC suspensions in one tube and q.s. to 20 ml. with normal saline. Centrifuge at 450g for five minutes.

6. Centrifuge PRP at 1000g for twenty minutes. When finished, the supernatant is platelet poor plasma (PPP).

7. Remove supernatant and discard from step #5. Add 6 ml. of normal saline to the WBC button and resuspend with pipette.

8. Add In-111 Oxine to the WBC suspension and incubate at room temperature for twenty minutes. Gently agitate 3-4 times during incubation. (Note: The desired dose is 500 microcuries so add approximately 600- 650 uCi. In-111 Oxine to the WBC suspension).

9. Add PPP to WBC suspension to bring volume up to 15 ml. and centrifuge at 450g for five minutes.

10. Pour off RADIOACTIVE supernatant and save for labeling efficiency. Resuspend WBC button with 8 ml. of fresh PPP. This is the final product for reinjection into the patient.

11. Do labeling yield calculations with labeled WBC and RADIOACTIVE supernatant.

IN-111 LABELED PLATELET PROCEDURE
WRAMC NUCLEAR MEDICINE SERVICE

1. Wipe down the laminar flow hood with alcohol and allow to evaporate. Set up the water bath at 37 C with a lead shield.

2. Put 10 cc of sterile normal saline in a sterile syringe and place int the hood. Draw 8 cc of acid-citrate dextrose solution A (ACD-A) into a 50 cc syringe.

3. Assemble stopcock, 50 cc syringe, one 30 cc syringe, tubing and needle. Withdraw atraumatically and aseptically 7 cc of blood and discard. Withdraw 42 cc of blood into the 50cc syringe, mixing the blood with the anticoagulant.

4. Transfer the blood to a sterile centrifuge tube directly from the syringe. Prepare a balance tube and centrifuge at 225 G (950 rpm) for 15 minutes.

5. Pipette platelet rich plasma (PRP) into a new centrifuge tube. If there is no clear separation between the PRP and red cells, risk using a few red blood cells (RBCs) and perform steps 6 and 7. Add 5 cc ACD-A solution/100 cc of PRP.

Steps 6 and 7 are optional. Perform only if significant RBC contamination of PRP is present.

6. Prepare balance tube and spin PRP at 225 G for 10 minutes.

7. Using a sterile plastic pipette, carefully withdraw the PRP into a new centrifuge tube. Take care not to transfer and RBCs.

8. Prepare the balance tube and centrifuge the PRP at 650 G (1600 rpm) for 10 minutes.

9. Separate the platelet poor plasma (PPP) with a new sterile plastic pipette and store in a sterile centrifuge tube at room temperature.

10. Add 2 cc of saline solution to the pellet. Place the tube aside and let stand at room temperature for 10 minutes. Thereafter, the button may be agitated gently, without frothing, to completely resuspend the cells.

11. When the pellet is completely resuspended, place the tube in the water bath, add 600 mcCi of In-111 oxine and incubate at 37 C for an additional 5 minutes.

12. Prepare a balance tube and centrifuge the resuspended platelets at 180 g (850 rpm) for 15 minutes.

13. Decant radioactive supernatant (the empty balance tube may be used). Gently layer 2 cc of saline solution over the pellet

PROCEDURE FOR LABELING HEAT DAMAGED RBCs

1. Inject patient with 15 mg Sn-pyrophosphate
2. Wait 20 minutes
3. Withdraw 10ml. whole blood into a 20 ml. syringe which has been heparinized with with 100 units of sodium heparin.
4. Place 10 ml. of this whole blood into a sterile screw top tube.
5. Spin down the RBCs in a centrifuge for 5 minutes at a fast spin of 1000g (2000 rpm)
6. Using aseptic technique and a long spinal needle attached to a 10 ml. syringe, withdraw the plasma and buffy coat.
7. Add the sodium pertechnetate to the packed cells and vortex gently to resuspend the RBCs. Use 8 to 10 mCi to start and end with a final dose of 3 to 5 mCi
8. Incubate for 5 minutes using proper shielding.
9. Add normal saline to bring volume up to original volume and vortex gently to resuspend the RBCs.
10. Place this solution RBCs, $^{99m}TcO_4$, at original volume, in sealed screw top tube into a water bath with stirrer at 49 degrees C for 35 minutes. Make sure the level of the blood is below the water level.
11. To assure even heating, every 3 to 5 minutes lift the blood tube out of the water and invert several times and return it to the water bath.
12. Be sure to maintain the temperature below 50 degrees C. Use ice to cool off if necessary.
13. For shielding place a lead sheet around the water bath.
14. After 35 minutes spin down this mixture to wash off any unbound pertechnetate for 5 minutes at 2000 rpm.
15. Withdraw the plasma with a long spinal needle.
16. Add sufficient normal saline to bring back to original volume. Vortex gently to resuspend the RBCs. Use this suspension to reinject into the patient.

Quality control step: withdraw 1 ml. of final solution. Place in a small tube with stopper. Add 2 ml. of normal saline, vortex, spin down 5 minutes at 2000rpm, withdraw supernatant. Measure the supernatant in a dose calibrotor; measure packed cells to determine tagging efficiency.

Tagging Efficiency:

$$\frac{A_r}{A_r + A_p} \times 100$$

A_r = activity in QC RBC sample
A_p = activity in QC plasma sample

PROCEDURE FOR LABELING RBC's FOR GI BLEED

1. Inject patient with 15 mg of Sn-PYP(1 vial). Wait 20 minutes.
2. Withdraw 10 ml whole blood into a syringe heparinized with 100 units heparin.
3. Place 10 ml of this whole blood into a sterile screw top tube.
4. Spin down the RBC's in a centrifuge for 5 minutes at fastest speed. Using a long needle attached to a 10 ml syringe, withdraw plasma and buffy coat layer.
5. Add the TcO4 to the packed cells. For GI bleed using approximately 28 - 30 mCi. to start with. Final dose is 20 mCi. Vortex gently.
6. Incubate for 5 minutes using proper shielding.
7. Add normal saline to bring up to original volume and vortex gently to resuspend the RBC's.
8. Spin for 5 minutes at fastest speed to wash off unbound 99m-TcO4.
9. Withdraw plasma using a long spinal needle.
10. Add sufficient normal saline to bring up to original volume and vortex to resuspend the RBC's.
11. Quality Control: Withdraw about 0.5ml of final solution. Place in small tube with stopper and add 1.5ml of normal saline. Vortex then centrifuge for 5 minutes at fastest speed. Withdraw plasma, use for channel # 18, use packed cells for # 19. The desired tag is over 90%.

NUCLEAR MEDICINE TECHNOLOGIST COURSE

TRAINING IN NUCLEAR PHARMACY AT WALTER REED ARMY MEDICAL CENTER

Program Goal: To provide education, training, and laboratory experience in nuclear pharmacy to phase two nuclear medicine technology students.

Facility: The Nuclear Pharmacy is located in the Nuclear Medicine Service at Walter Reed Army Medical Center. The Nuclear Pharmacy provides individualized doses of diagnostic and therapeutic radiopharmaceuticals to the patient population served by the medical center. In a teaching role, the nuclear pharmacist instructs nuclear medicine residents, radiology residents, and nuclear medicine technologists in aspects of radiopharmacy appropriate for each group.

Instructor: TERRY R. MINTON R.Ph. BCNP
Major, United States Army, Medical Service Corp

Course Description:

In order to provide a course of instruction which satisfies both academic curiosity and practical application, the curriculum must accommodate both didactic and laboratory instruction concurrently.

The following outline identifies some of the major subject areas and breaks them into manageable blocks of instruction:

SECTION TOPIC

1 SAFE USE AND HANDLING OF RADIOACTIVE MATERIALS

2 BASIC RADIATION PHYSICS
- alpha, beta, gamma radiation
- dosimetry and radiation dose

3 REGULATORY ASPECTS OF NUCLEAR PHARMACY
- NRC regulations
- NRC license example
- FDA regulations
- when should an IND be submitted
- IND form FD 1571
- How to write an IND

4 EQUIPMENT NECESSARY IN A NUCLEAR PHARMACY
- dose calibrators (ion chambers)
- well counters (scintillation counting)

DISPOSITION FORM

For use of this form, see AR 340-15; the proponent agency is TAGO.

REFERENCE OR OFFICE SYMBOL	SUBJECT
HSHL-XN (385 IIk)	Pediatric Intravenous Access Policy

TO, Pediatric Clinic
WRAMC

FROM C, Nuc Med Svc
WRAMC

DATE 29 Nov 88
Dr. Anderson/af/6-0176

CMT 1

1. Because of previous problems establishing intravenous access in some pediatric patients, the following policy has been established.

2. For pediatric inpatients, the current policy of their arriving with a running I.V. (not a heparin lock) will continue. After the completion of their injection(s), their I.V. will not be removed.

3. For pediatric outpatients, the nuclear medicine technologists and/or physicians will examine the patient upon arrival and determine if there are any special circumstances to address (e.g. patient with obvious problems with intravenous access due to previous chemotherapy, patient's parents make special request for pediatrician, etc). Under normal circumstances, the nuclear medicine service will make an attempt at intravenous access (usually two attempts). If this is unsuccessful or if special circumstances exist, the nuclear medicine service will call the pediatric clinic [phone numbers: 6-1101/1103/1112], and contact the clinic chief resident (a roster will be provided by the Pediatric Department so that Nuclear Medicine will have the name of the designated physician). If the clinic chief resident is unavailable, the pediatric clinic head nurse is an alternate point-of-contact.

4. The patient (with parents and/or attendants) will go to the pediatric clinic and a running I.V. (not a heparin lock) will be started by the pediatric clinic chief resident, head nurse, or their designee. This will normally be done and the patient returned to the Nuclear Medicine Clinic within 45 minutes of the call from Nuclear Medicine. If a delay (<60 mins) in establishing intravenous access is anticipated by the pediatric clinic, their representative will call the nuclear medicine clinic [phone numbers: 6-0168/0169/0170] so that consideration for special arrangements may be made. After the patient's need for intravenous access is over, the I.V. will be discontinued unless otherwise instructed by the pediatrician.

5. So that the clinic chief resident will be available, nuclear medicine appointments for pediatric outpatients will routinely be scheduled no earlier than 1000 hours.

JAY H. ANDERSON
COL, MC
CHIEF, NUCLEAR MEDICINE SERVICE

* U.S.G.P.O.: 1986-490-003/43241

HSHL-XN (340a) October 2, 1990

MEMORANDUM FOR: HEALTH PHYSICS OFFICER

SUBJECT: Receipt of Radiopharmaceuticals

The following personnel are herefy authorized to sign for radiopharmaceuticals:

MAJ TERRY MINTON
SSG ROBERT WARREN
SSG WAYNE LUNKLE
SGT ANGEL CUEVAS

JAY H. ANDERSON
COL, MC
Chief, Nuclear Med Svc

DISPOSITION FORM

For use of this form, see AR 340-15; the proponent agency is TAGO.

REFERENCE OR OFFICE SYMBOL	SUBJECT
HSHL-XN	Use of Syringe Shields in Nuclear Medicine

TO	FROM	DATE	CMT 1
All Nuclear Medicine Personnel	C, Nuc Med Svc	9 Jan 89 Dr. Anderson/af/6 0176	

1. The following is the policy for the use of syringe shields in the Nuclear Medicine Clinic for the administration of radiopharmaceuticals.

   a. Syringe shields are required for all administrations of radionuclides with exception noted above. Shields will be placed on syringes by the radiopharmacy. The syringe and shields will be placed inside the lead carrying pig. All other standard procedures are unchanged.

2. Exceptions are as noted below:

   a. If the syringe shields will compromise patient care, then the syringe shield may be removed. This decision lies within the physicians, radiopharmacist, chief technologist, or imaging supervisor.

   b. Syringe shields are not required for a cisternogram, MAAAP study, direct jugular vein injection, difficult pediatrics cases, Schillings, blood volumes, red cell survivals, etc. Syringe shields should not be used for P-32 injection because of the Bremsstrahlung radiation from the shield.

3. This policy complies with the requirements of AR 40-10, JCAH, and NRC.

JAY H. ANDERSON
COL, MC
CHIEF, NUCLEAR MEDICINE SERVICE

SUBJECT 131I Treatment
TO: Endocrine staff

In order to allay what recently has been increasing confusion regarding patients who seemingly appearing unannounced to the Nuclear Medicine Service for treatment the following guidelines are being implemented.

1. Endocrine physician communicates personally with a Nuclear medicine service physician

A. This is imperative so that points of contact and continuity for the treatment of this patient is established on both services.
B. Joint discussion of treatment goals and projected dosage
C. One physician from each service to serve as points of contact and who will manage the therapy.

2. Nuclear medicine worksheet generated (sample attached)

A. This worksheet serves three purposes
1. A check list of the necessary information necessary prior to treatment, particularly high dose inpatient treatment
2. Provides a planning and scheduling document to insure that the Nuclear medicine service is prepared for the patient when he or she arrives
3. A reference source for both the Endocrine and Nuclear medicine services
a. Documents the communication referred to in paragraph (1 above)
b. In the event the Nuclear medicine physician who initially discussed the case is not available will allow another physician to intelligently take over the treatment.
4. These while be kept in a notebook in the reading room until the treatment has been completed

3. Pharmacy notified by only by NM physician

A. Date of treatment and projected dose
B. To insure that the necessary quantity of I131 is available when the patient presents him or herself for treatment.
C. Endocrine and Nuclear Medicine physicians names attached to request to further ensure continuity of management.

4. Pharmacy arranges with Health Physics Office for inpatient Rx

A. To insure that the room(s) are available at the time of the proposed treatment.

Jay H. Anderson
Chief Nuclear Medicine Service

DISPOSITION FORM

For use of this form, see AR 340-15; the proponent agency is TAGO.

REFERENCE OR OFFICE SYMBOL	SUBJECT
HSHL-XN	Radioisotopes Therapies

TO	FROM	DATE	CMT 1
Nuc Med Personnel WRAMC	C, Nuc Med Svc WRAMC	9 Jan 89 Dr. Anderson/af/60176	

1. Orders for therapeutic radiopharmaceutical doses must be initiated by the Nuclear Medicine physicians. All radioisotopic therapies, regardless of route of administration, will be performed by a physician. It is within the discretion of the physician to allow a technician or radiopharmacist to administer the dose under his immediate supervision, when the supervising physician believes (1) that in the interest of the patient, the administration would be better performed by the technician or radiopharmacist (i.e. intravenous), or (2) that it is in the interest of the physician to have a technician perform the administration in order to distribute occupational radiation exposure. The frequency of dosing by technicians, radiopharmacists, and physicians are easily monitored.

2. POC for this action is Major Minton, Nuclear Medicine Radiopharmacist 6-0168.

JAY M. ANDERSON
COL, MC
C, NUCLEAR MEDICINE SVC

DISPOSITION FORM

For use of this form, see AR 340-15; the proponent agency is TAGO.

REFERENCE OR OFFICE SYMBOL	SUBJECT
HSHL-XN	Nuclear Medicine Policy for TRH Studies

TO: All Nuclear Medicine Personnel FROM: Nuclear Medicine Service DATE: 9 JAN 89 CMT 1

Dr. Anderson/af/60176

1. The Thyrotropin Releasing Hormone (TRH) stimulation test should be ordered on the Nuclear Medicine consult form or the standard consultation form 513. This must be signed by a physician and acts as the official request and prescription. (Technologist or Physician Assistant signatures must be co-signed.)

2. The consult does not have to be approved (or "OD") by a Nuclear Medicine physician.

3. Prior to the administration of the TRH, the Nuclear Medicine technologist will take the blood pressure in the semi-supine position. If the diastolic blood pressure is equal to or greater than 105, than the study is terminated. For these cases, the Nuclear Medicine technologist should write on the consult, that "the diastotic blood pressure was greater than or equal to 105 mm Hg. Because this is a relative contraindication, the test was cancelled. If any questions, please call laboratory. In all cases, the Nuclear Medicine technologist should write the blood pressure on the consult. The Nuclear Medicine technologist should also ask the patient if he/she has had any previous reaction to a TRH test. If the patient has had a reaction, then the technologist should contact the O.D. physician for a decision regarding whether to proceed or not.

4. See the Nuclear Medicine Clinic signature sheet in the Laboratory Book #1 for the list of physicians and technologists authorized to inject TRH.

5. For the TRH injection, the patient should be in a semi-supine or supine position in the appropriate blood drawing "couch". If any reaction occurs, than the Nuclear Medicine O.D. physician should be contacted immediately. If no reaction has occurred within five minutes, the patient may wait in the waiting chairs in the hallway outside the radioimmunoassay lab.

JAY H. ANDERSON
COL, MC
C, NUCLEAR MEDICINE SVC

WALTER REED ARMY MEDICAL CENTER
DEPARTMENT OF RADIOLOGY
NUCLEAR MEDICINE SERVICE

1 October, 1990

STERILE PRECAUTIONS FOR VENIPUNCTURES

1. Disposable latex gloves will be worn by all personnel performing venipunctures.

2. Wash hands and change gloves each time before collecting blood from and/or injecting a radiopharmacuetical into a patient.

3. All new needles and syringes used on the Nuclear Medicine Service are sterile. When the protecting cover is removed from a new needle, the needle must not touch anything until it punctures the skin. If it should touch anything, discard it and use a new needle. Never use a needle with a broken seal.

4. Alcohol pads are used to cleanse the site of puncture. Alcohol itself may destroy some of the bacteria present, **but it is the rubbing that is important.** Rubbing with the pad removes many skin organisms. Do not touch the venipuncture site after cleansing.

5. If you did not enter a vein at one puncture site, replace the needle with a new one before attempting a second puncture. The first needle may have become contaminated and should not be used again.

6. Under no circumstances will a Hickman or Swan-Ganz catheter be entered without prior approval and knowledge of the patient's attending physician.

Jay H. Anderson
COL, MC
Chief, Nuclear Medicine Service

HSHL-XN

September 1986

SEP 90 TY

99Mo ASSAY PROCEDURE

1. PURPOSE: The purpose of the SOP is to describe the procedure to assay a low level contamination of Molybdenum-99 in solution with 99m Technetium.

2. DESCRIPTION: The assay kit consists of a lead canister of the proper dimension to accept a 30 milliliter vial and an insertion holder. The characteristics of the canister are such that the 99m Tc reading is reduced to less than 10^{-6} of the unshielded reading while the 99Mo reading is reduced by approximately 65%.

The NRC allowable level of 99Mo contamination in Technetium is NMT one part per thousand (NMT 1 uCi 99Mo/mCi 99mTc) nor more than 5 uCi 99Mo per patient dose.

The U.S.P. XX allowable limit 99Mo is not greater than 0.15 uCi per mCi of Technetium 99m per administered dose of the injection, at the time of administration.

NOTE: Because of the differences in half-lives of these two isotopes, the concentration of 99Mo will increase with time.

3. RESPONSIBILITIES: The Mo assay will be performed on every generator elution. In no case will 99mTc eluate be used if either limit of 99Mo contamination is exceeded. Furthermore, any 99Mo contamination level of 0.1 uCi 99Mo/mCi 99mTc will be reported immediately to the radiopharmacist or Chief of the Service for appropriate guidance.

4. ASSAY PROCEDURE: CRC-30 Dose Calibrators

a. Be sure there are no other isotopes near the calibrator.
b. Insert the CAPMAC pig (purple and yellow one) into the CAPMAC assembly. Lower the complete assembly into the well of the dose calibrator.
c. Pust "Mo Assay" + "Activity" buttons.
d. Set Patient Dose wheels to 0000.
e. Dial in sample #_____. Dial in sample volume.
f. Turn key until EEEEE indicates data entry.
g. Open the canister by holding the handle and rotating the level counterclockwise until it stops. Move the lever to the raised vertical position.
h. Push "CAPMAC" and "Activity" buttons. Patient dose, sample #, and sample volume remain the same as in steps d, e, & f. Calibrator will display activity in mCi and then flash ----/mCi, ----/mCi.
i. Turn the key to enter EEEE and push print (front side of dose ticket).
j. Turn dose ticket over and enter (feed) into printer.
k. Press "Mo Assay" and "Activity" and print.

HSHL-XN

September 1986

JUL 7 88 TG

SEP 90

NUCLEAR PHARMACY "ON-CALL" PROCEDURE

Before milking the generator, check if there is enough activity left in Elution #1, #2, or #3.
If Yes: Proceed with making the product desired.
If No: Milk the #2 generator and put it in the #2 pig. (Use 10 ml elution vial.)

A single dose ticket is needed for the generator.

1. Insert the CAPMAC pig (purple and yellow one) into the CAPMAC assembly. Lower the complete assembly into the well of the dose calibrator.

2. Set the SAMPLE VOLUME and the SAMPLE NUMBER on the appropriate thumbwheel switches. Sample volume on 10.00 and the sample number on 02. The PATIENT DOSE thumbwheel should be set on all zeroes.

3. Press the button labeled MO ASSAY and the button labeled ACT.
NOTE: The blinking display indicates that the operation is incomplete.

4. Rotate the ENTER KEY to register the activity.

5. Open the canister by holding the handle and rotating the lever counterclockwise until it stops. Move the lever to the raised vertical position.

6. Press the button labeled 99m Tc CAP MAC.

7. If no reading is observed, the canister is not open. Repeat step #5.

8. Rotate the ENTER KEY to register the reading. The display will stop blinking after the key is turned. Print this information on the front side of the ticket. Turn the ticket over to print on the back side.

9. Close the canister by lowering the lever to the horizontal position. Lock the canister to the base by holding the handle, pressing down and rotating the lever clockwise until it stops.

10. Remove the complete assembly from the well and remove the CAPMAC PIG from the holder.

11. Press the MO ASSAY button and the ACT button (the Patient Dose, Sample Number and the Sample Volume Buttons remain the same as in step #2).

12. PRINT on the back side of the ticket. This will give the Moly Assay.

HSHL-XN

NUCLEAR PHARMACY "ON-CALL" PROCEDURE 1 September 1984

SEP 90 gm

PREPARING A PRODUCT: Example 99m Tc - MAA

1) Draw up in a syringe the 99m TcO4 activity needed to prepare the product.
Prepare a subtract stock ticket (Page 1 of ticket) (NO CARBONS)

Press: [99mTc] and [DOSE] buttons

Set:	Patient Dose	sample number	sample volume
	dial in the mCi of 99mTc displayed on the calibrator, which is to be subtracted from elution vial #1, #2, or #3.	01, 02, 03 depending upon the elution used	doesn't matter

TURN THE KEY to subtract this volume displayed on the calibrator from the appropriate elution
Make sure that E E E E's flash on the display to indicate entry of data.

Print this ticket will be the subtract stock ticket. This goes with the generator ticket.

2) Create a Product Ticket.
Place the completed product vial in the well of the calibrator in the plastic dipper.

To Transfer Molly Assay:

Press: [Mo ASSAY] button and ALL OTHER BUTTONS OUT

Set:	Patient Dose	Sample Number	Sample Volume
depending on the elution #	00.01 00.02 00.03	08	dial in the total volume of final product

From Elution # used to Sample # of product prepared with total volume (ml) of product.

TURN THE KEY to transfer the MOLLY Assay. Make sure the E E E E's flash on the display to indicate entry of data.

Press: [99mTc] and [ACT.] buttons

The calibrator will flash ---/ mci, ----/ mCi, ----/ mCi to indicate it is waiting for the second entry.

TURN THE KEY to complete the entry. Make sure E E E E's flash on display .

Print on page 2 of the ticket (no carbons) This is now your PRODUCT TICKET
Note: Please print the results of Quality Control chromatography on the reverse of this ticket.

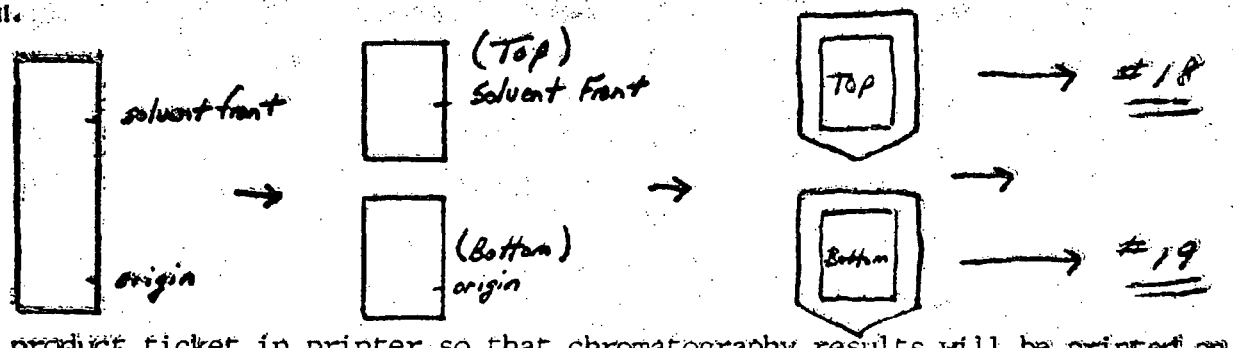
HSHL-XN

1 SEPT 84

Revised 90

NUCLEAR PHARMACY CHROMATOGRAPHY PROCEDURE USING CRC-30

1. Spot a small drop of product on ITLC(Instant thin layer chromatography paper). Place in developing tank containing appropriate solvent. Let solvent migrate two-thirds the way up the strip. Using tongs remove strip from tank, mark solvent front, using scissors cut strip one half way between origin of spot and solvent front. Place in chromagraphy strip holder tube marked for top and bottom.



2. Place product ticket in printer so that chromatography results will be printed on back of ticket.

3. Press: [99mTc] & [Q.C.] buttons.

4. Dial setup:

Patient Dose	Sample Number	Volume
00.08	19	doesn't matter

use last two digits to indicate product number ie: 00.08 for Tc MAA

Place Chromatography tube with bottom strip in the dose calibrator well, let the reading stabilize then Turn Key to enter. Note : Be sure you see EEEE displayed to indicate that the information was entered.

5. Remove the Bottom tube and replace with the Top tube, let the reading stabilize, change the sample number setting to 18, turn key to enter data.

6. Print ticket.

7. Note: Display on ticket 19 indicates % tagged product

18 indicates % free TcO_4^-

PROCEDURE

NUCLEAR MEDICINE SERVICE
DEPARTMENT OF RADIOLOGY
WALTER REED ARMY MEDICAL CENTER

1. PURPOSE: The procedure describes the MANDATORY process by which a patient will be identified prior to injection of a radiopharmaceutical for diagnostic imaging purposes.

2. METHOD OF IDENTIFICATION OF PATIENT: All patients will be required to produce one of three forms of identification:

a. Inpatients - hospital identification bracelet.
b. Outpatients - blue clinic card or
- military/dependent identification card

The name and social security number on the identification must be matched against the name and social security number on the consult and printed dose ticket.

3. METHOD OF RADIOPHARMACEUTICAL IDENTIFICATION: Each and every radiopharmaceutical is assigned a unique radiopharmacy number. This number is stamped on the patient's consult, the pharmacy dose ticket, and the individual dose. Once a positive patient identification is made, the radiopharmacy number must be verified on both of the dosing documents and on the syringe. In addition, the color coded pharmaceutical sticker on the syringe should be matched against the radiopharmaceutical ordered on the consult and printed on the dose ticket.

4. Once steps 1-3 above have been completed, the radiopharmaceutical may be injected. The technologist injecting/dosing the patient must sign both the consult and dose ticket and indicate the time of dose administration.

5. PROCEDURE FOR PATIENT IDENTIFICATION FOR ADMINISTRATION OF IN VITRO LABELLED HUMAN BLOOD PRODUCTS: Steps 1-4 must be completed and verified by two people, the radiopharmacist who labelled the blood product and the technologist administering the dose. Both individuals will sign off on the documents listed in step 4.

6. Failure to follow the procedure rigorously could result in an adverse impact on patient care and as such any lapse in this procedure will result in administrative corrective measures.

NUCLEAR PHARMACY DAILY CHECKLIST JAN 87

1. Prepare elution & compounding vials & paperwork for the next day.
2. Integrate the 2nd copy of the dose tickets into the numerical prescription file.
3. Make up QC syringes for cameras.
4. Make up QC syringes for daily products
5. Close out products at the end of the day and do work count.
6. Check Radiopharmacy & RIA Log Book-make sure all entries have been completed.
7. Make up Chromotography Strips to have some on hand.
8. Survey work surfaces-record results in Survey Log Bk.
9. Restock needles, syringes, alcohol pads, etc, in RP preparation area.
10. Empty rad waste-deliver to 2nd floor dock to Health Physics Wednesday afternoons 1330-1430 hours.
11. Daily calibrator check.
12. Order supplies.
13. Prepare 10 Saline and 10 Heparin Syringes
14. Inventory R.P. and Kits on Mondays of stock level and expiration dates.
15. Check and record temperature of refers. in Nuclear Pharmacy.

NUCLEAR MEDICINE SERVICE
WALTER REED ARMY MEDICAL CENTER

PEDIATRIC DOSES

I. Radionuclide Studies

$$\text{PEDIATRIC DOSE} = \frac{\text{Surface Area of Child's Body}}{\text{Surface Area of Adult's Body}} \times \text{Adult Dose}$$

The body surface area may be estimated from the body weight to within ± 8% s.d.:

$$\text{Body Surface area} = \frac{(\text{Body Weight (Kg)})^{0.7}}{11}$$

Schedule for calculation of pediatric doses:

Weight lb	Weight Kg	Fraction of Adult Dose	DOSE 20 mCi	DOSE 15 mCi	DOSE 10 mCi	DOSE 5 mCi
2.2	1 Kg	0.05	1.0	0.8	0.5	0.3
4.4	2 Kg	0.09	1.7	1.3	0.9	0.4
6.6	3 Kg	0.12	2.3	1.7	1.2	0.6
8.8	4 Kg	0.14	2.8	2.1	1.4	0.7
11	5 Kg	0.16	3.3	2.5	1.6	0.8
13.2	6 Kg	0.19	3.7	2.8	1.9	0.9
15.4	7 Kg	0.21	4.2	3.1	2.1	1.0
17.6	8 Kg	0.23	4.6	3.4	2.3	1.1
19.8	9 Kg	0.25	5.0	3.7	2.5	1.2
22	10 Kg	0.27	5.4	4.0	2.7	1.3
26	12 Kg	0.30	6.1	4.6	3.0	1.5
31	14 Kg	0.34	6.8	5.1	3.4	1.7
35	16 Kg	0.37	7.4	5.6	3.7	1.9
40	18 Kg	0.40	8.1	6.1	4.0	2.0
44	20 Kg	0.44	8.7	6.5	4.4	2.2
48	22 Kg	0.47	9.3	7.0	4.7	2.3
53	24 Kg	0.49	9.9	7.4	4.9	2.5
57	26 Kg	0.52	10.5	7.8	5.2	2.6
62	28 Kg	0.55	11.0	8.3	5.5	2.8
66	30 Kg	0.58	11.6	8.7	5.8	2.9
70	32 Kg	0.61	12.1	9.1	6.1	3.0
75	34 Kg	0.63	12.6	9.5	6.3	3.2
79	36 Kg	0.66	13.1	9.9	6.6	3.3
84	38 Kg	0.68	13.6	10.2	6.8	3.4
88	40 Kg	0.71	14.1	10.6	7.1	3.5
92	42 Kg	0.73	14.6	11.0	7.3	3.7
97	44 Kg	0.76	15.1	11.3	7.6	3.8
101	46 Kg	0.78	15.6	11.7	7.8	3.9
106	48 Kg	0.80	16.1	12.1	8.0	4.0
110	50 Kg	0.83	16.5	12.4	8.3	4.1
114	52 Kg	0.85	17.0	12.7	8.5	4.2
119	54 Kg	0.87	17.5	13.1	8.7	4.4
123	56 Kg	0.90	17.9	13.4	9.0	4.5
128	58 Kg	0.92	18.3	13.8	9.2	4.6
132	60 Kg	0.94	18.8	14.0	9.4	4.7
136	62 Kg	0.96	19.2	14.4	9.6	4.8
141	64 Kg	0.98	19.6	14.7	9.8	4.9
143	65 Kg	1.00	20	15	10	5.0

Adapted from: A.E. JAMES, H.N. WAGNER, & R.E. COOKE, Pediatric Nuclear Medicine, Saunders Company, 1974. p.92.

II. Potassium Perchlorate and other Non-radioactive medications use: YOUNG'S RULE

$$\text{PEDIATRIC DOSE} = \frac{\text{AGE}}{\text{AGE} + 12} \times \text{ADULT DOSE}$$

MINIMUM/MAXIMUM PEDIATRIC DOSES*

EXAM	ISOTOPE	DOSE uCi/kg	MIN	MAX
Brain	TcDTPA	250 uCi/kg	2 mCi	20 mCi.
Cisternogram	In-111 DTPA	15 uCi./kg	100 uCi.	500 uCi.
Lung	133-Xe gas	100 uCi/kg	3 mCi.	20 mCi.
Cardiovascular	Muga TcO4	250 uCi/kg	3 mCi.	20 mCi.
Thyroid Scan	TcO4	150 uCi/kg	2 mCi.	10 mCi.
Liver/Soleen	Tc-sulfur col	50 uCi/kg	500 uCi.	5 mCi.
Hepatobiliary	Tc-Choletec	50 uCi/kg	1 mCi.	3 mCi.
Bone Scan	Tc MDP	250 uCi/kg	2 mCi.	20 mCi.
Kidney	Tc DTPA	150 uCi/kg	2 mCi	15 mCi.
	Tc DMSA	50 uCi/kg	300 uCi.	4 mCi.
Gallium-67	Ga Citr	50 uCi/kg	500 uCi.	3 mCi.
GE Reflux/ Aspiration	Tc-sulfur Col		---1000 uCi ---	
GI Bleed	Tc-RBC	250 uCi/kg	2 mCi.	20 mCi.
	Tc-Sulf Col	100 uCi/kg	1 mCi.	5 mCi.
Cystogram	tc-DTPA or Tc-SC		1 mCi	
Meckles	TcO4	150 uCi/kg	2 mCi.	10 mCi.
Dacrocystogram	TcDTPA		100 uCi	
Testicular	TcO4	250 uCi/kg	2 mCi.	10 mCi.

*To age 18 or 120 lb.

Patients over 120 lb will receive an adult dose of technetium labeled radiopharmaceuticals. Radiopharmaceuticals labeled with other isotopes will be dosed BY WEIGHT.

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	NUCLEAR MEDICINE PROCEDURES						
CODE	STUDY NAME	AGENT 1	DOSE 1	ROUTE	AGENT 2	DOSE 2	ROUTE 2
	Endocrine System 001-099	AGENT	DOSE	ROUTE	AGENT	DOSE	ROUTE
001	THYROID SCAN PERTECHNATE	TcO4	10 mCi	IV			
010	THYROID SCAN I123	I123	100 uCi	PO			
020	THYROID SCAN I131	I131	30 uCi	PO			
030	THYROID NECK AND CHEST I131	Dosed under #031					
031	THYROID NECK AND CHEST DOSING	I131	10 mCi				
032	THYROID DOSIMETRY	I131	5 mCi	PO			
034	THYROID NECK AND CHEST TI201	TI201	2.2 mCi	IV			
039	THYROID UPTAKE DOSING	I131	7uCI	PO			
040	THYROID UPTAKE	Dosed under #039					
041	PERCHLORATE DISCHARGE	I131	10 uCi	PO	KCIO4	1 gm	PO
043	SUBSTERNAL GOITRE SCAN	I131	30 Ucl	PO			
070	I131 Rx HYPERTHYRODISM	I131	Varied				
072	I131 Rx METASTATIC THYROID CA	I131	Varied				
080	ADRENAL SCAN NP-59	Dosed under #081					
081	NP-59 DOSING	NP59	1-2 mCi				
085	ADRENAL MEDULLARY SCAN MIBG	Dosed under #086					
086	MIBG DOSING	MIBG	500 uCi				
090	PARATHYROID SCAN	TI201	2 mCi	IV	TcO4	2 MCi	IV
	Hematopoietic System 100-173	AGENT	DOSE		AGENT	DOSE	
121	LYMPHSCINTOGRAPHY	TcSbSc	1.0 mCi x 2				
160	P32 INTRAVENOUS RX		Varied				
161	P32 INTRAPERITIONEAL RX		Varied				
171	BLOOD AND/OR PLASMA VOLUME	Cr51	35 uCi	IV	I125HSA	10 uCI	IV

	Gastrointestinal System 200-299	AGENT	DOSE		AGENT	DOSE	
200	LIVER SPLEEN SCAN (PLANAR)	TcSc	5 mCi	IV			
203	HEMANGIOMA LIVER (TOMO)	SnPYP	15 mg	IV	TcO4	20 mCi	
210	HEPATOBILIARY STUDY	TcChole	5 mCi	IV			
211	HEPATOBILIARY IMAGING (PEDS-ATRESIA)	TcChole	5 mCi	IV			
213	GALLBLADDER EJECTION FRACTION	TcChole	5 mCi	IV	CCK	0.1 mg/kg	IV
220	SALIVARY GLAND IMAGING (PAROTID)	TcO4	5 mCi	IV			
230	MECKEL'S SCAN	TcO4	10 mCi	IV	Cimetadine		
240	GI BLEEDING STUDY (RBC)	SnPyp	15 mg	IV	TcO4	20 mCi	IV
241	GI BLEEDING STUDY (SULFUR COLLOID)	TcSc	10 mCi	IV			
250	ESOPHAGEAL CLEARANCE (CORNFLAKES)	TcDTPA	500 uCi	PO			
251	ESOPHAGEAL REFLUX STUDY	TcSc	1 mCi	PO			
252	MILK ASPIRATATION STUDY	TcSc	1 mCi	PO			
261	GASTRIC EMPTYING STUDY (SCAMBLED EGGS)	TcSc	500 uCi	PO			
280	SHILLING TEST	Co57B12	0.5 uCi	PO			

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	Musculo-skeletal System 300-399	AGENT	DOSE		AGENT	DOSE	
300	BONE SCAN (WHOLE BODY PLANAR)	TcMDP	20 mCi	IV			
310	BONE SCAN (PAIN PELVIS/LOWER EXTREMITY)	TcMDP	20 mCi	IV			
395	JOINT IMAGING	TcO4	10 mCi	IV			
	Cardiovascular System 400-499	AGENT	DOSE		AGENT	DOSE	
400	REST MUGA	SnPyp	7.5 mg	IV	TcO4	25 mCi	IV
405	EXERCISE MUGA	SnPyp	7.5 mg	IV	TcO4	30 MCi	IV
410	REST FIRST PASS STUDY (RV EF)	SnPyp	7.5 mg	IV	TcO4	25 mCi	IV
415	EXERCISE FIRST PASS STUDY	SnPyp	7.5 mg	IV	TcO4	30 MCi	IV
420	REST THALLIUM (PLANAR)	Tl201	2.2 mCi	IV			
425	STRESS THALLIUM (PLANAR)	Tl201	3.0 mCi	IV	Tl201	1.0 MCi	IV
426	STRESS THALLIUM (TOMO)	Tl201	3.0 mCi	IV	Tl201	1.0 MCi	IV
430	CARDIAC SHUNT EVALUATION	TcO4	10 mCi	Jugular			
435	INFARCT AVID SCAN (PLANAR)	TcPYP	20 mCi	IV			
440	VENOGRAPHY	TcSc	7.5 mCi	IV	TcDTPA	7.5 MCi	IV
	Respiratory System 500-599	AGENT	DOSE		AGENT	DOSE	
500	V/Q SCAN	Xe133	15-25mCi	Inhale	TcMAA	5 mCi	IV
510	PERFUSION SCAN ONLY	TcMAA	5 mCi	IV			
580	PREOPERATIVE LUNG EVALUATION	TcMAA	5 mCi	IV			
	Central Nervous System 600-699	AGENT	DOSE		AGENT	DOSE	
600	BRAIN IMAGING (PLANAR)	TcDTPA	15 mCi	IV			
610	CISTERNOGRAPHY	In111DPTA	500 uCi	IT			
622	VENTRICULO-PERITIONEAL SHUNT	TcDTPA	10 uCi	Reservoir			
630	CSF LEAKAGE (PLEDGET STUDY)	In111DPTA	500 uCi	IT			
641	I123 IMP (TOMO)	I123IMP	3-5 MCi	IV			
644	HMPAO (TOMO)	TcHMPAO	20 mCi	IV			

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	Genitourinary System 700-799	AGENT	DOSE		AGENT	DOSE	
700	RENAL TX EVALUATION WITH HIPPURAN	TcDTPA	15 mCi	IV	I131HIPP	150 uCi	IV
710	RENAL IMAGING (DTPA)	TcDTPA	15 mCi	IV			
711	POST CAPTROPRIL RENAL IMAGING (DTPA)	TcDTPA	15 mCi	IV			
720	RENAL IMAGING (DMSA)	TcDMSA	4 mCi	IV			
721	RENAL IMAGING (DMSA -- TOMO)	TcDMSA	4 mCi	IV			
725	RENAL IMAGING (HIPPURAN)	I131HIPP	300 uCi	IV			
726	POST CAPTROPRIL RENAL IMAGING (HIPPURAN)	I131HIPP	300 uCi	IV			
730	LASIX RENAL SCAN	TcDTPA	15 mCi	IV			
750	VOIDING CYSTOGRAM	TcDTPA	1 mCi	Bladder			
760	TESTICULAR SCAN	TcO4	10 mCi	IV			
	Miscellaneous 900-999	AGENT	DOSE		AGENT	DOSE	
900	GALLIUM SCAN	Dosed under #901					
901	GALLIUM DOSING	Ga67	10 mCi	IV			
910	WBC SCAN	In111WBC	500 uCi	IV			

RECEIPT OF RADIOPHARMACEUTICALS

Applies to packages received from the Roche or Syncor radiopharmacies

I. SURVEY OF PACKAGE:

1. Put on Latex Gloves
2. Inspect the package for signs of damage. If damage is noted, stop and call the RPO.
3. Measure the package at 1 meter and at the package surface. If it is greater than expected stop and notify the RPO.

LABEL REQUIRED	LIMITS OF RADIATION EXPOSURE	
	TI[1]	AT PACKAGE SURFACE
White-I	NA	<= 0.5 mR/hr
Yellow-II	< 1 mR/hr	>0.5 mR/hr but <= 50 mR/hr
Yellow-III	> 1 mR/hr	> 50 mR/hr

No package shall exceed 200 mR/hr at the surface nor 10 mR/hr at 1 meter.

II. WIPE TEST THE PACKAGE:

1. Wipe the exterior of the package with an absorbant paper. A minimum of 4X4 inch area must be wiped.

2. Place the wipe in the Victoreen Wipe Test Counter (model 05-578). Press the "count" button. A green light indicates the wipe has less activity than the allowable threshold activity. If a red fail light is displayed proceed to section III, ANALYSIS OF WIPE TEST RESULTS

3. Wipe the surface of the radiopharmaceutical containers as in step 1 above. Count the wipe as in step 2 above[2].

Remove the radiopharmaceuticals from the package and store them in their designated areas. Make sure the packing slip agrees with drugs received. Enter the survey and wipe test in the pharmacy computer system for each radiopharmaceutical received. When several radiopharmaceuticals are received in the same package the wipe test and survey results will be the same for each radiopharmaceutical.

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1 Transportation Index (TI) is the radiation level in mR/hr at 1 meter from the package surface

2 NRC does not require wipe test of the interior of the package. However, it is good practice to determine if there is removable contamination on the products we receive.

III. ANALYSIS OF WIPE TEST RESULTS:

When a wipe test fails to pass as indicated by the wipe test counter use the following procedure to ascertain the isotope and activity.

1. When a wipe test has failed the red LED light will be glowing and a value in kilo-disintegrations per minute (KDPM) will be displayed.

2. Remove the wipe from the wipe test counter and place it in a glycine paper pouch. Place the pouch in the well counter attached to the thyroid probe in the thyroid room (7A08). Run the "calibration" procedure to identify the isotope by its emission peak(s).

3. The wipe test counter is set up to read out directly for Technetium-99m in KDPM. For other isotopes it is necessary to convert the displayed KDPM into actual KDPM by using a conversion factor for the isotope. Conversion factors (C.F.) for commonly used isotopes at WRAMC nuclear medicine are as follows:

ISOTOPE	C.F.
I-131	0.13
Tl-201	1.30
Ga-67	1.50
In-111	0.08

The threshold activity for all radiopharmaceuticals received at WRAMC is 2000 dpm/ 100 cm^2 removable contamination. The threshold activities for the above listed isotopes are:

I-131	15.3 KDPM
Tl-201	1.5
Ga-67	1.3
In-111	25.0

Press the "threshold" button and enter the isotope threshold value using the "change digit" keys. Press the "activity key" to put into memory. Count the wipe in the usual manner described in section II. A green PASS means the contamination is less than 2000 DPM for the isotope being counted. A FAIL displays a KDPM value which must be multiplied by the C.F. to get the actual KDPM value for the wipe. For wipes which result in a FAIL indication notify the RPO.

FIRE PLAN FOR BUILDING #2 (NEW MEDICAL TREATMENT FACILITY)

FIRE EMERGENCY PROCEDURE:

Procedures must include the following order of importance:

a. Rescue persons in immediate danger.

b. Report the fire immediately.

(1) Make the fire known to everyone in the immediate area.

(2) Call the Fire Department. Use the building fire alarm system. The fire alarm system will call the Fire Department and also let everyone in the building know there is a fire. The Fire Department should also be called by telephone (dial 63317).

(3) To sound the fire alarm in the building, locate one of the RED, metal boxes mounted on the wall in the hallway and near each stairway door and pull down on the handle on the front of the box.

c. Confine the fire. Close the door to the room where the fire is located.

d. Secure the area.

(1) Close all the doors in the area.

(2) Turn OFF oxygen and gas valves.

(3) Do not allow anyone to go back into the area.

e. Fight the fire with the proper extinguisher. Use extinguishers if fire is small, for example: when the fire is just getting started, a mattress is smouldering and there is just a little smoke, or a fire in a trash can. If the room is full of smoke, GET OUT and CLOSE THE DOOR.

f. Control employees, visitors and patients. There will be visitors, patients and employees from other areas of the building who will not know what to do when a fire takes place. Keep them calm and tell them how to leave the area.

g. Meet the Fire Department and direct them to the fire.

h. Evacuation.

(1) Remove patients from rooms to the hallway. From there go down the hallway until you go through the double doors dividing the hallway. Make sure these doors are closed and remain closed after everyone has been removed from area of the fire.

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WALTER REED ARMY MEDICAL CENTER
NUCLEAR MEDICINE SERVICE

PERSONNEL POLICY NO: HSHL-XN-1 SUPERSEDES: ALL OTHERS

SUBJECT: INFECTION CONTROL POLICY

1. PURPOSE: To establish guidelines for the Nuclear Medicine Service employees to minimize the risk of infection due to exposure, and prevent the transmission of infective agents to patients, co-workers and the community.

2. GENERAL:

a. A system of barrier protection (i.e rubber gloves, gown etc) must be used to prevent skin and mucus membrane exposure to biological fluids and/or wounds etc.

b. All skin defects (cuts, abrasions etc) must be covered with protective bandages.

c. Meticulous handwashing, even when gloves are used. If hands or other body surfaces become contaminated, they should be washed immediately with soap and water or Hibeclens (each room has been supplied with adequate amounts of Hibeclens).

d. Gloves must be worn for contact with any patients' blood or body fluids. This includes routine phlebotomy, injecting radiopharmaceuticals, etc. Body fluids includes drainage of any type, saliva, sputum, urine etc.

e. Gloves must be removed prior to the use of telephone, CRT's or other clean surfaces. Clean, fresh gloves may be worn.

f. Consuming beverages or food, smoking and applying cosmetics are not permitted in the clinical work areas of Nuclear Medicine.

g. All accidents should be reported immediately to your supervisor or Chief Technologist. Appropriate forms will be filled out (see PPN HSHL-XN-2).

h. Food and beverages will be stored in the refrigerator marked "Staff Only" in the conference room.

HSHL-NIC 11 JAN 89

MEMORANDUM FOR: All Generators of Infectious Waste at WRAMC

SUBJECT: Proper Packaging of Infectious Waste

1. All generators of infectious waste are reminded that proper packaging procedures must be followed if the waste is to be contained from the site of origin to final disposal.

2. The Infection Control Committee and the Preventive Medicine Service offer the following guidelines for packaging of infectious waste at WRAMC.

a. All infectious waste will either be in standard boxes or in plastic needle and syringe containers.

b. Boxes should be sealed with masking or strapping tape on both top and bottom middle seams and on all four open side seams.

c. The LARGE needle and syringe containers must have the lids taped securely with either masking or strapping tape, since these large lids have a tendency to come open when the containers are transported.

d. The small needle and syringe containers can simply be securely closed A "snap" is generally heard when they are closed correctly.

e. Each container or box must be labeled with WRAMC FORM 801, BURN TAG. The tag must contain the point of origin and a point of contact.

3. Housekeeping personnel are currently being trained not to pick up the boxes and containers if they are not properly sealed and labeled. Additionally, Infection Control personnel will be conducting unannounced environmental rounds with housekeeping supervisors to check on packaging procedures.

4. If there are any questions or comments, please call Infection Control at 64350/51.

Brenda J Roup

BRENDA J. ROUP
LTC, AN
Chief, Infection Control

Distribution "A"

Section 2

METHODS FOR CALIBRATION OF DOSE CALIBRATOR*

All radiopharmaceuticals must be assayed for activity to an accuracy of 10 percent. The most common instrument for accomplishing this is an ionization-type dose calibrator. The instrument must be checked for accurate operation at the time of installation and periodically thereafter.

A. Test for the following:

1. Instrument constancy (daily)
2. Instrument accuracy (at installation and annually thereafter)
3. Instrument linearity (at installation and quarterly thereafter)
4. Geometrical variation (at installation)

B. After repair or adjustment of the dose calibrator, repeat all the appropriate tests listed above (dependent upon the nature of the repairs).

C. Test for Instrument Constancy

Instrument constancy means that there is reproducibility, within a stated acceptable degree of precision, in measuring a constant activity over time. Assay at least one relatively long-lived reference source such as Cs-137, Co-57,** or Ra-226** using a reproducible geometry before each day's use of the instrument. Preferably, at least two reference sources (for example, 3-5 mCi of Co-57 and 100-200 μCi of Cs-137 or 1-2 mg Ra-226 (with appropriate decay corrections) will be alternated each day of use to test the instrument's performance over a range of photon energies and source activities.

1. Assay each reference source using the appropriate instrument setting (i.e., Cs-137 setting for Cs-137).
2. Measure background level at same instrument setting, or check that automatic background subtraction is operating properly when blanks are inserted in the calibrator.
3. Calculate net activity of each source subtracting out background level.
4. For each source, plot net activity versus the day of the year on semilog graph paper.
5. Log the background levels.
6. Indicate the predicted activity of each source based on decay calculations and the ± 5 percent limits on the graph.
7. Repeat the procedure used for the Cs-137 source for all the commonly used radionuclide settings.
8. Variations greater than ± 5 percent from the predicted activity indicate the need for instrument repair or adjustment.
9. Investigate higher than normal background levels to determine their origin and to eliminate them if possible by decontamination, relocation, etc.

D. Inspect the instrument on a quarterly basis to ascertain that the measurement chamber liner is in place and that instrument zero is properly set (see manufacturer's instructions).

E. Test of Instrument Linearity

The linearity of a dose calibrator should be ascertained over the entire range of activities employed. This test will use a vial of Tc-99m whose activity is equivalent to the maximum anticipated activity to be assayed (e.g., the first elution from a new generator).

1. Assay the Tc-99m vial in the dose calibrator, and subtract background level to obtain net activity in millicuries.
2. Repeat step 1 at time intervals of 6, 24, 30, and 48 hours after the initial assay.
3. Using the 30-hour activity measurement as a starting point, calculate the predicted activities at 0, 6, 24, and 48 hours using the following table:

* See ANSI N42.13-1978, "Calibration and Usage of Dose Calibrator Ionization Chambers for the Assay of Radionuclides" (American National Standards Institute, Inc., 1430 Broadway, New York, N.Y. 10018).

** Co-57 and Ra-226 are not subject to NRC licensing; the respective State agency should be consulted to determine its requirements for possessing this material.

DOSE CALIBRATOR CONSTANCY

1. A quality control test of the dose calibrator is required each day prior to its use to prepare radiopharmaceutical doses.

2. Use the computer generated "DOSE CALIBRATOR CONSTANCY" form to record the observations. Use the 137Cs and 57Co dose calibrator sources in the pharmacy and test each button normally used. For 137Cs, 111In, and 57Co use the following "calibration" dial settings and the "other" button:

137Cs	220
111In	303
57Co	112

For the "moly assay" button use the displayed reading times 3.5 for the observed activity.

3. In addition to the blanks provided on the form perform the following tests and adjust the dose calibrator as needed.

ZERO - With chamber empty, zero the chamber. (voltage offset control)

BACKGROUND - Acceptable range is +/- 0.1 uCi. Record this reading.

TEST - Checks the level of the high voltage battery (normal 151-152)

and safety surveys. A licensee is responsible for assuring that any change made is in compliance with the requirements of the regulations and the license.

(b) A licensee shall retain a record of each change until the license has been renewed or terminated. The record must include the effective date of the change, a copy of the old and new radiation safety procedures, the reason for the change, a summary of radiation safety matters that were considered before making the change, the signature of the Radiation Safety Officer, and the signatures of the affected authorized users and of management or, in a medical institution, the Radiation Safety Committee's chairman and the management representative.

§ 35.33 Records and reports of misadministrations.

(a) When a misadministration involves any therapy procedure, the licensee shall notify by telephone the appropriate NRC Regional Office listed in Appendix D of Part 20 of this chapter. The licensee shall also notify the referring physician of the affected patient and the patient or a responsible relative (or guardian), unless the referring physician agrees to inform the patient or believes, based on medical judgment, that telling the patient or the patient's responsible relative (or guardian) would be harmful to one or the other, respectively. These notifications must be made within 24 hours after the licensee discovers the misadministration. If the referring physician, patient, or the patient's responsible relative or guardian cannot be reached within 24 hours, the licensee shall notify them as soon as practicable. The licensee is not required to notify the patient or the patient's responsible relative or guardian without first consulting the referring physician; however, the licensee shall not delay medical care for the patient because of this.

(b) Within 15 days after an initial therapy misadministration report to NRC, the licensee shall report, in writing, to the NRC Regional Office initially telephoned and to the referring physician, and furnish a copy of the report to the patient or the patient's responsible relative (or guardian) if either was previously notified by the licensee under paragraph (a) of this section. The written report must include the licensee's name; the referring physician's name; a brief description of the event; the effect on the patient; the action taken to prevent recurrence; whether the licensee informed the patient or the patient's responsible relative (or guardian), and if not, why not. The report must not include the patient's name or other information that could lead to identification of the patient.

(c) When a misadministration involves a diagnostic procedure, the Radiation Safety Officer shall promptly investigate its cause, make a record for NRC review, and retain the record as directed in § 35.33(d). The licensee shall also notify the referring physician and the appropriate NRC Office specified in § 30.6 of this part in writing on Form NRC———[1] within 15 days if the misadministration involved the use of byproduct material not intended for medical use, administration of a dosage five-fold different from the intended dosage, or administration of byproduct material such that the patient is likely to receive an organ dose greater than 2 rem or a whole body dose greater than 500 millirem. Licensees may use dosimetry tables in package inserts, corrected only for amount of radioactivity administered, to determine whether a report is required.

(d) Each licensee shall retain a record of each misadministration for ten years. The record must contain the names of all individuals involved in the event (including the physician, allied health personnel, the patient, and the patient's referring physician), the patient's social security number or identification number if one has been assigned, a brief description of the event, the effect on the patient, and the action taken, if any, to prevent recurrence.

(e) Aside from the notification requirement, nothing in this section affects any rights or duties of licensees and physicians in relation to each other, patients, or responsible relatives (or guardians).

§ 35.49 Suppliers.

A licensee may use for medical use only:

(a) Byproduct material manufactured, labeled, packaged, and distributed in accordance with a license issued pursuant to the regulations in Part 30 and §§ 32.72, 32.73, or 32.74 of this chapter or the equivalent regulations of an Agreement State;

(b) Reagent kits that have been manufactured, labeled, packaged, and distributed in accordance with an approval by the Commission pursuant to § 32.73 or an Agreement State under equivalent regulations for the preparation of radiopharmaceuticals for medical use; and

(c) Teletherapy sources manufactured and distributed in accordance with a license issued pursuant to Part 30 of this chapter or the equivalent regulations of an Agreement State.

Subpart C—General Technical Requirements

§ 35.50 Possession, use, calibration, and check of dose calibrators.

(a) A medical use licensee authorized to administer radiopharmaceuticals shall have in its possession a dose calibrator and use it to measure the amount of activity administered to each patient.

(b) A licensee shall:

(1) Check each dose calibrator for constancy with a dedicated check source at the beginning of each day of use. To satisfy the requirement of this paragraph, the check must be done on a frequently used setting with a sealed source of not less than 10 microcuries of radium-226 or 50 microcuries of any other photon-emitting radionuclide;

(2) Test each dose calibrator for accuracy upon installation and at least annually thereafter by assaying at least two sealed sources containing different radionuclides whose activity the manufacturer has determined within 5 percent of its stated activity, whose activity is at least 10 microcuries for radium-226 and 50 microcuries for any other photon-emitting radionuclide, and at least one of which has a principal photon energy between 100 keV and 500 keV;

(3) Test each dose calibrator for linearity upon installation and at least quarterly thereafter over the range of its use between the highest dosage that will be administered to a patient and 10 microcuries; and

(4) Test each dose calibrator for geometry dependence upon installation over the range of volumes and volume configurations for which it will be used. The licensee shall keep a record of this test for the duration of the use of the dose calibrator.

(c) A licensee shall also perform appropriate checks and tests required by this section following adjustment or repair of the dose calibrator.

(d) A licensee shall mathematically correct dosage readings for any geometry or linearity error that exceeds 10 percent if the dosage is greater than 10 microcuries and shall repair or replace the dose calibrator if the accuracy or constancy error exceeds 10 percent.

(e) A licensee shall retain a record of each check and test required by this

[1] The staff is developing this form and will make it available before the effective date of this regulation. A notice of its availability will be published in the Federal Register.

authorize departures from the manufacturer's instructions for eluting the generator or preparing the therapy kit.

Section 30.34 Terms and Conditions of Licenses

Commercial nuclear pharmacies are licensed pursuant to 10 CFR part 30, "Rules of General Applicability to Domestic Licensing of Byproduct Material." These licensees are required by a license condition similar to § 35.200(b) to elute generators and prepare reagent kits in accordance with the manufacturer's instructions. The NRC believes that authorized users obtaining radiopharmaceuticals from commercial nuclear pharmacy licensees should not be bound by this restriction in the commercial nuclear pharmacy license. Therefore, the NRC is amending 10 CFR 30.34, "Terms and Conditions of Licenses," to permit actions within the scope of those permitted by the new § 35.200(c). For situations not within the scope of the amended § 30.34, a commercial nuclear pharmacy licensee may file an application to have its license amended to permit specific departures from the manufacturer's instructions for identified products.

Under the interim rule, commercial nuclear pharmacy licensees would no longer be bound by the requirement in their licenses to follow the manufacturer's instructions for a radiopharmaceutical for which the FDA has approved an NDA if they have a written directive made by an authorized user physician directing a specific departure for a particular patient, or patients, or for a radiopharmaceutical, and which includes the specific nature of the departure, a precise description of the departure, and why the departure from the manufacturer's instructions would obtain medical results not otherwise attainable or would reduce medical risks to particular patients because of their medical condition. As in § 35.200(c), there is an exception to the requirement for a written directive before preparing the radiopharmaceutical in an emergency situation if an authorized user physician determines that a delay in obtaining the written directive would jeopardize the patient's health. In this case, the commercial nuclear pharmacy licensee shall obtain the written directive from the authorized user physician within 3 working days of the prescribed departure. The directive must contain information regarding the emergency and all other required information. Licensees shall keep those records in an auditable form and available for inspection for 5 years.

These amendments to § 30.34 take precedence over the restrictive conditions (*i.e.*, on eluting generators and preparing reagent kits for NDA radiopharmaceuticals) in the licenses of commercial nuclear pharmacies. Therefore, those parts of the license conditions no longer apply during the 3-year period when the interim rule is in effect. This interim rule does not address departures from IND generator elution instructions or IND protocol directions for reagent kit preparation, thus licensees shall continue to follow the IND instructions.

Continuing Applicability of Regulatory Requirements

The NRC notes that this interim rule does not relieve licensees from the requirements to comply with other applicable NRC, FDA, and other Federal or State regulations or NRC orders or license conditions concerning possession or use of byproduct material for medical use or other purposes as specified in 10 CFR parts 30, 32, 33, and 35. Moreover, if a radioactive biologic receives a product license approval (PLA), this interim rule does not authorize departures from the manufacturer's instructions for preparing the biologic. In addition, if a kit or generator for a radiopharmaceutical for therapy receives an approved NDA, this interim rule does not authorize departures from the manufacturer's instructions for eluting the generator or preparing the therapy kit. Neither of these approvals exists at this time and neither is authorized by current regulations.

Radiation Safety Responsibilities of Medical Use Licensees

NRC medical use licensees are required by § 35.21 to appoint a Radiation Safety Officer (RSO) responsible for implementing the licensee's radiation safety program. The licensee is required, through the RSO, to ensure that radiation safety activities are being performed in accordance with approved procedures and regulatory requirements in the daily operation of the licensee's byproduct material program. Nothing in this rulemaking relieves the licensee from complying with the requirements of § 35.21.

In accordance with 10 CFR 35.22, NRC medical institution licensees are required to establish a Radiation Safety Committee (RSC) to oversee the use of byproduct material. The duties of the RSC are specified in § 35.22(b) and include reviews, on the basis of safety, of numerous aspects of a licensee's use of byproduct material. Nothing in this rulemaking relieves the licensee from complying with the requirements of § 35.22.

VI. Administrative Statements

Finding of No Significant Environmental Impact: Availability

The Commission has determined under the National Environmental Policy Act of 1969, as amended, and the Commission's regulations in subpart A of 10 CFR part 51 that these amendments are not a major Federal action significantly affecting the quality of the human environment and therefore an environmental impact statement is not required. This interim rule amends NRC regulations to permit licensees who elute generators and prepare reagent kits to depart from the manufacturer's instructions if those persons have a written directive made by an authorized user physician that requests a specific departure for a particular patient, or patients, or for a radiopharmaceutical. This directive must provide the specific nature of the departure, a precise description of the departure, and the reasons why the departure from the manufacturer's instructions would obtain medical results, diagnostic or therapeutic, not otherwise attainable or would reduce medical risks to particular patients because of their medical condition. The amendment does not address departures from IND generator elution instructions or IND protocol directions for reagent kit preparation. The NRC is also modifying its regulations to permit, if certain requirements are met, the therapeutic use of radiopharmaceuticals without following the package instructions regarding indications and method of administration. The interim rule does not affect the exemption in 10 CFR part 20 for the intentional exposure of patients to radiation for the purpose of medical diagnosis and therapy.

Although the rule may cause some patients to be exposed to higher or lower levels of radiation than otherwise expected, those exposures would be given to obtain medical results not otherwise attainable or to reduce other risks to the patient. It should be noted that current requirements do not limit the radiation dose prescribed by the authorized user physician for either diagnosis or therapy. The amendments would not relieve licensees from meeting the requirements in 10 CFR parts 20 and 35 that restrict radiation exposure to medical care personnel in the restricted area or to the general public in the unrestricted area, or radioactive effluent releases. It is expected that there would be no

MEMORANDUM FOR: Nuclear Medicine Service 5 Feb 91

Subject: Departure from FDA radiopharmaceutical kit preparation and use guidelines to satisfy NRC interim 10 CFR 35.200 requirements.

1. Radiopharmaceuticals will be used in pediatric patients if, in the opinion of the prescribing physician, the benefit of the procedure outweighs the risks from exposure to ionizing radiation. The radiopharmaceutical dose will be determined by the current clinic guideline for pediatric doses.

2. Technetium radiopharmaceutical kits (DTPA, MDP, Sulfur Colloid) prepared in the nuclear pharmacy may be used for an eight hour period from preparation time provided they meet USP radiochemical standards. Tc-DMSA may be used for two hours after preparation provided radiochemical QC is determined to meet USP standards for each dose prepared. The nuclear pharmacist will be responsible for periodically monitoring the radiochemical stability of radiopharmaceutical kits after normal expiration. Preparation of additional kits when the current drug remains useful is an unnecessary expense and exposes personnel to additional radiation.

JAY H. ANDERSON
COL, MC
Chief, Nuclear Medicine Svc

APPENDIX N

Model Procedure for Area Surveys
(See § 35.70.)

You may use the following model procedure to perform area surveys. If you follow the model procedure, you may say on your application, "We will establish and implement the model procedure for area surveys that was published in Appendix N to Regulatory Guide 10.8, Revision 2."

You may develop your own procedure for review. If you do so, you should consider for inclusion all the features in the model procedure and carefully review the requirements of § 35.70. Say on your application, "We have developed survey procedures for your review that are appended as ATT 10.12," and append your survey procedures.

MODEL PROCEDURE

Ambient Dose Rate Surveys

1. Survey Areas

   a. In radiopharmaceutical elution, preparation, and administration areas, survey at the end of each day of use with a radiation detection survey meter. If diagnostic administrations are occasionally made in patients' rooms and special care is taken to remove all paraphernalia, those rooms need not be surveyed.

   b. In laboratory areas where only small quantities of gamma-emitting radioactive material are processed (less than 200 microcuries at a time), survey monthly with a radiation detection survey meter.

   c. In radiopharmaceutical storage and radiopharmaceutical waste storage areas, survey weekly with a radiation detection survey meter.

   d. In sealed source and brachytherapy storage areas, survey quarterly with a radiation measurement survey meter.

2. Immediately notify the RSO if you find unexpectedly high or low levels.

Removable Contamination Surveys

1. Survey Areas

   a. In radiopharmaceutical elution, preparation, and administration areas, survey weekly for removable contamination. If diagnostic administrations are occasionally made in patients' rooms and special care is taken to remove all paraphernalia, those rooms need not be surveyed.

   b. In laboratory areas where only small quantities of photon-emitting radioactive material are processed (less than 200 microcuries at a time), survey monthly for removable contamination.

APPLICATION FOR AUTHORIZATION TO USE RADIOACTIVE MATERIAL - HUMAN USE

1. APPLICATION FOR: (Check and/or complete as appropriate)	NEW AUTHORIZATION:	RENEWAL OF AUTHORIZATION NUMBER	AMENDMENT TO AUTHORIZATION NUMBER
		X H 274	

2. APPLICANT'S NAME (Principal User): Anderson, Jay H, COL ~~NEUTZE, JANET A. M.D., MAJ, MC~~

TELEPHONE NUMBER: 576-0168

3. APPLICANT'S MAILING ADDRESS (Include Organization): Asst Chief, Nuclear Medicine Svc HSHL-XN, WRAMC

(IF MORE SPACE IS NEEDED FOR ANY ITEM, USE ADDITIONAL PROPERLY KEYED PAGES.)

4. List all CO-WORKERS w/grade & org. Attach comp WRAMC Form 1643 if not on file with WRAMC HPO.

Abreu, Sue, CPT, MC
Norby, Eric, MAJ, MC
Van Nostrand, Douglas LTC
Neutze, JANET A. MAJ
~~Utz, Joseph, LTC, MC~~

5. List all TRAINEES w/grade & org.

Ghaed, Victor, COL. MC
Kark, John A. COL, MC
Radiology Residents
Student Technicians
~~Nagorski, Leonard, MAJ, MC~~
Oswald, Stephen, MAJ, MC
Fortenbery, Edwin, CPT, MC
~~Jelinek, James, CPT, MC~~

6. List all TECHNICIANS who will work with RAD MAT under this Authorization.

See attached sheet

7. LOCATION WHERE MATERIAL WILL BE USED:

Ex 2

APPROVED BY RCC 10 FEB 1988 Ex 2

Ex 2

10. Radioisotope	11. Chemical and/or Physical Form	12. Possession Limit	Use	DAT	ealed Source
See attached listing of by product material, chemical and/or physical form possession limit date 26 Nov 84					

OLD HUMAN USE Authorization

21 JAN 1988

This Application is given interim approval until the next meeting of the RCC which is scheduled for FEB 1988

15. CERTIFICATE
(This item must be completed by applicant)

I certify compliance with the provisions of AR 40-7 (Clinical Use of Investigational Drugs), AR 70-25 (Use of Volunteers as Subjects of Research), AR 40-37 (Radioisotope License Program-Human Use), All applicable WRAMC Regulations, and that all information contained herein, including any supplements attached hereto, is true and

HSHL-XN (340a) 19 FEB 91

MEMORANDUM FOR: WRAMC Nuclear Medicine Professional and Technical Staff

SUBJECT: Time Period for cessation of Breast-Feeding after a Nuclear Medicine Procedure

International Council on Radiation Protection (ICRP) publication 52, Protection of the Patient in Nuclear Medicine, makes specific suggestions on the time period a nursing mother should cease breast-feeding after a nuclear medicine procedure. Three groups of radiopharmaceuticals used at WRAMC have been identified with different "stop nursing" times:

GROUP I - Stop nursing for at least 3 weeks[1]

All ^{131}I- and ^{125}I-radiopharmaceuticals except hippuran, ^{67}Ga, ^{201}Tl

GROUP II - Stop nursing for at least 12 hours

^{131}I, ^{125}I, and ^{123}I hippuran

All ^{99m}Tc-compounds except labelled -RBCs, -phosphonates, and -DTPA

GROUP III - Stop nursing for at least 4 hours

All ^{99m}Tc-RBCs, -phosphonates, and -DTPA

JAY H. ANDERSON
COL, MC
Chief, Nuclear Medicine Service

1 This implies normally that nursing will have to be discontinued.

WALTER REED ARMY MEDICAL CENTER
NUCLEAR MEDICINE SERVICE

TO ALL FEMALE PATIENTS BETWEEN 12 AND 55 YEARS OF AGE:

_____ _____

Patient's Name (Please print) Sponsor's Social Security #

_____

Study Date:

Like many other x-ray procedures, Nuclear Medicine scans are not usually performed if you have a reasonable chance of being pregnant. To determine this, please answer the following questions.

YES	NO	
_____	_____	Are you breast feeding?
_____	_____	Are you post-menopausal (mensutral cycle)?
_____	_____	Was your last menses (period) within the last 10 days?
_____	_____	Have you had a tubal ligation (tubes tied)?
_____	_____	Have you had a hysterectomy (uterus removed)?
_____	_____	Are you on birth control pills (BCP)?
_____	_____	Do you used an IUD (intra-urine device)?
_____	_____	Are you pregnant?

_____ or _____

Patient's Signature Physician Signature

After consultation with this patient, it is my impression that the likelihood of her being pregnant is small (less than or equal to the likelihood with BCPs/IUD) and does not warrant cancelling or rescheduling the study.

_____

Physician's signature

I-131 CHEST SURVEY
PATIENT INFORMATION SHEET

Your Endocrinology or Nuclear Medicine physician has requested an I-131 chest survey which is to localize any remaining thyroid tissue in your neck or chest. This study requires significant preparation and time on your part which should be carefully adhered to for maximum results. This is described below and the total preparation time, scanning time, and if necessary, I-131 treatment time is two months.

1. Your I-131 chest survey is scheduled for _____ and if necessary, an I-131 treatment will be performed on the subsequent Monday of _____.

2. Your thyroid hormone (for example Synthroid or desicated thyroid USP) should be discontinued 5 weeks prior to the above date for your I-131 chest survey.

3. Upon discontinuation of the above medication, you should begin Cytomel 25 mcg orally twice daily. Your physician should give you a prescription for such and this should be discontinued 2 weeks prior to the above date for your I-131 chest survey. You will be on no thyroid medication for the last 2 weeks.

4. You should not have any x-ray contrast study (if in doubt ask physician), seafood, iodine containing drugs (SSKI, Lugol's Betadine) for two months prior to study. Your physician may want you to adhere to a low iodine diet during this time and this should be discussed with him.

5. Report to the Nuclear Medicine Clinic at the above appointed time which is usually Monday to have thyroid blood tests drawn and for the oral administration of radioactive iodine. This will take approximately 30 minutes to 1 hour.

6. Report to the Nuclear Medicine Clinic on (Date/Time) _____ for images of your chest and thyroid. This will require at least 1/2 to 3/4 of a day.

7. On the 6th day after you have received the radioactive iodine, report between 0900 and 1400 to the nursing station of the Kyle Metabolic Unit (Ward 47, 4th floor) for final thyroid blood tests.

8. A decision regarding radioactive iodine treatment will be made usually by the following Monday after the images and blood tests are obtained.

a. If treatment is not elected, you will have completed your evaluation. Follow-up I-131 chest survey in 6 months to 1 year should be scheduled before you go home. You should not wait to schedule this! You may begin your thyroid hormone according to the schedule recommended by your primary physician.

b. If low dose treatment is recommended, and if you elect such, then you will be treated at a time convenient to you, the Endocrinology staff and the Nuclear Medicine radiopharmacist. You may begin thyroid medication after the treatment according to the schedule recommended by your primary physician. Usually this is 2-3 days after treatment and may include a brief initial interval on Cytomel as well as thyroxine. In addition, you will be scheduled for a scan 7-10 days after the treatment dose.

Updated September 1985

I-131 DOSIMETRY/CHEST SURVEY/TREATMENT PROCEDURE

Your Endocrinologist and Nuclear Medicine physicians have requested a procedure to determine the "treatment dose" of radioactive iodine you should take to treat your thyroid cancer. The procedure estimates the largest dose we can give to destroy thyroid cancer without significantly increasing the risk of radioactive iodine to you. Because the procedure is very important for you and because it is time consuming and complex, it is very important that the procedure be performed as ideally as possible. This requires significant work on your part to assure the best results possible.

A schedule of events is listed on the attached sheet. The column on the left is what you need to do and the column on the right is what the technicians will do. Dates are all determined based on the day you receive your "small tracer dose" of radioactive iodine which is _____.

Updated September 1985

DATE	DAY	PATIENT	TECHNICIAN
	1+	Return to Nuclear Medicine Clinic at approximately 1000. Give technician urine bottle and pick up new urine bottle. You will have blood drawn and measurements of radioactivity in your body taken. Total time in the Nuclear Medicine Clinic should be less than one hour.	1. Collect urine bottle #0, label as #0, and store in pharmacy. 2. Give new urine bottle #1. 3. Draw 4 cc of heparinized blood. Label tube with patient's name, date, and time and give to lab.
	2+	Same as day 1+.	Same as day 1+.
	3+	Same as day 1+, however, images of lung and body will be obtained. Anticipate approximately 3 hours.	Same as day 1+, however, perform I-131 chest survey as in routine procedure book.
	4+	Same as day 1+.	Same as day 1+.
	5+	Same as day 1+.	Same as day 1+.
	6+	Same as day 1+.	Same as day 1+.
	7+	Same as day 1+.	1. Same as day 1+. 2. Draw PBI-131. Label patient's name, date, and give to lab.

DATE	DAY	PATIENT	TECHNICIAN
	10+ to 13+	After computer calculations of data, a dose will be determined and ordered. This time delay is necessary to count blood and urine specimens, calculate data, make decisions, and order the radioactive iodine. You will then be admitted to the hospital. Please read the attached booklet "The Patient's Guide to Iodine I-131 Therapy" explaining treatment in the hospital. Arrive in the AM of the day of admission and plan on staying 5 days. On the day of discharge from the hospital, begin regular diet and thyroid hormone unless notified otherwise. Thyroid hormone should be started according to one of the following schedules (circled), unless notified otherwise: REGULAR REPLACEMENT: Begin taking the same dose each day that you were on prior to this study. SLOW REPLACEMENT: Begin taking .05 mg/day for 7 days. Then increase dose to .10 mg/day for 7 more days. Continue to increase dose each week by .05 mg/day until you are taking the same dose you were on prior to this study.	Schedule patient at reception desk for a post-treatment I-131 chest survey 7-10 days after treatment. Notify patient of time and day.
	17+ to 23+	The technician/physician will notify you of a time to return to the Nuclear Medicine Clinic for further lung and body images between the above days. Anticipate 2-3 hours. No injection or blood drawing will be done.	

Updated September 1985

DATE	DAY	PATIENT	TECHNICIAN
	-35	Stop thyroid medication you are on and begin Cytomel one tablet 2 times each day. The prescription is attached. For any other medication, check with your physician. Begin low iodine diet. See booklet of low iodine diet.	
	-14	Stop Cytomel.	
	-6 or -7	Come to Nuclear Medicine Clinic between 0800-1500 and have blood drawn.	Draw T3RU, T4, TSH and T3RIA (Lab slip attached)
	Dose	Come to Nuclear Medicine Clinic by 1000 to receive tracer dose of radioactive iodine. Plan to spend from 1000-1200 and from 1400 to 1600 in the Nuclear Medicine Clinic. You may eat a light breakfast. After you receive your dose, you must save <u>ALL</u> your urine. You will be given urine bottles to collect urine in, and you should collect all urine for each 24 hour period from noon until noon of the next day in one bottle. At noon the next day, you will turn in the urine bottle. Then begin collecting urine in the new bottle. In addition, you will be scheduled for a "post I-131 treatment" scan 7-10 days after treatment dose. This is highly recommended as it allows a chest survey to be performed after a large dose of radioactive iodine. One may be able to detect other remaining thyroid tissue which had not previously been noted.	1. Prepare I-131 radiopharmaceutical standard. See full procedure. 2. Determine and record exact dose. 3. Dose patient with 5 mCi noting exact time of administration. Give patient urine bottle labeled with name, #, date, and time. 4. Perform uptake probe counts of whole body at time 0. See full procedure. 5. Give 2 packages of lemon drops or equivalent to patient. 6. 4 hours after dose, draw 5 ml of heparinized blood. Label tube with patient name, number, date, time and give to lab. 7. Perform uptake probe counts at 4 hrs.

NECK AND CHEST SURVEY CHECKLIST

PRIOR TO DOSING THE PATIENT WITH I-131, THE FOLLOWING CHECKLIST MUST BE COMPLETED.

_____1. Lab slip(s) prepared for the following studies.

TSH
THYROGLOBULIN
BHCG
CBC

_____2. Patient to lab for blood drawing

_____3. Pathologist's report in patient's film jacket verifying patient's malignancy and/or extent of previous thyroid surgery. If uncertain, check with O.D. physician.

_____Technician initials completing checklist

_____O.D. physician initials

IMPORTANT INFORMATION

DO NOT REFRIGERATE MPI KIDNEY REAGENT

(Stannous Dimercaptosuccinic acid)

Ampuls should be checked for discoloration and presence of particulate matter prior to labeling with sodium pertechnetate Tc 99m. Do not use if the solution is discolored or contains particulates.

Small quantities of hydrogen sulfide may be produced from the aqueous dimercaptosuccinic acid (DMSA), resulting in an upleasant odor when the ampul is opened. These small quantities of hydrogen sulfide have not been associated with adverse reactions or alterations in the in vivo distribution of the labeled reagent.

For further information, or to notify Medi-Physics, Inc. of a discolored ampul or one containing particulates, use our toll-free numbers:

OUTSIDE CALIFORNIA: (800) 227-0483

IN CALIFORNIA: (800) 772-2446

HSHL-XN (340a) 2 October 1990

SUBJECT: Procedure Manual

The procedures and related information contained in this manual have been reviewed and are found to be accurate and current as of 1 October 1990.

JAY H. ANDERSON, M.D.
COL, MC
C, NUCLEAR MEDICINE SERVICE

HSHL-XN (340a) 4 APR 91

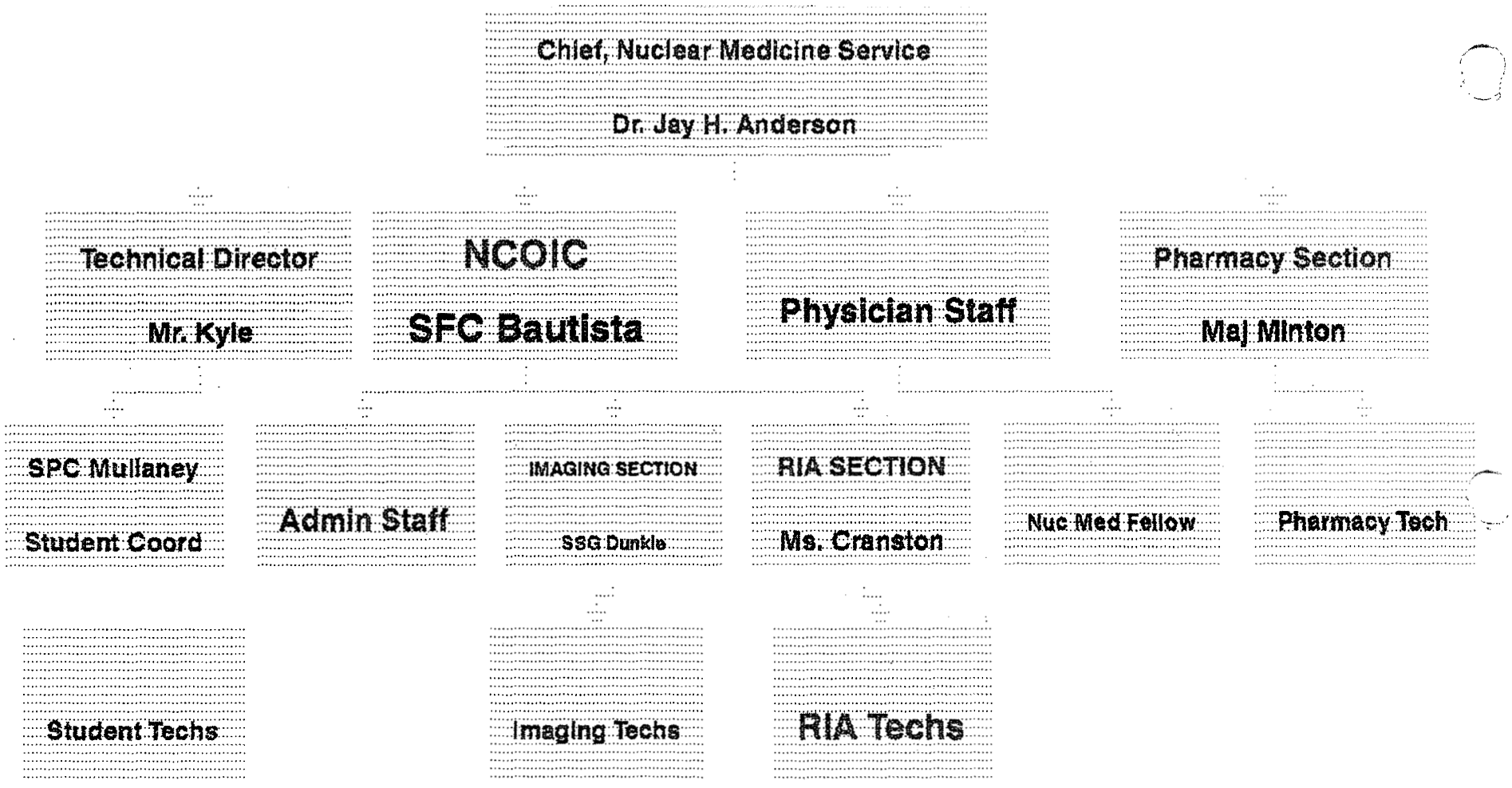
SUBJECT: Injection of Radiopharmaceuticals

1. The following technologists are authorized to inject patients with radiopharmaceutical materials.

Alugbuo, Charles
Bautista, Simon
Cranston, Toni
Cain, Cheryl
Cross, Alberto
Cuevas, Angel
Dixon, Claudette
Dunkle, Wayne
Ferguson, Patricia
Goldsmith, Donald
Greenwood, Valerie
Hall, Sharon
Kennedy,Kevin
Lima-Brunn, Edith
Medina, Angel
Mullaney, John
Roberts, Harriet
Rumingan, Wilfredo
Warren, Robert
Peyton, Elaine
Turner, Lynette
Sandfer, David
Kyle, Ralph
Joglekar, Suresh

JAY H. ANDERSON, M.D.
COL. MC
C, NUCLEAR MEDICINE SVC

Nuclear Medicine Service



DISPOSITION FORM

For use of this form, see AR 340-15; the proponent agency is TAGO.

REFERENCE OR OFFICE SYMBOL	SUBJECT
HSHL-XN (340a)	Authorized Areas for Eating/Smoking

TO: THRU: C, Nuclear Med Svc FROM: Technical Director DATE 22 JUL 88 CMT 1

Mr. Kyle/af/6-0168

TO: All Nuclear Medicine Personnel

The following areas are designated smoking and/or eating areas as indicated:

ROOM # AND AREA	Smoking	Eating
# 1 File room (secretarial area only)	No	Yes
# 2 Dose room	No	No
	No	No
	No	Yes
# 5 Physics Lab	No	Yes
# 6 Fellows' Office	No	Yes
# 7 Staff Office	No	Yes
# 8 Staff Office	No	Yes
# 9 Camera Room	No	No
#10 Fellows' Office	No	Yes
#11 Fellows' Office	No	No
#12 Fluoro Room	No	Yes
#13 Camera Room	No	No
#14 Camera Room	No	No
#15 Computer Room	No	No
#16 Short Desk Room	No	Yes
#17 Camera Room	No	No
#18 Camera Room	No	No
#19 Camera Room	No	No
#20 Chief Tech's Office	No	Yes
#21 Technical Director's Office	No	Yes
#22 Conference Room	NO	Yes
#23 RIA Lab	No	No
#24 Secretary's Office	NO	Yes
#25 Long Desk Room	No	Yes
Court yard (weather permitting)	Yes	Yes

RALPH W. KYLE
Technical Director
Nuclear Medicine Service

Ex 2

MATERIALS LICENSE

Amendment No. 67

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, 36, 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)	In accordance with the application dated February 28, 1995, 3. License Number 08-01738-02 is amended in its entirety to read as follows:
2. Washington, D.C. 20307-5001	4. Expiration Date June 30, 1999
	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. Phosphorus 32	E. Any	E. 2 curies
F. Carbon 14	F. Any	F. 2 curies
G. Iodine 125	G. Any	G. 1 curie
H. Iridium 192	H. Any	H. [redacted]
I. Chromium 51	I. Any	I. 750 millicuries
J. Sulfur 35	J. Any	J. 1 curie
K. Hydrogen 3	K. Any	K. 5 curies
L. Molybdenum 99	L. Molybdenum 99/ Technetium 99m Generators	L. 23 curies
M. Technetium 99m	M. Any	M. 23 curies
N. Strontium 90	N. Sealed sources	N. [redacted]
O. Cesium 137	O. Sealed sources	O. [redacted]
P. Gadolinium 153	P. Sealed sources	P. [redacted]
Q. Iodine 125	Q. Sealed sources (3M Company seeds)	Q. 500 millicuries
R. Iodine 125	R. Sealed sources ((Norland Inst. Co., Model 178A591A or AECL Models C235 or C324, or Amersham Corp. Model IMC.P2)	R. 4 sources, not to exceed 300 millicuries each

Information in this record was deleted in accordance with the Freedom of Information Act, exemptions 2 + 6
2006-0238

Ex 2

KK|23

OFFICIAL RECORD COPY ML 10

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License number: 08-01738-02
Docket or Reference number: 030-01317
Amendment No. 67

(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 posses any one time under license
S. Cesium 137	S. Sealed sources	S. [redacted]
T. Cobalt 60	T. Sealed sources	T. [redacted]
U. Americium 241	U. Any	U. 100 microcuries
V. Americium 241	V. Sealed sources	V. [redacted]
W. Nickel 63	W. Sealed sources and foils	W. 1 curie
X. Iodine 129	X. Sealed sources	X. 1 curie
Y. Thorium	Y. Any	Y. 5 kilograms
Z. Uranium	Z. Any	Z. 50 kilograms
AA. Cesium 137	AA. Sealed sources	AA. [redacted]
BB. Americium 241	BB. Sealed sources	BB. [redacted]
CC. Cesium 137	CC. Sealed source	CC. [redacted]
DD. Uranium depleted in Uranium 235	DD. Plated Metal	DD. 400 Kilograms

9. Authorized use

A. through CC. Medical diagnosis, therapy and research in humans in accordance with any applicable Food and Drug Administration (FDA) requirements. Research an development as defined in 10 CFR 30.4, including animal studies; instrum calibration; student instruction.

DD. Shielding in linear accelerators.

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 and Gillette Building, 270 Research Center, 1413 Research Boulevard, Rockville, Maryland.

11. A. Licensed material shall be used by, or under the supervision of, individuals designated in writing by the Radiation Safety Committee, Col. George J. Brown Chairperson.

B. The use of licensed material in or on humans shall be by a physician, dentist, or podiatrist as defined in 10 CFR 35.2.

Ex 2

C. Physicians, dentists, or podiatrists designated to use licensed material in or on humans shall meet the training criteria established in 10 CFR 35, Subpart J and shall be designated in writing by the licensee's Radiation Safety Committee.

D. The Radiation Safety Officer for this license is Col. William B. Johnson.

12. In addition to the possession limits in Item 8, the licensee shall further restrict the possession of licensed material at a single location to quantities below the limits specified in 10 CFR 30.72 which require consideration of the need for an emergency plan for responding to a release of licensed material.

13. Notwithstanding the requirements of 10 CFR 35.49(a) and (b), 35.100, 35.200, 35.300, 35.400 and 35.500 the licensee may use for any medical use any byproduct material or reagent kit. The licensee shall possess and use byproduct material for medical use in accordance with the prescriptive and performance criteria in the other sections of 10 CFR 35. This does not relieve the licensee from complying with applicable U.S. Food and Drug Administration (FDA) and other Federal and State requirements.

14. A. 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 the foil temperatures from exceeding that specified in the certificate of registration referred to in 10 CFR 32.210.

B. When in use, detector cells containing a titanium tritide foil or a scandium tritide foil shall be vented to the outside.

15. The licensee shall conduct a physical inventory every three months to account for all sealed sources and devices containing licensed material received and possessed pursuant to 10 CFR 35.59, 35.400 and 35.500 and every six months for all other sealed sources and devices.

16. A. Sealed sources and detector cells containing licensed material shall be tested for leakage and/or contamination at intervals not to exceed six months or at such other intervals as are specified by the certificate of registration referred to in 10 CFR 32.210, not to exceed three years.

B. Notwithstanding Paragraph A of this Condition, sealed sources designed to emit alpha particles shall be tested for leakage and/or contamination at intervals not to exceed three months.

C. In the absence of a certificate from a transferor indicating that a leak test has been made within six months prior to the transfer, a sealed source or detector cell received from another person shall not be put into use until tested.

D. Each sealed source fabricated by the licensee shall be inspected and tested for construction defects, leakage, and contamination prior to any use or transfer as a sealed source.

E. Sealed sources and detector cells need not be leak tested if:

(i) they contain only hydrogen-3; or

(ii) they contain only a radioactive gas; or

(iii) the half-life of the isotope is 30 days or less; or

(iv) they contain not more than 100 microcuries of beta and/or gamma emitting material or not more than 10 microcuries of alpha emitting material; or

(v) they are not designed to emit alpha particles, are in storage, and are not being used. However, when they are removed from storage for use or transfer to another person, and have not been tested within the required leak test interval, they shall be tested before use or transfer. No sealed source or detector cell shall be stored for a period of more than 10 years without being tested for leakage and/or contamination.

F. The test shall be capable of detecting the presence of 0.005 microcurie of radioactive material on the test sample. If the test reveals the presence of 0.005 microcurie or more of removable contamination, a report shall be filed with the U.S. Nuclear Regulatory Commission and the source or detector cell shall be removed immediately from service and decontaminated, repaired, or disposed of in accordance with Commission regulations. The report shall be filed within five days of the date the leak test result is known with the U.S. Nuclear Regulatory Commission, Region I, ATTN: Chief, Nuclear Materials Safety Branch, 475 Allendale Road, King of Prussia, Pennsylvania 19406. The report shall specify the source or detector cell involved, the test results, and corrective action taken.

G. The licensee is authorized to collect leak test samples for analysis by the licensee. Alternatively, tests for leakage and/or contamination may be performed by persons specifically licensed by the Commission or an Agreement State to perform such services.

17. Sealed sources or detector cells containing licensed material shall not be opened or sources removed from source holders by the licensee.

18. The licensee is authorized to hold radioactive material with a physical half-life of less than 65 days and Sulfur 35, Cobalt 58, Iridium 192, Scandium 46, for decay-in-storage before disposal in ordinary trash, provided:

A. Waste to be disposed of in this manner shall be held for decay a minimum of ten half-lives.

B. Before disposal as ordinary trash, the waste shall be surveyed at the container surface with the appropriate survey instrument set on its most sensitive scale and with no interposed shielding to determine that its radioactivity cannot be distinguished from background. All radiation labels shall be removed or obliterated.

C. A record of each such disposal permitted under this License Condition shall be retained for three years. The record must include the date of disposal, the date on which the byproduct material was placed in storage, the radionuclides disposed, the survey instrument used, the background dose rate, the dose rate measured at the surface of each waste container, and the name of the individual who performed the disposal.

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License number: 08-01738-02

Docket or Reference number: 030-01317

Amendment No. 67

19. Experimental animals, or the products from experimental animals, that have been administered licensed materials shall not be used for human consumption.

20. The licensee shall possess and use byproduct material for human research in accordance with the prescriptive and performance criteria in all sections of 10 CFR Part 35 except sections 35.49(a) and (b), 35.100, 35.200, and 35.300.

21. The licensee is authorized to transport licensed material in accordance with the provisions of 10 CFR Part 71, "Packaging and Transportation of Radioactive Material."

22. The licensee shall not acquire licensed material in a sealed source or device unless the source or device has been registered with the U.S. Nuclear Regulatory Commission pursuant to 10 CFR 32.210 or equivalent regulations of an Agreement State.

23. Radioactive waste generated shall be stored in accordance with the statements, representations, and procedures included with the waste storage plan described in the licensee's letter/application dated September 9, 1993 and October 29, 1993.

24. Notwithstanding the requirements of 10 CFR 35.315(a)(7), the licensee may control contamination in rooms used to house radiopharmaceutical therapy patients in accordance with the commitments and procedures contained in the letters dated April 8, 1992 and November 24, 1992.

25. 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, except for minor changes in the medical use radiation safety procedures as provided in 10 CFR 35.31. The U.S. 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 January 21, 1993
B. Letter dated September 9, 1993
C. Letter dated October 29, 1993
D. Letter dated December 9, 1993
E. Letter dated February 15, 1994
F. Letter dated June 2, 1994

For the U.S. Nuclear Regulatory Commission

Date JUN - 8 1995

By Original Signed By:
Francis M. Costello

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

JUN - 8 1995

License No. 08-01738-02
Docket No. 030-01317
Control No. 121438

Colonel Peter H. Myers
Department of the Army
Headquarters, U.S. Army Medical Command
2050 Worth Road/MCHO-CL-W
Fort Sam Houston, Texas 78234-6000

Dear Colonel Myers:

This refers to your amendment request dated February 28, 1995 for the above-referenced license. Enclosed with this letter is the amended license.

Please review the enclosed document carefully and be sure that you understand and fully implement all the conditions incorporated into the amended license. If there are any errors or questions, please notify the U.S. Nuclear Regulatory Commission, Region I office, the Licensing Assistance Section, (610) 337-5093 or 5239, so that we can provide appropriate corrections and answers.

Thank you for your cooperation.

Sincerely,

ORIGINAL SIGNED BY:

Francis M. Costello, Chief
Medical Licensing Section
Nuclear Materials Safety Branch
Division of Radiation Safety
and Safeguards

OFFICIAL RECORD COPY

ML 10

License No. 08- 01738-02
Docket No. 030-01317
Control No. 121438

Enclosures:
1. Amendment No. 67
2. 10 CFR Parts 2, 19, 20, 21, 30, 35, and 71and 170
3. NRC Form 3 and 313

cc: Colonel William B. Johnson
Department of the Army
Walter Reed Army Medical Center
mc HSHL-HP/Health Physics Office
Washington, DC 20307-5001

DOCUMENT NAME: R:\WPS\MLTR\L0801738.02
To receive a copy of this document, indicate in the box: "C" = Copy w/o attach/encl "E" = Copy w/ attach/encl "N" = No copy

OFFICE	DRSS/RI	N	/ FMS		/			
NAME	JMCFADDEN/jrm JRM		FCOSTELLO					
DATE	05/23/95		05/ / /95		05/ /95		05/ /95	

OFFICIAL RECORD COPY

DEPARTMENT OF THE ARMY
HEADQUARTERS, U.S. ARMY MEDICAL COMMAND
2050 WORTH ROAD
FORT SAM HOUSTON, TEXAS 78234-6000

REPLY TO
ATTENTION OF

February 28, 1995

030-01317

Preventive Medicine
and Wellness 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. The request for amendment is being submitted to redesignate the Chariman of WRAMC's Radiation Control Committee.

Recommend approval.

Sincerely,

Peter H. Myers
Colonel, U.S. Army
Radiological Hygiene Consultant
to The Surgeon General

Enclosure

CF: HQ, USAEHA, ATTN: HSHB-MR-H, APG, MD 21010-5422
HQ, USWRAMC, ATTN: HSHL-HP, Wash, DC 20307-5001 (wo/encls)

121438

MAR - 7 1995

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

REPLY TO
ATTENTION OF:

HSHL-H-HP (385-11m) 22 February 1995

MEMORANDUM FOR Commander, US Army Medical Command,
ATTN: MCHO-CL-W/COL Myers, 2050 Worth Road, Fort Sam Houston, Texas 78234-6000

SUBJECT: Request for Amendment of NRC Commission License Number 08-01738-02

1. Request that Nuclear Regulatory Commission License Number 08-01738-02 issued to Walter Reed Army Medical Center, Washington, D.C., be amended to appoint COL George J. Brown as the new Chairman of the Radiation Control Committee. COL Joan T. Zajtchuk, the previous Chairman named on our License, has departed. COL George J. Brown has replaced COL Zajtchuk. COL Brown is the Deputy Commander for Clinical Services (DCCS). The DCCS position is a senior level executive managements position, one level below the Commander, Walter Reed Army Medical Center (WRAMC). The members of the WRAMC Radiation Control Committee have reviewed COL Brown's curriculum vitae, and have recommended his approval as Chairman. COL Brown's curriculum vitae are enclosed.

2. Any questions or comments pertaining to this request should be directed to COL William B. Johnson, Chief, Health Physics Office, Walter Reed Army Medical Center, Washington DC 20307-5001, at Commercial Phone (301) 427-5161 or DSN 291-5151.

FOR THE COMMANDER:

Michael P. Kochel
MICHAEL P. KOCHEL
LTC, MS
Executive Officer

Encl
as

121438

MAR - 7 1995

OFFICIAL RECORD COPY ML 10

CURRICULUM VITAE

NAME	George Joseph Brown, M.D. Colonel, Medical Corps United States Army
PRESENT POSITION	Deputy Commander for Clinical Services Walter Reed Army Medical Center Washington, D.C. 20307-5001
OFFICE ADDRESS	Colonel George J. Brown Deputy Commander for Clinical Services Walter Reed Army Medical Center Washington, D.C. 20307-5001 Phone (202) 782-6394
HOME ADDRESS	
DATE and PLACE OF BIRTH	
CITIZENSHIP	
MARITAL STATUS	
LICENSURE	
COLLEGE	Hampton Institute Hampton, Virginia B.A. Degree (Biology)

Encl

MEDICAL SCHOOL	Boston University School of Medicine Boston, Massachusetts [redacted] Ex 6
INTERNSHIP	Fitzsimons Army Medical Center Denver, Colorado Internal Medicine 1 July 1973 - 30 June 1974
RESIDENCY	Fitzsimons Army Medical Center Denver, Colorado Internal Medicine 1 July 1974 - 30 June 1976
FELLOWSHIP	Walter Reed Army Medical Center Washington, D.C. Gastroenterology 1 July 1978 - 30 June 1980
CERTIFICATION	National Board of Medical Examiners - 1974 Certifying Examination - American Board of Internal Medicine - 1976 Certifying Examination - American Board of Internal Medicine (Gastroenterology) - 1981
MILITARY EDUCATION	Graduate U.S. Army War College Carlisle Barracks Carlisle, PA 17013 June 1991

MEMBERSHIP IN PROFESSIONAL SOCIETIES	Member, American College of Physician Executives
	Member, American College of Physicians
MILITARY SERVICE	ROTC Commission, Second Lieutenant United States Army, 1969
	Senior Medical Student Program United States Army, 1972-73
	Active Duty United States Army, 1972 - Present

POSITIONS HELD

September 1972 - May 1973	President, Boston University Chapter Student National Medical Association
September 1972 - May 1973	Member, Admissions Committee Boston University School of Medicine
January - June 1976	Chief Medical Resident Fitzsimons Army Medical Center Denver, Colorado
January - June 1976	Editor, MEDICAL BULLETIN Fitzsimons Army Medical Center Denver, Colorado
1 July 1976 - 30 June 1978	Chief, Gastroenterology Section Department of Medicine U.S. Army Medical Department Activity Fort Carson, Colorado
1 July 1977 - 30 June 1978	Hospital Epidemiologist U.S. Army Medical Department Activity Fort Carson, Colorado

June 1979 - June 1980	Member, Medical Education Committee Walter Reed Army Medical Center Washington, D.C.
June 1979 - June 1980	Instructor in Medicine Uniformed Services University of the Health Sciences Bethesda, Maryland
September 1980 - June 1986	Assistant Clinical Professor of Medicine Uniformed Services University of the Health Sciences Bethesda Maryland
June 1981 - May 1986	Assistant Clinical Professor of Medicine Texas Tech University Health Sciences Center El Paso, Texas
June 1980 - June 1984	Assistant Chief, Gastroenterology Service William Beaumont Army Medical Center El Paso, Texas
July 1984 - May 1986	Chief, Gastroenterology Service William Beaumont Army Medical Center El Paso, Texas
1980 - 1984	Assistant Director Annual William Beaumont Gastrointestinal Symposium William Beaumont Army Medical Center
1984 - 1986	Director Annual William Beaumont Gastrointestinal Symposium William Beaumont Army Medical Center
March 1985 - May 1986	Chief, Department of Medicine William Beaumont Army Medical Center El Paso, Texas 79920

June 1986 - July 1988	Internal Medicine Consultant Headquarters, 7th Medical Command Heidelberg, West Germany
1986 - 1988	Senior Editorial Advisor Medical Bulletin of the US Army Medical Department
July 1988 - July 1990	Command Surgeon US Command, Berlin West Berlin, Germany
July 1988 - July 1990	Commanding Officer U.S. Army Hospital West Berlin, Germany
June 1989 - July 1990	President Berlin International Medical Society West Berlin, Germany
August 1990 - June 1991	Current Affairs Panel U.S. Army War College Carlisle Barracks, PA
July 1991 - January 1993	Commanding Officer Letterman Army Institute of Research Presidio of San Francisco, CA 94129
February 1993 - January 1995	Commanding Officer Blanchfield Army Community Hospital Fort Campbell, KY 42223
February 1995 - Present	Deputy Commander for Clinical Services Walter Reed Army Medical Center Washington, D.C. 20307
AWARDS	Ford Foundation Scholar September 1965 - May 1969
	Beta Kappa Chi Scientific Honor Society - January 1968
	Experiment in International Living Grant for Foreign Study in England (Genetics) January 1968 - July 1968

R.O.T.C. Distinguished Military Student
July 1969

R.O.T.C. Distinguished Military Graduate
July 1969

Martin Luther King, Jr. Fellow
Boston University School of Medicine
September 1969 - May 1973

Solomon Carter Fuller Memorial
Psychiatry Award
Boston University School of Medicine
May 1973

* Alpha Omega Alpha Honor Medical Society
Boston University School of Medicine
Chapter
January 1973

United States Army Commendation Medal
with First Oak Leaf Cluster
1978, 1986

United States Army Achievement Medal
with First Oak Leaf Cluster
1985, 1986

Order of Military Medical Merit, 1985

United States Army Meritorious Service
Medal with First Oak Leaf Cluster
1986, 1988

United States Army Legion of Merit Medal
with First Oak Leaf Cluster
1990, 1993

PUBLICATIONS

Harmon, JW, Johnson, LF, Brown, GJ, Brewer, TG, Berenson, R, Burkhalter, E, and Hirata, R. Nissen Fundoplication for Benign Pediatric Esophageal Stricture. Presented at 10th Annual William Beaumont Gastrointestinal Symposium, 1980

Hallgren, SE and Brown, GJ. Intraoperative Endoscopy as a Diagnostic Tool Military Medicine, 151:400, 1986

Stokes, EW, Oliver, GA, Brown, GJ. Esophageal Cancer: Is Computed Tomography An Accurate Pre-Operative Staging Tool? (1986 AGA Abstract)

Stokes, EW, Washington, E and Brown, GJ. Palliative Neodymium:YAG Laser Therapy for Esophageal Carcinoma: Experience of a Military Medical Center. (1986 AGA Abstract)

Monahan, DW, Poston,WK and Brown, GJ. Mesenteric Panniculitis: Case Report and CT Findings. Southern Medical Journal, 82:782, 1989.

Brown, GJ. The U.S. Automobile Industry: Will It Survive Increasing International Competition. U.S. Army War College Publication, April 1991.

REFERENCES

Edward F. Coles, M.D., F.A.C.P.

[redacted]

Col. Lawrence F. Johnson, M.D., F.A.C.P.
Professor of Medicine
and Director Digestive Disease Division
Uniformed Services University of the Health Sciences
4301 Jones Bridge Road
Bethesda, Maryland 20814-4799
Tel: (301) 295-360-3606/3607

Col. Howard M. Rosen, M.D.
Chief, Gastroenterology Service
Dwight David Eisenhower Army Medical Center
Fort Gordon
Augusta, Georgia 30905
Tel: (404) 791-2157/7646

Melvin L. Butler, M.D., F.A.C.P., F.A.C.P.E.

[redacted]

John S. Gunther, M.D.

[redacted]

Ex 6

MATERIALS LICENSE

Amendment No. 68

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, 36, 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. **OFFICIAL RECORD COPY**

Licensee	In accordance with the letter dated January 22, 1996,
1. Department of the Army Walter Reed Army Medical Center (WRAMC)	3. License Number 08-01738-02 is amended in its entirety to read as follows:
2. Washington, D.C. 20307-5001	4. Expiration Date June 30, 2004
	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. Phosphorus 32	E. Any	E. 2 curies
F. Carbon 14	F. Any	F. 2 curies
G. Iodine 125	G. Any	G. 1 curie
H. Iridium 192	H. Any	H.
I. Chromium 51	I. Any	I. 750 millicuries
J. Sulfur 35	J. Any	J. 1 curie
K. Hydrogen 3	K. Any	K. 5 curies
L. Molybdenum 99	L. Molybdenum 99/ Technetium 99m Generators	L. 23 curies
M. Technetium 99m	M. Any	M. 23 curies
N. Strontium 90	N. Sealed sources	N.
O. Cesium 137	O. Sealed sources	O.
P. Gadolinium 153	P. Sealed sources	P.
Q. Iodine 125	Q. Sealed sources (3M Company seeds)	Q. 500 millicuries
R. Iodine 125	R. Sealed sources ((Norland Inst. Co., Model 178A591A or AECL Models C235 or C324, or Amersham Corp. Model IMC.P2)	R. 4 sources, not to exceed 300 millicuries each

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License Nu 08-01738-02

Docket or Reference Number 030-01317

Amendment No. 68

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
S. Cesium 137	S. Sealed sources	S.
T. Cobalt 60	T. Sealed sources	T.
U. Americium 241	U. Any	U. 100 microcuries
V. Americium 241	V. Sealed sources	V.
W. Nickel 63	W. Sealed sources and foils	W. 1 curie
X. Iodine 129	X. Sealed sources	X. 1 curie
Y. Thorium	Y. Any	Y. 5 kilograms
Z. Uranium	Z. Any	Z. 50 kilograms
AA. Cesium 137	AA. Sealed sources	AA.
BB. Americium 241	BB. Sealed sources	BB.
CC. Cesium 137	CC. Sealed source	CC.
DD. Uranium depleted in Uranium 235	DD. Plated Metal	DD. 400 Kilograms

9. Authorized use

A. through CC. Medical diagnosis, therapy and research in humans in accordance with any applicable Food and Drug Administration (FDA) requirements. Research and development as defined in 10 CFR 30.4, including animal studies; instrument calibration; student instruction.

DD. Shielding in linear accelerators.

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 and Gillette Building, 270 Research Center, 1413 Research Boulevard, Rockville, Maryland.

11. A. Licensed material shall be used by, or under the supervision of, individuals designated in writing by the Radiation Safety Committee, Colonel John R. Pierce, Chairperson.

B. The use of licensed material in or on humans shall be by a physician, dentist, or podiatrist as defined in 10 CFR 35.2.

E 2

C. Physicians, dentists, or podiatrists designated to use licensed material in or on humans shall meet the training criteria established in 10 CFR 35, Subpart J and shall be designated in writing by the licensee's Radiation Safety Committee.

D. The Radiation Safety Officer for this license is Colonel William B. Johnson.

12. In addition to the possession limits in Item 8, the licensee shall further restrict the possession of licensed material at a single location to quantities below the limits specified in 10 CFR 30.72 which require consideration of the need for an emergency plan for responding to a release of licensed material.

13. Notwithstanding the requirements of 10 CFR 35.49(a) and (b), 35.100, 35.200, 35.300, 35.400 and 35.500 the licensee may use for any medical use any byproduct material or reagent kit. The licensee shall possess and use byproduct material for medical use in accordance with the prescriptive and performance criteria in the other sections of 10 CFR 35. This does not relieve the licensee from complying with applicable U.S. Food and Drug Administration (FDA) and other Federal and State requirements.

14. A. 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 the foil temperatures from exceeding that specified in the certificate of registration referred to in 10 CFR 32.210.

B. When in use, detector cells containing a titanium tritide foil or a scandium tritide foil shall be vented to the outside.

15. The licensee shall conduct a physical inventory every three months to account for all sealed sources and devices containing licensed material received and possessed pursuant to 10 CFR 35.59, 35.400 and 35.500 and every six months for all other sealed sources and devices.

16. A. Sealed sources and detector cells containing licensed material shall be tested for leakage and/or contamination at intervals not to exceed six months or at such other intervals as are specified by the certificate of registration referred to in 10 CFR 32.210, not to exceed three years.

B. Notwithstanding Paragraph A of this Condition, sealed sources designed to emit alpha particles shall be tested for leakage and/or contamination at intervals not to exceed three months.

C. In the absence of a certificate from a transferor indicating that a leak test has been made within six months prior to the transfer, a sealed source or detector cell received from another person shall not be put into use until tested.

D. Each sealed source fabricated by the licensee shall be inspected and tested for construction defects, leakage, and contamination prior to any use or transfer as a sealed source.

E. Sealed sources and detector cells need not be leak tested if:

(i) they contain only hydrogen-3; or

(ii) they contain only a radioactive gas; or

(iii) the half-life of the isotope is 30 days or less; or

(iv) they contain not more than 100 microcuries of beta and/or gamma emitting material or not more than 10 microcuries of alpha emitting material; or

(v) they are not designed to emit alpha particles, are in storage, and are not being used. However, when they are removed from storage for use or transfer to another person, and have not been tested within the required leak test interval, they shall be tested before use or transfer. No sealed source or detector cell shall be stored for a period of more than 10 years without being tested for leakage and/or contamination.

F. The test shall be capable of detecting the presence of 0.005 microcurie of radioactive material on the test sample. If the test reveals the presence of 0.005 microcurie or more of removable contamination, a report shall be filed with the U.S. Nuclear Regulatory Commission and the source or detector cell shall be removed immediately from service and decontaminated, repaired, or disposed of in accordance with Commission regulations. The report shall be filed within five days of the date the leak test result is known with the U.S. Nuclear Regulatory Commission, Region I, ATTN: Chief, Nuclear Materials Safety Branch, 475 Allendale Road, King of Prussia, Pennsylvania 19406. The report shall specify the source or detector cell involved, the test results, and corrective action taken.

G. The licensee is authorized to collect leak test samples for analysis by the licensee. Alternatively, tests for leakage and/or contamination may be performed by persons specifically licensed by the Commission or an Agreement State to perform such services.

17. Sealed sources or detector cells containing licensed material shall not be opened or sources removed from source holders by the licensee.

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A. Waste to be disposed of in this manner shall be held for decay a minimum of ten half-lives.

B. Before disposal as ordinary trash, the waste shall be surveyed at the container surface with the appropriate survey instrument set on its most sensitive scale and with no interposed shielding to determine that its radioactivity cannot be distinguished from background. All radiation labels shall be removed or obliterated.

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License Number: 08-01738-02

Docket or Reference Number: 030-01317

Amendment No. 68

C. A record of each such disposal permitted under this License Condition shall be retained for three years. The record must include the date of disposal, the date on which the byproduct material was placed in storage, the radionuclides disposed, the survey instrument used, the background dose rate, the dose rate measured at the surface of each waste container, and the name of the individual who performed the disposal.

19. Experimental animals, or the products from experimental animals, that have been administered licensed materials shall not be used for human consumption.

20. The licensee shall possess and use byproduct material for human research in accordance with the prescriptive and performance criteria in all sections of 10 CFR Part 35 except sections 35.49(a) and (b), 35.100, 35.200, and 35.300.

21. The licensee is authorized to transport licensed material in accordance with the provisions of 10 CFR Part 71, "Packaging and Transportation of Radioactive Material."

22. The licensee shall not acquire licensed material in a sealed source or device unless the source or device has been registered with the U.S. Nuclear Regulatory Commission pursuant to 10 CFR 32.210 or equivalent regulations of an Agreement State.

23. Radioactive waste generated shall be stored in accordance with the statements, representations, and procedures included with the waste storage plan described in the licensee's letter/application dated September 9, 1993 and October 29, 1993.

24. Notwithstanding the requirements of 10 CFR 35.315(a)(7), the licensee may control contamination in rooms used to house radiopharmaceutical therapy patients in accordance with the commitments and procedures contained in the letters dated April 8, 1992 and November 24, 1992.

25. 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, except for minor changes in the medical use radiation safety procedures as provided in 10 CFR 35.31. The U.S. 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 January 21, 1993
B. Letter dated September 9, 1993
C. Letter dated October 29, 1993
D. Letter dated December 9, 1993
E. Letter dated February 15, 1994
F. Letter dated June 2, 1994

For the U.S. Nuclear Regulatory Commission

Date MAY 28 1996

By Original Signed By
Tara Weidner

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

MAY 28 1996

Colonel Eric G. Daxon, Ph.D., CHP
Department of the Army
Headquarters, U.S. Army Medical Command
Preventive Medicine and Wellness Division
2050 Worth Road\MCHO-CL-W
Fort Sam Houston, TX 78234-6000

Dear Colonel Daxon:

This refers to your license amendment request. Enclosed with this letter is the amended license. Please note that as part of this amendment, in accordance with 10 CFR 30.36, effective February 15, 1996, the expiration date of your license has been extended by a period of five years. Your new expiration date is stated in Item 4 of the license.

Please review the enclosed document carefully and be sure that you understand and fully implement all the conditions incorporated into the amended license. If there are any errors or questions, please notify the U.S. Nuclear Regulatory Commission, Region I Office, Licensing Assistance Team, (610) 337-5093 or 5239, so that we can provide appropriate corrections and answers.

Thank you for your cooperation.

Sincerely,

Original Signed By
Tara Weidner

Tara L. Weidner
Division of Nuclear Materials Safety

License No. 08-01738-02
Docket No. 030-01317
Control No. 122993

Enclosure:
Amendment No. 68

DOCUMENT NAME:
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DEPARTMENT OF THE ARMY
HEADQUARTERS, U.S. ARMY MEDICAL COMMAND
2050 WORTH ROAD
FORT SAM HOUSTON, TEXAS 78234-6000

REPLY TO
ATTENTION OF

February 27, 1996

030-01317

Preventive Medicine
and Wellness Division

U.S. Nuclear Regulatory Commission, Region I
ATTN: Materials Licensing
475 Allendale Road
King of Prussia, PA 1940-1415

Dear Sir or Madam:

Enclosed is a request from the Walter Reed Army Medical Center to amend U.S. Nuclear Regulatory Commission Byproduct Material License No. 08-01738-02.

If you have any questions or need any further assistance please do not hesitate to contact me at (210) 221-6612 or COL Johnson ar (301) 427-5161.

Sincerely,

Eric G. Daxon, PhD, CHP
Colonel, U.S. Army
Radiation Protection Staff
Officer

Enclosure

Copies Furnished:

Commander, Walter Reed Army Medical Center,
Attention: MCHL-H-HP, Washington, DC 20307-5001
(without enclosure)
Commander, U.S. Army Center for Health Promotion and
Preventive Medicine, Attention: MCHB-MR-HM, Aberdeen
Proving Ground, Maryland 21010-5422 (with enclosure)

122993

MAR 12 1996

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

REPLY TO
ATTENTION OF:

MCHL-H-HP (385-11m) 22 January 1996

MEMORANDUM FOR Commander, US Army Medical Command,
ATTN: MCHO-CL-W/LTC(P) Daxon, 2050 Worth Road, Fort
Sam Houston, Texas 78234-6000

SUBJECT: Request for Amendment of NRC Commission License Number 08-01738-02

1. Request that Nuclear Regulatory Commission License Number 08-01738-02 issued to Walter Reed Army Medical Center, Washington, D.C., be amended to appoint COL John R. Pierce as the new Chairman of the Radiation Control Committee. COL George J. Brown, the previous Chairman named on our License, has departed. COL John R. Pierce has replaced COL Brown. COL Pierce is the Deputy Commander for Clinical Services (DCCS). The DCCS position is a senior level executive management position, one level below the Commander, Walter Reed Army Medical Center (WRAMC). The members of the WRAMC Radiation Control Committee have reviewed COL Pierce's curriculum vitae, and have recommended his approval as Chairman. COL Brown's curriculum vitae are enclosed.

2. Any questions or comments pertaining to this request should be directed to COL William B. Johnson, Chief, Health Physics Office, Walter Reed Army Medical Center, Washington DC 20307-5001, at Commercial Phone (301) 427-5161 or DSN 291-5161.

FOR THE COMMANDER:

Joe N. Flowers

JOE N. FLOWERS
2LT, MS
Executive Officer

Encl
as

OFFICIAL RECORD COPY ML 10

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MAR 12 1996

September 1995

CURRICULUM VITAE

PERSONAL DATA:

Name: JOHN RANDALL PIERCE, M.D.

EDUCATION:

Undergraduate: B.S. - David Lipscomb College, Nashville, TN,

Postgraduate (Medical):

Medical School: M.D. - University of Tennessee, Memphis, TN,

Internship: Tripler Army Medical Center, Honolulu, HI, 1 Jan - 31 Dec 72

Residency: Pediatrics, Tripler Army Medical Center, Honolulu, HI, July 73 - Jun 75

Fellowship: Neonatology, Fitzsimons Army Medical Center, Aurora, CO, Aug 77 - July 79

Postgraduate (Military):

Medical Effects of Nuclear Weapons - 1982
Combat Casualty Care Course - 1983
Command and General Staff College (Commandant's List) - 1985
Medical Management of Chemical Casualties - 1987
Interagency Institute for Federal Health Care Executives - 1988

Encl

General Medical Officer, Atomic Energy Commission Surgery Team, Eniwetok Atoll, Trust Territories of the Pacific, Jan - Feb 1973

ACADEMIC APPOINTMENTS:

Associate Professor, Department of Pediatrics, Uniformed Services University of the Health Sciences, 1986 - present
Assistant Professor (Affiliated), Department of Pediatrics, Uniformed Services University of the Health Sciences, 1981 - 1986
Assistant Clinical Professor, Department of Pediatrics, University of Colorado Center for Health Sciences, 1981 - 1985
Clinical Instructor, Department of Pediatrics, University of Colorado Center for Health Sciences, 1978 - 1981
Clinical Instructor, Department of Pediatrics, University of Hawaii, 1974 - 1975

LEADERSHIP ACTIVITIES:

Chair, OB-GYN Program Director Search Committee for National Capitol Consortium OB-GYN Residency, 1995
President, Uniformed Services Chapter East, American Academy of Pediatrics 1992 - present
Program Coordinator, 26th Uniformed Services Pediatric Seminar, 1992
Vice-President, Uniformed Services Chapter East, American Academy of Pediatrics 1988 - 1989
Chairman, Pediatric Specialty Group for the Development of a Military Unique Curriculum, Uniformed Services University of the Health Sciences, 1987 - 1989
Executive Committee, Uniformed Services Section, American Academy of Pediatrics, 1980 - 1983

HOSPITAL COMMITTEES:

Credentials Committee, Walter Reed Army Medical Center, 1992 - 1995
Chair 1995 - present
Professional Education and Training Committee, Walter Reed Army Medical Center, 1992 - 1995
Chair 1995 - present
Patient Care Assessment Committee, Walter Reed Army Medical Center, 1992 - 1995
Clinical Space Utilization Committee, Walter Reed Army Medical Center, 1992 - 1995
Education Committee, Fitzsimons Army Medical Center, 1979 - 1985

HONORS:

U.S. Army Surgeon General's "A" Professional Designator, 1986
Order of Military Medical Merit, 1983
Selected Outstanding Staff, Department of Pediatrics by Intern Class, Fitzsimons Army Medical Center, 1982
Selected Outstanding Teacher, Department of Pediatrics by Intern Class, Fitzsimons Army Medical Center, 1981
Selected Outstanding Young Men of America, 1980
Andrew M. Margileth Award for Excellence in Clinical Investigation in Pediatrics, 14th Uniformed Services Pediatric Seminar, 1979

MILITARY AWARDS:

Legion of Merit - 1993
Meritorious Service Medal - 1985
Meritorious Service Medal (1st Oak Leaf Cluster) - 1990
Joint Service Commendation Medal - 1989
Army Commendation Medal - 1977
Army Commendation Medal (1st Oak Leaf Cluster) - 1992
Army Achievement Medal - 1991

Army Achievement Medal (1st Oak Leaf Cluster) - 1993
Army Achievement Medal (2nd Oak Leaf Cluster) - 1994
Army Achievement Medal (3nd Oak Leaf Cluster) - 1994
National Defense Medal - 1970, 1991
Humanitarian Service Medal - 1975
Reserve Service Medal - 1981
Overseas Service Ribbon - 1982
Army Service Ribbon - 1982

COMMUNITY ACTIVITIES:

PUBLICATIONS:

Original Articles

1. Way GL, Pierce JR, Wolfe RR, et al: ST depression suggesting subendocardial ischemia in neonates with respiratory distress syndrome and patent ductus arteriosus, Journal of Pediatrics 95:609-611, 1979.

2. Pierce JR, Merenstein GB: Enteric duplication cyst, American Journal of Diseases of Children, 134:985-986, 1980.

3. Pierce JR, Blake WW, Kilbride HW: Developmental follow-up of military dependents requiring neonatal intensive care. Military Medicine 149:339-341, 1984.

4. Uniformed Services Perinatal-Infectious Disease Group-JR Pierce: Intravenous Immunoglobulin in neonatal group B streptococcal disease. American Journal of Medicine 76:117-121, 1984.

5. Pierce JR, Blake WW, Merenstein GB: Neonatal intensive care at Fitzsimons Army Medical Center. Military Medicine 149:555-560, 1984.

Ex 6

6. Pierce JR, Merenstein GB, Stocker JT: Immediate post-mortem culture in an intensive care nursery. Pediatric Infectious Disease 3:510-513, 1984.

7. Arthur JD, Pierce JR: Citrobacter Diversus meningitis and brain abscess in a neonate associated with Bacteroides Melaninogenicus. Pediatric Infectious Disease 3:592-593, 1984.

8. Nelson SN, Merenstein GB, Pierce JR: Early onset group B streptococcal disease: Is it underdiagnosed? Journal of Perinatology 6:234-238, 1986.

9. Weisman LE, Fischer GW, Marinelli P, Hemming VG, Pierce JR, Golden S, Peck GC: Pharmacokinetics of intravenous immunoglobulin in neonates. Vox Sanguinis 57:243-248, 1989.

10. Callahan CW, Pierce JR: Health Care for the Children of Army Service Members: Cost of Alternatives. Military Medicine 156:186-189, 1991.

11. Pierce JR: The role of the Unites States Army active component pediatricians in Operations Desert Shield, Desert Storm and Provide Comfort. Military Medicine 158:105-108, 1993.

BOOK CHAPTERS:

1. Pierce JR and Turner BS; Physiologic Monitoring in A Handbook of Neonatal Intensive Care. Merenstein GB and Gardner SL, eds. St.Louis: C.V. Mosby Company, 1985 p. 97-110.

2. Pierce JR and Turner BS; Physiologic Monitoring in A Handbook of Neonatal Intensive Care. Merenstein GB and Gardner SL, eds. St. Louis: C.V. Mosby Company, 1989, p. 126-140.

ABSTRACTS:

1. Pierce JR, Merenstein GB: Streptococcal sudden unexpected death syndrome, (Abst) Clinical Research 27:128A, 1979.

2. Kilbride HW, Pierce JR, Merenstein GB: A method for following intranursery and internursery mortality trends, (Abst) Clinical Research 29(1):118A, 1981.

3. Weisman LE, Tunnel S, Stocker T, Pierce JR: Self-limited Hirschsprung's like disease in a very low-birth weight neonate (Abst). March of Dimes Birth Defects Conference, June, 1981.

4. Weisman LE, Fischer GW, Pierce JR et al: Intravenous immunoglobulin therapy in the neonate: A study of pharmokinetics and safety, (Abst) Pediatric Research 17:341A, 1983.

5. Jannuzzi PJ, Weisman LE, Pierce JR, Garcia V: Abdominal wall erythema associated with Hirschprung's disease, (Abst) 19th Uniformed Services Pediatric Seminar, 1984.

6. Weisman LE, Fischer GW, Pierce JR, Hemming VG, Marinelli P, Hunter KW, Golden SM: Intravenous immunoglobulin therapy in the neonate: A study of pharmacokinetics and safety. (Abst) Clinical Pharmacology and Therapeutics 35(2):282, 1984.

7. Nelson SN, Pierce JR, Merenstein GB: Is neonatal group B streptococcal disease underreported? (Abst) Clinical Research 33:141A, 1985.

8. Nelson S, Merenstein GB, Pierce JR, Arthur JD, Englekirk P, Morse P: Rapid identification of group B beta-hemolytic streptococci by direct swab micronitrous acid extraction technique, (Abst) 20th Uniformed Services Pediatric Seminar, 1985.

9. Murphy MG, Paine TR, Bonsack T, Arthur JD, Merenstein GB, Pierce JR: Naloxone treatment of streptococcal sepsis in a suckling rat model, (Abst) 21st Uniformed Services Pediatric Seminar, 1986.

10. Carter BS, Anderson BA, Frank CG, Pierce JR: Military neonatologists and bioethical decision making, (Abst) 9th Conference on Military Perinatal Research, 1989.

11. Callahan CW, Pierce JR: The Army Pediatrician: A cost comparison of alternatives for the medical care of dependent children, (Abst) 24th Uniformed Services Pediatric Seminar, 1989.

EDITORIALS:

1. Pierce JR, Hemming VG: A case for the military pediatrician. Military Medicine 151:559-560, 1986.

2. Pierce JR, Brennan M, Campbell J, McClurkan M, Morgan JL, Stracner CE: The Department of Military Medicine - A graduate medical education idea whose time has come. Military Medicine 154:536-537, 1989.

LETTERS TO THE EDITOR:

1. Pierce JR, Slaughter JC: Cutis aplasia congentia. American Journal of Diseases of Children 139:1178-1179, 1985.

2. Pierce JR: In Reply. Military Medicine 155 (Number 5):A6, 1990 and 155 (Number 11):A11, 1990.

MATERIALS LICENSE

Amendment No. 69

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, 36, 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.

OFFICIAL RECORD COPY

Licensee	In accordance with the letter dated December 6, 1996,
1. Department of the Army Walter Reed Army Medical Center (WRAMC)	3. License Number 08-01738-02 is amended in its entirety to read as follows:
2. Washington, D.C. 20307-5001	4. Expiration Date June 30, 2004
	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. Phosphorus 32	E. Any	E. 2 curies
F. Carbon 14	F. Any	F. 2 curies
G. Iodine 125	G. Any	G. 1 curie
H. Iridium 192	H. Any	H.
I. Chromium 51	I. Any	I. 750 millicuries
J. Sulfur 35	J. Any	J. 1 curie
K. Hydrogen 3	K. Any	K. 5 curies
L. Molybdenum 99	L. Molybdenum 99/ Technetium 99m Generators	L. 23 curies
M. Technetium 99m	M. Any	M. 23 curies
N. Strontium 90	N. Sealed sources	N.
O. Cesium 137	O. Sealed sources	O.
P. Gadolinium 153	P. Sealed sources	P.
Q. Iodine 125	Q. Sealed sources (3M Company seeds)	Q. 1 curie
R. Iodine 125	R. Sealed sources ((Norland Inst. Co., Model 178A591A or AECL Models C235 or C324, or Amersham Corp. Model IMC.P2)	R. 4 sources, not to exceed 300 millicuries each

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License Number: 08-01738-02

Docket or Reference Number: 030-01317

Amendment No. 69

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
S. Cesium 137	S. Sealed sources	S.
T. Cobalt 60	T. Sealed sources	T.
U. Americium 241	U. Any	U. 100 microcuries
V. Americium 241	V. Sealed sources	V.
W. Nickel 63	W. Sealed sources and foils	W. 1 curie
X. Iodine 129	X. Sealed sources	X. 1 curie
Y. Thorium	Y. Any	Y. 5 kilograms
Z. Uranium	Z. Any	Z. 50 kilograms
AA. Cesium 137	AA. Sealed sources	AA.
BB. Americium 241	BB. Sealed sources	BB.
CC. Cesium 137	CC. Sealed source	CC.
DD. Paladium 103	DD. Sealed sources	DD. 3 curies
EE. Uranium depleted in Uranium 235	EE. Plated Metal	EE. 400 Kilograms

9. Authorized use

A. through DD. Medical diagnosis, therapy and research in humans in accordance with any applicable Food and Drug Administration (FDA) requirements. Research and development as defined in 10 CFR 30.4, including animal studies; instrument calibration; student instruction.

EE. Shielding in linear accelerators.

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 and Gillette Building, 270 Research Center, 1413 Research Boulevard, Rockville, Maryland.

11. A. Licensed material shall be used by, or under the supervision of, individuals designated in writing by the Radiation Safety Committee, Colonel John R. Pierce, Chairperson.

B. The use of licensed material in or on humans shall be by a physician, dentist, or podiatrist as defined in 10 CFR 35.2.

Ex 2

C. Physicians, dentists, or podiatrists designated to use licensed material in or on humans shall meet the training criteria established in 10 CFR 35, Subpart J and shall be designated in writing by the licensee's Radiation Safety Committee.

D. The Radiation Safety Officer for this license is Colonel William B. Johnson.

12. In addition to the possession limits in Item 8, the licensee shall further restrict the possession of licensed material at a single location to quantities below the limits specified in 10 CFR 30.72 which require consideration of the need for an emergency plan for responding to a release of licensed material.

13. Notwithstanding the requirements of 10 CFR 35.49(a) and (b), 35.100, 35.200, 35.300, 35.400 and 35.500 the licensee may use for any medical use any byproduct material or reagent kit. The licensee shall possess and use byproduct material for medical use in accordance with the prescriptive and performance criteria in the other sections of 10 CFR 35. This does not relieve the licensee from complying with applicable U.S. Food and Drug Administration (FDA) and other Federal and State requirements.

14. A. 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 the foil temperatures from exceeding that specified in the certificate of registration referred to in 10 CFR 32.210.

B. When in use, detector cells containing a titanium tritide foil or a scandium tritide foil shall be vented to the outside.

15. The licensee shall conduct a physical inventory every three months to account for all sealed sources and devices containing licensed material received and possessed pursuant to 10 CFR 35.59, 35.400 and 35.500 and every six months for all other sealed sources and devices.

16. A. Sealed sources and detector cells containing licensed material shall be tested for leakage and/or contamination at intervals not to exceed six months or at such other intervals as are specified by the certificate of registration referred to in 10 CFR 32.210, not to exceed three years.

B. Notwithstanding Paragraph A of this Condition, sealed sources designed to emit alpha particles shall be tested for leakage and/or contamination at intervals not to exceed three months.

C. In the absence of a certificate from a transferor indicating that a leak test has been made within six months prior to the transfer, a sealed source or detector cell received from another person shall not be put into use until tested.

D. Each sealed source fabricated by the licensee shall be inspected and tested for construction defects, leakage, and contamination prior to any use or transfer as a sealed source.

E. Sealed sources and detector cells need not be leak tested if:

(i) they contain only hydrogen-3; or

(ii) they contain only a radioactive gas; or

(iii) the half-life of the isotope is 30 days or less; or

(iv) they contain not more than 100 microcuries of beta and/or gamma emitting material or not more than 10 microcuries of alpha emitting material; or

(v) they are not designed to emit alpha particles, are in storage, and are not being used. However, when they are removed from storage for use or transfer to another person, and have not been tested within the required leak test interval, they shall be tested before use or transfer. No sealed source or detector cell shall be stored for a period of more than 10 years without being tested for leakage and/or contamination.

F. The test shall be capable of detecting the presence of 0.005 microcurie of radioactive material on the test sample. If the test reveals the presence of 0.005 microcurie or more of removable contamination, a report shall be filed with the U.S. Nuclear Regulatory Commission and the source or detector cell shall be removed immediately from service and decontaminated, repaired, or disposed of in accordance with Commission regulations. The report shall be filed within five days of the date the leak test result is known with the U.S. Nuclear Regulatory Commission, Region I, ATTN: Chief, Nuclear Materials Safety Branch, 475 Allendale Road, King of Prussia, Pennsylvania 19406. The report shall specify the source or detector cell involved, the test results, and corrective action taken.

G. The licensee is authorized to collect leak test samples for analysis by the licensee. Alternatively, tests for leakage and/or contamination may be performed by persons specifically licensed by the Commission or an Agreement State to perform such services.

17. Sealed sources or detector cells containing licensed material shall not be opened or sources removed from source holders by the licensee.

18. The licensee is authorized to hold radioactive material with a physical half-life of less than 65 days and Sulfur 35, Cobalt 58, Iridium 192, Scandium 46, for decay-in-storage before disposal in ordinary trash, provided:

A. Waste to be disposed of in this manner shall be held for decay a minimum of ten half-lives.

B. Before disposal as ordinary trash, the waste shall be surveyed at the container surface with the appropriate survey instrument set on its most sensitive scale and with no interposed shielding to determine that its radioactivity cannot be distinguished from background. All radiation labels shall be removed or obliterated.

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License Number
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C. A record of each such disposal permitted under this License Condition shall be retained for three years. The record must include the date of disposal, the date on which the byproduct material was placed in storage, the radionuclides disposed, the survey instrument used, the background dose rate, the dose rate measured at the surface of each waste container, and the name of the individual who performed the disposal.

19. Experimental animals, or the products from experimental animals, that have been administered licensed materials shall not be used for human consumption.

20. The licensee shall possess and use byproduct material for human research in accordance with the prescriptive and performance criteria in all sections of 10 CFR Part 35 except sections 35.49(a) and (b), 35.100, 35.200, and 35.300.

21. The licensee is authorized to transport licensed material in accordance with the provisions of 10 CFR Part 71, "Packaging and Transportation of Radioactive Material."

22. The licensee shall not acquire licensed material in a sealed source or device unless the source or device has been registered with the U.S. Nuclear Regulatory Commission pursuant to 10 CFR 32.210 or equivalent regulations of an Agreement State.

23. Radioactive waste generated shall be stored in accordance with the statements, representations, and procedures included with the waste storage plan described in the licensee's letter/application dated September 9, 1993 and October 29, 1993.

24. Notwithstanding the requirements of 10 CFR 35.315(a)(7), the licensee may control contamination in rooms used to house radiopharmaceutical therapy patients in accordance with the commitments and procedures contained in the letters dated April 8, 1992 and November 24, 1992.

License Number
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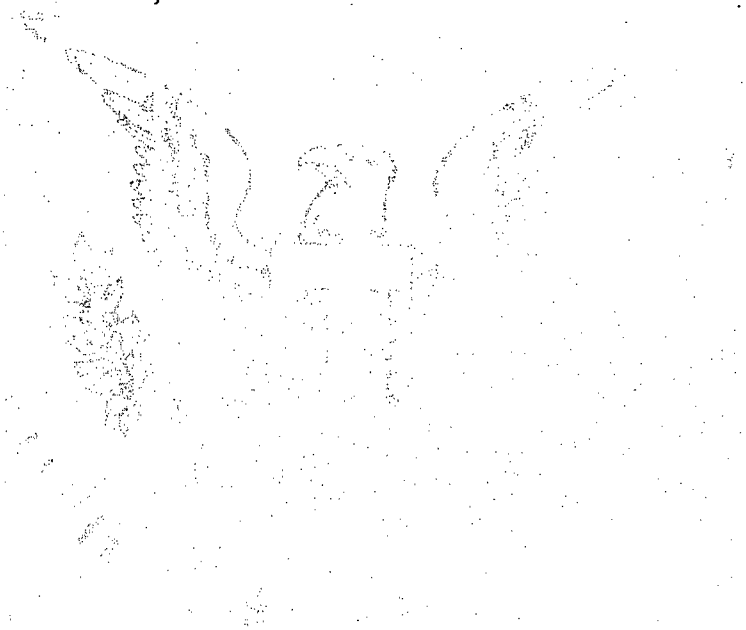
MATERIALS LICENSE
SUPPLEMENTARY SHEET

25. 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, except for minor changes in the medical use radiation safety procedures as provided in 10 CFR 35.31. The U.S. 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 January 21, 1993
B. Letter dated September 9, 1993
C. Letter dated October 29, 1993
D. Letter dated December 9, 1993
E. Letter dated February 15, 1994
F. Letter dated June 2, 1994
G. Letter daetd December 6, 1996



For the U.S. Nuclear Regulatory Commission

MAR 26 1997

Date _____

ORIGINAL SIGNED BY:
TARA L. WEIDNER

By _____

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

NRC FORM 374 U.S. NUCLEAR REGULATORY COMMISSION PAGE 1 OF 6 PAGES

Amendment No. 70

MATERIALS LICENSE

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, 36, 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	In accordance with the letter dated March 17, 1998,
1. Department of the Army Walter Reed Army Medical Center (WRAMC)	3. License number 08-01738-02 is amended in its entirety to read as follows:
2. Washington, D.C. 20307-5001	4. Expiration date June 30, 2004
	5. Docket No. 030-01317 Reference No.

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. Phosphorus 32	E. Any	E. 2 curies
F. Carbon 14	F. Any	F. 2 curies
G. Iodine 125	G. Any	G. 1 curie
H. Iridium 192	H. Any	H.
I. Chromium 51	I. Any	I. 750 millicuries
J. Sulfur 35	J. Any	J. 1 curie
K. Hydrogen 3	K. Any	K. 5 curies
L. Molybdenum 99	L. Molybdenum 99/ Technetium 99m Generators	L. 23 curies
M. Technetium 99m	M. Any	M. 23 curies
N. Strontium 90	N. Sealed sources	N.

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
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MATERIALS LICENSE
SUPPLEMENTARY SHEET

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
O. Cesium 137	O. Sealed sources	O.
P. Gadolinium 153	P. Sealed sources	P.
Q. Iodine 125	Q. Sealed sources (3M Company seeds)	Q. 1 curie
R. Iodine 125	R. Sealed sources ((Norland Inst. Co., Model 178A591A or AECL Models C235 or C324, or Amersham Corp. Model IMC.P2)	R. 4 sources, not to exceed 300 millicuries each

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
S. Cesium 137	S. Sealed sources	S.
T. Cobalt 60	T. Sealed sources	T.
U. Americium 241	U. Any	U. 100 microcuries
V. Americium 241	V. Sealed sources	V.
W. Nickel 63	W. Sealed sources and foils	W. 1 curie
X. Iodine 129	X. Sealed sources	X. 1 curie
Y. Thorium	Y. Any	Y. 5 kilograms
Z. Uranium	Z. Any	Z. 50 kilograms
AA. Cesium 137	AA. Sealed sources	AA.
BB. Americium 241	BB. Sealed sources	BB.
CC. Cesium 137	CC. Sealed source	CC.
DD. Paladium 103	DD. Sealed sources	DD. 3 curies

Ex 2

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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
EE. Uranium depleted in Uranium 235	EE. Plated Metal	EE. 400 Kilograms

9. Authorized use:

A. through DD. Medical diagnosis, therapy and research in humans in accordance with any applicable Food and Drug Administration (FDA) requirements. Research and development as defined in 10 CFR 30.4, including animal studies; instrument calibration; student instruction.

EE. Shielding in linear accelerators.

CONDITIONS

10. Licensed material may be used only at the licensee's facilities located at the Walter Reed Army Medical Center, Washington, D.C.; WRAMC Forest Glen Section and Annex, Silver Spring, Maryland; U.S. Army Medical Laboratory, WRAMC Department of Pathology, Fort Meade, Maryland; Rickman Building, 13 Taft Court, Rockville, Maryland and Gillette Building, 270 Research Center, 1413 Research Boulevard, Rockville, Maryland.

11. A. Licensed material shall be used by, or under the supervision of, individuals designated in writing by the Radiation Safety Committee, Colonel John R. Pierce, Chairperson.

B. The use of licensed material in or on humans shall be by a physician, dentist, or podiatrist as defined in 10 CFR 35.2.

C. Physicians, dentists, or podiatrists designated to use licensed material in or on humans shall meet the training criteria established in 10 CFR 35, Subpart J and shall be designated in writing by the licensee's Radiation Safety Committee.

D. The Radiation Safety Officer for this license is Colonel William B. Johnson.

12. In addition to the possession limits in Item 8, the licensee shall further restrict the possession of licensed material at a single location to quantities below the limits specified in 10 CFR 30.72 which require consideration of the need for an emergency plan for responding to a release of licensed material.

13. Notwithstanding the requirements of 10 CFR 35.49(a) and (b), 35.100, 35.200, 35.300, 35.400 and 35.500 the licensee may use for any medical use any byproduct material or reagent kit. The licensee shall possess and use byproduct material for medical use in accordance with the prescriptive and performance criteria in the other sections of 10 CFR 35. This does not relieve the licensee from complying with

MATERIALS LICENSE
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applicable U.S. Food and Drug Administration (FDA) and other Federal and State requirements.

14. A. 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 the foil temperatures from exceeding that specified in the certificate of registration referred to in 10 CFR 32.210.

    B. When in use, detector cells containing a titanium tritide foil or a scandium tritide foil shall be vented to the outside.

15. The licensee shall conduct a physical inventory every three months to account for all sealed sources and devices containing licensed material received and possessed pursuant to 10 CFR 35.59, 35.400 and 35.500 and every six months for all other sealed sources and devices.

16. A. Sealed sources and detector cells containing licensed material shall be tested for leakage and/or contamination at intervals not to exceed six months or at such other intervals as are specified by the certificate of registration referred to in 10 CFR 32.210, not to exceed three years.

    B. Notwithstanding Paragraph A of this Condition, sealed sources designed to emit alpha particles shall be tested for leakage and/or contamination at intervals not to exceed three months.

    C. In the absence of a certificate from a transferor indicating that a leak test has been made within six months prior to the transfer, a sealed source or detector cell received from another person shall not be put into use until tested.

    D. Each sealed source fabricated by the licensee shall be inspected and tested for construction defects, leakage, and contamination prior to any use or transfer as a sealed source.

    E. Sealed sources and detector cells need not be leak tested if:

        (i) they contain only hydrogen-3; or

        (ii) they contain only a radioactive gas; or

        (iii) the half-life of the isotope is 30 days or less; or

        (iv) they contain not more than 100 microcuries of beta and/or gamma emitting material or not more than 10 microcuries of alpha emitting material; or

        (v) they are not designed to emit alpha particles, are in storage, and are not being used. However, when they are removed from storage for use or transfer to another person, and have not been tested within the required leak test interval, they shall be tested before use or transfer. No sealed source or detector cell shall be stored for a period of more than 10 years without being tested for leakage and/or contamination.

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License Number
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Docket or Reference Number
030-01317

Amendment No. 70

F. The test shall be capable of detecting the presence of 0.005 microcurie of radioactive material on the test sample. If the test reveals the presence of 0.005 microcurie or more of removable contamination, a report shall be filed with the U.S. Nuclear Regulatory Commission and the source or detector cell shall be removed immediately from service and decontaminated, repaired, or disposed of in accordance with Commission regulations. The report shall be filed within five days of the date the leak test result is known with the U.S. Nuclear Regulatory Commission, Region I, ATTN: Chief, Nuclear Materials Safety Branch, 475 Allendale Road, King of Prussia, Pennsylvania 19406. The report shall specify the source or detector cell involved, the test results, and corrective action taken.

G. The licensee is authorized to collect leak test samples for analysis by the licensee. Alternatively, tests for leakage and/or contamination may be performed by persons specifically licensed by the Commission or an Agreement State to perform such services.

17. Sealed sources or detector cells containing licensed material shall not be opened or sources removed from source holders by the licensee.

18. The licensee is authorized to hold radioactive material with a physical half-life of less than 65 days and Sulfur 35, Cobalt 58, Iridium 192, Scandium 46, for decay-in-storage before disposal in ordinary trash, provided:

    A. Waste to be disposed of in this manner shall be held for decay a minimum of ten half-lives.

    B. Before disposal as ordinary trash, the waste shall be surveyed at the container surface with the appropriate survey instrument set on its most sensitive scale and with no interposed shielding to determine that its radioactivity cannot be distinguished from background. All radiation labels shall be removed or obliterated.

    C. A record of each such disposal permitted under this License Condition shall be retained for three years. The record must include the date of disposal, the date on which the byproduct material was placed in storage, the radionuclides disposed, the survey instrument used, the background dose rate, the dose rate measured at the surface of each waste container, and the name of the individual who performed the disposal.

19. Experimental animals, or the products from experimental animals, that have been administered licensed materials shall not be used for human consumption.

20. The licensee shall possess and use byproduct material for human research in accordance with the prescriptive and performance criteria in all sections of 10 CFR Part 35 except sections 35.49(a) and (b), 35.100, 35.200, and 35.300.

21. The licensee is authorized to transport licensed material in accordance with the provisions of 10 CFR Part 71, "Packaging and Transportation of Radioactive Material."

22. The licensee shall not acquire licensed material in a sealed source or device unless the source or device has been registered with the U.S. Nuclear Regulatory Commission pursuant to 10 CFR 32.210 or

MATERIALS LICENSE
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030-01317

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equivalent regulations of an Agreement State.

23. Radioactive waste generated shall be stored in accordance with the statements, representations, and procedures included with the waste storage plan described in the licensee's letter/application dated September 9, 1993 and October 29, 1993.

24. Notwithstanding the requirements of 10 CFR 35.315(a)(7), the licensee may control contamination in rooms used to house radiopharmaceutical therapy patients in accordance with the commitments and procedures contained in the letters dated April 8, 1992 and November 24, 1992.

25. 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, except for minor changes in the medical use radiation safety procedures as provided in 10 CFR 35.31. The U.S. 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 January 21, 1993
B. Letter dated September 9, 1993
C. Letter dated October 29, 1993
D. Letter dated December 9, 1993
E. Letter dated February 15, 1994
F. Letter dated June 2, 1994
G. Letter daetd December 6, 1996

For the U.S. Nuclear Regulatory Commission

Date April 24, 1998

By ***Original signed by Michelle Beardsley***

Michelle Beardsley
Nuclear Materials Safety Branch 1
Division of Nuclear Materials Safety
Region I
King of Prussia, Pennsylvania 19406

April 24, 1998

Docket No. 030-01317
Control No. 125557

License No. 08-01738-02

William B. Johnson
Colonel, U.S. Army
Radiation Protection Officer
Department of the Army
Walter Reed Army Medical Center (WRAMC)
MCHL-HP/Health Physics Office
Building 41, Room 38
Washington, DC 20307-5001

Dear Colonel Johnson:

This refers to your license amendment request. Enclosed with this letter is the amended license. The facilities at The Walter Reed Army Institute of Research Animal Holding Facility and the U.S. Army Institute of Dental Research Facility, Fort Meade, MD may be released for unrestricted use.

Please review the enclosed document carefully and be sure that you understand and fully implement all the conditions incorporated into the amended license. If there are any errors or questions, please notify the U.S. Nuclear Regulatory Commission, Region I Office, Licensing Assistance Team, (610) 337-5093 or 5239, so that we can provide appropriate corrections and answers.

Thank you for your cooperation.

Sincerely,

Original signed by Michelle Beardsley

Michelle Beardsley
Health Physicist
Nuclear Materials Safety Branch 1
Division of Nuclear Materials Safety

Enclosure:
Amendment No. 70

ML10

DOCUMENT NAME: G:\DNMS\DOCWORK\LICLTR\L0801738.02 13957799
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OFFICE	DNMS/RI	N	DNMS/RI					
NAME	MBeardsley							
DATE	04/24/98		04/ /98		04/ /98		04/ /98	

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DEPARTMENT OF THE ARMY
NORTH ATLANTIC REGIONAL MEDICAL COMMAND
WASHINGTON, DC 20307-5001

March 17, 1998

030-01317

REPLY TO
ATTENTION OF
Preventive Medicine Services

SUBJECT: Amendment Request to Remove the U.S. Army Institute of Dental Research Facility, and the Walter Reed Army Institute of Research Animal Holding Facility, Fort Meade, MD from NRC Byproduct Materials License 08-01738-02

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

Medical Licensing Division :

The Center for Health Promotion and Preventive Medicine has completed the decommissioning for the U.S. Army Institute of Dental Research Facility, Fort Meade, MD. The decommissioning of the buildings included a historical records investigation, meter surveys, and swipe surveys as recommended in NUREG/CR-5849, Manual for Conducting Radiological Surveys in Support of License Termination.

The Walter Reed Army Institute of Research Animal Holding Facility, Fort Meade, MD burned down in 1987 before a final decommissioning survey was performed. The only isotopes used at this location were a couple hundred microcuries of I-125 and I-131 used in a research protocol in the late 1970's. The buildings were all bulldozed into a mound and covered with earth after the fire. The Health Physics Office visited the site, and used a meter to survey the trash area, the location of the barn, and the animal holding area for any signs of radioactive materials and no meter readings above background were found. Since the half-lives of the radionuclides was so short, any radioactive iodine would have decayed away years ago.

Permanent records of all of the decommissioning surveys are maintained in the Health Physics Office files (enclosures 1 and 2).

Amend Paragraph 10, Location of Use, of NRC Byproduct Materials License 08-01738-02, to specifically remove the U.S. Army Institute of Dental Research Facility, Fort Meade, MD, and the Walter Reed Army Institute of Research Animal Holding Facility, Fort Meade, MD from the license.

For additional information regarding this amendment, please contact Colonel William B. Johnson, Chief, Health Physics Office, Preventive Medicine Services, at (202) 356-0058.

Sincerely,

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

CF: CDR, MEDCOM, ATTN: MCHO-CL-W

125557

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DEPARTMENT OF THE ARMY
U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE
5158 BLACKHAWK ROAD
ABERDEEN PROVING GROUND, MARYLAND 21010-5422

REPLY TO ATTENTION OF
MCHB-TS-OIP (40)

04 FEB 1998

MEMORANDUM FOR Commander, U.S. Army Medical Command, ATTN: MCHO-CL-W, 2050 Worth Road, Suite 10, Fort Sam Houston, TX 78234-6010

SUBJECT: Industrial Radiation Survey No. 27-MH-7237-R-98, Facility Close-Out and Termination Survey, Fort Meade, MD, 11 August 1997-23 January 1998

1. Copies of subject report with Executive Summary are enclosed. Findings, recommendations, all specific requests by Department of the Army Licensees, Walter Reed Army Institute of Research, Base Realignment and Closure Office, U.S. Army Medical Command, the State of Maryland Bureau of Environmental Radiation, Maryland Department of the Environment, and the U.S. Environmental Protection Agency Region III representatives were addressed and staffed with the appropriate personnel assigned to support this project.

2. The final laboratory analyses of wipe test samples were completed on 8 October 1997 for the Fort Meade buildings.

FOR THE COMMANDER:

Harris Edge

Encl

HARRIS EDGE
Program Manager
Industrial Health Physics

CF (w/encl):
HQDA(DASA-ESOH/MR. FATZ)
HQDA(DAIM-ED-R/MR. SCHROEDER)
CDR, AMC, ATTN: AMCSF-P (2 CY)
CDR, ACALA, ATTN: AMSTA-AC-SF (2 CY)
CDR, IOC, ATTN: AMSIO-DMS
CDR, ATCOM, ATTN: AMSAV-X/RPO (2 CY)
CDR, CECOM, ATTN: AMSEL-SF (2 CY)
CDR, TACOM, ATTN: AMSTA-CZ (2 CY)
CDR, WRAMC, ATTN: COL JOHNSON

Enclosure 1

U.S. Army Center for Health Promotion and Preventive Medicine

USCHPPM

INDUSTRIAL RADIATION SURVEY NO. 27-MH-7237-R-98
FACILITY CLOSE-OUT AND TERMINATION SURVEY
FORT MEADE, MARYLAND
11 AUGUST 1997 - 23 JANUARY 1998

Readiness Thru Health

DEPARTMENT OF THE ARMY
U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE
5158 BLACKHAWK ROAD
ABERDEEN PROVING GROUND, MARYLAND 21010-5422

REPLY TO
ATTENTION OF

EXECUTIVE SUMMARY
INDUSTRIAL RADIATION SURVEY NO. 27-MH-7237-R-98
FACILITY CLOSE-OUT AND TERMINATION SURVEY
FORT MEADE, MARYLAND
11 AUGUST 1997 - 23 JANUARY 1998

1. PURPOSE. This survey was conducted to determine the presence and extent of radiological health hazards in select buildings at Fort Meade. These buildings are associated with the ongoing Base Realignment and Closure actions at Walter Reed Army Institute of Research which includes Buildings 2802, 2805, and 2813 at Fort Meade. This survey also verified that any residual radioactivity in the buildings surveyed is in compliance with the Nuclear Regulatory Commission and the State of Maryland guidelines for decontamination of facilities prior to release for unrestricted use.

2. CONCLUSION. A review of the survey results indicates that there were no radiological health hazards identified as a result of the use and storage of radioactive commodities in Buildings 2802, 2805, and 2813.

3. RECOMMENDATION. Recommend the above mentioned buildings be released for unrestricted use.

Indust Radn Surv No. 27-MH-7237-1-98, Facility Close-out and Termination Survey, Fort Meade, MD, 11 Aug 97 - 23 Jan 98

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APPENDICES

DEPARTMENT OF THE ARMY
U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE
5158 BLACKHAWK ROAD
ABERDEEN PROVING GROUND, MARYLAND 21010-5422

REPLY TO
ATTENTION OF

MCHB-TS-OIP

INDUSTRIAL RADIATION SURVEY NO. 27-MH-7237-R-97
FACILITY CLOSE-OUT AND TERMINATION SURVEY
FORT MEADE, MARYLAND
11 AUGUST 1997 - 23 JANUARY 1998

1. REFERENCES. See Appendix A for a list of references.

2. AUTHORITY. Telephone conversation between 1LT Luke Shattuck, RPO, Fort Meade, and Mr. Scott Kaeppel, Health Physicist, Henry M. Jackson Foundation Participant, USACHPPM, subject: Radiation Survey at Fort Meade for the Army Institute of Dental Research, 28 July 1997.

3. PURPOSE.

a. This survey was conducted to determine the presence and extent of radiological health hazards in Buildings 2802, 2805, and 2813. These buildings fall under the Nuclear Regulatory Commission (NRC) licenses for the Walter Reed Army Institute of Research, and are being turned over for unrestricted use.

b. This survey also verified that any remaining residual radioactivity in the buildings surveyed is in compliance with the NRC and the State of Maryland guidelines for decontamination of facilities prior to release for unrestricted use.

4. GENERAL.

a. Meetings and briefings were conducted by Mr. Scott Kaeppel with 1LT Luke Shattuck to discuss the findings and recommendations.

b. Project management for the close-out and termination survey was conducted by the U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM).

c. The survey was managed by Mr. Mark S. Ditmore, Research Health Physics Consultant, Henry M. Jackson Foundation Participant, USACHPPM, CPT Joseph Beckman, Nuclear Medical Science Officer (Alternate Project Manager), USACHPPM, and Mr. Andrew Perry Brown,

(3) No buildings were identified as having radiological contamination levels above the limits specified by the NRC and State of Maryland guidelines.

c. Potential Contaminants and Release Guidelines. See Industrial Radiation Survey Protocol No. 27-MH-7237-P-98 for a detailed listing of potential radioactive materials at Fort Meade. The release guidelines for these potential contaminants are listed in Appendix D.

6. RADIATION SURVEYS AND RESULTS.

a. Instrumentation/Equipment.

(1) A list of instruments is provided in Appendix E. The Minimum Detectable Activity (MDA) of each instrument is supplied with the instrument survey data in Appendix C. Efficiencies were determined with a radioisotope traceable to the National Institute of Standards and Technology (NIST) which had energies similar to the energies of the isotopes used and stored at Fort Meade.

(2) After calibration, an efficiency factor was calculated for each alpha and beta instrument to correlate the meter reading to the actual radioactivity present.

(3) The alpha and beta probes used for the survey were 100 square centimeter (cm^2) gas flow proportional probes. The gamma probe used was a 1 inch x 1 inch sodium iodide crystal. The equation to convert counts per minute (cpm) to disintegrations per minute (dpm) per 100 cm^2 can be found in the NUREG/CR-5849, page 8.2, Section 8.1.1.

(4) The efficiency value for each instrument was used to record the final reading into standardized regulatory criteria expressed in dpm/100 cm^2. The monitoring values for gross alpha and gross beta in the tables of Appendix C are presented in the converted values of dpm/100 cm^2.

(5) The sensitivity of the gamma survey meter correlates with NUREG/CR-5849, page 5-14, Table 5-6.

(3) No buildings were identified as having radiological contamination levels above the limits specified by the NRC and State of Maryland guidelines.

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(5) The sensitivity of the gamma survey meter correlates with NUREG/CR-5849, page 5-14, Table 5-6.

greater than three times above background, it would have been marked and a fixed reading taken at that point.

(4) If a building or room was classified as an "unaffected" area, a biased scan was performed over a minimum of 10% of the surface area IAW the protocol. Typically, greater than 50% of the surface area of "unaffected" surfaces was scanned at Fort Meade. During scanning, if a measured reading was found to be greater than three times above background, it would be marked and fixed meter readings (alpha, beta-gamma, and gamma) taken at that point. If no measurements were found three times above background, the surveyor took a minimum of 30 random fixed readings in the subject area.

(5) Each room was subdivided into ceilings, walls, and floors, which were further divided into grid squares. Unusual building features were surveyed in random locations and the highest values observed were recorded.

(6) All north walls were identified as Wall A (WA) and the other walls were assigned consecutive letters in a clockwise manner around the room (i.e., WB, WC, and WD). The grid squares always started in the lower left corner of the wall. The first lower 1m x 1m (affected area) meter grid square was identified as "WA1A" and the grid square directly above was designated "WA1B", with "B" representing the next horizontal row on the wall.

(7) Floors were gridded using a different system. The grid squares always started in the northwest corner of the floor. The northwest grid square was identified as FA1. The grid squares to the east would be FA2, FA3, etc. The grid squares to the south would be FB1, FC1, etc.

(8) Flag values, or action levels, for alpha and beta-gamma monitoring measurements were established for each type of survey instrument used. Flag values were established by taking 75% of the release criteria found in Appendix D. If any instrument reading exceeded the flag values, a more thorough investigation was conducted to determine if the detected radiation was above the established criteria.

monitored. The average background values were established at a 95% confidence level. Background survey results are presented with the site survey results in Appendix C.

(2) Instrumentation Survey Results.

(a) Alpha Instrumentation Results. The gross alpha activity ranged from a low of -9.1 dpm/100 cm^2 to a high of 40.3 dpm/100 cm^2, which was taken on a porcelain sink. A fixed meter reading was taken in each grid square at less than 0.5 cm from the surface. All alpha activity results and location of survey results are presented in Appendix C. Gross alpha analysis shows no sample data that exceeds release criteria.

(b) Beta-Gamma Instrumentation Results. A fixed meter reading was taken in each grid square at less than 0.5 cm from the surface. Instrument field data indicates high beta-gamma readings in restrooms in Buildings 2802 and 2805. The restrooms in these buildings have ceramic tiles on the floors and part of the walls, and porcelain sinks. Ceramics normally contain a high amount of naturally occurring radioisotopes of potassium. The gross beta-gamma activity ranged from a low of -307.2 dpm/100 cm^2 to a high of 2878 dpm/100 cm^2, which was taken on a porcelain sink. None of the field instrument readings exceed the release criteria. All beta-gamma survey results and locations are presented in Appendix C.

(c) Gamma Instrumentation Results. The gross gamma activity ranged from a low of -3.5 microroentgen per hour (µR/hr) to a high of 6.6 µR/hr. The average gamma rate for each survey unit does not exceed the 5 µR/hr limit. Each grid square was surveyed at approximately 1 m from the surface and the location with the highest exposure reading was recorded. All gamma survey results and locations are presented in Appendix C.

(d) Scanning Instrumentation Results. One hundred percent of the surface area of "affected areas" was scanned. The protocol states that a minimum of 10% of the surface area of "unaffected" areas will be scanned. However, the "unaffected" area scans were typically performed over greater than 50% of the surface area.

(3) Laboratory Analysis. Wipe test samples were collected and analyzed for gross alpha, gross beta-gamma, and tritium

8. RECOMMENDATION. Recommend that the surveyed buildings listed above be released for unrestricted use.

MARK S. DITMORE
Research Health Physics Consultant
Henry M. Jackson Foundation Participant
Industrial Health Physics Program

CPT JOSEPH M. BECKMAN
Nuclear Medical Science Officer
Industrial Health Physics Program

APPROVED:

HARRIS EDGE
Program Manager
Industrial Health Physics

APPENDIX A

REFERENCES

1. NUREG/CR-5849, Manual for Conducting Radiological Surveys in Support of License Termination, Draft Report for Comment, June 1992.

2. AR 385-11, Ionizing Radiation Protection (Licensing, Control, Transportation, Disposal, and Radiation Safety), 1 May 1980.

3. Title 10, Code of Federal Regulations (CFR), Part 20, Standards for Protection Against Radiation, 1993 Rev.

4. Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source, or Special Nuclear Material, August 1987.

5. NUREG-1500, Working Draft Regulatory Guide on Release Criteria for Decommissioning: NRC Staff's Draft for Comment, August 1994.

6. Industrial Radiation Survey Protocol No. 27-MH-7237-P-98, U.S. Army Institute of Dental Research, Fort Meade, MD, January 1998.

7. Industrial Radiation Survey No. 27-MH-7237-H-98, Historical Data Review, Walter Reed Army Institute of Dental Research, Fort Meade, MD, September - November 1997.

APPENDIX B

ABBREVIATIONS

AR	Army Regulation
bkg	background
cal	calibration
CFR	Code of Federal Regulations
cm	centimeter
cm^2	centimeter square
cpm	counts per minute
Cs-137	cesium-137
dpm	disintegrations per minute
eff	efficiency
IAW	in accordance with
inst	instrument
m	meter
MDA	Minimum Detectable Activity
NIST	National Institute of Standards and Technology
NRC	Nuclear Regulatory Commission
NUREG	Nuclear Regulatory Guide
QA	Quality Assurance
SN	serial number
USACHPPM	U.S. Army Center for Health Promotion and Preventive Medicine
µR/hr	microroentgen per hour
µCi	microcurie

APPENDIX C

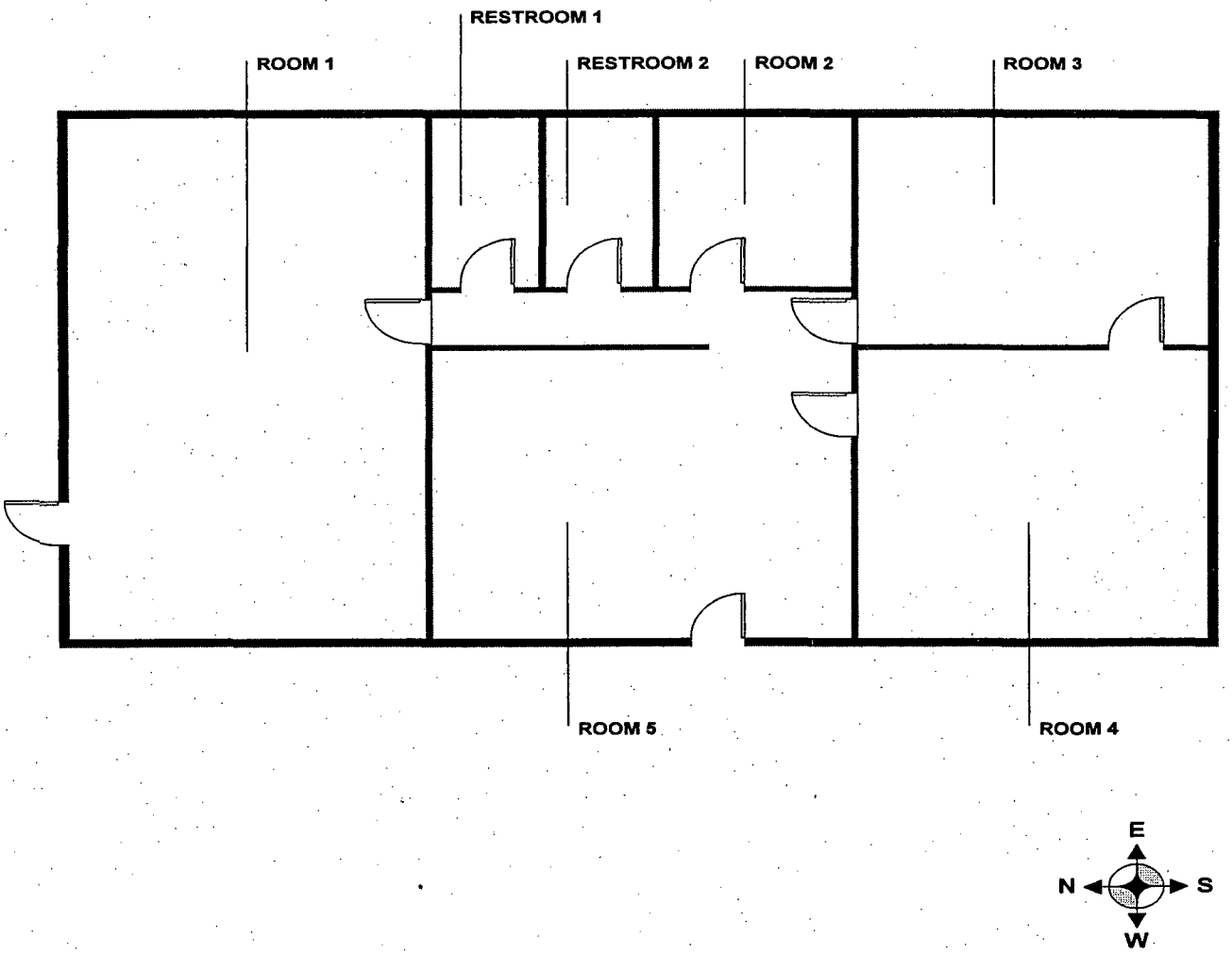
LIST OF BUILDINGS SURVEYED
BUILDING DIAGRAMS
RADIOLOGICAL SURVEY RESULTS
Grids at "1m x 1m" unless otherwise annotated

Indust Radn Surv No. 27-MH-7237-R-97, Facility Close-out and Termination Survey, Fort Meade, MD, 11 Aug 97-23 Jan 98

BUILDINGS SURVEYED

2802
2805
2813

GRAPHICAL ILLUSTRATION

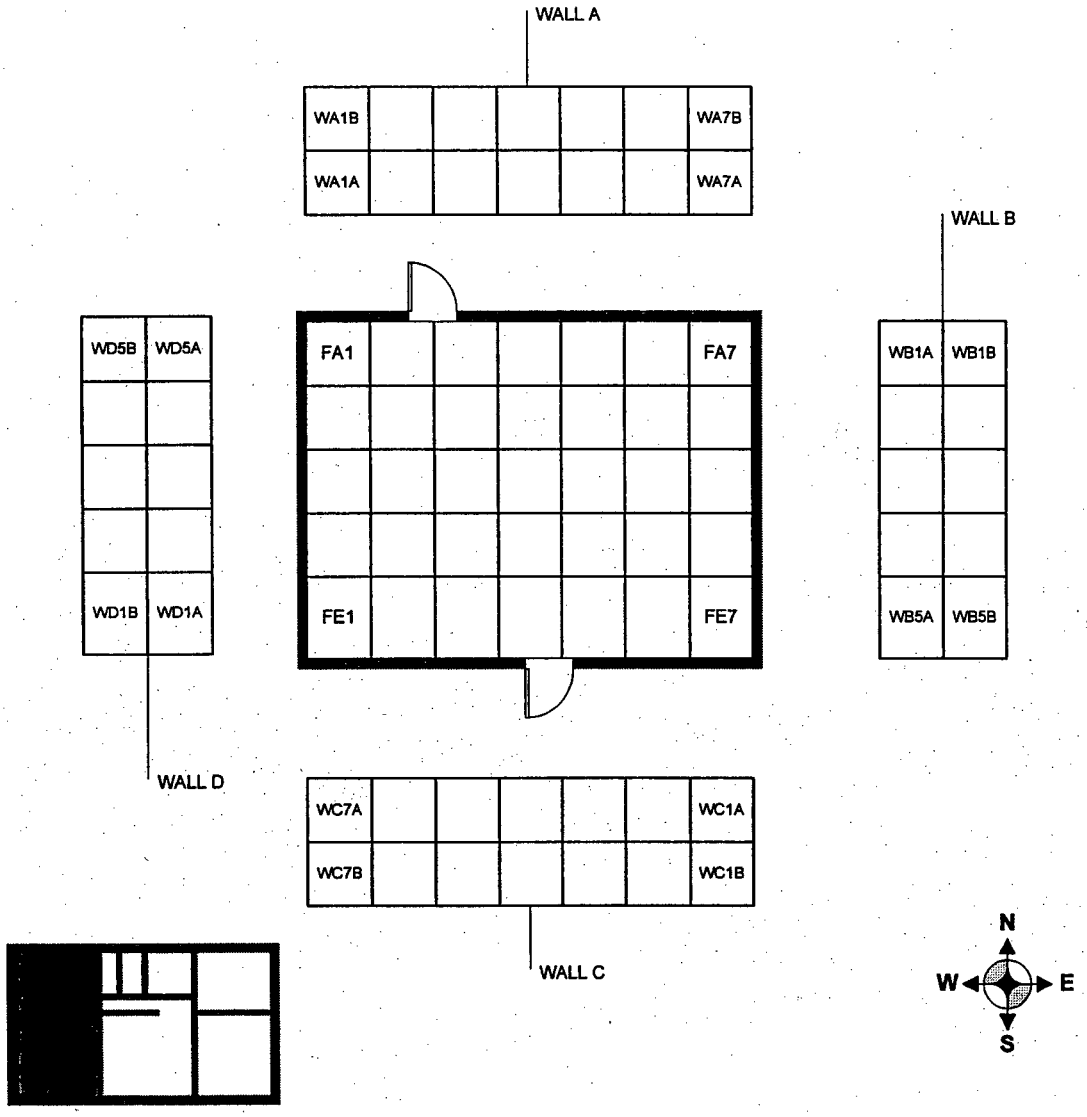


BUILDING T-2802, DENTAL RESEARCH CLINIC,
FORT GEORGE G. MEADE, MD

U.S. ARMY CENTER FOR HEALTH PROMOTION
AND PREVENTIVE MEDICINE
UNITED STATES ARMY MEDICAL DEPARTMENT

DATE:	9 SEPT 97
DRAWN:	JKD
APPROVED:	HE
SCALE:	NTS
PLATE:	N/A

GRAPHICAL ILLUSTRATION



BUILDING T-2802 ROOM 1, DENTAL RESEARCH CLINIC,
FORT GEORGE G. MEADE, MD

U.S. ARMY CENTER FOR HEALTH PROMOTION
AND PREVENTIVE MEDICINE
UNITED STATES ARMY MEDICAL DEPARTMENT

DATE 10 SEPT 97
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APPROVED HE
SCALE NTS
PLATE

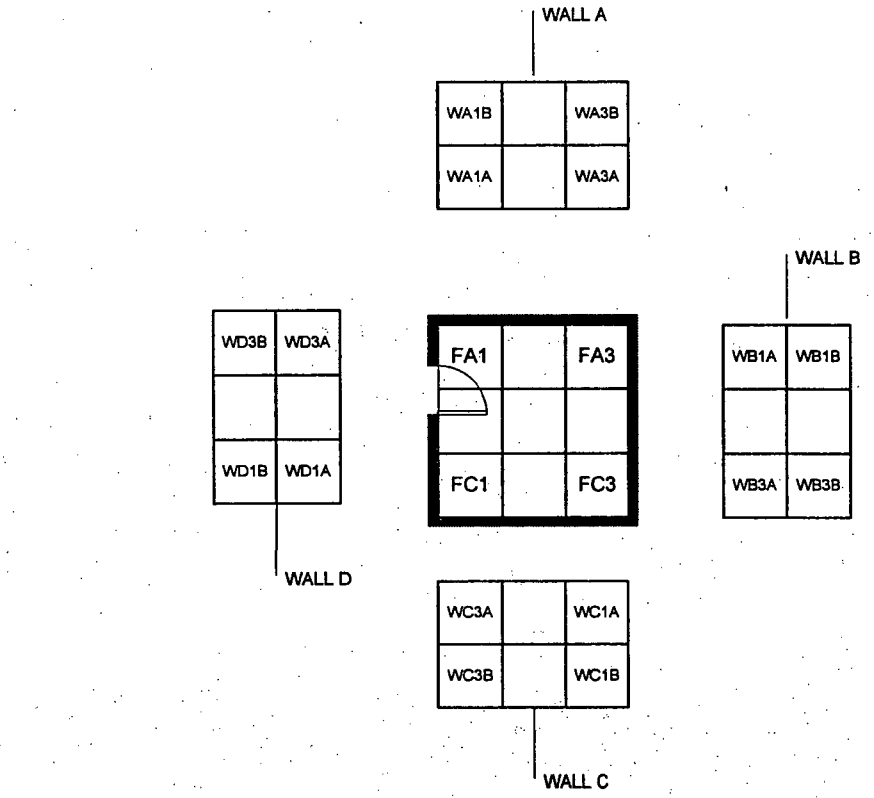
Fort Meade, Building 2802 (Room 1)							
Location Code	Monitoring			Wipe Test			Wipe Number
	Alpha	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>)	1.7	149.47	5.00	0.0	2.0	28.9	
(MDA =>)	54	401	-	2.3	2.4	29.1	
FA1	1.6	91.6	-0.8	-0.1 ± 0.1	0.0 ± 2.5	-19.0 ± 9.4	GA00509
FA2	-9.1	135.9	-0.8	-0.1 ± 0.1	-0.5 ± 2.2	-15.9 ± 8.9	GA00510
FA3	-9.1	146.9	-0.6	-0.1 ± 0.1	0.0 ± 2.5	-16.4 ± 8.7	GA00511
FA4	-9.1	279.9	-0.7	-0.1 ± 0.1	1.6 ± 3.1	-15.1 ± 8.8	GA00512
FA5	-9.1	335.3	-0.9	-0.1 ± 0.1	1.6 ± 3.1	-20.4 ± 8.0	GA00513
FA6	-9.1	146.9	-0.9	-0.1 ± 0.1	-1.1 ± 1.9	-14.2 ± 8.9	GA00514
FA7	-9.1	135.9	-1.0	-0.1 ± 0.1	1.1 ± 2.9	-18.2 ± 8.5	GA00515
FB1	-9.1	346.3	-0.9	-0.1 ± 0.1	-0.5 ± 2.2	-17.1 ± 9.3	GA00516
FB2	-9.1	213.4	-0.9	0.7 ± 1.5	1.1 ± 2.9	-17.7 ± 9.0	GA00517
FB3	-9.1	268.8	-0.9	-0.1 ± 0.1	2.2 ± 3.3	-15.9 ± 8.9	GA00518
FB4	-9.1	279.9	-0.8	-0.1 ± 0.1	-0.5 ± 2.2	-15.6 ± 8.8	GA00519
FB5	-9.1	291.0	-0.9	0.7 ± 1.5	2.2 ± 3.3	-19.1 ± 8.6	GA00520
FB6	-9.1	169.1	-0.9	-0.1 ± 0.1	2.7 ± 3.4	-13.8 ± 8.9	GA00521
FB7	-9.1	257.7	-0.7	-0.1 ± 0.1	-0.5 ± 2.2	-16.0 ± 8.7	GA00522
FC1	1.6	368.5	-0.6	-0.1 ± 0.1	-1.1 ± 1.9	-11.8 ± 9.3	GA00523
FC2	-9.1	434.9	-0.7	-0.1 ± 0.1	-1.6 ± 1.6	-14.5 ± 9.1	GA00524
FC3	12.3	169.1	-0.9	-0.1 ± 0.1	0.0 ± 2.5	-17.8 ± 8.5	GA00525
FC4	-9.1	124.8	-1.1	-0.1 ± 0.1	-2.2 ± 1.2	-17.7 ± 8.8	GA00526
FC5	-9.1	180.2	-1.1	0.7 ± 1.5	-2.2 ± 1.2	-12.3 ± 8.6	GA00527
FC6	1.6	224.5	-0.9	-0.1 ± 0.1	0.0 ± 2.5	-14.3 ± 8.6	GA00528
FC7	1.6	235.6	-0.8	-0.1 ± 0.1	0.0 ± 2.5	-20.4 ± 8.3	GA00529
FD1	-9.1	-107.8	-0.7	-0.1 ± 0.1	-0.5 ± 2.2	-8.4 ± 9.4	GA00530
FD2	-9.1	279.9	-0.8	-0.1 ± 0.1	1.6 ± 3.1	-15.9 ± 8.9	GA00531
FD3	22.9	158.0	-0.8	-0.1 ± 0.1	1.1 ± 2.9	-12.3 ± 9.3	GA00532
FD4	-9.1	135.9	-1.0	0.7 ± 1.5	2.7 ± 3.4	-15.6 ± 8.8	GA00533
FD6	-9.1	69.4	-1.1	-0.1 ± 0.1	1.6 ± 3.1	-12.0 ± 9.1	GA00534
FD7	-9.1	3.0	-1.1	-0.1 ± 0.1	-0.5 ± 2.2	-17.8 ± 8.5	GA00535
FE1	-9.1	379.6	-1.1	-0.1 ± 0.1	-1.6 ± 1.6	-20.0 ± 8.3	GA00536
FE2	-9.1	47.3	-1.1	-0.1 ± 0.1	0.5 ± 2.7	-20.9 ± 8.2	GA00537
FE3	1.6	69.4	-1.2	-0.1 ± 0.1	-0.5 ± 2.2	-14.3 ± 9.6	GA00538
FE4	-9.1	80.5	-1.5	-0.1 ± 0.1	0.0 ± 2.5	-17.3 ± 8.8	GA00539
FE5	1.6	91.6	-1.4	-0.1 ± 0.1	1.1 ± 2.9	-16.0 ± 8.7	GA00540
FE6	-9.1	135.9	-1.2	-0.1 ± 0.1	1.1 ± 2.9	-13.8 ± 8.9	GA00541
FE7	-9.1	279.9	-1.0	-0.1 ± 0.1	1.1 ± 2.9	-19.0 ± 9.1	GA00542
WA1A	-9.1	180.2	-0.3	-0.1 ± 0.1	0.5 ± 2.7	-12.4 ± 9.1	GA00543
WA2A	-9.1	69.4	0.0	-0.1 ± 0.1	0.5 ± 2.7	-14.5 ± 8.4	GA00544
WA3A	-9.1	368.5	-0.2	-0.1 ± 0.1	-0.5 ± 2.2	-16.6 ± 8.2	GA00545
WA4A	-9.1	135.9	-0.6	-0.1 ± 0.1	1.1 ± 2.9	-18.3 ± 8.0	GA00546
WA5A	-9.1	169.1	-0.7	0.0 ± 0.0	-1.0 ± 1.9	-14.0 ± 8.5	GA00547
WA6A	-9.1	69.4	-0.7	0.9 ± 1.6	0.4 ± 2.2	-13.8 ± 8.9	GA00548
QA	N/A	N/A	N/A	0.3 ± 1.1	-1.3 ± 1.5	-19.5 ± 9.7	GA00549
WA7A	1.6	135.9	-0.6	-0.3 ± 0.2	-1.3 ± 1.5	-17.4 ± 8.3	GA00550
WA1B	-9.1	357.4	-0.5	0.3 ± 1.1	0.8 ± 2.4	-11.3 ± 8.9	GA00551
WA2B	-9.1	346.3	-0.6	-0.3 ± 0.2	-0.4 ± 1.9	-15.7 ± 8.5	GA00552
WA3B	-9.1	36.2	-0.3	-0.3 ± 0.2	0.8 ± 2.4	-19.6 ± 7.9	GA00553
WA4B	1.6	324.2	-0.6	0.3 ± 1.1	1.3 ± 2.5	-10.9 ± 9.0	GA00554
WA5B	-9.1	135.9	-0.6	0.3 ± 1.1	-0.8 ± 1.7	-17.9 ± 8.1	GA00555
WA6B	1.6	313.1	-0.6	-0.3 ± 0.2	-0.8 ± 1.7	-17.8 ± 8.3	GA00556
WA7B	-9.1	124.8	-0.7	0.3 ± 1.1	0.4 ± 2.2	-16.2 ± 8.3	GA00557
WB1A	1.6	58.3	-0.8	-0.3 ± 0.2	-0.4 ± 1.9	-20.0 ± 7.9	GA00558

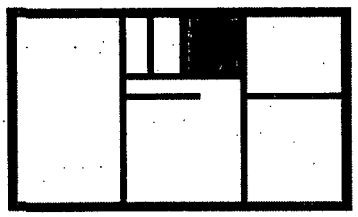
Fort Meade, Building 2802 (Room 1)							
Location Code	Monitoring			Wipe Test			Wipe Number
	Alpha	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>)	1.7	149.47	5.00	0.0	2.0	28.9	
(MDA =>)	54	401	-	2.3	2.4	29.1	
WB2A	-9.1	-107.8	-0.8	-0.3 ± 0.2	-0.8 ± 1.7	-13.2 ± 8.5	GA00559
WB3A	-9.1	-130.0	-0.7	0.3 ± 1.1	1.3 ± 2.5	-9.6 ± 9.1	GA00560
WB4A	12.3	357.4	-0.5	-0.3 ± 0.2	-0.4 ± 1.9	-14.9 ± 8.4	GA00561
WB5A	1.6	-74.6	-0.4	-0.3 ± 0.2	0.0 ± 2.1	-12.2 ± 8.9	GA00562
WB1B	-9.1	-41.3	-0.4	0.3 ± 1.1	3.8 ± 3.2	-12.2 ± 8.9	GA00563
WB2B	1.6	91.6	-0.3	-0.3 ± 0.2	0.0 ± 2.1	-16.6 ± 8.2	GA00564
WB3B	-9.1	-96.7	-0.2	1.4 ± 2.0	0.0 ± 2.1	-20.5 ± 9.6	GA00565
WB4B	-9.1	-96.7	-0.3	0.3 ± 1.1	0.0 ± 2.1	-16.5 ± 8.4	GA00566
WB5B	12.3	302.0	-0.3	0.3 ± 1.1	0.8 ± 2.4	-16.5 ± 8.4	GA00567
WC1A	1.6	-19.2	-0.5	1.4 ± 2.0	0.0 ± 2.1	-18.7 ± 8.4	GA00568
WC2A	-9.1	91.6	-0.3	0.3 ± 1.1	-0.4 ± 1.9	-14.0 ± 8.5	GA00569
WC3A	-9.1	58.3	-0.8	-0.3 ± 0.2	0.4 ± 2.2	-15.2 ± 8.6	GA00570
WC4A	1.6	135.9	-1.0	-0.3 ± 0.2	-1.3 ± 1.5	-11.9 ± 8.7	GA00571
WC5A	1.6	-74.6	-1.1	1.4 ± 2.0	0.8 ± 2.4	-11.9 ± 8.7	GA00572
WC6A	22.9	124.8	-1.2	0.3 ± 1.1	-0.8 ± 1.7	-13.2 ± 8.5	GA00573
WC7A	33.6	3.0	-1.0	-0.3 ± 0.2	0.4 ± 2.2	-10.4 ± 9.0	GA00574
WC1B	-9.1	14.0	-0.8	0.3 ± 1.1	2.1 ± 2.8	-22.2 ± 10.7	GA00575
WC2B	12.3	302.0	-0.8	-0.3 ± 0.2	-0.4 ± 1.9	-19.1 ± 8.4	GA00576
WC3B	1.6	-19.2	-0.8	0.9 ± 1.6	-0.4 ± 1.9	-16.2 ± 9.4	GA00577
WC3B	-9.1	-74.6	-1.0	-0.3 ± 0.2	0.4 ± 2.2	-20.5 ± 9.6	GA00578
WC4B	22.9	313.1	-1.2	0.3 ± 1.1	0.4 ± 2.2	-15.7 ± 8.3	GA00579
WC5B	-9.1	3.0	-1.3	-0.3 ± 0.2	1.7 ± 2.6	-25.4 ± 10.0	GA00580
WC6B	-9.1	25.1	-1.5	-0.3 ± 0.2	-0.4 ± 1.9	-14.9 ± 9.3	GA00581
WC7B	-9.1	36.2	-1.6	-0.3 ± 0.2	-0.4 ± 1.9	-19.5 ± 9.7	GA00582
WD1A	-9.1	58.3	-1.5	-0.3 ± 0.2	-0.8 ± 1.7	-16.5 ± 8.4	GA00583
WD2A	1.6	-163.2	-1.2	0.3 ± 1.1	-1.3 ± 1.5	-10.4 ± 9.0	GA00584
WD3A	-9.1	169.1	-1.2	0.9 ± 1.6	-1.7 ± 1.2	-15.3 ± 8.3	GA00585
WD4A	22.9	279.9	-1.0	-0.3 ± 0.2	-0.4 ± 1.9	-22.2 ± 7.9	GA00586
WD5A	12.3	146.9	-0.7	0.3 ± 1.1	1.7 ± 2.6	-16.6 ± 8.2	GA00587
WD1B	-9.1	58.3	-0.7	0.3 ± 1.1	2.1 ± 2.8	-16.5 ± 8.4	GA00588
WD2B	-9.1	80.5	-0.7	-0.3 ± 0.2	0.0 ± 2.1	-17.3 ± 8.8	GA00589
WD3B	12.3	169.1	-0.7	-0.3 ± 0.2	-0.8 ± 1.7	-10.0 ± 9.1	GA00590
WD4B	1.6	-96.7	-0.5	6.6 ± 3.9	4.6 ± 3.4	-23.6 ± 8.8	GA00591
WD5B	1.6	91.6	-0.5	-0.3 ± 0.2	-1.7 ± 1.2	-13.3 ± 9.7	GA00592
RCNT1	-9.1	313.1	-0.9	0.3 ± 1.1	1.3 ± 2.5	-19.1 ± 9.7	GA00593
RCNT2	-9.1	390.6	-1.0	-0.3 ± 0.2	-0.8 ± 1.7	-26.5 ± 10.9	GA00594
RCNT3	-9.1	158.0	-0.9	-0.3 ± 0.2	0.0 ± 2.1	-19.5 ± 9.6	GA00595
RCNT4	-9.1	324.2	-0.9	-0.3 ± 0.2	2.9 ± 3.0	-22.0 ± 10.0	GA00596
RCNT5	-9.1	302.0	-0.8	-0.3 ± 0.2	1.3 ± 2.5	-21.4 ± 9.2	GA00597
RCNT6	12.3	224.5	-1.2	-0.3 ± 0.2	0.0 ± 2.1	-23.3 ± 9.6	GA00598
RCNT7	12.3	213.4	-1.3	-0.3 ± 0.2	1.3 ± 2.5	-20.0 ± 9.6	GA00599
QA	N/A	N/A	N/A	-0.3 ± 0.2	0.4 ± 2.2	-20.4 ± 8.6	GA00600
RCNT8	-9.1	855.9	-1.4	-0.3 ± 0.2	-0.8 ± 1.7	-18.6 ± 9.5	GA00601
REYE9	-9.1	224.5	-1.2	0.9 ± 1.6	0.4 ± 2.2	-26.8 ± 10.5	GA00602
RCNT10	1.6	368.5	-1.4	-0.3 ± 0.2	1.7 ± 2.6	-17.0 ± 9.1	GA00603
RCNT11	1.6	1066.3	-1.2	-0.3 ± 0.2	1.3 ± 2.5	-16.0 ± 10.8	GA00604
RCNT12	-9.1	180.2	-0.9	2.0 ± 2.3	0.4 ± 2.2	-20.9 ± 9.5	GA00605
RD1	1.6	146.9	-1.1	-0.3 ± 0.2	0.0 ± 2.1	-27.7 ± 10.1	GA00606
RD2	1.6	47.3	-1.1	0.3 ± 1.1	0.4 ± 2.2	-16.4 ± 9.7	GA00607
RD3	12.3	25.1	-0.9	-0.3 ± 0.2	-0.4 ± 1.9	-21.3 ± 9.0	GA00608

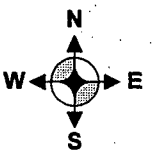
Fort Meade, Building 2802 (Room 1)							
Location Code	Monitoring			Wipe Test			Wipe Number
	Alpha	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>)	1.7	149.47	5.00	0.0	2.0	28.9	
(MDA =>)	54	401	-	2.3	2.4	29.1	
RD5	-9.1	224.5	-0.8	0.9 ± 1.6	-0.4 ± 1.9	-18.0 ± 10.3	GA00609
RD5	-9.1	146.9	-0.8	-0.3 ± 0.2	0.0 ± 2.1	-17.7 ± 9.8	GA00610
RD6	-9.1	191.3	-0.5	0.3 ± 1.1	0.0 ± 2.1	-35.3 ± 13.1	GA00611
RD7	-9.1	324.2	-0.7	-0.3 ± 0.2	0.0 ± 2.1	-20.0 ± 9.9	GA00612
RD8	1.6	91.6	-0.8	0.3 ± 1.1	-0.8 ± 1.7	-19.5 ± 9.9	GA00613
RD9	-9.1	124.8	-1.2	-0.3 ± 0.2	2.1 ± 2.8	-24.1 ± 10.4	GA00614
RD10	1.6	102.6	-0.9	1.4 ± 2.0	0.8 ± 2.4	-16.9 ± 11.1	GA00615
RD11	-9.1	102.6	-1.1	0.3 ± 1.1	2.1 ± 2.8	-27.6 ± 9.1	GA00616

Fort Meade, Building 2802 (Room 2)							
Location Code	Monitoring			Wipe Test			Wipe Number
	Alpha	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>)	1.7	149.47	5.00	0.0	1.0	32.8	
(MDA =>)	54	401	-	1.9	1.9	23.6	
FA1	-9.1	346.3	-2.1	-0.3 ± 0.2	-0.4 ± 1.9	-17.7 ± 9.8	GA00617
FA2	-9.1	124.8	-1.8	-0.3 ± 0.2	-0.8 ± 1.7	-22.4 ± 9.9	GA00618
FA3	12.3	224.5	-0.8	-0.3 ± 0.2	0.0 ± 2.1	-29.2 ± 9.9	GA00619
FB1	-9.1	590.0	-1.2	-0.3 ± 0.2	-1.3 ± 1.5	-20.0 ± 9.9	GA00620
FB2	-9.1	-19.2	-1.0	-0.3 ± 0.2	-0.4 ± 1.9	-21.4 ± 9.5	GA00621
FB3	-9.1	257.7	-0.9	-0.3 ± 0.2	-0.4 ± 1.9	-29.2 ± 9.9	GA00622
FC1	-9.1	235.6	-0.8	-0.3 ± 0.2	-0.4 ± 1.9	-24.1 ± 10.4	GA00623
FC2	12.3	291.0	-0.7	0.3 ± 1.1	0.0 ± 2.1	-24.9 ± 11.0	GA00624
FC3	12.3	346.3	-0.7	-0.3 ± 0.2	0.4 ± 2.2	-22.8 ± 9.3	GA00625
WA1A	1.6	224.5	-0.7	0.3 ± 1.1	-0.8 ± 1.7	-19.6 ± 8.7	GA00626
WA2A	-9.1	324.2	-0.5	-0.3 ± 0.2	1.3 ± 2.5	-20.9 ± 8.5	GA00627
WA3A	-9.1	146.9	-0.3	-0.3 ± 0.2	0.4 ± 2.2	-22.6 ± 8.4	GA00628
WA1B	12.3	124.8	-0.3	-0.3 ± 0.2	0.0 ± 2.1	-17.0 ± 9.1	GA00629
WA2B	12.3	36.2	-0.4	-0.3 ± 0.2	-1.3 ± 1.5	-18.7 ± 9.0	GA00630
WA3B	1.6	135.9	-0.4	-0.3 ± 0.2	2.5 ± 2.9	-20.9 ± 9.3	GA00631
WB1A	12.3	257.7	-0.2	-0.3 ± 0.2	-1.7 ± 1.2	-18.2 ± 9.3	GA00632
WB2A	1.6	213.4	-0.2	0.3 ± 1.1	2.5 ± 2.9	-14.0 ± 9.2	GA00633
WB3A	-9.1	191.3	-0.3	-0.3 ± 0.2	0.0 ± 2.1	-21.5 ± 10.6	GA00634
WB1B	-9.1	14.0	-0.5	-0.3 ± 0.2	1.7 ± 2.6	-17.0 ± 9.1	GA00635
WB2B	-9.1	124.8	-0.6	-0.3 ± 0.2	0.8 ± 2.4	-27.7 ± 8.6	GA00636
WB3B	12.3	135.9	-0.6	-0.3 ± 0.2	0.0 ± 2.1	-17.3 ± 9.3	GA00637
WC1A	-9.1	135.9	-0.5	-0.3 ± 0.2	0.4 ± 2.2	-19.6 ± 8.7	GA00638
WC2A	-9.1	3.0	-0.6	-0.3 ± 0.2	-0.4 ± 1.9	-11.5 ± 9.4	GA00639
WC3A	1.6	124.8	-0.8	-0.3 ± 0.2	0.4 ± 2.2	-26.0 ± 8.0	GA00640
WC1B	12.3	202.3	-0.9	-0.3 ± 0.2	-0.8 ± 1.7	-25.6 ± 9.1	GA00641
WC2B	-9.1	14.0	-0.9	-0.3 ± 0.2	-0.8 ± 1.7	-20.4 ± 8.6	GA00642
WC3B	12.3	180.2	-1.0	0.0 ± 0.0	0.5 ± 1.2	-15.9 ± 9.7	GA00643
WD1A	33.6	291.0	-1.0	0.0 ± 0.0	-0.7 ± 0.6	-16.6 ± 8.9	GA00644
WD2A	-9.1	3.0	-1.0	0.2 ± 0.4	-0.2 ± 1.1	-11.5 ± 9.4	GA00645
WD3A	-9.1	-19.2	-1.1	0.0 ± 0.0	0.5 ± 1.1	-18.3 ± 9.0	GA00646
WD1B	-9.1	-118.9	-1.0	0.0 ± 0.0	0.7 ± 1.3	-22.3 ± 9.1	GA00647
WD2B	-9.1	102.6	-1.0	0.0 ± 0.0	-0.9 ± 0.4	-15.1 ± 9.5	GA00648
WD3B	-9.1	25.1	-0.9	0.4 ± 0.6	-0.6 ± 0.9	-22.8 ± 9.3	GA00649

GRAPHICAL ILLUSTRATION







BUILDING T-2802 ROOM 2, DENTAL RESEARCH CLINIC,
FORT GEORGE G. MEADE, MD

U.S. ARMY CENTER FOR HEALTH PROMOTION
AND PREVENTIVE MEDICINE
UNITED STATES ARMY MEDICAL DEPARTMENT

DATE 9 SEPT 97
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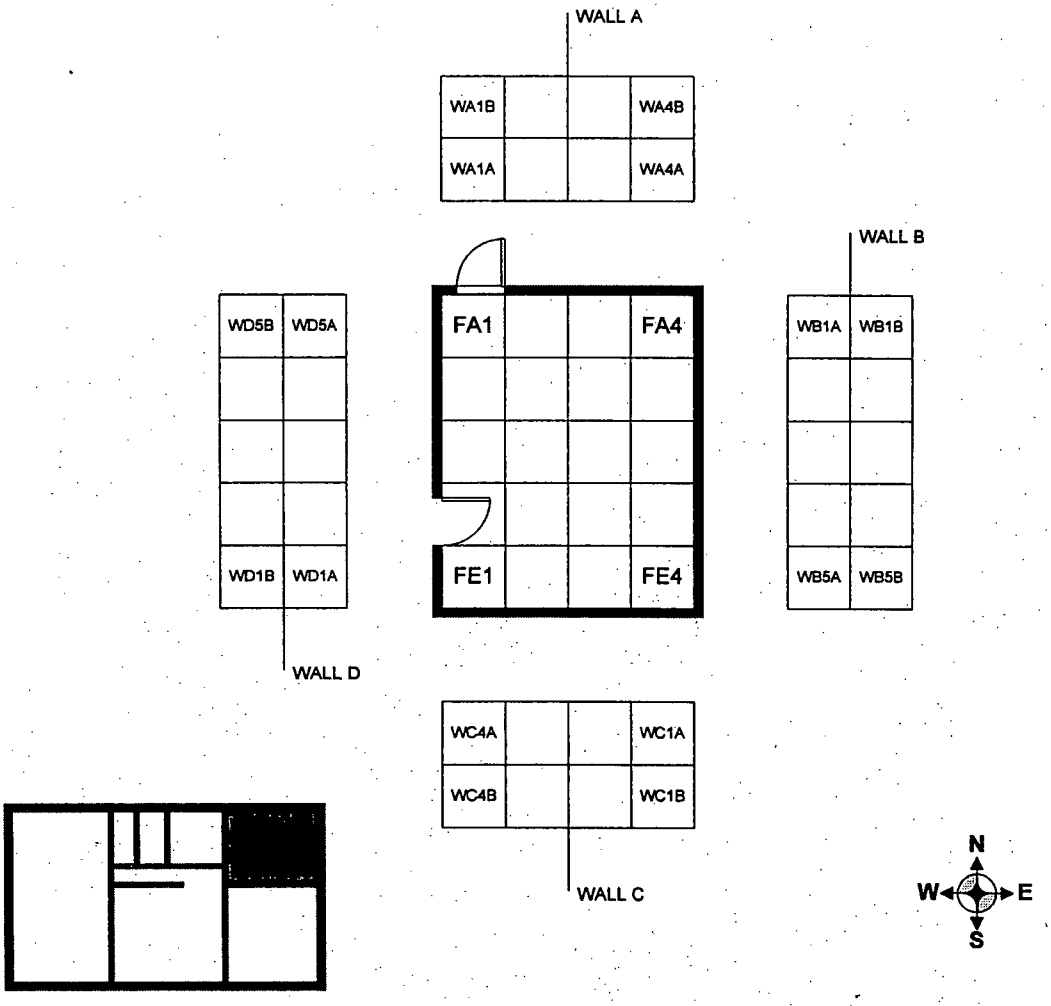
PLATE

GRAPHICAL ILLUSTRATION



BUILDING T-2802 ROOM 3 DENTAL RESEARCH CLINIC,
FORT GEORGE G. MEADE, MD

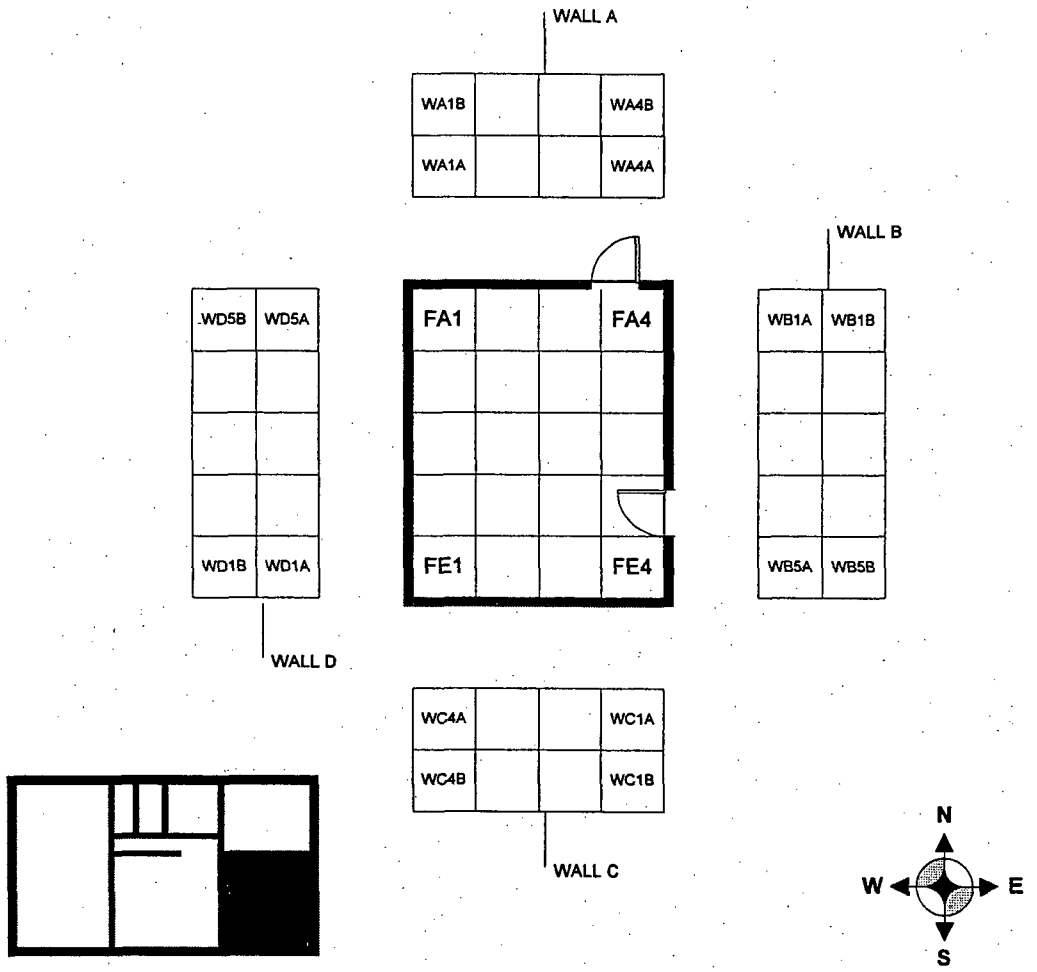
U.S. ARMY CENTER FOR HEALTH PROMOTION
AND PREVENTIVE MEDICINE
UNITED STATES ARMY MEDICAL DEPARTMENT

DATE:	10 SEPT 97
DRAWN:	JKD
APPROVED:	HE
SCALE:	NTS
PLATE:	N/A

Fort Meade, Building 2802 (Room 3)							
Location Code	Monitoring			Wipe Test			Wipe Number
	Alpha	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>)	1.7	149.47	5.00	0.0	1.0	30.6	
(MDA =>)	54	401	-	0.6	1.0	26.5	
QA	N/A	N/A	N/A	0.0 ± 0.0	-0.6 ± 0.6	-22.6 ± 8.6	GA00650
FA1	-9.1	257.7	-0.9	0.0 ± 0.0	-0.3 ± 0.9	-22.3 ± 9.4	GA00651
FA2	1.6	202.3	-0.9	0.0 ± 0.0	-0.1 ± 0.9	-22.7 ± 8.8	GA00652
FA3	-9.1	69.4	-1.1	0.2 ± 0.4	0.4 ± 1.3	-17.7 ± 9.6	GA00653
FA4	22.9	313.1	-0.9	0.2 ± 0.4	0.1 ± 0.9	-17.7 ± 9.8	GA00654
FB1	12.3	291.0	-1.0	0.0 ± 0.0	-0.7 ± 0.7	-17.7 ± 9.8	GA00655
FB2	-9.1	302.0	-0.6	0.0 ± 0.0	0.3 ± 1.1	-24.1 ± 8.9	GA00656
FB3	-9.1	69.4	-0.5	-0.1 ± 0.0	0.0 ± 1.1	-23.3 ± 9.3	GA00657
FB4	-9.1	268.8	-0.7	0.0 ± 0.0	-0.2 ± 0.8	-20.0 ± 8.9	GA00658
FC1	1.6	25.1	-0.9	0.0 ± 0.0	0.5 ± 1.2	-23.2 ± 11.2	GA00659
FC2	-9.1	135.9	-1.1	0.0 ± 0.0	-0.7 ± 0.6	-21.8 ± 9.2	GA00660
FC3	-9.1	368.5	-0.9	0.2 ± 0.4	-0.2 ± 1.1	-21.9 ± 9.4	GA00661
FC4	1.6	268.8	-1.1	0.0 ± 0.0	-0.4 ± 0.7	-19.6 ± 9.1	GA00662
FD1	1.6	346.3	-0.4	0.2 ± 0.4	0.1 ± 1.1	-20.5 ± 9.6	GA00663
FD2	-9.1	268.8	-0.2	0.2 ± 0.4	0.1 ± 1.0	-21.0 ± 10.1	GA00664
FD3	-9.1	202.3	-0.2	0.2 ± 0.4	-0.8 ± 0.8	-26.0 ± 9.9	GA00665
FD4	-9.1	213.4	-0.2	0.0 ± 0.0	0.5 ± 1.1	-26.0 ± 9.9	GA00666
FE1	-9.1	246.6	0.0	0.0 ± 0.0	-0.5 ± 0.8	-24.2 ± 9.2	GA00667
FE2	-9.1	191.3	-0.1	0.0 ± 0.0	-0.5 ± 0.7	-22.9 ± 9.9	GA00668
FE3	-9.1	279.9	-0.2	0.4 ± 0.6	-0.8 ± 0.8	-23.4 ± 9.8	GA00669
FE4	-9.1	313.1	-0.2	0.0 ± 0.0	0.3 ± 1.0	-21.7 ± 11.7	GA00670
WA1A	-9.1	-41.3	-0.6	0.0 ± 0.0	-0.7 ± 0.7	-16.6 ± 8.9	GA00671
WA2A	1.6	80.5	-0.7	0.0 ± 0.0	0.5 ± 1.1	-20.9 ± 9.0	GA00672
WA3A	-9.1	47.3	-0.5	-0.1 ± 0.0	0.0 ± 1.1	-23.0 ± 8.6	GA00673
WA4A	12.3	-8.1	-0.7	0.0 ± 0.0	-0.4 ± 0.7	-19.5 ± 9.4	GA00674
WA1B	12.3	25.1	-1.2	0.0 ± 0.0	0.5 ± 1.2	-17.4 ± 9.1	GA00675
WA2B	-9.1	346.3	-1.3	0.0 ± 0.0	-0.3 ± 0.8	-26.8 ± 9.5	GA00676
WA3B	-9.1	390.6	-1.3	-0.1 ± 0.0	0.0 ± 1.1	-28.0 ± 9.7	GA00677
WA4B	1.6	102.6	-1.2	0.0 ± 0.0	-0.8 ± 0.4	-17.2 ± 9.9	GA00678
WB1A	-9.1	25.1	-1.3	0.0 ± 0.0	-0.1 ± 1.0	-18.3 ± 9.0	GA00679
WB2A	-9.1	91.6	-1.4	0.0 ± 0.0	-0.7 ± 0.6	-17.9 ± 8.8	GA00680
WB3A	-9.1	-30.3	-1.3	-0.1 ± 0.0	-1.2 ± 0.6	-15.0 ± 9.4	GA00681
WB4A	1.6	-196.4	-1.1	0.0 ± 0.0	0.1 ± 0.9	-13.9 ± 9.0	GA00682
WB5A	22.9	180.2	-0.8	0.0 ± 0.0	0.5 ± 1.2	-10.9 ± 9.3	GA00683
WB1B	-9.1	202.3	-0.9	0.0 ± 0.0	-0.5 ± 0.7	-25.6 ± 10.8	GA00684
WB2B	12.3	324.2	-1.0	-0.1 ± 0.0	-0.6 ± 0.9	-20.0 ± 9.4	GA00685
WB3B	-9.1	102.6	-0.9	0.0 ± 0.0	0.3 ± 1.0	-17.0 ± 8.7	GA00686
WB4B	-9.1	158.0	-0.7	0.0 ± 0.0	-0.5 ± 0.8	-22.7 ± 8.4	GA00687
WB5B	-9.1	-74.6	-0.7	0.0 ± 0.0	0.1 ± 1.0	-14.5 ± 8.7	GA00688
WC1A	1.6	191.3	-0.3	0.2 ± 0.4	-0.2 ± 1.1	-15.7 ± 8.6	GA00689
WC2A	1.6	102.6	-0.1	0.0 ± 0.0	0.7 ± 1.1	-18.3 ± 8.4	GA00690
WC3A	-9.1	80.5	-0.1	0.0 ± 0.0	-0.1 ± 1.0	-12.8 ± 8.9	GA00691
WC4A	1.6	434.9	-0.1	0.0 ± 0.0	0.1 ± 1.0	-17.8 ± 8.6	GA00692
WC1B	-9.1	279.9	-0.1	0.2 ± 0.4	-0.4 ± 1.0	-25.8 ± 10.1	GA00693
WC2B	1.6	158.0	-0.1	0.0 ± 0.0	0.7 ± 1.1	-20.0 ± 8.4	GA00694
WC3B	1.6	346.3	-0.2	0.0 ± 0.0	0.3 ± 1.1	-16.2 ± 8.6	GA00695
WC4B	22.9	169.1	-0.1	0.0 ± 0.0	0.9 ± 1.3	-18.3 ± 8.4	GA00696
WD1A	12.3	191.3	-0.2	-0.1 ± 0.0	0.2 ± 1.2	-12.3 ± 8.9	GA00697
WD2A	-9.1	169.1	-0.2	0.0 ± 0.0	-0.4 ± 0.7	-16.6 ± 8.5	GA00698
WD3A	-9.1	324.2	-0.2	0.0 ± 0.0	0.5 ± 1.2	-18.3 ± 8.4	GA00699

Fort Meade, Building 2802 (Room 3)							
Location Code	Monitoring			Wipe Test			Wipe Number
	Alpha	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>)	1.7	149.47	5.00	0.0	1.0	30.6	
(MDA =>)	54	401	-	0.6	1.0	26.5	
WD4A	-9.1	202.3	-0.4	0.0 ± 0.0	1.1 ± 1.3	-19.6 ± 8.5	GA00700
WD5A	-9.1	169.1	-0.1	0.4 ± 0.6	-1.4 ± 0.5	-17.0 ± 8.5	GA00701
WD1B	1.6	191.3	-0.4	0.0 ± 0.0	-0.6 ± 0.6	-15.3 ± 8.7	GA00702
WD2B	12.3	279.9	-0.4	0.0 ± 0.0	-0.3 ± 0.9	-12.8 ± 8.9	GA00703
WD3B	1.6	3.0	-0.5	0.0 ± 0.0	-0.7 ± 0.6	-11.5 ± 9.0	GA00704
WD4B	-9.1	69.4	-0.8	-0.1 ± 0.0	-0.8 ± 0.8	-15.3 ± 9.6	GA00705
WD5B	-9.1	291.0	-0.9	0.0 ± 0.0	0.5 ± 1.1	-18.3 ± 8.6	GA00706
QA	N/A	N/A	N/A	0.0 ± 0.0	-0.3 ± 0.9	-17.0 ± 8.5	GA00707
RSINK1	1.6	47.3	-1.3	0.2 ± 0.4	0.7 ± 1.2	-14.5 ± 9.4	GA00708
RCAB2	1.6	224.5	-1.3	0.2 ± 0.4	-0.2 ± 1.1	-28.1 ± 12.2	GA00709
RCAB3	-9.1	36.2	-1.1	0.0 ± 0.0	0.9 ± 1.2	-26.7 ± 10.7	GA00710
RCAB4	-9.1	124.8	-1.1	0.0 ± 0.0	-0.5 ± 0.8	-20.5 ± 9.7	GA00711
RCAB5	1.6	257.7	-0.9	0.0 ± 0.0	1.1 ± 1.3	-19.1 ± 9.0	GA00712
RCAB6	-9.1	158.0	-1.0	0.2 ± 0.4	-0.2 ± 1.1	-20.0 ± 8.4	GA00713
RCAB7	-9.1	357.4	-1.1	0.0 ± 0.0	-0.8 ± 0.4	-15.1 ± 9.1	GA00714
RD8	12.3	124.8	-1.6	0.0 ± 0.0	-0.3 ± 0.9	-15.0 ± 9.4	GA00715
RCAB9	1.6	213.4	-1.3	0.0 ± 0.0	0.1 ± 1.0	-16.8 ± 9.2	GA00716
RVENT	-9.1	257.7	-0.7	0.2 ± 0.4	0.2 ± 1.2	-15.0 ± 10.5	GA00717
RPIPE	1.6	113.7	-0.6	0.4 ± 0.6	0.3 ± 1.0	-19.1 ± 9.3	GA00718

GRAPHICAL ILLUSTRATION



BUILDING T-2802 ROOM 4 DENTAL RESEARCH CLINIC,
FORT GEORGE G. MEADE, MD

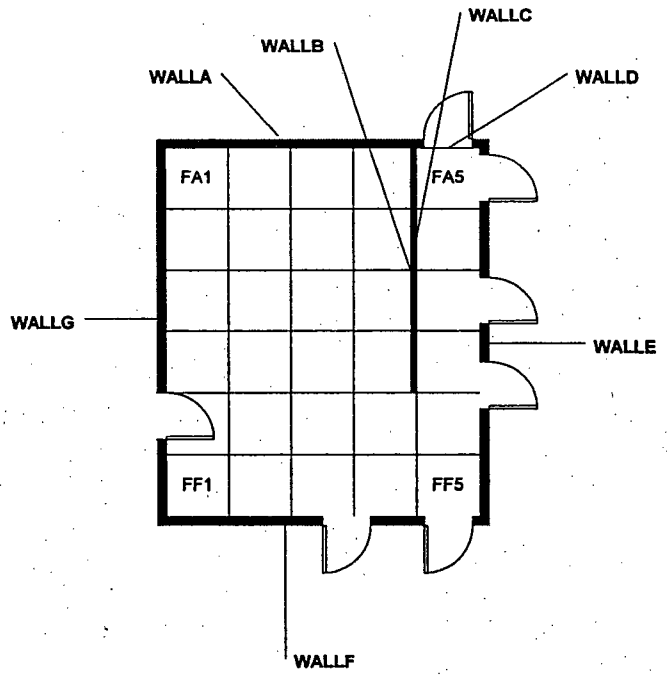
U.S. ARMY CENTER FOR HEALTH PROMOTION
AND PREVENTIVE MEDICINE
UNITED STATES ARMY MEDICAL DEPARTMENT

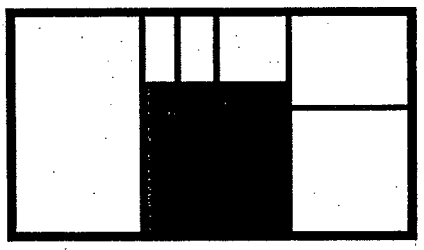
DATE: 10 SEPT 97
DRAWN: JKD
APPROVED: HE
SCALE: NTS
PLATE: N/A

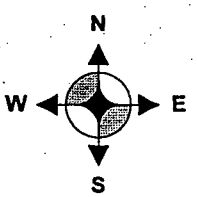
Fort Meade, Building 2802 (Room 4)							
Location Code	Monitoring			Wipe Test			Wipe Number
	Alpha	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>)	1.7	149.47	5.00	0.0	1.0	30.0	
(MDA =>)	54	401	-	0.6	1.0	27.8	
WD4A	-9.1	25.1	-0.5	0.2 ± 0.4	-0.8 ± 0.8	-28.2 ± 8.8	GA00769
WD5A	12.3	91.6	-0.6	0.0 ± 0.0	0.3 ± 1.0	-20.9 ± 9.5	GA00770
WD1B	12.3	-74.6	-0.5	0.0 ± 0.0	-0.5 ± 0.8	-22.6 ± 8.8	GA00771
WD2B	-9.1	25.1	-0.7	0.0 ± 0.0	-0.9 ± 0.4	-20.8 ± 8.7	GA00772
WD3B	-9.1	25.1	-0.6	0.2 ± 0.4	-0.6 ± 0.9	-27.0 ± 10.3	GA00773
WD4B	1.6	36.2	-0.5	0.2 ± 0.4	0.3 ± 1.0	-35.9 ± 11.7	GA00774
WD5B	-9.1	69.4	-0.7	0.0 ± 0.0	0.3 ± 1.1	-19.1 ± 9.1	GA00775
RCNT1	-9.1	91.6	-1.1	0.2 ± 0.4	-0.9 ± 0.4	-22.8 ± 9.8	GA00776
RCNT2	12.3	169.1	-1.3	-0.1 ± 0.0	-1.2 ± 0.6	-22.3 ± 9.8	GA00777
RSNK3	12.3	268.8	-0.8	0.0 ± 0.0	0.1 ± 0.9	-14.8 ± 9.7	GA00778
RD4	1.6	202.3	-1.0	0.0 ± 0.0	-0.1 ± 1.0	-24.8 ± 9.9	GA00779
RD5	1.6	268.8	-1.0	0.0 ± 0.0	-0.1 ± 0.9	-22.5 ± 10.7	GA00780
RD6	1.6	235.6	-1.1	0.2 ± 0.4	-0.6 ± 0.9	-27.1 ± 9.7	GA00781
RD7	-9.1	-30.3	-0.9	0.2 ± 0.4	-0.4 ± 0.7	-21.9 ± 10.1	GA00782
RD8	-9.1	-30.3	-0.9	0.0 ± 0.0	-0.7 ± 0.7	-25.6 ± 9.5	GA00783

Fort Meade, Building 2802 (Room 4)							
Location Code	Monitoring			Wipe Test			Wipe Number
	Alpha	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>)	1.7	149.47	5.00	0.0	1.0	30.0	
(MDA =>)	54	401	-	0.6	1.0	27.8	
FA1	1.6	146.9	-0.9	0.0 ± 0.0	0.3 ± 1.1	-21.9 ± 9.0	GA00719
FA2	1.6	158.0	-1.0	0.0 ± 0.0	-0.3 ± 0.8	-15.7 ± 8.9	GA00720
FA3	-9.1	91.6	-1.2	-0.1 ± 0.0	-0.6 ± 0.9	-22.7 ± 8.4	GA00721
FA4	-9.1	357.4	-1.3	0.0 ± 0.0	-0.6 ± 0.6	-17.0 ± 8.7	GA00722
FB1	-9.1	224.5	-1.2	0.0 ± 0.0	0.7 ± 1.3	-18.2 ± 9.1	GA00723
FB2	-9.1	235.6	-1.1	0.0 ± 0.0	0.1 ± 1.0	-17.3 ± 8.9	GA00724
FB3	-9.1	-52.4	-1.1	-0.1 ± 0.0	-1.2 ± 0.6	-17.2 ± 9.4	GA00725
FB4	-9.1	102.6	-1.0	0.0 ± 0.0	0.1 ± 0.9	-18.6 ± 10.0	GA00726
FC1	1.6	146.9	-0.9	0.2 ± 0.4	-0.1 ± 1.0	-26.2 ± 9.6	GA00727
FC2	1.6	279.9	-0.8	0.0 ± 0.0	-0.1 ± 0.9	-21.4 ± 9.5	GA00728
FC3	1.6	401.7	-0.7	0.2 ± 0.4	-0.4 ± 1.0	-21.8 ± 9.4	GA00729
FC4	-9.1	102.6	-0.9	0.0 ± 0.0	0.3 ± 1.0	-24.8 ± 8.6	GA00730
FD1	-9.1	191.3	-0.8	0.0 ± 0.0	0.1 ± 1.1	-20.9 ± 9.0	GA00731
FD2	-9.1	302.0	-0.8	0.0 ± 0.0	0.7 ± 1.2	-20.0 ± 9.6	GA00732
FD3	1.6	257.7	-0.7	-0.1 ± 0.0	-0.6 ± 0.9	-21.3 ± 9.0	GA00733
FD4	1.6	235.6	-0.6	0.0 ± 0.0	-0.2 ± 0.8	-19.1 ± 9.4	GA00734
FE1	1.6	135.9	-0.4	0.0 ± 0.0	-0.5 ± 0.8	-19.5 ± 9.6	GA00735
FE2	-9.1	102.6	-0.4	0.0 ± 0.0	0.3 ± 1.1	-24.0 ± 9.0	GA00736
FE3	1.6	335.3	-0.3	-0.1 ± 0.0	-0.4 ± 1.0	-25.9 ± 9.0	GA00737
FE4	-9.1	58.3	-0.4	0.0 ± 0.0	0.1 ± 0.9	-18.2 ± 9.8	GA00738
WA1A	1.6	-196.4	-1.1	0.0 ± 0.0	0.1 ± 1.1	-18.7 ± 9.5	GA00739
WA2A	-9.1	-296.1	-1.2	0.0 ± 0.0	-0.5 ± 0.7	-22.6 ± 10.8	GA00740
WA3A	12.3	-141.0	-1.2	-0.1 ± 0.0	0.4 ± 1.3	-27.8 ± 11.4	GA00741
WA4A	12.3	-141.0	-1.4	0.0 ± 0.0	-0.2 ± 0.8	-22.3 ± 9.4	GA00742
WA1B	-9.1	213.4	-1.4	0.0 ± 0.0	-0.7 ± 0.7	-19.1 ± 8.9	GA00743
WA2B	12.3	-41.3	-1.3	0.0 ± 0.0	-0.1 ± 0.9	-20.9 ± 8.8	GA00744
WA3B	1.6	279.9	-1.2	-0.1 ± 0.0	-0.8 ± 0.8	-19.6 ± 8.9	GA00745
WA4B	1.6	-8.1	-1.3	0.0 ± 0.0	-0.4 ± 0.7	-17.9 ± 9.1	GA00746
WB1A	-9.1	25.1	-1.4	0.0 ± 0.0	-0.3 ± 0.9	-21.3 ± 8.7	GA00747
WB2A	-9.1	135.9	-1.5	0.0 ± 0.0	-0.3 ± 0.8	-19.6 ± 8.9	GA00748
WB3A	-9.1	146.9	-1.4	-0.1 ± 0.0	0.6 ± 1.3	-16.3 ± 9.0	GA00749
WB4A	-9.1	3.0	-1.2	0.0 ± 0.0	-0.2 ± 0.8	-21.7 ± 8.7	GA00750
QA	N/A	N/A	N/A	0.2 ± 0.4	-0.5 ± 0.8	-21.7 ± 8.9	GA00751
WB5A	-9.1	257.7	-0.8	0.0 ± 0.0	-0.3 ± 0.8	-22.6 ± 8.6	GA00752
WB1B	12.3	191.3	-1.0	-0.1 ± 0.0	0.2 ± 1.2	-20.9 ± 8.8	GA00753
WB2B	-9.1	291.0	-1.0	0.0 ± 0.0	-0.2 ± 0.8	-17.4 ± 9.1	GA00754
WB3B	-9.1	-74.6	-1.0	0.0 ± 0.0	-0.5 ± 0.8	-19.6 ± 8.7	GA00755
WB4B	-9.1	257.7	-0.9	0.0 ± 0.0	-0.1 ± 0.9	-20.9 ± 8.8	GA00756
WB5B	1.6	146.9	-0.9	-0.1 ± 0.0	-0.4 ± 1.0	-20.0 ± 8.9	GA00757
WC1A	22.9	357.4	-0.7	0.0 ± 0.0	-0.2 ± 0.8	-17.9 ± 9.1	GA00758
WC2A	1.6	468.2	-0.8	0.0 ± 0.0	-0.1 ± 1.0	-23.5 ± 8.8	GA00759
WC3A	1.6	169.1	-0.4	0.0 ± 0.0	0.1 ± 1.0	-14.5 ± 9.4	GA00760
WC4A	1.6	202.3	-0.5	0.2 ± 0.4	-0.6 ± 0.9	-16.6 ± 9.2	GA00761
WC1B	12.3	180.2	-0.6	0.2 ± 0.4	0.9 ± 1.2	-17.9 ± 9.1	GA00762
WC2B	-9.1	14.0	-0.7	0.0 ± 0.0	0.1 ± 1.1	-19.6 ± 9.1	GA00763
WC3B	-9.1	-8.1	-0.6	0.2 ± 0.4	0.3 ± 1.1	-35.6 ± 12.4	GA00764
WC4B	-9.1	324.2	-0.5	-0.1 ± 0.0	-1.0 ± 0.7	-20.0 ± 9.3	GA00765
WD1A	1.6	47.3	-0.5	0.0 ± 0.0	-0.2 ± 0.8	-19.6 ± 9.1	GA00766
WD2A	-9.1	80.5	-0.4	0.0 ± 0.0	-0.7 ± 0.7	-16.2 ± 9.2	GA00767
WD3A	-9.1	113.7	-0.3	0.0 ± 0.0	0.5 ± 1.1	-21.7 ± 8.9	GA00768

GRAPHICAL ILLUSTRATION





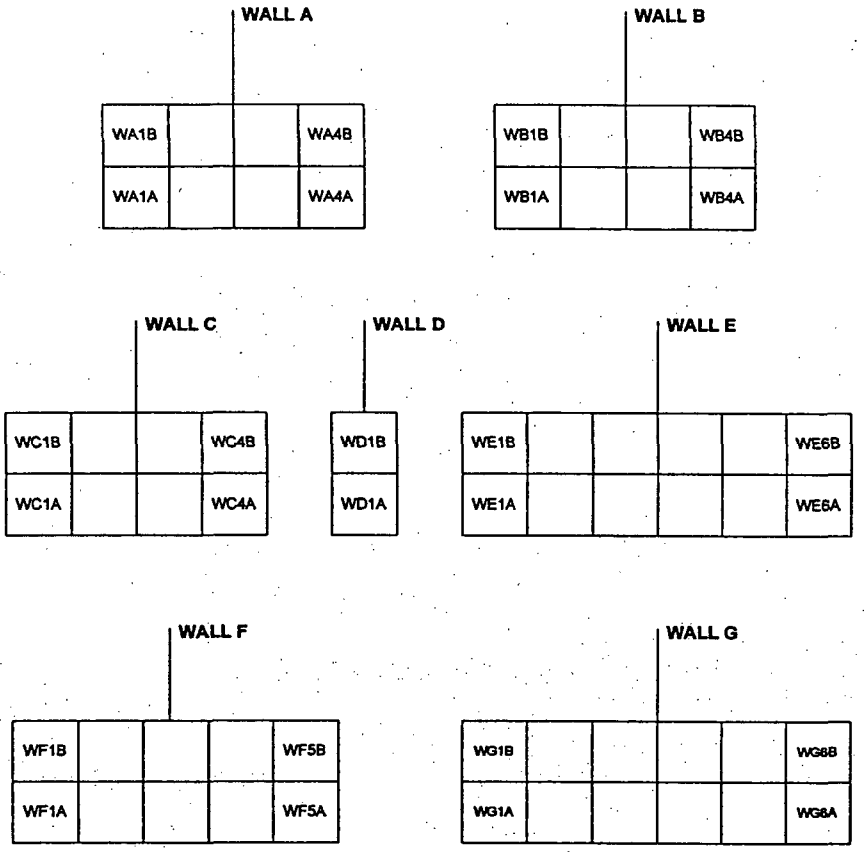


BUILDING T-2802 ROOM 5 FLOORS, DENTAL RESEARCH CLINIC, FORT GEORGE G. MEADE, MD

U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE
UNITED STATES ARMY MEDICAL DEPARTMENT

DATE:	9 SEPT 97
DRAWN:	JKD
APPROVED:	HE
SCALE:	NTS
PLATE:	N/A

GRAPHICAL ILLUSTRATION



BUILDING T-2802 ROOM 5 WALLS, DENTAL RESEARCH CLINIC, FORT GEORGE G. MEADE, MD

U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE
UNITED STATES ARMY MEDICAL DEPARTMENT

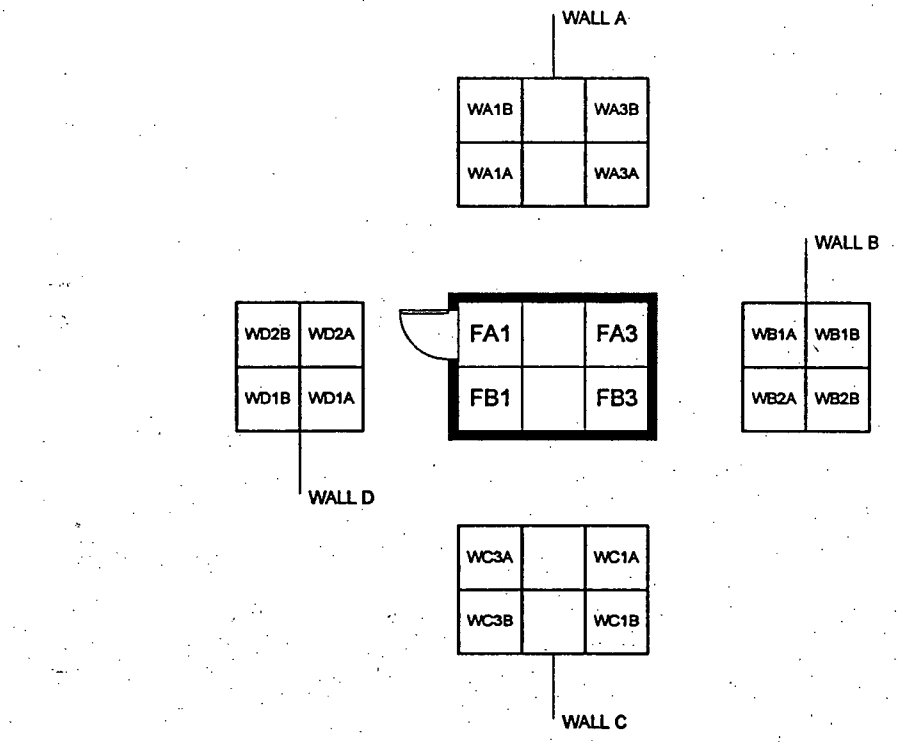
DATE:	9 SEPT 97
DRAWN:	JKD
APPROVED:	HE
SCALE:	NTS
PLATE:	N/A

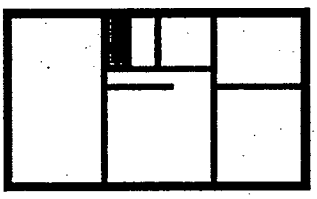
Fort Meade, Building 2802 (Room 5)							
Location Code	Monitoring			Wipe Test			Wipe Number
	Alpha	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>)	1.7	149.47	5.00	0.0	0.8	31.4	
(MDA =>)	54	401	-	2.6	2.8	28.2	
FA1	1.6	69.4	-0.2	0.0 ± 0.0	-0.1 ± 0.9	-23.6 ± 9.4	GA00784
FA2	12.3	246.6	-0.5	-0.1 ± 0.0	-0.4 ± 1.0	-25.5 ± 9.3	GA00785
FA3	1.6	113.7	-0.8	0.0 ± 0.0	-0.2 ± 0.8	-20.4 ± 9.5	GA00786
FA4	1.6	-74.6	-0.6	0.0 ± 0.0	-0.5 ± 0.8	-25.5 ± 9.3	GA00787
FA5	1.6	-185.4	-0.7	0.0 ± 0.0	-0.3 ± 0.8	-21.3 ± 9.4	GA00788
FB1	-9.1	80.5	-0.7	-0.1 ± 0.0	-0.4 ± 1.0	-20.4 ± 9.5	GA00789
FB2	-9.1	-130.0	-0.8	0.0 ± 0.0	0.1 ± 0.9	-20.9 ± 9.9	GA00790
FB3	-9.1	-85.7	-0.9	0.0 ± 0.0	-0.7 ± 0.7	-17.7 ± 10.2	GA00791
FB4	-9.1	-85.7	-0.9	0.0 ± 0.0	0.7 ± 1.2	-21.7 ± 9.1	GA00792
FB5	12.3	3.0	-0.8	-0.1 ± 0.0	-0.4 ± 1.0	-19.1 ± 9.1	GA00793
FC1	-9.1	-185.4	-0.7	0.0 ± 0.0	-0.2 ± 0.8	-19.1 ± 9.1	GA00794
FC2	1.6	-174.3	-0.7	0.2 ± 0.4	-0.7 ± 0.7	-24.8 ± 8.8	GA00795
FC3	1.6	-152.1	-0.6	0.0 ± 0.0	-0.7 ± 0.6	-19.1 ± 9.3	GA00796
FC4	1.6	-141.0	-0.6	0.2 ± 0.4	-0.2 ± 1.1	-21.7 ± 8.9	GA00797
FC5	12.3	3.0	-0.5	0.0 ± 0.0	0.5 ± 1.1	-17.8 ± 9.4	GA00798
FD1	-9.1	-163.2	-0.6	0.0 ± 0.0	-0.5 ± 0.8	-20.0 ± 9.3	GA00799
QA	N/A	N/A	N/A	0.0 ± 0.0	-0.3 ± 0.8	-21.3 ± 8.9	GA00800
FD2	-9.1	-318.3	-0.5	0.2 ± 0.4	-0.4 ± 1.0	-31.9 ± 9.2	GA00801
FD3	-9.1	-240.7	-0.5	0.2 ± 0.4	0.1 ± 0.9	-17.9 ± 9.2	GA00802
FD4	1.6	-285.0	-0.9	0.0 ± 0.0	-0.5 ± 0.8	-25.0 ± 9.3	GA00803
FD5	1.6	-406.9	-0.6	0.0 ± 0.0	-0.5 ± 0.7	-22.6 ± 8.8	GA00804
FE1	-9.1	-362.6	-0.1	-0.1 ± 0.0	-0.8 ± 0.8	-21.4 ± 9.6	GA00805
FE2	12.3	-440.1	-0.1	0.0 ± 0.0	0.1 ± 0.9	-23.9 ± 10.3	GA00806
FE3	-9.1	-107.8	-0.2	0.0 ± 0.0	-0.1 ± 1.0	-20.5 ± 9.7	GA00807
FE4	-9.1	-240.7	-0.4	0.0 ± 0.0	-0.7 ± 0.6	-23.2 ± 9.5	GA00808
FE5	12.3	-52.4	-0.2	-0.1 ± 0.0	0.2 ± 1.2	-31.2 ± 12.1	GA00809
FF1	-9.1	-74.6	-0.3	0.0 ± 0.0	-0.4 ± 0.7	-21.3 ± 8.9	GA00810
FF2	-9.1	3.0	-0.3	0.0 ± 0.0	-0.5 ± 0.8	-27.1 ± 8.8	GA00811
FF3	1.6	124.8	-0.3	0.0 ± 0.0	0.3 ± 1.1	-23.9 ± 8.9	GA00812
FF4	1.6	-63.5	-0.2	-0.1 ± 0.0	-1.0 ± 0.7	-25.0 ± 9.3	GA00813
FF5	12.3	113.7	-0.3	0.0 ± 0.0	-0.2 ± 0.8	-23.0 ± 9.0	GA00814
WA1A	1.6	-130.0	-0.9	0.0 ± 0.0	-0.5 ± 0.8	-24.7 ± 8.6	GA00815
WA2A	1.6	-130.0	-1.1	0.2 ± 0.4	0.1 ± 1.0	-19.6 ± 9.5	GA00816
WA3A	1.6	-52.4	-1.1	-0.1 ± 0.0	-0.6 ± 0.9	-22.2 ± 9.3	GA00817
WA4A	1.6	-141.0	-1.1	0.0 ± 0.0	-0.6 ± 0.6	-16.2 ± 9.4	GA00818
WA1B	-9.1	113.7	-1.1	0.0 ± 0.0	-0.7 ± 0.7	-24.3 ± 8.6	GA00819
WA2B	1.6	-130.0	-1.0	0.0 ± 0.0	0.3 ± 1.1	-27.0 ± 9.4	GA00820
WA3B	1.6	-174.3	-0.8	0.2 ± 0.4	0.2 ± 1.2	-22.5 ± 8.6	GA00821
WA4B	1.6	268.8	-1.1	0.0 ± 0.0	0.3 ± 1.0	-22.1 ± 8.8	GA00822
WB1A	12.3	25.1	-1.1	0.0 ± 0.0	-0.1 ± 1.0	-14.2 ± 9.3	GA00823
WB2A	-9.1	-274.0	-1.2	0.0 ± 0.0	-0.9 ± 0.4	-24.7 ± 8.6	GA00824
WB3A	1.6	-8.1	-1.0	-0.1 ± 0.0	0.2 ± 1.2	-21.4 ± 9.6	GA00825
WB4A	-9.1	-63.5	-0.9	0.0 ± 0.0	-0.2 ± 0.8	-23.6 ± 9.2	GA00826
WB1B	12.3	-8.1	-1.1	0.0 ± 0.0	-0.9 ± 0.6	-19.6 ± 9.3	GA00827
WB2B	-9.1	36.2	-1.1	0.0 ± 0.0	-0.1 ± 0.9	-21.3 ± 8.7	GA00828
WB3B	-9.1	69.4	-0.9	-0.1 ± 0.0	-0.4 ± 1.0	-22.8 ± 9.8	GA00829
WB4B	-9.1	102.6	-1.0	0.0 ± 0.0	0.9 ± 1.2	-20.4 ± 8.8	GA00830
WC1A	1.6	14.0	-0.7	0.0 ± 0.0	0.3 ± 1.1	-18.0 ± 8.8	GA00831
WC2A	-9.1	91.6	-0.6	0.2 ± 0.4	-0.7 ± 0.6	-21.2 ± 8.5	GA00832
WC3A	-9.1	14.0	-0.7	-0.1 ± 0.0	-0.6 ± 0.9	-19.2 ± 8.7	GA00833

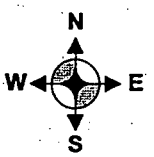
Fort Meade, Building 2802 (Room 5)							
Location Code	Monitoring			Wipe Test			Wipe Number
	Alpha	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>)	1.7	149.47	5.00	0.0	0.8	31.4	
(MDA =>)	54	401	-	2.6	2.8	28.2	
WC4A	12.3	-30.3	-0.6	0.0 ± 0.0	-0.6 ± 0.6	-22.9 ± 8.3	GA00834
WC1B	12.3	102.6	-0.6	0.0 ± 0.0	-0.3 ± 0.9	-20.8 ± 8.7	GA00835
WC2B	-9.1	113.7	-1.0	0.0 ± 0.0	-0.7 ± 0.6	-21.3 ± 8.7	GA00836
WC3B	1.6	202.3	-0.8	0.2 ± 0.4	-0.2 ± 1.1	-21.7 ± 8.2	GA00837
WC4B	12.3	-19.2	-1.1	0.0 ± 0.0	-0.4 ± 0.7	-17.9 ± 8.6	GA00838
WD1A	1.6	-52.4	-1.2	0.0 ± 0.0	-0.1 ± 1.0	-19.2 ± 8.5	GA00839
WD1B	12.3	-85.7	-1.0	0.0 ± 0.0	-0.5 ± 0.7	-20.4 ± 9.1	GA00840
WE1A	-9.1	-30.3	-1.1	-0.1 ± 0.0	-0.8 ± 0.8	-19.2 ± 8.5	GA00841
WE2A	1.6	-96.7	-1.0	0.0 ± 0.0	-0.2 ± 0.8	-18.0 ± 8.4	GA00842
WE3A	-9.1	146.9	-1.0	0.0 ± 0.0	-0.3 ± 0.9	-18.4 ± 8.4	GA00843
WE4A	1.6	-96.7	-1.0	0.0 ± 0.0	-0.1 ± 0.9	-19.2 ± 8.5	GA00844
WE5A	-9.1	-30.3	-0.6	-0.1 ± 0.0	0.8 ± 1.4	-15.4 ± 8.8	GA00845
WE6A	-9.1	-218.6	-0.7	0.0 ± 0.0	0.1 ± 0.9	-15.0 ± 8.9	GA00846
WE1B	1.6	3.0	-0.8	0.0 ± 0.0	-0.1 ± 1.0	-18.3 ± 8.6	GA00847
WE2B	12.3	135.9	-0.9	0.0 ± 0.0	-0.1 ± 0.9	-16.3 ± 8.5	GA00848
WE3B	-9.1	69.4	-1.0	-0.1 ± 0.0	-0.4 ± 1.0	-17.1 ± 8.5	GA00849
QA	N/A	N/A	N/A	0.0 ± 0.0	-0.4 ± 0.7	-11.7 ± 9.2	GA00850
WE4B	12.3	257.7	-1.0	0.0 ± 0.0	-0.3 ± 0.9	-17.9 ± 8.6	GA00851
WE5B	1.6	135.9	-0.7	0.2 ± 0.4	-0.3 ± 0.8	-17.4 ± 8.9	GA00852
WE6B	12.3	-96.7	-0.6	-0.1 ± 0.0	-0.4 ± 1.0	-21.7 ± 8.2	GA00853
WF1A	-9.1	80.5	-0.5	0.0 ± 0.0	-0.2 ± 0.8	-20.4 ± 8.4	GA00854
WF2A	1.6	-85.7	-0.6	0.2 ± 0.4	0.5 ± 1.2	-18.8 ± 8.5	GA00855
WF3A	1.6	324.2	-0.6	0.0 ± 0.0	-0.3 ± 0.8	-16.3 ± 8.5	GA00856
WF4A	1.6	36.2	-0.7	-0.1 ± 0.0	0.0 ± 1.1	-18.4 ± 8.4	GA00857
WF5A	-9.1	-8.1	-0.6	0.0 ± 0.0	0.3 ± 1.0	-17.6 ± 8.4	GA00858
WF1B	-9.1	102.6	-0.7	0.0 ± 0.0	-0.3 ± 0.9	-21.3 ± 8.3	GA00859
WF2B	-9.1	58.3	-0.6	0.0 ± 0.0	-0.3 ± 0.8	-14.2 ± 8.9	GA00860
WF3B	-9.1	91.6	-0.7	-0.1 ± 0.0	0.6 ± 1.3	-10.6 ± 9.5	GA00861
WF4B	-9.1	-19.2	-0.6	0.0 ± 0.0	0.3 ± 1.0	-16.7 ± 8.5	GA00862
WF5B	-9.1	833.7	-0.2	0.0 ± 0.0	-0.7 ± 0.7	-18.0 ± 8.4	GA00863
WG1A	-9.1	191.3	-0.5	0.0 ± 0.0	0.3 ± 1.1	-19.2 ± 8.5	GA00864
WG2A	-9.1	-163.2	-0.5	-0.1 ± 0.0	-0.4 ± 1.0	-19.6 ± 8.7	GA00865
WG3A	-9.1	-41.3	-0.8	0.0 ± 0.0	-0.4 ± 0.7	-17.4 ± 8.9	GA00866
WG4A	-9.1	-96.7	-0.8	0.0 ± 0.0	-0.5 ± 0.8	-21.4 ± 9.5	GA00867
WG5A	-9.1	-118.9	-1.0	0.0 ± 0.0	-0.7 ± 0.6	-18.2 ± 9.3	GA00868
WG6A	-9.1	146.9	-1.4	-0.1 ± 0.0	-0.2 ± 1.1	-12.2 ± 9.6	GA00869
WG1B	-9.1	-130.0	-1.1	0.2 ± 0.4	1.1 ± 1.3	-15.8 ± 8.8	GA00870
WG2B	-9.1	213.4	-0.9	0.7 ± 1.3	-1.9 ± 2.4	-23.4 ± 8.3	GA00871
WG3B	-9.1	69.4	-0.7	3.7 ± 3.6	2.8 ± 3.5	-28.6 ± 10.6	GA00872
WG4B	1.6	25.1	-1.0	-0.5 ± 0.3	-0.2 ± 3.0	-17.1 ± 8.7	GA00873
WG5B	-9.1	102.6	-0.9	1.5 ± 2.1	0.7 ± 2.8	-27.3 ± 12.4	GA00874
WG6B	1.6	91.6	-1.1	0.7 ± 1.3	-0.7 ± 2.9	-28.4 ± 13.3	GA00875
RCNT1	1.6	180.2	-1.2	0.0 ± 0.0	-0.1 ± 2.4	-20.5 ± 9.3	GA00876
RD2	1.6	124.8	-1.0	-0.5 ± 0.3	-1.9 ± 2.3	-20.0 ± 8.6	GA00877
RCNT3	-9.1	124.8	-1.1	0.0 ± 0.1	-1.0 ± 2.0	-21.4 ± 9.2	GA00878
RD4	-9.1	47.3	-1.1	0.0 ± 0.1	-1.3 ± 2.7	-16.2 ± 9.0	GA00879
RD5	-9.1	25.1	-1.1	0.0 ± 0.0	-1.3 ± 1.7	-15.0 ± 9.8	GA00880
RSNK6	-9.1	36.2	-1.4	-0.5 ± 0.3	-0.2 ± 3.0	-14.0 ± 9.2	GA00881
RD7	1.6	47.3	-1.4	0.7 ± 1.5	-0.5 ± 2.3	-25.2 ± 9.5	GA00882
RCNT8	1.6	14.0	-1.5	0.0 ± 0.1	-1.3 ± 2.7	-24.5 ± 9.0	GA00883

Fort Meade, Building 2802 (Room 5)							
Location Code	Monitoring			Wipe Test			Wipe Number
	Alpha	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>)	1.7	149.47	5.00	0.0	0.8	31.4	
(MDA =>)	54	401	-	2.6	2.8	28.2	
RD9	1.6	-218.6	-1.5	0.0 ± 0.0	2.2 ± 3.3	-21.8 ± 9.3	GA00884
RCNT10	-9.1	-440.1	-1.6	0.3 ± 1.6	-1.3 ± 2.5	-17.4 ± 8.9	GA00885
RD11	-9.1	135.9	-1.4	0.0 ± 0.1	0.1 ± 2.5	-27.3 ± 8.7	GA00886

GRAPHICAL ILLUSTRATION



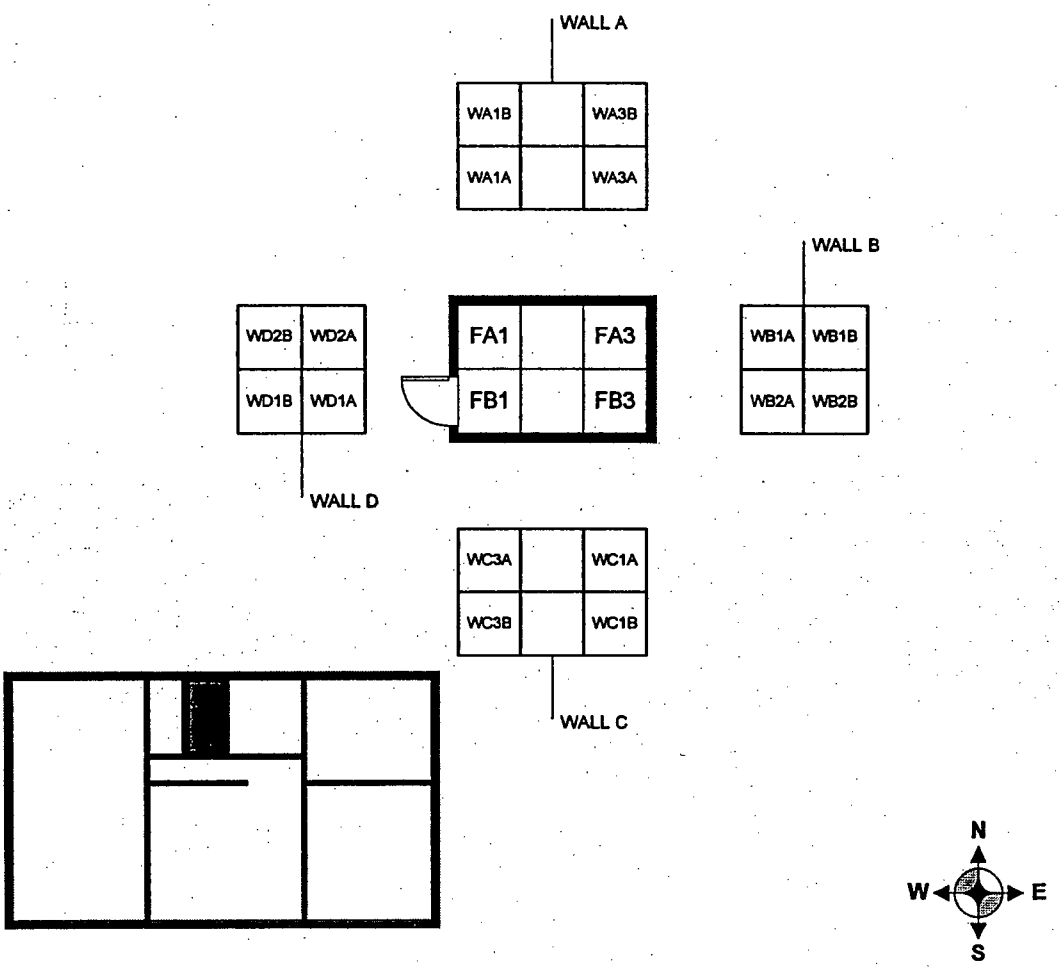




BUILDING T-2802 RESTROOM 1, DENTAL RESEARCH CLINIC, FORT GEORGE G. MEADE, MD	DATE: 9 SEPT 97
	DRAWN: JKD
U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE UNITED STATES ARMY MEDICAL DEPARTMENT	APPROVED: HE
	SCALE: NTS
	PLATE: N/A

Indust Radn Surv No. 27-MH-7237-R-97, Facility Close-out and Termination Survey, Fort Meade, MD, 11 Aug 97-23 Jan 98

GRAPHICAL ILLUSTRATION



BUILDING T-2802 RESTROOM 2, DENTAL RESEARCH CLINIC, FORT GEORGE G. MEADE, MD

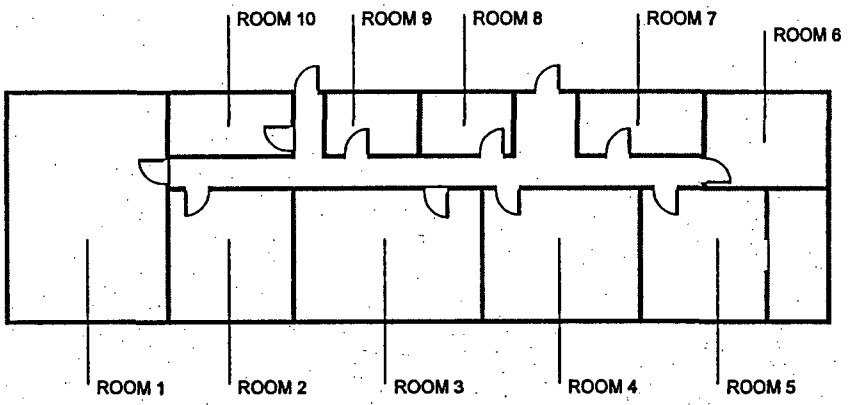
U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE
UNITED STATES ARMY MEDICAL DEPARTMENT

DATE:	9 SEPT 97
DRAWN:	JKD
APPROVED:	HE
SCALE:	NTS
PLATE:	N/A

Fort Meade, Building 2802 (Ladies' Restroom)							
Location Code	Monitoring			Wipe Test			Wipe Number
	Alpha	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>)	1.7	149.47	5.00	0.0	2.4	31.8	
(MDA =>)	54	401	-	2.6	2.8	24.4	
FA1	-9.1	1764.1	-1.0	0.0 ± 0.1	1.1 ± 3.5	-21.7 ± 8.5	GA00887
FA2	-9.1	1697.7	-1.1	0.0 ± 0.0	2.2 ± 3.3	-23.8 ± 8.3	GA00888
FA3	12.3	1498.3	-0.9	0.3 ± 1.6	0.4 ± 3.2	-17.5 ± 8.7	GA00889
FB1	22.9	1321.1	-0.9	0.0 ± 0.1	0.7 ± 2.8	-19.1 ± 8.8	GA00890
FB2	12.3	1465.1	-0.9	0.0 ± 0.1	-3.0 ± 1.8	-23.0 ± 8.4	GA00891
FB3	12.3	1642.3	-0.6	0.0 ± 0.0	-0.7 ± 2.1	-20.9 ± 8.6	GA00892
WA1A	12.3	-8.1	-0.8	-0.5 ± 0.3	0.4 ± 3.2	-19.6 ± 8.7	GA00893
WA2A	-9.1	401.7	-0.7	0.0 ± 0.1	1.8 ± 3.2	-19.6 ± 8.7	GA00894
WA3A	-9.1	-85.7	-0.8	0.0 ± 0.1	-1.9 ± 2.4	-20.4 ± 8.7	GA00895
WA1B	-9.1	102.6	-1.0	0.0 ± 0.0	-0.7 ± 2.1	-17.9 ± 8.7	GA00896
WA2B	-9.1	135.9	-1.3	0.3 ± 1.6	0.9 ± 3.4	-17.9 ± 8.9	GA00897
WA3B	10.1	25.1	-1.0	0.0 ± 0.1	0.7 ± 2.8	-20.0 ± 8.7	GA00898
WB1A	1.6	-85.7	-1.2	0.0 ± 0.1	-0.1 ± 3.1	-20.8 ± 8.4	GA00899
QA	N/A	N/A	N/A	0.0 ± 0.0	-0.7 ± 2.1	-22.9 ± 8.2	GA00900
WB2A	-9.1	246.6	-0.6	-0.5 ± 0.3	-0.2 ± 3.0	-22.1 ± 8.3	GA00901
WB1B	-9.1	58.3	-0.8	0.0 ± 0.1	0.1 ± 2.5	-17.5 ± 8.7	GA00902
WB2B	-9.1	102.6	-0.9	0.0 ± 0.1	-1.3 ± 2.7	-31.1 ± 10.9	GA00903
WC1A	1.6	113.7	-1.1	0.0 ± 0.0	-0.1 ± 2.4	-20.0 ± 8.9	GA00904
WC2A	1.6	1121.7	-1.1	0.3 ± 1.6	-0.8 ± 2.8	-19.2 ± 8.6	GA00905
WC3A	22.9	1132.8	-1.2	0.0 ± 0.1	0.1 ± 2.5	-15.0 ± 8.9	GA00906
WC1B	-9.1	-30.3	-1.0	0.0 ± 0.1	-0.1 ± 3.1	-19.2 ± 8.6	GA00907
WC2B	1.6	135.9	-1.1	0.0 ± 0.0	2.2 ± 3.3	-19.6 ± 8.3	GA00908
WC3B	-9.1	-30.3	-1.2	-0.5 ± 0.3	0.4 ± 3.2	-17.0 ± 9.0	GA00909
WD1A	12.3	-52.4	-1.2	0.0 ± 0.1	1.3 ± 3.0	-16.7 ± 8.6	GA00910
WD2A	22.9	-85.7	-1.0	0.0 ± 0.1	-1.3 ± 2.7	-19.2 ± 8.6	GA00911
WD1B	25.2	3.0	-1.0	0.0 ± 0.0	-0.1 ± 2.4	-20.9 ± 8.9	GA00912
WD2B	-9.1	169.1	-1.2	-0.5 ± 0.3	-1.3 ± 2.5	-18.8 ± 8.6	GA00913
RSNK1	40.3	2871.8	-1.4	0.0 ± 0.1	1.8 ± 3.2	-20.0 ± 8.5	GA00914

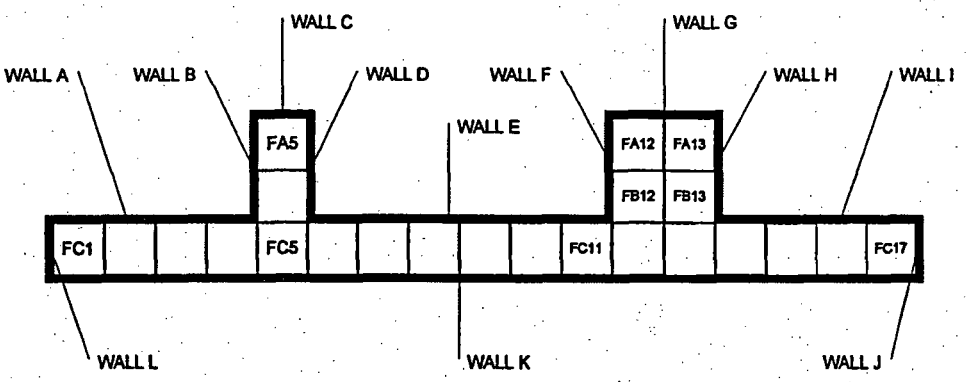
Fort Meade, Building 2802 (Men's Restroom)							
Location Code	Monitoring			Wipe Test			Wipe Number
	Alpha	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>)	1.7	149.47	5.00	0.0	2.4	25.3	
(MDA =>)	54	401	-	2.6	2.8	25.5	
FA1	12.3	1420.8	-1.3	0.0 ± 0.1	-3.0 ± 1.8	-23.9 ± 8.6	GA00915
FA2	1.6	1454.0	-1.0	0.0 ± 0.0	1.7 ± 3.1	-15.2 ± 9.4	GA00916
FA3	1.6	1620.1	-0.9	0.3 ± 1.6	-0.8 ± 2.8	-18.7 ± 9.1	GA00917
FB1	22.9	1465.1	-0.7	0.0 ± 0.1	1.8 ± 3.2	-18.2 ± 9.6	GA00918
FB2	12.3	1321.1	-0.6	0.0 ± 0.1	-1.3 ± 2.7	-22.4 ± 9.7	GA00919
FB3	-9.1	1498.3	-0.5	0.0 ± 0.0	-0.7 ± 2.1	-20.0 ± 8.9	GA00920
WA1A	1.6	1265.7	-0.6	-0.5 ± 0.3	-1.3 ± 2.5	-18.4 ± 8.4	GA00921
WA2A	22.9	1177.1	-0.5	0.0 ± 0.1	-1.0 ± 2.0	-20.8 ± 8.4	GA00922
WA3A	12.3	102.6	-0.3	0.0 ± 0.1	-1.3 ± 2.7	-18.7 ± 8.8	GA00923
WA1B	-9.1	-296.1	-0.5	0.0 ± 0.0	1.1 ± 2.9	-17.9 ± 8.7	GA00924
WA2B	1.6	69.4	-1.0	-0.5 ± 0.3	-1.9 ± 2.3	-22.1 ± 8.5	GA00925
WA3B	-9.1	69.4	-1.0	0.0 ± 0.1	-1.0 ± 2.0	-17.4 ± 9.2	GA00926
WB1A	-9.1	91.6	-0.9	0.0 ± 0.1	-1.3 ± 2.7	-10.6 ± 8.3	GA00927
WB2A	-9.1	58.3	-0.7	0.0 ± 0.0	1.1 ± 2.9	-16.3 ± 7.5	GA00928
WB1B	-9.1	-19.2	-0.6	0.3 ± 1.6	-0.8 ± 2.8	-26.5 ± 11.5	GA00929
WB2B	1.6	36.2	-0.9	0.0 ± 0.1	-1.6 ± 1.7	-11.3 ± 8.4	GA00930
WC1A	-9.1	-63.5	-0.9	0.0 ± 0.1	-1.9 ± 2.4	-13.2 ± 8.0	GA00931
WC2A	-9.1	47.3	-0.8	0.0 ± 0.0	1.7 ± 3.1	-10.0 ± 8.2	GA00932
WC3A	-9.1	235.6	-0.8	-0.5 ± 0.3	-0.8 ± 2.8	-11.7 ± 8.0	GA00933
WC1B	12.3	80.5	-0.9	0.0 ± 0.1	1.8 ± 3.2	-18.2 ± 8.2	GA00934
WC2B	-9.1	213.4	-1.2	0.0 ± 0.1	-1.3 ± 2.7	-13.3 ± 7.8	GA00935
WC3B	-9.1	279.9	-1.2	0.0 ± 0.0	-0.7 ± 2.1	-10.0 ± 8.2	GA00936
WD1A	-9.1	124.8	-1.2	-0.5 ± 0.3	0.4 ± 3.2	-7.1 ± 8.4	GA00937
WD2A	-9.1	158.0	-0.9	0.0 ± 0.1	-1.0 ± 2.0	-13.3 ± 7.8	GA00938
WD1B	1.6	3.0	-1.0	0.0 ± 0.1	-0.1 ± 3.1	-12.9 ± 7.9	GA00939
WD2B	-9.1	14.0	-1.1	0.0 ± 0.0	0.5 ± 2.6	-11.7 ± 8.0	GA00940
RSNK1	1.6	2772.1	-1.2	-0.5 ± 0.3	-0.8 ± 2.8	-9.6 ± 8.2	GA00941

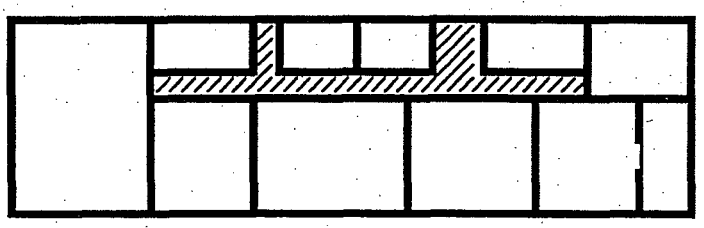
GRAPHICAL ILLUSTRATION



BUILDING T-2805, DENTAL RESEARCH CLINIC, FORT GEORGE G. MEADE, MD	DATE: 12 SEPT 97
	DRAWN: JKD
U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE UNITED STATES ARMY MEDICAL DEPARTMENT	APPROVED: HE
	SCALE: NTS
	PLATE: N/A

GRAPHICAL ILLUSTRATION





BUILDING T-2805 HALLWAY, DENTAL RESEARCH CLINIC,
FORT GEORGE G. MEADE, MD

U.S. ARMY CENTER FOR HEALTH PROMOTION
AND PREVENTIVE MEDICINE
UNITED STATES ARMY MEDICAL DEPARTMENT

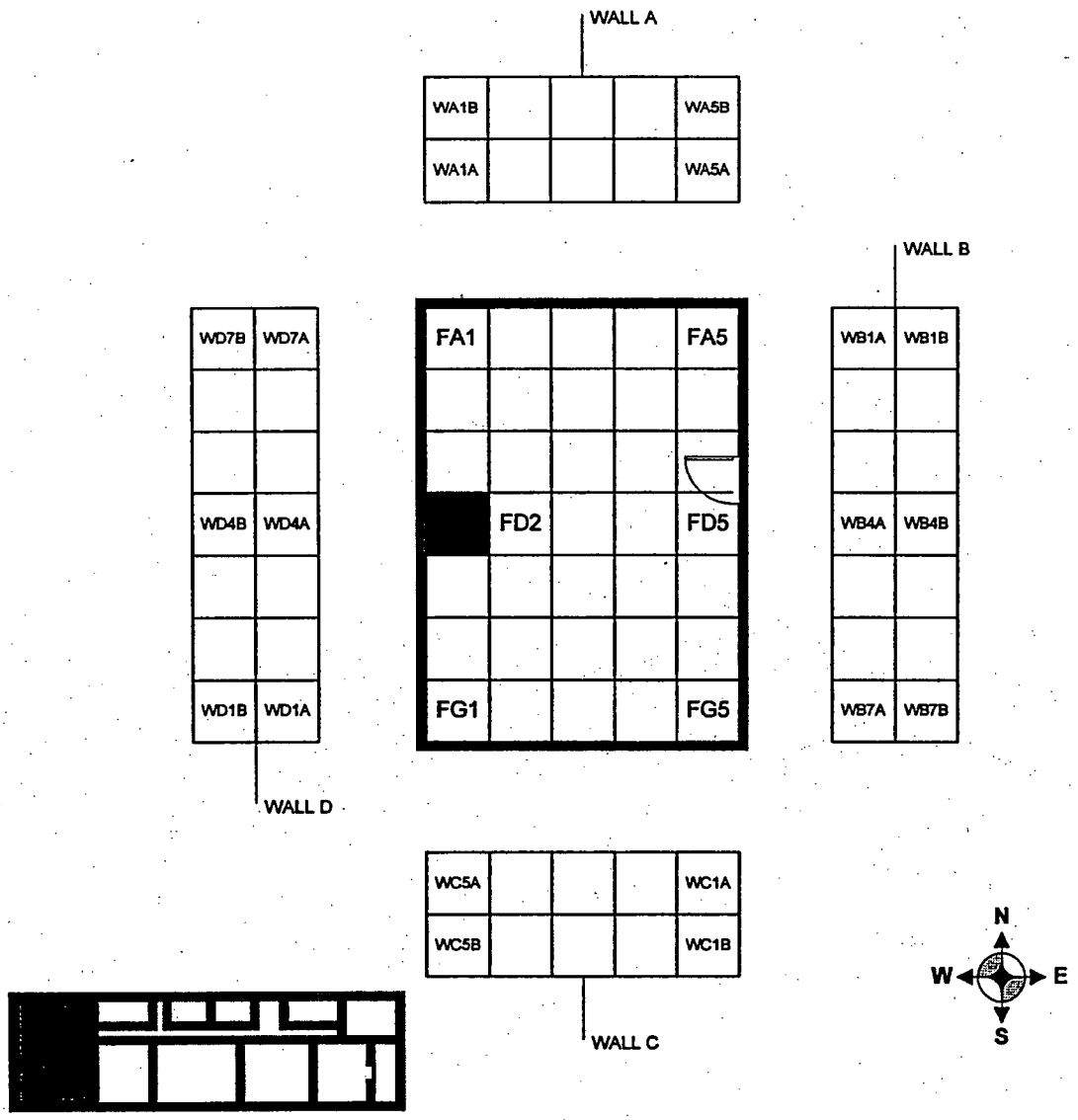
DATE:	9 SEPT 97
DRAWN:	JKD
APPROVED:	HE
SCALE:	NTS
PLATE:	N/A

Fort Meade, Building 2805 (Hallway)							
Location Code	Monitoring			Wipe Test			Wipe Number
	Alpha	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>)	1.7	149.47	5.00	0.0	2.0	29.0	
(MDA =>)	54	401	-	2.1	2.4	60.1	
FA5	-9.1	146.9	-1.3	0.0 ± 0.0	0.7 ± 2.7	3.1 ± 14.9	GA01489
FA12	-9.1	213.4	-1.3	0.0 ± 0.0	-1.5 ± 1.6	-10.8 ± 11.7	GA01490
FA13	10.1	191.3	-1.1	0.0 ± 0.0	0.7 ± 2.7	-12.9 ± 12.6	GA01491
FB5	5.0	302.0	-1.3	0.0 ± 0.0	-1.5 ± 1.6	40.8 ± 21.8	GA01492
FB12	-9.1	14.0	-1.2	0.0 ± 0.0	0.7 ± 2.7	-14.5 ± 12.9	GA01493
FB13	-9.1	202.3	-1.1	0.0 ± 0.0	2.3 ± 3.3	-20.5 ± 10.5	GA01494
FC1	-9.1	124.8	-1.2	0.0 ± 0.0	1.2 ± 2.9	60.0 ± 27.9	GA01495
FC2	-9.1	-30.3	-1.0	0.0 ± 0.0	1.8 ± 3.1	4.1 ± 16.4	GA01496
FC3	-9.1	324.2	-1.0	0.0 ± 0.0	1.8 ± 3.1	34.8 ± 23.0	GA01497
FC4	12.3	169.1	-0.8	1.6 ± 2.2	1.2 ± 2.9	-3.2 ± 14.8	GA01498
FC5	-9.1	180.2	-0.6	0.0 ± 0.0	0.7 ± 2.7	41.0 ± 26.5	GA01499
QA	N/A	N/A	N/A	0.0 ± 0.0	-0.4 ± 2.2	-16.2 ± 8.5	GA01500
FC6	-9.1	135.9	-0.9	0.0 ± 0.0	1.8 ± 3.1	31.9 ± 19.7	GA01501
FC7	12.3	124.8	-0.9	0.0 ± 0.0	2.3 ± 3.3	-20.0 ± 11.6	GA01502
FC8	-9.1	146.9	-0.7	0.8 ± 1.5	0.1 ± 2.5	-13.2 ± 11.2	GA01503
FC9	-9.1	224.5	-0.9	0.0 ± 0.0	1.2 ± 2.9	-17.1 ± 12.3	GA01504
FC10	-9.1	58.3	-1.1	0.0 ± 0.0	0.1 ± 2.5	-12.0 ± 10.6	GA01505
FC11	-9.1	69.4	-1.9	0.0 ± 0.0	0.7 ± 2.7	51.0 ± 27.2	GA01506
FC12	-9.1	113.7	-1.6	0.0 ± 0.0	-1.5 ± 1.6	-5.3 ± 15.1	GA01507
FC13	33.6	69.4	-1.7	0.0 ± 0.0	-0.4 ± 2.2	-16.7 ± 11.5	GA01508
FC14	-9.1	135.9	-1.8	0.0 ± 0.0	-1.5 ± 1.6	-13.7 ± 11.1	GA01509
FC15	1.6	3.0	-1.8	0.0 ± 0.0	-1.0 ± 1.9	-1.4 ± 16.0	GA01510
FC16	-9.1	135.9	-1.8	0.0 ± 0.0	0.7 ± 2.7	7.3 ± 21.8	GA01511
FC17	-9.1	25.1	-1.9	0.0 ± 0.0	0.1 ± 2.5	214.3 ± 47.8	GA01512
WA1A	1.6	3.0	-0.9	0.0 ± 0.0	2.9 ± 3.4	-16.6 ± 8.5	GA01513
WA2A	1.6	113.7	-1.0	0.0 ± 0.0	-0.4 ± 2.2	-12.9 ± 8.6	GA01514
WA3A	1.6	180.2	-1.0	0.0 ± 0.0	-1.0 ± 1.9	-16.6 ± 8.5	GA01515
WA4A	-9.1	91.6	-1.1	0.0 ± 0.0	0.1 ± 2.5	-15.7 ± 8.5	GA01516
WA1B	12.3	-130.0	-1.0	0.0 ± 0.0	0.1 ± 2.5	-20.0 ± 8.6	GA01517
WA2B	-9.1	-52.4	-1.0	0.8 ± 1.5	-1.0 ± 1.9	-22.6 ± 7.9	GA01518
WA3B	-9.1	69.4	-1.1	0.8 ± 1.5	1.8 ± 3.1	-17.0 ± 8.4	GA01519
WA4B	12.3	169.1	-0.9	0.0 ± 0.0	1.2 ± 2.9	-12.3 ± 8.9	GA01520
WB1A	1.6	-85.7	-0.8	0.8 ± 1.5	-1.5 ± 1.6	-19.6 ± 8.2	GA01521
WB2A	-9.1	224.5	-0.9	0.8 ± 1.5	0.7 ± 2.7	-18.3 ± 8.1	GA01522
WB1B	-9.1	3.0	-1.1	0.0 ± 0.0	0.1 ± 2.5	-13.2 ± 8.8	GA01523
WB2B	-9.1	490.3	-1.0	0.0 ± 0.0	1.2 ± 2.9	-22.3 ± 8.6	GA01524
WC1A	-9.1	-8.1	-1.3	0.0 ± 0.0	0.7 ± 2.7	-20.9 ± 8.0	GA01525
WC1B	-9.1	36.2	-1.1	0.0 ± 0.0	0.7 ± 2.7	-15.7 ± 8.5	GA01526
WD1A	22.9	235.6	-1.4	0.0 ± 0.0	1.8 ± 3.1	-18.3 ± 8.3	GA01527
WD2A	1.6	69.4	-1.4	0.0 ± 0.0	1.8 ± 3.1	-16.3 ± 8.3	GA01528
WD1B	-9.1	36.2	-1.3	0.0 ± 0.0	-1.0 ± 1.9	-16.2 ± 8.5	GA01529
WD2B	12.3	14.0	-1.3	0.0 ± 0.0	1.2 ± 2.9	-15.7 ± 8.5	GA01530
WE1A	1.6	-52.4	-1.5	0.0 ± 0.0	1.2 ± 2.9	-16.1 ± 8.7	GA01531
WE2A	12.3	113.7	-1.5	0.4 ± 1.1	0.4 ± 2.1	-17.9 ± 8.3	GA01532
WE3A	-9.1	180.2	-1.3	-0.2 ± 0.1	-0.1 ± 1.9	-19.2 ± 8.4	GA01533
WE4A	1.6	113.7	-1.5	0.4 ± 1.1	-0.1 ± 1.9	-20.0 ± 8.3	GA01534
WE5A	12.3	-19.2	-1.6	-0.2 ± 0.1	1.6 ± 2.5	-16.3 ± 8.7	GA01535
WE6A	1.6	14.0	-1.8	0.4 ± 1.1	-0.5 ± 1.7	-15.8 ± 8.7	GA01536
WE1B	33.6	-152.1	-1.5	-0.2 ± 0.1	1.2 ± 2.4	-19.6 ± 8.4	GA01537
WE2B	-9.1	14.0	-1.6	-0.2 ± 0.1	0.4 ± 2.1	-18.0 ± 8.3	GA01538

Fort Meade, Building 2805 (Hallway)							
Location Code	Monitoring			Wipe Test			Wipe Number
	Alpha	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>)	1.7	149.47	5.00	0.0	2.0	29.0	
(MDA =>)	54	401	-	2.1	2.4	60.1	
WE3B	12.3	36.2	-1.5	-0.2 ± 0.1	0.4 ± 2.1	-20.8 ± 8.2	GA01539
WE4B	-9.1	47.3	-1.5	-0.2 ± 0.1	2.0 ± 2.6	-18.8 ± 8.4	GA01540
WE5B	-9.1	-30.3	-1.5	1.6 ± 2.0	2.0 ± 2.6	-21.3 ± 8.2	GA01541
WE6B	1.6	-130.0	-1.7	1.0 ± 1.6	1.2 ± 2.4	-18.3 ± 8.5	GA01542
WF1A	33.6	124.8	-1.5	1.0 ± 1.6	0.8 ± 2.2	-19.2 ± 8.4	GA01543
WF2A	-9.1	191.3	-1.4	-0.2 ± 0.1	-1.3 ± 1.2	-19.6 ± 8.4	GA01544
WF1B	-9.1	47.3	-1.3	-0.2 ± 0.1	1.6 ± 2.5	-12.5 ± 9.0	GA01545
WF2B	-9.1	-8.1	-1.2	-0.2 ± 0.1	0.4 ± 2.1	-17.5 ± 8.6	GA01546
WG1A	1.6	58.3	-1.2	0.4 ± 1.1	1.2 ± 2.4	-17.9 ± 8.5	GA01547
WG2A	-9.1	-41.3	-1.2	-0.2 ± 0.1	1.6 ± 2.5	-17.5 ± 8.6	GA01548
WG1B	12.3	279.9	-1.1	-0.2 ± 0.1	0.4 ± 2.1	-13.3 ± 8.9	GA01549
QA	N/A	N/A	N/A	-0.2 ± 0.1	2.5 ± 2.8	-22.5 ± 8.1	GA01550
WG2B	1.6	-141.0	-1.5	-0.2 ± 0.1	-0.1 ± 1.9	-18.0 ± 8.3	GA01551
WH1A	1.6	213.4	-1.6	1.6 ± 2.0	1.2 ± 2.4	-13.5 ± 8.7	GA01552
WH2A	1.6	169.1	-1.6	0.4 ± 1.1	0.8 ± 2.2	-18.8 ± 8.2	GA01553
WH1B	-9.1	135.9	-1.5	-0.2 ± 0.1	-0.1 ± 1.9	-17.6 ± 8.4	GA01554
WH2B	1.6	257.7	-1.4	-0.2 ± 0.1	-0.5 ± 1.7	-20.4 ± 8.1	GA01555
WI1A	12.3	-130.0	-1.5	-0.2 ± 0.1	-0.5 ± 1.7	-18.0 ± 8.3	GA01556
WI2A	1.6	58.3	-1.7	0.4 ± 1.1	-0.9 ± 1.5	-18.8 ± 8.4	GA01557
WI3A	-9.1	335.3	-1.8	1.6 ± 2.0	0.4 ± 2.1	-18.0 ± 8.3	GA01558
WI4A	-9.1	235.6	-2.0	-0.2 ± 0.1	0.4 ± 2.1	-17.9 ± 8.5	GA01559
WI1B	-9.1	191.3	-1.8	-0.2 ± 0.1	0.8 ± 2.2	-15.9 ± 8.5	GA01560
WI2B	-9.1	180.2	-2.0	-0.2 ± 0.1	-1.3 ± 1.2	-13.1 ± 8.8	GA01561
WI3B	1.6	-52.4	-1.8	-0.2 ± 0.1	1.2 ± 2.4	-18.8 ± 8.2	GA01562
WI4B	-9.1	-8.1	-1.9	-0.2 ± 0.1	0.4 ± 2.1	-18.8 ± 8.2	GA01563
WJ1A	-9.1	-163.2	-2.1	-0.2 ± 0.1	0.4 ± 2.1	-16.3 ± 8.5	GA01564
WJ1B	12.3	102.6	-2.1	-0.2 ± 0.1	-0.1 ± 1.9	-20.4 ± 8.3	GA01565
WK1A	-9.1	1310.0	-2.1	-0.2 ± 0.1	1.2 ± 2.4	-16.7 ± 8.6	GA01566
WK2A	-9.1	-85.7	-1.8	-0.2 ± 0.1	1.6 ± 2.5	-14.6 ± 8.8	GA01567
WK3A	22.9	-19.2	-2.0	-0.2 ± 0.1	1.2 ± 2.4	-17.6 ± 8.4	GA01568
WK4A	1.6	-41.3	-2.0	0.3 ± 1.1	0.1 ± 1.9	-17.9 ± 8.5	GA01569
WK5A	-9.1	202.3	-1.8	-0.3 ± 0.2	0.1 ± 1.9	-19.1 ± 8.6	GA01570
WK6A	33.6	-118.9	-1.8	-0.3 ± 0.2	0.5 ± 2.1	-20.4 ± 8.1	GA01571
WK7A	1.6	169.1	-1.6	1.4 ± 2.0	0.5 ± 2.1	-20.4 ± 8.1	GA01572
WK8A	12.3	3.0	-1.9	-0.3 ± 0.2	0.5 ± 2.1	-13.9 ± 8.7	GA01573
WK9A	-9.1	-118.9	-1.8	-0.3 ± 0.2	-0.7 ± 1.5	-13.5 ± 8.7	GA01574
WK10A	-9.1	25.1	-1.9	-0.3 ± 0.2	0.5 ± 2.1	-17.9 ± 8.5	GA01575
WK11A	-9.1	146.9	-1.8	-0.3 ± 0.2	2.2 ± 2.6	-15.4 ± 8.8	GA01576
WK12A	1.6	-8.1	-1.7	-0.3 ± 0.2	2.2 ± 2.6	-16.7 ± 8.4	GA01577
WK13A	1.6	14.0	-1.6	0.9 ± 1.6	2.2 ± 2.6	-17.9 ± 8.5	GA01578
WK14A	1.6	124.8	-1.6	-0.3 ± 0.2	0.1 ± 1.9	-17.1 ± 8.6	GA01579
WK15A	-9.1	202.3	-1.5	0.3 ± 1.1	0.5 ± 2.1	-13.8 ± 8.9	GA01580
WK16A	-9.1	102.6	-1.2	0.3 ± 1.1	-0.7 ± 1.5	-17.9 ± 8.5	GA01581
WK17A	-9.1	-74.6	-1.2	-0.3 ± 0.2	0.5 ± 2.1	-15.8 ± 8.7	GA01582
WK1B	-9.1	-174.3	-1.6	-0.3 ± 0.2	1.8 ± 2.5	-10.8 ± 9.2	GA01583
WK2B	-9.1	-52.4	-1.6	0.3 ± 1.1	1.4 ± 2.4	-21.4 ± 9.7	GA01584
WK3B	-9.1	47.3	-1.7	-0.3 ± 0.2	0.9 ± 2.2	-16.7 ± 8.4	GA01585
WK4B	12.3	124.8	-1.7	-0.3 ± 0.2	1.4 ± 2.4	-19.6 ± 8.4	GA01586
WK5B	12.3	324.2	-1.5	0.3 ± 1.1	0.5 ± 2.1	-15.1 ± 8.6	GA01587
WK6B	-9.1	91.6	-1.5	0.9 ± 1.6	0.5 ± 2.1	-11.7 ± 9.1	GA01588

Fort Meade, Building 2805 (Hallway)							
Location Code	Monitoring			Wipe Test			Wipe Number
	Alpha	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>)	1.7	149.47	5.00	0.0	2.0	29.0	
(MDA =>)	54	401	-	2.1	2.4	60.1	
WK7B	1.6	-141.0	-1.6	0.3 ± 1.1	0.9 ± 2.2	-22.4 ± 7.9	GA01589
WK8B	-9.1	180.2	-1.8	-0.3 ± 0.2	0.5 ± 2.1	-12.7 ± 8.8	GA01590
WK9B	22.9	-85.7	-1.7	-0.3 ± 0.2	0.1 ± 1.9	-20.4 ± 8.1	GA01591
WK10B	12.3	58.3	-1.6	0.3 ± 1.1	-0.3 ± 1.7	-15.1 ± 8.6	GA01592
WK11B	-9.1	113.7	-1.6	0.3 ± 1.1	0.1 ± 1.9	-15.9 ± 8.5	GA01593
WK12B	1.6	3.0	-1.6	-0.3 ± 0.2	2.2 ± 2.6	-16.7 ± 8.4	GA01594
WK13B	1.6	124.8	-1.3	0.9 ± 1.6	1.4 ± 2.4	-15.0 ± 8.8	GA01595
WK14B	-9.1	213.4	-1.1	-0.3 ± 0.2	0.1 ± 1.9	-14.3 ± 8.7	GA01596
WK15B	12.3	135.9	-1.0	-0.3 ± 0.2	0.1 ± 1.9	-21.7 ± 8.2	GA01597
WK16B	1.6	58.3	-1.3	-0.3 ± 0.2	0.5 ± 2.1	-18.3 ± 8.5	GA01598
WK17B	12.3	-185.4	-1.4	0.3 ± 1.1	1.8 ± 2.5	-14.3 ± 8.7	GA01599
QA	N/A	N/A	N/A	-0.3 ± 0.2	0.1 ± 1.9	-16.3 ± 8.7	GA01600
WL1A	-9.1	-130.0	-1.3	0.3 ± 1.1	-0.7 ± 1.5	-15.9 ± 8.5	GA01601
WL1B	1.6	36.2	-1.2	-0.3 ± 0.2	-1.2 ± 1.2	-22.9 ± 8.8	GA01602

GRAPHICAL ILLUSTRATION



BUILDING T-2805 ROOM 1, DENTAL RESEARCH CLINIC,
FORT GEORGE G. MEADE, MD

U.S. ARMY CENTER FOR HEALTH PROMOTION
AND PREVENTIVE MEDICINE
UNITED STATES ARMY MEDICAL DEPARTMENT

DATE:	9 SEPT 97
DRAWN:	JKD
APPROVED:	HE
SCALE:	NTS
PLATE:	N/A

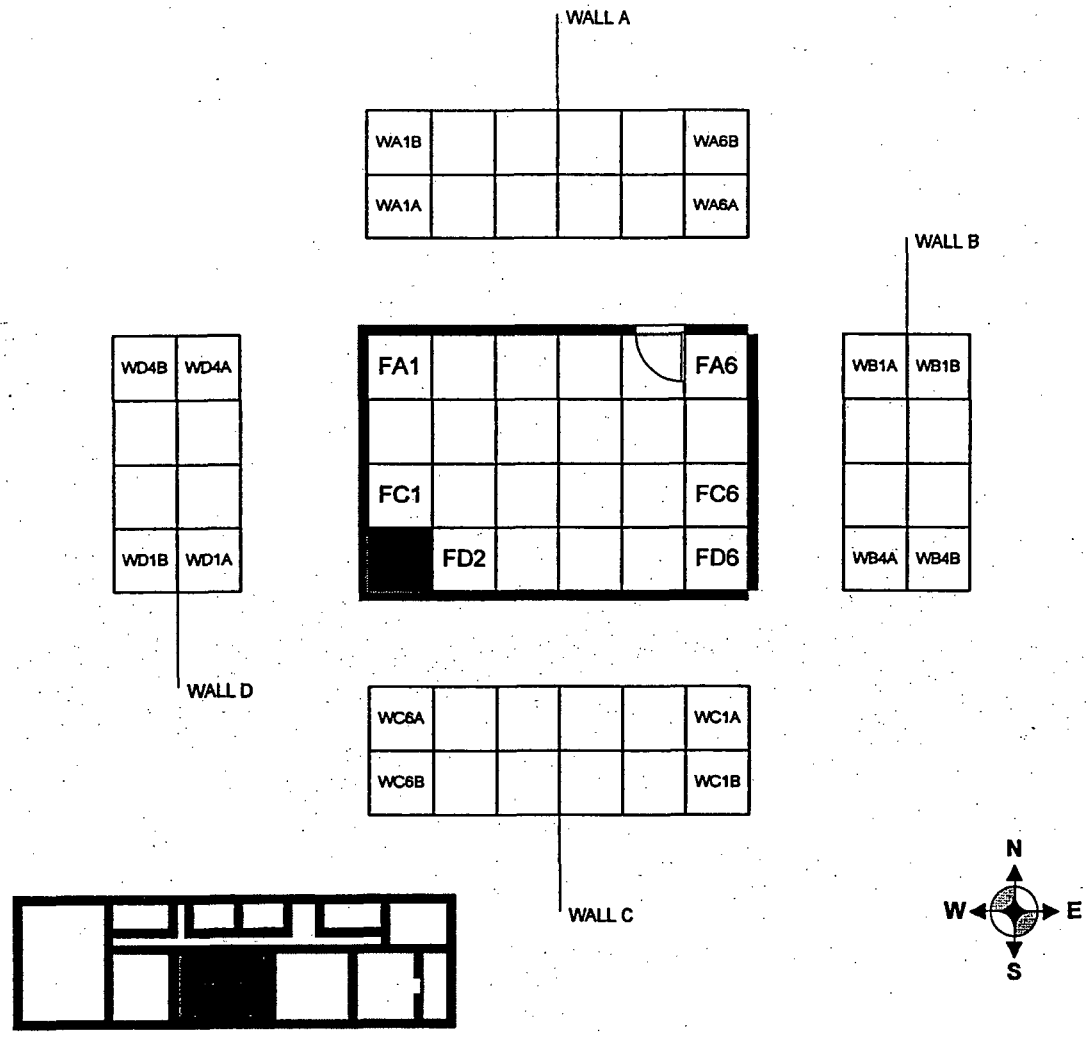
Fort Meade, Building 2805 (Room 1)							
Location Code	Monitoring			Wipe Test			Wipe Number
	Alpha	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>)	1.7	149.47	5.00	0.0	2.3	25.3	
(MDA =>)	54	401	-	2.6	2.8	33.5	
FA1	-9.1	257.7	-0.9	0.0 ± 0.1	-0.5 ± 2.3	-10.6 ± 8.3	GA00942
FA2	-9.1	36.2	-0.9	0.0 ± 0.1	-1.3 ± 2.7	-15.3 ± 7.8	GA00943
FA3	-9.1	69.4	-0.8	0.0 ± 0.0	2.2 ± 3.3	-11.5 ± 8.2	GA00944
FA4	-9.1	113.7	-0.9	-0.5 ± 0.3	2.0 ± 3.7	-16.4 ± 8.1	GA00945
FA5	-9.1	58.3	-0.8	0.0 ± 0.1	1.8 ± 3.2	-8.7 ± 8.7	GA00946
FB1	-9.1	191.3	-0.6	0.0 ± 0.1	-0.7 ± 2.9	-15.9 ± 8.4	GA00947
FB2	1.6	291.0	-0.9	0.0 ± 0.0	1.7 ± 3.1	-12.6 ± 8.3	GA00948
FB3	-9.1	224.5	-0.9	-0.5 ± 0.3	-3.0 ± 1.7	-11.4 ± 8.9	GA00949
QA	N/A	N/A	N/A	0.0 ± 0.1	-0.5 ± 2.3	-11.8 ± 7.8	GA00950
FB4	-9.1	191.3	-0.8	0.0 ± 0.1	-1.9 ± 2.4	-8.7 ± 8.7	GA00951
FB5	-9.1	135.9	-0.4	0.0 ± 0.0	0.5 ± 2.6	-14.8 ± 8.1	GA00952
FC1	-9.1	390.6	-0.6	0.3 ± 1.6	-1.9 ± 2.3	-12.3 ± 8.8	GA00953
FC2	22.9	246.6	-0.6	0.0 ± 0.1	0.7 ± 2.8	-16.6 ± 9.1	GA00954
FC3	-9.1	246.6	-0.6	0.0 ± 0.1	-1.9 ± 2.4	-13.5 ± 8.9	GA00955
FC4	-9.1	69.4	-0.5	0.0 ± 0.0	0.5 ± 2.6	-14.4 ± 8.8	GA00956
FC5	-9.1	246.6	-0.6	-0.5 ± 0.3	-1.3 ± 2.5	-13.6 ± 8.6	GA00957
FD2	-9.1	146.9	-0.8	0.0 ± 0.1	-0.5 ± 2.3	-11.4 ± 8.9	GA00958
FD3	-9.1	235.6	-0.9	0.0 ± 0.1	-1.3 ± 2.7	-14.9 ± 8.7	GA00959
FD4	1.6	213.4	-0.7	0.0 ± 0.0	-0.1 ± 2.4	-17.6 ± 8.7	GA00960
FD5	1.6	224.5	-0.6	0.3 ± 1.6	-0.8 ± 2.8	-14.0 ± 8.8	GA00961
FE1	22.9	135.9	-0.8	0.7 ± 1.5	-0.5 ± 2.3	-21.6 ± 9.7	GA00962
FE2	-9.1	401.7	-0.7	0.7 ± 1.3	-1.9 ± 2.4	-18.6 ± 8.4	GA00963
FE3	-9.1	368.5	-0.7	0.9 ± 1.8	0.5 ± 2.6	-17.8 ± 10.4	GA00964
FE4	12.3	268.8	-0.7	-0.5 ± 0.3	-0.2 ± 3.0	-16.3 ± 8.6	GA00965
FE5	-9.1	36.2	-0.8	0.0 ± 0.1	0.1 ± 2.5	-12.3 ± 8.8	GA00966
FF1	1.6	224.5	-0.5	0.0 ± 0.1	-1.3 ± 2.7	-23.8 ± 14.5	GA00967
FF2	-9.1	401.7	-0.6	0.0 ± 0.0	0.5 ± 2.6	-21.2 ± 10.8	GA00968
FF3	1.6	302.0	-0.7	0.3 ± 1.6	0.4 ± 3.2	-14.8 ± 9.0	GA00969
FF4	-9.1	434.9	-0.6	0.0 ± 0.1	-1.6 ± 1.7	-18.1 ± 8.4	GA00970
FF5	1.6	213.4	-0.6	0.0 ± 0.1	-3.0 ± 1.8	-15.8 ± 8.6	GA00971
FG1	-9.1	291.0	-0.4	0.0 ± 0.0	2.2 ± 3.3	-31.1 ± 11.0	GA00972
FG2	-9.1	69.4	-0.3	-0.5 ± 0.3	-0.2 ± 3.0	-33.1 ± 12.6	GA00973
FG3	-9.1	313.1	-0.5	0.0 ± 0.1	2.4 ± 3.4	-23.3 ± 9.5	GA00974
FG4	-9.1	135.9	-0.5	0.0 ± 0.1	-1.3 ± 2.7	-22.8 ± 9.5	GA00975
FG5	-9.1	346.3	-0.6	0.0 ± 0.0	2.2 ± 3.3	-23.7 ± 9.4	GA00976
WA1A	-9.1	368.5	-0.8	0.3 ± 1.6	-1.3 ± 2.5	-22.6 ± 8.5	GA00977
WA2A	1.6	-96.7	-0.6	0.7 ± 1.5	-1.6 ± 1.7	-17.9 ± 8.8	GA00978
WA3A	12.3	80.5	-0.7	0.0 ± 0.1	-0.1 ± 3.1	-22.5 ± 8.3	GA00979
WA4A	1.6	113.7	-0.6	0.0 ± 0.0	-0.1 ± 2.4	-17.4 ± 9.0	GA00980
WA5A	1.6	235.6	-0.7	-0.5 ± 0.3	0.9 ± 3.4	-21.7 ± 8.6	GA00981
WA1B	12.3	25.1	-0.8	0.0 ± 0.1	1.3 ± 3.0	-8.6 ± 9.4	GA00982
WA2B	-9.1	58.3	-0.9	0.0 ± 0.1	-0.1 ± 3.1	-16.7 ± 8.9	GA00983
WA3B	1.6	102.6	-1.1	0.9 ± 1.8	1.7 ± 3.1	-20.4 ± 8.5	GA00984
WA4B	1.6	80.5	-1.1	-0.5 ± 0.3	0.9 ± 3.4	-23.8 ± 8.2	GA00985
WA5B	1.6	113.7	-1.0	0.0 ± 0.1	-1.6 ± 1.7	-22.0 ± 8.2	GA00986
WB1A	1.6	25.1	-1.0	0.0 ± 0.1	-1.3 ± 2.7	-22.1 ± 8.6	GA00987
WB2A	1.6	69.4	-1.0	0.0 ± 0.0	-1.9 ± 1.3	-16.3 ± 8.9	GA00988
WB3A	33.6	47.3	-0.9	0.3 ± 1.6	-0.8 ± 2.8	-20.4 ± 8.5	GA00989
WB4A	-9.1	135.9	-0.7	0.0 ± 0.1	-1.0 ± 2.0	-19.2 ± 8.6	GA00990
WB5A	12.3	235.6	-0.9	0.0 ± 0.1	-0.7 ± 2.9	-16.6 ± 9.1	GA00991

Fort Meade, Building 2805 (Room 1)							
Location Code	Monitoring			Wipe Test			Wipe Number
	Alpha	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>)	1.7	149.47	5.00	0.0	2.3	25.3	
(MDA =>)	54	401	-	2.6	2.8	33.5	
WB6A	-9.1	36.2	-1.1	0.0 ± 0.0	-0.7 ± 2.1	-22.5 ± 8.3	GA00992
WB7A	12.3	-74.6	-1.0	0.3 ± 1.6	-2.4 ± 2.0	-20.0 ± 8.6	GA00993
WB1B	1.6	235.6	-1.1	0.0 ± 0.1	0.7 ± 2.8	-22.4 ± 8.1	GA00994
WB2B	1.6	3.0	-0.9	0.7 ± 1.3	-1.9 ± 2.4	-14.3 ± 8.9	GA00995
WB3B	1.6	80.5	-0.9	0.0 ± 0.0	-0.1 ± 2.4	-20.8 ± 8.3	GA00996
WB4B	-9.1	-74.6	-1.3	-0.5 ± 0.3	-1.9 ± 2.3	-14.2 ± 9.1	GA00997
WB5B	-9.1	-107.8	-1.2	0.0 ± 0.1	-1.6 ± 1.7	-17.5 ± 8.8	GA00998
WB6B	-9.1	-74.6	-1.0	0.0 ± 0.1	-0.7 ± 2.9	-24.4 ± 8.8	GA00999
QA	N/A	N/A	N/A	0.9 ± 1.8	1.7 ± 3.1	-13.3 ± 9.2	GA01000
WB7B	1.6	-74.6	-1.4	0.3 ± 1.6	-0.2 ± 3.0	-24.5 ± 9.1	GA01001
WC1A	-9.1	-85.7	-0.6	0.0 ± 0.1	-0.5 ± 2.3	-23.8 ± 8.2	GA01002
WC2A	-9.1	279.9	-0.6	0.0 ± 0.1	-0.7 ± 2.9	-20.8 ± 8.5	GA01003
WC3A	-9.1	36.2	-0.4	0.0 ± 0.0	0.5 ± 2.6	-23.2 ± 9.2	GA01004
WC4A	12.3	335.3	-0.4	-0.5 ± 0.3	-0.2 ± 3.0	-19.1 ± 9.3	GA01005
WC5A	1.6	169.1	-0.4	0.0 ± 0.1	-0.5 ± 2.3	-14.5 ± 9.3	GA01006
WC1B	-9.1	113.7	-0.5	0.0 ± 0.1	1.1 ± 3.5	-22.3 ± 9.6	GA01007
WC2B	-9.1	135.9	-0.5	0.0 ± 0.0	1.1 ± 2.9	-20.8 ± 8.5	GA01008
WC3B	-9.1	291.0	-0.3	-0.5 ± 0.3	-0.2 ± 3.0	-24.4 ± 9.9	GA01009
WC4B	1.6	180.2	-0.2	0.0 ± 0.1	0.1 ± 2.5	-22.6 ± 8.8	GA01010
WC5B	22.9	335.3	-0.1	0.0 ± 0.1	-0.7 ± 2.9	-20.4 ± 8.7	GA01011
WD1A	12.3	91.6	0.1	0.0 ± 0.0	0.5 ± 2.6	-18.4 ± 8.5	GA01012
WD2A	12.3	268.8	0.0	-0.5 ± 0.3	-1.3 ± 2.5	-16.5 ± 9.3	GA01013
WD3A	12.3	47.3	-0.5	0.0 ± 0.1	0.7 ± 2.8	-28.1 ± 8.0	GA01014
WD4A	1.6	146.9	-0.8	0.0 ± 0.1	-1.3 ± 2.7	-18.3 ± 8.9	GA01015
WD5A	-9.1	91.6	-0.8	0.0 ± 0.0	-0.7 ± 2.1	-20.0 ± 8.8	GA01016
WD6A	-9.1	313.1	-0.6	-0.5 ± 0.3	-3.0 ± 1.7	-22.9 ± 8.6	GA01017
WD7A	10.1	-152.1	-0.7	0.0 ± 0.1	-2.2 ± 1.2	-23.8 ± 8.7	GA01018
WD1B	-9.1	-41.3	-0.3	0.0 ± 0.1	-1.9 ± 2.4	-22.2 ± 9.1	GA01019
WD2B	-9.1	335.3	-0.2	0.9 ± 1.8	1.7 ± 3.1	-22.5 ± 8.6	GA01020
WD3B	-9.1	202.3	-0.1	-0.5 ± 0.3	1.5 ± 3.5	-22.2 ± 9.4	GA01021
WD4B	-9.1	-130.0	-0.2	0.0 ± 0.1	-2.7 ± 0.5	-21.7 ± 8.7	GA01022
WD5B	-9.1	36.2	-0.4	0.0 ± 0.1	-0.7 ± 2.9	-22.1 ± 8.7	GA01023
WD6B	-9.1	279.9	-0.5	0.0 ± 0.0	0.5 ± 2.6	-23.9 ± 10.3	GA01024
WD7B	1.6	14.0	-0.7	-0.5 ± 0.3	-0.8 ± 2.8	-19.2 ± 8.9	GA01025
RSINK1	12.3	25.1	-0.5	0.0 ± 0.1	2.4 ± 3.4	-20.0 ± 9.3	GA01026
RCNT2	-9.1	235.6	-0.8	0.0 ± 0.1	-2.4 ± 2.1	-21.8 ± 9.4	GA01027
RD3	-9.1	124.8	-0.8	0.9 ± 1.8	3.4 ± 3.7	-20.9 ± 9.5	GA01028
RD4	-9.1	80.5	-0.9	0.3 ± 1.6	-0.8 ± 2.8	-21.7 ± 9.2	GA01029
RCNT5	1.6	25.1	-1.0	0.0 ± 0.1	1.3 ± 3.0	-21.7 ± 8.9	GA01030
RD6	-9.1	213.4	-1.1	0.0 ± 0.0	0.1 ± 2.5	-22.2 ± 9.1	GA01031
RCNT7	-9.1	235.6	-1.0	0.0 ± 0.0	2.3 ± 3.3	-22.1 ± 8.9	GA01032
RD8	-9.1	36.2	-0.9	0.8 ± 1.5	37.3 ± 9.2	-22.6 ± 9.1	GA01033
RD9	-9.1	169.1	-1.2	0.0 ± 0.0	-1.5 ± 1.6	-23.0 ± 9.1	GA01034
RNCT10	-9.1	180.2	-1.1	0.0 ± 0.0	-1.0 ± 1.9	-24.3 ± 8.9	GA01035
RD11	-9.1	224.5	-1.1	0.8 ± 1.5	-0.4 ± 2.2	-20.4 ± 9.1	GA01036
RCNT12	12.3	180.2	-1.3	0.8 ± 1.5	2.9 ± 3.4	-19.6 ± 9.4	GA01037
RSINK13	-9.1	313.1	-1.2	1.6 ± 2.2	-1.0 ± 1.9	-26.7 ± 9.8	GA01038
RD14	12.3	124.8	-0.9	0.0 ± 0.0	0.1 ± 2.5	-25.5 ± 9.3	GA01039
RCNT15	1.6	291.0	-1.1	0.0 ± 0.0	0.1 ± 2.5	-24.0 ± 9.2	GA01040
RD16	-9.1	36.2	-1.1	0.0 ± 0.0	2.9 ± 3.4	-23.4 ± 8.8	GA01041

Fort Meade, Building 2805 (Room 1)							
Location Code	Monitoring			Wipe Test			Wipe Number
	Alpha	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>)	1.7	149.47	5.00	0.0	2.3	25.3	
(MDA =>)	54	401	-	2.6	2.8	33.5	
RD17	12.3	279.9	-1.1	0.0 ± 0.0	3.4 ± 3.6	-23.0 ± 9.1	GA01042
RVENT18	1.6	390.6	-0.8	1.6 ± 2.2	4.5 ± 3.9	-45.2 ± 14.9	GA01043

Fort Meade, Building 2805 (Room 3)							
Location Code	Monitoring			Wipe Test			Wipe Number
	Alpha	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>)	1.7	149.47	5.00	0.2	2.2	24.3	
(MDA =>)	54	401	-	1.8	1.8	26.2	
FA1	1.6	58.3	1.3	-0.2 ± 0.1	-0.1 ± 1.9	-25.1 ± 9.9	GA01093
FA2	12.3	423.9	1.1	-0.2 ± 0.1	-0.5 ± 1.7	-15.1 ± 8.6	GA01094
FA3	-9.1	401.7	1.0	-0.2 ± 0.1	1.2 ± 2.4	-14.6 ± 8.3	GA01095
FA4	1.6	313.1	0.9	-0.2 ± 0.1	-0.5 ± 1.7	-15.8 ± 8.0	GA01096
FA5	-9.1	246.6	0.7	-0.2 ± 0.1	-0.1 ± 1.9	-20.3 ± 8.0	GA01097
FA6	-9.1	191.3	0.5	-0.2 ± 0.1	-0.1 ± 1.9	-18.9 ± 8.9	GA01098
FB1	-9.1	335.3	0.5	0.4 ± 1.1	0.4 ± 2.1	-16.9 ± 8.5	GA01099
QA	N/A	N/A	N/A	0.4 ± 1.1	-1.3 ± 1.2	-14.3 ± 7.7	GA01100
FB2	-9.1	268.8	0.5	1.0 ± 1.6	-0.1 ± 1.9	-18.1 ± 8.8	GA01101
FB3	-9.1	279.9	0.7	-0.2 ± 0.1	-0.5 ± 1.7	-18.5 ± 8.0	GA01102
FB4	1.6	36.2	0.8	-0.2 ± 0.1	1.6 ± 2.5	-17.1 ± 8.4	GA01103
FB5	1.6	335.3	0.7	-0.2 ± 0.1	4.1 ± 3.2	-16.1 ± 8.3	GA01104
FB6	1.6	357.4	0.9	-0.2 ± 0.1	1.2 ± 2.4	-17.4 ± 7.9	GA01105
FC1	-9.1	169.1	1.0	-0.2 ± 0.1	-0.1 ± 1.9	-11.3 ± 8.5	GA01106
FC2	-9.1	479.3	1.0	-0.2 ± 0.1	-0.5 ± 1.7	-21.0 ± 8.0	GA01107
FC3	-9.1	102.6	1.0	0.4 ± 1.1	0.8 ± 2.2	-16.6 ± 8.1	GA01108
FC4	33.6	146.9	1.0	-0.2 ± 0.1	-0.1 ± 1.9	-20.5 ± 8.3	GA01109
FC5	12.3	257.7	1.1	-0.2 ± 0.1	-0.5 ± 1.7	-19.0 ± 8.7	GA01110
FC6	-9.1	25.1	1.0	-0.2 ± 0.1	-0.9 ± 1.5	-15.0 ± 8.3	GA01111
FD2	1.6	235.6	1.2	-0.2 ± 0.1	-0.9 ± 1.5	-24.7 ± 8.5	GA01112
FD3	22.9	224.5	1.2	-0.2 ± 0.1	-0.9 ± 1.5	-15.5 ± 9.1	GA01113
FD4	1.6	457.1	1.1	0.4 ± 1.1	-0.9 ± 1.5	-16.9 ± 8.5	GA01114
FD5	-9.1	368.5	1.0	1.0 ± 1.6	-0.5 ± 1.7	-13.4 ± 9.7	GA01115
FD6	-9.1	302.0	1.0	-0.2 ± 0.1	-0.1 ± 1.9	-19.1 ± 7.8	GA01116
WA1A	33.6	58.3	0.6	-0.2 ± 0.1	0.8 ± 2.2	-18.4 ± 9.1	GA01117
WA2A	1.6	-30.3	0.5	1.0 ± 1.6	0.4 ± 2.1	-21.1 ± 8.4	GA01118
WA3A	1.6	169.1	0.8	-0.2 ± 0.1	0.4 ± 2.1	-10.1 ± 8.3	GA01119
WA4A	-9.1	25.1	0.6	5.0 ± 3.4	3.3 ± 3.0	-20.4 ± 8.1	GA01120
WA5A	1.6	91.6	0.5	-0.2 ± 0.1	2.0 ± 2.6	-13.7 ± 7.9	GA01121
WA6A	-9.1	3.0	0.6	-0.2 ± 0.1	-1.3 ± 1.2	-17.9 ± 7.5	GA01122
WA1B	-9.1	58.3	0.8	-0.2 ± 0.1	3.3 ± 3.0	-20.2 ± 8.1	GA01123
WA2B	1.6	146.9	0.7	-0.2 ± 0.1	-0.9 ± 1.5	-20.5 ± 8.4	GA01124
WA3B	1.6	357.4	0.8	-0.2 ± 0.1	-0.5 ± 1.7	-15.1 ± 7.9	GA01125
WA4B	-9.1	224.5	0.6	-0.2 ± 0.1	-0.9 ± 1.5	-12.2 ± 8.0	GA01126
WA5B	-9.1	36.2	0.4	-0.2 ± 0.1	1.6 ± 2.5	-16.5 ± 7.7	GA01127
WA6B	1.6	146.9	0.3	-0.2 ± 0.1	-0.5 ± 1.7	-17.9 ± 7.7	GA01128
WB1A	-9.1	213.4	0.1	-0.2 ± 0.1	0.8 ± 2.2	-18.2 ± 7.4	GA01129
WB2A	1.6	246.6	0.3	1.0 ± 1.6	0.4 ± 2.1	-15.0 ± 8.0	GA01130
WB3A	-9.1	291.0	0.6	-0.2 ± 0.1	-0.1 ± 1.9	-12.6 ± 8.1	GA01131
WB4A	-9.1	113.7	0.7	-0.2 ± 0.1	0.4 ± 2.1	-15.3 ± 7.9	GA01132
WB1B	-9.1	246.6	0.8	-0.2 ± 0.1	-0.5 ± 1.7	-14.4 ± 7.8	GA01133
WB2B	12.3	346.3	0.6	0.4 ± 1.1	0.8 ± 2.2	-9.3 ± 8.4	GA01134
WB3B	1.6	512.5	0.8	-0.2 ± 0.1	0.4 ± 2.1	-18.0 ± 7.6	GA01135
WB4B	12.3	47.3	1.0	-0.2 ± 0.1	-0.9 ± 1.5	-17.9 ± 7.6	GA01136
WC1A	1.6	446.0	1.1	-0.2 ± 0.1	-0.5 ± 1.7	-18.8 ± 7.8	GA01137
WC2A	1.6	379.6	1.2	1.0 ± 1.6	0.4 ± 2.1	-13.3 ± 8.4	GA01138
WC3A	-9.1	25.1	1.3	0.4 ± 1.1	2.5 ± 2.8	-13.4 ± 8.4	GA01139
WC4A	12.3	512.5	1.2	-0.2 ± 0.1	2.0 ± 2.6	-20.1 ± 7.6	GA01140
WC5A	12.3	135.9	1.4	-0.2 ± 0.1	-0.1 ± 1.9	-13.0 ± 8.5	GA01141
WC6A	1.6	91.6	1.4	1.0 ± 1.6	1.6 ± 2.5	-13.5 ± 8.5	GA01142

GRAPHICAL ILLUSTRATION

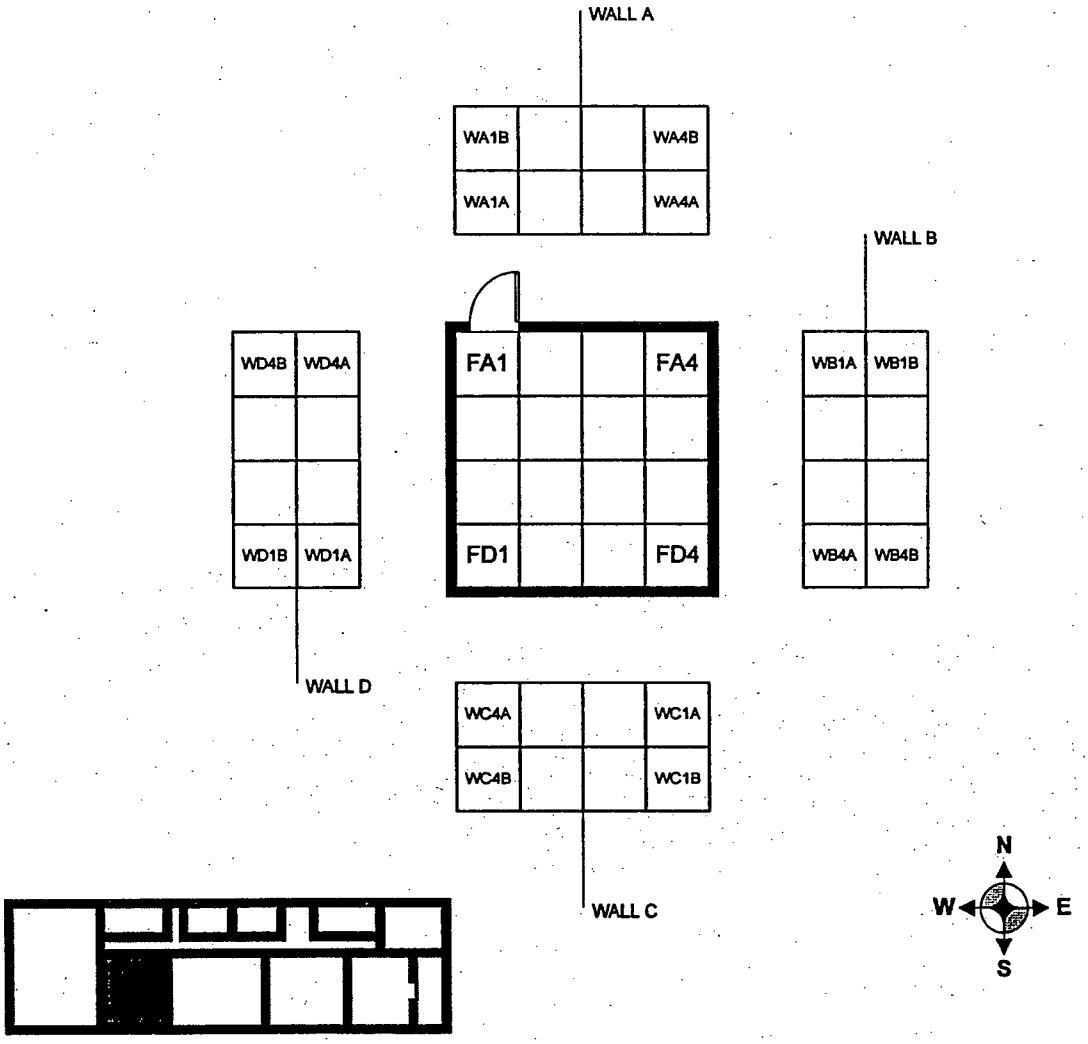


BUILDING T-2805 ROOM 3, DENTAL RESEARCH CLINIC,
FORT GEORGE G. MEADE, MD

U.S. ARMY CENTER FOR HEALTH PROMOTION
AND PREVENTIVE MEDICINE
UNITED STATES ARMY MEDICAL DEPARTMENT

DATE:	11 SEPT 97
DRAWN:	JKD
APPROVED:	HE
SCALE:	NTS
PLATE:	N/A

GRAPHICAL ILLUSTRATION



BUILDING T-2805 ROOM 2, DENTAL RESEARCH CLINIC,
FORT GEORGE G. MEADE, MD

U.S. ARMY CENTER FOR HEALTH PROMOTION
AND PREVENTIVE MEDICINE
UNITED STATES ARMY MEDICAL DEPARTMENT

DATE:	9 SEPT 97
DRAWN:	JKD
APPROVED:	HE
SCALE:	NTS
PLATE:	N/A

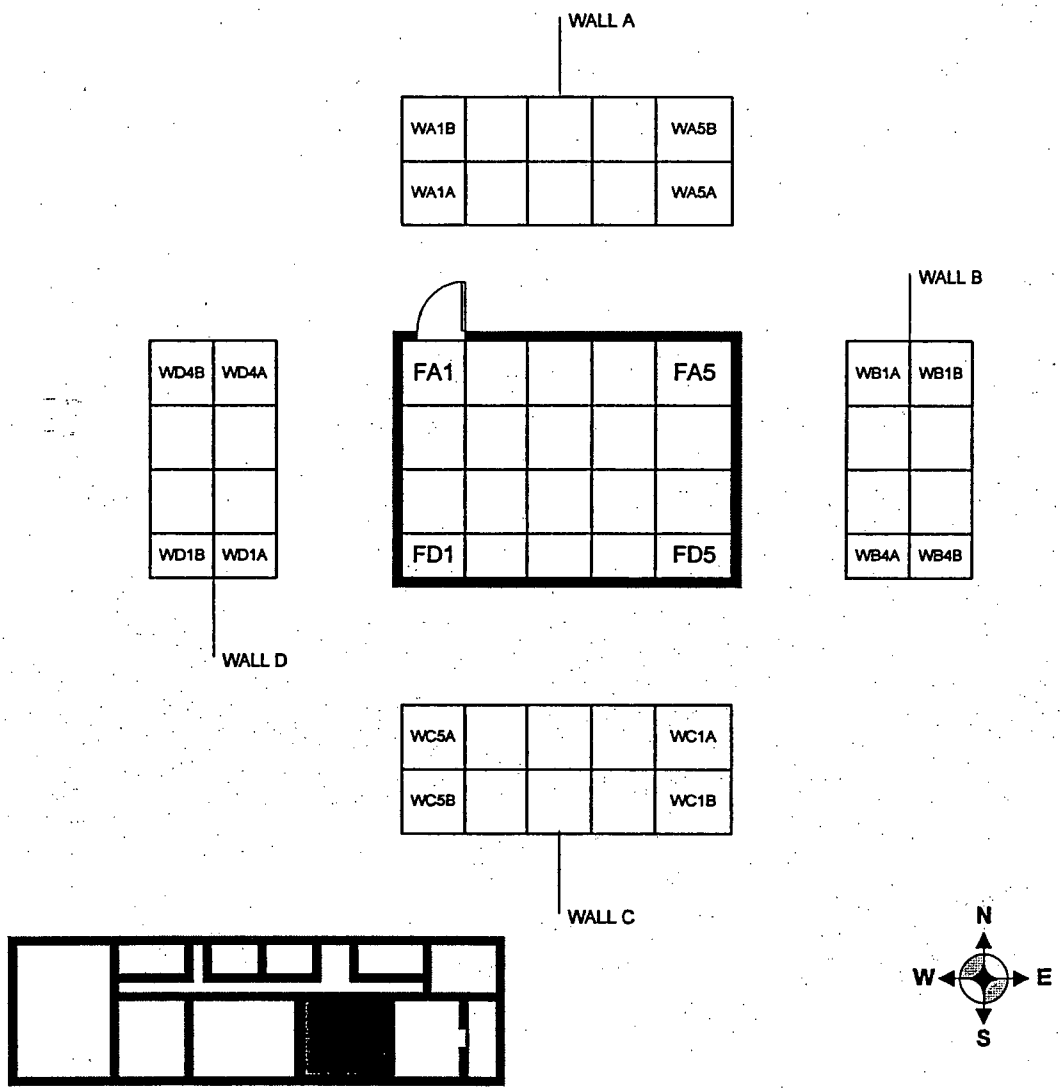
Fort Meade, Building 2805 (Room 2)							
Location Code	Monitoring			Wipe Test			Wipe Number
	Alpha	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>)	1.7	149.47	5.00	0.0	1.7	27.1	
(MDA =>)	54	401	-	2.1	2.4	32.2	
FA1	1.6	124.8	-1.2	0.0 ± 0.0	0.1 ± 2.5	-17.4 ± 9.3	GA01044
FA2	1.6	545.7	-1.0	0.0 ± 0.0	-0.4 ± 2.2	-20.9 ± 9.0	GA01045
FA3	-9.1	357.4	-1.0	0.0 ± 0.0	1.8 ± 3.1	-24.7 ± 8.7	GA01046
FA4	1.6	302.0	-1.0	0.0 ± 0.0	-1.0 ± 1.9	-26.4 ± 8.5	GA01047
FB1	1.6	257.7	-0.9	0.0 ± 0.0	0.7 ± 2.7	-22.6 ± 8.9	GA01048
FB2	12.3	169.1	-0.9	0.0 ± 0.0	-0.4 ± 2.2	-22.6 ± 8.9	GA01049
QA	N/A	N/A	N/A	0.0 ± 0.0	-1.5 ± 1.6	-20.0 ± 8.9	GA01050
FB3	-9.1	390.6	-0.9	0.0 ± 0.0	0.7 ± 2.7	-26.0 ± 8.5	GA01051
FB4	1.6	246.6	-0.9	0.8 ± 1.5	1.2 ± 2.9	-22.1 ± 8.9	GA01052
FC1	-9.1	213.4	-1.0	0.8 ± 1.5	-1.0 ± 1.9	-26.0 ± 8.5	GA01053
FC2	1.6	36.2	-0.9	1.6 ± 2.2	1.8 ± 3.1	-20.9 ± 9.0	GA01054
FC3	22.9	335.3	-0.9	0.0 ± 0.0	-0.4 ± 2.2	-21.3 ± 9.0	GA01055
FC4	1.6	357.4	-0.8	0.0 ± 0.0	1.8 ± 3.1	-23.0 ± 9.1	GA01056
FD1	-9.1	36.2	-0.6	0.0 ± 0.0	0.7 ± 2.7	-22.6 ± 8.9	GA01057
FD2	-9.1	468.2	-0.6	1.6 ± 2.2	-1.5 ± 1.6	-18.3 ± 9.2	GA01058
FD3	-9.1	102.6	-0.7	0.0 ± 0.0	-0.4 ± 2.2	-23.3 ± 8.6	GA01059
FD4	33.6	146.9	-0.6	0.0 ± 0.0	0.1 ± 2.5	-21.3 ± 8.8	GA01060
WA1A	12.3	257.7	-0.7	0.0 ± 0.0	1.2 ± 2.9	-19.1 ± 9.2	GA01061
WA2A	-9.1	25.1	-0.8	0.0 ± 0.0	1.2 ± 2.9	-22.1 ± 8.1	GA01062
WA3A	1.6	235.6	-0.8	0.8 ± 1.5	1.8 ± 3.1	-19.6 ± 8.4	GA01063
WA4A	22.9	224.5	-0.9	0.0 ± 0.0	-0.4 ± 2.2	-21.3 ± 8.4	GA01064
WA1B	1.6	412.8	-0.8	0.0 ± 0.0	-1.0 ± 1.9	-21.4 ± 9.7	GA01065
WA2B	-9.1	335.3	-1.0	0.0 ± 0.0	0.1 ± 2.5	-18.3 ± 8.5	GA01066
WA3B	-9.1	313.1	-1.0	0.0 ± 0.0	-0.4 ± 2.2	-14.6 ± 8.8	GA01067
WA4B	33.6	58.3	-1.1	0.0 ± 0.0	-0.4 ± 2.2	-17.4 ± 8.8	GA01068
WB1A	1.6	41.3	-0.9	0.0 ± 0.0	-2.0 ± 1.2	-17.9 ± 8.5	GA01069
WB2A	1.6	135.9	-0.9	0.0 ± 0.0	2.3 ± 3.3	-13.9 ± 8.7	GA01070
WB3A	-9.1	25.1	-0.9	0.8 ± 1.5	0.1 ± 2.5	-17.4 ± 8.8	GA01071
WB4A	1.6	91.6	-0.8	0.0 ± 0.0	0.7 ± 2.7	-18.8 ± 8.4	GA01072
WB1B	-9.1	3.0	-0.9	0.0 ± 0.0	-0.4 ± 2.2	-22.6 ± 8.3	GA01073
WB2B	-9.1	58.3	-0.9	0.0 ± 0.0	1.2 ± 2.9	-19.2 ± 8.4	GA01074
WB3B	1.6	146.9	-1.0	0.0 ± 0.0	0.7 ± 2.7	-20.4 ± 8.5	GA01075
WB4B	1.6	357.4	-1.0	0.0 ± 0.0	1.2 ± 2.9	-23.5 ± 8.4	GA01076
WC1A	-9.1	224.5	-1.2	2.1 ± 2.3	0.8 ± 2.2	-21.7 ± 8.6	GA01077
WC2A	-9.1	36.2	-1.3	-0.2 ± 0.1	-0.1 ± 1.9	-20.4 ± 8.3	GA01078
WC3A	1.6	146.9	-1.3	1.0 ± 1.6	0.4 ± 2.1	-20.0 ± 8.3	GA01079
WC4A	-9.1	213.4	-1.1	1.0 ± 1.6	2.9 ± 2.9	-15.4 ± 8.8	GA01080
WC1B	1.6	246.6	-1.0	0.4 ± 1.1	0.4 ± 2.1	-20.4 ± 8.5	GA01081
WC2B	-9.1	291.0	-1.2	0.4 ± 1.1	1.2 ± 2.4	-17.4 ± 9.0	GA01082
WC3B	-9.1	113.7	-1.3	0.4 ± 1.1	0.4 ± 2.1	-38.5 ± 14.4	GA01083
WC4B	-9.1	246.6	-1.1	-0.2 ± 0.1	-0.1 ± 1.9	-22.3 ± 12.0	GA01084
WD1A	12.3	346.3	-1.0	1.6 ± 2.0	0.8 ± 2.1	-15.3 ± 7.8	GA01085
WD2A	1.6	512.5	-1.0	2.1 ± 2.3	2.0 ± 2.6	-14.6 ± 8.1	GA01086
WD3A	12.3	47.3	-0.9	-0.2 ± 0.1	-0.5 ± 1.7	-15.8 ± 7.7	GA01087
WD4A	1.6	446.0	-1.1	0.4 ± 1.1	-0.1 ± 1.9	-12.9 ± 8.1	GA01088
WD1B	1.6	379.6	-0.9	-0.2 ± 0.1	0.8 ± 2.2	-13.5 ± 7.7	GA01089
WD2B	-9.1	25.1	-1.1	1.6 ± 2.0	-0.1 ± 1.9	-16.9 ± 7.8	GA01090
WD3B	12.3	512.5	-1.0	0.4 ± 1.1	1.6 ± 2.5	-15.2 ± 7.8	GA01091
WDB4B	12.3	135.9	-1.1	0.4 ± 1.1	1.2 ± 2.4	-11.7 ± 8.2	GA01092

Fort Meade, Building 2805 (Room 4)							
Location Code	Monitoring			Wipe Test			Wipe Number
	Alpha	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>)	1.7	149.47	5.00	0.0	1.8	26.3	
(MDA =>)	54	401	-	2.6	2.8	29.2	
WD2A	-9.1	357.4	0.1	0.0 ± 0.1	-0.5 ± 2.3	-11.7 ± 8.3	GA01219
WD3A	-9.1	158.0	-0.1	0.0 ± 0.1	-3.0 ± 1.8	-14.5 ± 8.0	GA01220
WD4A	1.6	80.5	-0.1	0.0 ± 0.0	-1.3 ± 1.7	-12.9 ± 7.9	GA01221
WD1B	1.6	390.6	0.0	-0.5 ± 0.3	-0.8 ± 2.8	-18.0 ± 7.9	GA01222
WD2B	-9.1	191.3	0.1	0.0 ± 0.1	-0.5 ± 2.3	-16.6 ± 7.7	GA01223
WD3B	-9.1	291.0	0.1	0.0 ± 0.1	-0.1 ± 3.1	-13.1 ± 8.2	GA01224
WD4B	-9.1	-96.7	0.0	0.0 ± 0.0	1.1 ± 2.9	-17.2 ± 8.0	GA01225
RD1	-9.1	434.9	0.5	0.3 ± 1.6	-1.9 ± 2.3	-18.7 ± 8.0	GA01226
RD2	1.6	158.0	0.5	0.0 ± 0.1	-1.0 ± 2.0	-19.6 ± 9.2	GA01227
RCNT3	-9.1	158.0	0.0	0.0 ± 0.1	-0.7 ± 2.9	-22.4 ± 8.3	GA01228
RD4	1.6	446.0	0.1	0.0 ± 0.0	-0.1 ± 2.4	-16.6 ± 8.8	GA01229
RD5	-9.1	257.7	0.0	1.1 ± 2.2	-0.8 ± 2.8	-17.5 ± 8.9	GA01230
RD6	-9.1	180.2	-0.3	0.0 ± 0.1	0.7 ± 2.8	-24.8 ± 8.4	GA01231
RCNT7	1.6	235.6	-0.3	0.0 ± 0.1	-1.3 ± 2.7	-18.6 ± 8.4	GA01232
RD8	1.6	180.2	-0.3	0.0 ± 0.0	2.2 ± 3.3	-16.0 ± 8.7	GA01233
RSNK9	-9.1	169.1	-0.4	1.1 ± 2.2	0.4 ± 3.2	-16.7 ± 8.2	GA01234
RD10	1.6	291.0	-0.4	0.0 ± 0.1	0.1 ± 2.5	-15.9 ± 10.1	GA01235
RD11	-9.1	302.0	-0.3	0.7 ± 1.3	3.5 ± 4.2	-22.1 ± 9.4	GA01236
RCNT12	-9.1	246.6	-0.2	0.0 ± 0.0	-1.3 ± 1.7	-22.7 ± 9.1	GA01237
RD13	-9.1	324.2	-0.1	-0.5 ± 0.3	0.4 ± 3.2	-15.2 ± 8.7	GA01238
RD14	-9.1	202.3	0.6	0.0 ± 0.1	1.8 ± 3.2	-18.1 ± 8.0	GA01239
RCNT15	-9.1	146.9	1.0	0.0 ± 0.1	-0.1 ± 3.1	-14.5 ± 8.9	GA01240
QA	N/A	N/A	N/A	0.0 ± 0.0	20.6 ± 7.3	-16.8 ± 8.2	GA01241

Fort Meade, Building 2805 (Room 4)							
Location Code	Monitoring			Wipe Test			Wipe Number
	Alpha	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>)	1.7	149.47	5.00	0.0	1.8	26.3	
(MDA =>)	54	401	-	2.6	2.8	29.2	
FA1	-9.1	246.6	1.0	0.4 ± 1.1	-1.3 ± 1.2	-17.6 ± 8.8	GA01169
FA2	1.6	180.2	0.3	-0.2 ± 0.1	1.6 ± 2.5	-17.9 ± 8.3	GA01170
FA3	-9.1	313.1	0.1	-0.2 ± 0.1	0.8 ± 2.2	-19.8 ± 8.1	GA01171
FA4	5.0	135.9	0.0	0.0 ± 0.1	-0.7 ± 2.9	-15.8 ± 8.2	GA01172
FA5	-9.1	80.5	-0.1	0.0 ± 0.0	-1.3 ± 1.7	-14.4 ± 8.0	GA01173
FB1	-9.1	202.3	-0.2	0.3 ± 1.6	-1.9 ± 2.3	-17.1 ± 7.6	GA01174
FB2	33.6	180.2	-0.2	0.0 ± 0.1	3.0 ± 3.6	-12.5 ± 8.3	GA01175
FB3	1.6	257.7	-0.2	0.0 ± 0.1	-1.3 ± 2.7	-14.7 ± 7.9	GA01176
FB4	-9.1	268.8	-0.1	0.0 ± 0.0	1.7 ± 3.1	-16.7 ± 8.2	GA01177
FB5	-9.1	102.6	0.1	-0.5 ± 0.3	0.9 ± 3.4	-13.6 ± 8.7	GA01178
FC1	1.6	146.9	0.3	0.0 ± 0.1	1.3 ± 3.0	-18.0 ± 7.6	GA01179
FC2	10.1	69.4	0.3	0.0 ± 0.1	-0.7 ± 2.9	-12.5 ± 8.3	GA01180
FC3	-9.1	158.0	0.3	0.0 ± 0.0	2.8 ± 3.5	-15.9 ± 7.8	GA01181
FC4	-9.1	224.5	0.1	0.3 ± 1.6	0.4 ± 3.2	-14.9 ± 8.0	GA01182
FC5	12.3	69.4	0.2	0.0 ± 0.1	-0.5 ± 2.3	-18.4 ± 7.9	GA01183
FD1	-9.1	335.3	0.2	0.0 ± 0.1	-0.1 ± 3.1	-18.2 ± 8.8	GA01184
FD2	1.6	80.5	0.1	0.0 ± 0.0	0.5 ± 2.6	-12.3 ± 8.5	GA01185
FD3	-9.1	69.4	0.0	0.3 ± 1.6	-2.4 ± 2.0	-17.9 ± 8.1	GA01186
FD4	1.6	135.9	0.1	0.7 ± 1.5	-1.0 ± 2.0	-8.6 ± 8.7	GA01187
FD5	-9.1	69.4	0.0	0.0 ± 0.1	0.5 ± 3.3	-15.1 ± 8.5	GA01188
WA1A	-9.1	146.9	-0.3	0.0 ± 0.0	2.2 ± 3.3	-15.1 ± 7.8	GA01189
WA2A	1.6	80.5	-0.2	-0.5 ± 0.3	-1.9 ± 2.3	-14.9 ± 7.7	GA01190
WA3A	1.6	-118.9	0.3	0.0 ± 0.1	0.1 ± 2.5	-18.2 ± 9.5	GA01191
WA4A	1.6	-262.9	0.2	0.0 ± 0.1	-3.0 ± 1.8	-14.7 ± 8.1	GA01192
WA5A	-9.1	-163.2	0.1	0.0 ± 0.0	0.5 ± 2.6	-20.5 ± 7.6	GA01193
WA1B	-9.1	47.3	-0.1	-0.5 ± 0.3	2.6 ± 3.9	-15.0 ± 7.6	GA01194
WA2B	-9.1	80.5	-0.2	0.0 ± 0.1	0.7 ± 2.8	-14.4 ± 7.6	GA01195
WA3B	1.6	-130.0	-0.2	0.0 ± 0.1	1.7 ± 3.7	-14.2 ± 7.8	GA01196
WA4B	-9.1	291.0	-0.3	0.0 ± 0.0	1.7 ± 3.1	-12.1 ± 8.0	GA01197
WA5B	-9.1	80.5	-0.4	0.3 ± 1.6	-1.3 ± 2.5	-16.5 ± 8.9	GA01198
WB1A	1.6	-141.0	-0.1	0.7 ± 1.5	3.0 ± 3.6	-16.1 ± 7.6	GA01199
QA	N/A	N/A	N/A	0.0 ± 0.1	-1.9 ± 2.4	-12.6 ± 7.8	GA01200
WB2A	12.3	-174.3	-0.2	0.0 ± 0.0	0.5 ± 2.6	-17.5 ± 8.7	GA01201
WB3A	-9.1	-229.7	-0.2	0.3 ± 1.6	-0.2 ± 3.0	-17.0 ± 8.3	GA01202
WB4A	-9.1	-52.4	-0.2	0.0 ± 0.1	1.3 ± 3.0	-14.7 ± 8.0	GA01203
WB1B	12.3	169.1	-0.2	0.0 ± 0.1	2.3 ± 3.9	-15.6 ± 7.5	GA01204
WB2B	12.3	590.0	-0.3	0.9 ± 1.8	2.8 ± 3.5	-16.6 ± 7.5	GA01205
WB3B	-9.1	202.3	-0.3	1.1 ± 2.2	2.0 ± 3.7	-14.6 ± 8.8	GA01206
WB4B	-9.1	58.3	-0.3	0.7 ± 1.5	0.1 ± 2.5	-15.8 ± 7.7	GA01207
WC1A	5.0	124.8	-0.2	0.0 ± 0.1	2.9 ± 4.1	-17.8 ± 8.2	GA01208
WC2A	-9.1	146.9	0.0	0.9 ± 1.8	-1.3 ± 1.7	-19.4 ± 8.9	GA01209
WC3A	-9.1	80.5	0.1	-0.5 ± 0.3	-0.2 ± 3.0	-19.3 ± 7.1	GA01210
WC4A	1.6	91.6	0.1	0.0 ± 0.1	-2.2 ± 1.2	-23.3 ± 9.3	GA01211
WC5A	15.1	-141.0	0.3	0.0 ± 0.1	0.5 ± 3.3	-17.4 ± 7.6	GA01212
WC1B	1.6	335.3	-0.1	0.0 ± 0.0	-2.5 ± 0.5	-16.6 ± 7.5	GA01213
WC2B	-9.1	69.4	0.2	-0.5 ± 0.3	-0.2 ± 3.0	-16.5 ± 7.9	GA01214
WC3B	-9.1	291.0	0.1	0.7 ± 1.5	0.7 ± 2.8	-32.7 ± 13.2	GA01215
WC4B	12.3	390.6	0.3	0.0 ± 0.1	1.1 ± 3.5	-9.9 ± 8.3	GA01216
WC5B	1.6	390.6	0.5	0.0 ± 0.0	-0.1 ± 2.4	-14.7 ± 8.0	GA01217
WD1A	-9.1	169.1	-0.1	-0.5 ± 0.3	-1.3 ± 2.5	-16.3 ± 8.0	GA01218

Fort Meade, Building 2805 (Room 3)							
Location Code	Monitoring			Wipe Test			Wipe Number
	Alpha	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>)	1.7	149.47	5.00	0.2	2.2	24.3	
(MDA =>)	54	401	-	1.8	1.8	26.2	
WC1B	1.6	246.6	1.3	-0.2 ± 0.1	1.2 ± 2.4	-25.3 ± 11.5	GA01143
WC2B	-9.1	346.3	1.3	0.4 ± 1.1	-0.1 ± 1.9	-15.4 ± 8.1	GA01144
WC3B	22.9	257.7	1.3	-0.2 ± 0.1	-0.1 ± 1.9	-31.5 ± 11.7	GA01145
WC4B	12.3	689.7	1.2	0.4 ± 1.1	-0.9 ± 1.5	-17.8 ± 9.8	GA01146
WC5B	12.3	324.2	1.1	-0.2 ± 0.1	1.2 ± 2.4	-15.5 ± 7.8	GA01147
WC6B	-9.1	412.8	1.0	0.4 ± 1.1	-0.5 ± 1.7	-12.6 ± 7.0	GA01148
WD1A	33.6	14.0	0.9	1.6 ± 2.0	-0.1 ± 1.9	-15.9 ± 9.0	GA01149
QA	N/A	N/A	N/A	0.4 ± 1.1	0.4 ± 2.1	-13.0 ± 7.9	GA01150
WD2A	-9.1	25.1	0.9	-0.2 ± 0.1	-0.1 ± 1.9	-16.2 ± 8.8	GA01151
WD3A	-9.1	3.0	1.0	-0.2 ± 0.1	2.0 ± 2.6	-13.3 ± 8.8	GA01152
WD4A	-9.1	124.8	0.7	-0.2 ± 0.1	-0.5 ± 1.7	-14.7 ± 9.0	GA01153
WD1B	1.6	191.3	0.8	-0.2 ± 0.1	0.8 ± 2.2	-20.2 ± 8.5	GA01154
WD2B	-9.1	135.9	0.7	0.4 ± 1.1	-0.1 ± 1.9	-12.7 ± 8.1	GA01155
WD3B	1.6	368.5	0.8	-0.2 ± 0.1	-0.9 ± 1.5	-12.9 ± 8.1	GA01156
WD4B	1.6	368.5	0.8	-0.2 ± 0.1	2.0 ± 2.6	-14.0 ± 8.1	GA01157
RD1	-9.1	268.8	0.6	-0.2 ± 0.1	1.2 ± 2.4	-12.0 ± 9.3	GA01158
RD2	-9.1	412.8	0.5	-0.2 ± 0.1	0.8 ± 2.2	-14.2 ± 9.4	GA01159
RD3	1.6	313.1	0.6	-0.2 ± 0.1	1.2 ± 2.4	-18.1 ± 8.4	GA01160
RCNT4	-9.1	357.4	0.6	1.0 ± 1.6	-0.5 ± 1.7	-14.7 ± 8.2	GA01161
PIPE	-9.1	379.6	0.8	0.4 ± 1.1	0.4 ± 2.1	-23.1 ± 10.3	GA01162
RCNT6	-9.1	390.6	1.0	-0.2 ± 0.1	0.4 ± 2.1	-18.4 ± 8.5	GA01163
RCNT7	1.6	158.0	1.2	-0.2 ± 0.1	-0.5 ± 1.7	-19.8 ± 8.4	GA01164
RD8	-9.1	313.1	0.9	-0.2 ± 0.1	1.6 ± 2.5	-24.3 ± 8.0	GA01165
RD9	-9.1	124.8	0.6	-0.2 ± 0.1	-0.5 ± 1.7	16.8 ± 11.9	GA01166
RSNK10	-9.1	257.7	0.3	-0.2 ± 0.1	0.4 ± 2.1	-15.0 ± 8.4	GA01167
RD11	-9.1	279.9	0.2	0.4 ± 1.1	1.2 ± 2.4	-23.7 ± 9.9	GA01168

GRAPHICAL ILLUSTRATION

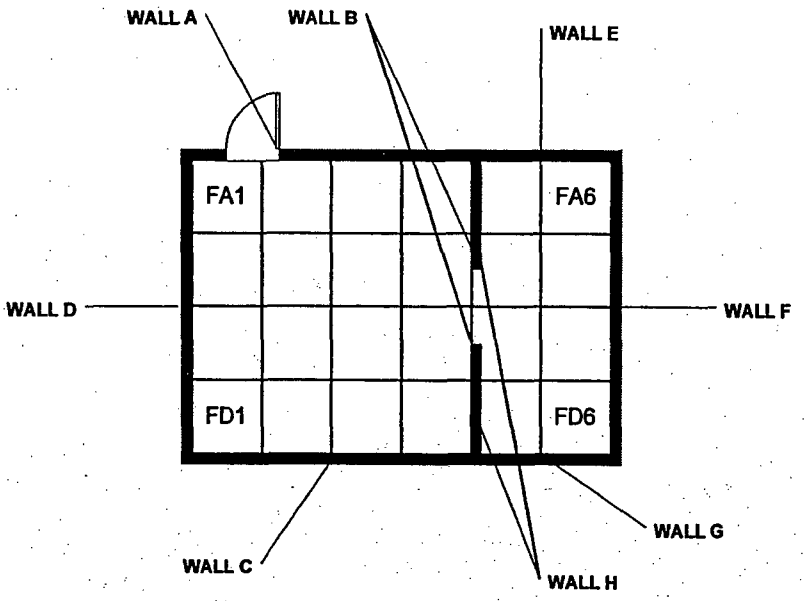


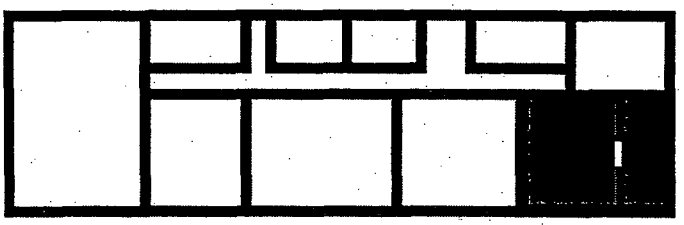
BUILDING T-2805 ROOM 4, DENTAL RESEARCH CLINIC,
FORT GEORGE G. MEADE, MD

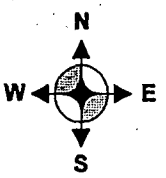
U.S. ARMY CENTER FOR HEALTH PROMOTION
AND PREVENTIVE MEDICINE
UNITED STATES ARMY MEDICAL DEPARTMENT

DATE:	9 SEPT 97
DRAWN:	JKD
APPROVED:	HE
SCALE:	NTS
PLATE:	N/A

GRAPHICAL ILLUSTRATION





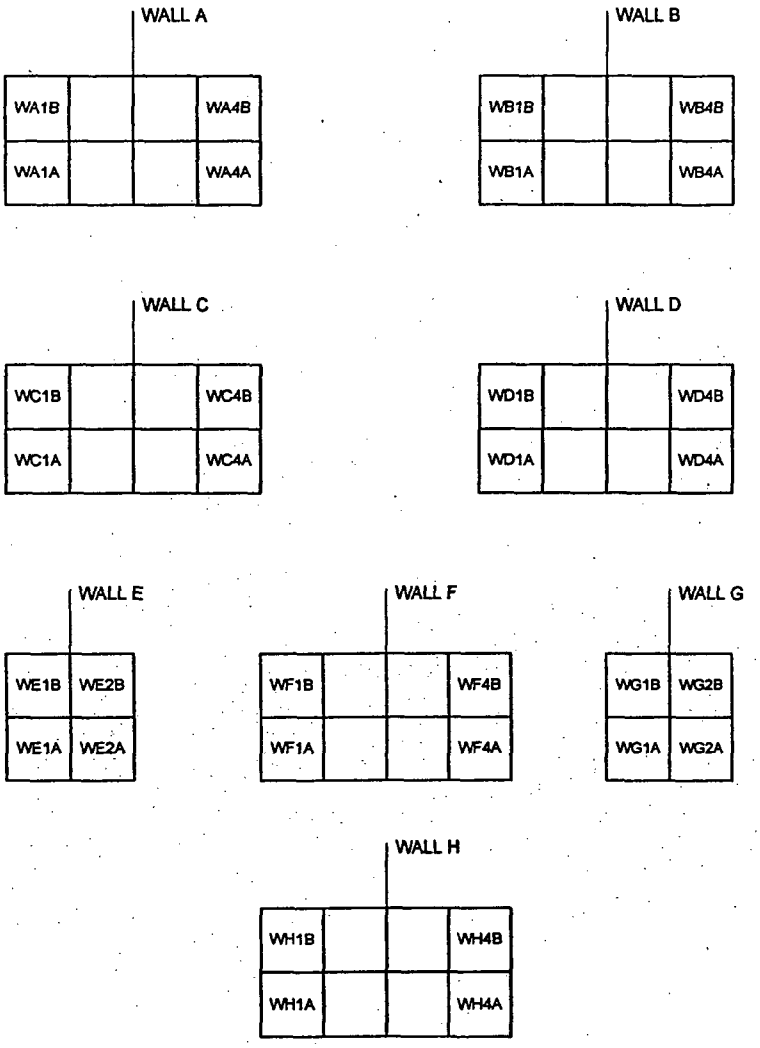


BUILDING T-2805 ROOM 5 FLOORS, DENTAL RESEARCH CLINIC, FORT GEORGE G. MEADE, MD

U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE
UNITED STATES ARMY MEDICAL DEPARTMENT

DATE:	10 SEPT 97
DRAWN:	JKD
APPROVED:	HE
SCALE:	NTS
PLATE:	N/A

GRAPHICAL ILLUSTRATION



BUILDING T-2805 ROOM 5 WALLS, DENTAL RESEARCH CLINIC, FORT GEORGE G. MEADE, MD

U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE
UNITED STATES ARMY MEDICAL DEPARTMENT

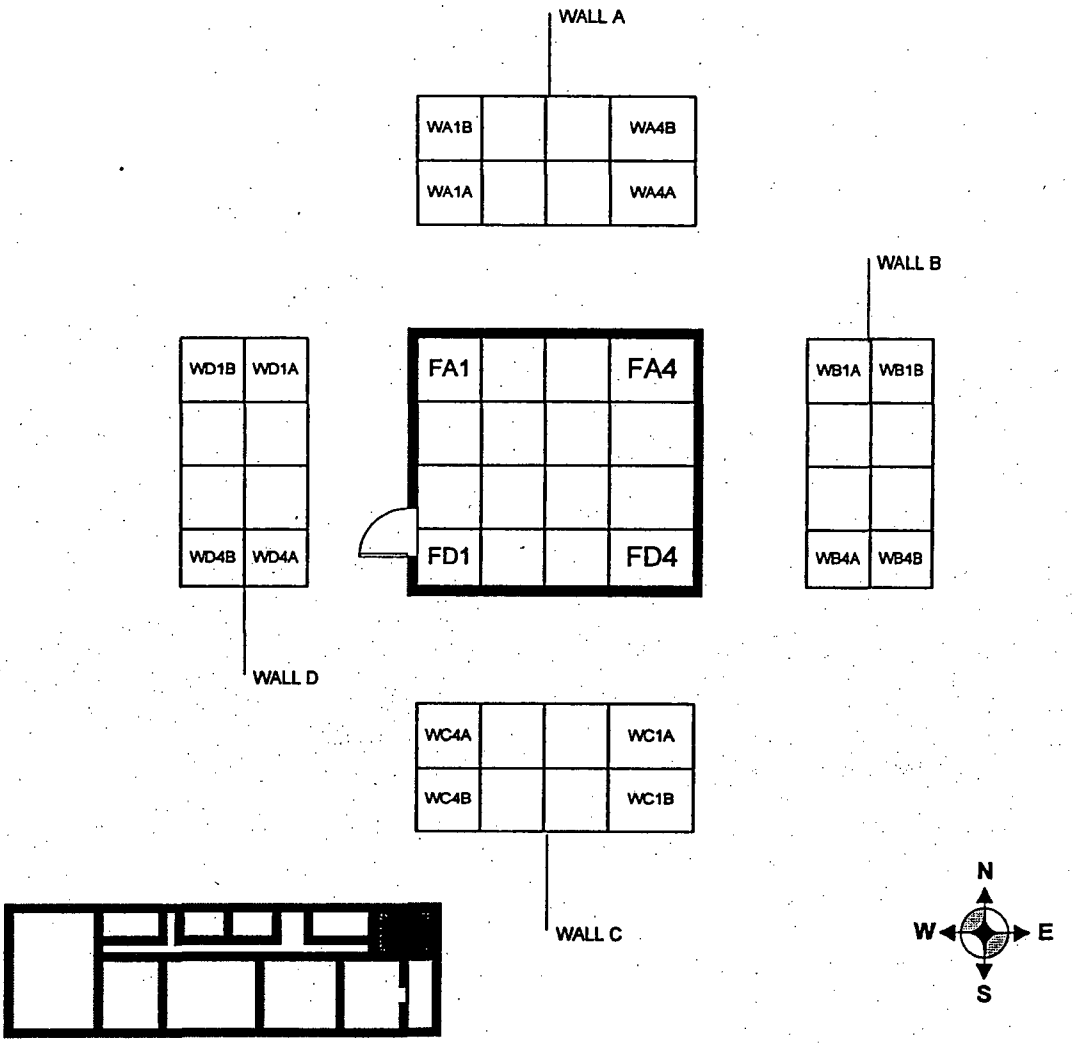
DATE: 11 SEPT 97
DRAWN: JKD
APPROVED: HE
SCALE: NTS
PLATE: N/A

Fort Meade, Building 2805 (Room 5)							
Location Code	Monitoring			Wipe Test			Wipe Number
	Alpha	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>)	1.7	149.47	5.00	0.0	2.4	20.4	
(MDA =>)	54	401	-	2.6	2.8	24.6	
WD2A	-9.1	224.5	-1.8	1.3 ± 1.9	-1.9 ± 2.4	-20.4 ± 8.2	GA01292
WD3A	1.6	124.8	-1.9	0.0 ± 0.0	0.5 ± 2.6	-20.2 ± 8.0	GA01293
WD4A	-9.1	102.6	-1.8	-0.5 ± 0.3	-0.2 ± 3.0	-19.0 ± 8.1	GA01294
WD1B	-9.1	-307.2	-1.8	0.7 ± 1.5	0.1 ± 2.5	-19.5 ± 9.4	GA01295
WD2B	12.3	69.4	-1.6	0.7 ± 1.3	-0.1 ± 3.1	-18.4 ± 8.5	GA01296
WD3B	-9.1	224.5	-1.7	0.0 ± 0.0	-1.3 ± 1.7	-17.4 ± 8.6	GA01297
WD4B	12.3	-19.2	-1.8	-0.5 ± 0.3	0.4 ± 3.2	-21.3 ± 7.8	GA01298
WE1A	12.3	135.9	-1.8	0.0 ± 0.1	-1.0 ± 2.0	-18.0 ± 8.3	GA01299
QA	N/A	N/A	N/A	0.0 ± 0.1	-1.3 ± 2.7	-17.3 ± 8.3	GA01300
WE2A	22.9	135.9	-2.0	0.0 ± 0.0	-1.3 ± 1.7	-20.8 ± 8.5	GA01301
WE1B	1.6	-30.3	-1.9	-0.5 ± 0.3	0.4 ± 3.2	-16.2 ± 8.9	GA01302
WE2B	1.6	102.6	-2.0	0.0 ± 0.1	-1.0 ± 2.0	-20.4 ± 9.1	GA01303
WF1A	-9.1	-85.7	-2.1	0.0 ± 0.1	1.7 ± 3.7	-17.5 ± 8.5	GA01304
WF2A	-9.1	47.3	-2.1	0.0 ± 0.0	-0.1 ± 2.4	-22.1 ± 8.2	GA01305
WF3A	-9.1	47.3	-1.9	-0.5 ± 0.3	-1.9 ± 2.3	-22.0 ± 8.0	GA01306
WF4A	12.3	-41.3	-2.0	0.0 ± 0.1	0.1 ± 2.5	-18.4 ± 9.1	GA01307
WF1B	1.6	91.6	-2.2	0.7 ± 1.3	2.9 ± 4.1	-10.0 ± 6.8	GA01308
WF2B	12.3	202.3	-2.1	0.0 ± 0.0	0.5 ± 2.6	-10.4 ± 7.0	GA01309
WF3B	-9.1	-152.1	-1.9	0.3 ± 1.6	3.7 ± 4.2	-7.1 ± 7.4	GA01310
WF4B	1.6	-30.3	-1.9	0.0 ± 0.1	-0.5 ± 2.3	-10.0 ± 6.8	GA01311
WG1A	-9.1	-229.7	-2.0	0.0 ± 0.1	-3.0 ± 1.8	-7.9 ± 7.2	GA01312
WG2A	12.3	-85.7	-2.0	0.9 ± 1.8	-0.7 ± 2.1	-10.3 ± 6.9	GA01313
WG1B	1.6	47.3	-2.2	-0.5 ± 0.3	-0.2 ± 3.0	-3.3 ± 7.5	GA01314
WG2B	-9.1	113.7	-2.4	0.0 ± 0.1	0.7 ± 2.8	-7.9 ± 7.2	GA01315
WH1A	1.6	158.0	-2.2	0.0 ± 0.1	-0.7 ± 2.9	-9.7 ± 6.8	GA01316
WH2A	-9.1	213.4	-2.2	0.0 ± 0.0	3.4 ± 3.7	-4.1 ± 7.4	GA01317
WH3A	-9.1	80.5	-2.1	-0.5 ± 0.3	-0.2 ± 3.0	-7.0 ± 7.2	GA01318
WH4A	1.6	113.7	-2.2	0.7 ± 1.5	0.1 ± 2.5	-12.9 ± 6.6	GA01319
WH1B	1.6	-74.6	-2.2	0.7 ± 1.3	-0.7 ± 2.9	-10.5 ± 7.0	GA01320
WH2B	1.6	14.0	-2.3	0.9 ± 1.8	-0.1 ± 2.4	-5.0 ± 7.2	GA01321
WH3B	1.6	36.2	-2.0	-0.5 ± 0.3	-0.8 ± 2.8	-9.6 ± 6.9	GA01322
WH4B	1.6	-141.0	-2.2	0.0 ± 0.1	1.3 ± 3.0	-10.5 ± 7.1	GA01323
RSNK1	12.3	58.3	-2.1	0.7 ± 1.3	-0.1 ± 3.1	-6.1 ± 7.6	GA01324
RD2	-9.1	36.2	-2.3	0.0 ± 0.0	2.2 ± 3.3	-11.0 ± 7.0	GA01325
RVNT3	-9.1	224.5	-2.1	-0.5 ± 0.3	-0.2 ± 3.0	-20.1 ± 10.2	GA01326
RSNK4	-9.1	69.4	-2.1	0.0 ± 0.1	0.1 ± 2.5	-6.8 ± 7.5	GA01327
RD5	-9.1	213.4	-2.1	0.0 ± 0.1	-2.4 ± 2.1	-15.3 ± 8.1	GA01328
RD6	-9.1	180.2	-1.9	0.0 ± 0.0	-0.7 ± 2.1	-2.8 ± 7.9	GA01329
RD7	-9.1	124.8	-2.0	0.3 ± 1.6	-1.9 ± 2.3	-8.0 ± 8.1	GA01330
RD8	-9.1	357.4	-2.0	0.0 ± 0.1	0.7 ± 2.8	-8.7 ± 7.1	GA01331
RD9	-9.1	246.6	-1.9	0.0 ± 0.1	0.5 ± 3.3	-10.7 ± 7.1	GA01332
RD10	1.6	224.5	-2.1	0.0 ± 0.0	2.8 ± 3.5	-9.9 ± 8.6	GA01333
RCNT11	-9.1	146.9	-2.1	-0.5 ± 0.3	0.4 ± 3.2	-8.2 ± 7.4	GA01334
RD12	1.6	324.2	-2.0	0.0 ± 0.1	-1.0 ± 2.0	-10.7 ± 7.6	GA01335
RD13	-9.1	357.4	-1.8	0.0 ± 0.1	-2.4 ± 2.1	-13.6 ± 9.2	GA01336
RD14	-9.1	169.1	-1.9	0.0 ± 0.0	2.8 ± 3.5	-15.2 ± 8.3	GA01337
RVNT15	1.6	191.3	-2.0	1.1 ± 2.2	-0.2 ± 3.0	-14.0 ± 10.1	GA01338
RVNT16	12.3	3.0	-2.1	0.0 ± 0.1	1.8 ± 3.2	-19.6 ± 11.5	GA01339

Fort Meade, Building 2805 (Room 5)							
Location Code	Monitoring			Wipe Test			Wipe Number
	Alpha	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>)	1.7	149.47	5.00	0.0	2.4	20.4	
(MDA =>)	54	401	-	2.6	2.8	24.6	
FA1	-9.1	202.3	-1.9	1.1 ± 2.2	-0.8 ± 2.8	-20.5 ± 7.6	GA01242
FA2	-9.1	80.5	-1.9	0.0 ± 0.1	-1.0 ± 2.0	-23.9 ± 7.3	GA01243
FA3	1.6	246.6	-1.8	0.0 ± 0.1	-1.9 ± 2.4	-21.3 ± 8.1	GA01244
FA4	-9.1	146.9	-1.9	0.0 ± 0.0	1.1 ± 2.9	-18.3 ± 8.4	GA01245
FA5	1.6	180.2	-2.0	-0.5 ± 0.3	-0.2 ± 3.0	-14.0 ± 8.3	GA01246
FA6	-9.1	146.9	-2.0	0.0 ± 0.1	-0.5 ± 2.3	-16.0 ± 8.1	GA01247
FB1	1.6	279.9	-1.9	0.0 ± 0.1	-2.4 ± 2.1	-19.2 ± 8.4	GA01248
FB2	-9.1	457.1	-2.0	0.0 ± 0.0	1.1 ± 2.9	-19.1 ± 8.9	GA01249
QA	N/A	N/A	N/A	0.3 ± 1.6	-1.9 ± 2.3	-17.1 ± 7.7	GA01250
FB3	12.3	202.3	-2.0	0.0 ± 0.1	1.8 ± 3.2	-21.5 ± 8.8	GA01251
FB4	-9.1	235.6	-1.9	0.0 ± 0.1	-3.0 ± 1.8	-21.7 ± 8.8	GA01252
FB5	-9.1	102.6	-1.8	0.0 ± 0.0	1.1 ± 2.9	-16.5 ± 8.3	GA01253
FB6	-9.1	169.1	-1.9	-0.5 ± 0.3	0.9 ± 3.4	-17.1 ± 8.2	GA01254
FC1	12.3	922.3	-1.9	0.0 ± 0.1	1.3 ± 3.0	-15.5 ± 8.3	GA01255
FC2	-9.1	235.6	-1.7	0.0 ± 0.1	0.5 ± 3.3	-16.5 ± 8.4	GA01256
FC3	1.6	36.2	-1.6	0.0 ± 0.0	-0.7 ± 2.1	-20.5 ± 8.3	GA01257
FC4	-9.1	113.7	-1.8	0.3 ± 1.6	-1.9 ± 2.3	-12.4 ± 8.9	GA01258
FC5	-9.1	-30.3	-1.9	0.0 ± 0.1	0.1 ± 2.5	-20.5 ± 7.7	GA01259
FC6	1.6	313.1	-2.0	0.0 ± 0.1	-1.3 ± 2.7	-17.9 ± 8.5	GA01260
FD1	1.6	346.3	-1.8	0.0 ± 0.0	-0.1 ± 2.4	-17.8 ± 8.2	GA01261
FD2	1.6	69.4	-1.9	-0.5 ± 0.3	-0.8 ± 2.8	-17.2 ± 7.9	GA01262
FD3	12.3	-8.1	-2.0	0.0 ± 0.1	1.3 ± 3.0	-27.9 ± 9.3	GA01263
FD4	22.9	124.8	-2.0	0.0 ± 0.1	-1.3 ± 2.7	-25.6 ± 8.1	GA01264
FD5	-9.1	36.2	-2.0	0.0 ± 0.0	-2.5 ± 0.5	-20.7 ± 8.3	GA01265
FD6	-9.1	14.0	-1.9	-0.5 ± 0.3	-1.3 ± 2.5	-18.4 ± 8.5	GA01266
WA1A	-9.1	14.0	-1.7	0.0 ± 0.1	0.1 ± 2.5	-21.9 ± 8.0	GA01267
WA2A	-9.1	-8.1	-2.0	0.0 ± 0.1	-1.3 ± 2.7	-21.9 ± 8.0	GA01268
WA3A	33.6	3.0	-2.0	0.0 ± 0.0	0.5 ± 2.6	-20.9 ± 8.1	GA01269
WA4A	1.6	191.3	-2.1	-0.5 ± 0.3	-1.3 ± 2.5	-20.8 ± 8.0	GA01270
WA1B	1.6	-41.3	-2.1	0.0 ± 0.1	3.0 ± 3.6	-18.7 ± 8.7	GA01271
WA2B	1.6	14.0	-2.1	0.0 ± 0.1	-1.3 ± 2.7	-25.1 ± 9.1	GA01272
WA3B	-9.1	268.8	-2.3	0.0 ± 0.0	1.1 ± 2.9	-20.6 ± 8.6	GA01273
WA4B	12.3	-8.1	-2.3	-0.5 ± 0.3	-1.3 ± 2.5	-23.0 ± 8.4	GA01274
WB1A	33.6	246.6	-2.2	0.0 ± 0.1	-1.6 ± 1.7	-19.8 ± 8.3	GA01275
WB2A	-9.1	146.9	-2.4	0.0 ± 0.1	-2.4 ± 2.1	-15.4 ± 8.8	GA01276
WB3A	-9.1	36.2	-2.2	0.0 ± 0.0	-0.1 ± 2.4	-18.6 ± 8.2	GA01277
WB4A	-9.1	-85.7	-2.1	-0.5 ± 0.3	1.5 ± 3.5	-17.3 ± 8.7	GA01278
WB1B	-9.1	14.0	-2.1	0.7 ± 1.5	2.4 ± 3.4	-26.1 ± 8.9	GA01279
WB2B	1.6	36.2	-2.0	0.0 ± 0.1	-1.9 ± 2.4	-19.6 ± 8.2	GA01280
WB3B	25.2	-107.8	-2.0	0.0 ± 0.0	-0.7 ± 2.1	-14.7 ± 8.5	GA01281
WB4B	-9.1	-41.3	-2.0	-0.5 ± 0.3	-0.2 ± 3.0	-19.3 ± 8.6	GA01282
WC1A	-9.1	-141.0	-2.0	0.0 ± 0.1	0.7 ± 2.8	-18.2 ± 8.6	GA01283
WC2A	12.3	-229.7	-1.9	0.0 ± 0.1	-1.9 ± 2.4	-20.6 ± 8.4	GA01284
WC3A	-9.1	-141.0	-1.9	0.0 ± 0.0	0.5 ± 2.6	-20.0 ± 8.6	GA01285
WC4A	12.3	-19.2	-2.0	-0.5 ± 0.3	1.5 ± 3.5	-16.8 ± 9.2	GA01286
WC1B	-9.1	135.9	-2.0	0.0 ± 0.1	3.5 ± 3.7	-18.6 ± 8.4	GA01287
WC2B	1.6	-19.2	-1.9	0.0 ± 0.1	-0.1 ± 3.1	-17.7 ± 8.5	GA01288
WC3B	1.6	-8.1	-1.9	0.9 ± 1.8	-1.3 ± 1.7	-20.8 ± 8.9	GA01289
WC4B	1.6	-52.4	-1.9	-0.5 ± 0.3	-0.2 ± 3.0	-14.4 ± 8.7	GA01290
WD1A	1.6	146.9	-1.8	0.0 ± 0.1	-1.0 ± 2.0	-23.7 ± 9.9	GA01291

Fort Meade, Building 2805 (Room 6)							
Location Code	Monitoring			Wipe Test			Wipe Number
	Alpha	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>)	1.7	149.47	5.00	0.0	2.4	20.4	
(MDA =>)	54	401	-	2.6	2.8	36.0	
FA1	-9.1	-163.2	-1.6	0.0 ± 0.1	0.5 ± 3.3	-15.5 ± 8.0	GA01340
FA2	33.6	91.6	-1.6	0.0 ± 0.0	1.1 ± 2.9	-5.6 ± 8.2	GA01341
FA3	-9.1	135.9	-1.8	-0.5 ± 0.3	-0.8 ± 2.8	-13.5 ± 7.4	GA01342
FA4	-9.1	58.3	-1.9	0.0 ± 0.1	0.7 ± 2.8	-9.8 ± 8.0	GA01343
FB1	1.6	146.9	-2.0	0.0 ± 0.1	-2.4 ± 2.1	-12.2 ± 7.5	GA01344
FB2	-9.1	368.5	-1.9	0.0 ± 0.0	-0.7 ± 2.1	-9.4 ± 8.0	GA01345
FB3	-9.1	91.6	-2.0	0.3 ± 1.6	0.4 ± 3.2	-13.1 ± 7.7	GA01346
FB4	1.6	268.8	-1.9	0.0 ± 0.1	1.3 ± 3.0	-9.3 ± 7.8	GA01347
FC1	-9.1	313.1	-2.0	0.0 ± 0.1	-1.3 ± 2.7	-14.1 ± 7.1	GA01348
FC2	-9.1	169.1	-2.0	0.0 ± 0.0	-0.1 ± 2.4	-9.3 ± 7.6	GA01349
FC3	-9.1	335.3	-1.9	-0.5 ± 0.3	0.4 ± 3.2	-8.3 ± 7.0	GA01350
QA	N/A	N/A	N/A	0.0 ± 0.1	1.3 ± 3.0	-7.5 ± 8.3	GA01351
FC4	-9.1	268.8	-1.7	0.0 ± 0.1	-1.9 ± 2.4	-11.1 ± 7.7	GA01352
FD1	-9.1	14.0	-2.0	0.0 ± 0.0	0.5 ± 2.6	-28.3 ± 9.3	GA01353
FD2	-9.1	169.1	-2.0	-0.5 ± 0.3	0.9 ± 3.4	-30.9 ± 9.0	GA01354
FD3	12.3	36.2	-1.8	0.0 ± 0.1	-0.5 ± 2.3	-27.1 ± 9.9	GA01355
FD4	1.6	91.6	-1.8	0.0 ± 0.1	-1.3 ± 2.7	-30.4 ± 10.0	GA01356
WA1A	-9.1	14.0	-1.7	0.0 ± 0.0	-0.7 ± 2.1	-30.7 ± 10.1	GA01357
WA2A	12.3	58.3	-1.8	0.3 ± 1.6	-0.2 ± 3.0	-20.9 ± 9.1	GA01358
WA3A	-9.1	-30.3	-1.7	0.7 ± 1.5	0.1 ± 2.5	-21.6 ± 9.4	GA01359
WA4A	-9.1	-107.8	-1.5	0.7 ± 1.3	-1.9 ± 2.4	-28.9 ± 9.6	GA01360
WA1B	-9.1	25.1	-1.7	0.9 ± 1.8	0.5 ± 2.6	-23.8 ± 8.7	GA01361
WA2B	12.3	36.2	-1.6	-0.5 ± 0.3	0.4 ± 3.2	-24.7 ± 8.8	GA01362
WA3B	22.9	124.8	-1.6	0.0 ± 0.1	-1.6 ± 1.7	-42.6 ± 12.5	GA01363
WA4B	1.6	102.6	-1.7	0.0 ± 0.1	-1.9 ± 2.4	-26.2 ± 8.6	GA01364
WB1A	-9.1	-152.1	-1.6	0.0 ± 0.0	0.5 ± 2.6	-34.2 ± 11.0	GA01365
WB2A	1.6	-141.0	-1.7	0.3 ± 1.6	-0.8 ± 2.8	-34.2 ± 11.0	GA01366
WB3A	-9.1	-85.7	-1.9	0.0 ± 0.1	-1.0 ± 2.0	-27.7 ± 9.2	GA01367
WB4A	5.0	-174.3	-2.0	0.0 ± 0.1	-0.1 ± 3.1	-30.4 ± 9.6	GA01368
WB1B	-9.1	47.3	-1.6	0.0 ± 0.0	-1.9 ± 1.3	-24.6 ± 8.7	GA01369
WB2B	12.3	224.5	-1.6	-0.5 ± 0.3	-1.3 ± 2.5	-38.6 ± 12.9	GA01370
WB3B	1.6	257.7	-1.8	0.0 ± 0.1	0.1 ± 2.5	-27.1 ± 8.4	GA01371
WB4B	-9.1	124.8	-1.8	0.7 ± 1.3	1.1 ± 3.5	-49.1 ± 13.0	GA01372
WC1A	-9.1	-63.5	-1.8	0.0 ± 0.0	0.5 ± 2.6	-41.6 ± 11.7	GA01373
WC2A	-9.1	191.3	-1.8	1.1 ± 2.2	-1.9 ± 2.3	-16.6 ± 9.3	GA01374
WC3A	12.3	36.2	-1.9	0.0 ± 0.1	0.1 ± 2.5	-18.3 ± 9.2	GA01375
WC4A	1.6	202.3	-1.9	0.0 ± 0.1	0.5 ± 3.3	-22.1 ± 8.6	GA01376
WC1B	-9.1	146.9	-2.0	0.0 ± 0.0	1.1 ± 2.9	-25.5 ± 8.5	GA01377
WC2B	-9.1	58.3	-2.0	-0.5 ± 0.3	-0.8 ± 2.8	-19.1 ± 9.1	GA01378
WC3B	12.3	180.2	-1.8	0.0 ± 0.1	-1.6 ± 1.7	-19.6 ± 9.3	GA01379
WC4B	-9.1	169.1	-2.0	0.0 ± 0.1	-1.9 ± 2.4	-20.4 ± 9.0	GA01380
WD1A	-9.1	-107.8	-2.2	0.9 ± 1.8	-0.7 ± 2.1	-22.1 ± 8.8	GA01381
WD2A	1.6	80.5	-2.3	-0.5 ± 0.3	2.0 ± 3.7	-21.8 ± 9.6	GA01382
WD3A	12.3	158.0	-2.4	0.0 ± 0.1	-1.6 ± 1.7	-24.3 ± 8.6	GA01383
WD4A	1.6	25.1	-2.3	0.7 ± 1.3	-0.7 ± 2.9	-31.1 ± 11.3	GA01384
WD1B	-9.1	80.5	-2.5	0.0 ± 0.0	-0.7 ± 2.1	-17.9 ± 9.2	GA01385
WD2B	-9.1	14.0	-2.4	0.3 ± 1.6	-3.5 ± 1.3	-20.4 ± 9.0	GA01386
WD3B	5.0	-107.8	-2.5	0.0 ± 0.1	-0.5 ± 2.3	-25.6 ± 9.5	GA01387
WD4B	20.1	-196.4	-2.3	0.0 ± 0.1	1.1 ± 3.5	-21.3 ± 8.9	GA01388
RCNT1	-9.1	191.3	-2.2	0.0 ± 0.0	-0.1 ± 2.4	-18.5 ± 8.1	GA01389

GRAPHICAL ILLUSTRATION

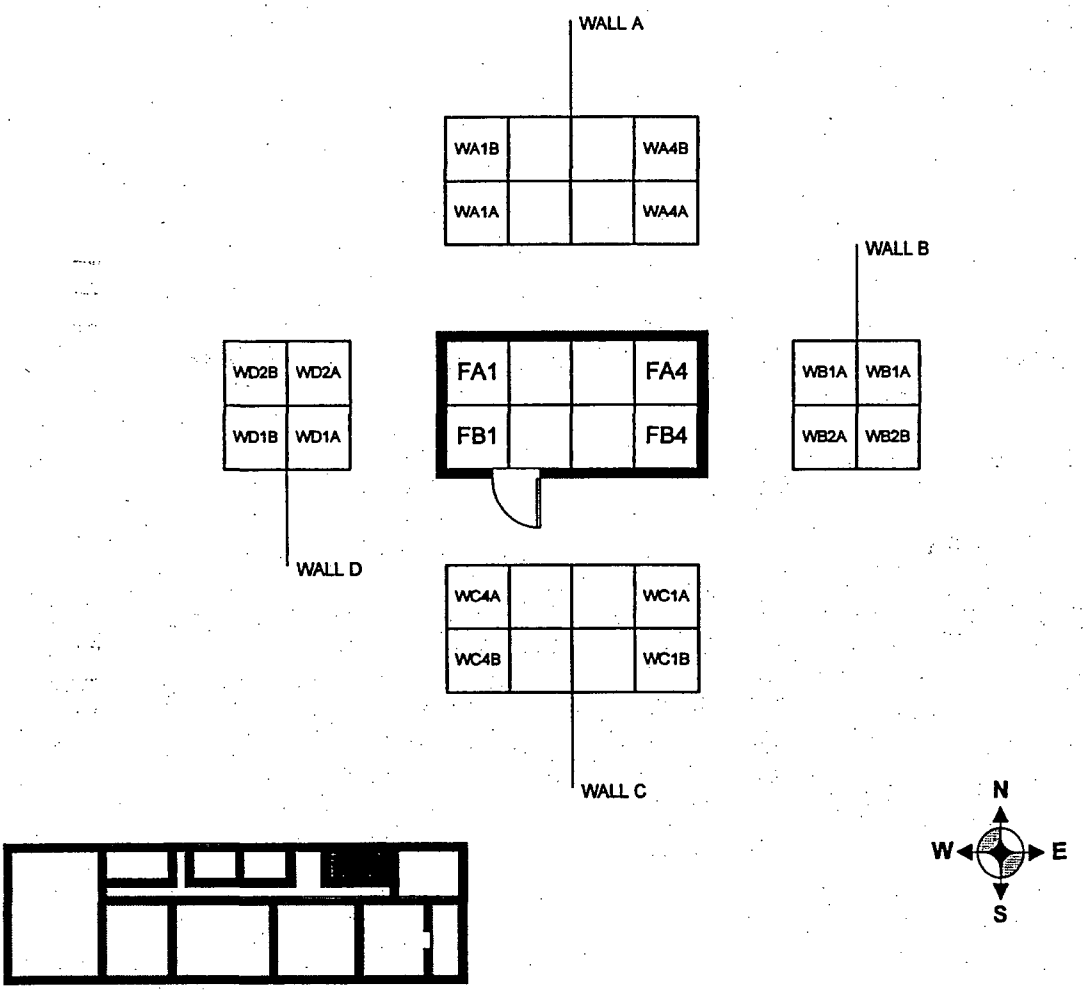


BUILDING T-2805 ROOM 6, DENTAL RESEARCH CLINIC,
FORT GEORGE G. MEADE, MD

U.S. ARMY CENTER FOR HEALTH PROMOTION
AND PREVENTIVE MEDICINE
UNITED STATES ARMY MEDICAL DEPARTMENT

DATE:	10 SEPT 97
DRAWN:	JKD
APPROVED:	HE
SCALE:	NTS
PLATE:	N/A

GRAPHICAL ILLUSTRATION



BUILDING T-2805 ROOM 7, DENTAL RESEARCH CLINIC,
FORT GEORGE G. MEADE, MD

U.S. ARMY CENTER FOR HEALTH PROMOTION
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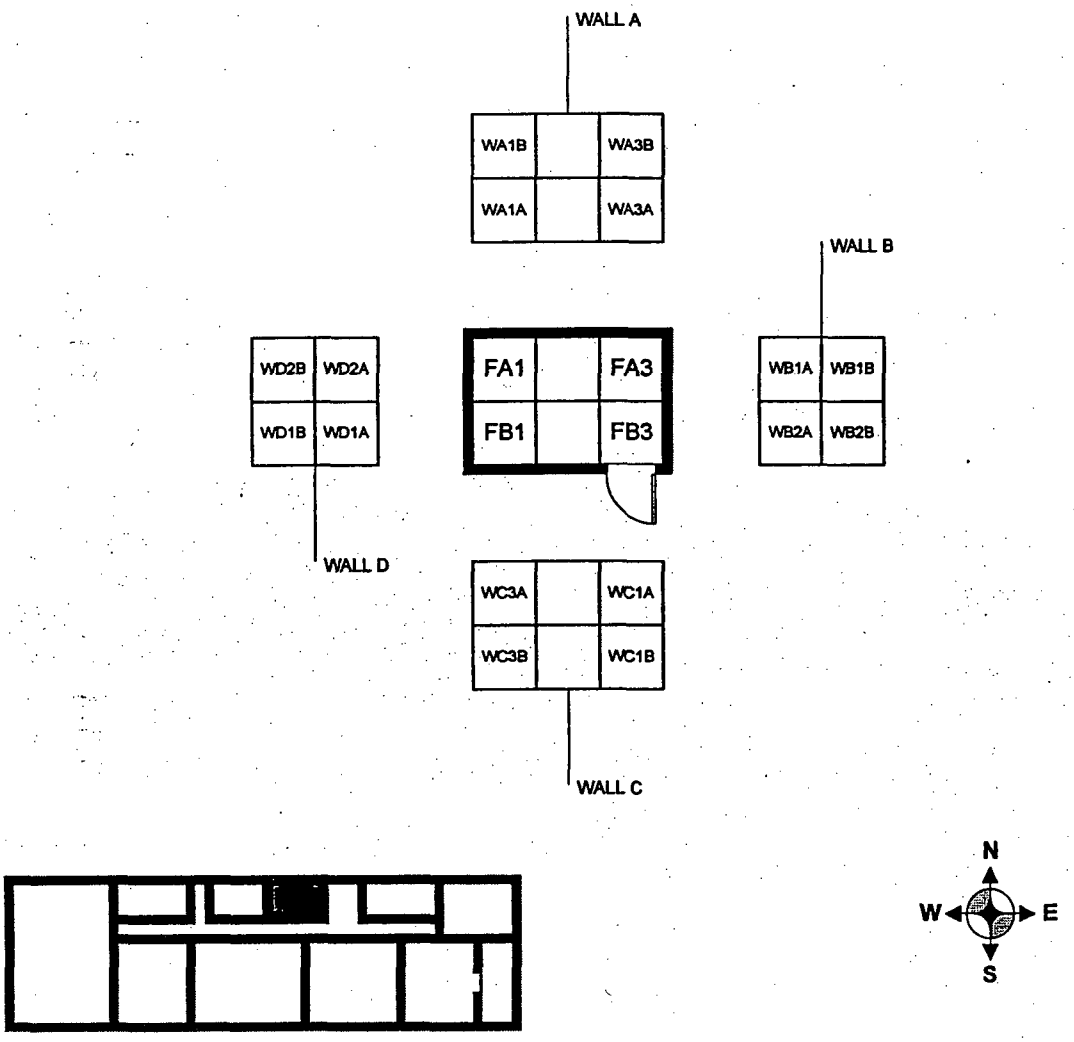
Fort Meade, Building 2805 (Room 6)							
Location Code	Monitoring			Wipe Test			Wipe Number
	Alpha	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>)	1.7	149.47	5.00	0.0	2.4	20.4	
(MDA =>)	54	401	-	2.6	2.8	36.0	
RCNT2	-9.1	36.2	-1.8	0.3 ± 1.6	2.0 ± 3.7	-26.7 ± 9.7	GA01390
RVNT3	-9.1	124.8	-1.6	0.0 ± 0.1	0.7 ± 2.8	-33.6 ± 17.3	GA01391
RCNT4	-9.1	169.1	-1.5	0.0 ± 0.1	-1.9 ± 2.4	-21.3 ± 8.9	GA01392
RSNK5	1.6	-8.1	-1.4	0.0 ± 0.0	1.1 ± 2.9	-18.8 ± 13.7	GA01393
RCAB6	-9.1	91.6	-1.8	-0.5 ± 0.3	-1.3 ± 2.5	-23.6 ± 9.4	GA01394
RD7	1.6	124.8	-1.8	0.0 ± 0.1	-0.5 ± 2.3	-28.9 ± 10.8	GA01395
RD8	12.3	135.9	-1.8	0.0 ± 0.1	0.5 ± 3.3	-20.9 ± 9.7	GA01396
RCNT9	-9.1	14.0	-1.6	0.0 ± 0.0	-0.1 ± 2.4	-26.2 ± 9.7	GA01397

GRAPHICAL ILLUSTRATION

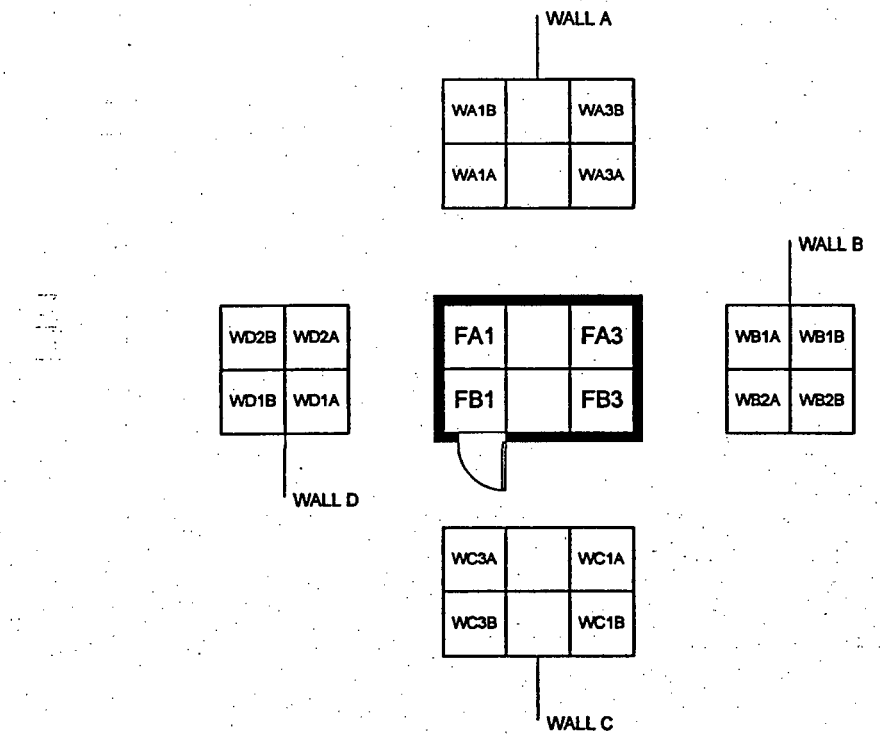


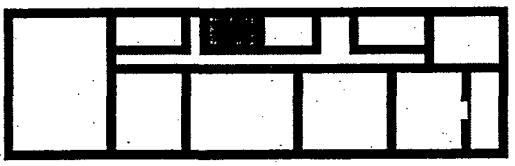
BUILDING T-2805 ROOM 8, DENTAL RESEARCH CLINIC, FORT GEORGE G. MEADE, MD	DATE: 10 SEPT 97
	DRAWN: JKD
U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE UNITED STATES ARMY MEDICAL DEPARTMENT	APPROVED: HE
	SCALE: NTS
	PLATE: N/A

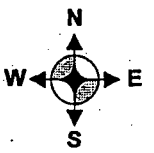
Fort Meade, Building 2805 (Room 7)							
Location Code	Monitoring			Wipe Test			Wipe Number
	Alpha	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>)	1.7	149.47	5.00	0.0	2.4	28.8	
(MDA =>)	54	401	-	2.6	2.6	48.8	
FA1	1.6	966.6	-1.8	0.3 ± 1.6	-0.8 ± 2.8	-16.8 ± 17.0	GA01398
FA2	33.6	180.2	-1.7	0.0 ± 0.1	3.0 ± 3.6	-20.0 ± 11.4	GA01399
QA	N/A	N/A	N/A	0.5 ± 1.3	-0.2 ± 2.2	-14.0 ± 8.5	GA01400
FA3	-9.1	102.6	-1.8	-0.2 ± 0.1	0.8 ± 2.6	-22.7 ± 13.3	GA01401
FA4	-9.1	102.6	-1.8	-0.2 ± 0.1	-2.1 ± 1.1	-21.1 ± 11.3	GA01402
FB1	-9.1	268.8	-1.5	-0.2 ± 0.1	1.3 ± 2.8	-10.4 ± 9.1	GA01403
FB2	33.6	368.5	-1.5	-0.2 ± 0.1	1.3 ± 2.8	-8.8 ± 9.9	GA01404
FB3	-9.1	180.2	-1.6	1.1 ± 1.8	3.3 ± 3.4	-16.6 ± 9.8	GA01405
FB4	-9.1	146.9	-1.6	0.5 ± 1.3	1.3 ± 2.8	-19.5 ± 9.8	GA01406
WA1A	-9.1	102.6	-1.5	-0.2 ± 0.1	1.3 ± 2.8	-15.2 ± 8.6	GA01407
WA2A	1.6	-19.2	-1.4	0.5 ± 1.3	0.3 ± 2.4	-14.0 ± 8.5	GA01408
WA3A	10.1	80.5	-1.5	0.5 ± 1.3	0.3 ± 2.4	-17.0 ± 8.5	GA01409
WA4A	1.6	-30.3	-1.6	-0.2 ± 0.1	0.8 ± 2.6	-10.6 ± 8.9	GA01410
WA1B	-9.1	169.1	-1.5	2.4 ± 2.5	3.8 ± 3.5	-16.1 ± 8.6	GA01411
WA2B	-9.1	58.3	-1.5	-0.2 ± 0.1	0.8 ± 2.6	-13.0 ± 8.9	GA01412
WA3B	1.6	302.0	-1.6	-0.2 ± 0.1	0.8 ± 2.6	-15.7 ± 8.6	GA01413
WA4B	-9.1	268.8	-1.8	2.4 ± 2.5	1.3 ± 2.8	-32.6 ± 14.1	GA01414
WB1A	1.6	47.3	-1.9	-0.2 ± 0.1	0.3 ± 2.4	-18.7 ± 8.3	GA01415
WB2A	1.6	91.6	-2.1	0.5 ± 1.3	-1.2 ± 1.7	-19.6 ± 8.0	GA01416
WB1B	1.6	146.9	-2.1	-0.2 ± 0.1	2.3 ± 3.1	-15.2 ± 8.6	GA01417
WB2B	1.6	91.6	-2.1	-0.2 ± 0.1	-0.7 ± 2.0	-11.1 ± 8.8	GA01418
WC1A	-9.1	-85.7	-2.1	-0.2 ± 0.1	-1.2 ± 1.7	-17.5 ± 8.0	GA01419
WC2A	12.3	3.0	-2.1	-0.2 ± 0.1	1.3 ± 2.8	-15.3 ± 8.4	GA01420
WC3A	1.6	-52.4	-2.0	-0.2 ± 0.1	0.3 ± 2.4	-15.7 ± 8.4	GA01421
WC4A	12.3	14.0	-2.1	-0.2 ± 0.1	0.8 ± 2.6	-14.5 ± 8.5	GA01422
WC1B	12.3	3.0	-2.1	0.5 ± 1.3	1.8 ± 2.9	-17.0 ± 8.3	GA01423
WC2B	1.6	80.5	-2.0	-0.2 ± 0.1	0.3 ± 2.4	-15.3 ± 8.4	GA01424
WC3B	-9.1	158.0	-1.9	-0.2 ± 0.1	-0.7 ± 2.0	-14.5 ± 8.5	GA01425
WC4B	1.6	-96.7	-1.8	-0.2 ± 0.1	-0.2 ± 2.2	-24.6 ± 9.5	GA01426
WD1A	1.6	25.1	-2.2	0.5 ± 1.3	1.8 ± 2.9	-14.3 ± 8.7	GA01427
WD2A	22.9	180.2	-2.1	-0.2 ± 0.1	4.3 ± 3.6	-18.3 ± 8.3	GA01428
WD1B	22.9	80.5	-2.1	1.1 ± 1.8	0.3 ± 2.4	-20.5 ± 8.8	GA01429
WD2B	12.3	135.9	-1.9	-0.2 ± 0.1	-1.2 ± 1.7	-14.9 ± 8.5	GA01430
RVNT	-9.1	102.6	-2.1	3.0 ± 2.8	6.2 ± 4.1	-37.6 ± 23.7	GA01431

Fort Meade, Building 2805 (Room 8)							
Location Code	Monitoring			Wipe Test			Wipe Number
	Alpha	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>)	1.7	149.47	5.00	0.2	2.7	26.5	
(MDA =>)	54	401	-	2.0	2.2	18.8	
FA1	22.9	1321.1	-3.5	-0.2 ± 0.1	0.8 ± 2.6	-10.4 ± 7.9	GA01432
FA2	12.3	1542.6	-3.1	3.7 ± 3.1	2.3 ± 3.1	-9.2 ± 8.0	GA01433
FA3	12.3	1487.2	-2.7	-0.2 ± 0.1	-1.2 ± 1.7	-10.0 ± 8.0	GA01434
FB1	1.6	1487.2	-2.4	0.0 ± 0.0	-0.6 ± 2.0	-11.2 ± 7.9	GA01435
FB2	-9.1	1454.0	-2.1	-0.2 ± 0.1	0.8 ± 2.6	-9.2 ± 8.0	GA01436
FB3	-9.1	1199.2	-1.9	-0.2 ± 0.1	1.3 ± 2.8	-11.5 ± 7.8	GA01437
WA1A	1.6	-41.3	-1.9	-0.2 ± 0.1	-0.7 ± 2.0	-16.2 ± 7.4	GA01438
WA2A	-9.1	3.0	-1.8	-0.2 ± 0.1	0.8 ± 2.6	-17.3 ± 7.3	GA01439
WA3A	12.3	191.3	-1.6	-0.2 ± 0.1	-1.2 ± 1.7	-11.9 ± 7.8	GA01440
WA1B	-9.1	146.9	-1.4	-0.2 ± 0.1	1.3 ± 2.8	-11.2 ± 7.9	GA01441
WA2B	-9.1	36.2	-1.5	0.5 ± 1.3	-0.7 ± 2.0	-13.1 ± 7.7	GA01442
WA3B	-9.1	36.2	-1.4	-0.2 ± 0.1	-0.7 ± 2.0	-15.8 ± 8.2	GA01443
WB1A	40.3	988.8	-1.4	-0.2 ± 0.1	0.8 ± 2.6	-16.2 ± 8.1	GA01444
WB2A	1.6	-85.7	-1.4	-0.2 ± 0.1	0.3 ± 2.4	-16.9 ± 8.0	GA01445
WB1B	-9.1	14.0	-1.4	-0.2 ± 0.1	1.3 ± 2.8	-18.1 ± 7.9	GA01446
WB2B	1.6	-8.1	-1.4	-0.2 ± 0.1	0.3 ± 2.4	-15.0 ± 8.2	GA01447
WC1A	-9.1	14.0	-1.5	-0.2 ± 0.1	-0.7 ± 2.0	-13.1 ± 8.4	GA01448
WC2A	1.6	47.3	-1.5	-0.2 ± 0.1	-0.7 ± 2.0	-17.3 ± 8.0	GA01449
BLANK	-9.1	25.1	-1.1	-0.2 ± 0.1	1.3 ± 2.8	-21.7 ± 8.6	GA01450
WC3A	1.6	146.9	-1.6	1.8 ± 2.2	1.3 ± 2.8	-16.2 ± 8.1	GA01451
WC1B	1.6	69.4	-1.5	0.5 ± 1.3	0.3 ± 2.4	-13.8 ± 8.3	GA01452
WC2B	-9.1	-141.0	-1.6	-0.2 ± 0.1	-1.6 ± 1.5	-16.9 ± 8.0	GA01453
WC3B	-9.1	-41.3	-1.7	-0.2 ± 0.1	-0.7 ± 2.0	-15.4 ± 8.2	GA01454
WD1A	1.6	58.3	-1.9	-0.2 ± 0.1	0.3 ± 2.4	-18.5 ± 7.9	GA01455
WD2A	-9.1	3.0	-1.9	-0.2 ± 0.1	-0.2 ± 2.2	-18.8 ± 7.9	GA01456
WD1B	1.6	180.2	-1.7	0.5 ± 1.3	0.3 ± 2.4	-17.3 ± 8.0	GA01457
WD2B	-9.1	113.7	-1.7	-0.2 ± 0.1	0.8 ± 2.6	-16.2 ± 8.1	GA01458
RD1	10.1	191.3	-1.9	-0.2 ± 0.1	-0.2 ± 2.2	-15.0 ± 8.2	GA01459
RSHFL2	1.6	379.6	-1.5	-0.2 ± 0.1	1.8 ± 2.9	-16.9 ± 8.0	GA01460
RSNK	33.6	2528.4	-1.5	2.4 ± 2.5	-0.7 ± 2.0	-13.1 ± 8.4	GA01461

GRAPHICAL ILLUSTRATION





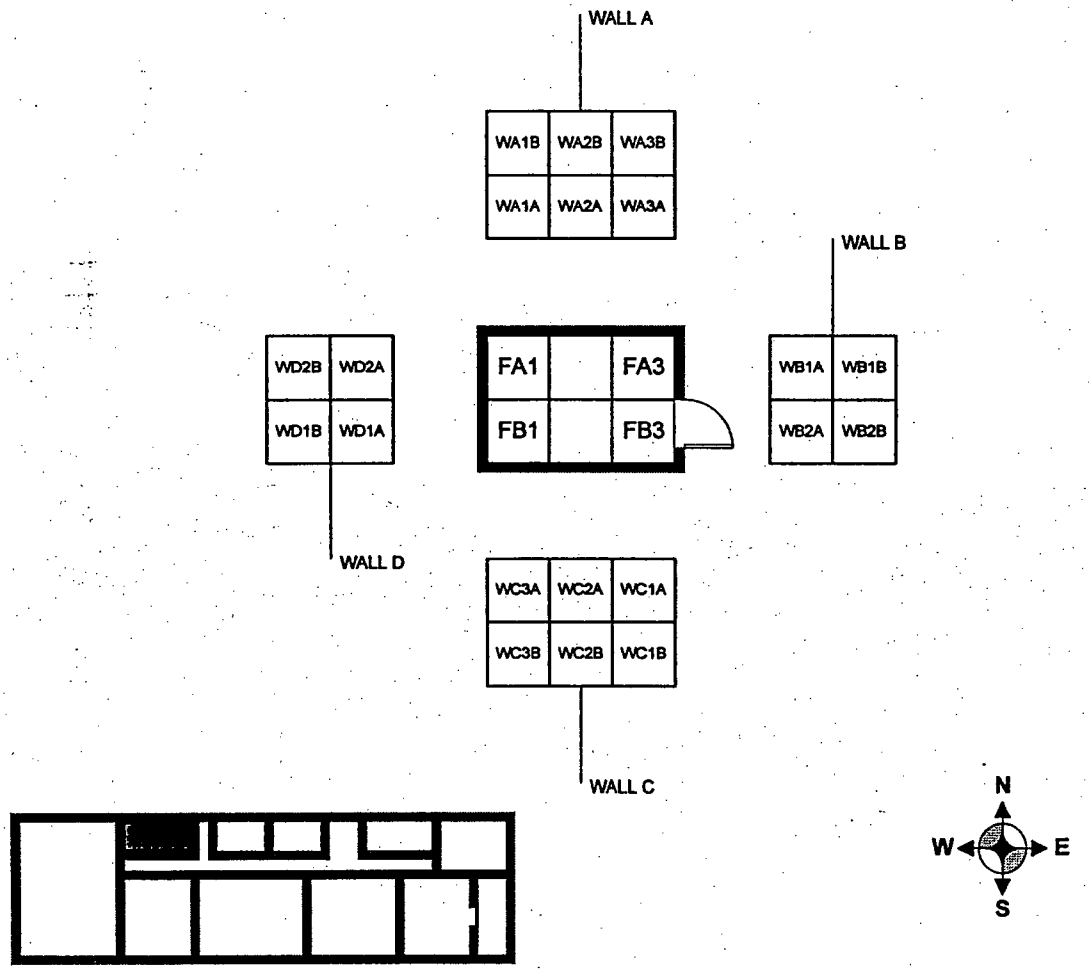


BUILDING T-2805 ROOM 9, DENTAL RESEARCH CLINIC,
FORT GEORGE G. MEADE, MD

U.S. ARMY CENTER FOR HEALTH PROMOTION
AND PREVENTIVE MEDICINE
UNITED STATES ARMY MEDICAL DEPARTMENT

DATE:	10 SEPT 97
DRAWN:	JKD
APPROVED:	HE
SCALE:	NTS
PLATE:	N/A

GRAPHICAL ILLUSTRATION



BUILDING T-2805 ROOM 10, DENTAL RESEARCH CLINIC, FORT GEORGE G. MEADE, MD

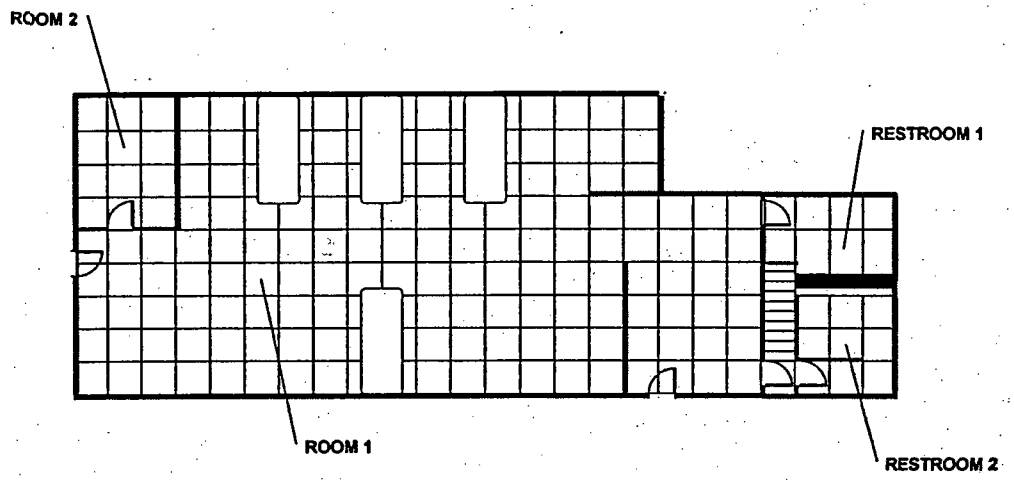
U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE
UNITED STATES ARMY MEDICAL DEPARTMENT

DATE:	10 SEPT 97
DRAWN:	JKD
APPROVED:	HE
SCALE:	NTS
PLATE:	N/A

Fort Meade, Building 2805 (Room 9)							
Location Code	Monitoring			Wipe Test			Wipe Number
	Alpha	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>)	1.7	149.47	5.00	0.0	2.4	29.6	
(MDA =>)	54	386	-	2.1	2.4	20.6	
FA1	22.9	1239.0	-1.5	1.1 ± 1.8	0.3 ± 2.4	-20.5 ± 9.5	GA01462
FA2	-9.1	1089.8	-1.4	-0.2 ± 0.1	-1.2 ± 1.7	-22.2 ± 8.8	GA01463
FA3	-9.1	1377.5	-1.2	0.5 ± 1.3	0.8 ± 2.6	-17.0 ± 9.1	GA01464
FB1	1.6	1761.1	-1.1	-0.2 ± 0.1	-1.2 ± 1.7	-14.4 ± 10.3	GA01465
FB2	22.9	1345.5	-1.0	0.5 ± 1.3	0.3 ± 2.4	-24.0 ± 8.9	GA01466
FB3	-9.1	1452.1	-1.1	-0.2 ± 0.1	1.3 ± 2.8	-16.2 ± 9.1	GA01467
WA1A	-9.1	120.1	-1.1	0.5 ± 1.3	-1.2 ± 1.7	-20.0 ± 8.8	GA01468
WA2A	-9.1	279.9	-1.4	-0.2 ± 0.1	-1.2 ± 1.7	-17.0 ± 9.1	GA01469
WA3A	-9.1	56.1	-1.1	-0.2 ± 0.1	-1.2 ± 1.7	-17.5 ± 8.8	GA01470
WA1B	12.3	98.8	-1.1	0.5 ± 1.3	-0.7 ± 2.0	-18.3 ± 8.9	GA01471
WA2B	1.6	141.4	-1.1	-0.2 ± 0.1	-0.2 ± 2.2	-16.3 ± 8.9	GA01472
WA3B	-9.1	-7.8	-1.0	0.5 ± 1.3	2.8 ± 3.2	-20.0 ± 8.8	GA01473
WB1A	-9.1	1143.1	-1.0	-0.2 ± 0.1	-1.2 ± 1.7	-16.2 ± 9.1	GA01474
WB2A	12.3	184.0	-1.0	-0.2 ± 0.1	0.3 ± 2.4	-18.7 ± 8.9	GA01475
WB1B	1.6	-61.1	-1.2	0.5 ± 1.3	-0.2 ± 2.2	-16.2 ± 9.1	GA01476
WB2B	-9.1	194.7	-1.2	-0.2 ± 0.1	4.3 ± 3.6	-19.1 ± 9.1	GA01477
WC1A	1.6	-125.0	-1.3	-0.2 ± 0.1	-1.2 ± 1.7	-19.6 ± 8.8	GA01478
WC2A	-9.1	130.7	-1.4	0.5 ± 1.3	0.8 ± 2.6	-17.7 ± 9.7	GA01479
WC3A	-9.1	13.5	-1.4	-0.2 ± 0.1	-0.2 ± 2.2	-17.4 ± 9.3	GA01480
WC1B	-9.1	-50.4	-1.4	-0.2 ± 0.1	-0.2 ± 2.2	-21.7 ± 8.6	GA01481
WC2B	-9.1	184.0	-1.5	0.5 ± 1.3	0.8 ± 2.6	-20.4 ± 9.0	GA01482
WC3B	1.6	-82.4	-1.5	-0.2 ± 0.1	0.3 ± 2.4	-19.1 ± 8.9	GA01483
WD1A	12.3	152.0	-1.5	0.5 ± 1.3	0.8 ± 2.6	-22.1 ± 8.4	GA01484
WD2A	-9.1	-82.4	-1.5	0.8 ± 1.5	0.1 ± 2.5	-12.1 ± 9.3	GA01485
WD1B	-9.1	-29.1	-1.5	0.8 ± 1.5	-2.0 ± 1.2	-15.3 ± 9.2	GA01486
WD2B	-9.1	88.1	-1.4	0.0 ± 0.0	1.2 ± 2.9	-15.4 ± 9.0	GA01487
RSNK	1.6	2453.8	-1.4	0.0 ± 0.0	0.1 ± 2.5	-12.8 ± 8.8	GA01488

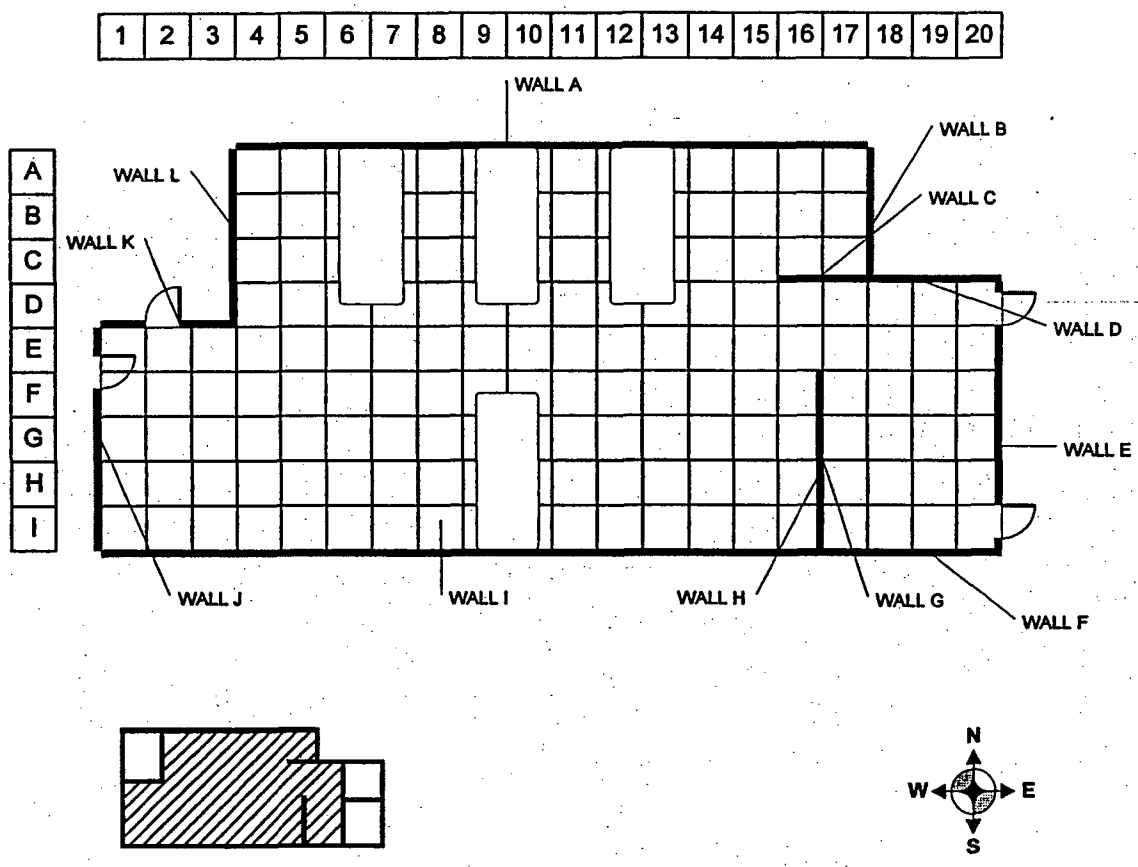
Fort Meade, Building 2805 (Room 10)							
Location Code	Monitoring			Wipe Test			Wipe Number
	Alpha	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>)	1.7	149.47	5.00	0.3	2.0	35.1	
(MDA =>)	54	401	-	1.9	1.8	40.0	
FA1	1.6	224.5	-1.9	0.3 ± 1.1	-0.7 ± 1.5	-26.8 ± 10.3	GA01603
FA2	-9.1	213.4	-1.7	-0.3 ± 0.2	-0.3 ± 1.7	-19.1 ± 20.9	GA01604
FA3	-9.1	25.1	-1.5	-0.3 ± 0.2	1.4 ± 2.4	-23.8 ± 10.3	GA01605
FA4	-9.1	124.8	-1.2	-0.3 ± 0.2	-0.3 ± 1.7	-15.4 ± 13.5	GA01606
FB1	1.6	357.4	-1.0	-0.3 ± 0.2	-0.3 ± 1.7	-28.2 ± 12.8	GA01607
FB2	-9.1	135.9	-0.8	0.3 ± 1.1	-0.3 ± 1.7	-21.4 ± 10.5	GA01608
FB3	-9.1	58.3	-0.6	-0.3 ± 0.2	-0.3 ± 1.7	-14.8 ± 17.9	GA01609
FB4	-9.1	25.1	-0.6	-0.3 ± 0.2	-0.7 ± 1.5	-28.1 ± 11.6	GA01610
WA1A	1.6	102.6	-0.8	-0.3 ± 0.2	1.8 ± 2.5	-22.9 ± 8.8	GA01611
WA2A	12.3	69.4	-0.8	2.6 ± 2.5	6.0 ± 3.6	-21.7 ± 8.9	GA01612
WA3A	-9.1	113.7	-0.8	-0.3 ± 0.2	0.5 ± 2.1	-21.3 ± 9.0	GA01613
WA4A	1.6	434.9	-0.8	0.3 ± 1.1	-0.7 ± 1.5	-24.8 ± 9.1	GA01614
WA1B	1.6	102.6	-0.8	-0.3 ± 0.2	0.9 ± 2.2	-34.1 ± 11.1	GA01615
WA2B	-9.1	135.9	-0.6	0.3 ± 1.1	0.9 ± 2.2	-33.8 ± 10.3	GA01616
WA3B	1.6	58.3	-0.6	-0.3 ± 0.2	1.4 ± 2.4	-26.7 ± 8.5	GA01617
WA4B	-9.1	47.3	-0.7	0.3 ± 1.1	-0.7 ± 1.5	-24.3 ± 8.9	GA01618
WB1A	12.3	158.0	-0.8	-0.3 ± 0.2	0.5 ± 2.1	-21.3 ± 9.0	GA01619
WB2A	12.3	69.4	-0.8	0.3 ± 1.1	1.8 ± 2.5	-21.2 ± 8.8	GA01620
WB1B	1.6	-141.0	-0.9	-0.3 ± 0.2	0.1 ± 1.9	-24.8 ± 9.1	GA01621
WB2B	1.6	25.1	-0.8	-0.3 ± 0.2	1.8 ± 2.5	-20.0 ± 9.1	GA01622
WC1A	12.3	113.7	-1.0	-0.3 ± 0.2	1.4 ± 2.4	-18.3 ± 9.2	GA01623
WC2A	1.6	91.6	-0.9	-0.3 ± 0.2	-0.7 ± 1.5	-21.7 ± 8.9	GA01624
WC3A	12.3	3.0	-0.8	-0.3 ± 0.2	0.1 ± 1.9	-25.8 ± 8.6	GA01625
WC4A	22.9	47.3	-0.8	1.4 ± 2.0	2.2 ± 2.6	-17.9 ± 9.3	GA01626
WC1B	1.6	25.1	-1.0	-0.3 ± 0.2	-1.2 ± 1.2	-24.6 ± 8.7	GA01627
WC2B	12.3	69.4	-1.2	-0.3 ± 0.2	0.5 ± 2.1	-24.9 ± 8.4	GA01628
WC3B	-9.1	-74.6	-0.9	-0.3 ± 0.2	0.5 ± 2.1	-18.3 ± 9.2	GA01629
WC4B	1.6	-96.7	-0.9	0.3 ± 1.1	3.5 ± 3.0	-27.1 ± 8.4	GA01630
WD1A	1.6	335.3	-0.7	-0.3 ± 0.2	-1.6 ± 0.9	-25.4 ± 8.6	GA01631
WD2A	-9.1	-74.6	-0.8	-0.3 ± 0.2	-0.3 ± 1.7	-24.7 ± 8.9	GA01632
WD1B	-9.1	58.3	-0.8	-0.3 ± 0.2	0.9 ± 2.2	-21.3 ± 9.0	GA01633
WD2B	1.6	25.1	-0.8	-0.3 ± 0.2	-0.3 ± 1.7	-22.9 ± 8.8	GA01634

GRAPHICAL ILLUSTRATION



BUILDING T-2813 FIRST FLOOR, DENTAL RESEARCH CLINIC, FORT GEORGE G. MEADE, MD	DATE: 9 SEPT 97
	DRAWN: JKD
U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE UNITED STATES ARMY MEDICAL DEPARTMENT	APPROVED: HE
	SCALE: NTS
	PLATE: N/A

GRAPHICAL ILLUSTRATION



BUILDING T-2813 ROOM 1, DENTAL RESEARCH CLINIC, FORT GEORGE G. MEADE, MD

U.S. ARMY CENTER FOR HEALTH PROMOTION
AND PREVENTIVE MEDICINE
UNITED STATES ARMY MEDICAL DEPARTMENT

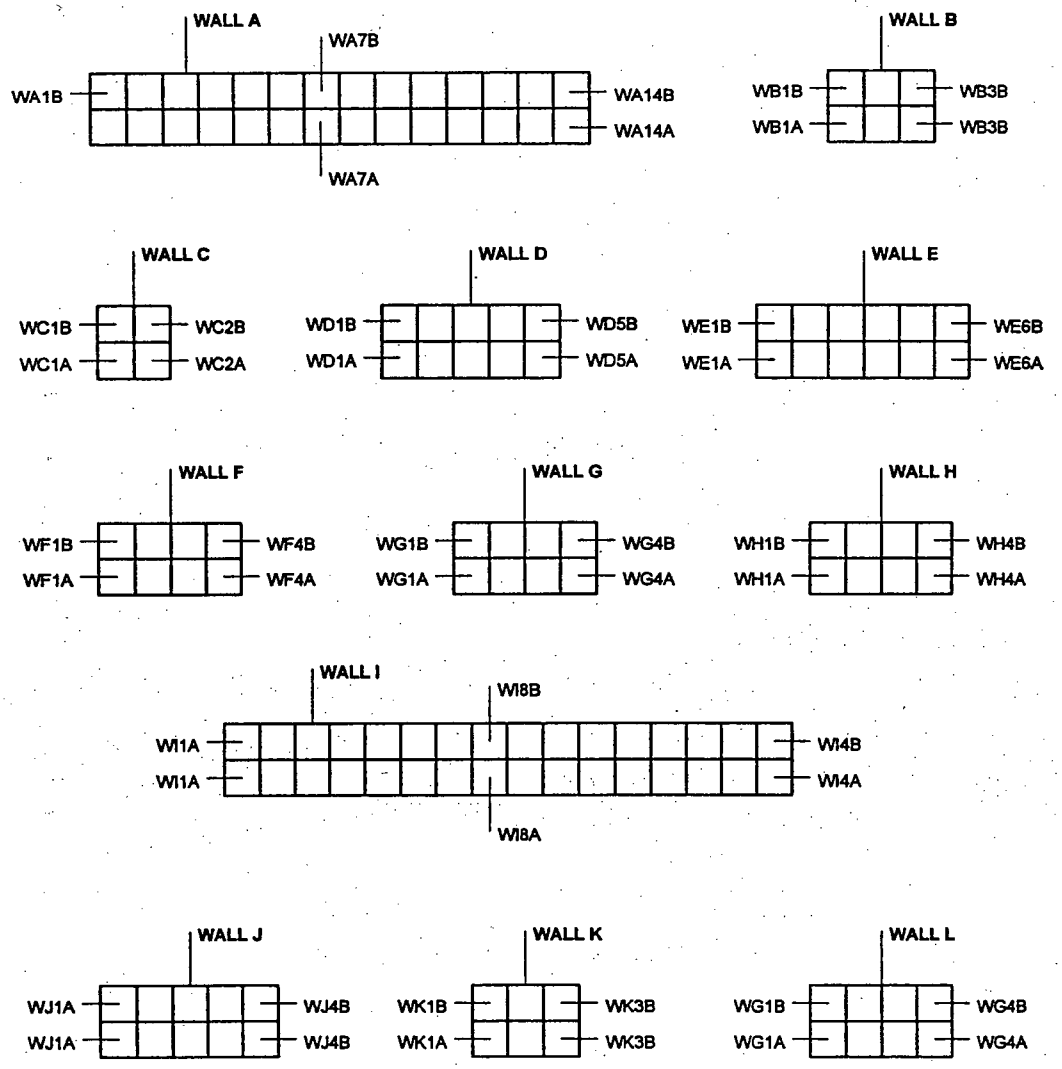
DATE:	8 SEPT 97
DRAWN:	JKD
APPROVED:	HE
SCALE:	NTS
PLATE:	N/A

Fort Meade, Building 2813 (Room 1 - Floors)							
Location Code	Monitoring			Wipe Test			Wipe Number
	Alpha	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>)	1.7	149.47	5.70	0.1	2.0	23.5	
(MDA =>)	54	401	-	2.3	2.4	23.1	
FA4	12.3	235.6	-0.3	0.9 ± 1.6	0.9 ± 2.2	-25.1 ± 9.6	GA00001
FA5	-9.1	158.0	-0.3	0.9 ± 1.6	-0.3 ± 1.7	-27.1 ± 9.2	GA00002
FA6	-9.1	302.0	-0.3	0.3 ± 1.1	2.6 ± 2.8	-24.3 ± 9.7	GA00003
FA7	12.3	180.2	-0.3	0.9 ± 1.6	2.6 ± 2.8	-31.6 ± 9.6	GA00004
FA8	-9.1	346.3	-0.3	-0.2 ± 0.2	0.5 ± 2.1	-26.0 ± 9.5	GA00005
FA9	-9.1	124.8	-0.3	-0.2 ± 0.2	0.5 ± 2.1	-23.0 ± 10.0	GA00006
FA10	1.6	14.0	-0.5	-0.2 ± 0.2	0.9 ± 2.2	-27.7 ± 9.4	GA00007
FA11	-9.1	324.2	-0.5	0.3 ± 1.1	0.5 ± 2.1	-25.2 ± 9.9	GA00008
FA12	12.3	146.9	-0.5	0.3 ± 1.1	0.5 ± 2.1	-21.7 ± 9.7	GA00009
FA13	12.3	313.1	-0.7	0.3 ± 1.1	0.5 ± 2.1	-28.1 ± 9.4	GA00010
FA14	-9.1	268.8	-0.7	0.3 ± 1.1	0.5 ± 2.1	-30.2 ± 9.2	GA00011
FA15	-9.1	180.2	-0.6	0.9 ± 1.6	1.4 ± 2.4	-29.8 ± 9.7	GA00012
FA16	-9.1	146.9	-0.4	-0.2 ± 0.2	0.5 ± 2.1	-28.6 ± 10.7	GA00013
FA17	-9.1	191.3	-0.3	-0.2 ± 0.2	0.5 ± 2.1	-30.5 ± 10.0	GA00014
FB4	1.6	80.5	-0.4	-0.2 ± 0.2	-0.3 ± 1.7	-30.0 ± 10.0	GA00015
FB5	1.6	25.1	-0.3	0.3 ± 1.1	0.9 ± 2.2	-24.7 ± 9.7	GA00016
FB6	-9.1	268.8	-0.2	-0.2 ± 0.2	0.9 ± 2.2	-24.6 ± 9.4	GA00017
FB7	-9.1	246.6	-0.2	-0.2 ± 0.2	0.5 ± 2.1	-32.2 ± 9.3	GA00018
FB8	-9.1	423.9	-0.3	-0.2 ± 0.2	0.5 ± 2.1	-28.9 ± 9.3	GA00019
FB9	-9.1	169.1	-0.4	-0.2 ± 0.2	-0.3 ± 1.7	-31.1 ± 9.1	GA00020
FB10	12.3	36.2	-0.7	0.9 ± 1.6	0.1 ± 1.9	-27.2 ± 9.4	GA00021
FB11	12.3	191.3	-0.9	-0.2 ± 0.2	1.4 ± 2.4	-24.3 ± 9.7	GA00022
FB12	-9.1	36.2	-0.9	0.9 ± 1.6	0.5 ± 2.1	-26.3 ± 9.3	GA00023
FB13	-9.1	246.6	-0.7	0.9 ± 1.6	-0.3 ± 1.7	-27.2 ± 9.4	GA00024
FB14	-9.1	158.0	-0.9	-0.2 ± 0.2	1.8 ± 2.5	-25.1 ± 9.6	GA00025
FB15	-9.1	202.3	-0.7	0.3 ± 1.1	0.5 ± 2.1	-26.4 ± 9.5	GA00026
FB16	-9.1	313.1	-0.5	-0.2 ± 0.2	0.9 ± 2.2	-26.1 ± 9.8	GA00027
FB17	-9.1	368.5	-0.5	0.3 ± 1.1	0.9 ± 2.2	-22.6 ± 10.1	GA00028
FC4	-9.1	446.0	-0.5	0.3 ± 1.1	0.5 ± 2.1	-26.4 ± 9.5	GA00029
FC5	-9.1	124.8	-0.4	-0.2 ± 0.2	0.5 ± 2.1	-27.2 ± 9.4	GA00030
FC6	-9.1	390.6	-0.4	0.9 ± 1.6	-1.2 ± 1.2	-25.1 ± 9.6	GA00031
FC7	1.6	257.7	-0.4	-0.2 ± 0.2	-0.3 ± 1.7	-23.8 ± 9.5	GA00032
FC8	-9.1	102.6	-0.6	-0.2 ± 0.2	0.9 ± 2.2	-25.1 ± 9.6	GA00033
FC9	1.6	14.0	-1.0	0.3 ± 1.1	0.5 ± 2.1	-24.2 ± 9.4	GA00034
FC10	-9.1	379.6	-1.0	-0.2 ± 0.2	-0.3 ± 1.7	-23.3 ± 9.5	GA00035
FC11	-9.1	102.6	-1.1	-0.2 ± 0.2	-0.7 ± 1.5	-25.1 ± 9.6	GA00036
FC12	-9.1	412.8	-1.1	-0.2 ± 0.2	0.5 ± 2.1	-31.1 ± 9.6	GA00037
FC13	-9.1	313.1	-0.9	-0.2 ± 0.2	3.5 ± 3.0	-30.6 ± 9.1	GA00038
FC14	-9.1	102.6	-1.0	-0.2 ± 0.2	0.9 ± 2.2	-26.4 ± 9.5	GA00039
FC15	1.6	235.6	-1.0	-0.2 ± 0.2	0.9 ± 2.2	-31.5 ± 9.1	GA00040
FC16	12.3	36.2	-1.1	0.9 ± 1.6	2.2 ± 2.6	-30.0 ± 10.0	GA00041
FC17	12.3	379.6	-1.0	-0.2 ± 0.2	3.0 ± 2.9	-28.3 ± 9.6	GA00042
FD1	-9.1	235.6	-0.2	0.3 ± 1.1	-0.3 ± 1.7	-26.1 ± 9.8	GA00043
FD2	-9.1	-41.3	-0.2	5.5 ± 3.6	6.8 ± 3.8	-21.3 ± 9.9	GA00044
FD3	1.6	180.2	-0.2	-0.2 ± 0.2	3.0 ± 2.9	-27.2 ± 9.4	GA00045
FD4	-9.1	180.2	-0.3	-0.2 ± 0.2	1.4 ± 2.4	-17.4 ± 8.4	GA00046
FD5	-9.1	268.8	-0.4	-0.2 ± 0.2	0.1 ± 1.9	-21.7 ± 8.2	GA00047
FD6	-9.1	246.6	-0.5	-0.2 ± 0.2	0.9 ± 2.2	-15.3 ± 8.6	GA00048
FD7	1.6	25.1	-0.5	-0.2 ± 0.2	0.1 ± 1.9	-17.8 ± 8.8	GA00049
BLANK	-9.1	279.9	-0.2	-0.2 ± 0.2	-0.3 ± 1.7	-12.1 ± 8.7	GA00050

Fort Meade, Building 2813 (Room 1 - Floors)							
Location Code	Monitoring			Wipe Test			Wipe Number
	Alpha	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>)	1.7	149.47	5.70	0.1	2.0	23.5	
(MDA =>)	54	401	-	2.3	2.4	23.1	
FD8	-9.1	291.0	-0.5	0.3 ± 1.1	1.8 ± 2.5	-24.1 ± 8.4	GA00051
FD9	1.6	324.2	-0.3	-0.2 ± 0.2	-0.7 ± 1.5	-15.2 ± 8.8	GA00052
FD10	-9.1	279.9	-0.5	-0.2 ± 0.2	0.9 ± 2.2	-12.6 ± 9.1	GA00053
FD11	1.6	191.3	-0.5	0.3 ± 1.1	0.5 ± 2.1	-14.9 ± 8.6	GA00054
FD12	1.6	213.4	-0.5	0.3 ± 1.1	0.5 ± 2.1	-17.8 ± 8.8	GA00055
FD13	1.6	324.2	-0.6	-0.2 ± 0.2	0.5 ± 2.1	-18.6 ± 8.9	GA00056
FD14	-9.1	158.0	-1.0	-0.2 ± 0.2	0.1 ± 1.9	-13.7 ± 8.0	GA00057
FD15	-9.1	80.5	-1.3	-0.2 ± 0.2	-0.3 ± 1.7	-11.5 ± 8.9	GA00058
FD16	12.3	135.9	-1.3	0.9 ± 1.6	-1.2 ± 1.2	-15.0 ± 10.4	GA00059
FD17	1.6	279.9	-0.9	0.3 ± 1.1	0.5 ± 2.1	-20.0 ± 8.3	GA00060
FE1	-9.1	379.6	-0.8	-0.2 ± 0.2	0.1 ± 1.9	-18.6 ± 9.2	GA00061
FE2	1.6	158.0	-0.6	0.3 ± 1.1	1.4 ± 2.4	-21.3 ± 8.4	GA00062
FE3	1.6	-41.3	-0.3	-0.2 ± 0.2	-0.3 ± 1.7	-13.8 ± 9.2	GA00063
FE4	-9.1	91.6	-0.4	-0.2 ± 0.2	0.5 ± 2.1	-14.8 ± 8.9	GA00064
FE5	-9.1	291.0	-0.3	0.3 ± 1.1	0.5 ± 2.1	-21.3 ± 8.2	GA00065
FE6	-9.1	291.0	-0.4	-0.2 ± 0.2	0.5 ± 2.1	-19.1 ± 8.9	GA00066
FE7	-9.1	357.4	-0.5	0.3 ± 1.1	-0.7 ± 1.5	-13.6 ± 8.7	GA00067
FE8	-9.1	268.8	-0.5	0.3 ± 1.1	-0.3 ± 1.7	-14.0 ± 8.7	GA00068
FE9	-9.1	235.6	-0.7	-0.2 ± 0.2	-1.2 ± 1.2	-15.1 ± 9.1	GA00069
FE10	-9.1	202.3	-0.9	0.3 ± 1.1	0.9 ± 2.2	-15.3 ± 8.6	GA00070
FE11	1.6	158.0	-0.8	-0.2 ± 0.2	0.1 ± 1.9	-16.5 ± 8.7	GA00071
FE12	1.6	213.4	-0.8	-0.2 ± 0.2	-1.2 ± 1.2	-20.9 ± 8.3	GA00072
FE13	1.6	302.0	-0.6	-0.2 ± 0.2	2.6 ± 2.8	-17.8 ± 8.8	GA00073
FE14	-9.1	357.4	-0.6	-0.2 ± 0.2	0.5 ± 2.1	-14.7 ± 9.1	GA00074
FE15	-9.1	268.8	-0.6	-0.2 ± 0.2	1.4 ± 2.4	-13.2 ± 8.8	GA00075
FE16	-9.1	58.3	-0.7	-0.2 ± 0.2	-1.6 ± 0.9	-17.0 ± 8.4	GA00076
FE17	-9.1	169.1	-0.8	-0.2 ± 0.2	-0.3 ± 1.7	-13.0 ± 9.0	GA00077
FE18	-9.1	-8.1	-0.8	0.3 ± 1.1	0.1 ± 1.9	-13.6 ± 8.7	GA00078
FE19	1.6	158.0	-1.0	0.9 ± 1.6	-0.7 ± 1.5	-21.7 ± 8.2	GA00079
FE20	-9.1	124.8	-0.4	-0.2 ± 0.2	0.5 ± 2.1	-16.5 ± 8.7	GA00080
FF1	-9.1	91.6	-0.4	-0.2 ± 0.2	-0.3 ± 1.7	-13.6 ± 8.7	GA00081
FF2	-9.1	202.3	-0.4	-0.2 ± 0.2	0.9 ± 2.2	-18.2 ± 8.8	GA00082
FF3	-9.1	135.9	-0.2	-0.2 ± 0.2	0.5 ± 2.1	-17.0 ± 8.4	GA00083
FF4	-9.1	124.8	-0.3	-0.2 ± 0.2	0.9 ± 2.2	-16.5 ± 8.7	GA00084
FF5	-9.1	158.0	-0.2	-0.2 ± 0.2	3.5 ± 3.0	-19.6 ± 8.2	GA00085
FF6	-9.1	113.7	-0.3	0.3 ± 1.1	0.9 ± 2.2	-19.6 ± 8.2	GA00086
FF7	1.6	91.6	-0.4	-0.2 ± 0.2	-0.7 ± 1.5	-17.9 ± 8.3	GA00087
FF8	1.6	135.9	-0.5	-0.2 ± 0.2	-0.7 ± 1.5	-12.3 ± 8.9	GA00088
FF9	-9.1	268.8	-0.7	0.3 ± 1.1	-0.7 ± 1.5	-20.4 ± 8.1	GA00089
FF10	-9.1	235.6	-0.3	-0.2 ± 0.2	-0.7 ± 1.5	-16.5 ± 8.7	GA00090
FF11	-9.1	191.3	-0.4	-0.2 ± 0.2	0.9 ± 2.2	-11.4 ± 8.7	GA00091
FF12	-9.1	246.6	-0.3	-0.2 ± 0.2	0.1 ± 1.9	-10.5 ± 8.8	GA00092
FF13	-9.1	324.2	-0.1	-0.2 ± 0.2	-0.3 ± 1.7	-14.8 ± 7.9	GA00093
FF14	1.6	146.9	0.0	-0.2 ± 0.2	0.5 ± 2.1	-14.5 ± 8.4	GA00094
FF15	-9.1	512.5	-0.1	-0.2 ± 0.2	3.0 ± 2.9	-10.0 ± 8.4	GA00095
FF16	1.6	246.6	-0.5	-0.1 ± 0.1	2.5 ± 3.4	-10.2 ± 8.2	GA00096
FF17	-9.1	368.5	-0.5	-0.1 ± 0.1	-0.2 ± 2.5	-11.3 ± 8.3	GA00097
FF18	-9.1	-19.2	-0.5	-0.1 ± 0.1	0.8 ± 2.9	-16.1 ± 7.8	GA00098
FF19	-9.1	279.9	-0.6	-0.1 ± 0.1	3.0 ± 3.6	-10.4 ± 8.3	GA00099
BLANK	-9.1	113.7	-0.7	-0.1 ± 0.1	0.8 ± 2.9	-10.2 ± 7.8	GA00100

Fort Meade, Building 2813 (Room 1 - Floors)							
Location Code	Monitoring			Wipe Test			Wipe Number
	Alpha	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>)	1.7	149.47	5.70	0.1	2.0	23.5	
(MDA =>)	54	401	-	2.3	2.4	23.1	
FF20	-9.1	235.6	-0.8	-0.1 ± 0.1	-0.8 ± 2.2	-6.8 ± 8.5	GA00101
FG1	-9.1	246.6	-1.1	0.7 ± 1.5	3.0 ± 3.6	-17.7 ± 8.0	GA00102
FG2	-9.1	135.9	-0.7	0.7 ± 1.5	0.3 ± 2.7	-10.2 ± 9.0	GA00103
FG3	-9.1	235.6	-0.8	-0.1 ± 0.1	-1.9 ± 1.6	-11.1 ± 8.1	GA00104
FG4	-9.1	335.3	-0.7	-0.1 ± 0.1	2.5 ± 3.4	-12.3 ± 8.0	GA00105
FG5	-9.1	224.5	-0.7	-0.1 ± 0.1	-1.9 ± 1.6	-10.4 ± 8.3	GA00106
FG6	-9.1	158.0	-0.7	-0.1 ± 0.1	0.8 ± 2.9	-7.6 ± 8.8	GA00107
FG7	1.6	124.8	-0.5	-0.1 ± 0.1	0.3 ± 2.7	-14.3 ± 7.9	GA00108
FG8	1.6	246.6	-0.6	-0.1 ± 0.1	-0.8 ± 2.2	-11.7 ± 8.2	GA00109
FG9	-9.1	246.6	-0.4	0.7 ± 1.5	0.8 ± 2.9	-15.2 ± 7.9	GA00110
FG10	-9.1	-74.6	-0.7	-0.1 ± 0.1	0.3 ± 2.7	-10.9 ± 8.7	GA00111
FG11	-9.1	257.7	-0.7	-0.1 ± 0.1	-0.2 ± 2.5	-15.8 ± 8.4	GA00112
FG12	1.6	36.2	-0.7	-0.1 ± 0.1	0.3 ± 2.7	-13.2 ± 9.2	GA00113
FG13	-9.1	346.3	-0.7	-0.1 ± 0.1	-1.9 ± 1.6	-13.3 ± 8.3	GA00114
FG14	-9.1	246.6	-0.8	0.7 ± 1.5	1.4 ± 3.1	-14.5 ± 8.4	GA00115
FG15	-9.1	335.3	-0.7	-0.1 ± 0.1	-0.2 ± 2.5	-12.6 ± 8.1	GA00116
FG16	-9.1	158.0	-0.6	-0.1 ± 0.1	0.3 ± 2.7	-13.6 ± 7.8	GA00117
FG17	12.3	257.7	-0.7	-0.1 ± 0.1	0.3 ± 2.7	-10.2 ± 9.5	GA00118
FG18	-9.1	335.3	-0.7	-0.1 ± 0.1	-1.9 ± 1.6	-15.8 ± 8.4	GA00119
FG19	-9.1	335.3	-0.6	-0.1 ± 0.1	0.3 ± 2.7	-12.9 ± 8.3	GA00120
FG20	-9.1	246.6	-0.8	-0.1 ± 0.1	0.8 ± 2.9	-13.5 ± 8.0	GA00121
FH1	-9.1	213.4	0.0	-0.1 ± 0.1	1.9 ± 3.3	-14.9 ± 8.6	GA00122
FH2	-9.1	324.2	0.0	-0.1 ± 0.1	1.4 ± 3.1	-18.6 ± 8.2	GA00123
FH3	-9.1	102.6	0.1	-0.1 ± 0.1	0.3 ± 2.7	-12.8 ± 7.9	GA00124
FH4	-9.1	69.4	0.1	0.7 ± 1.5	0.3 ± 2.7	-8.3 ± 8.6	GA00125
FH5	-9.1	291.0	0.1	0.7 ± 1.5	1.9 ± 3.3	-10.6 ± 8.1	GA00126
FH6	-9.1	335.3	0.3	0.7 ± 1.5	0.3 ± 2.7	-20.0 ± 8.2	GA00127
FH7	1.6	91.6	0.3	-0.1 ± 0.1	-1.9 ± 1.6	-8.5 ± 8.3	GA00128
FH8	-9.1	-19.2	0.3	-0.1 ± 0.1	1.9 ± 3.3	-14.9 ± 8.6	GA00129
FH9	-9.1	-229.7	0.1	0.7 ± 1.5	0.8 ± 2.9	-15.5 ± 8.3	GA00130
FH10	-9.1	47.3	-0.3	-0.1 ± 0.1	1.9 ± 3.3	-13.2 ± 7.9	GA00131
FH11	-9.1	401.7	-0.3	-0.1 ± 0.1	1.9 ± 3.3	-14.8 ± 7.9	GA00132
FH12	-9.1	423.9	-0.2	-0.1 ± 0.1	-1.3 ± 1.9	-10.5 ± 9.8	GA00133
FH13	-9.1	146.9	-0.1	-0.1 ± 0.1	8.5 ± 4.9	-13.8 ± 8.2	GA00134
FH14	-9.1	146.9	-0.1	-0.1 ± 0.1	-1.9 ± 1.6	-15.5 ± 8.3	GA00135
FH15	-9.1	357.4	0.1	-0.1 ± 0.1	2.5 ± 3.4	-14.3 ± 8.6	GA00136
FH16	-9.1	-19.2	-0.1	-0.1 ± 0.1	1.4 ± 3.1	-14.2 ± 8.2	GA00137
FH17	-9.1	291.0	-0.1	0.7 ± 1.5	0.3 ± 2.7	-13.6 ± 9.2	GA00138
FH18	-9.1	-130.0	0.1	-0.1 ± 0.1	3.0 ± 3.6	-18.2 ± 8.7	GA00139
FH19	-9.1	3.0	0.1	-0.1 ± 0.1	1.4 ± 3.1	-13.2 ± 8.5	GA00140
FH20	-9.1	-307.2	0.0	-0.1 ± 0.1	-1.3 ± 1.9	-14.7 ± 8.8	GA00141
FI1	-9.1	-19.2	0.0	-0.1 ± 0.1	1.9 ± 3.3	-16.3 ± 9.2	GA00142
FI2	-9.1	80.5	-0.3	2.1 ± 2.3	4.7 ± 3.3	-20.0 ± 9.0	GA00143
FI3	-9.1	202.3	-0.3	-0.2 ± 0.2	-0.3 ± 1.7	-13.2 ± 8.5	GA00144
FI4	-9.1	146.9	-0.4	0.9 ± 1.6	1.4 ± 2.4	-16.2 ± 8.3	GA00145
FI5	-9.1	224.5	-0.1	3.8 ± 3.0	2.2 ± 2.6	-12.9 ± 9.0	GA00146
FI6	1.6	313.1	0.0	0.3 ± 1.1	0.1 ± 1.9	-17.3 ± 8.6	GA00147
F17	-9.1	324.2	0.1	-0.2 ± 0.2	1.4 ± 2.4	-18.3 ± 8.0	GA00148
FI8	-9.1	446.0	0.0	0.3 ± 1.1	2.2 ± 2.6	-13.5 ± 9.4	GA00149
BLANK	-9.1	58.3	0.1	0.9 ± 1.6	-0.3 ± 1.7	-19.6 ± 7.7	GA00150

GRAPHICAL ILLUSTRATION



BUILDING T-2813 ROOM 1 WALLS, DENTAL RESEARCH CLINIC, FORT GEORGE G. MEADE, MD

U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE
UNITED STATES ARMY MEDICAL DEPARTMENT

DATE:	9 SEPT 97
DRAWN:	JKD
APPROVED:	HE
SCALE:	NTS
PLATE:	N/A

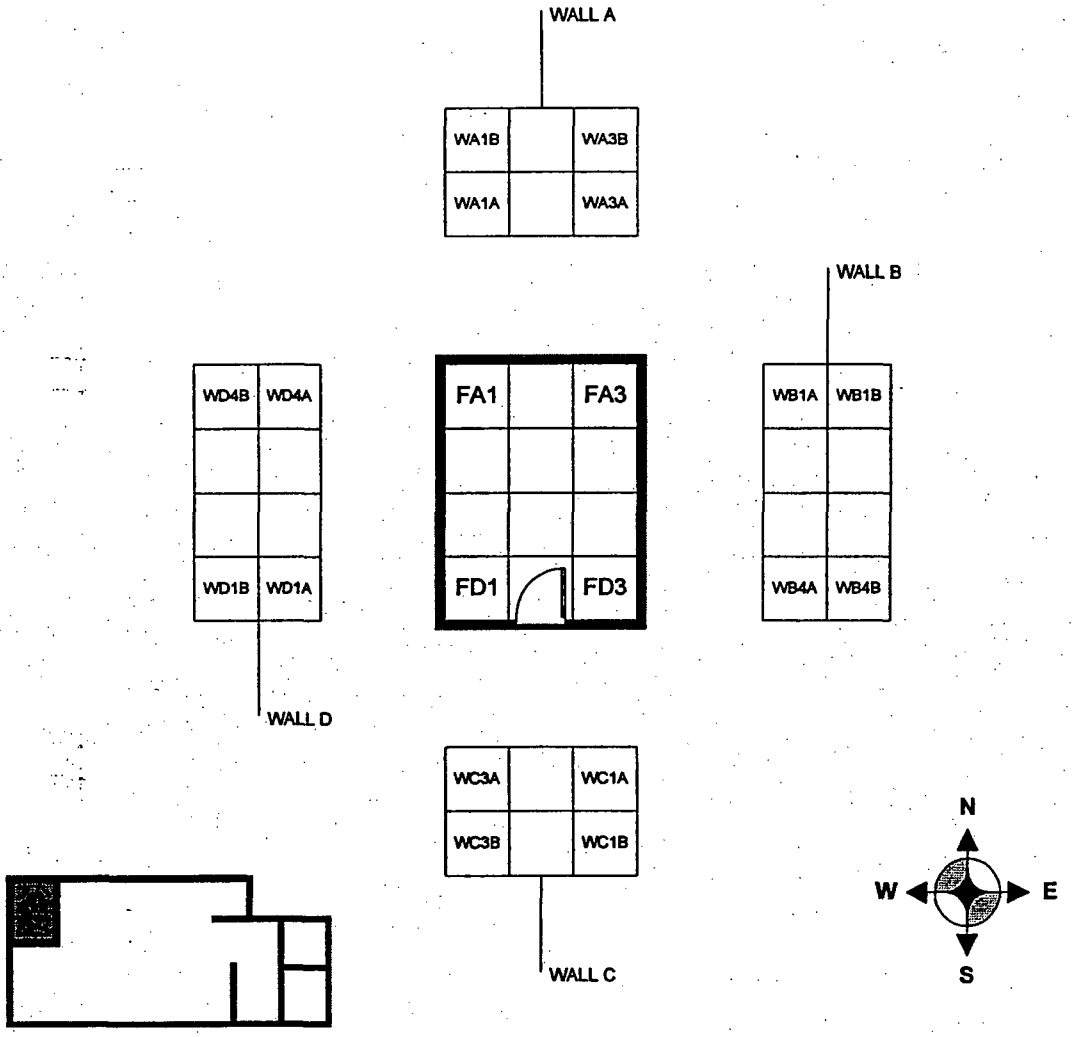
Fort Meade, Building 2813 (Room 1 - Floors)							
Location Code	Monitoring			Wipe Test			Wipe Number
	Alpha	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>)	1.7	149.47	5.70	0.1	2.0	23.5	
(MDA =>)	54	401	-	2.3	2.4	23.1	
FI9	-9.1	390.6	-0.5	0.9 ± 1.6	3.0 ± 2.9	-13.8 ± 9.7	GA00151
FI10	1.6	-107.8	-0.3	2.1 ± 2.3	4.3 ± 3.2	-17.2 ± 9.1	GA00152
FI11	-9.1	412.8	-0.2	-0.2 ± 0.2	1.8 ± 2.5	-15.9 ± 8.9	GA00153
FI12	1.6	357.4	-0.1	0.3 ± 1.1	-0.3 ± 1.7	-13.8 ± 9.7	GA00154
FI13	-9.1	3.0	0.0	-0.2 ± 0.2	1.4 ± 2.4	-12.6 ± 8.8	GA00155
FI14	-9.1	69.4	0.2	-0.2 ± 0.2	1.4 ± 2.4	-15.3 ± 8.3	GA00156
FI15	1.6	235.6	0.3	0.3 ± 1.1	1.8 ± 2.5	-17.1 ± 8.0	GA00157
FI16	-9.1	191.3	0.3	0.3 ± 1.1	2.2 ± 2.6	-11.9 ± 8.7	GA00158
FI17	-9.1	-185.4	0.3	-0.2 ± 0.2	-0.3 ± 1.7	-15.3 ± 9.3	GA00159
FI18	-9.1	-118.9	0.1	-0.2 ± 0.2	-1.6 ± 0.9	-14.7 ± 8.8	GA00160
FI19	-9.1	-52.4	-0.1	0.3 ± 1.1	0.5 ± 2.1	-9.8 ± 8.9	GA00161
FI20	-9.1	135.9	-0.2	0.9 ± 1.6	-0.7 ± 1.5	-18.7 ± 8.2	GA00162

Fort Meade, Building 2813 (Room 1 - Walls)							
Location Code	Monitoring			Wipe Test			Wipe Number
	Alpha	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>)	1.7	149.47	5.00	0.1	2.0	25.7	
(MDA =>)	54	401	-	2.3	2.4	33.0	
WE2A	1.6	291.0	-1.4	-0.1 ± 0.1	-1.9 ± 1.6	-17.5 ± 8.4	GA00213
WE3A	1.6	324.2	-1.0	-0.1 ± 0.1	-1.3 ± 1.9	-17.5 ± 8.4	GA00214
WE4A	1.6	279.9	-0.9	-0.1 ± 0.1	-0.2 ± 2.5	-15.4 ± 8.6	GA00215
WE5A	22.9	191.3	-0.6	0.7 ± 1.5	-0.8 ± 2.2	-18.3 ± 8.3	GA00216
WE6A	1.6	213.4	-0.6	-0.1 ± 0.1	0.3 ± 2.7	-17.0 ± 8.7	GA00217
WE1B	12.3	324.2	-0.8	-0.1 ± 0.1	0.8 ± 2.9	-15.4 ± 8.6	GA00218
WE2B	-9.1	158.0	-1.1	-0.1 ± 0.1	1.4 ± 3.1	-19.2 ± 8.2	GA00219
WE3B	-9.1	80.5	-1.3	-0.1 ± 0.1	-2.4 ± 1.2	-12.9 ± 8.8	GA00220
WE4B	1.6	135.9	2.0	-0.1 ± 0.1	-0.8 ± 2.2	-15.8 ± 8.6	GA00221
WE5B	-9.1	279.9	6.6	-0.1 ± 0.1	0.3 ± 2.7	-19.6 ± 8.2	GA00222
WE6B	-9.1	379.6	0.3	0.7 ± 1.5	0.3 ± 2.7	-24.2 ± 10.4	GA00223
WF1A	1.6	158.0	0.1	-0.1 ± 0.1	2.5 ± 3.4	-17.0 ± 8.7	GA00224
WF2A	1.6	-41.3	0.1	0.7 ± 1.5	2.5 ± 3.4	-20.4 ± 8.3	GA00225
WF3A	12.3	91.6	0.0	-0.1 ± 0.1	0.3 ± 2.7	-21.7 ± 8.7	GA00226
WF4A	-9.1	291.0	0.1	-0.2 ± 0.1	0.1 ± 2.1	-19.6 ± 8.9	GA00227
WF1B	1.6	291.0	-0.1	1.6 ± 2.0	2.7 ± 2.9	-21.3 ± 8.8	GA00228
WF2B	1.6	357.4	-0.1	0.4 ± 1.1	1.8 ± 2.6	-25.5 ± 8.6	GA00229
WF3B	-9.1	268.8	-0.1	-0.2 ± 0.1	-0.7 ± 1.7	-20.8 ± 8.8	GA00230
WF4B	-9.1	235.6	0.1	1.0 ± 1.6	1.0 ± 2.4	-26.3 ± 11.1	GA00231
WG1A	-9.1	202.3	0.4	0.4 ± 1.1	-1.5 ± 1.2	-21.3 ± 8.8	GA00232
WG2A	-9.1	158.0	0.4	0.4 ± 1.1	2.2 ± 2.8	-19.6 ± 8.9	GA00233
WG3A	-9.1	213.4	0.3	1.0 ± 1.6	0.1 ± 2.1	-17.1 ± 9.1	GA00234
WG4A	1.6	302.0	0.0	-0.2 ± 0.1	-0.7 ± 1.7	-21.7 ± 8.7	GA00235
WG1B	22.9	357.4	0.0	0.4 ± 1.1	-0.3 ± 1.9	-20.0 ± 8.9	GA00236
WG2B	-9.1	268.8	0.0	0.4 ± 1.1	1.0 ± 2.4	-21.7 ± 8.7	GA00237
WG3B	1.6	58.3	-0.1	0.4 ± 1.1	-0.7 ± 1.7	-20.0 ± 8.9	GA00238
WG4B	-9.1	169.1	0.7	0.4 ± 1.1	0.1 ± 2.1	-16.3 ± 9.2	GA00239
WH1A	1.6	-8.1	0.4	1.0 ± 1.6	1.8 ± 2.6	-22.5 ± 8.6	GA00240
WH2A	1.6	158.0	0.4	-0.2 ± 0.1	-1.5 ± 1.2	-21.7 ± 8.7	GA00241
WH3A	1.6	124.8	0.6	-0.2 ± 0.1	-1.1 ± 1.5	-18.8 ± 9.0	GA00242
WH4A	1.6	91.6	0.4	-0.2 ± 0.1	1.4 ± 2.5	-21.7 ± 8.7	GA00243
WH1B	-9.1	202.3	0.3	-0.2 ± 0.1	-1.1 ± 1.5	-20.0 ± 8.9	GA00244
WH2B	-9.1	135.9	0.2	-0.2 ± 0.1	1.8 ± 2.6	-17.1 ± 9.1	GA00245
WH3B	-9.1	124.8	0.1	-0.2 ± 0.1	0.1 ± 2.1	-20.8 ± 8.8	GA00246
WH4B	-9.1	158.0	0.1	-0.2 ± 0.1	-1.1 ± 1.5	-18.3 ± 9.0	GA00247
WI1A	1.6	113.7	0.1	1.0 ± 1.6	-0.3 ± 1.9	-25.4 ± 8.4	GA00248
WI2A	-9.1	91.6	0.3	-0.2 ± 0.1	-1.5 ± 1.2	-23.8 ± 8.5	GA00249
QA	N/A	N/A	N/A	-0.2 ± 0.1	0.1 ± 2.1	-23.4 ± 8.8	GA00250
WI3A	1.6	268.8	0.0	0.4 ± 1.1	-0.7 ± 1.7	-20.4 ± 9.1	GA00251
WI4A	12.3	235.6	0.3	-0.2 ± 0.1	1.8 ± 2.6	-25.0 ± 8.4	GA00252
WI5A	1.6	191.3	0.1	-0.2 ± 0.1	-0.3 ± 1.9	-22.9 ± 8.6	GA00253
WI6A	-9.1	246.6	0.1	-0.2 ± 0.1	1.4 ± 2.5	-22.1 ± 8.7	GA00254
WI7A	-9.1	324.2	0.3	-0.2 ± 0.1	-0.3 ± 1.9	-23.8 ± 8.5	GA00255
WI8A	-9.1	146.9	0.0	-0.2 ± 0.1	-0.3 ± 1.9	-18.3 ± 9.2	GA00256
WI9A	12.3	512.5	-0.1	-0.2 ± 0.1	1.4 ± 2.5	-25.8 ± 8.3	GA00257
WI10A	-9.1	246.6	0.3	-0.2 ± 0.1	-0.3 ± 1.9	-20.0 ± 8.9	GA00258
WI11A	-9.1	368.5	0.1	-0.2 ± 0.1	-0.7 ± 1.7	-16.2 ± 9.4	GA00259
WI12A	1.6	-19.2	0.3	-0.2 ± 0.1	-1.5 ± 1.2	-16.6 ± 9.4	GA00260
WI13A	-9.1	279.9	0.2	-0.2 ± 0.1	2.2 ± 2.8	-22.1 ± 8.9	GA00261
WI14A	1.6	113.7	0.3	-0.2 ± 0.1	-0.3 ± 1.9	-22.1 ± 8.7	GA00262

Fort Meade, Building 2813 (Room 1 - Walls)							
Location Code	Monitoring			Wipe Test			Wipe Number
	Alpha	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>)	1.7	149.47	5.00	0.1	2.0	25.7	
(MDA =>)	54	401	-	2.3	2.4	33.0	
WA1A	-9.1	235.6	-0.5	0.9 ± 1.6	2.6 ± 2.8	-16.3 ± 8.0	GA00163
WA2A	12.3	158.0	-0.6	-0.2 ± 0.2	-0.3 ± 1.7	-16.3 ± 8.0	GA00164
WA3A	1.6	302.0	-0.5	-0.2 ± 0.2	-2.0 ± 0.4	-13.2 ± 8.5	GA00165
WA4A	1.6	180.2	-0.6	-0.2 ± 0.2	1.4 ± 2.4	-10.0 ± 8.6	GA00166
WA5A	1.6	346.3	-0.9	-0.2 ± 0.2	0.5 ± 2.1	-13.6 ± 8.5	GA00167
WA6A	12.3	124.8	-0.9	-0.2 ± 0.2	0.1 ± 1.9	-12.5 ± 8.4	GA00168
WA7A	1.6	14.0	-0.9	-0.2 ± 0.2	-0.3 ± 1.7	-14.7 ± 8.8	GA00169
WA8A	-9.1	324.2	-1.1	0.3 ± 1.1	0.1 ± 1.9	-10.4 ± 8.6	GA00170
WA9A	-9.1	146.9	-0.7	-0.2 ± 0.2	1.4 ± 2.4	-17.1 ± 8.0	GA00171
WA10A	1.6	313.1	-0.9	-0.2 ± 0.2	-0.7 ± 1.5	-12.1 ± 8.4	GA00172
WA11A	-9.1	268.8	-0.7	0.3 ± 1.1	-0.7 ± 1.5	-17.5 ± 7.9	GA00173
WA12A	-9.1	180.2	-0.6	-0.2 ± 0.2	1.4 ± 2.4	-15.7 ± 8.3	GA00174
WA13A	1.6	146.9	-0.7	-0.2 ± 0.2	-0.3 ± 1.7	-17.4 ± 8.1	GA00175
WA14A	22.9	191.3	-0.7	0.3 ± 1.1	2.6 ± 2.8	-12.8 ± 8.6	GA00176
WA1B	1.6	80.5	-0.9	0.3 ± 1.1	-0.7 ± 1.5	-14.9 ± 8.4	GA00177
WA2B	-9.1	25.1	-0.5	0.9 ± 1.6	1.4 ± 2.4	-31.2 ± 15.4	GA00178
WA3B	-9.1	268.8	-0.4	-0.2 ± 0.2	-0.3 ± 1.7	-14.9 ± 8.4	GA00179
WA4B	1.6	246.6	-0.7	-0.1 ± 0.1	0.3 ± 2.7	-12.9 ± 8.4	GA00180
WA5B	1.6	423.9	-0.8	1.5 ± 2.2	-0.2 ± 2.5	-32.0 ± 13.1	GA00181
WA6B	-9.1	169.1	-0.7	-0.1 ± 0.1	-1.9 ± 1.6	-20.9 ± 8.3	GA00182
WA7B	1.6	36.2	-0.6	0.7 ± 1.5	-2.4 ± 1.2	-17.0 ± 8.7	GA00183
WA8B	-9.1	191.3	-0.6	-0.1 ± 0.1	1.4 ± 3.1	-29.2 ± 10.3	GA00184
WA9B	1.6	36.2	-0.8	-0.1 ± 0.1	-2.4 ± 1.2	-18.8 ± 8.3	GA00185
WA10B	1.6	246.6	-0.8	-0.1 ± 0.1	-0.8 ± 2.2	-16.2 ± 8.7	GA00186
WA11B	1.6	158.0	-0.8	-0.1 ± 0.1	0.3 ± 2.7	-18.7 ± 8.5	GA00187
WA12B	-9.1	202.3	-0.5	-0.1 ± 0.1	-1.9 ± 1.6	-20.0 ± 8.4	GA00188
WA13B	-9.1	313.1	-0.4	-0.1 ± 0.1	-0.8 ± 2.2	-17.4 ± 8.6	GA00189
WA14B	1.6	368.5	-0.5	-0.1 ± 0.1	1.9 ± 3.3	-19.6 ± 8.2	GA00190
WB1A	-9.1	446.0	-0.4	-0.1 ± 0.1	0.8 ± 2.9	-20.4 ± 8.1	GA00191
WB2A	12.3	124.8	-0.3	-0.1 ± 0.1	-0.2 ± 2.5	-16.7 ± 8.5	GA00192
WB3A	-9.1	390.6	-0.4	-0.1 ± 0.1	-0.2 ± 2.5	-21.3 ± 8.5	GA00193
WB1B	-9.1	257.7	-0.3	0.7 ± 1.5	4.7 ± 4.0	-15.4 ± 8.6	GA00194
WB2B	-9.1	102.6	-0.4	-0.1 ± 0.1	2.5 ± 3.4	-15.4 ± 8.6	GA00195
WB3B	1.6	14.0	-0.4	-0.1 ± 0.1	0.3 ± 2.7	-12.8 ± 9.1	GA00196
WC1A	12.3	379.6	-0.4	-0.1 ± 0.1	0.3 ± 2.7	-12.5 ± 8.9	GA00197
WC2A	1.6	102.6	-0.4	-0.1 ± 0.1	0.8 ± 2.9	-15.8 ± 8.6	GA00198
WC1B	22.9	412.8	-0.6	-0.1 ± 0.1	0.3 ± 2.7	-16.7 ± 8.5	GA00199
QA	N/A	N/A	N/A	-0.1 ± 0.1	-1.9 ± 1.6	-15.1 ± 7.7	GA00200
WC2B	-9.1	102.6	-1.0	-0.1 ± 0.1	0.3 ± 2.7	-17.5 ± 8.4	GA00201
WD1A	1.6	235.6	-1.0	-0.1 ± 0.1	0.3 ± 2.7	-20.0 ± 8.2	GA00202
WD2A	12.3	36.2	-1.0	-0.1 ± 0.1	0.3 ± 2.7	-10.6 ± 8.8	GA00203
WD3A	-9.1	379.6	-1.0	-0.1 ± 0.1	-0.2 ± 2.5	-18.8 ± 8.3	GA00204
WD4A	-9.1	235.6	-1.3	-0.1 ± 0.1	-0.2 ± 2.5	-19.2 ± 8.2	GA00205
WD5A	-9.1	-41.3	-1.1	-0.1 ± 0.1	-0.8 ± 2.2	-18.3 ± 8.3	GA00206
WD1B	1.6	180.2	-1.1	-0.1 ± 0.1	3.0 ± 3.6	-18.3 ± 8.3	GA00207
WD2B	-9.1	180.2	-1.0	-0.1 ± 0.1	1.4 ± 3.1	-12.5 ± 8.9	GA00208
WD3B	12.3	268.8	-0.9	-0.1 ± 0.1	-1.3 ± 1.9	-18.3 ± 8.5	GA00209
WD4B	1.6	246.6	-0.9	-0.1 ± 0.1	0.8 ± 2.9	-19.2 ± 8.2	GA00210
WD5B	12.3	25.1	-1.2	-0.1 ± 0.1	1.4 ± 3.1	-17.1 ± 8.4	GA00211
WE1A	-9.1	279.9	-1.4	-0.1 ± 0.1	-0.8 ± 2.2	-15.4 ± 8.6	GA00212

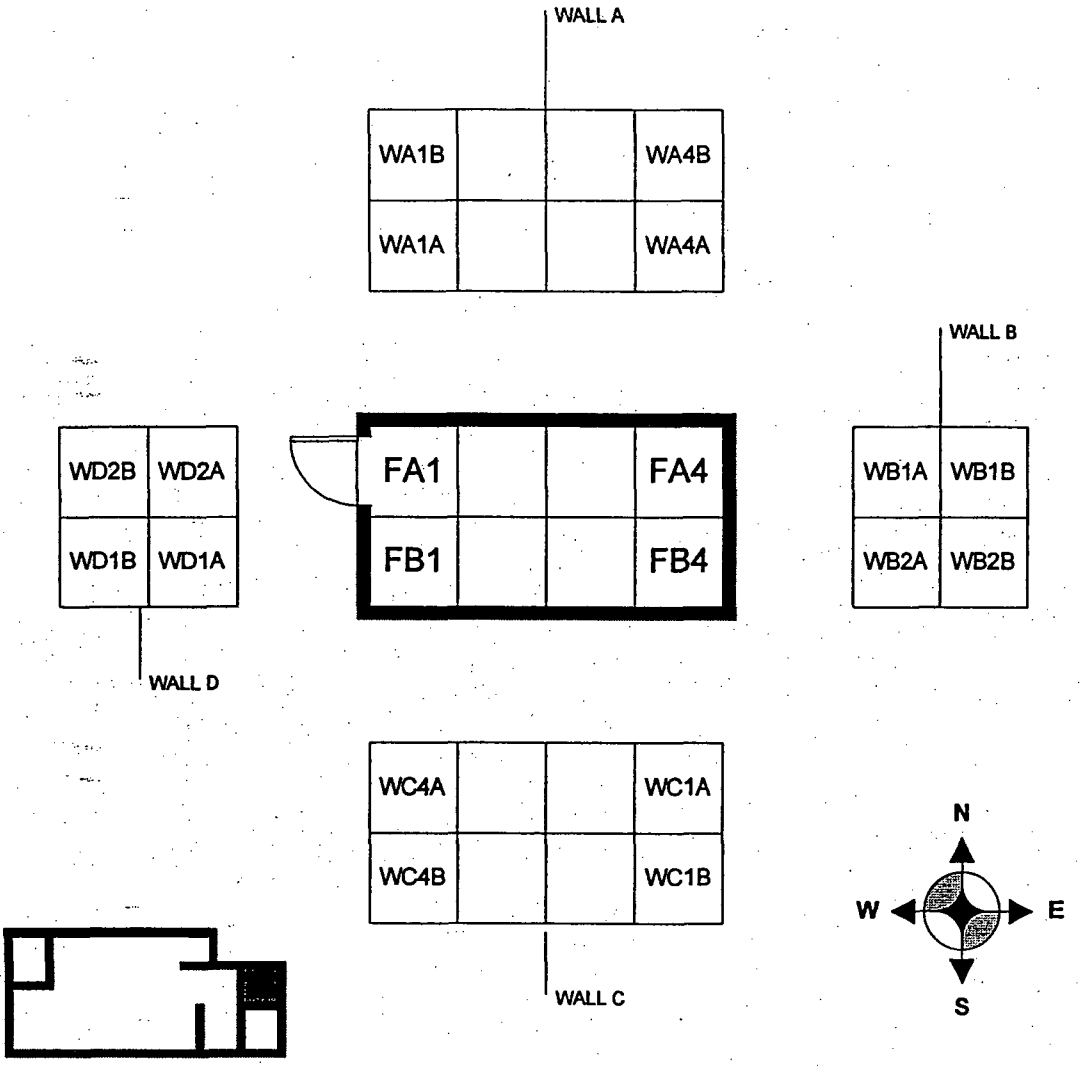
Fort Meade, Building 2813 (Room 1 - Walls)							
Location Code	Monitoring			Wipe Test			Wipe Number
	Alpha	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>)	1.7	149.47	5.00	0.1	2.0	25.7	
(MDA =>)	54	401	-	2.3	2.4	33.0	
WI15A	22.9	235.6	1.2	-0.2 ± 0.1	0.1 ± 2.1	-19.2 ± 8.9	GA00263
WI16A	1.6	246.6	1.0	0.4 ± 1.1	-0.7 ± 1.7	-22.6 ± 8.9	GA00264
WI1B	-9.1	135.9	-1.2	0.4 ± 1.1	1.4 ± 2.5	-20.9 ± 9.0	GA00265
WI2B	-9.1	235.6	-0.7	0.4 ± 1.1	-1.9 ± 0.9	-22.1 ± 8.9	GA00266
WI3B	1.6	335.3	-0.6	-0.2 ± 0.1	1.0 ± 2.4	-20.4 ± 8.8	GA00267
WI4B	1.6	224.5	-0.2	5.0 ± 3.4	3.1 ± 3.0	-24.6 ± 8.4	GA00268
WI5B	-9.1	158.0	-0.1	-0.2 ± 0.1	-0.3 ± 1.9	-24.7 ± 8.7	GA00269
WB6B	1.6	124.8	-0.1	-0.2 ± 0.1	-0.3 ± 1.9	-42.0 ± 13.3	GA00270
WB7B	1.6	246.6	-0.3	0.4 ± 1.1	-0.7 ± 1.7	-21.8 ± 10.0	GA00271
WB8B	1.6	246.6	-0.4	-0.2 ± 0.1	0.6 ± 2.2	-29.1 ± 9.1	GA00272
WI9B	12.3	-74.6	-0.6	-0.2 ± 0.1	-1.1 ± 1.5	-36.4 ± 13.0	GA00273
WI10B	-9.1	257.7	-0.4	1.6 ± 2.0	-1.5 ± 1.2	-19.6 ± 9.7	GA00274
WI11B	12.3	36.2	-0.4	-0.2 ± 0.1	-0.7 ± 1.7	-24.7 ± 9.2	GA00275
WI12B	-9.1	346.3	-0.2	-0.2 ± 0.1	-0.7 ± 1.7	-40.0 ± 13.7	GA00276
WI13B	1.6	246.6	0.2	-0.2 ± 0.1	0.1 ± 2.1	-24.3 ± 9.5	GA00277
WI14B	1.6	335.3	0.2	0.4 ± 1.1	-0.3 ± 1.9	-23.4 ± 9.3	GA00278
WI15B	-9.1	158.0	0.2	0.4 ± 1.1	2.2 ± 2.8	-24.1 ± 10.0	GA00279
WI16B	-9.1	257.7	0.1	-0.2 ± 0.1	0.1 ± 2.1	-22.1 ± 9.4	GA00280
WJ1A	-9.1	335.3	0.2	-0.2 ± 0.1	2.7 ± 2.9	-24.7 ± 9.2	GA00281
WJ2A	1.6	335.3	0.4	0.4 ± 1.1	-0.3 ± 1.9	-26.0 ± 9.1	GA00282
WJ3A	1.6	246.6	0.5	0.4 ± 1.1	0.6 ± 2.2	-23.4 ± 9.3	GA00283
WJ4A	1.6	213.4	0.4	-0.2 ± 0.1	-0.7 ± 1.7	-23.4 ± 9.3	GA00284
WJ5A	-9.1	324.2	0.5	0.4 ± 1.1	0.6 ± 2.2	-21.7 ± 9.5	GA00285
WJ1B	1.6	102.6	0.5	-0.2 ± 0.1	3.1 ± 3.0	-22.1 ± 9.4	GA00286
WJ2B	1.6	69.4	0.6	-0.2 ± 0.1	-0.3 ± 1.9	-25.6 ± 10.2	GA00287
WJ3B	1.6	291.0	0.4	-0.2 ± 0.1	-1.5 ± 1.2	-26.8 ± 9.0	GA00288
WJ4B	-9.1	335.3	0.2	-0.2 ± 0.1	0.1 ± 2.1	-21.3 ± 9.5	GA00289
WJ5B	1.6	91.6	0.4	0.4 ± 1.1	3.9 ± 3.2	-23.0 ± 9.6	GA00290
WK1A	1.6	-19.2	0.2	-0.2 ± 0.1	1.0 ± 2.4	-22.1 ± 9.4	GA00291
WK2A	-9.1	-229.7	0.0	-0.2 ± 0.1	0.6 ± 2.2	-24.7 ± 9.2	GA00292
WK3A	12.3	47.3	0.1	-0.2 ± 0.1	-1.9 ± 0.9	-23.0 ± 9.4	GA00293
WK1B	12.3	401.7	0.1	-0.2 ± 0.1	-1.5 ± 1.2	-22.1 ± 9.2	GA00294
WK2B	-9.1	423.9	0.1	-0.2 ± 0.1	0.6 ± 2.2	-24.3 ± 9.2	GA00295
WK3B	1.6	146.9	0.1	0.4 ± 1.1	0.6 ± 2.2	-21.7 ± 9.5	GA00296
WL1A	-9.1	146.9	0.0	-0.2 ± 0.1	0.6 ± 2.2	-23.4 ± 9.3	GA00297
WL2A	-9.1	357.4	-0.1	-0.2 ± 0.1	0.6 ± 2.2	-23.0 ± 9.4	GA00298
WA3A	-9.1	-19.2	0.0	-0.2 ± 0.1	0.6 ± 2.2	-23.4 ± 9.3	GA00299
QA	N/A	N/A	N/A	-0.2 ± 0.1	1.8 ± 2.6	-23.0 ± 9.4	GA00300
WL4A	12.3	-130.0	-0.1	-0.2 ± 0.1	-0.3 ± 1.9	-27.2 ± 9.0	GA00301
WL1B	22.9	3.0	0.2	-0.2 ± 0.1	3.5 ± 3.1	-24.7 ± 9.2	GA00302
WL2B	-9.1	-307.2	0.1	1.0 ± 1.6	1.4 ± 2.5	-25.5 ± 9.1	GA00303
WL3B	12.3	-19.2	0.0	-0.2 ± 0.1	0.6 ± 2.2	-19.6 ± 9.7	GA00304
WL4B	1.6	80.5	-0.2	-0.2 ± 0.1	-1.1 ± 1.5	-24.8 ± 9.4	GA00305

GRAPHICAL ILLUSTRATION



BUILDING T-2813 ROOM 2, DENTAL RESEARCH CLINIC, FORT GEORGE G. MEADE, MD	DATE: 9 SEPT 97
	DRAWN: JKD
U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE UNITED STATES ARMY MEDICAL DEPARTMENT	APPROVED: HE
	SCALE: NTS
	PLATE: N/A

GRAPHICAL ILLUSTRATION



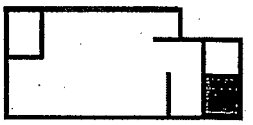
BUILDING T-2813 RESTROOM 1, DENTAL RESEARCH CLINIC, FORT GEORGE G. MEADE, MD

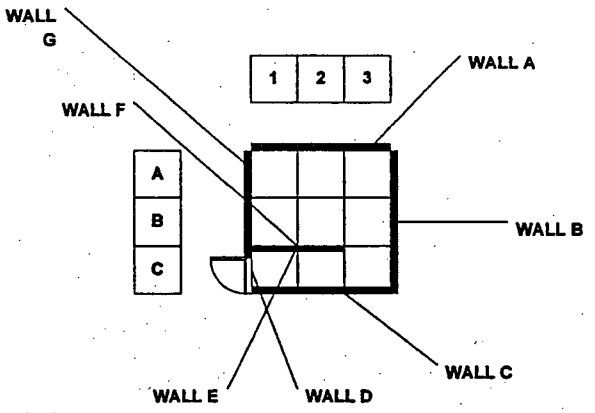
U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE
UNITED STATES ARMY MEDICAL DEPARTMENT

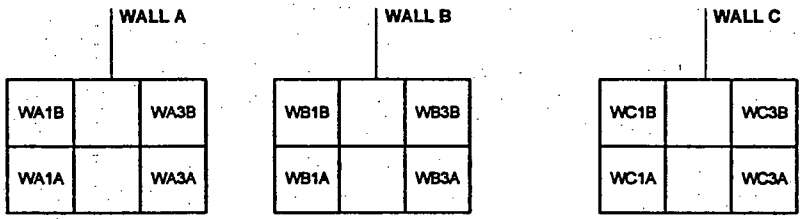
DATE:	9 SEPT 97
DRAWN:	JKD
APPROVED:	HE
SCALE:	NTS
PLATE:	N/A

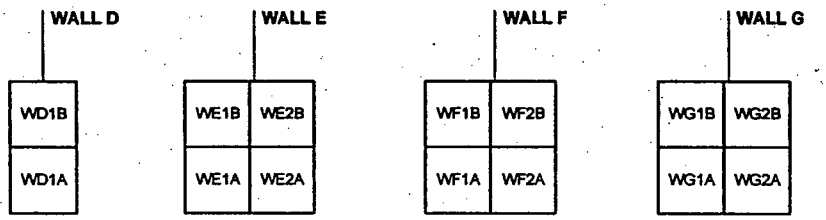
Fort Meade, Building 2813 (Room 2)							
Location Code	Monitoring			Wipe Test			Wipe Number
	Alpha	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>)	1.7	149.47	5.00	0.0	2.4	12.3	
(MDA =>)	54	401	-	2.2	2.5	21.9	
FA1	1.6	202.3	-1.1	-0.2 ± 0.1	-0.7 ± 1.7	-21.8 ± 10.2	GA00306
FA2	-9.1	224.5	-0.6	-0.2 ± 0.1	0.1 ± 2.1	-29.3 ± 9.9	GA00307
FA3	-9.1	257.7	-0.4	-0.2 ± 0.1	0.6 ± 2.2	-22.3 ± 10.5	GA00308
FB1	1.6	224.5	-0.4	0.4 ± 1.1	0.6 ± 2.2	-25.3 ± 9.7	GA00309
FB2	1.6	291.0	-0.3	-0.2 ± 0.1	-0.7 ± 1.7	-24.0 ± 9.8	GA00310
FB3	1.6	268.8	-0.3	-0.2 ± 0.1	-0.3 ± 1.9	-0.4 ± 3.0	GA00311
FC1	-9.1	434.9	-0.2	0.4 ± 1.1	-1.1 ± 1.5	-28.3 ± 9.1	GA00312
FC2	1.6	235.6	-0.2	-0.2 ± 0.1	0.6 ± 2.2	-25.9 ± 9.9	GA00313
FC3	1.6	302.0	-0.1	-0.2 ± 0.1	-1.1 ± 1.5	-20.9 ± 10.3	GA00314
FD1	-9.1	368.5	-0.1	-0.2 ± 0.1	1.0 ± 2.4	-26.5 ± 9.3	GA00315
FD2	12.3	390.6	0.0	-0.2 ± 0.1	-1.1 ± 1.5	-22.3 ± 10.2	GA00316
FD3	12.3	124.8	-0.1	-0.2 ± 0.1	-0.7 ± 1.7	-21.8 ± 9.2	GA00317
WA1A	-9.1	401.7	-0.1	-0.2 ± 0.1	0.1 ± 2.1	-20.4 ± 8.4	GA00318
WA2A	-9.1	335.3	0.1	0.4 ± 1.1	0.6 ± 2.2	-17.9 ± 8.6	GA00319
WA3A	12.3	91.6	0.0	0.0 ± 0.1	0.1 ± 2.7	-17.1 ± 8.7	GA00320
WA1B	22.9	357.4	0.0	0.0 ± 0.1	-1.0 ± 2.2	-20.0 ± 8.4	GA00321
WA2B	1.6	313.1	0.0	0.0 ± 0.1	-0.4 ± 2.5	-23.0 ± 10.2	GA00322
WA3B	12.3	135.9	0.1	0.0 ± 0.1	-0.4 ± 2.5	-19.2 ± 8.5	GA00323
WB1A	1.6	346.3	0.2	0.0 ± 0.1	-0.4 ± 2.5	-14.2 ± 8.9	GA00324
WB2A	-9.1	291.0	0.1	0.0 ± 0.1	-2.6 ± 1.2	-17.9 ± 8.6	GA00325
WB3A	1.6	257.7	0.1	0.7 ± 1.5	0.1 ± 2.7	-16.2 ± 9.0	GA00326
WB4A	-9.1	191.3	0.2	0.7 ± 1.5	0.7 ± 2.9	-20.8 ± 8.3	GA00327
WB1B	-9.1	158.0	0.1	0.0 ± 0.1	-1.0 ± 2.2	-17.5 ± 8.6	GA00328
WB2B	1.6	302.0	-0.1	0.0 ± 0.1	2.3 ± 3.4	-16.3 ± 8.8	GA00329
WB3B	-9.1	113.7	-0.2	0.7 ± 1.5	2.8 ± 3.6	-22.5 ± 8.2	GA00330
WB4B	1.6	58.3	-0.3	0.0 ± 0.1	-1.0 ± 2.2	-16.2 ± 9.0	GA00331
WC1A	-9.1	135.9	-0.1	0.0 ± 0.1	0.7 ± 2.9	-15.8 ± 8.8	GA00332
WC2A	1.6	102.6	0.1	0.0 ± 0.1	1.2 ± 3.1	-12.5 ± 9.1	GA00333
WC3A	-9.1	69.4	0.2	0.7 ± 1.5	-0.4 ± 2.5	-17.4 ± 8.9	GA00334
WC1B	-9.1	102.6	0.1	0.0 ± 0.1	-0.4 ± 2.5	-20.8 ± 8.3	GA00335
WC2B	-9.1	-52.4	-0.1	0.7 ± 1.5	1.2 ± 3.1	-19.1 ± 8.7	GA00336
WC3B	1.6	102.6	-0.1	0.0 ± 0.1	-1.5 ± 1.9	-23.4 ± 8.3	GA00337
WD1A	-9.1	158.0	-0.2	0.0 ± 0.1	1.2 ± 3.1	-13.3 ± 9.0	GA00338
WD2A	-9.1	113.7	-0.1	0.0 ± 0.1	0.1 ± 2.7	-19.6 ± 8.4	GA00339
WD3A	12.3	58.3	0.0	0.0 ± 0.1	-0.4 ± 2.5	-20.4 ± 8.6	GA00340
WD4A	1.6	313.1	-0.1	0.0 ± 0.1	-1.5 ± 1.9	-24.3 ± 8.2	GA00341
WD1B	33.6	180.2	-0.1	0.0 ± 0.1	0.1 ± 2.7	-15.7 ± 9.0	GA00342
WD2B	-9.1	235.6	-0.3	0.0 ± 0.1	-1.5 ± 1.9	-12.9 ± 9.1	GA00343
WD3B	1.6	-74.6	-0.3	0.0 ± 0.1	-0.4 ± 2.5	-26.4 ± 8.7	GA00344
WD4B	-9.1	14.0	-0.3	0.0 ± 0.1	-1.0 ± 2.2	-14.5 ± 9.1	GA00345

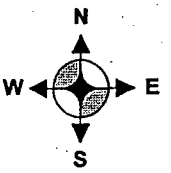
GRAPHICAL ILLUSTRATION











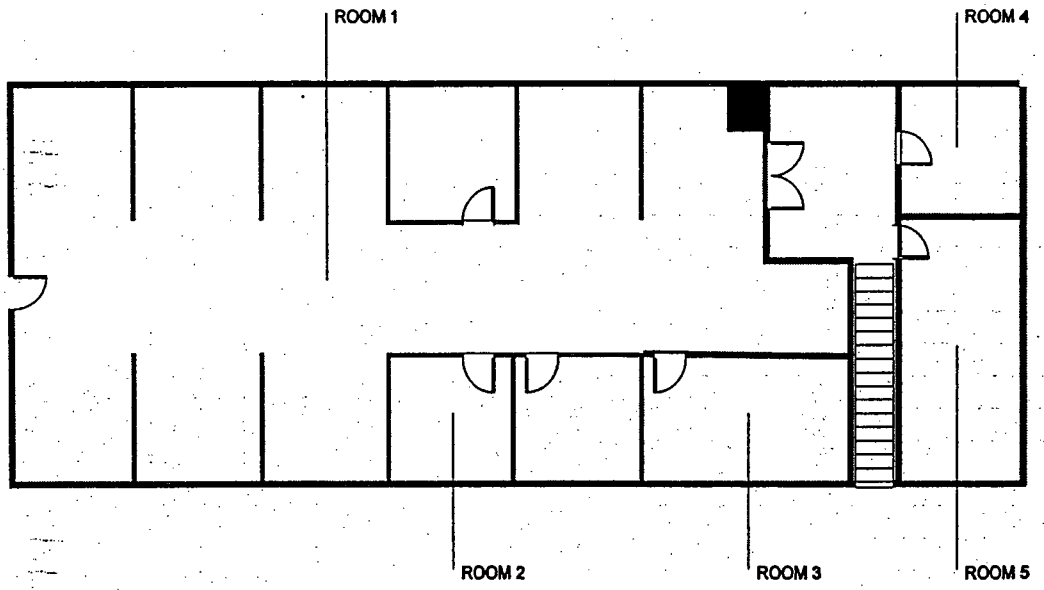
BUILDING T-2813 FIRST FLOOR, DENTAL RESEARCH CLINIC,
FORT GEORGE G. MEADE, MD

U.S. ARMY CENTER FOR HEALTH PROMOTION
AND PREVENTIVE MEDICINE
UNITED STATES ARMY MEDICAL DEPARTMENT

DATE:	9 SEPT 97
DRAWN:	JKD
APPROVED:	HE
SCALE:	NTS
PLATE:	N/A

Fort Meade, Building 2813 (Restroom 1)							
Location Code	Monitoring			Wipe Test			Wipe Number
	Alpha	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>)	1.7	149.47	5.00	0.0	2.4	27.5	
(MDA =>)	54	401	-	2.2	2.5	27.3	
FA1	1.6	224.5	-1.1	0.0 ± 0.1	0.1 ± 2.7	-12.7 ± 10.0	GA00346
FA2	-9.1	368.5	-1.2	0.0 ± 0.1	-0.4 ± 2.5	-21.4 ± 9.2	GA00347
FA3	-9.1	235.6	-1.2	0.0 ± 0.1	1.2 ± 3.1	-24.1 ± 8.9	GA00348
FA4	1.6	113.7	-1.4	0.0 ± 0.1	-0.4 ± 2.5	-23.3 ± 9.6	GA00349
QA	N/A	N/A	N/A	0.0 ± 0.1	-0.4 ± 2.5	-19.6 ± 8.7	GA00350
FB1	1.6	191.3	-1.5	0.0 ± 0.1	-0.4 ± 2.5	-23.8 ± 13.2	GA00351
FB2	-9.1	302.0	-1.4	0.0 ± 0.1	-1.0 ± 2.2	-22.9 ± 9.6	GA00352
FB3	1.6	324.2	-1.2	0.0 ± 0.1	-2.6 ± 1.2	-20.5 ± 9.3	GA00353
FB4	1.6	291.0	-1.2	0.0 ± 0.1	0.7 ± 2.9	-16.5 ± 9.2	GA00354
WA1A	-9.1	158.0	-1.3	0.0 ± 0.1	3.9 ± 3.9	-15.2 ± 9.3	GA00355
WA2A	12.3	-8.1	-1.4	0.0 ± 0.1	-0.4 ± 2.5	-18.7 ± 8.7	GA00356
WA3A	12.3	14.0	-1.5	1.5 ± 2.2	-0.4 ± 2.5	-17.0 ± 8.9	GA00357
WA4A	-9.1	36.2	-1.6	0.0 ± 0.1	0.1 ± 2.7	-14.9 ± 9.1	GA00358
WA1B	-9.1	-85.7	-1.6	0.7 ± 1.5	-1.0 ± 2.2	-18.3 ± 8.8	GA00359
WA2B	12.3	335.3	-1.6	0.0 ± 0.1	1.7 ± 3.3	-15.8 ± 8.8	GA00360
WA3B	22.9	69.4	-1.7	0.0 ± 0.1	-2.1 ± 1.6	-16.7 ± 8.7	GA00361
WA4B	1.6	47.3	-1.5	0.0 ± 0.1	-0.4 ± 2.5	-15.7 ± 8.1	GA00362
WB1A	12.3	268.8	-1.5	0.0 ± 0.1	1.2 ± 3.1	-13.2 ± 8.4	GA00363
WB2A	1.6	146.9	-1.5	0.7 ± 1.5	0.1 ± 2.7	-10.6 ± 8.6	GA00364
WB1B	-9.1	235.6	-1.2	0.0 ± 0.1	0.7 ± 2.9	-27.1 ± 12.0	GA00365
WB2B	1.6	335.3	-1.1	0.0 ± 0.1	-0.4 ± 2.5	-16.9 ± 8.4	GA00366
WC1A	-9.1	180.2	-1.2	0.4 ± 1.1	-0.3 ± 1.9	-14.5 ± 8.3	GA00367
WC2A	-9.1	-52.4	-1.4	-0.2 ± 0.1	-0.7 ± 1.7	-8.3 ± 9.1	GA00368
WC3A	1.6	135.9	-1.4	-0.2 ± 0.1	0.1 ± 2.1	-10.0 ± 8.9	GA00369
WC4A	-9.1	-8.1	-1.6	0.4 ± 1.1	-0.7 ± 1.7	-10.4 ± 8.9	GA00370
WC1B	1.6	91.6	-1.6	-0.2 ± 0.1	-1.5 ± 1.2	-17.3 ± 8.4	GA00371
WC2B	-9.1	80.5	-1.6	-0.2 ± 0.1	-1.5 ± 1.2	-12.6 ± 9.3	GA00372
WC3B	1.6	80.5	-1.5	0.4 ± 1.1	0.6 ± 2.2	-15.2 ± 8.4	GA00373
WC4B	-9.1	69.4	-1.5	0.4 ± 1.1	1.0 ± 2.4	-12.5 ± 8.2	GA00374
WD1A	-9.1	556.8	-1.6	1.0 ± 1.6	-1.1 ± 1.5	-14.0 ± 8.3	GA00375
WD2A	-9.1	58.3	-1.5	0.4 ± 1.1	1.8 ± 2.6	-14.0 ± 8.3	GA00376
WD1B	1.6	180.2	-1.5	-0.2 ± 0.1	-0.3 ± 1.9	-16.9 ± 8.4	GA00377
WD2B	-9.1	124.8	-1.7	-0.2 ± 0.1	-1.1 ± 1.5	-15.3 ± 8.2	GA00378

GRAPHICAL ILLUSTRATION



BUILDING T-2813 SECOND FLOOR, DENTAL RESEARCH CLINIC,
FORT GEORGE G. MEADE, MD

U.S. ARMY CENTER FOR HEALTH PROMOTION
AND PREVENTIVE MEDICINE
UNITED STATES ARMY MEDICAL DEPARTMENT

DATE:	9 SEPT 97
DRAWN:	JKD
APPROVED:	HE
SCALE:	NTS
PLATE:	N/A

Fort Meade, Building 2813 (Restroom 2)							
Location Code	Monitoring			Wipe Test			Wipe Number
	Alpha	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>)	1.7	149.47	5.00	0.1	2.0	27.5	
(MDA =>)	54	401	-	2.4	2.4	21.4	
FA1	-9.1	346.3	-0.8	0.4 ± 1.1	-0.3 ± 1.9	-15.7 ± 8.1	GA00379
FA2	-9.1	146.9	-0.9	-0.2 ± 0.1	0.6 ± 2.2	-17.9 ± 7.9	GA00380
FA3	1.6	379.6	-0.9	0.4 ± 1.1	0.6 ± 2.2	-16.9 ± 8.4	GA00381
FB1	-9.1	124.8	-1.0	1.0 ± 1.6	0.6 ± 2.2	-13.2 ± 9.0	GA00382
FB2	-9.1	69.4	-0.9	0.4 ± 1.1	-1.1 ± 1.5	-16.1 ± 8.3	GA00383
FB3	-9.1	401.7	-0.9	0.4 ± 1.1	-1.1 ± 1.5	-17.3 ± 8.4	GA00384
FC1	1.6	213.4	-0.9	-0.2 ± 0.1	0.1 ± 2.1	-13.8 ± 8.8	GA00385
FC2	-9.1	324.2	-0.7	0.4 ± 1.1	-1.1 ± 1.5	-18.2 ± 8.5	GA00386
FC3	1.6	202.3	-0.7	-0.2 ± 0.1	1.4 ± 2.5	-19.1 ± 8.7	GA00387
WA1A	-9.1	146.9	-0.9	-0.2 ± 0.1	-1.5 ± 1.2	-11.1 ± 8.6	GA00388
WA2A	1.6	69.4	-0.9	-0.2 ± 0.1	0.6 ± 2.2	-15.3 ± 8.2	GA00389
WA3A	1.6	91.6	-1.0	0.4 ± 1.1	-1.1 ± 1.5	-11.9 ± 8.5	GA00390
WA1B	-9.1	158.0	-1.1	-0.2 ± 0.1	-1.1 ± 1.5	-16.6 ± 8.0	GA00391
WA2B	-9.1	47.3	-1.3	0.4 ± 1.1	-0.3 ± 1.9	-16.2 ± 8.1	GA00392
WA3B	-9.1	14.0	-1.3	-0.2 ± 0.1	0.6 ± 2.2	-15.7 ± 8.1	GA00393
WB1A	-9.1	91.6	-1.1	-0.2 ± 0.1	-0.3 ± 1.9	-17.4 ± 8.2	GA00394
WB2A	-9.1	202.3	-1.0	-0.2 ± 0.1	0.1 ± 2.1	-18.7 ± 7.8	GA00395
WB3A	-9.1	268.8	-0.9	-0.2 ± 0.1	-1.1 ± 1.5	-11.9 ± 8.5	GA00396
WB1B	-9.1	135.9	-0.8	-0.2 ± 0.1	-0.7 ± 1.7	-9.8 ± 8.7	GA00397
WB2B	-9.1	135.9	-0.8	-0.2 ± 0.1	-0.7 ± 1.7	-17.0 ± 8.0	GA00398
WB3B	1.6	69.4	-0.8	0.4 ± 1.1	0.6 ± 2.2	-15.0 ± 8.0	GA00399
QA	N/A	N/A	N/A	-0.2 ± 0.1	2.7 ± 2.9	-15.3 ± 8.2	GA00400
WC1A	-9.1	180.2	-1.1	-0.2 ± 0.1	1.4 ± 2.5	-14.0 ± 8.3	GA00401
WC2A	12.3	3.0	-1.1	-0.2 ± 0.1	-0.3 ± 1.9	-15.5 ± 8.8	GA00402
WC3A	1.6	69.4	-1.1	0.4 ± 1.1	-1.5 ± 1.2	-17.8 ± 8.1	GA00403
WC1B	-9.1	379.6	-1.0	-0.2 ± 0.2	7.3 ± 4.6	-11.5 ± 8.5	GA00404
WC2B	-9.1	279.9	-0.9	-0.2 ± 0.2	2.9 ± 3.4	-17.4 ± 10.3	GA00405
WC3B	-9.1	69.4	-0.9	-0.2 ± 0.2	3.5 ± 3.6	-12.9 ± 8.8	GA00406
WD1A	-9.1	-30.3	-1.0	2.2 ± 2.6	2.4 ± 3.3	-21.0 ± 9.6	GA00407
WD1B	-9.1	58.3	-0.9	0.6 ± 1.5	1.3 ± 2.9	-17.7 ± 9.4	GA00408
WE1A	-9.1	158.0	-1.1	0.6 ± 1.5	0.7 ± 2.7	-19.1 ± 8.3	GA00409
WE2A	-9.1	91.6	-1.2	-0.2 ± 0.2	1.8 ± 3.1	-12.8 ± 8.9	GA00410
WE1B	1.6	135.9	-1.0	-0.2 ± 0.2	1.3 ± 2.9	-20.4 ± 8.4	GA00411
WE2B	-9.1	346.3	-0.9	-0.2 ± 0.2	5.7 ± 4.2	-15.3 ± 8.7	GA00412
WF1A	-9.1	180.2	-0.9	-0.2 ± 0.2	0.2 ± 2.4	-10.2 ± 9.1	GA00413
WF2A	1.6	-141.0	-1.0	-0.2 ± 0.2	2.4 ± 3.3	-14.0 ± 8.8	GA00414
WF1B	12.3	158.0	-0.9	-0.2 ± 0.2	4.6 ± 3.9	-14.5 ± 8.7	GA00415
WF2B	-9.1	124.8	-1.0	-0.2 ± 0.2	-0.4 ± 2.2	-14.5 ± 8.7	GA00416
WG1A	-9.1	80.5	-1.0	-0.2 ± 0.2	0.7 ± 2.7	-17.0 ± 8.5	GA00417
WG2A	1.6	191.3	-1.1	0.6 ± 1.5	2.9 ± 3.4	-15.4 ± 8.4	GA00418
WG1B	1.6	25.1	-1.3	0.6 ± 1.5	-0.4 ± 2.2	-16.2 ± 8.6	GA00419
WG2B	-9.1	69.4	-1.4	-0.2 ± 0.2	0.7 ± 2.7	-18.7 ± 8.3	GA00420

Fort Meade, Building 2813 (Rm 1 - Counters/Drawers)							
Location Code	Monitoring			Wipe Test			Wipe Number
	Alpha	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>)	1.7	149.47	5.00	0.0	2.1	26.7	
(MDA =>)	54	401	-	2.3	2.5	25.6	
RCNTR1	-9.1	180.2	-1.1	0.0 ± 0.1	0.7 ± 2.9	-17.7 ± 9.5	GA00482
RCNTR1S	-9.1	213.4	-1.1	0.7 ± 1.5	1.2 ± 3.1	-22.9 ± 9.5	GA00483
RCNTR2	22.9	224.5	-1.2	0.0 ± 0.1	-0.4 ± 2.5	-18.7 ± 8.9	GA00484
RCNTR2	12.3	-41.3	-1.1	0.0 ± 0.1	2.3 ± 3.4	-24.2 ± 9.1	GA00485
RCNTR3	1.6	113.7	-0.8	0.0 ± 0.1	0.7 ± 2.9	-17.0 ± 10.6	GA00486
RCNTR3S	1.6	268.8	-0.8	0.0 ± 0.1	-1.5 ± 1.9	-21.0 ± 10.3	GA00487
RWSINK	1.6	268.8	-0.9	0.0 ± 0.1	0.1 ± 2.7	-19.6 ± 9.1	GA00488
RCNTR4	-9.1	180.2	-0.3	0.0 ± 0.1	-1.5 ± 1.9	-14.8 ± 9.3	GA00489
RCNTR4S	1.6	246.6	-0.6	0.0 ± 0.1	0.1 ± 2.7	-22.0 ± 9.9	GA00490
RCNTR4R	-9.1	180.2	-0.6	0.0 ± 0.1	0.7 ± 2.9	-20.0 ± 9.5	GA00491
RD1	-9.1	202.3	-0.3	0.0 ± 0.1	-1.0 ± 2.2	-22.3 ± 9.0	GA00492
RD2	-9.1	80.5	-0.3	0.0 ± 0.1	1.2 ± 3.1	-17.4 ± 9.0	GA00493
RD3	-9.1	423.9	-0.2	0.0 ± 0.1	-0.4 ± 2.5	-17.9 ± 11.2	GA00494
RD4	-9.1	202.3	-0.6	0.0 ± 0.1	-2.1 ± 1.6	-22.3 ± 9.0	GA00495
RD5	-9.1	-30.3	-0.9	0.0 ± 0.1	-1.5 ± 1.9	-20.0 ± 9.3	GA00496
RD6	-9.1	124.8	-0.6	0.0 ± 0.1	1.7 ± 3.3	-23.8 ± 11.5	GA00497
RD7	-9.1	135.9	-0.8	0.0 ± 0.1	1.2 ± 3.1	-27.0 ± 10.2	GA00498
RD8	12.3	14.0	-1.0	1.0 ± 1.6	1.4 ± 2.5	-30.3 ± 11.7	GA00499
QA	N/A	N/A	N/A	-0.2 ± 0.1	-1.5 ± 1.2	-20.0 ± 8.1	GA00500
RD9	-9.1	-30.3	-0.5	-0.1 ± 0.1	1.1 ± 2.9	-20.0 ± 9.6	GA00501
RD10	-9.1	146.9	-0.7	0.7 ± 1.5	2.7 ± 3.4	-21.9 ± 8.9	GA00502
RD11	-9.1	291.0	-0.8	-0.1 ± 0.1	1.1 ± 2.9	-20.0 ± 9.9	GA00503
RD12	1.6	47.3	-0.8	-0.1 ± 0.1	-0.5 ± 2.2	-16.4 ± 8.9	GA00504
RD13	1.6	14.0	-0.6	-0.1 ± 0.1	1.6 ± 3.1	-20.5 ± 8.5	GA00505
RD14	-9.1	113.7	-0.6	-0.1 ± 0.1	1.1 ± 2.9	-22.0 ± 9.4	GA00506
RD15	1.6	102.6	-0.4	0.7 ± 1.5	3.8 ± 3.7	-23.3 ± 8.4	GA00507
RPIPE	-9.1	257.7	-0.7	-0.1 ± 0.1	-0.5 ± 2.2	-22.3 ± 11.0	GA00508

Fort Meade, Building 2813 (Randoms Above Two Meters)							
Location Code	Monitoring			Wipe Test			Wipe Number
	Alpha	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>)	1.7	149.47	5.00	0.2	2.6	30.0	
(MDA =>)	54	401	-	2.4	2.4	31.4	
RCFB2	1.6	379.6	-0.4	-0.2 ± 0.2	-0.9 ± 1.9	-18.7 ± 8.3	GA00421
RWC2B	1.6	224.5	-0.8	-0.2 ± 0.2	0.7 ± 2.7	-17.0 ± 8.5	GA00422
RWB4A	-9.1	113.7	-0.8	-0.2 ± 0.2	1.3 ± 2.9	-15.3 ± 8.7	GA00423
RWK2A	-9.1	291.0	0.3	0.6 ± 1.5	1.3 ± 2.9	-18.3 ± 8.4	GA00424
RWJ5B	1.6	213.4	-0.2	-0.2 ± 0.2	1.3 ± 2.9	-14.5 ± 8.7	GA00425
RWJ1B	1.6	191.3	0.3	-0.2 ± 0.2	2.9 ± 3.4	-15.7 ± 8.6	GA00426
RCFI1	1.6	534.6	0.4	1.4 ± 2.2	2.9 ± 3.4	-20.9 ± 8.1	GA00427
RWI12B	-9.1	313.1	-0.2	-0.2 ± 0.2	1.8 ± 3.1	-17.3 ± 8.9	GA00428
RCFC4	1.6	357.4	0.4	-0.2 ± 0.2	0.7 ± 2.7	-17.9 ± 8.4	GA00429
RWL4A	1.6	357.4	-0.5	-0.2 ± 0.2	-0.4 ± 2.2	-15.7 ± 8.6	GA00430
RWFB8	-9.1	623.3	-0.7	-0.2 ± 0.2	0.7 ± 2.7	-17.0 ± 8.5	GA00431
RWFB9	-9.1	191.3	-0.8	-0.2 ± 0.2	-1.4 ± 1.6	-13.6 ± 8.8	GA00432
RWA7A	-9.1	235.6	-1.2	0.6 ± 1.5	1.3 ± 2.9	-38.5 ± 13.9	GA00433
RCFE9	-9.1	224.5	-1.2	-0.2 ± 0.2	0.2 ± 2.4	-17.4 ± 8.5	GA00434
RCFC9	-9.1	279.9	-0.8	0.6 ± 1.5	1.3 ± 2.9	-15.3 ± 8.7	GA00435
RCFI11	12.3	368.5	-0.5	-0.2 ± 0.2	0.2 ± 2.4	-18.3 ± 8.4	GA00436
RWI1A	1.6	291.0	0.0	-0.2 ± 0.2	1.8 ± 3.1	-14.5 ± 8.7	GA00437
RWH2A	-9.1	268.8	0.0	-0.2 ± 0.2	0.2 ± 2.4	-14.0 ± 8.8	GA00438
RWFA11	1.6	291.0	-0.7	-0.2 ± 0.2	0.2 ± 2.4	-18.3 ± 8.4	GA00439
RCFC15	-9.1	457.1	-0.9	-0.2 ± 0.2	2.4 ± 3.3	-14.9 ± 8.7	GA00440
RCFE17	1.6	191.3	-0.7	1.4 ± 2.2	1.3 ± 2.9	-17.5 ± 8.2	GA00441
RWF4A	1.6	180.2	-0.5	0.6 ± 1.5	0.7 ± 2.7	-17.2 ± 9.4	GA00442
RCFH20	-9.1	556.8	-1.1	1.4 ± 2.2	-0.4 ± 2.2	-15.7 ± 8.6	GA00443
RCFF20	-9.1	224.5	-0.9	-0.2 ± 0.2	0.7 ± 2.7	-17.4 ± 8.7	GA00444
RCFB16	1.6	257.7	-0.5	-0.2 ± 0.2	0.2 ± 2.4	-18.3 ± 8.4	GA00445
RCFB2	1.6	368.5	-1.5	-0.2 ± 0.2	1.3 ± 2.9	-14.5 ± 8.7	GA00446
RWF1B	-9.1	69.4	-1.2	-0.2 ± 0.2	-0.4 ± 2.2	-17.0 ± 8.5	GA00447
RWF2B	1.6	235.6	-1.3	-0.2 ± 0.2	0.2 ± 2.4	-19.6 ± 8.3	GA00448
RWG2A	12.3	191.3	-1.2	-0.2 ± 0.2	-0.4 ± 2.2	-16.2 ± 8.6	GA00449
QA	N/A	N/A	N/A	-0.2 ± 0.2	1.3 ± 2.9	475.9 ± 30.7	GA00450
RWB1B	-9.1	25.1	-1.2	-0.2 ± 0.2	1.8 ± 3.1	-16.5 ± 8.8	GA00451

Fort Meade, Building 2805 (Random Above Two Meters)							
Location Code	Monitoring			Wipe Test			Wipe Number
	Alpha	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>)	1.7	149.47	5.00	0.2	3.1	24.9	
(MDA =>)	54	401	-	2.4	2.4	20.1	
RCB4	12.3	922.3	-1.4	-0.2 ± 0.2	-1.9 ± 1.6	-10.4 ± 8.0	GA01666
RCE3	1.6	1243.5	-1.0	-0.2 ± 0.2	-1.9 ± 1.6	-14.3 ± 8.9	GA01667
RCG3	22.9	999.8	-0.8	-0.2 ± 0.2	-1.4 ± 1.9	-12.1 ± 7.9	GA01668
RWB5C	-9.1	25.1	-0.8	-0.2 ± 0.2	-0.8 ± 2.2	-14.6 ± 7.6	GA01669
RWB7C	-9.1	-96.7	-0.9	-0.2 ± 0.2	-0.8 ± 2.2	-14.5 ± 7.8	GA01670
RCB1	22.9	1332.2	-1.0	-0.2 ± 0.2	1.9 ± 3.3	-15.5 ± 9.3	GA01671
RWD4C	12.3	135.9	-1.0	-0.2 ± 0.2	0.8 ± 2.9	-16.2 ± 7.6	GA01672
RCB5	12.3	1343.2	-1.2	-0.2 ± 0.2	-0.3 ± 2.5	-14.9 ± 7.8	GA01673
RCB5	1.6	1055.2	-1.2	-0.2 ± 0.2	0.3 ± 2.7	-12.3 ± 8.0	GA01674
RCC3	12.3	102.6	-1.4	1.4 ± 2.2	-1.4 ± 1.9	-21.5 ± 9.0	GA01675
RCD2	1.6	1221.4	-1.5	-0.2 ± 0.2	-0.8 ± 2.2	-14.0 ± 7.9	GA01676
RCA3	1.6	955.5	-1.7	-0.2 ± 0.2	-0.8 ± 2.2	-9.0 ± 8.0	GA01677
RCD1	1.6	1221.4	-1.7	-0.2 ± 0.2	0.3 ± 2.7	-8.9 ± 8.4	GA01678
RWB1C	1.6	457.1	-2.0	-0.2 ± 0.2	-0.3 ± 2.5	-9.4 ± 8.0	GA01679
RWC2C	1.6	224.5	-2.2	-0.2 ± 0.2	-0.8 ± 2.2	-13.9 ± 8.1	GA01680
RWD3C	1.6	235.6	-1.8	-0.2 ± 0.2	-0.8 ± 2.2	-10.4 ± 8.0	GA01681
RWA4C	-9.1	246.6	-1.9	0.6 ± 1.5	0.8 ± 2.9	-11.4 ± 8.8	GA01682
RWB3C	33.6	113.7	-2.0	-0.2 ± 0.2	1.4 ± 3.1	-8.3 ± 8.2	GA01683
RWD2C	-9.1	1442.9	-1.9	-0.2 ± 0.2	-0.3 ± 2.5	-17.6 ± 8.9	GA01684
RWA2C	-9.1	246.6	-1.9	-0.2 ± 0.2	1.9 ± 3.3	-7.7 ± 8.5	GA01685
RCB4	-9.1	988.8	-1.6	-0.2 ± 0.2	1.4 ± 3.1	-9.6 ± 8.1	GA01686
RWB2C	12.3	-19.2	-1.5	-0.2 ± 0.2	0.8 ± 2.9	-11.9 ± 8.1	GA01687
RCC1	-9.1	-63.5	-1.2	-0.2 ± 0.2	-1.4 ± 1.9	-10.4 ± 8.0	GA01688
RWD2C	-9.1	124.8	-0.9	0.6 ± 1.5	-1.9 ± 1.6	-15.5 ± 7.3	GA01689
RCB12	1.6	667.5	-1.2	-0.2 ± 0.2	-1.4 ± 1.9	-10.8 ± 8.0	GA01690
RCC16	1.6	988.8	-1.2	-0.2 ± 0.2	0.8 ± 2.9	-13.2 ± 8.0	GA01691
RWA2C	-9.1	124.8	-1.3	-0.2 ± 0.2	1.4 ± 3.1	-15.0 ± 7.8	GA01692
RWD2C	1.6	124.8	-1.3	-0.2 ± 0.2	0.8 ± 2.9	-14.9 ± 8.0	GA01693
RWK9C	12.3	-30.3	-1.5	0.6 ± 1.5	-0.8 ± 2.2	-13.8 ± 8.0	GA01694
RWK15C	1.6	235.6	-1.4	-0.2 ± 0.2	-0.8 ± 2.2	-10.0 ± 8.3	GA01695
QA	N/A	N/A	N/A	-0.2 ± 0.2	3.0 ± 3.6	-13.0 ± 9.1	GA01696

Fort Meade, Building 2802 (Random Above Two Meters)							
Location Code	Monitoring			Wipe Test			Wipe Number
	Alpha	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>)	1.7	149.47	5.00	0.1	2.0	24.9	
(MDA =>)	54	401	-	2.4	2.4	21.9	
RCA5	1.6	313.1	-1.6	0.3 ± 1.1	1.4 ± 2.4	-25.1 ± 9.9	GA01635
RCB4	1.6	25.1	-0.9	-0.3 ± 0.2	-0.7 ± 1.5	-25.1 ± 8.9	GA01636
RCD4	1.6	279.9	-0.6	-0.3 ± 0.2	0.9 ± 2.2	-22.9 ± 8.8	GA01637
RCD6	-9.1	512.5	-0.8	-0.3 ± 0.2	-0.3 ± 1.7	-22.5 ± 8.9	GA01638
RWA1C	-9.1	-118.9	-0.8	-0.3 ± 0.2	-0.7 ± 1.5	-22.9 ± 8.8	GA01639
RWB3C	1.6	47.3	-0.8	-0.3 ± 0.2	0.1 ± 1.9	-22.1 ± 9.1	GA01640
RWC7C	1.6	302.0	-1.1	-0.3 ± 0.2	0.1 ± 1.9	-26.7 ± 10.1	GA01641
RWC4C	1.6	-63.5	-1.4	-0.3 ± 0.2	-0.7 ± 1.5	-22.9 ± 8.6	GA01642
RWC5C	-9.1	-207.5	-1.7	0.3 ± 1.1	0.9 ± 2.2	-21.8 ± 9.9	GA01643
RWC1C	1.6	-74.6	-1.6	-0.3 ± 0.2	2.6 ± 2.8	-22.4 ± 8.7	GA01644
RCB3	-9.1	113.7	-1.0	-0.3 ± 0.2	1.4 ± 2.4	-20.8 ± 9.0	GA01645
RWB1C	-9.1	25.1	-0.9	-0.3 ± 0.2	-0.7 ± 1.5	-23.8 ± 8.8	GA01646
RWC3C	1.6	-52.4	-1.2	-0.3 ± 0.2	-0.3 ± 1.7	-12.9 ± 7.8	GA01647
RWD4C	10.1	25.1	-0.9	-0.3 ± 0.2	0.9 ± 2.2	-10.8 ± 8.0	GA01648
QA	N/A	N/A	N/A	-0.3 ± 0.2	-0.3 ± 1.7	-10.4 ± 8.0	GA01649
RWA3C	-9.1	-107.8	-1.1	-0.3 ± 0.2	-1.2 ± 1.2	-13.3 ± 7.7	GA01650
RCB1	-9.1	213.4	-1.1	0.3 ± 1.1	0.5 ± 2.1	-15.9 ± 8.3	GA01651
RCC3	-9.1	556.8	-0.9	-0.3 ± 0.2	0.9 ± 2.2	-10.2 ± 8.3	GA01652
RCD2	-9.1	778.3	-0.7	0.3 ± 1.1	-0.3 ± 1.7	-12.1 ± 7.9	GA01653
RCB4	-9.1	601.1	-0.9	-0.3 ± 0.2	0.9 ± 2.2	-15.4 ± 7.5	GA01654
RCE4	22.9	1276.8	-1.1	-0.3 ± 0.2	1.4 ± 2.4	-14.5 ± 7.8	GA01655
RWA3C	1.6	146.9	-1.7	-0.3 ± 0.2	0.1 ± 1.9	-14.7 ± 7.4	GA01656
RWC1C	-9.1	468.2	-1.6	-0.3 ± 0.2	1.4 ± 2.4	-8.3 ± 8.2	GA01657
RWE5C	-9.1	102.6	-1.5	-0.3 ± 0.2	3.5 ± 3.0	-10.0 ± 8.1	GA01658
RWE3C	22.9	-74.6	-1.4	-0.3 ± 0.2	-0.7 ± 1.5	-9.8 ± 8.3	GA01659
RWF1C	22.9	-152.1	-1.1	-0.3 ± 0.2	0.5 ± 2.1	-10.0 ± 8.1	GA01660
RWF2C	1.6	235.6	-1.3	-0.3 ± 0.2	1.4 ± 2.4	-8.9 ± 8.4	GA01661
RWG4C	-9.1	-30.3	-1.5	-0.3 ± 0.2	0.1 ± 1.9	-14.3 ± 8.0	GA01662
RWA2C	-9.1	124.8	-1.5	-0.3 ± 0.2	1.4 ± 2.4	-13.6 ± 7.9	GA01663
RWA2C	22.9	169.1	-1.2	0.6 ± 1.5	-1.9 ± 1.6	-8.9 ± 8.4	GA01664
RWC3C	-9.1	91.6	-1.3	-0.2 ± 0.2	2.5 ± 3.4	-9.8 ± 8.3	GA01665

APPENDIX D

RELEASE GUIDELINES

Acceptable Surface Contamination Levels

Nuclides[a]	Average[b,c,f] (dpm/100cm^2)	Maximum[b,d,f] (dpm/100cm^2)	Removable[b,e,f] (dpm/100cm^2)
U-Nat, ^{235}U, ^{238}U, and associated products	5,000 α	15,000 α	1,000 α
Transuranics, ^{226}Ra, ^{228}Ra, ^{230}Th, ^{228}Th, ^{231}Pa, ^{227}Ac, ^{125}I, ^{129}I	100	300	20
Th-nat, ^{232}Th, ^{90}Sr, ^{223}Ra, ^{224}Ra, ^{232}U, ^{126}I, ^{131}I, ^{133}I	1,000	3,000	200
Beta/gamma emitters (nuclides with decay modes other than alpha emission or spontaneous fission) except ^{90}Sr and other noted above	5,000 $\beta\gamma$	15,000 $\beta\gamma$	1,000 $\beta\gamma$

a→ Where surface contamination by both alpha- and beta/gamma-emitting nuclides exists, the limits established for alpha-and beta/gamma-emitting nuclides should apply independently
b→ As used in this table dpm (disintegrations per minute) means the rate of emission by radioactive material as determined by correcting the counts per minute observed by an appropriate detector for background, efficiency, and geometric factors associated with the instrumentation.
c→ Measurements of average contaminant should not be averaged over more than 1 square meter. For objects of less surface area, the average should be derived for each such object
d→ The maximum contamination level applies to an area of not more than 100 cm^2
e→ The amount of removable radioactive material per 100 cm^2 of surface area should be determined by wiping that area with dry filter or soft absorbent paper, applying moderate pressure, and assessing the amount of radioactive material on the wipe with an appropriate instrument of known efficiency. When removable contamination on objects of less surface area is determined, then pertinent levels should be reduced proportionally and the entire surface should be wiped.
f→ The average and maximum radiation levels associated with surface contamination resulting from beta-gamma emitters should not exceed 0.2 mrad/hr at 1 cm and 1.0 mrad/hr at 1 cm, respectively, measured through not more than 7 milligrams per square centimeter of total absorber.

Reference: Guidelines for Decontamination of Facilities and Equipment prior to Release for Unrestricted use or Termination of Licenses for Byproducts, Source, or Special Nuclear Material, U.S. Nuclear Regulatory Commission, April 1993.

APPENDIX E

INSTRUMENTATION USED AT FORT MEADE

Instrumentation used at Fort Meade
Termination Survey

	Alpha	Beta	Gamma
Readout Make	LUDLUM	LUDLUM	LUDLUM
Readout Model	2350	2350	2350
Serial Number	120600	120623	120605
Probe Make	LUDLUM	LUDLUM	LUDLUM
Probe Model Serial number	43-68 PR122118	43-68 PR120552	44-2 RN139798

Scanning Instrumentation used at Fort Meade
Termination Survey

	Floor Scanner	Alpha/Beta	
Readout Make	Ludlum	Ludlum	
Readout Model	2224	2224	
Serial Number	119772	119778	
Probe Make	LUDLUM	Ludlum	
Probe Model	43-37	43-1-1	
Probe Serial Number	PR11637	PR133820	

All instrumentation was supplied by USACHPPM and the calibration is traceable to the National Institute of Standards and Technology.

APPENDIX F

QUALITY ASSURANCE RESULTS

Indust Radn Surv No. 27-MH-7237-R-97, Facility Close-out and Termination Survey, Fort Meade, MD, 11 Aug 97-23 Jan 98

1. Spiked Samples. See table below.

Tritium Spikes

Position Identification		DPM added	DPM found	Percent Recovery
H-3	GA00450	497	475.9	95.8%
H-3	GA01696	0	-13.0	N/A

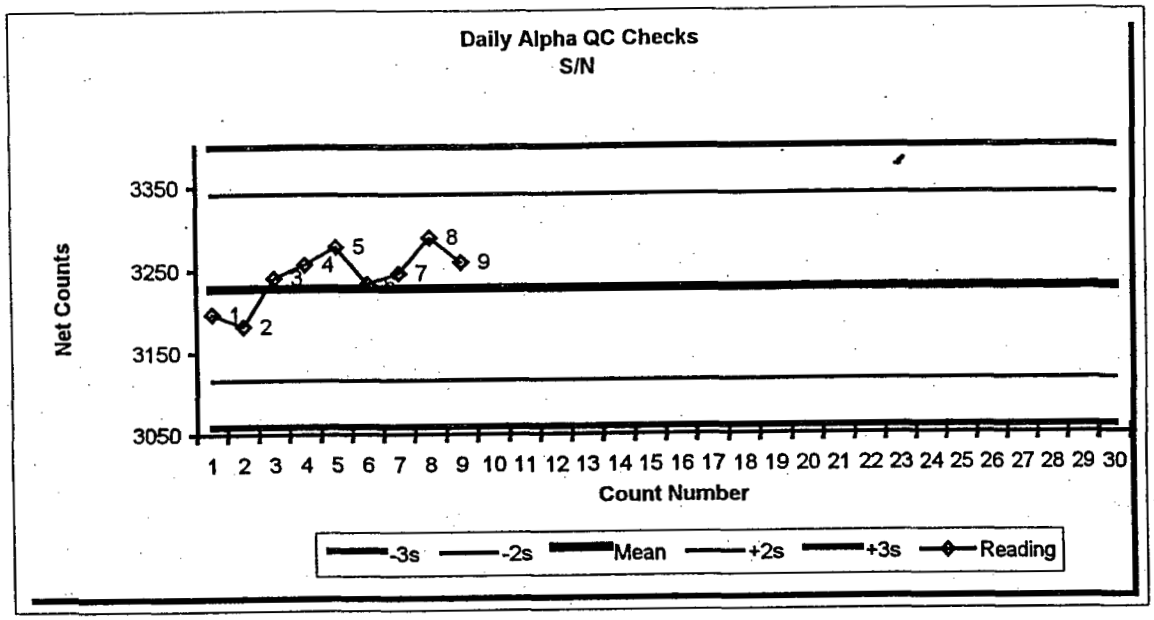
Note: Each sample vial was packed inside a second vial to protect from spread of contamination if broken.

a. The percent recovery of the samples was within the recommended plus or minus 20 percent (80% to 120%).

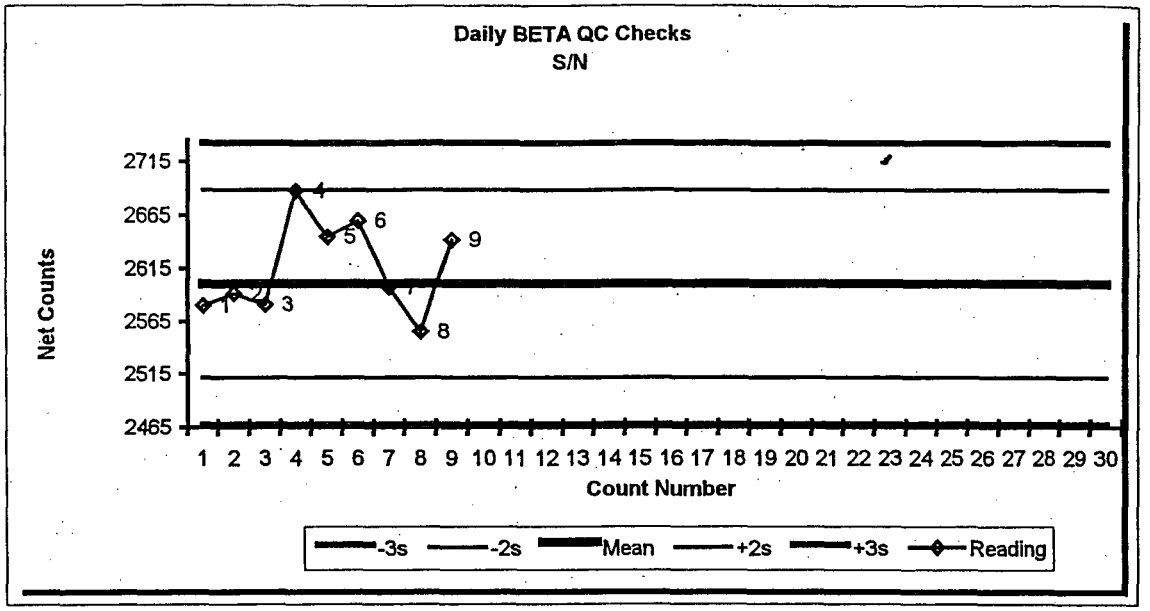
2. Blank Wipe Samples. Survey teams randomly submitted blank samples to the laboratory. Sample GA01696 was submitted as a blank. The blank sample had no detectable activity above the detection limit.

APPENDIX G

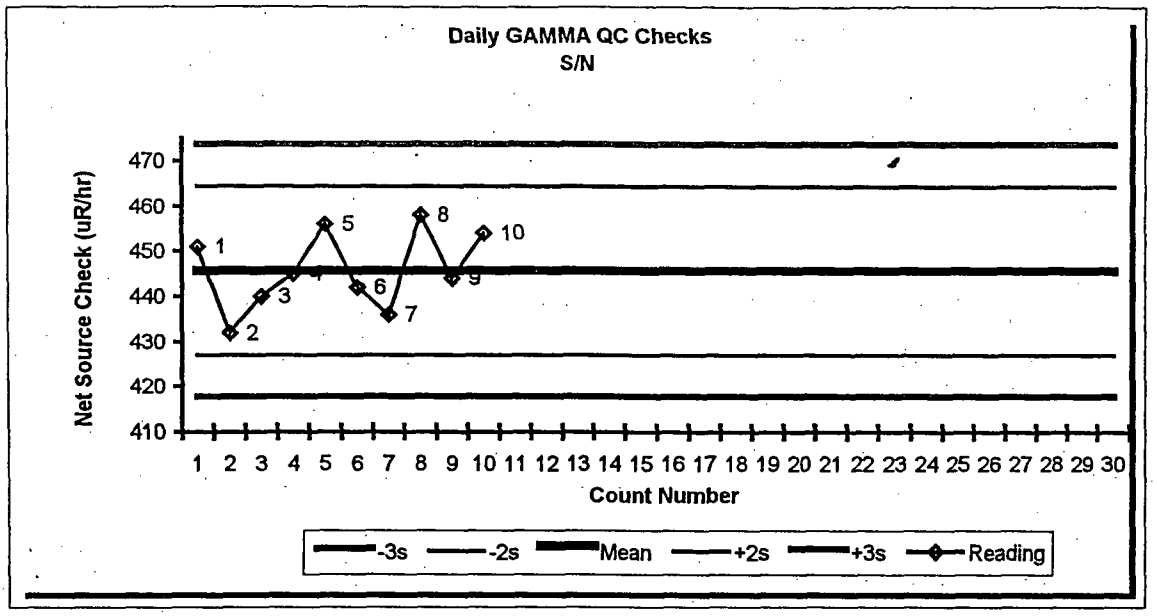
INSTRUMENT QUALITY ASSURANCE CHARTS



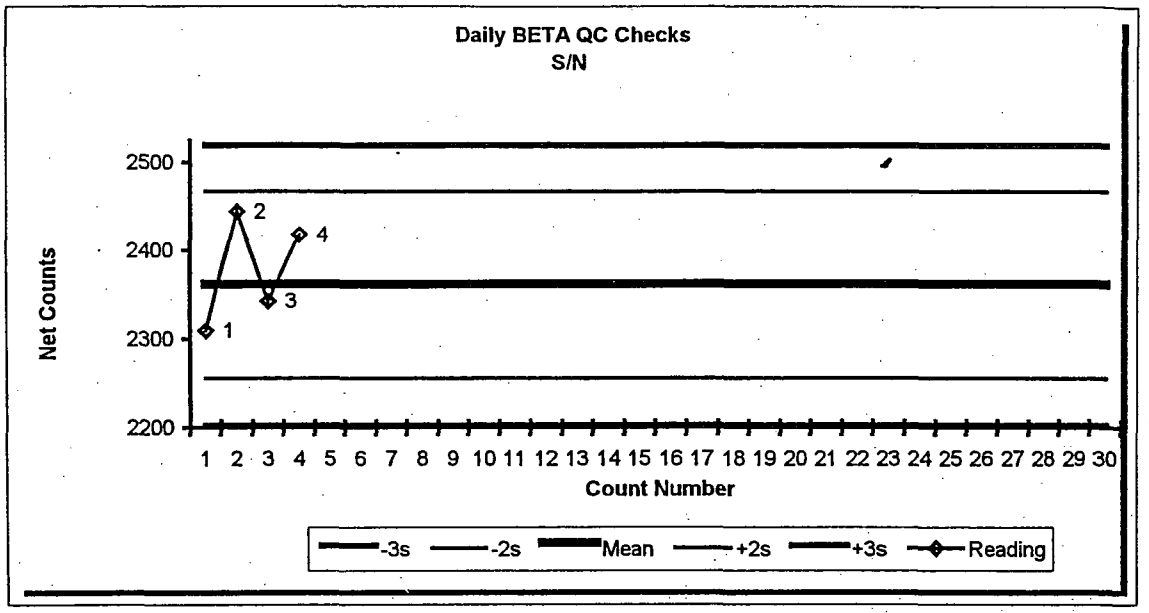
Daily Alpha Checks in counts										
	Date	Gross	BKG	NET	GROSS	BKG	NET	GROSS	BKG	NET
1	13Aug97			0	3248	1	3247	3345	2	3343
2	14Aug97	3197	1	3196	3281	1	3280	3329	1	3328
3	15Aug97	3182	1	3181	3257	3	3254			0
4	18Aug97	3240	1	3239	3257	2	3255	3341	1	3340
5	19Aug97	3257	1	3256	3341	2	3339			0
6	20Aug97	3278	1	3277	3267	1	3266	3372	1	3371
7	21Aug97	3233	1	3232	3338	2	3336	3215	1	3214
8	22Aug97	3246	3	3243	3325	1	3324			0
9	25Aug97	3289		3289	3344	3	3341	3389	2	3387
10	26Aug97	3259	2	3257	3345	2	3343	3328	1	3327
11	27Aug97			0			0			0
12	28Aug97			0			0			0
13				0			0			0
14				0			0			0
15				0			0			0
16				0			0			0
17				0			0			0
18				0			0			0
19				0			0			0
20				0			0			0
21				0			0			0
22				0			0			0
23				0			0			0
24				0			0			0
25				0			0			0
26				0			0			0
27				0			0			0
28				0			0			0
29				0			0			0
30				0			0			0



Daily BETA Checks in counts										
	Date	Gross	BKG	NET	GROSS	BKG	NET	GROSS	BKG	NET
1	13Aug97			0	2799	180	2619	2815	202	2613
2	14Aug97	2881	201	2680	2785	209	2576	2805	204	2601
3	15Aug97	2708	117	2591	2618	105	2513			0
4	18Aug97	2766	185	2581	2741	184	2557	2731	165	2566
5	19Aug97	2876	188	2688	2758	193	2565			0
6	20Aug97	2854	209	2645	2811	137	2674	2629	183	2446
7	21Aug97	2809	149	2660	2767	174	2593	2725	191	2534
8	22Aug97	2799	202	2597	2780	189	2591			0
9	25Aug97	2759	204	2555	2690	162	2528	2598	189	2409
10	26Aug97	2840	198	2642	2778	201	2577	2834	185	2649
11	27Aug97			0			0			0
12				0			0			0
13				0			0			0
14				0			0			0
15				0			0			0
16				0			0			0
17				0			0			0
18				0			0			0
19				0			0			0
20				0			0			0
21				0			0			0
22				0			0			0
23				0			0			0
24				0			0			0
25				0			0			0
26				0			0			0
27				0			0			0
28				0			0			0
29				0			0			0
30				0			0			0



Daily GAMMA Checks in uR/hr										
	Date	Gross	BKG	NET	GROSS	BKG	NET	GROSS	BKG	NET
1	13Aug97	457	6	451	436	5	431	438	7	431
2	14Aug97	438	6	432	440	7	433	450	5	445
3	15Aug97	445	5	440	447	6	441	539	5	534
4	18Aug97	450	5	445	434	5	429	450	5	445
5	19Aug97	463	7	456			0			0
6	20Aug97	447	5	442	434	8	426	445	5	440
7	21Aug97	443	7	436	437	5	432	445	5	440
8	22Aug97	463	5	458	460	5	455			0
9	25Aug97	450	6	444	449	6	443	430	7	423
10	26Aug97	459	5	454	435	6	429	440	6	434
11	27Aug97			0			0			0
12				0			0			0
13				0			0			0
14				0			0			0
15				0			0			0
16				0			0			0
17				0			0			0
18				0			0			0
19				0			0			0
20				0			0			0
21				0			0			0
22				0			0			0
23				0			0			0
24				0			0			0
25				0			0			0
26				0			0			0
27				0			0			0
28				0			0			0
29				0			0			0
30				0			0			0



Daily BETA Checks in counts										
	Date	Gross	BKG	NET	GROSS	BKG	NET	GROSS	BKG	NET
1	22Aug97	2500	191	2309	2498	187	2311	2675	198	2477
2	25Aug97	2634	190	2444	2590	195	2395	2508	185	2323
3	26Aug97	2537	195	2342	2610	201	2409	2647	189	2458
4	27Aug97	2608	190	2418	2690	203	2487	2600	200	2400
5				0			0			0
6				0			0			0
7				0			0			0
8				0			0			0
9				0			0			0
10				0			0			0
11				0			0			0
12				0			0			0
13				0			0			0
14				0			0			0
15				0			0			0
16				0			0			0
17				0			0			0
18				0			0			0
19				0			0			0
20				0			0			0
21				0			0			0
22				0			0			0
23				0			0			0
24				0			0			0
25				0			0			0
26				0			0			0
27				0			0			0
28				0			0			0
29				0			0			0
30				0			0			0

MCHL-HP 8 October 1997

MEMORANDUM FOR Record

SUBJECT: WRAIR Animal Holding Facility

1. Dr. Kenneth D. Burman called at 0830 on 8 August 1997 in response to our inquiry regarding the former Walter Reed Army Institute of Research (WRAIR) Animal Holding Facility.

2. This location has been specifically listed on NRC License 08-01738-02 since 1974. This location was added because of a research protocol conducted by Dr. Kenneth Burman to administer 15 to 20 micro-curies of Iodine-125 and Iodine-131 to pregnant sheep and perform surgery on the animals at that location.

3. Dr. Kenneth Burman indicated that only 5 to 10 sheep were used in this experiment which lasted about 2 months. Dr. Burman indicated that as far as he knows that was the only protocol using radioactive materials at the WRAIR Animal Holding Facility.

4. In September 1997 CPT Morton, MSG Mason and Mr. Muick from Walter Reed Army Institute of Research visited the site and conducted a meter survey of the trash area, the location where the barn was located and the pen where the sheep were held. No contamination above background was detected.

5. A thorough records investigation and telephone interviews by CPT Morton and Mr. Burton, Health Physics Office did not find any evidence of any other use of radioactive materials at this location.

6. Additional investigators involved in this protocol were CPT Jackson, Veterinarian of the WRAIR Animal Holding Facility, Dr. Leonard Wartofsky, Associate Investigator, and CPT J.D. Fox, Veterinarian.

ARTHUR R. MORTON
CPT, MS
Chief, Operations, HPO

FORT MEADE WRAIR ANIMAL HOLDING FACILITY SEPTEMBER 1997

This is to acknowledge the receipt of your letter/application dated 3/17/98, and to inform you that the initial processing which includes an administrative review has been performed.

03-01738-02

☑ There were no administrative omissions. Your application was assigned to a technical reviewer. Please note that the technical review may identify additional omissions or require additional information.

☐ Please provide to this office within 30 days of your receipt of this card

_____.

A copy of your action has been forwarded to our License Fee & Accounts Receivable Branch, who will contact you separately if there is a fee issue involved.

Your action has been assigned **Mail Control Number** 125557.
When calling to inquire about this action, please refer to this control number.
You may call us on (610) 337-5398, or 337-5260.

NRC FORM 532 (RI)
(6-98)

Sincerely,
Licensing Assistance Team Leader

MATERIALS LICENSE

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, 36, 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	In accordance with the letter dated May 12, 1998,
1. Department of the Army Walter Reed Army Medical Center (WRAMC)	3. License number 08-01738-02 is amended in its entirety to read as follows:
2. Washington, D.C. 20307-5001	4. Expiration date June 30, 2004
	5. Docket No. 030-01317 Reference No.

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. Phosphorus 32	E. Any	E. 2 curies
F. Carbon 14	F. Any	F. 2 curies
G. Iodine 125	G. Any	G. 1 curie
H. Iridium 192	H. Any	H. [ ]
I. Chromium 51	I. Any	I. 750 millicuries
J. Sulfur 35	J. Any	J. 1 curie
K. Hydrogen 3	K. Any	K. 5 curies
L. Molybdenum 99	L. Molybdenum 99/ Technetium 99m Generators	L. 23 curies
M. Technetium 99m	M. Any	M. 23 curies
N. Strontium 90	N. Sealed sources	N. [ ]

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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
O. Cesium 137	O. Sealed sources	O.
P. Gadolinium 153	P. Sealed sources	P.
Q. Iodine 125	Q. Sealed sources (3M Company seeds)	Q. 1 curie
R. Iodine 125	R. Sealed sources ((Norland Inst. Co., Model 178A591A or AECL Models C235 or C324, or Amersham Corp. Model IMC.P2)	R. 4 sources, not to exceed 300 millicuries each
S. Cesium 137	S. Sealed sources	S.
T. Cobalt 60	T. Sealed sources	T.
U. Americium 241	U. Any	U. 100 microcuries
V. Americium 241	V. Sealed sources (Monsanto Model NRC-2704)	V.
W. Nickel 63	W. Sealed sources and foils	W. 1 curie
X. Iodine 129	X. Sealed sources	X. 1 curie
Y. Thorium	Y. Any	Y. 5 kilograms
Z. Uranium	Z. Any	Z. 50 kilograms
AA. Cesium 137	AA. Sealed sources	AA.
BB. Americium 241	BB. Sealed sources	BB. s
CC. Cesium 137	CC. Sealed source	CC.
DD. Paladium 103	DD. Sealed sources	DD. 3 curies
EE. Uranium depleted in Uranium 235	EE. Plated Metal	EE. 400 Kilograms

Ex 2

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9. Authorized use:

A. through DD. Medical diagnosis, therapy and research in humans in accordance with any applicable Food and Drug Administration (FDA) requirements. Research and development as defined in 10 CFR 30.4, including animal studies; instrument calibration; student instruction.

EE. Shielding in linear accelerators.

CONDITIONS

10. Licensed material may be used only at the licensee's facilities located at the Walter Reed Army Medical Center, Washington, D. C.; WRAMC Forest Glen Section and Annex, Silver Spring, Maryland; U.S. Army Medical Laboratory, WRAMC Department of Pathology, Fort Meade, Maryland; Rickman Building, 13 Taft Court, Rockville, Maryland and Gillette Building, 270 Research Center, 1413 Research Boulevard, Rockville, Maryland.

11. A. Licensed material shall be used by, or under the supervision of, individuals designated in writing by the Radiation Safety Committee, Colonel Yancy Phillips, Chairperson.

B. The use of licensed material in or on humans shall be by a physician, dentist, or podiatrist as defined in 10 CFR 35.2.

C. Physicians, dentists, or podiatrists designated to use licensed material in or on humans shall meet the training criteria established in 10 CFR 35, Subpart J and shall be designated in writing by the licensee's Radiation Safety Committee.

D. The Radiation Safety Officer for this license is Colonel William B. Johnson.

12. In addition to the possession limits in Item 8, the licensee shall further restrict the possession of licensed material at a single location to quantities below the limits specified in 10 CFR 30.72 which require consideration of the need for an emergency plan for responding to a release of licensed material.

13. Notwithstanding the requirements of 10 CFR 35.49(a) and (b), 35.100, 35.200, 35.300, 35.400 and 35.500 the licensee may use for any medical use any byproduct material or reagent kit. The licensee shall possess and use byproduct material for medical use in accordance with the prescriptive and performance criteria in the other sections of 10 CFR 35. This does not relieve the licensee from complying with applicable U.S. Food and Drug Administration (FDA) and other Federal and State requirements.

14. A. 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 the foil temperatures from exceeding that specified in the certificate of registration referred to in 10 CFR 32.210.

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B. When in use, detector cells containing a titanium tritide foil or a scandium tritide foil shall be vented to the outside.

15. The licensee shall conduct a physical inventory every three months to account for all sealed sources and devices containing licensed material received and possessed pursuant to 10 CFR 35.59, 35.400 and 35.500 and every six months for all other sealed sources and devices.

16. A. Sealed sources and detector cells containing licensed material shall be tested for leakage and/or contamination at intervals not to exceed six months or at such other intervals as are specified by the certificate of registration referred to in 10 CFR 32.210, not to exceed three years.

B. Notwithstanding Paragraph A of this Condition, sealed sources designed to emit alpha particles shall be tested for leakage and/or contamination at intervals not to exceed three months.

C. In the absence of a certificate from a transferor indicating that a leak test has been made within six months prior to the transfer, a sealed source or detector cell received from another person shall not be put into use until tested.

D. Each sealed source fabricated by the licensee shall be inspected and tested for construction defects, leakage, and contamination prior to any use or transfer as a sealed source.

E. Sealed sources and detector cells need not be leak tested if:

(i) they contain only hydrogen-3; or

(ii) they contain only a radioactive gas; or

(iii) the half-life of the isotope is 30 days or less; or

(iv) they contain not more than 100 microcuries of beta and/or gamma emitting material or not more than 10 microcuries of alpha emitting material; or

(v) they are not designed to emit alpha particles, are in storage, and are not being used. However, when they are removed from storage for use or transfer to another person, and have not been tested within the required leak test interval, they shall be tested before use or transfer. No sealed source or detector cell shall be stored for a period of more than 10 years without being tested for leakage and/or contamination.

F. The test shall be capable of detecting the presence of 0.005 microcurie of radioactive material on the test sample. If the test reveals the presence of 0.005 microcurie or more of removable contamination, a report shall be filed with the U.S. Nuclear Regulatory Commission and the source or detector cell shall be removed immediately from service and decontaminated, repaired, or disposed of in accordance with Commission regulations. The report shall be filed within five days of the date the leak test result is known with the U.S. Nuclear Regulatory Commission, Region I, ATTN: Chief, Nuclear Materials Safety Branch, 475 Allendale Road, King of Prussia, Pennsylvania 19406. The

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report shall specify the source or detector cell involved, the test results, and corrective action taken.

G. The licensee is authorized to collect leak test samples for analysis by the licensee. Alternatively, tests for leakage and/or contamination may be performed by persons specifically licensed by the Commission or an Agreement State to perform such services.

17. Sealed sources or detector cells containing licensed material shall not be opened or sources removed from source holders by the licensee.

18. The licensee is authorized to hold radioactive material with a physical half-life of less than 65 days and Sulfur 35, Cobalt 58, Iridium 192, Scandium 46, for decay-in-storage before disposal in ordinary trash, provided:

    A. Waste to be disposed of in this manner shall be held for decay a minimum of ten half-lives.

    B. Before disposal as ordinary trash, the waste shall be surveyed at the container surface with the appropriate survey instrument set on its most sensitive scale and with no interposed shielding to determine that its radioactivity cannot be distinguished from background. All radiation labels shall be removed or obliterated.

    C. A record of each such disposal permitted under this License Condition shall be retained for three years. The record must include the date of disposal, the date on which the byproduct material was placed in storage, the radionuclides disposed, the survey instrument used, the background dose rate, the dose rate measured at the surface of each waste container, and the name of the individual who performed the disposal.

19. Experimental animals, or the products from experimental animals, that have been administered licensed materials shall not be used for human consumption.

20. The licensee shall possess and use byproduct material for human research in accordance with the prescriptive and performance criteria in all sections of 10 CFR Part 35 except sections 35.49(a) and (b), 35.100, 35.200, and 35.300.

21. The licensee is authorized to transport licensed material in accordance with the provisions of 10 CFR Part 71, "Packaging and Transportation of Radioactive Material."

22. The licensee shall not acquire licensed material in a sealed source or device unless the source or device has been registered with the U.S. Nuclear Regulatory Commission pursuant to 10 CFR 32.210 or equivalent regulations of an Agreement State.

23. Radioactive waste generated shall be stored in accordance with the statements, representations, and procedures included with the waste storage plan described in the licensee's letter/application dated September 9, 1993 and October 29, 1993.

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24. Notwithstanding the requirements of 10 CFR 35.315(a)(7), the licensee may control contamination in rooms used to house radiopharmaceutical therapy patients in accordance with the commitments and procedures contained in the letters dated April 8, 1992 and November 24, 1992.

25. 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, except for minor changes in the medical use radiation safety procedures as provided in 10 CFR 35.31. The U.S. 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 January 21, 1993
B. Letter dated September 9, 1993
C. Letter dated October 29, 1993
D. Letter dated December 9, 1993
E. Letter dated February 15, 1994
F. Letter dated June 2, 1994
G. Letter dated December 6, 1996

For the U.S. Nuclear Regulatory Commission

Date June 9, 1998

By *Original signed by Michelle Beardsley*

Michelle Beardsley
Nuclear Materials Safety Branch 1
Division of Nuclear Materials Safety
Region I
King of Prussia, Pennsylvania 19406

June 9, 1998

Docket No. 030-01317 License No. 08-01738-02
Control No. 125704

William B. Johnson
Colonel, U.S. Army
Radiation Protection Officer
Department of the Army
Walter Reed Army Medical Center (WRAMC)
MCHL-HP/Health Physics Office
Building 41, Room 38
Washington, D.C. 20307-5001

Dear Colonel Johnson:

This refers to your license amendment request. Enclosed with this letter is the amended license.

Please review the enclosed document carefully and be sure that you understand and fully implement all the conditions incorporated into the amended license. If there are any errors or questions, please notify the U.S. Nuclear Regulatory Commission, Region I Office, Licensing Assistance Team, (610) 337-5093 or 5239, so that we can provide appropriate corrections and answers.

Thank you for your cooperation.

Sincerely,

Original signed by Michelle Beardsley

Michelle Beardsley
Health Physicist
Nuclear Materials Safety Branch 1
Division of Nuclear Materials Safety

Enclosure:
Amendment No. 71

cc:
Col. Eric Daxon, U.S. Army Medical Command

ML10

DOCUMENT NAME: G:\DNMS\DOCWORK\LICLTR\L0801738.02 16911863
To receive a copy of this document, indicate in the box: "C" = Copy w/o attach/encl "E" = Copy w/ attach/encl "N" = No copy

OFFICE	DNMS/RI	N	DNMS/RI					
NAME	MBeardsley MB							
DATE	06/09/98		06/ /98		06/ /98		06/ /98	

OFFICIAL RECORD COPY

030-01317

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

REPLY TO
ATTENTION OF

May 12, 1998

Preventive Medicine Services

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

Dear Sir or Madam:

Walter Reed Army Medical Center (WRAMC) uses radioactive material authorized by U.S. Nuclear Regulatory Commission (NRC) Byproduct Material License number 08-01738-02 with an expiration date of June 30, 2004. This is a medical broadscope Type A license for medical diagnosis, therapy, and research in humans in accordance with any applicable Food and Drug Administration (FDA) requirements. Research and development as defined in 10 CFR 30.4, including animal studies; instrument calibration; and student instruction.

We request to amend NRC License 08-01738-02 issued to Walter Reed Army Medical Center (WRAMC), Washington, DC to appoint Colonel Yancy Phillips, replacing Colonel John R. Pierce, Deputy Commander for Clinical Services (DCCS), as the Chairman of the Radiation Control Committee (RCC). As the DCCS, Colonel Phillips is in a senior level executive management position, one level below the Hospital Commander, WRAMC. The Radiation Protection Officer, Colonel William B. Johnson has carefully reviewed the curriculum vitae (enclosure) and has recommended Colonel Phillips approval as Chairman of the RCC.

For additional information, please contact the undersigned at (202) 356-0058.

Sincerely,

William B. Johnson

Enclosure

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

Copy Furnished:

Headquarters, U.S. Army Medical Command, ATTN: MCHO-CL-W (Colonel Daxon), 2050 Worth Road, Ft. Sam Houston, TX 78234-6000

125704

OFFICIAL RECORD COPY ML 10

MAY 19 1998

CURRICULUM VITAE March 1998

NAME: Yancy Y Phillips, III

SSAN: [redacted]

RANK: Colonel, Medical Corps

MOS: 60F9A

DOB: [redacted]

POB:

SPOUSE:

CHILDREN:

HOME ADDRESS:

Ex. 6

WORK ADDRESS: Department of Medicine
Walter Reed Army Medical Center
Washington, DC 20307-5001
202-782-6205/2348
FAX 202-782-6507
E-Mail: COL_YANCY_PHILLIPS@WRAMC1-AMEDD.ARMY.MIL

EDUCATION:

1971 BS Chemical Engineering (High Honors), University of Delaware

1974 Master of Medical Science, CMDNJ-Rutgers Medical School

1976 Doctor of Medicine (Cum Laude), University of Alabama School of Medicine

POST-GRADUATE EDUCATION:

1976-77 Internal Medicine Internship, Tripler Army Med Center, Honolulu, HI

1977-79 Internal Medicine Residency, Tripler Army Medical Center

1980-83 Pulmonary Medicine Fellowship, Walter Reed Army Medical Center
Washington, D.C.

ACADEMIC APPOINTMENTS:

1983-90 Assistant Professor of Medicine, Uniformed Services University of the Health Sciences (USUHS), Bethesda, MD

1989-93 Program Director, Pulmonary Disease Fellowship, WRAMC

1990- Associate Professor of Medicine, USUHS

1993- Director, Internal Medicine Residency, WRAMC

1993- Associate Chairman, Department of Medicine, USUHS

CLINICAL AND PROFESSIONAL POSITIONS:

1971-72 Chemical Engineer, Exxon Corporation, Linden, NJ

1979-80 Internist and Chief, CCU, Dewitt Army Hospital, Ft Belvoir, VA

1980-82 Program Manager, Blast Overpressure Project, Non-Auditory, Walter Reed Army Institute of Research, Washington, D.C.

1983-87 Chief, Department of Respiratory Research, Walter Reed Army Institute of Research

1987-89 Director, Medical Intensive Care Unit, Walter Reed Army Medical Center (WRAMC)

1989-90 Chief, Pulmonary Disease Service, WRAMC

1990-93 Chief, Pulmonary & Critical Care Medicine Service, WRAMC

1993- Chief, Department of Medicine, WRAMC

SELECTED COMMITTEE POSITIONS AND CONSULTANCIES

1981-87 US Delegate, NATO Panel VIII, Research Study Group 6

1990-93 Pulmonary Consultant to the Surgeon General of the Army

1990-93 Respiratory Therapy Consultant to the Surgeon General of the Army

1992-95 Chairman, Mobilization and Readiness Committee, WRAMC

1993- Chairman, CQI Performance Improvement Council, WRAMC

1994- Chairman, Army Region American College of Physicians Annual Meeting

1994- NIH, National Heart, Lung and Blood Institute (NHLBI) Advisory Council

1994-96 NHLBI, Lung Division, Workshop on Planning a National Strategy for Chronic Obstructive Pulmonary Disease

1994- NHLBI, Lung Division, Data and Safety Monitoring Board for Lung Health Study 2

1997- DOD(HA) Working Group on Computerized Patient Record

1997 NHLBI and FDA sponsored Workshop on Pulmonary Artery Catheterization and Clinical Outcomes

1997- Pre-reviewer for Pulmonary and Critical Care Medicine fellowships for Accreditation Council for Graduate Medical Education (ACGME)

HONORS AND AWARDS:

Omicron Delta Kappa Honor Society, Univ of Del, 1970
Alpha Omega Alpha, Univ of Alabama, 1975
Dean's Honor Award, UAH, 1976
Resident's Award for Outstanding Research, TAMC, 1979
Fellow, American College of Chest Physicians, 1987
Fellow, American College of Physicians, 1993
Chennault Award for Outstanding Teacher, WRAMC, 1993

BOARD CERTIFICATIONS:

Diplomate, National Board of Medical Examiners, 1977
Diplomate #72508, American Board of Internal Medicine, 1979
Diplomate in Pulmonary Disease, ABIM, 1984
Diplomate in Critical Care Medicine, ABIM, 1991
Diplomate of American Board Of Medical Management, 1996

MEDICAL LICENSE:

Virginia 1979 to present, #11-030980
Louisiana 1985, #06724R
DEA Number AP9479191

PROFESSIONAL SOCIETIES:

American College of Chest Physicians, Fellow, 1987-present
Governor for US Army, 1992-95
American College of Physicians, Fellow, 1990-present
American College of Physician Executives, Member, 1993- present
American Thoracic Society, 1987-present
Chairman, Long Range Planning Committee of Clinical Problems Assembly, 1991-95
Member, Health Care Policy and Clinical Practice Committee, 1993-95
Member, Clinical Practice Committee, 1995-97
Writing Committee, Statement on "Evaluation and Care of the Patient with COPD", 1993-95
Association of Military Surgeons of US, 1981-present
Association of Program Directors of Internal Medicine, 1993-
Curriculum Review Ad Hoc Committee, 1996
Association of Pulmonary and Critical Care Medicine Program Directors, 1990-1993
District of Columbia Thoracic Society, 1987-1994
Executive Committee, 1989-1993
Co-Chairman American Lung Association of DC Research Committee 1992 & 1993

EDITORIAL REVIEWER:

New England Journal of Medicine
American Journal of Respiratory and Critical Care Medicine
Chest
Pediatric Pulmonology
Journal of Respiratory Diseases
American Medical Association panel member for Diagnostic and Therapeutic Technology Assessment
ABIM Pulmonary Disease Re-Certification, question preparation

MILITARY AWARDS:

Department of the Army Research and Development Achievement Award for 1988
Meritorious Service Medal with 4 Oak Leaf Clusters
Army Commendation Medal with 1 Oak Leaf Cluster
Army Achievement Medal with 1 Oak Leaf Cluster
Army Superior Unit Award (2)
"A" Proficiency Designator for AOC 60F (Pulmonary Disease)
Order of Military Medical Merit

MILITARY EDUCATION:

AMEDD Officers Basic Course (Constructive Credit), 1979
AMEDD Officers Advanced Course (Constructive Credit), 1982
Combat Casualty Care Course (C4A), 1986
Armed Forces Staff College (In Residence), 1989
Medical Management of Chemical Casualties Course, 1990

PUBLICATIONS:

1. Laughlin E, Dorosin N, Phillips Y. Total parenteral nutrition: a guide to therapy in the adult. J Fam Pract 1977; 5:947.

2. Phillips YY, Lonigan M, Joyner L. A simple technique for managing a bronchopleural fistula while maintaining positive pressure ventilation. Crit Care Med 1979; 7:351.

3. Phillips YY, Copley JB, Stor RA. Thrombocytopenia and low dose heparin. Southern Med J 1983; 76:526.

4. Verma PS, Hoyt RF, Jackson AJ, Phillips YY. Pharmacokinetics of intravenously administered desmosine in sheep. Conn Tissue Res 1984; 12:191.

5. Young AJ, Jaeger JJ, Phillips YY, Yelverton JT, Richmond DR. The influence of airway pressure on lung injury resulting from airblast. Military Medicine 1985; 150:31-33.

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Roach JM, Argyros GJ, Hurwitz KM, Eliasson AH, Phillips YY. "Eucapnic voluntary hyperventilation with dry gas as a bronchoprovocation technique in asthmatics: comparison with methacholine"

Hurwitz KM, Roach J, Phillips YY, Argyros G, Eliasson AH. "Analysis of refractory period after sequential testing with eucapnic voluntary hyperventilation and methacholine inhalation challenge"

Parker JM, Dillard TA, Phillips YY. "Impact of using stated versus measured height on screening spirometry"

Eliasson AE, Poropatich RK, Howard RS, Phillips YY. PFT "Parameters in bronchoprovocation tests"

Scientific posters presented at the 59th International Scientific Assembly of the American College of Chest Physicians, Orlando, FL, October 1993:

Kumke KM, Derderian SS, Hamm CK, Phillips YY, Rajagopal KR. "The effect of Buspirone on sleep in stable asthmatics with severe air flow obstruction"

Weidner SF, Dillard TA, Barg BW, Mehm WJ, Phillips YY, et al. "Effect of upright and supine posture on hypoxemia during air transport"

Slide presentations at 10th Annual Army Scientific/ACP Meeting, Orlando, FL, November 1993:

Parker JM, Dillard TA, Phillips YY. "Impact of stated versus measured height on screening spirometry"

Lepler LS, Argyros G, Phillips YY, Dillard TA, et al. "The utility of capnography and transcutaneous capnometry in the evaluation of airflow obstruction and gas exchange in obstructive lung disease"

Argyros GJ, Phillips YY, Eliasson AE, Roach JM, Hurwitz K. "Eucapnic voluntary hyperventilation as a bronchoprovocation technique: development of a standardized ventilatory dosing schedule in asthmatics"

Kumke KM, Derderian SS, Hamm CK, Phillips YY, Rajagopal KR. "The effect of Buspirone on sleep in stable asthmatics with severe airflow obstruction"

Eliasson AH, Phillips YY, Torrington KG, Howard RS, Taylor YL, Dillard TA. "The Grim Reaper: MD or RN?"

Weidner SF, Dillard TA, Berg BW, Mehm WJ, Phillips YY, Rajagopal KR. "Effect of upright and supine posture on hypoxemia during air transport"

Phillips YY. Exercise-induced asthma and eucapnic voluntary hyperventilation. Pulmonary Grand Rounds, Feb 1994, Brown University, Providence, RI.

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Eliasson AH, Phillips YY, Torrington KG, Howard RS, Taylor YL, Dillard TA. "The Grim Reaper: MD or RN?"

Glass KL, Dillard TA, Phillips YY, Torrington KG. "Pulse oximetry correction for smoking exposure"

Kumke KM, Derderian SS, Hamm CK, Phillips YY, Rajagopal KR. "The effect of Buspirone on sleep in stable asthmatics with severe airflow obstruction"

Rayburn DB, Fitzpatrick TM, Lepler LS, Truwit JD and Phillips YY. "Neural network analysis of sequential volume segments from expiratory CO2 curves in the computation of FEV1/FVC ratio and predicted FEV1"

Berg BW, Dillard TA, Phillips YY, Weidner SF and Rajagopal KR. "Hypoxia inhalation testing (HIT): application in COPD"

Dillard TA, Moores LK, Bilello KL and Phillips YY. "The pre-flight evaluation: a comparison of the hypoxic inhalation test with hypobaric exposure"

Derderian SS, Dillard TA, Mehm WJ, Phillips YY and Rajagopal KR. "Hemodynamic effects of altitude exposure to subjects with lung disease"

Argyros GJ, Roach JM, Hurwitz KM, Eliasson AH and Phillips YY. "The refractory period after eucapnic voluntary hyperventilation challenge and it's effect on challenge technique"

Belman MJ and Phillips YY, Co-Chairs. "Healthcare reform and clinical guidelines: pulmonary medicine in the year 2000". Symposium at International Scientific Assembly (American Thoracic Society) May 1994, Boston, MA.

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Hurwitz KM, Eliasson AH, Argyros GJ, Phillips YY. "Interpretation of eucapnic voluntary hyperventilation in the diagnosis of asthma".

Argyros GJ, Roach JM, Hurwitz KM, Eliasson AH, Phillips YY. Eucapnic voluntary hyperventilation as a bronchoprovocation technique: development of a standardized ventilatory dosing schedule in asthmatics.

Dillard TA, Knutsen SW, Phillips YY, Berg BW, Mehm WJ, Criswell D. Prevention of altitude hypoxemia: comparison of an oxygen conserving device with nasal cannulae.

Parker JM, Dillard TA, Phillips YY. Arm span to height relationships in patients referred for screening spirometry.

Phillips YY. Practice guidelines: What? Why? and How? Meet the Professor Seminar at the International Scientific Assembly (American Thoracic Society) May 1995, Seattle, WA.

Phillips YY. COPD in the managed care environment. NIH Workshop on "Building a national strategy for prevention, management and research in COPD". Bethesda, MD, 30 Aug 95.

Phillips YY. New ATS COPD Guidelines. Grand Rounds, Sibley Hospital, Chevy Chase, MD, 22 Sep 95.

Phillips YY. "Clinical practice guidelines guidelines: issues and realities (new American Thoracic Society COPD Standards)". USUHS Division of Pharmacology Seminar Series, Bethesda, MD, 12 Oct 95.

Poster presentations at the 61st International Scientific Assembly of the American College of Chest Physicians, New York, NY, October 1995:

Lawless NP, Dillard TA, Torrington KG, Phillips YY. Venturi devices for hypoxia inhalation testing.

Moores LK, Phillips YY, Bilello KM, Dillard TA. The effect of chronic oral diltiazem therapy on exercise capacity and response to hypoxic gas inhalation in severe COPD.

Moores LK, Phillips YY, Bilello KM, Dillard TA. The effect of acute and chronic diltiazem administration on pulmonary gas exchange and oxygen delivery in severe COPD.

Phillips YY. Pulmonary Medicine and Operation Desert Storm. Pulmonary Grand Rounds, University of Pittsburgh, 9 April 1996.

Presentations at International Scientific Assembly (American Thoracic Society) May 1996, New Orleans, LA:

Phillips YY and Anderson S, Co-Chairs. "Clinical Bronchoprovocation Testing" Major Clinical Symposium

Phillips YY. Airway reactivity in non-asthmatic lung diseases. Podium presentation

Phillips YY. ATS Statements and Guidelines. Session in Pre-Course

Dillard TA, Knutson SW, Berg BW, Mehm WJ, Phillips YY. Accuracy of formulae for predicting hypoxemia during air travel. Scientific poster

Phillips YY. Primary Blast Injury. Podium presentation at The Role of Advanced Conventional Weapons in Joint Peacekeeping and Ant-terrorism Operations, Defense Group Inc, Easton, MD, 29 Oct 1996.

Phillips YY. Blast Injuries. Podium presentation at 11th Conference on Military Medicine: Military Medicine in Complex Emergencies, Bethesda, MD, 14 March 1997.

Scientific posters presented at the International Scientific Assembly (American Thoracic Society) May 1997, San Francisco, CA:

Niven AS, Poropatich RK, Phillips YY, Parker JM, Torrington KG. High dose triamcinolone acetonide (TA) as induction therapy for pulmonary sarcoidosis.

Moores LK, Rayburn DB, Phillips YY and Fitzpatrick TM. Utilization of capnography as a non-volitional means of estimating airway obstruction.

Phillips YY. Blast injury. 1998 International Disaster Management Conference, February 18-19, 1998, Orlando, FL.

ABSTRACTS (1993-97):

Parker JM, Dillard TA, Phillips YY. Impact of using stated versus measured height on screening spirometry. Am Rev Resp Dis 1993; 147:A450

Roach JM, Argyros GJ, Hurwitz KM, Eliasson AE, Phillips YY. Eucapnic voluntary hyperventilation (EVH) as a bronchoprovocation technique in asthmatics: Comparison with Methacholine inhalation challenge. Am Rev Resp Dis 1993; 147:A258

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Kumke KM, Derderian SS, Hamm CK, Phillips YY, Rajagopal KR. The effect of Buspirone on sleep in stable asthmatics with severe airflow obstruction. Am J Resp and Crit Care Med 1994; 149:A895.

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Lawless NP, Dillard TA, Torrington KG, Phillips YY. Venturi devices for hypoxia inhalation testing. Chest 1995 108(3):140S.

Moores LK, Phillips YY, Bilello KM, Dillard TA. The effect of chronic oral diltiazem therapy on exercise capacity and response to hypoxic gas inhalation in severe COPD. Chest 1995 108(3):113S.

Moores LK, Phillips YY, Bilello KM, Dillard TA. The effect of acute and chronic diltiazem administration on pulmonary gas exchange and oxygen delivery in severe COPD. Chest 1995 108(3):196S.

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Niven AS, Poropatich RK, Phillips YY, Parker JM, Torrington KG. High dose triamcinolone acetonide (TA) as induction therapy for pulmonary sarcoidosis. Am J Resp Crit Care Med 1997; 155:A944.

Moores LK, Rayburn DB, Phillips YY and Fitzpatrick TM. Utilization of capnography as a non-volitional means of estimating airway obstruction. Am J Resp Crit Care Med 1997; 155:A595.

This is to acknowledge the receipt of your letter/application dated

5-12-98, and to inform you that the initial processing which includes an administrative review has been performed.

08-01738-02

☒ There were no administrative omissions. Your application was assigned to a technical reviewer. Please note that the technical review may identify additional omissions or require additional information.

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Your action has been assigned **Mail Control Number** 125704.
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NRC FORM 532 (RI)
(6-98)

Sincerely,
Licensing Assistance Team Leader

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Ex 6

NRC FORM **8C**
(7-94)
NRCMD 3.57

COVER SHEET FOR CORRESPONDENCE

USE THIS COVER SHEET TO PROTECT ORIGINALS OF MULTI-PAGE CORRESPONDENCE

DEPARTMENT OF THE ARMY
WALTER REED ARMY MEDICAL CENTER
WASHINGTON, D.C. 20012

MLER-R1-81-147
Docket No 30-0131
02-01738-02

REPLY TO ATTENTION OF:

HSWP-QHP

90CT 1981

SUBJECT: Misadministration Report, Third Quarter 1981

US Nuclear Regulatory Commission
Region I
Office of Inspection and Enforcement
631 Park Avenue
King of Prussia, PA 19406

1. Pursuant to Title 10, Chapter 1, Code of Federal Regulations, Part 35, Section 35.43, the following information is provided to comply with the Nuclear Regulatory Commission's regulation on the reporting of diagnostic misadministration of a radiopharmaceutical.

2. On 29 July 1981 at 1000 hours, a patient was scheduled for a MUGA scan (gated heart study). At approximately 1000 hours, the patient was premedicated as per standard procedure with 15.2 mg of Stannous Pyrophosphate in 2 ml Sodium Chloride 0.9%. At 1035 hours, SSN [redacted], injected in error 20 mCi of Technetium Methylene Diphosphonate (Tc99m MDP), a bone scanning agent intended for another patient, intravenously into the patient instead of the prescribed dose of 25 mCi of Sodium Pertechnetate NaTc99m04. E6

3. The dose intended for the patient was properly numbered and labeled as per standard procedures. The dose of bone scanning agent (TcMDP) was properly numbered and labeled for the proper patient.

4. The misadministration was the result of failure on the Nuclear Medicine technologist, [redacted] to follow procedures to identify the proper dose for the proper patient.

5. The patient was informed by Dr. Douglas Eggli, MAJ, MC, Nuclear Medicine fellow, of the dose misadministration and was rescheduled for a repeat MUGA scan. The implications of the misadministration, including a renal and bladder dose of 0.1 to 0.5 RADs was explained to the patient. The patient was informed that there were no ill-effects to be expected and that there was no known tumor induction risk associated with a dose in this diagnostic range.

6. The patient's referring physician, Dr. John W. Shuck, CPT, MC, was notified in writing and a record of the misadministration was placed in the patient's chart by Dr. Douglas Eggli, MAJ, MC, Nuclear Medicine Service, WRAMC.

HSWP-QHP
SUBJECT: Misadministration Report, Third Quarter 1981

7. Following this incident, a thorough review of the Nuclear Medicine Service's handling of radiopharmaceutical doses was done by the senior nuclear pharmacist, LTC Richard E. Stotler, MSC. All doses were properly numbered, color coded, and labeled with the patient's name, SSN, study to be done and the radiopharmaceutical and exact dose on the syringe. No administrative or labeling errors were present in this case or found in a review of other doses prepared for use in this clinic.

8. The error was entirely a failure to recognize, check, and administer a properly labeled dose to the proper patient.

9. The technologist responsible was counselled on the proper procedures to follow in administering doses and a special class was presented to the entire technologist staff on the proper procedures and their responsibility in insuring the dose intended for a patient is for that patient, the proper radiopharmaceutical and in the correct dosage range for the study to be done.

FOR THE COMMANDER:

Patrick J Mumma

PATRICK J. MUMMA
LTC, MSC
Adjutant General

CF: TSG HQDA (DASG-PSP-E)
Washington, DC 20310

MLER-RI-81-147
Docket No 30-01317

REGION I

MATERIALS RADIOLOGICAL PROTECTION SECTION
NON ROUTINE EVENT REPORT

I. Action Control Data

Report Date: Oct 9, 1981 Event Date: 7/29/81

Licensee: 08-01738-02 Dept of Army (Walter Reed)

License No: ↓ Docket No: 30-01317 Cat/Pri: G

Event Description: Diagnostic Misadministration of a Radiopharmaceutical

II. Reporting Requirement

- ☐ 10 CFR 20.402 - theft or loss
- ☐ 10 CFR 20.403(a) overexposure/release immediate
- ☐ 10 CFR 20.403(b) over-exposure/release 24 hr.
- ☐ 10 CFR 20.405 - 30 day
- ☐ License Condition
- ☒ other 10CFR 35.43

III. Region I Preliminary Response

- ☐ Immediate Site Inspection
  - A. Inspector Assigned: _____
  - B. Date of Inspection: _____
- ☐ Special Inspection
  - A. Date Scheduled: _____
- ☐ Inquiry
  - A. Date: _____ Inspector: _____
  - B. Licensee Representative & Title: _____

REGION I Form 160
Jan. 1979

IV. Evaluation of Report

- [X] Description of Event
- [X] Levels of R/M Involved
- [X] Cause of Event
- [X] Corrective Action
- [X] Calculations Adequate

V. Action Required

- [ ] PN
- [ ] Daily Report
- [ ] IE:FFMSI Notified, Individual Making Notification: _____
- [ ] Phone Call to Licensee
- [ ] Special Inspection
- [X] ~~Letter to Licensee~~ (Acknowledgement ~~or Reference in Inspection Ltr~~)
- [ ] None

VI. Followup Actions

- [X] Enter Information in IE:I Form 39 & Region I Logbook
- [X] Review at next routine inspection - memo to file

VII. Special Instructions

Completed By: J. Nicolosi Date: 11/5/87

Reviewed By: _____ Date: _____

30-01317

DEPARTMENT OF THE ARMY
WALTER REED ARMY MEDICAL CENTER
WASHINGTON, D.C. 20012

REPLY TO ATTENTION OF:

05 OCT 1983

HSHL-HP

SUBJECT: Misadministration Report, Third Quarter 1983

US Nuclear Regulatory Commission
Region I
Office of Inspection and Enforcement
631 Park Avenue
King of Prussia, PA 19406

1. Pursuant to Title 10, Chapter 1, Code of Federal Regulations, Part 35, Section 35.43, the following information is provided to comply with the Nuclear Regulatory Commission's regulation on the reporting of diagnostic misadministration of a radiopharmaceutical.

2. On 15 Sep 83 at 1038 hours, Patient "X" received an injection of Tc99m heat damaged red blood cells intended for another patient. Both patients were scheduled for heat damaged red blood cell spleen scintigraphy.

3. The radiopharmaceutical was prepared following standard pharmacy procedures. The radiopharmaceutical was correctly identified and all supporting documentation accompanied the radiopharmaceutical to the dose lab, per standard procedure.

Ex 6

4. The dose misadministration occurred as a result of the failure of the technologist (SP5 [redacted] SSN [redacted]) who dosed the patient, to follow standard procedure for verification of the correct radiopharmaceutical/patient combination prior to dose administration.

5 Once the misadministration was identified, the patient was immediately informed by Dr. Douglas Eggli, MAJ, MC, Nuclear Medicine staff physician, of the misadministration and was monitored for signs and symptoms of a transfusion reaction. The patient experienced no immediate adverse effect. A formal transfusion reaction workup was initiated through the blood bank. The patient was also observed in the clinic for two hours after the misadministration with no adverse reaction noted during this time. An initial note describing the misadministration was placed in the patient's medical record and her attending surgeon at DeWitt Army Hospital (Dr. Goldman) was notified by telephone. The patient was returned to DeWitt Army Hospital where she was an inpatient and was observed there for an additional 24 hours.

6. Patient "X" was informed of the possible immediate and long range health consequences of the dose misadministration, in this case primarily related to a possible transfusion reaction, Rh sensitizaion, and the risk of transmission of disease via unscreened blood products, principally hepatitis.

mm/2

Ex 3

7. The patient whose tagged red cells were administered to Patient "X" was also informed of the misadministration. The patient agreed to allow her blood to be drawn and submitted to the blood bank as part of the transfusion reaction evaluation.

8. The transfusion reaction evaluation revealed that both patients were O-negative blood type. There was no evidence of a hemolytic reaction. Direct Coombs test, plasma hemolysis, and urine hemoglobin were all negative. The "donor" serum is HG Ag negative, however, there was a mildly elevated serum SGPT. The Infectious Disease Service recommended that the patient receive prophylaxis with immune globulin based on the elevated SGPT. This recommendation was referred on to Patient "X's" primary care physician (the surgery ward resident, Dr. Feiner) at DeWitt Army Hospital by telephone as soon as the result became available (approximately 1600 hours on 16 Sep 83).

9. A formal written report of the misadministration along with the original copy of the blood bank's transfusion reaction evaluation have been forwarded to Dr. Goldman at DeWitt Army Hospital.

10. The technologist who misadministered the dose was counselled individually as to the the serious nature of the misadministration and potential health risks to the patient.

11. The need for strict adherence to standard patient identification and dosing policy were reviewed with the entire technical staff. The potential adverse health consequences for patients of such dose misadministrations were reviewed in detail.

12. Although adherence to standard procedure for patient and radiopharmaceutical identification would have prevented this misadministration, the procedure for administration of in vitro labeled homologous blood components is being changed to require that two people verify the correct patient/dose combination prior to dose administration.

FOR THE COMMANDER:

LARRY L. JONES
MAJ(P), MSC
Adjutant General

CF:
TSG, HQDA (DASG-PSP-E), WASH DC 20310

MATERIALS RADIOLOGICAL PROTECTION SECTION Lic. # 08-01738-0
LICENSEE EVENT REPORT Docket No. 30-01317

MLER - RI-83- 137

I. Action Control Data

Licensee WALTER REED ARMY MEDICAL CENTER
DEPT. OF THE ARMY
Event Description DIAGNOSTIC MISADMINISTRATION

Event Date 9-15-83 Report Date 10-5-83

II. Reporting Requirement

- ☐ 10 CFR 20.402 - theft or loss
- ☐ 10 CFR 35.42 Therapeutic Misadı
- ☐ 10 CFR 20.403 (a)(b) overexposure/ release
- ☑ 10 CFR 35.43 Diagnostic Misadmi
- ☐ 10 CFR 20.405 - 30 day report
- ☐ License Condition
- ☐ Other

III. Region I Response

- ☐ Immediate Site Inspection — Inspector ____ Date ____
- ☐ Special Inspection — Inspector ____ Date ____
- ☐ Telephone Inquiry — Inspector ____ Date ____

Licensee Representative and Title

- ☐ PN
- ☐ Daily Report
- ☐ Information entered - Region I log and Outstanding Items List.
- ☑ Review at next routine inspection

IV. Report Evaluation

- ☑ Description of Event
- ☑ Corrective Actions
- ☑ Levels of R/M involved
- ☑ Calculation adequate
- ☑ Cause of Event
- ☑ Letter to Licensee requesting add information need # Licens

Completed by R. H. Falvo Date 10/25/83

Reviewed by John D. Kinneman Date 11/1/83

Special Instructions or Comments:

"CONTAINS INFORMATION PROTECTED BY THE PRIVACY ACT" Docket No. 05001511

MLER-91-01

HSHL-H-HP (SGPS-PSP/2 Jan 91) (385-11k) 1st End LTC Myers/A291-5104
SUBJECT: Dosimeter Exposure: [redacted] SSAN: [redacted]

Commander, Walter Reed Army Medical Center, ATTN: HSHL-H-HP, Washington, DC 20307-5001 18 JAN 1991

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

FOR Headquarters, Department of the Army, Office of The Surgeon General, ATTN: SGPS-PSP, 5109 Leesburg Pike, Falls Church, VA 22041-3258

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

1. Reference:

a. Telephone conversation between Mr. Burton, WRAMC Health Physics Office, and Ms. Nessen, NRC Region I, 21 Dec 90, subject as above.

b. Telephone conversation between Mr. Burton, WRAMC Health Physics Office, and Ms. Nessen, NRC Region I, 11 Jan 91, subject as above.

2. Following a review of [redacted] activities, [redacted] personal status, and interviews with [redacted] and his peers, it has been concluded that he did not receive the exposure recorded by his Nov 90 dosimeter. An administrative dose of 9 mRem has been assigned to [redacted] Nov 90 dosimetry record, which is equivalent to the average of his last twelve months exposure histories.

3. Consider:

a. [redacted] was notified in Oct 90 that his appeal to the Qualitative Management Program-action against him had been denied and that he would be involuntarily released from active duty on 31 Dec 90.

b. [redacted] discussed with SFC Green, NCOIC Health Physics Office, WRAMC, the characteristic of TLDs being unable to provide information which would allow the identification of deliberate exposures.

c. [redacted] mentioned to SSG Simmons, NCOIC Radioactive Materials Control Branch, HPO, WRAMC, that he was "going to do something" before he was separated from active duty.

d. [redacted] stated that he found his Nov 90 dosimeter at the end of the wearing period after having placed it on a shelf in WRAMC's radioactive waste processing center at the beginning of the wearing period.

(1) The shelf was located near "needle boxes" from WRAMC's Nuclear Medicine Clinic which contained short half-life, relatively-high-activity residues from typical Nuclear Medicine procedures. The boxes were being held there to allow for the isotopes to decay to a

point where the boxes could be declared of no radiological interest and disposed of as non-radioactive waste.

(2) It is estimated that several tens of milliCuries of isotopes typically used by Nuclear Medicine Clinics (e.g., ^{99}Tc and ^{131}I) may have been present in the waste holding area during Nov 90. This amount of activity could have resulted in an exposure of the magnitude recorded by [redacted] TLD (over a three to four week period).

e. [redacted] further stated that during the period that his dosimeter was on the shelf, he was wearing someone else's dosimeter, but he wouldn't say whose dosimeter he was wearing.

(1) The only non-routine activity in which [redacted] was involved during Nov 90 was the survey of several fluoroscopy systems.

(2) [redacted] assisted [redacted] and [redacted] in the performance of the surveys and neither [redacted] nor [redacted] received any recordable exposures during Nov 90.

4. We have concluded that it is likely that [redacted] deliberately placed his dosimeter in proximity to the Nuclear Medicine needle boxes being held for decay in WRAMC's radioactive waste processing center and that he did not receive the exposure recorded by his Nov 90 dosimeter.

5. The NRC Region I Office was notified of the exposure recorded by [redacted] dosimeter (reference 1a). When advised that our investigation concluded that [redacted] did not receive this exposure, they said not to continue with 10CFR20 notification procedures. During reference 1b, a request was made to provide NRC Region I a copy of our final investigation.

6. [redacted] separated from active duty on 31 Dec 90.

FOR THE COMMANDER:

LLEWELLYN E. PIPER
LTC, MS
Executive Officer

8 Encls
1 nc
Added 7 encls
2. WRAMC HPO ALARA Interview
3. [redacted] Statement
4. Record of Telephone Conversation
5. Admin Dose Worksheet
6. 1990 Exposure History
7. 1989 Exposure History
8. 1988 Exposure History

Ex 6 portions

CF: US Nuclear Regulatory Commission, Region I, 475 Allendale Road, King of Prussia, PA 19406

DEPARTMENT OF THE ARMY
OFFICE OF THE SURGEON GENERAL
5109 LEESBURG PIKE
FALLS CHURCH, VA 22041-3258

REPLY TO
ATTENTION OF

S: 1 March 1991

SGPS-PSP (385-11k)

JAN 2 1991

MEMORANDUM THRU Commander, U.S. Army Health Services Command, ATTN: HSCL-P, Fort Sam Houston, TX 78234-6000

FOR Commander, Walter Reed Army Medical Center, ATTN: HSHL-H-HP, Washington, DC 20307-5001

SUBJECT: Dosimeter Exposure: [redacted] SSAN: [redacted] Ex 6

1. The enclosed message indicates that the whole body dosimeter of a member of your command has been exposed to 06.700 rem of shallow dose equivalent and 06.400 rem of deep dose equivalent x-radiation.

2. Investigative procedures to be followed are in AR 40-14.

3. Your report of investigation along with a recommendation for dose to be assigned should arrive in this office by 1 March 1991. Because this is a Type III exposure, [redacted] is to be removed from all duties involving potential exposure to ionizing radiation, and he may not be returned to such duties without the written concurrence of this office (AR 40-14, paragraph 13).

4. Copies of the last 6 - 12 months of radiation exposure history should accompany your report.

FOR THE SURGEON GENERAL:

[redacted] Col MC

Encl
as

for RONALD R. BLANCK
Brigadier General, MC
Director, Professional Services

Ex 6 portions

"CONTAINS INFORMATION PROTECTED BY THE PRIVACY ACT"

OPERATIONS
SUPPORT DIRECTORATE

ROUTINE ZYUW RUCLBNA2597 3541425
R 201200Z DEC 90
FM CUSAIRDC LEXINGTON KY //AMXTM-SR-DC//
TO CDRWRAMC WASHINGTON DC
INFO DA WASHINGTON DC //DASG-PSP-E//
CDRAMC ALEXANDRIA VA //AMCSF-P//

~~CONTAINS INFORMATION PROTECTED BY THE PRIVACY ACT"~~

UNCLAS
SUBJECT: THERMOLUMINESCENT DOSIMETER EXPOSURE
1. THIS CONFIRMS THE TELECON BETWEEN LT. CUMMINGS AND NAT BERRY ON 19 DECEMBER 1990.
2. THERMOLUMINESCENT DOSIMETER (TLD) NUMBER [redacted] LISTED AS A WHOLE BODY BADGE ISSUED TO [redacted] SSN [redacted] FOR THE WEARING PERIOD 4 NOVEMBER TO 1 DECEMBER 1990, INDICATES EXPOSURE TO X-RAY RADIATION OF 6.700 REM/6700 MREM SHALLOW (7 MG/ SQUARE CM DEPTH) DOSE EQUIVALENT AND 6.400 REM/6400 MREM DEEP (1000 MG/SQUARE CM DEPTH) DOSE EQUIVALENT. Ex6
3. SUGGEST YOU REVIEW 10 CFR 20, 29 CFR 1910, APPLICABLE NUCLEAR REGULATORY COMMISSION LICENSES, AR 40-14, AR 385-40, AND LOCAL PROCEDURES TO INSURE THAT ANY REPORTING REQUIREMENTS (E.G. IMMEDIATE, 24-HOUR, OR 30-DAY NOTIFICATIONS) ARE FULFILLED IN A TIMELY MANNER.
BT

Ex 6 portions

~~"CONTAINS INFORMATION PROTECTED BY THE PRIVACY ACT"~~

ACTION DASG(4) (F)
INFO SCB REVIEW(1)

Encl 1

MCN=90354/24972 TOR=90354/1427Z TAD=90354/1428Z CDSN=MAD033
PAGE 1 OF 1
201200Z DEC 90

UNCLASSIFIED

~~"CONTAINS INFORMATION PROTECTED BY THE PRIVACY ACT"~~

Interview (Dosimetry)

20 Dec 9
(date)

1. _____ E-5 2. Health Physics
Last name, First Name, MI, Rank/Grade Department/Section/Job

3. Exposure:

	Month Sept Soft	Hard	Month Oct Soft	Hard	Month Nov Soft	Hard	Quarter Soft	Hard	Year Soft	Hard
Whl Bdy	.014	.014	.000	.000	6.000	7.000	____	____	____	____
Hd/Nck	____	____	____	____	____	____	____	____	____	____
Ring	.000	.000	.000	.000	.000	.000	____	____	____	____

4. Type/Number of Procedures:

	Month Nov Type	Number	Month Type	Number	Month Type	Number
Performed	X-Ray Survey Procedures					

5. Unusual Occurences:

a. Procedures: While sorting waste at Bldg 576, I discovered placing the TLD on a shelf located near some needles which has radioa materials such as I131 Tc99 etc., for a period of 3-4 wks. ~~No other~~

~~b. Medical/Dental:~~ The exposures do not appear to be recieved by him. He claims th he did not wear the badge the whole month of November.

6. Dosimetry worn/stored correctly: ____ (yes) (no) Badge should have been worn by technician while working with waste materi or stored in appropiate pl (explain)

7. Wearing/Using: N/A

	yes	no
Leaded apron	____	____
Leaded glasses	____	____
Leaded thyroid collar	____	____
(other _____)	____	____

8. HPO Interviewer (Name and Signature) Debbie L. Cummings, 2LT
Debbie L Cummings

9. Person being interviewed (Name and Signature)

EX 6

~~"CONTAINS INFORMATION PROTECTED BY THE PRIVACY ACT"~~

To Whom it May Concern:

On or about 6 Nov 90 I lost my film badge in the needle hop room in Bldg 516. I found the badge on 3 Dec 9 and due to where the badge was, it is probably highly exposed to radiation. The badg will probably exceed all standards in the regulations.

Ex 6

Encl 3

~~"CONTAINS INFORMATION PROTECTED BY THE PRIVACY ACT"~~

TELEPHONE OR VERBAL CONVERSATION RECORD

For use of this form, see AR 340-15; the proponent agency is The Adjutant General's Office.

DATE: 21 Dec 90

SUBJECT OF CONVERSATION: Possible over exposure

~~OUTGOING~~ INCOMING CALL

PERSON CALLING	ADDRESS	PHONE NUMBER AND EXTENSION
David Burton	WRAMC HPO Bldg 188	(301) 427-5268
PERSON CALLED	**OFFICE**	**PHONE NUMBER AND EXTENSION**
NRC Region I	NRC	(215) 337-5000

~~OUTGOING~~ INCOMING CALL

PERSON CALLING	OFFICE	PHONE NUMBER AND EXTENSION
Penny Nelson	NRC Region I	(215) 337-5000
PERSON CALLED	**ADDRESS**	**PHONE NUMBER AND EXTENSION**
David Burton	WRAMC HPO	(301) 427-5104

SUMMARY OF CONVERSATION

I called NRC to report a film badge reading of 6 Rem soft dose and 7 Rem hard dose on the November badge of [redacted] I asked if a formal notification was necessary if it had been determined that the exposure was not an actual exposure of the individual. Penny Nelson called me back, and when appraised of the situation said if the exposure was not valid no formal notification to NRC was necessary. An investigation must be documented and brought before the RCC.

Ex. 6

David W Burton

~~"CONTAINS INFORMATION PROTECTED BY THE PRIVACY ACT"~~

Encl 4

DA FORM 1 APR 88 751 REPLACES EDITION OF 1 FEB 88 WHICH WILL BE USED.

Ex.6 [ ] AVERAGE EXPOSURES OVER LAST 12 MONTHS

	soft dose	hard dose	ring(soft dose)
11/05/89 - 12/02/89	.009	.009	.000
12/03/89 - 01/06/90	.010	.010	.012
01/07/90 - 02/03/90	.011	.011	.000
02/04/90 - 03/03/90	.007	.007	.000
03/04/90 - 03/31/90	.008	.008	.000
04/01/90 - 05/05/90	.007	.007	.000
05/06/90 - 06/02/90	.006	.006	.000
06/03/90 - 06/30/90	.000	.000	.000
07/01/90 - 08/04/90	.040	.027	.000
08/05/90 - 09/01/90	.019	.006	.000
09/02/90 - 10/06/90	.014	.014	.000
10/07/90 - 11/04/90	.042	.005	.000
	.173/12 = .014	.110/12 = .009	.012/12 = .001
11/05/90 - 12/02/90	6.000	7.000	5.300
12/02/90 - 01/01/91	no data	no data	no data

Ex 6 portion

"CONTAINS INFORMATION PROTECTED BY THE PRIVACY ACT"

Ex. 1 5

PCN V6DQD1003X "CONTAINS INFORMATION PROTECTED BY THE PRIVACY ACT"

FOR ~~OFFICIAL USE ONLY~~ PRIVACY ACT DATA

DATE 12/14/90 ANNUAL/QUARTERLY HISTORY OF EXPOSURE TO IONIZING RADIATION PAGE 001

NAME [redacted] 1746
SOC SEC NR
DATE OF BIRTH
OCCUPATION CODE
PERMISSIBLE LIFETIME DSGE 135.000

PERIOD WORN FROM	TO	STA NR	FILM NR	BDG CD	NOTE CD	DOSE THIS PERIOD SOFT	X-GAMMA	NEUTRON	ALL DOSES REPORTED IN REM DOSE THIS QTR SOFT	HARD	DOSE THIS YEAR SOFT	HARD	DOSE LIFETIME HARD
TOTAL OF WHOLE BODY HARD DOSE PRIOR TO 1990													000.079
01/07/90	02/03/90	BC	9498	E		000.011	000.011		000.011	000.011	000.011	000.011	000.090
01/07/90	02/03/90	BC	0075	G		000.000	000.000		000.000	000.000	000.000	000.000	
02/04/90	03/03/90	BC	3862	E		000.007	000.007		000.018	000.018	000.018	000.018	000.097
02/04/90	03/03/90	BC	0077	G		000.000	000.000		000.000	000.000	000.000	000.000	
03/04/90	03/31/90	BC	0075	G		000.000	000.000		000.000	000.000	000.000	000.000	
03/04/90	03/31/90	BC	0520	E		000.008	000.008		000.026	000.026	000.026	000.026	000.105
04/01/90	05/05/90	BC	0086	G		000.000	000.000		000.000	000.000	000.000	000.000	
04/01/90	05/05/90	BC	7598	E		000.007	000.007		000.007	000.007	000.033	000.033	000.112
05/06/90	06/02/90	BC	0096	G		000.000	000.000		000.000	000.000	000.000	000.000	
05/06/90	06/02/90	BC	8048	E		000.006	000.006		000.013	000.013	000.039	000.039	000.118
06/03/90	06/30/90	BC	0096	G		000.000	000.000		000.000	000.000	000.000	000.000	
06/03/90	06/30/90	BC	4876	E		000.000	000.000		000.013	000.013	000.039	000.039	000.118
07/01/90	08/04/90	BC	0086	G		000.000	000.000		000.000	000.000	000.000	000.000	
07/01/90	08/04/90	BC	5014	E		000.040	000.027		000.040	000.027	000.079	000.066	000.145
08/05/90	09/01/90	BC	3753	E		000.019	000.006		000.059	000.033	000.098	000.072	000.151
08/05/90	09/01/90	BC	0093	G		000.000	000.000		000.000	000.000	000.000	000.000	
09/02/90	10/06/90	BC	1172	E		000.014	000.014		000.073	000.047	000.112	000.066	000.165
09/02/90	10/06/90	BC	0076	G		000.000	000.000		000.000	000.000	000.000	000.000	

THIS REPORT IS FURNISHED TO YOU UNDER THE PROVISIONS OF THE U S NUCLEAR REGULATORY COMMISSION REGULATIONS (10 CFR 19) AND THE DEPARTMENT OF LABOR REGULATIONS (29 CFR 1910). YOU SHOULD PRESERVE THIS REPORT FOR FUTURE REFERENCE.

BC COMMANDER
WALTER REED ARMY MEDICAL CENTER
BLDG. 188 FOREST GLEN SECTION
ATTN HEALTH PHYSICS SECTION
WASHINGTON, DC 20012-5001

Ex 6 Redaction

		E	000.042	000.005
10/17/90	11/09/90	G	000.000	000.000
		E	006.000	007.000
1/09/90	12/02/90	G	005.300	000.000
12/02/90	01/01/91			

verbal conversation from Lexington. (Rec'd dosage) Mr. Andrew Brady reported to 2LT Cummings 1030 hrs 14 Jan 91

"CONTAINS INFORMATION PROTECTED BY THE PRIVACY ACT"

~~CONTAINS INFORMATION PROTECTED BY THE PRIVACY ACT"~~

PCN V600D10004A

~~FOR OFFICIAL USE ONLY~~
~~PRIVACY ACT DATA~~

DATE 03/27/90

ANNUAL/QUARTERLY HISTORY OF EXPOSURE TO IONIZING RADIATION

NAME
SOC SEC NR
DATE OF BIRTH
OCCUPATION CODE
PERMISSIBLE LIFETIME DOSE 135.000

~~7856~~

PERIOD WORN FROM	TO	STA NR	FILM NR	BDG CD	NOTE CD	DOSE THIS PERIOD SOFT	X-GAMMA	NEUTRON	ALL DOSES REPORTED IN REM DOSE THIS QTR SOFT	HARD	DOSE THIS YEAR SOFT	HARD	DOSE LIFETIME HARD
TOTAL OF WHOLE BODY HARD DOSE PRIOR TO					1989								000.007
01/01/89	02/04/89	BC	3620	E		000.000	000.000		000.000	000.000	000.000	000.000	000.007
01/01/89	02/04/89	BC	0134	G		000.000	000.000		000.000	000.000	000.000	000.000	
02/05/89	03/04/89	BC	2979	E		000.000	000.000		000.000	000.000	000.000	000.000	000.007
02/05/89	03/04/89	BC	0076	G		000.000	000.000		000.000	000.000	000.000	000.000	
03/05/89	04/01/89	BC	0080	G		000.000	000.000		000.000	000.000	000.000	000.000	
03/05/89	04/01/89	BC	1541	E		000.000	000.000		000.000	000.000	000.000	000.000	000.007
04/02/89	05/06/89	BC	0079	G		000.000	000.000		000.000	000.000	000.000	000.000	
04/02/89	05/06/89	BC	4905	E		000.011	000.011		000.011	000.011	000.011	000.011	000.018
05/07/89	06/03/89	BC	0073	G		000.000	000.000		000.000	000.000	000.000	000.000	
05/07/89	06/03/89	BC	1393	E		000.000	000.000		000.011	000.011	000.011	000.011	000.018
06/04/89	07/01/89	BC	0048	G		000.000	000.000		000.000	000.000	000.000	000.000	
06/04/89	07/01/89	BC	9970	E		000.023	000.005		000.034	000.016	000.034	000.016	000.023
07/02/89	08/05/89	BC	0076	G		000.000	000.000		000.000	000.000	000.000	000.000	
07/02/89	08/05/89	BC	2534	E		000.012	000.012		000.012	000.012	000.046	000.028	000.035
08/06/89	09/03/89	BC	0073	G		000.000	000.000		000.000	000.000	000.000	000.000	
08/06/89	09/02/89	BC	9207	E		000.011	000.011		000.023	000.023	000.057	000.039	000.046
09/03/89	09/30/89	BC	0067	G		000.000	000.000		000.000	000.000	000.000	000.000	
09/03/89	09/30/89	BC	1448	E		000.014	000.014		000.037	000.037	000.071	000.053	000.060
10/01/89	11/04/89	BC	0067	G		000.000	000.000		000.000	000.000	000.000	000.000	
11/05/89	12/02/89	BC	0074	G		000.000	000.000		000.000	000.000	000.000	000.000	
11/05/89	12/02/89	BC	3438	E		000.009	000.009		000.009	000.009	000.080	000.062	000.069
12/03/89	01/06/90	BC	0078	G		000.012	000.000		000.012	000.000	000.012	000.000	
12/03/89	01/06/90	BC	6346	E		000.010	000.010		000.019	000.019	000.090	000.072	000.079

THIS REPORT IS FURNISHED TO YOU UNDER THE PROVISIONS OF THE U S NUCLEAR REGULATORY COMMISSION REGULATIONS (10 CFR 19) OR THE DEPARTMENT OF LABOR REGULATIONS (29 CFR 1910). YOU SHOULD PRESERVE THIS REPORT FOR FUTURE REFERENCE.

BC
COMMANDER
WALTER REED ARMY MEDICAL CENTER
BLDG. 188 FOREST GLEN SECTION
ATTN HEALTH PHYSICS SECTION
WASHINGTON, DC 20012-5001

QUARTERLY REVIEW
BY R.P.O.

10/01/89 11/04/89 BC E 000.006

~~"CONTAINS INFORMATION PROTECTED BY THE PRIVACY ACT"~~

BY THE PRIVACY ACT"

FOR OFFICIAL USE ONLY
PRIVACY ACT DATA

PGM [illegible]003A

DATE 03/29/89 ANNUAL/QUARTERLY HISTORY OF EXPOSURE TO IONIZING RADIATION PAGE 001

NAME
SOC SEC NR
DATE OF BIRTH
OCCUPATION 005
PERMISSIBLE LIFETIME DOSE 130.000

Ex 6

ALL DOSES REPORTED IN REM

FROM (YR)	TO (YR)	STA NR	ITEM NR	DOS CD	NOTE CD	DOSE THIS PERIOD SOFT	DOSE THIS PERIOD X-GAMMA NEUTRON	DOSE THIS QTR SOFT	DOSE THIS QTR HARD	DOSE THIS YEAR SOFT	DOSE THIS YEAR HARD	DOSE LIFETIME HARD
TOTAL OF MED. SOFT/HARD DOSE PRIOR TO 1989												000.000
81/[illegible]	88/02/[illegible]	JM	0098	A		000.000	000.000	000.000	000.000	000.000	000.000	000.000
82/07/28	83/05	JMF	0098	A		000.000	000.000	000.000	000.000	000.000	000.000	000.000
83/[illegible]/96	84/03	JM	0098	A		000.000	000.000	000.000	000.000	000.000	000.000	000.000
84/[illegible]/08	84/09/[illegible]	JMF	0098	A		000.000	000.000	000.000	000.000	000.000	000.000	000.000
85/[illegible]/85	86/04/[illegible]	JMF	0098	A		000.000	000.000	000.000	000.000	000.000	000.000	000.000
86/[illegible]/68	87/02/[illegible]	JML	0098	A		000.000	000.002	000.000	000.002	000.000	000.002	000.002
87/[illegible]/88	88/05/93	JML	0098	A		000.000	000.000	000.000	000.000	000.000	000.002	000.002
88/[illegible]/85	89/03/[illegible]	JML	0098	A		000.000	000.000	000.000	000.000	000.000	000.002	000.002
89/[illegible]/58	10/01/36	JML	0098	A		000.000	000.000	000.000	000.000	000.000	000.002	000.002
11/[illegible]/[illegible]	12/03/38	BC	0193	G		000.000	000.000	000.000	000.000	000.000	000.000	
11/[illegible]/[illegible]	12/07/[illegible]	JML	0098	A		000.000	000.000	000.000	000.000	000.000	000.002	000.002
11/[illegible]/[illegible]	12/07/[illegible]	BC	5101	E		000.000	000.000	000.000	000.000	000.000	000.002	000.002
12/01/[illegible]	12/[illegible]	BC	0065	G		000.000	000.000	000.000	000.000	000.000	000.000	
12/[illegible]/65	12/[illegible]	JML	0098	A		000.000	000.000	000.000	000.000	000.000	000.002	000.002
12/[illegible]/88	12/[illegible]	BC	1459	E	L	000.005	000.005	000.005	000.005	000.005	000.007	000.007

THIS REPORT IS FURNISHED TO YOU UNDER THE PROVISIONS OF THE U S NUCLEAR REGULATORY COMMISSION REGULATIONS (10 CFR 19) OR THE DEPARTMENT OF LABOR REGULATIONS (29 CFR 1910). YOU SHOULD PRESERVE THIS REPORT FOR FUTURE REFERENCE.

BC COMMANDER
WALTER REED ARMY MEDICAL CENTER
BLDG. 180 FOREST GLEN SECTION
ATTN HEALTH PHYSICS SECTION
WASHINGTON, DC 20012-5001

JML COMMANDER
US ARMY MEDICAL RESEARCH INSTITUTE
OF INFECTIOUS DISEASES
FT DETRICK
FREDERICK, MD 21701-5011

QUARTERLY REVIEW BY RPO [illegible] 10-14

JUNE 1989

Ex 6 Redacted

"CONTAINS INFORMATION PROTECTED BY THE PRIVACY ACT"

REGION I
NMSS LICENSEE EVENT REP.

License No. 08-01738-02

Docket No. 03001317

MLER-RI-91 -01

I. ACTION CONTROL DATA

Licensee Dept. of the Army

Event Description Overexposed TLD/Dose not received

Event Date 11/90 Report Date 1/18/91

II. REPORTING REQUIREMENT

[ ] 10 CFR 20.402 - theft or loss

[ ] 10 CFR 20.403(a)(b) overexposure/release

[ ] 10 CFR 20.405 - 30 day report

[X] Other none

[ ] 10 CFR 35.33 Therapeutic Misadministration

[ ] 10 CFR 35.33 Diagnostic Misadministration

[ ]-License Condition

III. REGION I RESPONSE

[ ] Immediate Site Inspection Inspector_____ Date_____

[ ] Special Inspection Inspector_____ Date_____

[ ] Telephone Inquiry Inspector_____ Date_____

Licensee Representative and Title _____

[ ] PN [ ] Daily Report

[✓] Information entered - Region I log and Outstanding Items List

[✓] Review at next routine inspection

IV. REPORT EVALUATION

[✓] Description of Event

[✓] Levels of R/M involved

[✓] Cause of Event

[✓] Corrective Actions

[✓] Calculation Adequate

[ ] Letter to Licensee requesting additional information

Completed by: SAMinnich Date 3/22/91

Reviewed by: _____ Date 3/26/91

V. SPECIAL INSTRUCTIONS OR COMMENTS

employee did not receive the exposure recorded by his Nov 90 dosimeter

CURRICULUM VITAE March 1998

NAME: Yancy Y Phillips, III

SSAN: [redacted]

RANK: Colonel, Medical Corps

MOS: 60F9A

DOB: [redacted]

POB: [redacted]

SPOUSE: [redacted]

CHILDREN: [redacted]

HOME ADDRESS: [redacted]

Ex 6

WORK ADDRESS: Department of Medicine
Walter Reed Army Medical Center
Washington, DC 20307-5001
202-782-6205/2348
FAX 202-782-6507
E-Mail: COL_YANCY_PHILLIPS@WRAMC1-AMEDD.ARMY.MIL

EDUCATION:

[redacted]

BS Chemical Engineering (High Honors), University of Delaware

Master of Medical Science, CMDNJ-Rutgers Medical School

Doctor of Medicine (Cum Laude), University of Alabama School of Medicine

POST-GRADUATE EDUCATION:

1976-77 Internal Medicine Internship, Tripler Army Med Center, Honolulu, HI

1977-79 Internal Medicine Residency, Tripler Army Medical Center

1980-83 Pulmonary Medicine Fellowship, Walter Reed Army Medical Center
Washington, D.C.

Ex 6 portions

mm/4

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

REPLY TO
ATTENTION OF:

HSHL-HP (385-11m) 21 January 1993

MEMORANDUM THRU Commander, HQ, U,S. Army Health Services ~~Command~~, ~~ATTN: HSCL-P,~~ Fort Sam Houston, TX 78234-6000 MWM 29 JAN 93

FOR Office of The Surgeon General, ATTN: DASG-PSP, Skyline Plaza 5, ~~5111~~ 5109 Leesburg Pike, Falls Church, VA 22041-3258

SUBJECT: NRC License Renewal

1. The enclosed NRC License renewal for Walter Reed Army Medical Center is provided IAW TB Med 525.

2. POC for this office is Mr. David Burton who can be reached at (301) 427-5107/5104 or AUTOVON 291-5107/5104.

ENCL

ARTHUR G. SAMILJAN
LTC, MS
Chief, Health Physics Office

MM/5

ML050660426

EXHIBIT 1

030-01317

X

NRC FORM 313
11-88
10 CFR 30, 32, 33, 34, 35 and 40

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED BY OMB
3150-0120
Expires 5-31-91

APPLICATION FOR MATERIAL LICENSE

INSTRUCTIONS: SEE THE APPROPRIATE LICENSE APPLICATION GUIDE FOR DETAILED INSTRUCTIONS FOR COMPLETING APPLICATION. SEND TWO COPIES OF THE ENTIRE COMPLETED APPLICATION TO THE NRC OFFICE SPECIFIED BELOW.

FEDERAL AGENCIES FILE APPLICATIONS WITH:

U.S. NUCLEAR REGULATORY COMMISSION
DIVISION OF FUEL CYCLE AND MATERIAL SAFETY, NMSS
WASHINGTON, DC 20555

ALL OTHER PERSONS FILE APPLICATIONS AS FOLLOWS, IF YOU ARE LOCATED IN:

CONNECTICUT, DELAWARE, DISTRICT OF COLUMBIA, MAINE, MARYLAND, MASSACHUSETTS, NEW JERSEY, NEW YORK, PENNSYLVANIA, RHODE ISLAND, OR VERMONT, SEND APPLICATIONS TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION I
NUCLEAR MATERIAL SECTION B
631 PARK AVENUE
KING OF PRUSSIA, PA 19406

ALABAMA, FLORIDA, GEORGIA, KENTUCKY, MISSISSIPPI, NORTH CAROLINA, PUERTO RICO, SOUTH CAROLINA, TENNESSEE, VIRGINIA, VIRGIN ISLANDS, OR WEST VIRGINIA, SEND APPLICATIONS TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION II
MATERIAL RADIATION PROTECTION SECTION
101 MARIETTA STREET, SUITE 2900
ATLANTA, GA 30323

IF YOU ARE LOCATED IN:

ILLINOIS, INDIANA, IOWA, MICHIGAN, MINNESOTA, MISSOURI, OHIO, OR WISCONSIN, SEND APPLICATIONS TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION III
MATERIALS LICENSING SECTION
799 ROOSEVELT ROAD
GLEN ELLYN, IL 60137

ARKANSAS, COLORADO, IDAHO, KANSAS, LOUISIANA, MONTANA, NEBRASKA, NEW MEXICO, NORTH DAKOTA, OKLAHOMA, SOUTH DAKOTA, TEXAS, UTAH, OR WYOMING, SEND APPLICATIONS TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION IV
MATERIAL RADIATION PROTECTION SECTION
611 RYAN PLAZA DRIVE, SUITE 1000
ARLINGTON, TX 76011

ALASKA, ARIZONA, CALIFORNIA, HAWAII, NEVADA, OREGON, WASHINGTON, AND U.S. TERRITORIES AND POSSESSIONS IN THE PACIFIC, SEND APPLICATIONS TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION V
MATERIAL RADIATION PROTECTION SECTION
1450 MARIA LANE, SUITE 210
WALNUT CREEK, CA 94596

PERSONS LOCATED IN AGREEMENT STATES SEND APPLICATIONS TO THE U.S. NUCLEAR REGULATORY COMMISSION ONLY IF THEY WISH TO POSSESS AND USE LICENSED MATERIAL IN STATES SUBJECT TO U.S. NUCLEAR REGULATORY COMMISSION JURISDICTION.

1. THIS IS AN APPLICATION FOR (Check appropriate item)

- [ ] A. NEW LICENSE
- [ ] B. AMENDMENT TO LICENSE NUMBER _____
- [X] C. RENEWAL OF LICENSE NUMBER 08-01738-02

2. NAME AND MAILING ADDRESS OF APPLICANT (Include Zip Code)

Department of the Army
Walter Reed Army Medical Center
ATTN: Executive Officer, HSHL-XO
Washington, D.C. 20307-5001

3. ADDRESS(ES) WHERE LICENSED MATERIAL WILL BE USED OR POSSESSED

See Item #3

4. NAME OF PERSON TO BE CONTACTED ABOUT THIS APPLICATION

Arthur G. Samiljan, Lieutenant Colonel, MS

TELEPHONE NUMBER

(301) 427-5161

SUBMIT ITEMS 5 THROUGH 11 ON 8½ x 11" PAPER. THE TYPE AND SCOPE OF INFORMATION TO BE PROVIDED IS DESCRIBED IN THE LICENSE APPLICATION GUIDE.

5. RADIOACTIVE MATERIAL
a. Isotope and mass number, b. chemical and/or physical form, and c. maximum amount which will be possessed at any one time.

6. PURPOSE(S) FOR WHICH LICENSED MATERIAL WILL BE USED.

7. INDIVIDUAL(S) RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR TRAINING AND EXPERIENCE.

8. TRAINING FOR INDIVIDUALS WORKING IN OR FREQUENTING RESTRICTED AREAS

9. FACILITIES AND EQUIPMENT

10. RADIATION SAFETY PROGRAM

11. WASTE MANAGEMENT.

12. LICENSE FEES (See 10 CFR 170 and Section 170.31)
FEE CATEGORY Exception
AMOUNT ENCLOSED $ (5)
10CFR170.11(a)

13. CERTIFICATION (Must be completed by applicant) THE APPLICANT UNDERSTANDS THAT ALL STATEMENTS AND REPRESENTATIONS MADE IN THIS APPLICATION ARE BINDING UPON THE APPLICANT.

THE APPLICANT AND ANY OFFICIAL EXECUTING THIS CERTIFICATION ON BEHALF OF THE APPLICANT, NAMED IN ITEM 2, CERTIFY THAT THIS APPLICATION IS PREPARED IN CONFORMITY WITH TITLE 10, CODE OF FEDERAL REGULATIONS, PARTS 30, 32, 33, 34, 35, AND 40 AND THAT ALL INFORMATION CONTAINED HEREIN IS TRUE AND CORRECT TO THE BEST OF THEIR KNOWLEDGE AND BELIEF.

WARNING: 18 U.S.C. SECTION 1001 ACT OF JUNE 25, 1948, 62 STAT. 749 MAKES IT A CRIMINAL OFFENSE TO MAKE A WILLFULLY FALSE STATEMENT OR REPRESENTATION TO ANY DEPARTMENT OR AGENCY OF THE UNITED STATES AS TO ANY MATTER WITHIN ITS JURISDICTION.

SIGNATURE—CERTIFYING OFFICER	TYPED/PRINTED NAME	TITLE	DATE
[signature]	Ronald R. Blanck, Major General	Commanding Officer	21 Jan 93

14. VOLUNTARY SUPPLEMENTARY DATA

A. ANNUAL RECEIPTS
- [ ] < $250K
- [ ] $250K–$500K
- [ ] $500K–$750K
- [ ] $750K–1M
- [ ] $1M–2.5M
- [ ] $2.5M–7M
- [ ] $7M–10M
- [ ] >$10M

B. NUMBER OF EMPLOYEES (Count for entire facility conducting activities authorized)

C. NUMBER OF BEDS

D. WOULD YOU BE WILLING TO FURNISH COST INFORMATION (Enter yes/no and/or specific hours) ON THE ECONOMIC IMPACT OF CURRENT NRC REGULATIONS OR ANY FUTURE PROPOSED NRC REGULATIONS THAT MAY AFFECT YOU? (NRC regulatory permit is to prevent confidential commercial or financial information furnished to the agency in confidence)

- [ ] YES
- [ ] NO

FOR NRC USE ONLY

TYPE OF FEE	FEE LOG	FEE CATEGORY	COMMENTS	APPROVED BY
			FEE EXEMPT	
AMOUNT RECEIVED	CHECK NUMBER			DATE

PRIVACY ACT STATEMENT ON THE REVERSE

117725

FEB 08 1993

OFFICIAL RECORD COPY ML 10

ITEM #3. ADDRESS(ES) WHERE LICENSED MATERIAL WILL BE USED OR POSSESSED

Locations 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; 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 The Gillette Building, 1413 Research Boulevard, Rockville, Maryland.

ITEM #5 RADIOACTIVE MATERIAL and
ITEM #6 PURPOSE(S) FOR WHICH LICENSED MATERIAL WILL BE USED

CHEMICAL AND MASS NUMBER	CHEMICAL AND PHYSICAL FORM	MAXIMUM ACTIVITY	AUTHORIZED USE
A. Any byproduct material with atomic numbers 3-83	A. Any	A. 400 mCi of each radionuclide with a total possession limit of 26 curies	A. through R. Medical research, diagnosis, and therapy; research and development as defined in 10 CFR 30.4
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. Phosphorus 32	E. Any	E. 2 curies	
F. Carbon 14	F. Any	F. 2 curies	
G. Iodine 125	G. Any	G. 1 curie	
H. Iridium 192	H. Any	H.	
I. Chromium 51	I. Any	I. 750 mCi	
J. Sulfur 35	J. Any	J. 1 curie	
K. Hydrogen 3	K. Any	K. 5 curies	
L. Molybdenum 99	L. Molybdenum 99/Technetium 99m Generators	L. 23 curies	
M. Technetium 99m	M. Any	M. 23 curies	
N. Strontium 90	N. Sealed sources	N.	
O. Cesium 137	O. Sealed sources	O.	
P. Gadolinium 153	P. Sealed sources	P.	

Ex 2

CHEMICAL AND MASS NUMBER	CHEMICAL AND PHYSICAL FORM	MAXIMUM ACTIVITY	AUTHORIZED USE
Q. Iodine 125	Q. Sealed sources (Norland model 178A591A, AECL Models C235 or C324, or Amersham Corp. Model IMC.P2)	Q. 4 sources, not to exceed 300 mCi each	
R. Iodine 125	R. Sealed sources (3M Company seeds)	R. 500 mCi	
S. Cesium 137	S. Sealed sources	S.	S. through X. Research and development as defined in 10 CFR 30.4; teaching
T. Cobalt 60	T. Sealed sources	T.	
U. Americium 241	U. Any	U. 100 uCi	
V. Americium 241	V. Sealed sources	V.	
W. Nickel 63	W. Sealed sources and foils	W. 1 curie	
X. Iodine 129	X. Sealed sources	X. 1 curie	
Y. Thorium	Y. Any	Y. 5 kgms	Y. and Z. Teaching and laboratory research
Z. Uranium	Z. Any	Z. 50 kgms	
AA. Uranium depleted in Uranium 235	AA. Plated metal	AA. 400 kgms	AA. Shielding
BB. Americium 241	BB. Sealed sources	BB.	BB. Standards and reference sources
CC. Cesium 137	CC. Sealed source	CC.	CC. In an Eberline Instrument Corp. Model 8150-150 CS for calibration of instruments
DD. Cesium 137	DD. Sealed sources	DD.	DD. instrument calibration

ITEM #7

7.1 and 7.2 Licensed material shall be used by or under the supervision of individuals designated by the Walter Reed Army Medical Center Radiation Control Committee. The training and experience of authorized users will be evaluated using the criteria in 10 CFR 35, Subpart J. The Radiation Control Committee may grant case-by-case exceptions.

Ex 2

CHEMICAL AND MASS NUMBER	CHEMICAL AND PHYSICAL FORM	MAXIMUM ACTIVITY	AUTHORIZED USE
Q. Iodine 125	Q. Sealed sources (Norland model 178A591A, AECL Models C235 or C324, or Amersham Corp. Model IMC.P2)	Q. 4 sources, not to exceed 300 mCi each	
R. Iodine 125	R. Sealed sources (3M Company seeds)	R. 500 mCi	
S. Cesium 137	S. Sealed sources	S.	S. through X. Research and development as defined in 10 CFR 30.4; teaching
T. Cobalt 60	T. Sealed sources	T.	
U. Americium 241	U. Any	U. 100 uCi	
V. Americium 241	V. Sealed sources	V.	
W. Nickel 63	W. Sealed sources and foils	W. 1 curie	
X. Iodine 129	X. Sealed sources	X. 1 curie	
Y. Thorium	Y. Any	Y. 5 kgms	Y. and Z. Teaching and laboratory research
Z. Uranium	Z. Any	Z. 50 kgms	
AA. Uranium depleted in Uranium 235	AA. Plated metal	AA. 400 kgms	AA. Shielding
BB. Americium 241	BB. Sealed sources	BB.	BB. Standards and reference sources
CC. Cesium 137	CC. Sealed source	CC.	CC. In an Eberline Instrument Corp. Model 8150-150 CS for calibration of instruments
DD. Cesium 137	DD. Sealed sources	DD	DD. instrument calibration

ITEM #7

7.1 and 7.2 Licensed material shall be used by or under the supervision of individuals designated by the Walter Reed Army Medical Center Radiation Control Committee. The training and experience of authorized users will be evaluated using the criteria in 10 CFR 35, Subpart J. The Radiation Control Committee may grant case-by-case exceptions.

Ex 2

7.3 Radiation Safety Officer: Lieutenant Colonel Arthur G. Samiljan, Chief, Health Physics Office, Walter Reed Army Medical Center. Training and experience included at ATT 7.3.

ITEM #8 We will establish and implement the model training program that was published in Appendix A to Regulatory Guide 10.8, Revision 2, and have appended a table ATT 8.1 that identifies the groups of workers who will receive training and the method and frequency of training.

ITEM #9

9.1 Enclosed at ATT 9.1 are drawings of the nuclear medicine area, a detailed drawing of the nuclear pharmacy and the source storage area in radiation therapy. The research laboratories at Walter Reed are basic biomedical research facilities with impervious floors, walls and counter tops and whatever equipment is needed for the specific research and isotopes involved. All isotope laboratories are evaluated by the Health Physics Office and approved by the Radiation Control Committee.

9.2 We will establish and implement the model procedure for calibrating survey instruments that was published in Appendix B to Regulatory Guide 10.8, Revision 2.

9.3 We will establish and implement the model procedure for calibrating our dose calibrator that was published in Appendix C to Regulatory Guide 10.8, Revision 2.

9.4 We will establish and implement the model personnel external exposure monitoring program published in Appendix D to Regulatory Guide 10.8, Revision 2, with the exception that some of our personnel who have been shown to receive much less than the ALARA limit have their monitors changed on a quarterly basis.

9.5 NA

9.6 See ATT 9.6

ITEM #10

10.1 The Charter for the Radiation Control Committee and the delegation of authority for the Radiation Protection Officer are addressed in an ARMY Technical Bulletin (TB MED 525). The duties of each are included at ATT 10.1.1. Walter Reed AMC also has a regulation which lists all standing committees at WRAMC including the Radiation Control Committee. The Composition of the RCC will include:

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

We will also include any others required by 10 CFR 35. The orders delegating authority to Lieutenant Colonel Samiljan are included at ATT 10.1.2.

10.2 We will establish and implement the model ALARA program published in Appendix G to Regulatory Guide 10.8, Revision 2.

10.3 We will establish and implement the model procedure for leak-testing sealed sources that was published in Appendix H to Regulatory Guide 10.8, Revision 2.

10.4 We will establish and implement the model safety rules published in Appendix I to Regulatory Guide 10.8, Revision 2.

10.5 We will establish and implement the model spill procedures published in Appendix J to Regulatory Guide 10.8, Revision 2.

10.6 We will establish and implement the model guidance for ordering and receiving radioactive material that was published in Appendix K to Regulatory Guide 10.8, Revision 2.

10.7 We will establish and implement the model procedure for opening packages that was published in Appendix L to Regulatory Guide 10.8, Revision 2.

10.8 We will establish and implement the model procedure for a unit dosage record system that was published in Appendix M.1 to Regulatory Guide 10.8, Revision 2.

10.9 We will establish and implement the model procedure for a multidose vial record system that was published in Appendix M.2 to Regulatory Guide 10.8, Revision 2.

10.10 We will establish and implement the model procedure for measuring and recording molybdenum concentration that was published in Appendix M.3 to Regulatory Guide 10.8, Revision 2.

10.11 We will establish and implement the model procedure for keeping an inventory of implant sources that was published in Appendix M.4 to Regulatory Guide 10.8, Revision 2.

10.12 We will establish and implement the model procedure for area surveys that was published in Appendix N to Regulatory Guide 10.8, Revision 2.

10.13.1 We will collect spent noble gas in a shielded trap and monitor the trap effluent with an air contamination monitor that we will check regularly according to the manufacturer's instructions.

10.13.2 We will collect spent aerosol in a shielded, single-use trap.

10.13.3 We will follow the model procedure for calculating airborne effluent concentration that was published in Appendix O.2 to Regulatory Guide 10.8, Revision 2.

10.13.4 We will calculate spilled gas clearance times according to the procedure that was published in Appendix O.4 to Regulatory Guide 10.8, Revision 2.

10.14 We will establish and implement the model procedure for radiation safety during radiopharmaceutical therapy that was published in Appendix P to Regulatory Guide 10.8, Revision 2, except for the provision at ATT 10.14.

10.15 We will establish and implement the model procedure for radiation safety during implant therapy that was published in Appendix Q to Regulatory Guide 10.8, Revision 2.

10.16 General Safety Proceedures See ATT 10.16

ITEM #11

11.1 We will establish and implement the general guidance and model procedures for waste disposal that were published in Appendix R to Regulatory Guide 10.8, Revision 2, except for the provision to hold for decay-in-storage material with a physical half-life of less than 90 days, as previously approved by the NRC (see ATT 11.1.1, ATT 11.1.2, and ATT 11.1.3). We also generate a large volume of RIA waste at the Drug Testing Lab at Ft. Meade (25 drums per month and increasing) which we would like to be able to hold for decay for only 5 half-lifes and dispose of, if all other conditions are meet. This waste is mostly empty, washed test tubes which are only minimally contaminated prior to the decay in storage process. This waste is generated at a location were RIA kits are the only radioactive material use and the waste is kept segregated from all other laboratory waste in separate sealed 55 gal. drums.

11.2 See Item 11.1.

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.
LTC	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 [illegible] 86
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	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 FEB 79 (PREVIOUS EDITIONS ARE OBSOLETE) OVER

ATTACHMENT 7.3

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
In 111	1mCi	University of FL	6 Mo	research
Cs 137	mCi	U of Fl, Johnston Isl	18 Mo	Inst Calib
Pu 239	Ci	Johnston Isl	12 Mo	Clean up
Am 241	Ci	"	12 Mo	"
P 32	mCi	WRAMC	28 Mo	Rad Prot
H 3	"	"	"	"
C 14	"	"	"	"
I 131	"	"	"	"

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

DEVICE	WHERE EXPERIENCE WAS GAINED	DURATION OF EXPERIENCE	TYPE OF USE
Co 60 Irradiator	University of FL	6 Mo	research
50-300 kVp x-ray systems	WRAMC	28 Mo	compliance

8. CERTIFICATION:

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

31 Dec 97
(Date Signed)

(Signature of Applicant)

CURRICULUM VITAE

for

ARTHUR G. SAMILJAN, Lieutenant Colonel

DATE AND PLACE OF BIRTH: [ ] Ex 6

YEARS OF ACTIVE MILITARY SERVICE: 20 years

PRESENT ASSIGNMENT: (21 Jun 91 to present)
Chief, Health Physics Office; 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

MILITARY EDUCATION (continued):

7. Management of Radiation Accidents and Emergency Preparedness 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 radioisotope 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)

7. Chief, Health Physics Office/Radiation Protection Officer
Jun 91 - Present
Health Physics Office
Walter Reed Army Medical Center
Washington, DC

(Manage 20 health physicists and health physics technicians providing radiation safety support to Walter Reed Army Medical Center, Walter Reed Army Institute of Research, Armed Forces Institute of Pathology, and other federal agencies in the Washington, DC regional area. Executive agent for two NRC Licenses.)

ATT 8.1

GROUP	METHOD	FREQUENCY
Authorized Users	Lecture	Annually
Ward Nursing Staff	Lecture or Video	Annually
Radiation Therapy	Lecture or Video	Annually
Housekeeping	Lecture or Video	Annually
Maintenance	Lecture or Video	Annually
Security	Lecture or Video	Annually
Firefighters	Lecture or Video	Annually

ATT 9.6

In addition to the Facilities described in Item 9.1 the following equipment and control systems are available as required for the safe handling of radioactive material:

o Remote handling equipment including jaws, vices, forceps, and remote handling tongs of varying lengths.

o Storage containers including steel safes, lead lined boxes, steel drums, lead pigs, and lead storage containers both fixed and movable.

o Shielding including movable lead shields for shielding patients, L shields both lead and plastic, and shielding materials (e.g. lead bricks, lead shot, lead wool, plastic sheet etc.).

o Radiation measuring and counting equipment including liquid scintillation counting systems, gamma well counting systems, alpha gas flow counting systems, portable surveys instruments including GM, Ion chamber, and Scintillation detectors.

o Ventilation Control systems including Fume hoods with HEPA particulate filters, and iodination filter boxes with charcoal filters and charcoal sampling systems for use with volatile isotopes.

f. The Radiation Control Committee will--

(1) Meet at least quarterly and at the call of the chairman.

(2) Recommend approval or disapproval of each type of radiation source from the standpoint of radiological health and safety of patients and working personnel and other factors established for the medical use of these sources.

(3) Recommend individual users for each type of procedure with each individual radionuclide and ensure that any physician authorized to use radioactive material in humans meets the criteria specified in part 35, title 10, Code of Federal Regulations (10 CFR 35). Recommendations will be consistent with the limits and conditions of the NRC license and DARA.

(4) Recommend individual pharmacists and individual compounding protocols for compounding radioactive drugs (radiopharmaceuticals) or radiopharmaceutical kits to be administered to patients (if the procedure is permitted to be performed by NRC license or DARA).

(5) Prescribe, if required, special conditions to be permitted in the work area and special procedures or work rules for use of radiation sources.

(6) Formulate and review the radiation protection training program.

(7) Monitor radiation exposures within the command and recommend actions to keep exposures as low as is reasonably achievable (ALARA). As a minimum, the collective dose to all radiation workers, average dose, and highest individual dose will be reviewed at quarterly meetings.

(8) Formally review, at least annually, the policies and procedures established to maintain low exposures.

(9) Approve the training and experience of the nuclear pharmacist.

g. The RPO, in addition to the responsibilities in 10 CFR 35, 21, will--

(1) Exercise staff supervision over the Radiation Protection Program.

(2) Provide consultation and advice on the degree of hazards associated with radiation and effectiveness of control measures.

(3) Advise and assist the commander and radiation workers in all matters pertaining to radiation protection, including instructing and training of workers (users) and others in the safe use of protective equipment and radiation producing devices.

(4) Ensure all radioactive materials are properly receipted, used, stored, handled, shipped, and disposed of according to applicable directives.

(5) Formulate and implement the Radiation Protection Program.

(6) Formulate, implement, and supervise an active, aggressive, documented program designed to keep radiation doses to levels which are ALARA.

(7) Review the current and proposed uses of radiation sources for compliance with regulations and approved procedures.

(8) Review standing operating procedures for operations involving sources of ionizing radiation before submission to the Radiation Control Committee.

(9) Review procurement of all radioactive materials to ensure compliance with NRC licenses or DARA conditions.

(10) Ensure radiation survey and/or detection instruments used in radiation protection are properly calibrated and are available to radiation workers.

(11) Ensure all radiation shields, containers, and handling equipment are maintained in satisfactory condition.

(12) Ensure the required radiation warning signs are posted.

(13) Ensure that a physical inventory of radioactive materials is conducted every 3 months.

(14) Ensure that radiation surveys are performed at least quarterly and that leak tests are performed semiannually (NRC Reg Guide No. 8.23).

(15) Evaluate hazard potential and adequacy of protective measures for existing and proposed operations.

(16) Monitor situations where higher than normal levels of radiation or radioactive contaminants are suspected.

(17) Investigate radiation accidents and incidents and overexposures to determine the cause and take steps to prevent recurrence.

(18) Terminate a program or procedure involving the use of radioactive material or radiation producing devices which are determined to be a medical threat to health and property.

(19) Keep all licenses and DARAs up to date and initiate amendments and requests for renewals when appropriate.

(20) Maintain a current registry of ionizing radiation producing devices, such as x-ray machines, per TB MED 521.

10.13.1 We will collect spent noble gas in a shielded trap and monitor the trap effluent with an air contamination monitor that we will check regularly according to the manufacturer's instructions.

10.13.2 We will collect spent aerosol in a shielded, single-use trap.

10.13.3 We will follow the model procedure for calculating airborne effluent concentration that was published in Appendix O.2 to Regulatory Guide 10.8, Revision 2.

10.13.4 We will calculate spilled gas clearance times according to the procedure that was published in Appendix O.4 to Regulatory Guide 10.8, Revision 2.

10.14 We will establish and implement the model procedure for radiation safety during radiopharmaceutical therapy that was published in Appendix P to Regulatory Guide 10.8, Revision 2, except for the provision at ATT 10.14.

10.15 We will establish and implement the model procedure for radiation safety during implant therapy that was published in Appendix Q to Regulatory Guide 10.8, Revision 2.

10.16 General Safety Proceedures See ATT 10.16

ITEM #11

11.1 We will establish and implement the general guidance and model procedures for waste disposal that were published in Appendix R to Regulatory Guide 10.8, Revision 2, except for the provision to hold for decay-in-storage material with a physical half-life of less than 90 days, as previously approved by the NRC (see ATT 11.1.1, ATT 11.1.2, and ATT 11.1.3). We also generate a large volume of RIA waste at the Drug Testing Lab at Ft. Meade (25 drums per month and increasing) which we would like to be able to hold for decay for only 5 half-lifes and dispose of, if all other conditions are meet. This waste is mostly empty, washed test tubes which are only minimally contaminated prior to the decay in storage process. This waste is generated at a location were RIA kits are the only radioactive material use and the waste is kept segregated from all other laboratory waste in separate sealed 55 gal. drums.

11.2 See Item 11.1.

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,

Thomas K. Thompson for
Jenny M. Johansen, Chief
Medical Licensing Section
Division of Radiation Safety
and Safeguards

Enclosure: Regulatory Guide 8.23

ATTACHMENT 10.14

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

ATTACHMENT 10.14

Following are general rules for the safe use of radioactive materials:

1. Wear laboratory coats or other protective clothing at all times in areas where radioactive materials are used.

2. Wear disposable gloves at all times while handling radioactive materials.

3. Monitor hands and clothing for contamination after each procedure or before leaving area.

4. Do not eat, drink smoke,or apply cosmetics in any area where radioactive material is stored or used.

5. 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.

6. Dispose of radioactive waste only in specifically designated receptacles.

7. Never pipette by mouth.

8. Confine radioactive solutions in covered containers plainly identified and labeled with name of compound, radionuclide, date activity, and radiation level, if applicable

9. Always transport radioactive materials in appropriate shielding and containers.

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

REPLY TO
ATTENTION OF:

10 JUN 1992

HSHL-H-HP (385-11m)

MEMORANDUM THRU

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

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

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

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

REPLY TO ATTENTION OF:

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

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

CONDITION NO. 4 FOR RADIOACTIVE MATERIAL AUTHORIZATIONS (RADIOACTIVE WASTE)

(12) Animal Carcasses/Animal Waste: Short half-life.

(13) Animal Carcasses/Animal Waste: Long half-life.

(14) Animal Carcasses: ≤ 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 HP0 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.

NRC FORM 374 (10-89) U.S. NUCLEAR REGULATORY COMMISSION PAGE 1 OF 4 PAGES

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

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License number: 08-01738-02
Docket or Reference number: 030-01317
Amendment No. 61

(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.

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. 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.

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License number 08-01738-02

Docket or Reference number 030-01317

Amendment No. 61

(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 _____
Nuclear Materials Safety Branch
Region I
King of Prussia, Pennsylvania 19406

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

MS16
P-7

REPLY TO
ATTENTION OF:

September 9, 1993

Health Physics Office

SUBJECT: Additional Information for Review of Renewal of U.S. Nuclear Regulatory Commission License No. 08-01738-02, mail control No. 117725

Nuclear Materials Safety Branch
Division of Radiation Safety and Safeguards
ATTENTION: Mr. Thomas K. Thompson
U.S. Nuclear Regulatory Commission, Region I
475 Allendale Road
King of Prussia, Pennsylvania 19406-1415

Dear Mr. Thompson:

In response to your letter of August 11, 1993, pertaining to the renewal of License No. 08-0738-02, Control No. 117725, the following additional information is provided:

a. The Radiation Control Committee (RCC) follows the criteria set down in 10 CFR 33.15 for evaluating physicians and other individuals to use radioactive material for nonhuman uses. After evaluations have been completed using the aforementioned criteria and additional information, the RCC makes a final decision to approve or disapprove an individual as an authorized user.

b. Information Notice 90-09 has been carefully reviewed. It does not state that license renewals not having an Interim Waste Storage Plan will have a condition placed on it which will only allow storage of LLW for a rolling two year period. It does state however, that "not all licensees who will need to store LLW onsite will need amendments to their licenses to do so". Our existing license has no condition limiting storage of radioactive material or waste, except by total activity. We intend to maintain our total inventory, to include storage of waste, below existing limits. A rolling two year LLW storage condition will conflict with our NRC approval for decay in storage of materials with half-lives of up to 90 days. This requires us to hold some waste for a minimum of 2.5 years with no upper limit specified. Our waste is processed and stored in a decommissioned research reactor building which is solely occupied and secured by the Health Physics Office. The waste consist of dry, solid lab material, which is compacted into 55-gallon steel drums properly labeled and ready for disposal. It is stored under dry, temperature controlled conditions on four-level warehouse racks, and secured in a locked building surrounded by a locked perimeter fence. This facility has capacity to safely hold 500 drums.

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c. Our request for a case by case exemption from the requirements of 10 CFR 35 Subpart J is hereby withdrawn.

d. Radiation safety office audits of the performance of radioactive material authorizations are conducted semiannually. The elements of each audit include compliance with Army and hospital regulations, terms and conditions of the NRC license, proper posting of signs and labels, activity on hand, location, inventory records, logs, procedures, and required personnel actions.

e. All protocols for the use of unbound radioactive iodine involve less than 10 mCi per experiment; however, iodination procedures are required to be performed in a designated glove box which is inside a chemical fume hood. Exhaust is pulled through a charcoal filter and HEPA filter before venting to the outside. The hood exhaust air and room air are periodically monitored to ensure compliance with federal standards. All nonhuman use labs use less than 100 mCi at any one time. Nuclear Medicine is the only location where quantities greater than 100 mCi are handled. One compactor is used at the Health Physics waste processing facility to compact dry, solid LLW in 55-gallon drums. The facility is secured by the Health Physics Office and routinely surveyed for contamination. The compactor is exhausted through a HEPA particulate filter and charcoal cartridge air samples are used to monitor the exhaust air for volatile gases.

f. The model training program that was published in Appendix A to Regulatory Guide 10.8 Revision 2 will be established for all radiation workers. Records will be maintained to demonstrate compliance with applicable regulations.

g. Animal holding facilities are maintained in clean areas. Animals are taken from the holding facility to a restricted area by authorized users for the introduction of radioactive material. Animals are then sacrificed, placed in a marked freezer, and picked up by Health Physics Office for appropriate disposal. Protocols requiring the holding of animals containing radioactive material greater than exempt quantities will include provisions to ensure that the holding facility is secured from unauthorized access. Only authorized users will handle animals, animal wastes and carcasses. Cages will be cleaned and decontaminated by authorized users to ensure proper disposal of radioactive material and that they are free of radioactive contamination.

h. Trigger levels for removable contamination will be >50% and >100% of Reg Guide 8.23, Table 2 limits. Trigger levels for radiation levels will be 2 times background or 1 mR/hr for gamma and 2 mR/hr or 25% of 10 CFR 20.101(a) limits.

i. Our request for authorization to decay in storage I-125 LLW for 5 half-lives rather than 10 half-lives is hereby withdrawn.

j. Amendment No. 63, dated June 22, 1993, added the Gillette building to our license. See enclosure.

k. It has been noted that M.1 and M.2 of Reg Guide 10.8, Revision 2 are missing some required information.

l. Minimum requirements for surveys in non-medical use areas will be determined by types and quantity of material. For gamma and high energy beta emitting material the users will survey daily with G-M survey meters. Health Physics will survey weekly when ≥200 uCi is used at any one time and monthly when <200 uCi is used. For soft beta emitting material the users will perform daily wipes at the end of each day of use when using >100 uCi at any one time. Health Physics will survey weekly when ≥200 uCi is used at any one time and monthly when <200 uCi is used.

I hope the above information adequately addresses your concerns pertaining to the renewal of our broad scope license. Please contact the undersigned at (301) 427-5161 if further information is required.

Enclosure
as

ARTHUR G. SAMILJAN
Lieutenant Colonel, U.S. Army
Chief, Health Physics Office

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 of Federal Regulations, Chapter I, Parts 30, 31, 32, 33, 34, 35, 39, 40 and 70, and in reliance on statements and representations heret made by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, possess, and transfer byproduct, source, and sp nuclear material designated below; to use such material for the purpose(s) and at the place(s) designated below; to deliver or transfer such ma to persons authorized to receive it in accordance with the regulations of the applicable Part(s). This license shall be deemed to contain the cond 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 Nu 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)	In accordance with the letter dated March 26, 1993, 3. License number 08-01738-02 is amended in its entirety to read as follows:
2. Washington, D.C. 20307-5001	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 e radionuclide with a possession limit of 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 exc 300 millicuries each

Ex 2

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License number 08-01738-02
Docket or Reference number 030-01317
Amendment No. 63

(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 the 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
SUPPLEMENTARY SHEET

License number 08-01738-02

Docket or Reference number 030-01317

Amendment No. 63

. 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.

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

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By David A. Ma

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

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

MS16
P-7

REPLY TO ATTENTION OF:

October 29, 1993

Health Physics Office

SUBJECT: Additional Information for Review of Renewal of U.S. Nuclear Regulatory Commission License No. 08-01738-02, mail control No. 117725

Nuclear Materials Safety Branch
Division of Radiation Safety and Safeguards
ATTENTION: Mr. Thomas K. Thompson
U.S. Nuclear Regulatory Commission, Region I
475 Allendale Road
King of Prussia, Pennsylvania 19406-1415

Dear Mr. Thompson:

In response to your letter of September 29, 1993, pertaining to the renewal of License No. 08-0738-02, Control No. 117725, the following additional information is provided:

1. The minimum requested information that is required of proposed users is detailed on the enclosed authorization application forms. (Enclosures 1-3)

2. The information indicated in Information Notice 90-09, Attachment 1 is provided at enclosure 4.

3. The minimum elements of our authorization audits are detailed in the Health Physics Office Standing Operating Procedure 1-26. (Enclosure 5) Performance of independent surveys was addressed in paragraph 1 of our September 9, 1993 letter.

4. The minimum information recorded for radiation safety training is date training was given, place, instructor, and names of attendees. The groups of workers who will receive training are listed at ATT 8.1 of original application.

5. Please change Item 10.2 of original application to read "We will establish and implement the model ALARA program in Appendix G to Regulatory Guide 10.8, Revision 2 except that paragraph 3.a.(3) is deleted".

6. Please change Item 10.5 of original application to read "We will establish and implement the model spill procedures in Appendix J to Regulatory Guide 10.8, Revision 2 except that the Alternate RSO will follow up on the cleanup of the spill and will attach an Incident Memorandum to the Contamination Survey.

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I hope you will find the above information sufficient to complete your processing of our application.

Enclosures
as

ARTHUR G. SAMILJAN
Lieutenant Colonel, U.S. Army
Chief, Health Physics Office

Encl

INSTRUCTIONS FOR PREPARATION OF APPLICATION FOR AUTHORIZATION TO USE RADIOACTIVE MATERIAL (NON-HUMAN USE)

WRAMC FORM 1662R (FEBRUARY 1979)

GENERAL INFORMATION

1. An applicant for an "Authorization to Use Radioactive Material (Non-Human Use)" should complete WRAMC Form 1662R in detail and submit in duplicate to the WRAMC Health Physics Office.

2. Application for gamma irradiators should include a copy of the proposed Standard Operating Procedures that will be implemented to assure personnel safety during routine operation and emergency situations.

3. All proposed locations where the applicant desires to use, store, or dispose of radioactive material should be coordinated with the Health Physics Office Reactor and Survey Branch prior to submission of the application in order to assure expeditious processing of the application. Submission of an incomplete application will often result in a delay in issuance of an authorization because of the correspondence necessary to obtain information requested on the application.

EXPLANATION OF WRAMC FORM 1662R (FEBRUARY 1979)

1. WRAMC Form 1662R is designed for use in supplying information on radioactive materials use programs of varying complexity. The applicant should provide complete information on his proposed program for the possession and use of radioactive material for those items that do not apply, indicate as N/A (not applicable).

2. Application for new authorizations and renewal of existing authorizations should be completed in their entirety. However, applications for amendment of existing authorizations may be completed as follows:

a. Complete Items 1, 2, 3, 11, and 12.
b. For those items that do not required amendment indicate as N/C (no change).
c. For those items that require amendment indicate the proposed changes to the current authorization.

3. Explanation of WRAMC Form 1662R Items:

1. Self explanatory.

2. The "Principal User" is the individual who bears ultimate responsibility for possession, inventory and implementation of the safety procedures necessary to assure the safe use of the materials specified in the application. He is directly responsible to the WRAMC Radiation Control Committee. Attach a completed WRAMC Form 1643 if a current copy is not on file with the Health Physics Office.

3. The applicant's address should include organization, activity, building, room number, and reference or office symbol.

4. A "Co-Worker" is an individual who possesses adequate training and experience with radioactive material to qualify him as a "Principal User". He works under the direction of and is responsible to the "Principal User for the safe and proper use of the materials specified in the application. List all Co-Workers alphabetically by last name. Each Co-Worker should be identified as follows: Last name, first name, middle initial and grade. Attach a completed WRAMC Form 1643 for each Co-Worker if a current copy is not on file with the Health Physics Office.

5. A "Trainee" is 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. List all trainees alphabetically by last name. Each Trainee should be identified as follows: Last name, first name, middle initial and grade.

6. A "Technician" is 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 use of materials specified in the application. He does not possess suitable training and experience to be classified as a Principal User or Co-Worker, and is not undergoing training that would qualify him to attain either status. List all Technicians alphabetically by last name. Each Technician should be identified as follows: Last name, first name, middle initial and grade.

7-9. Self explanatory.

10a. List radioisotopes by ascending mass number, i.e., the isotope with the smallest mass number is placed at the top of the column and the isotope with the greatest mass number is placed at the bottom of the column.

10b. In addition to the chemical form of the radioisotope indicate whether it is in solid or liquid or gaseous form and whether it is a sealed or unsealed source. In order for radioactive material to qualify as a "sealed source" the radioactive source must be sealed in an impervious container which has sufficient mechanical strength to prevent contact with and dispersion of the radioactive material under the conditions of use and wear for which is was designed.

10c. State the maximum millicurie amount of each chemical form of the radioisotope that must be kept in the inventory in order to satisfy mission requirements.

10b. State the intended use of each chemical form of the radioisotopes listed in Column 10a.

11-12. Self explanatory.

APPLICATION FOR AUTHORIZATION TO USE RADIOACTIVE MATERIAL -- NON-HUMAN USE

1. APPLICATION FOR:	☐ NEW AUTHORIZATION	☐ RENEWAL OF AUTHORIZATION NUMBER	☐ AMENDMENT TO AUTHORIZATION NUMBER

2. APPLICANT'S NAME (Last, First, MI) (Principal User)	3. APPLICANT'S MAILING ADDRESS (Include Organization)
TELEPHONE NUMBER	

(IF MORE SPACE IS NEEDED FOR ANY ITEM, USE ADDITIONAL PROPERLY KEYED PAGES.)

4. List all CO-WORKERS	5. List all TRAINEES	6. List all TECHNICIANS

7. LOCATIONS WHERE MATERIAL WILL BE USED: (Building and Associated Rooms)

8. LOCATIONS WHERE MATERIAL WILL BE STORED: (Building and Associated Rooms)

9. RADIOACTIVE WASTE DISPOSAL SINK IN ROOM:

10. RADIOACTIVE MATERIAL DATA

A. RADIOISOTOPE	B. CHEMICAL AND/OR PHYSICAL FORM (Sealed or Unsealed)	C. POSSESSION LIMIT	D. USE

CERTIFICATE

(This item must be completed by applicant)

I certify that this application is prepared in conformity with WRAMC Regulations and that all information contained herein, including any supplements attached hereto, is true and correct to the best of my knowledge and belief.

11. I ACKNOWLEDGE MY RESPONSIBILITIES AS PRINCIPAL USER AS DEFINED IN WRAMC REGULATIONS.	12. ADMINISTRATIVE APPROVAL:
DATE (Signature of Principal User)	DATE (Signature of Chief of Svc, Dept, or Div.)

WRAMC RADIATION CONTROL COMMITTEE APPROVAL

APPROVED	APPROVED	AUTHORIZATION NO.:
HEALTH PHYSICS OFFICER, WRAMC	CHAIRPERSON SUBCOMMITTEE FOR NON-HUMAN USE: RADIATION CONTROL COMMITTEE, WRAMC	REVIEW DATE:

WRAMC FORM 1662R (PREVIOUS EDITIONS ARE OBSOLETE!) (OVER)

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.)*

RANK/GRADE	ORGANIZATION	ORGANIZATIONAL DIVISION	BLDG./ROOM NO.	WRAMC AUTHORIZATION NO.

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.			
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	SUPERVISED LABORATORY EXPERIENCE *(Hours)* D
a. RADIATION PHYSICS AND INSTRUMENTATION			
b. RADIATION PROTECTION			
c. MATHEMATICS PERTAINING TO THE USE AND MEASUREMENT OF RADIOACTIVITY			
d. RADIATION BIOLOGY			
e. RADIOPHARMACEUTICAL CHEMISTRY			

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

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

DEVICE	WHERE EXPERIENCE WAS GAINED	DURATION OF EXPERIENCE	TYPE OF USE

8. CERTIFICATION:

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

(Date Signed) *(Signature of Applicant)*

HEALTH PHYSICS RADIOACTIVE PROTOCOL		
a. Principal User	b. Telephone Number	c. Authorization Number
d. Coworkers	e. Trainees	f. Technicians
g. Radioisotope(s)	h. Physical/Chemical Form	i. Maximum Quantity per Experiment (mCi)
j. Title of Project		
k. Beginning Date	l. Ending Date	m. Repetitive Study Yes ☐ No ☐

n. Life Cycle of Radioisotope Utilized for Research Procedure (Use block/flow diagram to show what, how, where, how much isotope is used from receipt to disposal; emphasize major steps (incubate over night, run gel, autoradiography, etc.), including kinds and volumes of waste generated.)

o. Labeling and Transport of Radioactive Material: All radioactive solutions, tissues, animals and waste will be identified by proper labels. Transport of radioactive material between authorized work areas will be conducted in a manner that precludes the spread of contamination and inadvertent exposure of non-participating personnel.

p. Laboratory Animal Usage: None ☐ If yes, complete following:

Species: Room: Bldg:
Disposition of animals:

q. Isotope Utilization Locations:

	(1)	(2)	(3)	(4)	(5)
Building					
Room					
Maximum Amount (mCi)					

r. Maximum Amount in Possession (mCi)	Bldg	Room	Maximum Amt (mCi)
s. Isotope Storage Location(s)			
t. Waste Storage Location(s)			
u. Animal/Tissue Storage Location			

v. All radioactive waste will be transfered to the Health Physics Office in accordance with Health Physics Condition No. 4.

w. All room surveys will be conducted in accordance with Health Physics Condition No. 2.

x. Personnel Dosimetry will be requested in accordance with Health Physics Condition No. 1. Assigned dosimetry monitors will be worn by all participating personnel.
Whole Body ☐ TLD Ring ☐

y. Are there any significant "NON-RADIATION" personnel hazards associated with this experiment; (Biological [Aids, etc.], Hazardous Chemicals [Toxic, Explosive, Corrosive etc.], Sharps, Lasers, Microwaves, electrical etc.) that may effect Health Physics personnel during routine inspections, surveys or waste handling procedures.
If yes specify: NO ☐ YES ☐

The Research Protocol described above is designed to ensure that occupational radiation exposures and the release of radioactive effluents to the environment will be "as low as reasonably achievable" (ALARA) during all phases of the research procedure.

Printed Name and Signature of Principal User: _____

Date: _____ Rank/GS grade _____

Title: _____

Telephone Number _____

INFORMATION NEEDED IN AN AMENDMENT REQUEST TO AUTHORIZE EXTENDED INTERIM STORAGE OF LOW-LEVEL RADIOACTIVE WASTE IN 90-09

1. Identification of Waste to be Stored:

a. None

b. H-3, 1.5 Ci; C-14, 0.2 Ci; 2,900 cubic feet in (380) 55-gallon drums.

c. (1) C
(2) solid
(3) volume reduction
(4) none

d. H-3, 200 mCi/yr, solid/dry; C-14, 30 mCi/yr, solid/dry; 440 cubic feet in (60) 55-gallon drums.

e. None

2. Plans for Final Disposal:

a. July 1994 for waste generated in Washington, DC and Maryland.

b. Texas for DC waste in 1996 and the Appalachian Compact for MD waste in 2000.

c. As soon as possible after site is available; 1-3 months.

3. Physical Description of Storage Area:

a. See attachment 1.

b. 500 drums, 60 drums/year.

c. Maintained decommissioned reactor facility.

d. Perimeter fence w/secured gate and secured brick and concrete building.

e. Forced air circulation system. This system has provided adequate ventilation for our LLRW storage and processing facility for the past several years. The additional drums of solid, long waste containing H-3 and C-14 will not require modification to this system.

f. The building has an alarm system, fire extinguishers, fire hydrant, and is inspected monthly by fire chief. The additional storage will not require additional safeguard systems or modifications to the existing systems.

Encl 4

g. The building has a heating and cooling system.

h. The building was designed and built as a reactor with low vulnerability to other hazards.

4. Packaging and Container Integrity:

a. Dry, solid waste compacted in steel, 55-gallon drums. No hazards to integrity of containers; indefinite storage life.

b. Weekly radiation and contamination surveys to include wipe samples and visual inspection.

c. Not applicable

5. Radiation Protection:

a. Area is currently used for LLRW storage and processing with proper posting, surveying, and monitoring. The extended interim storage of H-3 and C-14 will not present a significant radiation hazard nor a significant increase in personnel exposure. The current radiation safety and ALARA programs as described in the license application are adequate for this additional storage of H-3 and C-14.

b. none

c. The Walter Reed Army Medical Center (WRAMC) Emergency Preparedness Plan is activated by dialing (202) 576-3317. This is a central notification number for WRAMC police, fire, and emergency response. The extent of activation will be dependent upon the particular situation. The extended interim storage of H-3 and C-14 will not present significant hazards or risks.

d. The radionuclides requiring extended interim storage are H-3 and C-14. The activity of the radionuclides contained in each waste package received is recorded in a log as a drum is packed. When the drum is filled and sealed the total quantity of each radionuclide is recorded on the drum's identification label. This information is also recorded and maintained on an electronic data file.

6. Training:

a. Health physics technicians attend weekly, one hour professional training classes which cover all aspects of the radiation safety program. Health Physics Office standing operating procedures are reviewed and discussed in detail as part of the training program.

7. Financial Assurance: See attached Statement of Intent.

8. Emergency Preparedness: Not required; however, WRAMC has an Emergency Preparedness Plan.

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

REPLY TO
ATTENTION OF:

Office of The
Commanding General

STATEMENT OF INTENT

1. I, Ronald R. Blanck, Commander of Walter Reed Army Medical Center, am the Official duly appointed by the Headquarters, Department of the Army, to represent my organization.

2. The Nuclear Regulatory Commission Licenses for which this Statement of Intent is being issued are:

(a) License Number 08-01738-02 (expiration date 30 Apr 93)

(b) License Number 08-01738-03 (expiration date 30 Nov 96)

3. The facilities for which this Statement of Intent is being issued are:

(a) Walter Reed Army Medical Center, Washington, District of Columbia;

(b) Walter Reed Army Medical Center, Forest Glen Section and Annex, Silver Springs, Maryland;

(c) Walter Reed Army Medical Center, Department of Pathology, Fort Meade, Maryland (U.S. Army Medical Laboratory);

(d) Walter Reed Army Institute of Research, Washington, District of Columbia;

(e) Walter Reed Army Institute of Research, Rickman Building, 13 Taft Court, Rockville, Maryland;

(f) Walter Reed Army Institute of Research, Gillette Building, 270 Research Center, 1413 Research Boulevard, Rockville, Maryland;

(g) Walter Reed Army Institute of Research Animal Holding Facility, Fort Meade, Maryland;

(h) U.S. Army Institute of Dental Research Facility, Fort Meade, Maryland;

4. In accordance with the requirements of 10 CFR 30.35, and in my capacity as the Commander of Walter Reed Army Medical Center, I am providing assurance that sufficient funds for decommissioning and disposal of stored radioactive waste will be obtained when necessary for the eventual decommissioning of WRAMC's NRC Licenses and disposal of stored radioactive waste.

Ronald R. Blanck
Major General, U.S. Army
Commander

HEALTH PHYSICS
WALTER REED ARMY MEDICAL CENTER
Washington, DC 20307-5001

HSHL-HP
SOP# 1-26

October 28, 1993

AUDIT OF RADIOACTIVE MATERIAL AUTHORIZATIONS

1. **GENERAL:** In accordance with AR 40-37 and 40-61, semiannual reviews of each WRAMC Radioactive Material Authorization must be performed. Site inspection of all authorized activities and work areas are reviewed in order to determine compliance with procedures, radioisotope possession limits, record keeping, and posting requirements.

2. **PURPOSE:** The purpose of this SOP is to:

a. Establish the review process used to audit an authorization.

b. Define the items to be audited and establish the criteria for exceptable compliance with Federal and WRAMC regulatory requirements.

c. List the documentation required.

3. **REQUIRED FORMS:**

a. The following forms must be used or reviewed when setting up, conducting, and/or following up on an audit of a Radioactive Material Authorization:

1. Memorandum: Health Physics Office "Audit of Radioactive Material" (Incl 1).

2. WRAMC Audit of Radioactive Material Form (Incl 2).

3. DA Form 3862: "Controlled Substances Stock Record" (Incl 3) or equivalent.

4. Authorization Program, Isotope Inventory Report Form (generated from the computer).

6. WRAMC Form 538 "Radiation Worker Briefing Card" (Incl 4).

7. Deficient Audit Form (Incl 5)

Encl 5

4. PREPARING FOR AUDIT:

a. Set up appointments with Principle Users (PU) by sending (or hand carrying) Memorandum from Health Physics Office "Audit of Radioactive Material". Audits should be scheduled in groups by location so the auditor can move from one audit to the next with a minimum of lost time. Most audits can be performed in 30 minutes, large authorizations may require more time and should be scheduled accordingly. Some rearranging will be necessary as PU's call to indicate conflicts with their schedules. The auditor should select a mutually agreeable time to reschedule when notified of a conflict.

b. Print a hard copy from the Authorization Program of the authorization you will be auditing, this will include:

(1) Administrative data

(2) Personnel and training dates

(3) Rooms

(4) Isotopes and limits authorized

c. Print Isotope Inventory Report Form from dBase Inventory data base, to list the isotope shipments received since the last audit and the isotopes still active from the previous audit. This will include the following information for each isotope shipment for the authorization requested:

(1) HPO tag number

(2) Chemical form

(3) Date received

(4) Original activity in millicuries

(5) A blank to list new activity in millicuries

(6) Last updated activity in millicuries

(7) Vendor

(8) Purchase order number

(9) Call number

(10) Remarks

d. Two copies of the Audit Form with a carbon are prepared so a signed copy can be left with the Principle User at the time of the audit.

e. The folder containing the previous inventory records for this authorization will be pulled from the HPO file.

5. **CONDUCTING AN AUDIT:** The material assembled in Item 4. b, c, d and e above will be taken by the auditor to the audit. The WRAMC "Audit of Radioactive Material" form will be used as a check list of the major areas of each authorization which need to be inspected. These are:

a. DA Form 3862 (or equivalent) Inventory Records: The authorizations inventory records will be compared to the "Isotope Inventory Report" (see item 4. c.) to ensure they include all shipments delivered to them by the HPO. Each entry in the inventory records shall contain: the isotope, the HPO tag number, date received, activity received, chemical form of compound, the activity used and disposed of, and the activity remaining. The "Isotope Inventory Report" will be completed at this time to show the new "updated activity" for each shipment. This form will be signed and dated at the bottom by the person providing the inventory information and will be used to update the inventory database at the HPO. It will remain on file as a permanent inventory record.

b. Within limits: The authorizations inventory records shall indicate a running balance of activity on hand for each isotope which is authorized. The PU is responsible for ensuring that the isotope limits of each isotope are not exceeded at any time and the auditor will check the running balance against the isotope limits listed on the computer generated copy of the authorization (see item 4. b. (4)).

c. Inventory Control Officer: The individual responsible for the inventory record keeping (PU or Technician).

d. WRAMC Reg 40-10: A copy must be available to radiation workers for information on the safe handling of radioactive material.

e. WRAMC Authorization: A copy of the approved authorization and any amendments most be maintained by the PU. At this time the computer generated copy of the information on the authorization (see item 4. b.) will be shown to the PU and any discrepancies clarified. Any changes which need to be made

in the authorization can be noted in items 11 or 12 on this form and it will be considered as an amendment request if signed by the PU.

f. General Provisions & Terms and Conditions: A copy must be maintained on file.

g. LSC - Source No. & Location: The location of any liquid scintillation counters with sealed source numbers will be noted.

h. WRAMC 538 "Radiation Worker Briefing Card": This form, required annually for each radiation worker, shall be requested if it has been determined that present records are not current (see item 4. f.).

i. Sink Log: A logbook listing amounts of radioactive material placed into the sanitary sewage system through a wash sink must be available for each wash sink on the authorization. Entries must be made at least monthly when no washes have been performed to indicate that fact. The monthly limit for wash sinks is 100 uCi.

j. Signs and Labels: Each controlled area shall be identified with the appropriate signs such that all employees and visitors who enter shall be informed of the pertinent requirements and procedures for the protection of themselves and fellow workers against internal and external exposure. The following areas and/or documents must be posted:

(1) Wash Sinks

(2) LSC

(3) Entrance/Exit

(4) NRC Form 3 (map)

(5) Notice to Employees Letter

(6) Parts 19&21 of 10CFR

k. Personnel Changes: Additions or deletions. The Audit Form can be used as a memo to make personnel changes if it is signed by the PU (no authorized representative can make amendments to the authorization).

1. General Comments: List pertinent information which should be communicated to the office such as: posting new equipment, renovations of labs, pregnant workers, computer changes, name changes, etc.

m. Signature & Date of Principal User or Authorized Representative: Signature of PU needed to amend the authorization.

6. **DEFICIENT AUDIT FORM:** Given if the authorization is being improperly maintained for any of the following reasons:

a. Not maintaining correct inventory records.

b. Not within possession limits.

c. Failure to amend authorization to reflect changes in personnel, rooms, etc.

d. Failure to adhere to proper work practices.

ARTHUR G. SAMILJAN
LTC, MS
Health Physics Officer

HSHL-H-HP (385-11i)

MEMORANDUM FOR

SUBJECT: Health Physics Office Audit of Radioactive Material Inventory for Authorization Number _____

1. This office is required to conduct periodic audits of the radioactive materials inventory for your Authorization.

2. You are scheduled to be audited on _____ at _____ hours. It is requested that the inventory officer for your Authorization be available to present inventory records and accompany the auditor during the inventory verification inspection.

3. If the date/time of the scheduled audit is not satisfactory, please contact Mr. David W. Burton, Chief, Radioactive Materials Control Branch, Telephone: 427-5104, to make alternate arrangements.

David W. Burton

DAVID W. BURTON
C, Radioactive Material Control Br.
Health Physics Office

Encl 5.1

WRAMC
Audit of Radioactive Material
(In accordance with AR 40-37 & 40-61)

Inspector:_____ Date:_____ Auth#_____

1. DA form 3862 [NO] [YES]
2. Within limits [NO] [YES]
3. Inventory Control Officer:_____
   Room:_____
4. WRAMC Regulation 40-10 [NO] [YES]
5. WRAMC Authorization on hand [NO] [YES]
6. General Provisions - Terms & Conditions [NO] [YES]
7. LSC - Source No. & Location:_____
8. WRAMC form 538 - current [NO] [YES]
9. Sink log [NO] [YES]
10. Signs & Labels:_____
11. Personnel [Additions] [Deletions]

    _____

12. General Comments:_____

    _____

Principal User:_____ Authorized Representative:

_____ _____
Signature Date

En 15.2

CONTROLLED SUBSTANCES STOCK RECORD

For use of this form, see AR 40-2; the proponent agency is Office of The Surgeon General.

STOCK NUMBER	DESCRIPTION	
UNIT AS RECEIVED	CONVERSION FACTOR	ACCOUNTABLE UNIT

DATE	DEBIT (*Receipts*)	DEBIT (*VO.*) OR CREDIT (*RX*) NO	CREDIT (*Expenditures*)	BALANCE ON HAND	DATE	DEBIT (*Receipts*)	DEBIT (*VO.*) OR CREDIT (*RX*) NO.	CREDIT (*Expenditures*)	BALANCE ON HAND

DA FORM 1 JUNE 72 3862

REPLACES DA FORM 8-235, 1 AUG 51, WHICH WILL BE USED.

NAME (Last, First, MI)

DUTY MAILING ADDRESS AND TELEPHONE NUMBER

As Principal User I have insured that the above named individual has received a briefing on the following subjects in accordance with Title 10 Code of Federal Regulations Part 19.

1. Walter Reed Army Medical Center's "NOTICE TO EMPLOYEES"
2. Form NRC-3
3. Title 10 Code of Federal Regulations Parts 19, 20 and 21.
4. Information concerning the storage, transfer and use of radioisotopes allowed under this authorization.
5. Authorization To Use Radioisotopes (WRAMC Form 1662R)
6. Hazards and protective measures associated with isotope usage.
7. Procedures for requesting a report of exposure to radiation.

DATE	PRINTED NAME AND SIGNATURE OF PRINCIPAL USER	AUTHORIZATION NUMBER

I have received and understand the above listed information.

DATE	SIGNATURE

HSHL-HP (385-11m)

MEMORANDUM FOR

SUBJECT: Isotope Audit of Authorization _____

1. On _____ an Isotope Audit of Authorization _____ was conducted by the Health Physics Office.

2. During the Audit, deficiencies were noted for the following reasons:

_____ Failure to maintain a central record of isotope receipt and usage.

_____ Isotope shipment delivered to authorization not noted on inventory records.

_____ Incorrect entries in the records in regards to the amounts of materials present.

_____ Not within possession limits.

_____ Failure to notify the Health Physics Office of changes in Authorization (MEMORANDUM stating Additions or Deletions) of personnel, rooms etc.

_____ Failure to adhere to all work practices as listed in WRAMC Regulation 40-10 and/or Authorization Terms and Conditions. Specifically:_____

_____

_____

_____

_____

_____

_____

3. Request receipt of a MEMO listing corrected deficiencies, and/or procedures which will ensure future compliance with regulations.

DAVID W. BURTON
Chief, Radioactive Material Branch
Health Physics Office

Encl 5.5

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

REPLY TO ATTENTION OF:

HSHL-HP (385-11) 13 May 1994

MEMORANDUM THRU

Commander, U.S. Army Health Services Command, ATTN: HSCL-P, Fort Sam Houston, Texas 78234-6000 MWM 26 MAY 94

HQDA (SGPS-PSP-E), 5109 Leesburg Pike, Falls Church, VA 22041-3258

FOR U.S. Nuclear Regulatory Commission, Region I, Nuclear Safety Section A, 475 Allendale Road, King of Prussia, PA 19406

SUBJECT: Amendment of US Nuclear Regulatory Commission Licenses No. 030-01317 and No. 030-06895

1. Request that NRC Licenses ~~030-01317~~ 08-01738-02 and ~~030-06896~~ 08-01738-03 be amended to reflect a change in the Radiation Safety Officer from CPT Mark A. Melanson to LTC William B. Johnson. LTC Johnson has been assigned as the Chief, Health Physics Office at Walter Reed Army Medical Center since 9 May 1994.

2. A Training and Experience Form and a Curriculum Vitae for LTC Johnson are attached (Enclosures 1 and 2).

3. POC for this matter is Mr. David W. Burton or LTC Johnson @ (301)-427-5104/5107.

FOR THE COMMANDER:

Earl S. Newsome

2 Encls

EARL S. NEWSOME III
LTC, MS
Executive Officer

MD5 0803430

MM18

NRC FORM 313M SUPPLEMEN. A US NUCLE. REGULATORY COMMISSION

TRAINING AND EXPERIENCE
AUTHORIZED USER OR RADIATION SAFETY OFFICER

1. NAME OF AUTHORIZED USER OR RADIATION SAFETY OFFICER WILLIAM B. JOHNSON, Ph.D.	2. STATE OR TERRITORY IN WHICH LICENSED TO PRACTICE MEDICINE: NOT APPLICABLE

3. CERTIFICATION

SPECIALTY BOARD A	CATEGORY B	MONTH & YEAR CERTIFIED C
NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE

4. TRAINING RECEIVED IN BASIC RADIOACTIVE HANDLING TECHNIQUES

FIELD OF TRAINING A	LOCATION AND DATE(S) OF TRAINING B	TYPE & LENGTH OF TRAINING	
		LECTURE/ LABORATORY COURSES (Hours) C	SUPERVISED LABORATORY EXPERIENCE (Hours) D
a. RADIATION PHYSICS AND INSTRUMENTATION	1) Univ of North Carolina, Chapel Hill, NC, 1980-1983 (3 years) 2) Tulane, New Orleans, LA, 1976 (1 year) 3) Ft. Belvoir, VA, 1970-1971 (1 year)	80 60 168	92
b. RADIATION PROTECTION	1) Reference 1 above 2) Reference 3 above	140 80	60 120
c. MATHEMATICS IN THE USE AND MEASUREMENT OF RADIOACTIVITY	1) Reference 1 above 2) Reference 3 above	125 60	
d. RADIATION BIOLOGY	1) Reference 1 above 2) Reference 3 above	40 40	
e. RADIOPHARMACEUTICAL CHEMISTRY	1) Reference 1 above 2) Reference 3 above	200	60 20

5. EXPERIENCE WITH RADIATION. (Actual use of Radioisotopes or Equivalent Experience)

ISOTOPE	MAXIMUM AMOUNT	WHERE EXPERIENCE GAINED	DURATION OF EXPERIENCE	TYPE OF USE
SM-1 Nuclear Power Reactor	1000 KW	SM-1, Ft. Belvoir, VA	1971 (1 year)	Health Physics Surveys; Reactor operations; Calibration

5. EXPERIENCE WITH RADIATION.(Actual use of Radioisotopes or Equivalent Experience)				
ISOTOPE	MAXIMUM AMOUNT	WHERE EXPERIENCE GAINED	DURATION OF EXPERIENCE	TYPE OF USE
^{235}U ^{238}U ^{239}Pu Pu-Be ^{241}Am ^{137}Cs ^{3}H	216 gm unsealed & soln. sources 3 gm unsealed source 43 gm, liquid sources 3 Ci, Sealed 600 mCi, Sealed 120 Ci, Sealed 110 Ci, Sealed	U.S. Army Environmental Hygiene Agency Aberdeen Proving Ground, MD NRC Byproduct Material License	1973-1974 (1 year)	Health Physics Surveys; Alternate RSO; Calibration
Atomic No. 3-83 ^{3}H ^{131}I ^{125}I ^{13}C	5 mCi each 10 mCi, liquid 10 mCi, liquid 1 Ci, liquid 1 Ci, liquid	US Army Medical Lab Ft. Sam Houston, TX Radiation Safety Officer NRC Byproduct Material License (Medical)	1974-1975 (1 year)	RSO, RIA kits, Iodinations, Health Physics Surveys; Wet Chemistry procedures
$^{99}Mo/^{99m}Tc$ Generator	2 Ci	North Carolina Memorial Hospital Chapel Hill, NC	1982 (1 month)	Clinical Training
Atomic No. 3-83 10 CFR 35 Gp I-II Gp III Gp IV-V ^{133}Xe ^{137}Cs ^{153}Gd	25 mCi each As needed 3 Ci each As needed 40 mCi 131 Ci 2 Ci	Dwight D. Eisenhower Army Medical Center, Fort Gordon, GA Radiation Safety Officer for Hybrid Broad Scope NRC Materials License (Medical) USNRC No. 10-12044-03	May 1983-June 1989 (6 years)	RSO, Radiation Safety Surveys, Medical Physics Surveys, Calibration
Atomic No. 3-83 ^{14}C, ^{3}H, ^{99}Mo, ^{99m}Tc ^{32}P, ^{125}I ^{137}Cs	15 Ci total, ≤ 200 mCi each 5 Ci each, any form 1 Ci each, any form 4200 Ci, sealed source	Uniformed Services University of the Health Sciences, Bethesda, MD Radiation Safety Officer for Broad Scope Type A NRC Material License (Medical) USNRC No. 19-23344-01	May 1989-June 1992 (3 years)	RSO, Health Physics Surveys, Calibration

5. EXPERIENCE WITH RADIATION.(Actual use of Radioisotopes or Equivalent Experience)				
ISOTOPE	MAXIMUM AMOUNT	WHERE EXPERIENCE GAINED	DURATION OF EXPERIENCE	TYPE OF USE
^{235}U ^{238}U ^{239}Pu Pu-Be ^{241}Am ^{137}Cs ^{3}H	216 gm unsealed & soln. sources 3 gm unsealed source 43 gm, liquid sources 3 Ci, Sealed 600 mCi, Sealed 120 Ci, Sealed 110 Ci, Sealed	U.S. Army Environmental Hygiene Agency Aberdeen Proving Ground, MD NRC Byproduct Material License	June 1992 - May 1994 (2 years)	Health Physics Surveys; Principle User, Member of the Radiation Control Committee

CURRICULUM VITAE

LTC WILLIAM B. JOHNSON, Ph.D, Medical Service Corps, US Army

Address:
Residence:

[redacted]

Work:

Walter Reed Army Medical Center
Chief, Health Physics Office
Washington D.C. 20307-5001
Phone: (301) 427-5104

ACADEMIC AREAS OF INTEREST:

Health Physics, Medical Physics, Optimizing Medical Images, Quality Control in Radiology, Computers, Public Health

EDUCATION AND TRAINING:

CIVILIAN TRAINING:

University of North Carolina, Chapel Hill, NC, Ph.D., Radiological Hygiene, [redacted]

Tulane School of Public Health and Tropical Medicine, New Orleans, LA, MPH, Environmental Health, 1976.

Iowa State University, Ames, IA, BS, Mathematics, [redacted]

Medical X-Ray Protection Course, USPHS, Rockville, MD, 2 weeks, 1973.

Ionizing and Nonionizing Radiation in Medicine, University of Pennsylvania, Philadelphia, PA, 1 week, 1979.

Electronic Imaging in Medicine, University of Texas at San Antonio, TX, 1 week, 1983.

Health Physics Aspects of Nuclear Attack, Health Physics Summer School, Louisiana University, Hammond, LA, 1 week, 1984.

Health Physics In Radiation Accidents, Oak Ridge Associated Universities, Oak Ridge, TN, 1 week, 1985.

MRI Acceptance Testing and Quality Control, The Bowman Gray School of Medicine, Winston-Salem, NC, 1 week, 1988.

International Society for Optical Engineering Medical Imaging V Meeting, San Jose, CA, 1 week, 1991.

Ex 6

American College of Radiology's Mammographic Image Quality Course: Role of the Medical Physicist, January 1993, 18 CME credits awarded.

MILITARY TRAINING:

Nuclear Power Plant Operator Course (Health Physics Specialty), Ft. Belvoir, VA, 1 year, 1971.

AMEDD (MSC) Officer Basic Course, Ft. Sam Houston, TX, 9 weeks, 1972

AMEDD Officer Advanced Course, Ft. Sam Houston, TX, 24 weeks, 1975.

Command and General Staff Officer Course (Correspondence Option), 1 year, 1987.

Faculty Development Course, Academy of Health Sciences, Ft. Sam Houston, TX, 4 weeks, 1976.

Medical Effects of Nuclear Weapons, Armed Forces Radiobiology Research Institute, Bethesda, MD, 1 week, 1983.

Medical Physics and Military Medicine, US Army Environmental Hygiene Agency, Aberdeen Proving Ground, MD, 1 week, 1983, 1985, 1987, 1988, 1989, 1991, 1993.

TEACHING EXPERIENCE:

1990-1993, Assistant Professor of Preventive Medicine and Biometrics, Uniformed Services University of the Health Sciences, Bethesda, MD.

1977-1979, Instructor, Radiological Physics, Academy of Health Sciences, Ft. Sam Houston, TX.

1977-1979, Assistant Professor of Health Sciences, Baylor University at San Antonio, San Antonio, TX.

1969-1970, High School Teacher (Mathematics), Grant Community High School, Fox Lake, IL.

PROFESSIONAL EXPERIENCE:

1. June 1992 to May 1994, Chief, Health Physics Division, U.S. Army Environmental Hygiene Agency, Aberdeen Proving Ground, MD.

Duties: Leads and manages the Health Physics Division composed of the Medical Health Physics Branch, the Industrial Health Physics Branch and an Administrative Section. Directs the activities of

some 25 professional health physicists in world wide mission of support of U.S. Army Radiation Protection Programs. Support includes complete radiation protection program evaluations for compliance with Federal, Army, and Nuclear Regulatory Commission (NRC) Licenses for Medical and Industrial facilities, medical and industrial x-ray surveys, radiation dose assessments from bioassay data, assistance in preparation of documents to terminate NRC licenses, and conducting verification surveys for NRC License termination. Radiation protection policies are developed for the Army Surgeon General for implementation Army wide. Act as principle user of radioactive materials, supervisor of ^{137}Cs irradiator for calibration, and member of the Radiation Control Committee.

2. June 1989 to June 1992, Deputy Director, Environmental Health and Occupational Safety; Chief, Radiation Safety and Radiation Protection Officer, Uniformed Service University of the Health Sciences (USUHS), Bethesda, MD.

Duties: Responsible for the supervision and management of broad scope US Nuclear Regulatory Byproduct Materials License No. 19-23344-01. Supervises health physics personnel in the performance of laboratory radiation protection surveys, personnel dosimetry program, laboratory analysis, and radioactive material control. Provides technical advice to some 350 radiation workers working in about 150 radioisotope laboratories. Teaches in various graduate level courses in Preventive Medicine and Radiology. Provides technical consultation to Director and other Branch Chiefs. Acts as the Director when the Director is absent. Has been designated the Medical Physics Consultant on acquisition and acceptance testing of Computerized Tomography (CT) Systems and Magnetic Resonance Imaging (MRI) Systems for the Army Surgeon General. This CT and MRI mission is world wide.

3. June 1983-June 1989, Chief, Health Physics, Dwight D. Eisenhower Army Medical Center, Ft. Gordon, GA.

Duties: Served as Chief, Health Physics, and Radiation Protection Officer. Responsible for supervision and management of broad scope radiation protection program including management of US Nuclear Regulatory Byproduct Materials License No. 10-12044-03 and Department of Army Radioactive Materials Authorization No. 10-07-81. Served as Regional Consultant to DOD Health Region 10, which includes 9 Army Community Hospitals, and clinics in Panama and Puerto Rico. Performs Technical Surveys of radioactive materials and radiation producing devices to evaluate health hazards and performs medical physics evaluations to optimize imaging. Provides education support to professional staff. Supervises the personnel dosimetry program and performs dosimetry analysis of both radiation workers and patients. Is the Medical Physics Consultant on acquisition and acceptance testing of Computerized Tomography (CT)

Systems and Magnetic Resonance Imaging (MRI) Systems for the Army Surgeon General. This CT and MRI mission is world wide.

4. September 1976 - June 1980, Chief, X-Ray Branch, Academy of Health Sciences, Ft. Sam Houston, TX.

Duties: Programs, plans and supervises overall operation of branch, including performance of 36 instructors and about 430 students annually. Branch is responsible for teaching the x-ray technologist program (radiographic) for the US Army. Also coordinates, plans, and supervises clinical training. Serves as Chairman of X-Ray Specialist Curriculum Committee, and Chairman of Medicine and Surgery Division Physics and Biophysics Committee. Serves as subject matter expert in radiology for Combat Development and Health Care Systems.

5. January 1975 - July 1975, Chief, Health Physics Branch, US Army Environmental Hygiene Agency Regional Activity South, Ft. Sam Houston, TX.

Duties: Conducts radiation protection surveys of US Army installations containing or generating ionizing radiation. Geographical area of support is all states west of the Mississippi River. Also reviews NRC license and DA Authorization applications. Performs technical consultation on radiation safety hazards.

6. March 1974 - December 1974, Chief, Department of Nuclear Medical Sciences, US Army Medical Laboratory, Ft. Sam Houston, TX.

Duties: Supervises laboratory procedures and techniques of radiation biology, radiochemistry, and biophysics for regional reference laboratory. Geographic area of support includes United States, Pacific Region, Korea, and Panama. Supervises radiation detection measurements, preparation and analysis of radioisotopes in support of diagnostic and other clinical procedures. Provides support on environmental surveillance. Advises on radiological hygiene matters to prevent unnecessary exposure of personnel to ionizing radiation. Performs duty of Chairman, Radioisotope Committee, and Radiological Protection Officer. Manages all aspects of AEC License No. 42-06316-01, and Department of Army Authorization for Radioactive Materials. Performs Health Physics surveys and overall monitoring of all Laboratory Departments engaged in work involving radioactive material.

7. January 1973 - February 1974, Survey Officer, Health Physics Division, US Army Environmental Hygiene Agency, Aberdeen Proving Ground, MD.

Duties: Reviews AEC license and Department of Army Authorizations applications as well as drafts Army directives and technical publications pertaining to radiological health; evaluates proposed

in-system items containing or generating ionizing radiation; makes on-site surveys of Army diagnostic, industrial, and therapeutic x-ray facilities, radioactive sources, accelerators, human use of radioisotopes and other sources of ionizing radiation; prepares reports with recommendations for corrective action; assists in training activities. Performs as Alternate Radiological Protection Officer. This requires preparation and maintenance of records and reports on receipt, issue, use, inventory, storage, and disposal of radioactive materials. Performs health physics surveys of all agency divisions engaged in working with radioactive materials.

8. September 1972 - October 1972, Health Physics Technician, SM1 Nuclear Power Plant, Ft. Belvoir, VA.

Duties: Conducts radiological surveys, performs treatment to maintain proper process fluid conditions of nuclear power plant. Operates nuclear power plant controls and equipment. Assists in refueling operations and preparing spent fuel elements and demineralizers for storage and shipment. Monitors process fluids for radioactivity and performs chemical separations. Conducts radiological surveys of nuclear power plant personnel, equipment, work areas and reactor elements.

MEMBERSHIPS, PAPERS, PRESENTATIONS AND AWARDS:

Member, Health Physics Society (1973)
Member, Eta Chapter, Delta Omega Society (1977)

"The Final Step in Decommissioning of the SM-1A Nuclear Power Plant: A Closeout Survey," AEHA Report No. 43-001-74, Health Physics National Meeting, 1974.

"A Data Base Management System For Real-Time Monitoring of Operating Parameters of A Diagnostic X-Ray System," Ph.D. Dissertation, University of North Carolina, Chapel Hill, NC, 1983.

"Computerized Quality Assurance in Diagnostic Radiology," Health Physics National Meeting, Baltimore, MD, 1983.

"Acceptance Testing of Computerized Tomography Systems," Savannah River Chapter Health Physics Society Meeting, September 1985.

"Operational Problems for a Radiation Protection Program at A Major Medical Institution," Medical Physics in Military Medicine Course, AEHA, MD, September 1987.

"A Protocol to Comply With The Joint Commission of Accreditation of Health Care Organizations Requirements in Diagnostic Radiology," Medical Physics In Military Medicine Course, AEHA, MD, October 1988.

Region I
NMSS Licensee Event Report

License No. 08-01738-02

Docket No. 030-01317

MLER-RI 2000-006

LICENSEE: Army, Dept. of

EVENT DESCRIPTION Shield integrity/Fission Instrument calibration Source

EVENT DATE Feb. 11, 2000 REPORT DATE Feb 11, 2000

1. REPORTING REQUIREMENT
   - ( ) 10 CFR 20.2201 Theft or Loss
   - ( ) 10 CFR 20.2203 30 Day Report
   - ( ) 10 CFR 30.50 Report
   - ( ) 10 CFR 35.33 Misadministration
   - ( ) License Condition
   - ( ) Other 10 CFR Part 21

2. REGION I RESPONSE
   - ( ) Immediate Site Inspection — Inspector/Date
   - ( ) Special Inspection — Inspector/Date
   - ( ) Telephone Inquiry — Inspector/Date
   - ( ) Preliminary Notification ( ) Daily Report
   - ( ) Information Entered on the RI Log
   - (✓) Review at Next Routine Inspection
   - ( ) Report Referred to

3. REPORT EVALUATION
   - (✓) Description of Event
   - (✓) Levels of RAM Involved
   - ( ) Cause of Event
   - (✓) Corrective Actions
   - (✓) Calculation Adequate
   - ( ) Letter to Licensee Requesting Additional Information

4. SPECIAL INSTRUCTIONS OR COMMENTS

Completed By: Cheryl K. Burnecka Date 4/07/00

Reviewed By Teresa A. Darden Date 4/7/2000

G:\LAS\LERForm
Revised 12/20/99

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ML003743782

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

REPLY TO
ATTENTION OF

March 31, 2000

Preventive Medicine Services

SUBJECT: Report of Shield Assembly Defect for Irradiator

U. S. Nuclear Regulatory Commission, Region I
James P. Dwyer, Senior Health Physicist
475 Allendale Road
King of Prussia, PA 19406

Mr. Dwyer,

Walter Reed Army Medical Center (WRAMC) uses radioactive material authorized by U.S. Nuclear Regulatory Commission (NRC) Byproduct Material License Number 08-01738-02 with an expiration date of June 30, 2004. This is a medical broadscope Type A license for medical diagnosis, therapy, and research in humans. A product defect with a Cesium-137 irradiator listed under paragraph 6CC of the license has been noted. Initial notification of the problem and the proposed corrective actions was made in a telephone call to Mr. James Dwyer, Senior Health Physicist, USNRC, Region I, King of Prussia, PA at about 2:30 pm on February 11, 2000. The following information is provided in accordance with the requirements of Title 10, Part 21.21.

On February 11, 2000, a problem with shield integrity was noted with a Cesium-137 (Cs-137) instrument calibration source. It is a Gamma Calibration Unit, [redacted] initially loaded with an [redacted] Cs-137 source; the current activity is about [redacted] The source shield assembly is a ¼ inch steel cylinder 18 inches in diameter, welded to a base plate. A 2-inch cylinder containing the radiation source is located in the middle of the shield assembly with the void between the inner cylinder and the outer shield assembly filled with lead shot. It was observed that the weld between the shield assembly and the base plate was cracked and the shield assembly was at a slight tilt. A small amount of fine lead shot was observed on one side of the base plate. Exposure readings taken at contact with the shield assembly with a portable survey meter indicated 0.3 milliRoentgen/hr. This is a typical reading at contact on the shield assembly. Significant problems would occur if the shield assembly tilted further and the lead shot drained out from around the sealed source. Calculation indicates [redacted] of Cs-137 with no shielding would yield an exposure rate at one meter of about 20 R/hr.

Industrial Operations Command (IOC), the DOD Executive Agent for disposal of radioactive material, was in the process of contracting with J. L. Shepherd & Associates, San Fernando, CA to remove the source and ship the source and the shield assembly to J.L. Shepherd. J.L. Shepherd employees were on site on February 11, 2000, examined the irradiator, and indicated the first priority should be to weld a steel plate around the shield assembly and to the base plate. IOC was contacted and were willing to expedite the operation. The irradiator had been inventoried on January 7, 2000, and no problems were noted with the irradiator at that time.

Personnel from J.L. Shepherd performed the maintenance fix on Monday February 14, 2000. The work to repair the irradiator shield assembly was accomplished without incident or any additional loss of shielding. It was determined after the shield was stabilized that the source itself moved freely within the cylinder and should be readily transferred to a shipping cask. A leak test of the source was also performed with no leakage indicated.

Three access ports at the top of the shield assembly for adding lead shot were opened and were found to be overflowing with lead shot. After probing with a screwdriver, areas of corroded/oxidized lead shot in big solid chunks were found within the shield assembly. If the lead shot has expanded this may explain how the shield assembly became tilted and why almost none of the lead shot drained out. No void spaces were found in the shield and a thorough survey of the exterior surfaces found no elevated radiation levels. A digital image of the irradiator with the steel collar welded to the base plate and shield assembly is enclosed.

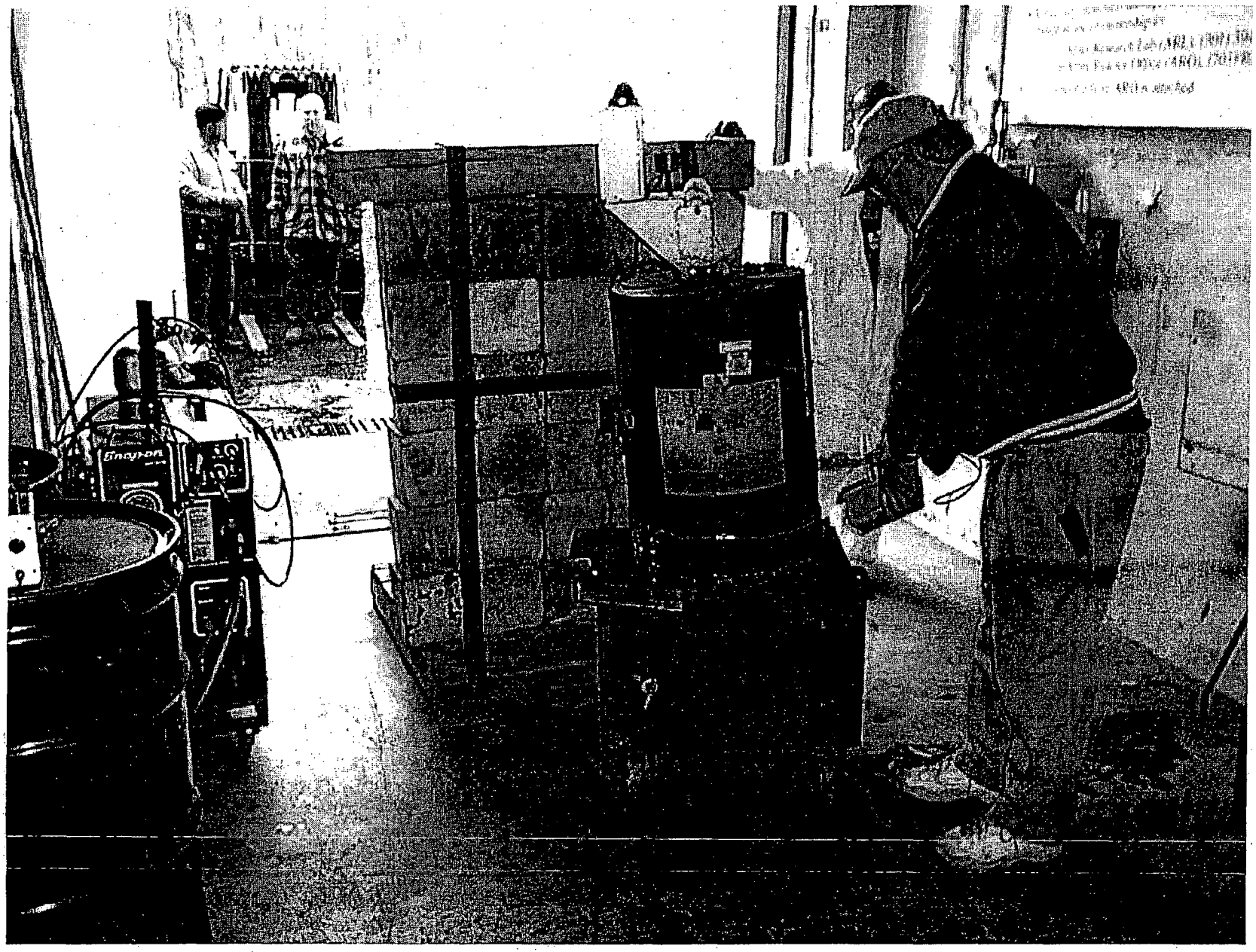
The contractor returned March 27-29, 2000 and prepared and shipped this source and two other irradiators to J.L. Shepherd, San Fernando, CA. No problems with the repaired shield assembly were encountered during the preparation and transfer at WRAMC.

Point of contact for any questions regarding this subject are Colonel William B. Johnson, Chief, Health Physics, or Mr. David Burton, Chief, Radioactive Material Control Branch at (202) 356-0058.

Enclosure
as

William B. Johnson
Colonel, U.S. Army
Chief, Health Physics Office

CF:
Proponency Office for Preventive Medicine, U.S. Army Center for Health Promotion & Preventive Medince, ATTN: POPM-SA (COL Daxon), 2050 Worth Road, Room 115, Ft. Sam Houston, TX 78234-601



Ex. 1

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

July 12, 2000

NMSB1

Preventive Medicine Service

030-01317

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

Dear Sir or Madam:

Walter Reed Army Medical Center (WRAMC) uses radioactive material authorized by U.S. Nuclear Regulatory Commission (NRC) Byproduct Material License number 08-01738-02 with an expiration date of June 30, 2004.

We request to amend NRC license 08-01738-02 issued to WRAMC to appoint Colonel Dale K. Block to replace Colonel Yancy Phillips as the Chairperson of the Radiation Control Committee (RCC). Colonel Block will be the Deputy Director for Clinical Services which is a senior level executive management position, one level below the Hospital Commander. The Radiation Protection Officer, Colonel William B. Johnson, has carefully reviewed the Colonel Block's curriculum vitae (enclosure 1) and recommends approval as Chairperson of the RCC.

We request to amend NRC license 08-01738-02 issued to WRAMC to delete the Cs-137 sealed source irradiator line items 6CC, 7CC, and 8CC from the license. The irradiator was transferred to J.L. Shepard & Associates and removed from building 516, Forest Glen Section on March 29, 2000 (enclosure 2).

For any additional information, please contact the undersigned at (202) 356-0058.

Sincerely,

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

2 Enclosures

Copy Furnished:
Proponency Office for Preventive Medicine, ATTN: COL Eric Daxon, USACHPPM, 2050 Worth Road, Room 115, Ft. Sam Houston, Texas 78234-6010

CURRICULUM VITAE

DALE K. BLOCK
Colonel, Medical Corps, United States Army

PERSONAL/FAMILY DATA:	Born: [redacted] Wife: [redacted] Children: [redacted] Ex 6
CIVILIAN EDUCATION:	B.A., George Washington University, Washington, DC, [ ] M.D., La Universidad Autonoma of Guadalajara, Guadalajara, Jalisco, Mexico, [ ] Ex 6
PROFESSIONAL EDUCATION:	Internship: Rotating, Dalhousie University Medical Center, Halifax, Nova Scotia, Canada, 1971-1972 Residency: Internal Medicine, Dalhousie University Medical Center, Halifax, Nova Scotia, Canada, 1971-1974 Internal Medicine, Tripler Army Medical Center, Honolulu, Hawaii, 1979-1980 Fellowship: Gastroenterology, William Beaumont Army Medical Center, El Paso, Texas, 1980-1982
MILITARY EDUCATION:	Army Medical Department Basic Course, 1976 Army Medical Department Advanced Course, 1978 Command and General Staff College, 1986
ASSIGNMENTS:	OIC, USAHC, Fort Detrick, Frederick, MD 1974-1978 Staff Gastroenterologist, USAMEDDAC, Fort Bragg, NC, 1982-1984 Chief, Department of Medicine USAMEDDAC, Fort Bragg, NC, 1984-1986 Deputy Commander for Clinical Services, Director of Medical Education, USAMEDDAC, Fort Bragg, NC, 1986-1988 Chief, Personal Readiness Division, Directorate of Professional Services; Consultant to The Surgeon General for Fitness Policy and Consultant to The Surgeon General for Alcohol and Drug Abuse, Department of Army, Falls Church, CA, 1988-1990 Commander, USAMEDDAC, Fort George G. Meade, MD 1990-1991 Deputy Director for Quality Assurance, Office of the Assistant Secretary of Defense of Health Affairs (Professional Affairs and Quality Assurance) Washington, DC 20301-1200, 1991-1992

	Deputy Director for Professional Affairs, (Professional Affairs and Quality Assurance) Washington, DC 20301-1200, 1992-1994 Staff Physician, Dewitt Army Community Hospital, Fort Belvoir, VA 22060, July-September 1994 Commander, ADUSAHC Pentagon, Washington, DC 20310-5801 and Chief, Department of Primary Care and Community Medicine, Walter Reed Army Medical Center, Washington, DC 20307 1994-Present
ACADEMIC/ PROFESSIONAL APPOINTMENTS:	Clinical Instructor, School of Medicine, University of Hawaii, Honolulu, Hawaii, 1978-1980 Adjunct Professor, School of Pharmacy, University of the Pacific, Stockton, California, 1978-1980 Associate Professor of Medicine, Faculty of Medicine, Texas Tech University, Lubbock, TX, 1980-1982 Assistant Professor of Medicine, Uniformed Services University of the Health Sciences, Bethesda, MD, 1997-Present
CLINICAL EXPERIENCE:	General Practice, Ciudad Granja, Zapopan, Jalisco, Mexico, 1972-1973
LICENSURE:	Washington, DC, 1975-Present
BOARD CERTIFICATION:	American Board of Family Practice, 1978 American Board of Internal Medicine, 1981
PUBLICATIONS:	"Un Estudio Epidemiologico de Ciudad Granja, Zapopan, Jalisco, Mexico" Doctoral Thesis, 1973 "Singultus and the Mallory-Weiss Syndrome" Case Studies and Review of the Literature

J.L. SHEPHERD & ASSOCIATES
1010 ARROYO AVE., SAN FERNANDO, CALIFORNIA 91340-1822
818-898-2361 FAX 818-361-8095

CERTIFICATION OF SOURCE/DEVICE POSSESSION TRANSFER

This document is to certify that on or about March 30, 2000, J.L. Shepherd and Associates took possession of and title to (1) Each Eberline Instrument Corporation Model 8150-XXXAB, with approximately [ ] of Cesium-137(as of 1967), American Nuclear Type ANC 127 Source Capsule, from U.S. Army, Walter Reed Army Institute of Research, WRAMC, Basement of the Reactor Building, Forest Glen, MD 20907. Ex 2

This transfer preparation took place under the direct supervision of J.L. Shepherd and Associates' engineer, under JLS&A'S State of California Radioactive Materials License and applicable 49CFR and CA Title 17 Transportation requirements, working under J.L. Shepherd and Associates, State of California Radioactive Materials License 1777-19, Amendment 78, Expiration Date 10/11/95, with State of California issued Letter of Timely Renewal, Dated September 21, 1995, in accordance with 10CFR40.51, 49CFR, all regulatory agency licensing and transportation requirements. J.L. Shepherd and Associates per the attached license, or our designated hot cell facility, is licensed to receive, possess and store this source/device.

David W. Bush
U.S. Army, Walter Reed Army Institute of Research

Dated: 29 Mar 2000

Mary J. Shepherd
Mary Shepherd
Vice-President
J.L. Shepherd and Associates

Dated: 3/15/00

This is to acknowledge the receipt of your letter/application dated

7/12/2000, and to inform you that the initial processing which includes an administrative review has been performed.

☑ There were no administrative omissions. Your application was assigned to a technical reviewer. Please note that the technical review may identify additional omissions or require additional information. AMEND. 08-01738-02

☐ Please provide to this office within 30 days of your receipt of this card

_____.

A copy of your action has been forwarded to our License Fee & Accounts Receivable Branch, who will contact you separately if there is a fee issue involved.

Your action has been assigned **Mail Control Number** 128416
When calling to inquire about this action, please refer to this control number.
You may call us on (610) 337-5398, or 337-5260.

NRC FORM 532 (RI)
(6-98)

Sincerely,
Licensing Assistance Team Leader

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PA 19406-1415

September 7, 2000

Docket No. 03001317 License No. 08-01738-02
Control No. 128416

Colonel Michael A. Dunn
Commander
Department of The Army
Walter Reed Army Medical Center
Washington, DC 20307-5001

SUBJECT: DEPARTMENT OF THE ARMY, ISSUANCE OF LICENSE AMENDMENT, CONTROL NO. 128416

Dear Colonel Dunn:

This refers to your license amendment request dated July 12, 2000. Enclosed with this letter is the amended license.

Please review the enclosed document carefully and be sure that you understand and fully implement all the conditions incorporated into the amended license. If there are any errors or questions, please notify the U.S. Nuclear Regulatory Commission, Region I Office, Licensing Assistance Team, (610) 337-5093 or 5239, so that we can provide appropriate corrections and answers.

Thank you for your cooperation.

Sincerely,

Original signed by Neelam Bhalla

Neelam Bhalla
Health Physicist
Nuclear Materials Safety Branch 1
Division of Nuclear Materials Safety

Enclosure:
Amendment No. 72

cc:
Colonel William B. Johnson, Radiation Safety Officer
Col. Eric Daxon, USACHPPM, 2050
Worth Road, Room 115
Fort Sam Houston, Texas 78234-6010

ML003749305

NMSS/RGN MATERIALS-001

DOCUMENT NAME: G:\Docs\Current\Lic Cvr Letter\L08-01738-02.128416.wpd 36957909

To receive a copy of this document, indicate in the box: "C" = Copy w/o attach/encl "E" = Copy w/ attach/encl "N" = No copy

OFFICE	DNMS/RI	N	DNMS/RI		DNMS/RI			
NAME	NBhalla NB							
DATE	9/7/00							

OFFICIAL RECORD COPY

Amendment No. 72

Duplicate ■ MATERIALS LICENSE ■ Duplicate

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, 36, 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	In accordance with the letter dated July 31, 2000,
1. Department of the Army Walter Reed Army Medical Center (WRAMC)	3. License number 08-01738-02 is amended in its entirety to read as follows:
2. Washington, D.C. 20307-5001	4. Expiration date June 30, 2004
	5. Docket No. 030-01317 Reference No.

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. Phosphorus 32	E. Any	E. 2 curies
F. Carbon 14	F. Any	F. 2 curies
G. Iodine 125	G. Any	G. 1 curie
H. Iridium 192	H. Any	H. [redacted] Ex 2
I. Chromium 51	I. Any	I. 750 millicuries
J. Sulfur 35	J. Any	J. 1 curie
K. Hydrogen 3	K. Any	K. 5 curies
L. Molybdenum 99	L. Molybdenum 99/ Technetium 99m Generators	L. 23 curies
M. Technetium 99m	M. Any	M. 23 curies

Duplicate ■ Duplicate ■ Duplicate

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License Number
08-01738-02

Docket or Reference Number
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Amendment No. 72

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
N. Strontium 90	N. Sealed sources	N.
O. Cesium 137	O. Sealed sources	O.
P. Gadolinium 153	P. Sealed sources	P.
Q. Iodine 125	Q. Sealed sources (3M Company seeds)	Q. 1 curie
R. Iodine 125	R. Sealed sources ((Norland Inst. Co., Model 178A591A or AECL Models C235 or C324, or Amersham Corp. Model IMC.P2)	R. 4 sources, not to exceed 300 millicuries each
S. Cesium 137	S. Sealed sources	S.
T. Cobalt 60	T. Sealed sources	T.
U. Americium 241	U. Any	U. 100 microcuries
V. Americium 241	V. Sealed sources	V.
W. Nickel 63	W. Sealed sources and foils	W. 1 curie
X. Iodine 129	X. Sealed sources	X. 1 curie
Y. Thorium	Y. Any	Y. 5 kilograms
Z. Uranium	Z. Any	Z. 50 kilograms
AA. Cesium 137	AA. Sealed sources	AA.
BB. Americium 241	BB. Sealed sources	BB.
CC. Paladium 103	CC. Sealed sources	CC. 3 curies
DD. Uranium depleted in Uranium-235	DD. Plated Metal	DD. 400 Kilograms

Ex 2

MATERIALS LICENSE
SUPPLEMENTARY SHEET

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08-01738-02

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9. Authorized use:

A. through CC. Medical diagnosis, therapy and research in humans in accordance with any applicable Food and Drug Administration (FDA) requirements. Research and development as defined in 10 CFR 30.4, including animal studies; instrument calibration; student instruction.

DD. Shielding in linear accelerators.

CONDITIONS

10. Licensed material may be used only at the licensee's facilities located at the Walter Reed Army Medical Center, Washington, D. C.; WRAMC Forest Glen Section and Annex, Silver Spring, Maryland; U.S. Army Medical Laboratory, WRAMC Department of Pathology, Fort Meade, Maryland; Rickman Building, 13 Taft Court, Rockville, Maryland and Gillette Building, 270 Research Center, 1413 Research Boulevard, Rockville, Maryland.

11. A. Licensed material shall be used by, or under the supervision of, individuals designated in writing by the Radiation Safety Committee, Colonel Dale K. Block, Chairperson.

B. The use of licensed material in or on humans shall be by a physician, dentist, or podiatrist as defined in 10 CFR 35.2.

C. Physicians, dentists, or podiatrists designated to use licensed material in or on humans shall meet the training criteria established in 10 CFR 35, Subpart J and shall be designated in writing by the licensee's Radiation Safety Committee.

D. The Radiation Safety Officer for this license is Colonel William B. Johnson.

12. In addition to the possession limits in Item 8, the licensee shall further restrict the possession of licensed material at a single location to quantities below the limits specified in 10 CFR 30.72 which require consideration of the need for an emergency plan for responding to a release of licensed material.

13. Notwithstanding the requirements of 10 CFR 35.49(a) and (b), 35.100, 35.200, 35.300, 35.400 and 35.500 the licensee may use for any medical use any byproduct material or reagent kit. The licensee shall possess and use byproduct material for medical use in accordance with the prescriptive and performance criteria in the other sections of 10 CFR 35. This does not relieve the licensee from complying with applicable U.S. Food and Drug Administration (FDA) and other Federal and State requirements.

14. A. 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 the foil

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temperatures from exceeding that specified in the certificate of registration referred to in 10 CFR 32.210.

B. When in use, detector cells containing a titanium tritide foil or a scandium tritide foil shall be vented to the outside.

15. The licensee shall conduct a physical inventory every three months to account for all sealed sources and devices containing licensed material received and possessed pursuant to 10 CFR 35.59, 35.400 and 35.500 and every six months for all other sealed sources and devices.

16. A. Sealed sources and detector cells containing licensed material shall be tested for leakage and/or contamination at intervals not to exceed six months or at such other intervals as are specified by the certificate of registration referred to in 10 CFR 32.210, not to exceed three years.

B. Notwithstanding Paragraph A of this Condition, sealed sources designed to emit alpha particles shall be tested for leakage and/or contamination at intervals not to exceed three months.

C. In the absence of a certificate from a transferor indicating that a leak test has been made within six months prior to the transfer, a sealed source or detector cell received from another person shall not be put into use until tested.

D. Each sealed source fabricated by the licensee shall be inspected and tested for construction defects, leakage, and contamination prior to any use or transfer as a sealed source.

E. Sealed sources and detector cells need not be leak tested if:

(i) they contain only hydrogen-3; or

(ii) they contain only a radioactive gas; or

(iii) the half-life of the isotope is 30 days or less; or

(iv) they contain not more than 100 microcuries of beta and/or gamma emitting material or not more than 10 microcuries of alpha emitting material; or

(v) they are not designed to emit alpha particles, are in storage, and are not being used. However, when they are removed from storage for use or transfer to another person, and have not been tested within the required leak test interval, they shall be tested before use or transfer. No sealed source or detector cell shall be stored for a period of more than 10 years without being tested for leakage and/or contamination.

F. The test shall be capable of detecting the presence of 0.005 microcurie of radioactive material on the

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test sample. If the test reveals the presence of 0.005 microcurie or more of removable contamination, a report shall be filed with the U.S. Nuclear Regulatory Commission and the source or detector cell shall be removed immediately from service and decontaminated, repaired, or disposed of in accordance with Commission regulations. The report shall be filed within five days of the date the leak test result is known with the U.S. Nuclear Regulatory Commission, Region I, ATTN: Chief, Nuclear Materials Safety Branch, 475 Allendale Road, King of Prussia, Pennsylvania 19406. The report shall specify the source or detector cell involved, the test results, and corrective action taken.

G. The licensee is authorized to collect leak test samples for analysis by the licensee. Alternatively, tests for leakage and/or contamination may be performed by persons specifically licensed by the Commission or an Agreement State to perform such services.

17. Sealed sources or detector cells containing licensed material shall not be opened or sources removed from source holders by the licensee.

18. The licensee is authorized to hold radioactive material with a physical half-life of less than 65 days and Sulfur 35, Cobalt 58, Iridium 192, Scandium 46, for decay-in-storage before disposal in ordinary trash, provided:

    A. Waste to be disposed of in this manner shall be held for decay a minimum of ten half-lives.

    B. Before disposal as ordinary trash, the waste shall be surveyed at the container surface with the appropriate survey instrument set on its most sensitive scale and with no interposed shielding to determine that its radioactivity cannot be distinguished from background. All radiation labels shall be removed or obliterated.

    C. A record of each such disposal permitted under this License Condition shall be retained for three years. The record must include the date of disposal, the date on which the byproduct material was placed in storage, the radionuclides disposed, the survey instrument used, the background dose rate, the dose rate measured at the surface of each waste container, and the name of the individual who performed the disposal.

19. Experimental animals, or the products from experimental animals, that have been administered licensed materials shall not be used for human consumption.

20. The licensee shall possess and use byproduct material for human research in accordance with the prescriptive and performance criteria in all sections of 10 CFR Part 35 except sections 35.49(a) and (b), 35.100, 35.200, and 35.300.

21. The licensee is authorized to transport licensed material in accordance with the provisions of 10 CFR Part 71, "Packaging and Transportation of Radioactive Material."

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22. The licensee shall not acquire licensed material in a sealed source or device unless the source or device has been registered with the U.S. Nuclear Regulatory Commission pursuant to 10 CFR 32.210 or equivalent regulations of an Agreement State.

23. Radioactive waste generated shall be stored in accordance with the statements, representations, and procedures included with the waste storage plan described in the licensee's letter/application dated September 9, 1993 and October 29, 1993.

24. Notwithstanding the requirements of 10 CFR 35.315(a)(7), the licensee may control contamination in rooms used to house radiopharmaceutical therapy patients in accordance with the commitments and procedures contained in the letters dated April 8, 1992 and November 24, 1992.

25. 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, except for minor changes in the medical use radiation safety procedures as provided in 10 CFR 35.31. The U.S. 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 January 21, 1993
B. Letter dated September 9, 1993
C. Letter dated October 29, 1993
D. Letter dated December 9, 1993
E. Letter dated February 15, 1994
F. Letter dated June 2, 1994
G. Letter dated December 6, 1996

For the U.S. Nuclear Regulatory Commission

Date September 7, 2000

By ***Original signed by Neelam Bhalla***

Neelam Bhalla
Nuclear Materials Safety Branch 1
Division of Nuclear Materials Safety
Region I
King of Prussia, Pennsylvania 19406

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

April 12, 2001

NM561

030-01317

Preventive Medicine Service

Nuclear Regulatory Commission, Region I
Medical Licensing Division
475 Allendale Road
King of Prussia, Pennsylvania 19406-1415

Dear Sir or Madam:

Walter Reed Army Medical Center uses radioactive material authorized by U.S. Nuclear Regulatory Commission (NRC) Byproduct Material License number 08-01738-02 with an expiration date of June 30, 2004.

We request to amend NRC License 08-1738-02 to increase the maximum possession limit of ^{192}Ir in section 8H to [redacted]. This increase in the maximum possession limit is to allow for the addition of Intravascular Brachytherapy procedures. The procedures will initially utilize the Cordis Checkmate system. Standard Operating Procedures will be developed and approved by the Radiation Control Committee prior to implementation of this procedure. EX 2

We also request to amend NRC License 08-1738-02 to increase the maximum possession limit ^{153}Gd in section 8P to 2 curies per camera. This will allow for additional cameras in Nuclear Medicine.

For any additional information, please contact the undersigned at (202) 356-0058.

Sincerely,

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

Copy Furnish:
Director, Proponency Office for Preventive Medicine - San Antonio, ATTN: MCPO-SA (COL Daxon), 2050 Worth Road, Ft. Sam Houston, TX 78234-6000

129603

NMSS/RGN MATERIALS-002

MM/13

MCOH60092

This is to acknowledge the receipt of your letter/application dated

4/12/2001, and to inform you that the initial processing which includes an administrative review has been performed.

AMEND. 08-01738-02

☑ There were no administrative omissions. Your application was assigned to a technical reviewer. Please note that the technical review may identify additional omissions or require additional information.

☐ Please provide to this office within 30 days of your receipt of this card

---

A copy of your action has been forwarded to our License Fee & Accounts Receivable Branch, who will contact you separately if there is a fee issue involved.

Your action has been assigned **Mail Control Number** 129603
When calling to inquire about this action, please refer to this control number.
You may call us on (610) 337-5398, or 337-5260.

NRC FORM 532 (RI)
(6-96)

Sincerely,
Licensing Assistance Team Leader

	:	(FOR LFMS USE)
	:	INFORMATION FROM LTS
BETWEEN:	:	----------
	:	
License Fee Management Branch, ARM	:	Program Code: 02110
and	:	Status Code: 0
Regional Licensing Sections	:	Fee Category: EX 7B
	:	Exp. Date: 20040630
	:	Fee Comments: 2B AND 2C PART OF 7B
	:	Decom Fin Assur Reqd: Y
	::	

LICENSE FEE TRANSMITTAL

A. REGION I

1. APPLICATION ATTACHED
   Applicant/Licensee: ARMY, DEPARTMENT OF THE
   Received Date: 20010419
   Docket No: 3001317
   Control No.: 129603
   License No.: 08-01738-02
   Action Type: Amendment

2. FEE ATTACHED
   Amount: /
   Check No.: /

3. COMMENTS

Signed M. A. Perkins
Date 4/25/2001

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 _____

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PENNSYLVANIA 19406-1415

June 14, 2001

Docket No. 03001317 License No. 08-01738-02
Control No. 129603

Colonel William B. Johnson
Radiation Protection Officer
Department of the Army
Walter Reed Army Medical Center
MCHL-HP/ Health Physics Office
Building 41, Room 38
Washington, DC 20307-5001

SUBJECT: DEPARTMENT OF THE ARMY, ISSUANCE OF LICENSE AMENDMENT, CONTROL NO. 129603

Dear COL. Johnson:

This refers to your license amendment request. Enclosed with this letter is the amended license.

Please note that: i) iridium-192, in the form of sealed sources, has been added to your license under Item 6.DD; ii) the gadolinium-153 possession limit has been increased to 6 curies; and iii) Item 11.D. has been added to your license to allow the approval of medical physicists, to support your intravascular brachytherapy program, by your radiation protection committee. Please review the enclosed document carefully and be sure that you understand and fully implement all the conditions incorporated into the amended license. If there are any errors or questions, please notify the U.S. Nuclear Regulatory Commission, Region I Office, Licensing Assistance Team, (610) 337-5239, so that we can provide appropriate corrections and answers.

In accordance with 10 CFR 2.790, a copy of this letter will be placed in the NRC Public Document Room and will be accessible from the NRC Web site at http://www.nrc.gov/NRC/ADAMS/index.html.

Thank you for your cooperation.

Sincerely,

Original signed by Penny Lanzisera

Senior Health Physicist
Nuclear Materials Safety Branch 1
Division of Nuclear Materials Safety

Enclosure:
Amendment No. 73

MML14

ML011650303

cc:
Director, Proponency Office
For Preventive Medicine - San Antonio
ATTN: MCPO-SA (COL. Daxon)
2050 Worth Road
Ft. Sam Houston, TX 78234-6000

DOCUMENT NAME: G:\Docs\Current\Lic Cvr Letter\L08-01738-02.129603.wpd 64943171

To receive a copy of this document, indicate in the box: "C" = Copy w/o attach/encl "E" = Copy w/ attach/encl "N" = No copy

OFFICE	DNMS/RI	N	DNMS/RI		DNMS/RI			
NAME	PLanzisera PL							
DATE	6/14/01							

OFFICIAL RECORD COPY

MATERIALS LICENSE

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, 36, 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	In accordance with the letter dated April 12, 2001,
1. Department of the Army Walter Reed Army Medical Center (WRAMC)	3. License number 08-01738-02 is amended in its entirety to read as follows:
2. Washington, D.C. 20307-5001	4. Expiration date June 30, 2004
	5. Docket No. 030-01317 Reference No.

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. Phosphorus 32	E. Any	E. 2 curies
F. Carbon 14	F. Any	F. 2 curies
G. Iodine 125	G. Any	G. 1 curie
H. Iridium 192	H. Any	H. [illegible]
I. Chromium 51	I. Any	I. 750 millicuries
J. Sulfur 35	J. Any	J. 1 curie
K. Hydrogen 3	K. Any	K. 5 curies
L. Molybdenum 99	L. Molybdenum 99/ Technetium 99m Generators	L. 23 curies
M. Technetium 99m	M. Any	M. 23 curies

License Number
08-01738-02

Docket or Reference Number
030-01317

Amendment No. 73

MATERIALS LICENSE
SUPPLEMENTARY SHEET

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
N. Strontium 90	N. Sealed sources	N. [redacted]
O. Cesium 137	O. Sealed sources	O. [redacted]
P. Gadolinium 153	P. Sealed sources	P. [redacted]
Q. Iodine 125	Q. Sealed sources (3M Company seeds)	Q. 1 curie
R. Iodine 125	R. Sealed sources (Norland Inst. Co., Model 178A591A or AECL Models C235 or C324, or Amersham Corp. Model IMC.P2)	R. 4 sources, not to exceed 300 millicuries each
S. Cesium 137	S. Sealed sources	S. [redacted]
T. Cobalt 60	T. Sealed sources	T. [redacted]
U. Americium 241	U. Any	U. 100 microcuries
V. Americium 241	V. Sealed sources	V. [redacted]
W. Nickel 63	W. Sealed sources and foils	W. 1 curie
X. Iodine 129	X. Sealed sources	X. 1 curie
Y. Thorium	Y. Any	Y. 5 kilograms
Z. Uranium	Z. Any	Z. 50 kilograms
AA. Cesium 137	AA. Sealed sources	AA. [redacted]
BB. Americium 241	BB. Sealed sources	BB. [redacted]
CC. Paladium 103	CC.Sealed sources	CC. 3 curies
DD. Iridium 192	DD. Sealed sources	DD. [redacted]
EE. Uranium depleted in Uranium 235	EE. Plated Metal	EE. 400 Kilograms

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License Number
08-01738-02

Docket or Reference Number
030-01317

Amendment No. 73

9. Authorized use:

A. through DD. Medical diagnosis, therapy and research in humans in accordance with any applicable Food and Drug Administration (FDA) requirements. Research and development as defined in 10 CFR 30.4, including animal studies; instrument calibration; student instruction.

EE. Shielding in linear accelerators.

CONDITIONS

10. Licensed material may be used only at the licensee's facilities located at the Walter Reed Army Medical Center, Washington, D. C.; WRAMC Forest Glen Section and Annex, Silver Spring, Maryland; U.S. Army Medical Laboratory, WRAMC Department of Pathology, Fort Meade, Maryland; Rickman Building, 13 Taft Court, Rockville, Maryland and Gillette Building, 270 Research Center, 1413 Research Boulevard, Rockville, Maryland.

11. A. Licensed material shall be used by, or under the supervision of, individuals designated in writing by the Radiation Safety Committee, Colonel Dale K. Block, Chairperson.

B. The use of licensed material in or on humans shall be by a physician, dentist, or podiatrist as defined in 10 CFR 35.2.

C. Physicians, dentists, or podiatrists designated to use licensed material in or on humans shall meet the training criteria established in 10 CFR 35, Subpart J and shall be designated in writing by the licensee's Radiation Safety Committee.

D. Individuals designated to work as medical physicists for intravascular brachytherapy shall meet the training and experience criteria established in 10 CFR 35.961; or be named on a current U.S. Nuclear Regulatory Commission or Agreement State license, or a permit issued under a broad scope license as a medical physicist; and shall be designated, in writing, by the Radiation Safety Committee. In addition, the physicist must meet the recentness of training requirement in 10 CFR 35.972 and have recent, device-specific training and experience for each make and model of intravascular brachytherapy device used by the licensee.

E. The Radiation Safety Officer for this license is Colonel William B. Johnson.

12. In addition to the possession limits in Item 8, the licensee shall further restrict the possession of licensed material at a single location to quantities below the limits specified in 10 CFR 30.72 which require consideration of the need for an emergency plan for responding to a release of licensed material.

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License Number
08-01738-02

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030-01317

Amendment No. 73

13. Notwithstanding the requirements of 10 CFR 35.49(a) and (b), 35.100, 35.200, 35.300, 35.400 and 35.500 the licensee may use for any medical use any byproduct material or reagent kit. The licensee shall possess and use byproduct material for medical use in accordance with the prescriptive and performance criteria in the other sections of 10 CFR 35. This does not relieve the licensee from complying with applicable U.S. Food and Drug Administration (FDA) and other Federal and State requirements.

14. A. 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 the foil temperatures from exceeding that specified in the certificate of registration referred to in 10 CFR 32.210.

    B. When in use, detector cells containing a titanium tritide foil or a scandium tritide foil shall be vented to the outside.

15. The licensee shall conduct a physical inventory every three months to account for all sealed sources and devices containing licensed material received and possessed pursuant to 10 CFR 35.59, 35.400 and 35.500 and every six months for all other sealed sources and devices.

16. A. Sealed sources and detector cells containing licensed material shall be tested for leakage and/or contamination at intervals not to exceed six months or at such other intervals as are specified by the certificate of registration referred to in 10 CFR 32.210, not to exceed three years.

    B. Notwithstanding Paragraph A of this Condition, sealed sources designed to emit alpha particles shall be tested for leakage and/or contamination at intervals not to exceed three months.

    C. In the absence of a certificate from a transferor indicating that a leak test has been made within six months prior to the transfer, a sealed source or detector cell received from another person shall not be put into use until tested.

    D. Each sealed source fabricated by the licensee shall be inspected and tested for construction defects, leakage, and contamination prior to any use or transfer as a sealed source.

    E. Sealed sources and detector cells need not be leak tested if:

        (i) they contain only hydrogen-3; or

        (ii) they contain only a radioactive gas; or

        (iii) the half-life of the isotope is 30 days or less; or

        (iv) they contain not more than 100 microcuries of beta and/or gamma emitting material or not more than 10 microcuries of alpha emitting material; or

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License Number
08-01738-02

Docket or Reference Number
030-01317

Amendment No. 73

(v) they are not designed to emit alpha particles, are in storage, and are not being used. However, when they are removed from storage for use or transfer to another person, and have not been tested within the required leak test interval, they shall be tested before use or transfer. No sealed source or detector cell shall be stored for a period of more than 10 years without being tested for leakage and/or contamination.

F. The test shall be capable of detecting the presence of 0.005 microcurie of radioactive material on the test sample. If the test reveals the presence of 0.005 microcurie or more of removable contamination, a report shall be filed with the U.S. Nuclear Regulatory Commission and the source or detector cell shall be removed immediately from service and decontaminated, repaired, or disposed of in accordance with Commission regulations. The report shall be filed within five days of the date the leak test result is known with the U.S. Nuclear Regulatory Commission, Region I, ATTN: Chief, Nuclear Materials Safety Branch, 475 Allendale Road, King of Prussia, Pennsylvania 19406. The report shall specify the source or detector cell involved, the test results, and corrective action taken.

G. The licensee is authorized to collect leak test samples for analysis by the licensee. Alternatively, tests for leakage and/or contamination may be performed by persons specifically licensed by the Commission or an Agreement State to perform such services.

17. Sealed sources or detector cells containing licensed material shall not be opened or sources removed from source holders by the licensee.

18. The licensee is authorized to hold radioactive material with a physical half-life of less than 65 days and Sulfur 35, Cobalt 58, Iridium 192, Scandium 46, for decay-in-storage before disposal in ordinary trash, provided:

A. Waste to be disposed of in this manner shall be held for decay a minimum of ten half-lives.

B. Before disposal as ordinary trash, the waste shall be surveyed at the container surface with the appropriate survey instrument set on its most sensitive scale and with no interposed shielding to determine that its radioactivity cannot be distinguished from background. All radiation labels shall be removed or obliterated.

C. A record of each such disposal permitted under this License Condition shall be retained for three years. The record must include the date of disposal, the date on which the byproduct material was placed in storage, the radionuclides disposed, the survey instrument used, the background dose rate, the dose rate measured at the surface of each waste container, and the name of the individual who performed the disposal.

19. The licensee shall possess and use byproduct material for human research in accordance with the prescriptive and performance criteria in all sections of 10 CFR Part 35 except sections 35.49(a) and (b), 35.100, 35.200, and 35.300.

License Number
08-01738-02

Docket or Reference Number
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Amendment No. 73

MATERIALS LICENSE
SUPPLEMENTARY SHEET

20. Experimental animals, or the products from experimental animals, that have been administered licensed materials shall not be used for human consumption.

21. The licensee is authorized to transport licensed material in accordance with the provisions of 10 CFR Part 71, "Packaging and Transportation of Radioactive Material."

22. The licensee shall not acquire licensed material in a sealed source or device unless the source or device has been registered with the U.S. Nuclear Regulatory Commission pursuant to 10 CFR 32.210 or equivalent regulations of an Agreement State.

23. Radioactive waste generated shall be stored in accordance with the statements, representations, and procedures included with the waste storage plan described in the licensee's letter/application dated September 9, 1993 and October 29, 1993.

24. Notwithstanding the requirements of 10 CFR 35.315(a)(7), the licensee may control contamination in rooms used to house radiopharmaceutical therapy patients in accordance with the commitments and procedures contained in the letters dated April 8, 1992 and November 24, 1992.

25. 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, except for minor changes in the medical use radiation safety procedures as provided in 10 CFR 35.31. The U.S. 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 January 21, 1993
B. Letter dated September 9, 1993
C. Letter dated October 29, 1993
D. Letter dated December 9, 1993
E. Letter dated February 15, 1994
F. Letter dated June 2, 1994
G. Letter dated December 6, 1996

For the U.S. Nuclear Regulatory Commission

Date June 13, 2001

By ***Original signed by Penny Lanzisera***

Penny Lanzisera
Nuclear Materials Safety Branch 1
Division of Nuclear Materials Safety
Region I
King of Prussia, Pennsylvania 19406

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

19 July 2002

REPLY TO
ATTENTION OF

Preventive Medicine Service

030-01317
030-06895

Nuclear Regulatory Commission, Region I
Medical Licensing Division
475 Allendale Road
King of Prussia, Pennsylvania 19406-1415

Dear Sir or Madam:

Walter Reed Army Medical Center uses radioactive material authorized by U.S. Nuclear Regulatory Commission (NRC) Byproduct Material License number 08-01738-02 with an expiration date of June 30, 2004 and Irradiator License number 08-1738-03 with an expiration date of November 30, 2011.

We request to change the Radiation Safety Officer (RSO) on both of the above licenses to Lieutenant Colonel John R. Mercier with an effective date of 15 August 2002. LTC Mercier's CV and NRC Form 313 are enclosed. LTC Mercier previously served for 4 years as the RSO on a Type A Broad Scope License (#53-C0458-04) at Tripler Army Medical Center.

For any additional information, please contact the undersigned at (202) 356-0058.

Sincerely,

William B. Johnson, Ph.D.
Radiation Safety Officer

Copy Furnish:
Director, Proponency Office for Preventive Medicine - San Antonio, ATTN: MCPO-SA (COL Daxon), 2050 Worth Road, Ft. Sam Houston, TX 78234-6000

NRC FORM 313A
(8-1999)

U.S. NUCLEAR REGULATORY COMMISSION

TRAINING AND EXPERIENCE

Note: Descriptions of training and experience must contain sufficient detail to match the training and experience criteria in the application regulations.

1. Name of Individual, Proposed Authorization (e.g. Radiation Safety Officer), and Applicable Training Requirements (e.g., 10CFR 35.50)

LTC JOHN R. MERCIER, PH.D., PE, DABR

2. For Physicians, State or Territory Where Licensed

3. CERTIFICATION

Specialty Board	Category	Month and Year Certified
American Board of Radiology	Diagnostic Radiological and Medical Nuclear Physics	June, 1995
Professional Engineer (Texas)	Nuclear Engineering License	March, 1995

4. DIDACTIC TRAINING

Description of Training	Location	Clock Hours	Dates of Training
Radiation Physics and Instrumentation	University of Texas at Austin	300	Sep 81 – Dec 84
	Cornell University, NY	300	Aug 89 – May 91
	Univ. of Texas Health Science Center	550	Aug 96 – Aug 99
Radiation Protection	University of Texas at Austin	50	Sep 81 – Dec 84
	Cornell University, NY	100	Aug 89 – May 91
	Univ. of Texas Health Science Center	150	Aug 96 – Aug 99
Mathematics Pertaining to the Use and Measurement of Radioactivity	University of Texas at Austin	200	Sep 81 – Dec 84
	Cornell University, NY	150	Aug 89 – May 91
	Univ. of Texas Health Science Center	100	Aug 96 – Aug 99
Radiation Biology	University of Texas at Austin	50	Sep 81 – Dec 84
	Cornell University, NY	150	Aug 89 – May 91
	Univ. of Texas Health Science Center	150	Aug 96 – Aug 99
Chemistry of Byproduct Material for Medical Use	Univ. of Texas Health Science Center	100	Aug 96 – Aug 99
Radiation Dosimetry	University of Texas at Austin	50	Sep 81 – Dec 84
	Cornell University, NY	150	Aug 89 – May 91
	Univ. of Texas Health Science Center	150	Aug 96 – Aug 99

5. PRACTICAL EXPERIENCE WITH RADITION (Actual use of radionuclides or equivalent experience)

Description of Experience	Name of Supervising Individual	Location and Corresponding Material License Number	Dates and Clock Hours of Experience	Related Radiation Safety Exam Score
Nuclear Medical Science Officer, U.S. Army Environmental Hygiene Agency. Radiation protection, dosimetry and calibration duties for: Any byproduct material with atomic no.'s 1 – 84, any form, not to exceed 800 mCi each or 10 Ci total. Any byproduct material with atomic no.'s 1 – 100, any form, not to exceed 15 uCi each or 500 uCi total. J.L Shepard Cs-137 sealed 130 mCi calibration source. Various plutonium and uranium sources.	LTC Eugene Potter, CHP	Aberdeen Proving Ground, MD USNRC Licenses: #19-09880-01, #SMB-707and #SNM-860	Jan 85 – Dec 85 (900 hours)	N/A
Radiation Safety Officer, Darnall Army Community Hospital. Radiation protection, dosimetry radioactive waste management, health physics program management and calibration duties for: Any byproduct material with atomic no.'s 1 – 83 for use as radiopharmaceuticals in diagnosis and therapy. Various calibration sources.	MAJ Jerome Karwacki,M.D.	Fort Hood, TX USNRC License #42-19113-01	Jan 86 – Dec 88 (6000 hours)	N/A
Graduate Student, Cornell University. Senior reactor operator for TRIGA reactor, with 10^{14} neutron flux in core and 10^{12} neutron flux at beam ports. Gamma cell operator with 10 MCi Co-60 irradiation source.	Dr. K. Bingham Cady, Sc.D.	Ithaca, NY USNRC License #SOP-10973	Aug 89 - May 91 (1000 hours)	N/A
Project Engineer, Defense Nuclear Agency Plutonium Mining Project. Spectroscopy, calibration and respiratory protection duties for a unique environmental restoration project. Various plutonium and americium samples and sources.	Dr. Ed Bramlitt, Ph.D.	Johnston Island, Pacific Ocean	Jun 91 – Jun 92 (1000 hours)	N/A
Radiation Safety Officer (Broad Scope), Tripler Army Medical Center. Radiation protection, dosimetry radioactive waste management, health physics program management and calibration duties for: Any byproduct material with atomic no.'s 1 – 83 for use as radiopharmaceuticals in diagnosis and therapy. J.L Shepard Cs-137 sealed 2200 Ci irradiation source. Various calibration sources.	COL Tom Cashman, M.D.	Honolulu, HI USNRC License #53-00458-04	Jun 92 – Jun 96 (8000 hours)	N/A
Doctoral Candidate, University of Texas Health Science Center. Various research and calibration sources.	Dr. Dave Kopp, Ph.D.		Aug 96 – Aug 99 (100 hours)	N/A
Nuclear Scientist, U.S. Army Nuclear and Chemical Agency. Scientific editor and contributing author to a North Atlantic Treaty Organization allied engineering publication on sampling and identification of radiological agents.	Dr. Chuck Davidson, Ph.D.		Aug 99 – May 02 (500 hours)	N/A

6. FORMAL TRAINING			
Degree, Area of Study	**Name of Program and Location with Corresponding Materials License Number**	**Dates** Ex 6	**Name of Organization that Approved the Program (e.g., Accreditation Council for Graduate Medical Education) and the Applicable Regulation (e.g., 10 CFR 35.294)**
B.E.S., Nuclear Engineering	University of Texas at Austin		ABET Accredited
M.Eng., Nuclear Engineering	Cornell University, NY		ABET Accredited
Ph.D., Radiological Physics	Univ. of Texas Health Science Center		CAMPEP Accredited

LIEUTENANT COLONEL JOHN R. MERCIER, Ph.D., PE, DABR
Nuclear Medical Science Officer
U.S. Army Nuclear and Chemical Agency

wk: (703)806-7860 cell: [redacted]
mercier@usanca-smtp.army.mil

Ex 6

FORMAL EDUCATION

Doctor of Philosophy (Radiological Physics), The University of Texas Health Science Center, San Antonio, Texas, Ex 6
Master of Engineering (Nuclear), Cornell University, Ithaca, New York, Ex 6
Bachelor of Engineering Science (Nuclear), The University of Texas, Austin, Texas, Ex 6

PROFESSIONAL CREDENTIALS

Diplomate, American Board of Radiology, Dual Certified in Diagnostic Radiological Physics and Medical Nuclear Physics, ABR Physicist # P1779, 1995
Licensed Medical Physicist, Texas, # MP0402, 1995
Licensed Professional Nuclear Engineer, Texas PE Registration # 80363, 1995
Licensed Nuclear Plant Senior Reactor Operator, TRIGA Reactor, NRC License #SOP-10973, 1990
Certified Hazard Control Manager, International Board of Hazard Control Management, Master Certification # 2490, 1993

CURRENT AFFILIATIONS AND PROFESSIONAL MEMBERSHIPS

Sigma Xi – The Scientific Research Society
Tau Beta Pi – The National Engineering Honor Society
American Nuclear Society
Health Physics Society
* Past-President for Hawaii Chapter
American Association of Physicists in Medicine
* Member of Task Group 10 on computed radiography digital imaging
North Atlantic Treaty Organization (NATO):
U.S. Delegate to NATO Land Group 7 on Joint NBC Defense
U.S. Delegate to NATO Land Group 7 Expert Subgroup on Sampling and Identification of Biological, Chemical and Radiological Agents
U.S. Delegate to NATO Land Group 7, Expert Working Group on Low-Level Radiation
U.S. Delegate to NATO Standardization Agency's NBC Working Group
U.S. Delegate to NATO Standardization Agency's Medical NBC Working Party
U.S. Delegate to NATO Research and Technology Board's Task Group on Radiation Treatments and Countermeasures
The Technical Cooperation Program (TTCP) of the American, British, Canadian, and Australian (ABCA) Alliance:
Member, Action Group 48 on Radiation Hazards
Department of Defense:
Chair, DoD Weapons of Mass Destruction Human Response Panel
Member, Nuclear Warfare Casualty Panel of Experts, Joint Readiness Clinical Advisory Board
Department of the Army:
Alternate Army Reactor Officer
Member, Nuclear Employment Augmentation Team

PUBLICATIONS

Anno, G., R. Bloom, **J. R. Mercier,** R. W. Young, *Dose Response Functions for Acute Radiation Lethality*, submitted to Health Physics, 2002.

Lankipalli, B. R., W. D. McDavid, S. B. Dove, E. Wieckowska, R. G. Waggener, and **J. R. Mercier,** *Comparison of Five Methods for the Derivation of Spectra for a Constant Potential Dental X-Ray Unit,* Dentomaxillofacial Radiology, 30, 2001, p. 264-269.

Mercier, J. R., Commander's Guide on Low-Level Radiation (LLR) Exposure in Military Operations, Edition 2, Draft Standardization Agreement 2473, North Atlantic Treaty Organization, 2002.

Mercier, J. R., Commander's Guide on Nuclear Radiation Exposure of Groups During War, Edition 6, NATO Standardization Agreement 2083, North Atlantic Treaty Organization, 2001.

Mercier, J. R., D. T. Kopp, W. D. McDavid, S. B. Dove, J. L. Lancaster, and D. M. Tucker, *Modification and Benchmarking of MCNP for Low-Energy Tungsten Spectra*, Medical Physics, 27(12), 2000, p. 2680-2687.

Mercier, J. R., D. T. Kopp, W. D. McDavid, S. B. Dove, J. L. Lancaster, and D. M. Tucker, *Measurement and Validation of Benchmark-Quality Thick-Target Tungsten X-Ray Spectra below 150 kVp,* Radiation Research, 154, 2000, p. 564-581.

Mercier, J. R., D. T. Kopp, W. D. McDavid, S. B. Dove, J. L. Lancaster, and D. M. Tucker, *Using Measured 30-150 kVp Polychromatic Tungsten X-Ray Spectra to Determine Ion Chamber Calibration Factors*, Health Physics, 79(4), 2000, p. 402-406.

Mercier, J. R. (Ed.), *NATO Handbook for Sampling and Identification of Radiological Agents, Volume 1 (Operational)*, Allied Engineering Publication 49, North Atlantic Treaty Organization, 2000.

Mercier, J. R., Medical Aspects of Nuclear Weapons and Radiation Effects, Chapter 3 of the FY 01/02 Army Specific Military Requirements for Nuclear and Radiation Effects Information, published by the U.S. Army Deputy Chief of Staff for Operations and Plans (DCSOPS), August 2000.

Mercier, J. R., *Measurement and Monte Carlo Prediction of Diagnostic Tungsten X-Ray Spectra,* Ph.D. Dissertation, Graduate School of Biomedical Sciences, The University of Texas Health Science Center, San Antonio, TX, 1999. Available from UMI Dissertation Services, Ann Arbor, MI, 1999, UMI No. 9938769.

Seibert, J. A. (Chair), T. Bogucki, T. Ciona, J. Dugan, W. Huda, A. Karellas, **J. Mercier,** E. Samai, J. Sheppard, B. Stewart, O. Suleiman, D. Tucker, R. Uzenoff, J. Weiser, and C. Willis, *Acceptance Testing and Quality Control of Photostimulable Storage Phosphor Imaging Systems, Report of Task Group #10*, American Association of Physicists in Medicine, 1998.

Willis, C. E., **J. Mercier**, M. Patel, *Modification of Conventional Quality Assurance Procedures to Accommodate Computed Radiography*, Proceedings of the 13th Conference of Computer Applications in Radiology, Society for Computer Applications in Radiology, Denver, CO, 1996.

Mercier, J. R., and Bramlitt, E. T., *A Soil Cleanup on Johnston Atoll*, Proceedings of the First Symposium on Soil Cleanup in the Pacific Islands, American Society of Civil Engineers, Honolulu, HI, 1993.

Moroney, J. D., Johnson, N. R., Moroney, K. S., **Mercier, J. R.**, *An Improved Method for Removing Transuranics from Coral Soil at Johnston Atoll*, Proceedings of the 1992 Federal Environmental Restoration Conference, Hazardous Materials Control Resources Institute, Vienna, VA, 1992.

ABSTRACTS AND POSTERS

Liu, H. L., Y. Pu, T. Andrews, **J. Mercier**, P. T. Fox, and J.-H. Gao, Cerebral Blood Flow Measurement Using Adaptive Threshold for Singular Value Decomposition Technique on Dynamic Contrast Agent MR Perfusion Imaging, 7th Meeting of the International Society for Magnetic Resonance in Medicine, Philadelphia, PA, 1999.

Mercier, J. R., D. T. Kopp, D. M. Tucker, C. E. Willis and J. L. Lancaster, X-Ray Spectra Resolution Requirements for Characterization of Image Receptors, 84th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, Il, 1998.

Mercier, J. and D. Kopp, Preliminary Evaluation of the Monte Carlo Code MCNP4b for Diagnostic X-Ray Spectra, 40th Annual Meeting of the American Association of Physicists in Medicine, Medical Physics, 1998, 25(7): p.A105.

Willis, C. E., **J. R. Mercier**, M. G. Patel, Unresolved Issues in Computed Radiography, 38th Annual Meeting of the American Association of Physicists in Medicine, Medical Physics, 1996, 23(6): p.1076.

PROFESSIONAL AND LEADERSHIP EXPERIENCE

Nuclear Scientist 8/99 - present
U.S. Army Nuclear and Chemical Agency, Springfield, VA

Primary consulting subject matter expert (SME) to Army Staff and other DoD/NATO/U.S. Government agencies on the medical effects of nuclear weapons and radiation. Sets policy on friendly troop safety risk criteria and enemy personnel casualty criteria for nuclear weapons effects. Develops casualty estimation models for nuclear, biological and chemical (NBC) weapons. Serves on numerous DoD and NATO SME panels for NBC research, operational doctrine and equipment development. Develops Army R&D requirements for radiobiology, biomedical technology and NBC operations. Serves as Alternate Army Reactor Officer for the Army Reactor Office that maintains oversight of WSMR and APG fast burst reactors. Serves on the Nuclear Employment Augmentation Team in support of CINC's.

Doctoral Student 8/96 – 8/99
The University of Texas Health Science Center, San Antonio, TX

Research focused on diagnostic imaging, the use of Monte Carlo codes to simulate x-ray beam formation and transport, measurement of x-ray spectra, computed radiography and other digital imaging systems. Teaching duties and course work broadly covered the medical radiological physics profession.

Chief, Health Physics 6/92 – 6/96
Tripler Army Medical Center, Honolulu, HI 96859-5000

Executive agent and Radiation Safety Officer for a broad-scope USNRC radioactive material license (#53-00458-04). Directed comprehensive health physics services for a major teaching and research hospital. Developed or approved nuclear medicine, diagnostic radiology and radiation therapy QC protocols. Performed gamma camera acceptance testing. Evaluated and approved all Pacific region radiological facility designs. Conducted health and medical physics audits. Routinely provided formal and informal radiation safety training and imaging science lectures to nuclear medicine and radiology technologists. Routinely counseled physicians, patients, and hospital staff on radiation effects. Occasionally lectured radiology residents in imaging physics.

Project Engineer, Johnston Atoll Plutonium Mining Project 5/91 - 6/92
Defense Nuclear Agency, Kirtland AFB, NM 87115-5000

Spearheaded the Defense Nuclear Agency's $15 million Plutonium Mining Project. Led world's first successful remediation of plutonium contaminated soil. Designed several multichannel analyzer radioassay systems using sodium iodide and high-pure germanium spectroscopy detectors. Developed and enforced various radiation safety, bioassay, and respiratory protection programs.

Graduate Student 8/89 – 5/91
Cornell University, Ithaca, NY

Research focused on characterizing radiation damage to electronic components using the Cornell gamma irradiation facility. Gained experience as a federally licensed nuclear plant senior reactor operator (License # SOP-10973) that required mastery of all research facilities and radiological monitoring equipment within the reactor building. Developed experimental research protocols for the TRIGA reactor and assisted in training a reactor operator. Course work broadly covered the nuclear engineering profession.

Radiation Protection Officer 12/85 - 12/88
Darnall Army Community Hospital, Ft Hood, TX 76544-5063

Executive agent and Radiation Safety Officer for USNRC limited-scope radioactive material license (#42-19113-01). Hospital consultant for health physics, diagnostic radiology physics, & medical nuclear physics. Developed radiation protection, radiology QA/QC, & nuclear medicine QA/QC programs. Performed health & medical physics audits, calibrations, x-ray system & shielding surveys. Troubleshooted image quality problems. Trained all radiation workers.

Nuclear Medical Science Officer 1/85 - 12/85
US Army Environmental Hygiene Agency, APG, MD 21010-5422

Consulted Army and DoD installations for adequate radiation protection, radiology QA/QC, and nuclear medicine QA/QC programs. Wrote safety and QC procedures and evaluated x-ray system performance. Conducted radiological shielding evaluations and health hazard assessments of equipment and facilities.

Commander, Detachment 1, A Company 12/82 – 12/84
249th Supply and Transport Battalion, 49th Armored Division,
Texas Army National Guard, Killeen, TX

Exercised command. Led with honor and respect.

Platoon Leader, HHQ Company 8/81 – 11/82
249th Supply and Transport Battalion, 49th Armored Division,
Texas Army National Guard, Austin, TX

Developed leadership skills.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PENNSYLVANIA 19406-1415

August 8, 2002

Docket Nos. 03001317
03006895
Control Nos. 131859
131860

License Nos. 08-01738-02
08-01738-03

William B. Johnson, Ph.D.
Radiation Safety Officer
Department of the Army
Walter Reed Army Medical Center (WRAMC)
Washington, DC 20307-5001

SUBJECT: DEPARTMENT OF THE ARMY, ISSUANCE OF LICENSE AMENDMENT, CONTROL NOS. 131859 AND 131860

Dear Dr. Johnson:

This refers to your request dated July 19, 2002, for amendment to the above listed NRC licenses. Enclosed with this letter are the amended licenses.

Please review the enclosed documents carefully and be sure that you understand and fully implement all the conditions incorporated into the amended licenses. If there are any errors or questions, please notify the U.S. Nuclear Regulatory Commission, Region I Office, Licensing Assistance Team, (610) 337-5239, so that we can provide appropriate corrections and answers.

In accordance with 10 CFR 2.790, a copy of this letter will be placed in the NRC Public Document Room and will be accessible from the NRC Web site at http://www.nrc.gov/reading-rm.html.

Thank you for your cooperation.

Sincerely,

Original signed by Sattar Lodhi, Ph.D.

Sattar Lodhi, Ph.D.
Health Physicist
Nuclear Materials Safety Branch 2
Division of Nuclear Materials Safety

ML022410023

MM/16

Enclosures:
Amendment No. 74 (License No. 08-01738-02)
Amendment No. 28 (License No. 08-01738-03)

cc:
LTC John R. Mercier, Ph.D., Radiation Safety Officer
COL Eric Daxon, Director, Proponency Office of Preventive Medicine

DOCUMENT NAME: G:\Docs\Current\Lic Cvr Letter\L08-01738-02.131859.wpd 6946925

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OFFICE	DNMS/RI	N	DNMS/RI		DNMS/RI			
NAME	SLodhi							
DATE	8/8/02							

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Amendment No. 74

MATERIALS LICENSE

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, 36, 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	In accordance with the letter dated July 19, 2002,
1. Department of the Army Walter Reed Army Medical Center (WRAMC)	3. License number 08-01738-02 is amended in its entirety to read as follows:
2. Washington, D.C. 20307-5001	4. Expiration date June 30, 2004
	5. Docket No. 030-01317 Reference No.

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. Phosphorus 32	E. Any	E. 2 curies
F. Carbon 14	F. Any	F. 2 curies
G. Iodine 125	G. Any	G. 1 curie
H. Iridium 192	H. Any	H. [redacted]
I. Chromium 51	I. Any	I. 750 millicuries
J. Sulfur 35	J. Any	J. 1 curie
K. Hydrogen 3	K. Any	K. 5 curies
L. Molybdenum 99	L. Molybdenum 99/ Technetium 99m Generators	L. 23 curies
M. Technetium 99m	M. Any	M. 23 curies

Ex 2

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License Number
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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
N. Strontium 90	N. Sealed sources	N.
O. Cesium 137	O. Sealed sources	O.
P. Gadolinium 153	P. Sealed sources	P.
Q. Iodine 125	Q. Sealed sources (3M Company seeds)	Q. 1 curie
R. Iodine 125	R. Sealed sources (Norland Inst. Co., Model 178A591A or AECL Models C235 or C324, or Amersham Corp. Model IMC.P2)	R. 4 sources, not to exceed 300 millicuries each
S. Cesium 137	S. Sealed sources	S.
T. Cobalt 60	T. Sealed sources	T.
U. Americium 241	U. Any	U. 100 microcuries
V. Americium 241	V. Sealed sources	V.
W. Nickel 63	W. Sealed sources and foils	W. 1 curie
X. Iodine 129	X. Sealed sources	X. 1 curie
Y. Thorium	Y. Any	Y. 5 kilograms
Z. Uranium	Z. Any	Z. 50 kilograms
AA. Cesium 137	AA. Sealed sources	AA.
BB. Americium 241	BB. Sealed sources	BB.
CC. Paladium 103	CC. Sealed sources	CC. 3 curies
DD. Iridium 192	DD. Sealed sources	DD.
EE. Uranium depleted in Uranium 235	EE. Plated Metal	EE. 400 kilograms

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MATERIALS LICENSE
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9. Authorized use:

A. through DD. Medical diagnosis, therapy and research in humans in accordance with any applicable Food and Drug Administration (FDA) requirements. Research and development as defined in 10 CFR 30.4, including animal studies; instrument calibration; student instruction.

EE. Shielding in linear accelerators.

CONDITIONS

10. Licensed material may be used only at the licensee's facilities located at the Walter Reed Army Medical Center, Washington, D. C., WRAMC Forest Glen Section and Annex, Silver Spring, Maryland; U.S. Army Medical Laboratory, WRAMC Department of Pathology, Fort Meade, Maryland; Rickman Building, 13 Taft Court, Rockville, Maryland and Gillette Building, 270 Research Center, 1413 Research Boulevard, Rockville, Maryland.

11. A. Licensed material shall be used by, or under the supervision of, individuals designated in writing by the Radiation Safety Committee, Colonel Dale K. Block, Chairperson.

B. The use of licensed material in or on humans shall be by a physician, dentist, or podiatrist as defined in 10 CFR 35.2.

C. Physicians, dentists, or podiatrists designated to use licensed material in or on humans shall meet the training criteria established in 10 CFR 35, Subpart J and shall be designated in writing by the licensee's Radiation Safety Committee.

D. Individuals designated to work as medical physicists for intravascular brachytherapy shall meet the training and experience criteria established in 10 CFR 35.961; or be named on a current U.S. Nuclear Regulatory Commission or Agreement State license, or a permit issued under a broad scope license as a medical physicist; and shall be designated, in writing, by the Radiation Safety Committee. In addition, the physicist must meet the recentness of training requirement in 10 CFR 35.972 and have recent, device-specific training and experience for each make and model of intravascular brachytherapy device used by the licensee.

E. The Radiation Safety Officer for this license is Lieutenant Colonel John R. Mercier.

12. In addition to the possession limits in Item 8, the licensee shall further restrict the possession of licensed material at a single location to quantities below the limits specified in 10 CFR 30.72 which require consideration of the need for an emergency plan for responding to a release of licensed material.

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030-01317
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13. Notwithstanding the requirements of 10 CFR 35.49(a) and (b), 35.100, 35.200, 35.300, 35.400 and 35.500 the licensee may use for any medical use any byproduct material or reagent kit. The licensee shall possess and use byproduct material for medical use in accordance with the prescriptive and performance criteria in the other sections of 10 CFR 35. This does not relieve the licensee from complying with applicable U.S. Food and Drug Administration (FDA) and other Federal and State requirements.

14. A. 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 the foil temperatures from exceeding that specified in the certificate of registration referred to in 10 CFR 32.210.

    B. When in use, detector cells containing a titanium tritide foil or a scandium tritide foil shall be vented to the outside.

15. The licensee shall conduct a physical inventory every three months to account for all sealed sources and devices containing licensed material received and possessed pursuant to 10 CFR 35.59, 35.400 and 35.500 and every six months for all other sealed sources and devices.

16. A. Sealed sources and detector cells containing licensed material shall be tested for leakage and/or contamination at intervals not to exceed six months or at such other intervals as are specified by the certificate of registration referred to in 10 CFR 32.210, not to exceed three years.

    B. Notwithstanding Paragraph A of this Condition, sealed sources designed to emit alpha particles shall be tested for leakage and/or contamination at intervals not to exceed three months.

    C. In the absence of a certificate from a transferor indicating that a leak test has been made within six months prior to the transfer, a sealed source or detector cell received from another person shall not be put into use until tested.

    D. Each sealed source fabricated by the licensee shall be inspected and tested for construction defects, leakage, and contamination prior to any use or transfer as a sealed source.

    E. Sealed sources and detector cells need not be leak tested if:

        (i) they contain only hydrogen-3; or

        (ii) they contain only a radioactive gas; or

        (iii) the half-life of the isotope is 30 days or less; or

        (iv) they contain not more than 100 microcuries of beta and/or gamma emitting material or not more than 10 microcuries of alpha emitting material; or

MATERIALS LICENSE
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License Number
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030-01317
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(v) they are not designed to emit alpha particles, are in storage, and are not being used. However, when they are removed from storage for use or transfer to another person, and have not been tested within the required leak test interval, they shall be tested before use or transfer. No sealed source or detector cell shall be stored for a period of more than 10 years without being tested for leakage and/or contamination.

F. The test shall be capable of detecting the presence of 0.005 microcurie of radioactive material on the test sample. If the test reveals the presence of 0.005 microcurie or more of removable contamination, a report shall be filed with the U.S. Nuclear Regulatory Commission and the source or detector cell shall be removed immediately from service and decontaminated, repaired, or disposed of in accordance with Commission regulations. The report shall be filed within five days of the date the leak test result is known with the U.S. Nuclear Regulatory Commission, Region I, ATTN: Chief, Nuclear Materials Safety Branch, 475 Allendale Road, King of Prussia, Pennsylvania 19406. The report shall specify the source or detector cell involved, the test results, and corrective action taken.

G. The licensee is authorized to collect leak test samples for analysis by the licensee. Alternatively, tests for leakage and/or contamination may be performed by persons specifically licensed by the Commission or an Agreement State to perform such services.

17. Sealed sources or detector cells containing licensed material shall not be opened or sources removed from source holders by the licensee.

18. The licensee is authorized to hold radioactive material with a physical half-life of less than 65 days and Sulfur 35, Cobalt 58, Iridium 192, Scandium 46, for decay-in-storage before disposal in ordinary trash, provided:

A. Waste to be disposed of in this manner shall be held for decay a minimum of ten half-lives.

B. Before disposal as ordinary trash, the waste shall be surveyed at the container surface with the appropriate survey instrument set on its most sensitive scale and with no interposed shielding to determine that its radioactivity cannot be distinguished from background. All radiation labels shall be removed or obliterated.

C. A record of each such disposal permitted under this License Condition shall be retained for three years. The record must include the date of disposal, the date on which the byproduct material was placed in storage, the radionuclides disposed, the survey instrument used, the background dose rate, the dose rate measured at the surface of each waste container, and the name of the individual who performed the disposal.

19. The licensee shall possess and use byproduct material for human research in accordance with the prescriptive and performance criteria in all sections of 10 CFR Part 35 except sections 35.49(a) and (b), 35.100, 35.200, and 35.300.

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20. Experimental animals, or the products from experimental animals, that have been administered licensed materials shall not be used for human consumption.

21. The licensee is authorized to transport licensed material in accordance with the provisions of 10 CFR Part 71, "Packaging and Transportation of Radioactive Material."

22. The licensee shall not acquire licensed material in a sealed source or device unless the source or device has been registered with the U.S. Nuclear Regulatory Commission pursuant to 10 CFR 32.210 or equivalent regulations of an Agreement State.

23. Radioactive waste generated shall be stored in accordance with the statements, representations, and procedures included with the waste storage plan described in the licensee's letter/application dated September 9, 1993 and October 29, 1993.

24. Notwithstanding the requirements of 10 CFR 35.315(a)(7), the licensee may control contamination in rooms used to house radiopharmaceutical therapy patients in accordance with the commitments and procedures contained in the letters dated April 8, 1992 and November 24, 1992.

25. 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, except for minor changes in the medical use radiation safety procedures as provided in 10 CFR 35.31. The U.S. 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 January 21, 1993
B. Letter dated September 9, 1993
C. Letter dated October 29, 1993
D. Letter dated December 9, 1993
E. Letter dated February 15, 1994
F. Letter dated June 2, 1994
G. Letter dated December 6, 1996

For the U.S. Nuclear Regulatory Commission

Date August 8, 2002

By ***Original signed by Sattar Lodhi, Ph.D.***

Sattar Lodhi, Ph.D.
Nuclear Materials Safety Branch 2
Division of Nuclear Materials Safety
Region I
King of Prussia, Pennsylvania 19406

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PENNSYLVANIA 19406-1415

January 8, 2003

Docket Nos. 03001317
03006895
Control Nos. 132452
132453

License Nos. 08-01738-02
08-01738-03

Thomas M. Fitzpatrick, M.D., Ph.D.
Deputy Commander for Clinical Services and Chair, Radiation Control Committee
Department of the Army
Walter Reed Army Medical Center (WRAMC)
Washington, DC 20307-5001

SUBJECT: DEPARTMENT OF THE ARMY, ISSUANCE OF LICENSE AMENDMENT, CONTROL NO. 132452 AND VOIDANCE OF APPLICATION FOR LICENSE AMENDMENT, CONTROL NO. 132453

Dear COL Fitzpatrick:

This refers to your license amendment request naming you as Chair of the Radiation Control Committee. Enclosed with this letter is amended broadscope license (License No. 08-01738-02). Since your irradiator license does not require a Radiation Control Committee, your amendment request is not necessary for License No. 08-01738-03. This matter was discussed with your Radiation Safety Officer on January 7, 2003. We have, therefore, voided your application to amend License No. 08-01738-03 (irradiator license). This action is taken without prejudice to the resubmission of your request.

Please review the enclosed document carefully and be sure that you understand and fully implement all the conditions incorporated into the amended license. Please note the last condition on your license indicates that, "This license condition applies only to those procedures that are required to be submitted in accordance with the regulations." Therefore, any procedures submitted that were not required by regulation to be submitted, e.g., calibration of dose calibrators, will not be considered a part of your license and were not reviewed during the licensing process. These procedures will be reviewed during inspections, as necessary. If there are any errors or questions, please notify the U.S. Nuclear Regulatory Commission, Region I Office, Licensing Assistance Team, (610) 337-5239, so that we can provide appropriate corrections and answers.

In accordance with 10 CFR 2.790, a copy of this letter will be placed in the NRC Public Document Room and will be accessible from the NRC Web site at http://www.nrc.gov/reading-rm.html.

MM 1/7

ML030040491

Thank you for your cooperation.

Sincerely,

Original signed by Elizabeth Ullrich

Elizabeth Ullrich
Senior Health Physicist
Nuclear Materials Safety Branch 2
Division of Nuclear Materials Safety

Enclosures:
1. Amendment No. 75 for License No. 08-01738-02
2. NUREG-1556 Volumes 5, 9, and 11
3. NRC Forms 3 and 313
4. 10 CFR Part 2, 19, 20, 21, 30, 31, and 35

cc w/encl:
John R. Mercier, Radiation Safety Officer

DOCUMENT NAME: G:\Docs\Current\Lic Cvr Letter\L08-01738-02.132452.wpd 64116858

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NAME	KModesKAD		EUlrich					
DATE	1/8/2003		1/8/03					

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Amendment No. 75

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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, 36, 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	In accordance with the letter dated November 22, 2002,
1. Department of the Army Walter Reed Army Medical Center (WRAMC)	3. License number 08-01738-02 is amended in its entirety to read as follows:
2. Washington, D.C. 20307-5001	4. Expiration date June 30, 2004
	5. Docket No. 030-01317 Reference No.

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. Phosphorus 32	E. Any	E. 2 curies
F. Carbon 14	F. Any	F. 2 curies
G. Iodine 125	G. Any	G. 1 curie
H. Iridium 192	H. Any	H. [1] Ex 2
I. Chromium 51	I. Any	I. 750 millicuries
J. Sulfur 35	J. Any	J. 1 curie
K. Hydrogen 3	K. Any	K. 5 curies
L. Molybdenum 99	L. Molybdenum 99/ Technetium 99m Generators	L. 23 curies

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MATERIALS LICENSE
SUPPLEMENTARY SHEET

License Number
08-01738-02
Docket or Reference Number
030-01317

Amendment No. 75

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
M. Technetium 99m	M. Any	M. 23 curies
N. Strontium 90	N. Sealed sources	N. [illegible]
O. Cesium 137	O. Sealed sources	O. [illegible]
P. Gadolinium 153	P. Sealed sources	P. [illegible]
Q. Iodine 125	Q. Sealed sources (3M Company seeds)	Q. 1 curie
R. Iodine 125	R. Sealed sources (Norland Inst. Co., Model 178A591A or AECL Models C235 or C324, or Amersham Corp. Model IMC.P2)	R. 4 sources, not to exceed 300 millicuries each
S. Cesium 137	S. Sealed sources	S. [illegible]
T. Cobalt 60	T. Sealed sources	T. [illegible]
U. Americium 241	U. Any	U. 100 microcuries
V. Americium 241	V. Sealed sources	V. [illegible]
W. Nickel 63	W. Sealed sources and foils	W. 1 curie
X. Iodine 129	X. Sealed sources	X. 1 curie
Y. Thorium	Y. Any	Y. 5 kilograms
Z. Uranium	Z. Any	Z. 50 kilograms
AA. Cesium 137	AA. Sealed sources	AA. [illegible]
BB. Americium 241	BB. Sealed sources	BB. [illegible]

Ex 2 portions

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License Number
08-01738-02
Docket or Reference Number
030-01317
Amendment No. 75

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
CC. Paladium 103	CC.Sealed sources	CC. 3 curies
DD. Iridium 192	DD. Sealed sources	DD. [ ] Ex 2
EE. Uranium depleted in Uranium 235	EE. Plated Metal	EE. 400 Kilograms

9. Authorized use:

A. through DD. Medical diagnosis, therapy and research in humans in accordance with any applicable Food and Drug Administration (FDA) requirements. Research and development as defined in 10 CFR 30.4, including animal studies; instrument calibration; student instruction.

EE. Shielding in linear accelerators.

CONDITIONS

10. Licensed material may be used only at the licensee's facilities located at the Walter Reed Army Medical Center, Washington, D. C.; WRAMC Forest Glen Section and Annex, Silver Spring, Maryland; U.S. Army Medical Laboratory, WRAMC Department of Pathology, Fort Meade, Maryland; Rickman Building, 13 Taft Court, Rockville, Maryland and Gillette Building, 270 Research Center, 1413 Research Boulevard, Rockville, Maryland.

11. A. Licensed material shall be used by, or under the supervision of, individuals designated in writing by the Radiation Safety Committee, Colonel Thomas M. Fitzpatrick, Chairperson.

B. The use of licensed material in or on humans shall be by a physician, dentist, or podiatrist as defined in 10 CFR 35.2.

C. Physicians, dentists, or podiatrists designated to use licensed material in or on humans shall meet the training criteria established in 10 CFR 35, Subpart J and shall be designated in writing by the licensee's Radiation Safety Committee.

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License Number
08-01738-02

Docket or Reference Number
030-01317

Amendment No. 75

D. Individuals designated to work as medical physicists for intravascular brachytherapy shall meet the training and experience criteria established in 10 CFR 35.961; or be named on a current U.S. Nuclear Regulatory Commission or Agreement State license, or a permit issued under a broad scope license as a medical physicist; and shall be designated, in writing, by the Radiation Safety Committee. In addition, the physicist must meet the recentness of training requirement in 10 CFR 35.972 and have recent, device-specific training and experience for each make and model of intravascular brachytherapy device used by the licensee.

E. The Radiation Safety Officer for this license is Lieutenant Colonel John R. Mercier.

12. In addition to the possession limits in Item 8, the licensee shall further restrict the possession of licensed material at a single location to quantities below the limits specified in 10 CFR 30.72 which require consideration of the need for an emergency plan for responding to a release of licensed material.

13. Notwithstanding the requirements of 10 CFR 35.49(a) and (b), 35.100, 35.200, 35.300, 35.400 and 35.500 the licensee may use for any medical use any byproduct material or reagent kit. The licensee shall possess and use byproduct material for medical use in accordance with the prescriptive and performance criteria in the other sections of 10 CFR 35. This does not relieve the licensee from complying with applicable U.S. Food and Drug Administration (FDA) and other Federal and State requirements.

14. A. 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 the foil temperatures from exceeding that specified in the certificate of registration referred to in 10 CFR 32.210.

B. When in use, detector cells containing a titanium tritide foil or a scandium tritide foil shall be vented to the outside.

15. The licensee shall conduct a physical inventory every three months to account for all sealed sources and devices containing licensed material received and possessed pursuant to 10 CFR 35.59, 35.400 and 35.500 and every six months for all other sealed sources and devices.

16. A. Sealed sources and detector cells containing licensed material shall be tested for leakage and/or contamination at intervals not to exceed six months or at such other intervals as are specified by the certificate of registration referred to in 10 CFR 32.210, not to exceed three years.

B. Notwithstanding Paragraph A of this Condition, sealed sources designed to emit alpha particles shall be tested for leakage and/or contamination at intervals not to exceed three months.

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License Number
08-01738-02

Docket or Reference Number
030-01317

Amendment No. 75

C. In the absence of a certificate from a transferor indicating that a leak test has been made within six months prior to the transfer, a sealed source or detector cell received from another person shall not be put into use until tested.

D. Each sealed source fabricated by the licensee shall be inspected and tested for construction defects, leakage, and contamination prior to any use or transfer as a sealed source.

E. Sealed sources and detector cells need not be leak tested if:

(i) they contain only hydrogen-3; or

(ii) they contain only a radioactive gas; or

(iii) the half-life of the isotope is 30 days or less; or

(iv) they contain not more than 100 microcuries of beta and/or gamma emitting material or not more than 10 microcuries of alpha emitting material; or

(v) they are not designed to emit alpha particles, are in storage, and are not being used. However, when they are removed from storage for use or transfer to another person, and have not been tested within the required leak test interval, they shall be tested before use or transfer. No sealed source or detector cell shall be stored for a period of more than 10 years without being tested for leakage and/or contamination.

F. The test shall be capable of detecting the presence of 0.005 microcurie of radioactive material on the test sample. If the test reveals the presence of 0.005 microcurie or more of removable contamination, a report shall be filed with the U.S. Nuclear Regulatory Commission and the source or detector cell shall be removed immediately from service and decontaminated, repaired, or disposed of in accordance with Commission regulations. The report shall be filed within five days of the date the leak test result is known with the U.S. Nuclear Regulatory Commission, Region I, ATTN: Chief, Nuclear Materials Safety Branch, 475 Allendale Road, King of Prussia, Pennsylvania 19406. The report shall specify the source or detector cell involved, the test results, and corrective action taken.

G. The licensee is authorized to collect leak test samples for analysis by the licensee. Alternatively, tests for leakage and/or contamination may be performed by persons specifically licensed by the Commission or an Agreement State to perform such services.

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License Number
08-01738-02

Docket or Reference Number
030-01317

Amendment No. 75

17. Sealed sources or detector cells containing licensed material shall not be opened or sources removed from source holders by the licensee.

18. The licensee is authorized to hold radioactive material with a physical half-life of less than 65 days and Sulfur 35, Cobalt 58, Iridium 192, Scandium 46, for decay-in-storage before disposal in ordinary trash, provided:

    A. Waste to be disposed of in this manner shall be held for decay a minimum of ten half-lives.

    B. Before disposal as ordinary trash, the waste shall be surveyed at the container surface with the appropriate survey instrument set on its most sensitive scale and with no interposed shielding to determine that its radioactivity cannot be distinguished from background. All radiation labels shall be removed or obliterated.

    C. A record of each such disposal permitted under this License Condition shall be retained for three years. The record must include the date of disposal, the date on which the byproduct material was placed in storage, the radionuclides disposed, the survey instrument used, the background dose rate, the dose rate measured at the surface of each waste container, and the name of the individual who performed the disposal.

19. The licensee shall possess and use byproduct material for human research in accordance with the prescriptive and performance criteria in all sections of 10 CFR Part 35 except sections 35.49(a) and (b), 35.100, 35.200, and 35.300.

20. Experimental animals, or the products from experimental animals, that have been administered licensed materials shall not be used for human consumption.

21. The licensee is authorized to transport licensed material in accordance with the provisions of 10 CFR Part 71, "Packaging and Transportation of Radioactive Material."

22. The licensee shall not acquire licensed material in a sealed source or device unless the source or device has been registered with the U.S. Nuclear Regulatory Commission pursuant to 10 CFR 32.210 or equivalent regulations of an Agreement State.

23. Radioactive waste generated shall be stored in accordance with the statements, representations, and procedures included with the waste storage plan described in the licensee's letter/application dated September 9, 1993 and October 29, 1993.

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License Number
08-01738-02

Docket or Reference Number
030-01317

Amendment No. 75

24. Notwithstanding the requirements of 10 CFR 35.315(a)(7), the licensee may control contamination in rooms used to house radiopharmaceutical therapy patients in accordance with the commitments and procedures contained in the letters dated April 8, 1992 and November 24, 1992.

25. 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, except for minor changes in the medical use radiation safety procedures as provided in 10 CFR 35.31. The U.S. 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 January 21, 1993
B. Letter dated September 9, 1993
C. Letter dated October 29, 1993
D. Letter dated December 9, 1993
E. Letter dated February 15, 1994
F. Letter dated June 2, 1994
G. Letter dated December 6, 1996

For the U.S. Nuclear Regulatory Commission

Date January 8, 2003

By ***Original signed by Elizabeth Ullrich***

Elizabeth Ullrich
Nuclear Materials Safety Branch 2
Division of Nuclear Materials Safety
Region I
King of Prussia, Pennsylvania 19406

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PENNSYLVANIA 19406-1415

May 26, 2004

Docket No. 03001317 License No. 08-01738-02
Control No. 133540

LTC John R. Mercier, Ph.D.
Medical Service
Chief, Health Physics
Department of the Army
Walter Reed Army Medical Center
MCHL-HP/Health Physics Office
Building 41, Room 38
Washington, DC 203075001

SUBJECT: DEPARTMENT OF THE ARMY, APPLICATION FOR LICENSING ACTION, CONTROL NO. 133540

Dear LTC Mercier:

This refers to your license amendment request. Enclosed with this letter is the amended license. Building 40 may be released for unrestricted use.

Please review the enclosed document carefully and be sure that you understand and fully implement all the conditions incorporated into the amended license. If there are any errors or questions, please notify the U.S. Nuclear Regulatory Commission, Region I Office, Licensing Assistance Team, (610) 337-5239, so that we can provide appropriate corrections and answers.

In accordance with 10 CFR 2.790, a copy of this letter will be placed in the NRC Public Document Room and will be accessible from the NRC Web site at http://www.nrc.gov/reading-rm.html.

Thank you for your cooperation.

Sincerely,

Original signed by James P. Dwyer

James P. Dwyer
Senior Health Physicist
Nuclear Materials Safety Branch 1
Division of Nuclear Materials Safety

Enclosure:
Amendment No. 76

mm/19

NMSS/RGNI MATERIALS-001

ML041170403

DOCUMENT NAME: G:\Docs\Current\Lic Cvr Letter\L08-01738-02.133540.wpd 72642101

To receive a copy of this document, indicate in the box: "C" = Copy w/o attach/encl "E" = Copy w/ attach/encl "N" = No copy

OFFICE	DNMS/RI	N	DNMS/RI		DNMS/RI			
NAME	JDwyer							
DATE	5/26/4							

OFFICIAL RECORD COPY

NRC FORM 374 U.S. NUCLEAR REGULATORY COMMISSION PAGE 1 OF 7 PAGES

Amendment No. 76

Duplicate ▪ Duplicate ▪ Duplicate

MATERIALS LICENSE

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, 36, 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	In accordance with the letter dated August 13, 2003
1. Department of the Army Walter Reed Army Medical Center (WRAMC)	3. License number 08-01738-02 is amended in its entirety to read as follows:
2. Washington, D.C. 20307-5001	4. Expiration date June 30, 2004
	5. Docket No. 030-01317 Reference No.

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. Phosphorus 32	E. Any	E. 2 curies
F. Carbon 14	F. Any	F. 2 curies
G. Iodine 125	G. Any	G. 1 curie Ex 2
H. Iridium 192	H. Any	H. [–
I. Chromium 51	I. Any	I. 750 millicuries
J. Sulfur 35	J. Any	J. 1 curie
K. Hydrogen 3	K. Any	K. 5 curies
L. Molybdenum 99	L. Molybdenum 99/ Technetium 99m Generators	L. 23 curies

Duplicate ▪ Duplicate ▪ Duplicate

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License Number
08-01738-02

Docket or Reference Number
030-01317

Amendment No. 76

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
M. Technetium 99m	M. Any	M. 23 curies
N. Strontium 90	N. Sealed sources	N.
O. Cesium 137	O. Sealed sources	O.
P. Gadolinium 153	P. Sealed sources	P.
Q. Iodine 125	Q. Sealed sources (3M Company seeds)	Q. 1 curie
R. Iodine 125	R. Sealed sources (Norland Inst. Co., Model 178A591A or AECL Models C235 or C324, or Amersham Corp. Model IMC.P2)	R. 4 sources, not to exceed 300 millicuries each
S. Cesium 137	S. Sealed sources	S.
T. Cobalt 60	T. Sealed sources	T.
U. Americium 241	U. Any	U. 100 microcuries
V. Americium 241	V. Sealed sources	V.
W. Nickel 63	W. Sealed sources and foils	W. 1 curie
X. Iodine 129	X. Sealed sources	X. 1 curie
Y. Thorium	Y. Any	Y. 5 kilograms
Z. Uranium	Z. Any	Z. 50 kilograms
AA. Cesium 137	AA. Sealed sources	AA.
BB. Americium 241	BB. Sealed sources	BB.

Ex 2 portions

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License Number
08-01738-02
Docket or Reference Number
030-01317
Amendment No. 76

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
CC. Paladium 103	CC.Sealed sources	CC. 3 curies
DD. Iridium 192	DD. Sealed sources	DD. [redacted] Ex 2
EE. Uranium depleted in Uranium 235	EE. Plated Metal	EE. 400 Kilograms

9. Authorized use:

A. through DD. Medical diagnosis, therapy and research in humans in accordance with any applicable Food and Drug Administration (FDA) requirements. Research and development as defined in 10 CFR 30.4, including animal studies; instrument calibration; student instruction.

EE. Shielding in linear accelerators.

CONDITIONS

10. Licensed material may be used only at the licensee's facilities located at the Walter Reed Army Medical Center, Washington, D. C.; WRAMC Forest Glen Section and Annex, Silver Spring, Maryland; U.S. Army Medical Laboratory, WRAMC Department of Pathology, Fort Meade, Maryland; Rickman Building, 13 Taft Court, Rockville, Maryland and Gillette Building, 270 Research Center, 1413 Research Boulevard, Rockville, Maryland.

11. A. Licensed material shall be used by, or under the supervision of, individuals designated in writing by the Radiation Safety Committee, Colonel Thomas M. Fitzpatrick, Chairperson.

B. The use of licensed material in or on humans shall be by a physician, dentist, or podiatrist as defined in 10 CFR 35.2.

C. Physicians, dentists, or podiatrists designated to use licensed material in or on humans shall meet the training criteria established in 10 CFR 35, Subpart J and shall be designated in writing by the licensee's Radiation Safety Committee.

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License Number
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D. Individuals designated to work as medical physicists for intravascular brachytherapy shall meet the training and experience criteria established in 10 CFR 35.961; or be named on a current U.S. Nuclear Regulatory Commission or Agreement State license, or a permit issued under a broad scope license as a medical physicist; and shall be designated, in writing, by the Radiation Safety Committee. In addition, the physicist must meet the recentness of training requirement in 10 CFR 35.972 and have recent, device-specific training and experience for each make and model of intravascular brachytherapy device used by the licensee.

E. The Radiation Safety Officer for this license is Lieutenant Colonel John R. Mercier.

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14. A. 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 the foil temperatures from exceeding that specified in the certificate of registration referred to in 10 CFR 32.210.

B. When in use, detector cells containing a titanium tritide foil or a scandium tritide foil shall be vented to the outside.

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16. A. Sealed sources and detector cells containing licensed material shall be tested for leakage and/or contamination at intervals not to exceed six months or at such other intervals as are specified by the certificate of registration referred to in 10 CFR 32.210, not to exceed three years.

B. Notwithstanding Paragraph A of this Condition, sealed sources designed to emit alpha particles shall be tested for leakage and/or contamination at intervals not to exceed three months.

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License Number
08-01738-02
Docket or Reference Number
030-01317
Amendment No. 76

C. In the absence of a certificate from a transferor indicating that a leak test has been made within six months prior to the transfer, a sealed source or detector cell received from another person shall not be put into use until tested.

D. Each sealed source fabricated by the licensee shall be inspected and tested for construction defects, leakage, and contamination prior to any use or transfer as a sealed source.

E. Sealed sources and detector cells need not be leak tested if:

(i) they contain only hydrogen-3; or

(ii) they contain only a radioactive gas; or

(iii) the half-life of the isotope is 30 days or less; or

(iv) they contain not more than 100 microcuries of beta and/or gamma emitting material or not more than 10 microcuries of alpha emitting material; or

(v) they are not designed to emit alpha particles, are in storage, and are not being used. However, when they are removed from storage for use or transfer to another person, and have not been tested within the required leak test interval, they shall be tested before use or transfer. No sealed source or detector cell shall be stored for a period of more than 10 years without being tested for leakage and/or contamination.

F. The test shall be capable of detecting the presence of 0.005 microcurie of radioactive material on the test sample. If the test reveals the presence of 0.005 microcurie or more of removable contamination, a report shall be filed with the U.S. Nuclear Regulatory Commission and the source or detector cell shall be removed immediately from service and decontaminated, repaired, or disposed of in accordance with Commission regulations. The report shall be filed within five days of the date the leak test result is known with the U.S. Nuclear Regulatory Commission, Region I, ATTN: Chief, Nuclear Materials Safety Branch, 475 Allendale Road, King of Prussia, Pennsylvania 19406. The report shall specify the source or detector cell involved, the test results, and corrective action taken.

G. The licensee is authorized to collect leak test samples for analysis by the licensee. Alternatively, tests for leakage and/or contamination may be performed by persons specifically licensed by the Commission or an Agreement State to perform such services.

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License Number
08-01738-02
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Amendment No. 76

17. Sealed sources or detector cells containing licensed material shall not be opened or sources removed from source holders by the licensee.

18. The licensee is authorized to hold radioactive material with a physical half-life of less than 65 days and Sulfur 35, Cobalt 58, Iridium 192, Scandium 46, for decay-in-storage before disposal in ordinary trash, provided:

    A. Waste to be disposed of in this manner shall be held for decay a minimum of ten half-lives.

    B. Before disposal as ordinary trash, the waste shall be surveyed at the container surface with the appropriate survey instrument set on its most sensitive scale and with no interposed shielding to determine that its radioactivity cannot be distinguished from background. All radiation labels shall be removed or obliterated.

    C. A record of each such disposal permitted under this License Condition shall be retained for three years. The record must include the date of disposal, the date on which the byproduct material was placed in storage, the radionuclides disposed, the survey instrument used, the background dose rate, the dose rate measured at the surface of each waste container, and the name of the individual who performed the disposal.

19. The licensee shall possess and use byproduct material for human research in accordance with the prescriptive and performance criteria in all sections of 10 CFR Part 35 except sections 35.49(a) and (b), 35.100, 35.200, and 35.300.

20. Experimental animals, or the products from experimental animals, that have been administered licensed materials shall not be used for human consumption.

21. The licensee is authorized to transport licensed material in accordance with the provisions of 10 CFR Part 71, "Packaging and Transportation of Radioactive Material."

22. The licensee shall not acquire licensed material in a sealed source or device unless the source or device has been registered with the U.S. Nuclear Regulatory Commission pursuant to 10 CFR 32.210 or equivalent regulations of an Agreement State.

23. Radioactive waste generated shall be stored in accordance with the statements, representations, and procedures included with the waste storage plan described in the licensee's letter/application dated September 9, 1993 and October 29, 1993.

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License Number
08-01738-02
Docket or Reference Number
030-01317
Amendment No. 76

24. Notwithstanding the requirements of 10 CFR 35.315(a)(7), the licensee may control contamination in rooms used to house radiopharmaceutical therapy patients in accordance with the commitments and procedures contained in the letters dated April 8, 1992 and November 24, 1992.

25. 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, except for minor changes in the medical use radiation safety procedures as provided in 10 CFR 35.31. The U.S. 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 January 21, 1993
B. Letter dated September 9, 1993
C. Letter dated October 29, 1993
D. Letter dated December 9, 1993
E. Letter dated February 15, 1994
F. Letter dated June 2, 1994
G. Letter dated December 6, 1996
H. Letter dated August 13, 2003

For the U.S. Nuclear Regulatory Commission

Date May 26, 2004

By ***Original signed by James P. Dwyer***

James P. Dwyer
Nuclear Materials Safety Branch 1
Division of Nuclear Materials Safety
Region I
King of Prussia, Pennsylvania 19406

DEPARTMENT OF THE ARMY
WALTER REED ARMY MEDICAL CENTER
6900 GEORGIA AVE NW
WASHINGTON DC 20307-5001

REPLY TO
ATTENTION OF:
Office of the Deputy Commander
for Clinical Services

L-5

U.S. Nuclear Regulatory Commission
Region I
ATTN: Nuclear Materials Safety Branch
475 Allendale Road
King of Prussia, PA 19406-1415

03001317
X (RENEW)

Dear Sir or Madam:

Enclosed is the Walter Reed Army Medical Center NRC broad scope license 10-year renewal application (Form 313 with attachments). Our current license, No. 08-01738-02, is set to expire on 30 June 2004. Hence, this application is hereby rendered within the 30-day timeliness rule.

Please note that the renewal application for the broad scope license includes provisions to absorb our irradiator license, No. 08-01738-03. Our intent is to consolidate both licenses. 08-01738-02 (AMEND) 03001317] 135458
135048 (TERM) 03006895 [

Your point of contact for this Command is Lieutenant Colonel John Mercier, Ph.D., (202) 356-0058.

Sincerely,

Thomas M. Fitzpatrick
Colonel, Medical Corps
Deputy Commander for Clinical Services

Enclosure

Copy Furnished:
Headquarters, US Army Medical Command, ATTN: POPM-SA, Fort Sam Houston, TX 78234.

135458 mmb0

NMSS/RGN1 MATERIALS-002
SEPARATED OUT OF 135047 8/10/2004

NRC FORM 313 (4-2004) 10 CFR 30, 32, 33, 34, 35, 36, 39, and 40

U.S. NUCLEAR REGULATORY COMMISSION

APPLICATION FOR MATERIAL LICENSE

APPROVED BY OMB: NO. 3150-0120 EXPIRES: 10/31/2005

Estimated burden per response to comply with this mandatory collection request: 7 hours. Submittal of the application is necessary to determine that the applicant is qualified and that adequate procedures exist to protect the public health and safety. Send comments regarding burden estimate to the Records and FOIA/Privacy Services Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0120), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

INSTRUCTIONS: SEE THE APPROPRIATE LICENSE APPLICATION GUIDE FOR DETAILED INSTRUCTIONS FOR COMPLETING APPLICATION. SEND TWO COPIES OF THE ENTIRE COMPLETED APPLICATION TO THE NRC OFFICE SPECIFIED BELOW.

APPLICATION FOR DISTRIBUTION OF EXEMPT PRODUCTS FILE APPLICATIONS WITH:

DIVISION OF INDUSTRIAL AND MEDICAL NUCLEAR SAFETY
OFFICE OF NUCLEAR MATERIALS SAFETY AND SAFEGUARDS
U.S. NUCLEAR REGULATORY COMMISSION
WASHINGTON, DC 20555-0001

ALL OTHER PERSONS FILE APPLICATIONS AS FOLLOWS:

IF YOU ARE LOCATED IN:

ALABAMA, CONNECTICUT, DELAWARE, DISTRICT OF COLUMBIA, FLORIDA, GEORGIA, KENTUCKY, MAINE, MARYLAND, MASSACHUSETTS, MISSISSIPPI, NEW HAMPSHIRE, NEW JERSEY, NEW YORK, NORTH CAROLINA, PENNSYLVANIA, PUERTO RICO, RHODE ISLAND, SOUTH CAROLINA, TENNESSEE, VERMONT, VIRGINIA, VIRGIN ISLANDS, OR WEST VIRGINIA, SEND APPLICATIONS TO:

LICENSING ASSISTANCE TEAM
DIVISION OF NUCLEAR MATERIALS SAFETY
U.S. NUCLEAR REGULATORY COMMISSION, REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PA 19406-1415

IF YOU ARE LOCATED IN:

ILLINOIS, INDIANA, IOWA, MICHIGAN, MINNESOTA, MISSOURI, OHIO, OR WISCONSIN, SEND APPLICATIONS TO:

MATERIALS LICENSING BRANCH
U.S. NUCLEAR REGULATORY COMMISSION, REGION III
2443 WARRENVILLE ROAD, SUITE 210
LISLE, IL 60532-4352

ALASKA, ARIZONA, ARKANSAS, CALIFORNIA, COLORADO, HAWAII, IDAHO, KANSAS, LOUISIANA, MONTANA, NEBRASKA, NEVADA, NEW MEXICO, NORTH DAKOTA, OKLAHOMA, OREGON, PACIFIC TRUST TERRITORIES, SOUTH DAKOTA, TEXAS, UTAH, WASHINGTON, OR WYOMING, SEND APPLICATIONS TO:

NUCLEAR MATERIALS LICENSING BRANCH
U.S. NUCLEAR REGULATORY COMMISSION, REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TX 76011-4005

03001317

PERSONS LOCATED IN AGREEMENT STATES SEND APPLICATIONS TO THE U.S. NUCLEAR REGULATORY COMMISSION ONLY IF THEY WISH TO POSSESS AND USE LICENSED MATERIAL IN STATES SUBJECT TO U.S. NUCLEAR REGULATORY COMMISSION JURISDICTIONS.

1. THIS IS AN APPLICATION FOR *(Check appropriate item)*
   - [ ] A. NEW LICENSE
   - [ ] B. AMENDMENT TO LICENSE NUMBER
   - [x] C. RENEWAL OF LICENSE NUMBER 08-01738-02

2. NAME AND MAILING ADDRESS OF APPLICANT *(Include ZIP code)*
   Department of The Army
   Walter Reed Army Medical Center
   Attn: Commanding Officer
   6900 Georgia Ave., NW
   Washington, DC 20307-5001

3. ADDRESS WHERE LICENSED MATERIAL WILL BE USED OR POSSESSED
   SEE ITEM #3 ATTACHMENT

4. NAME OF PERSON TO BE CONTACTED ABOUT THIS APPLICATION
   LTC John Mercier, Ph,D., RSO

   TELEPHONE NUMBER
   (202) 356-0058

SUBMIT ITEMS 5 THROUGH 11 ON 8-1/2 X 11" PAPER. THE TYPE AND SCOPE OF INFORMATION TO BE PROVIDED IS DESCRIBED IN THE LICENSE APPLICATION GUIDE.

5. RADIOACTIVE MATERIAL
   a. Element and mass number; b. chemical and/or physical form; and c. maximum amount which will be possessed at any one time.

6. PURPOSE(S) FOR WHICH LICENSED MATERIAL WILL BE USED.

7. INDIVIDUAL(S) RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR TRAINING EXPERIENCE.

8. TRAINING FOR INDIVIDUALS WORKING IN OR FREQUENTING RESTRICTED AREAS.

9. FACILITIES AND EQUIPMENT.

10. RADIATION SAFETY PROGRAM.

11. WASTE MANAGEMENT.

12. LICENSE FEES *(See 10 CFR 170 and Section 170.31)* 10CFR170(a)(5)
    FEE CATEGORY 7B | AMOUNT ENCLOSED $ EXEMPT

13. CERTIFICATION. *(Must be completed by applicant)* THE APPLICANT UNDERSTANDS THAT ALL STATEMENTS AND REPRESENTATIONS MADE IN THIS APPLICATION ARE BINDING UPON THE APPLICANT.

THE APPLICANT AND ANY OFFICIAL EXECUTING THIS CERTIFICATION ON BEHALF OF THE APPLICANT, NAMED IN ITEM 2, CERTIFY THAT THIS APPLICATION IS PREPARED IN CONFORMITY WITH TITLE 10, CODE OF FEDERAL REGULATIONS, PARTS 30, 32, 33, 34, 35, 36, 39, AND 40, AND THAT ALL INFORMATION CONTAINED HEREIN IS TRUE AND CORRECT TO THE BEST OF THEIR KNOWLEDGE AND BELIEF.

WARNING: 18 U.S.C. SECTION 1001 ACT OF JUNE 25, 1948 62 STAT. 749 MAKES IT A CRIMINAL OFFENSE TO MAKE A WILLFULLY FALSE STATEMENT OR REPRESENTATION TO ANY DEPARTMENT OR AGENCY OF THE UNITED STATES AS TO ANY MATTER WITHIN ITS JURISDICTION.

CERTIFYING OFFICER – TYPED/PRINTED NAME AND TITLE	SIGNATURE	DATE
Thomas M. Fitzpatrick, M.D., DEPUTY CDR FOR CLIN. SVCS.		21 May 04

FOR NRC USE ONLY

TYPE OF FEE	FEE LOG	FEE CATEGORY	AMOUNT RECEIVED	CHECK NUMBER	COMMENTS
			$		
APPROVED BY				DATE	135047

ITEM #3 ATTACHMENT
ADDRESSES WHERE LICENSED MATERIAL WILL BE USED OR POSSESSED

Walter Reed Army Medical Center (WRAMC), Washington, D.C.; WRAMC Forest Glen Section and Annex, Silver Spring, Maryland; U.S. Army Medical Laboratory, Fort Meade, Maryland; Rickman Building, 13 Taft Court, Rockville, Maryland; and The Gillette Building, 1413 Research Boulevard, Rockville, Maryland.

ITEMS #5 and #6 ATTACHMENT
RADIOACTIVE MATERIAL and
PURPOSES FOR WHICH LICENSED MATERIAL WILL BE USED

CHEMICAL AND MASS NUMBER	CHEMICAL AND PHYSICAL FORM	MAXIMUM ACTIVITY	AUTHORIZED USE
A. Any byproduct Material with atomic numbers 3-83	A. Any	A. 400 mCi of each radionuclide with a total possession limit of 26 curies	A. Through R. Medical research, diagnosis, and therapy; research and development as defined in 10 CFR 30.4; instrument calibration; teaching and training
B. Any byproduct Material with atomic numbers 84-96	B. Any	B. 100 mCi of each radionuclide with a total possession limit of 1 curie	
C. Iodine 131	C. Any	C. 2 curies	
D. Xenon 133	D. Any	D. 2 curies	
E. Krypton 85	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. 1 curie	
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	R. 500 mCi	

Ex 2 portions

CHEMICAL AND MASS NUMBER	CHEMICAL AND PHYSICAL FORM	MAXIMUM ACTIVITY	AUTHORIZED USE
S. Cesium 137	S. Sealed sources	S.	S. through V. Research and development as defined in 10 CFR 30.4; instrument calibration; teaching and training
U. Thorium	U. Any	U. 5 kgms	
V. Uranium	V. Any	V. 50 kgms	
W. Uranium depleted in Uranium 235	W. Plated metal	W. 900 kgms	W. Shielding; instrument calibration; teaching and training
X. Americium 241	X. Sealed source	X.	X. Standard and reference source; instrument calibration; teaching and training
Y. Cesium 137	Y. Sealed sources	Y.	Y. Instrument calibration; teaching and training
Z. Cesium 137	Z. Sealed sources	Z. per source with a total possession limit of	Z. through BB. Self-shielded irradiators for use as described in respective SSD registration certificates
AA. Cesium 137	AA. Sealed sources	AA. per source with a total possession limit of	
BB. Cobalt 60	BB. Sealed sources	BB. per source with a total possession limit of	

The NRC recently completed a satisfactory review of our Financial Assurance Submittal with Statement of Intent and Decommissioning Funding Plan [Refer to NRC letter dated April 13, 2004, signed by the Chief of the Region I Nuclear Materials Safety Branch, NRC Control Nos. 132079 and 132080].

Ex 2 portions

ITEM #7 ATTACHMENT
INDIVIDUALS RESPONSIBLE FOR RADIATION SAFETY PROGRAM

1. A NRC Form 313A, curriculum vitae and copy of board certification for the Radiation Safety Officer (RSO), LTC John R. Mercier, Ph.D., is attached.

2. For human use (e.g., diagnosis, therapy and human studies), licensed material shall be used by or under the supervision of individuals designated by the Walter Reed Army Medical Center (WRAMC) Radiation Safety Committee (RSC). The training and experience of authorized users, authorized nuclear pharmacists, and authorized medical physicists will be evaluated using the criteria in 10 CFR 35. The RSC, with RSO approval, may grant case-by-case exceptions.

3. For non-human use (e.g., research and development), Principle Investigators and Co-Investigators who meet training and experience criteria expressed in NUREG 1556, Volume 7, Section 8.7.2 (December 1999), may be designated as authorized users by the RSO. The RSC, with RSO approval, may grant case-by-case exceptions.

4. For self-shielded irradiators, personnel who meet training and experience criteria expressed in NUREG 1556, Volume 5, Appendix G (October 1998), will be designated as authorized users by the RSO. The RSC, with RSO approval, may grant case-by-case exceptions.

5. 10CFR35.24(c) Waiver. To meet military operational contingencies, support homeland security missions, or support national security objectives, the RSO may be sent on extended deployments (60 to 180 days) without warning. The RSO need not be present as long as communications between the RSO and WRAMC management can be maintained (e.g., phone, email, video teleconferencing, etc.). In such cases, the RSC will designate an acting RSO who meets the training and experience criteria in 10CFR35. Since WRAMC has sufficient depth in authorized users and professional health physics staff, the RSO can ensure that one or more authorized users or staff health physicists are fully qualified to serve as acting RSO via a signed preceptor statement (NRC 313A). In the event communications cannot be maintained, 10CFR35.24(c) will apply starting from the time that communications fail.

6. Except for appointment of a permanent RSO, the RSC maintains authority for designating the responsible radioactive material users (i.e., authorized users, authorized medical physicists, and authorized nuclear pharmacists). The criterion used by the RSC in approving users is taken from the appropriate NUREG 1556 series. As well, RSO approval is required.

7. The RSC also controls it's own membership to allow for personnel turnover, as well as, gains and losses in functional use of radioactive material. The majority of members are trained and experienced in the safe use of radioactive material. The minimum voting membership of the RSC tends to be the Deputy Commander for Clinical Services (DCCS, Chair and Management Rep), the RSO, a staff health physicist, a staff radiation therapy physicist, a nuclear pharmacy representative, a nuclear medicine representative, a nursing representative, a Walter Reed Army Institute of Research (WRAIR) representative and an Armed Forces Institute of Pathology (AFIP) representative. A quorum requires at least half the voting members, of which, the RSO, the nursing representative and the DCCS (or his management substitute) must attend.

ITEM #8 ATTACHMENT
TRAINING FOR INDIVIDUALS WORKING IN OR FREQUENTING RESTRICTED AREAS

The radiation safety training program is managed by the WRAMC Health Physics Office and is designed to ensure compliance with 10CFR 19, 20, 30 and 35. Workers likely to receive an annual occupational dose in excess of 1 mSv (100 mrem) receive initial and refresher training commensurate with their duties. To ensure the training is tailored for different audiences and/or targeted for site-specific functions, the Health Physics staff often refines radiation safety lectures and training materials. However, research staffs receive training that generally follows NUREG 1556, Volume 7, Appendix J (December 1999) and medical staffs receive training that generally follows NUREG 1556, Volume 9, Appendix J (October 2002). The RSO maintains authority to approve changes to the radiation safety training program. The radiation safety training program may be examined in detail during routine NRC inspections.

ITEM #9 ATTACHMENT
FACILITIES AND EQUIPMENT

1. Irradiators. WRAMC will ensure that each area where a self-shielded irradiator is located corresponds to the 'Conditions of Normal Use' and 'Limitations and/or Other Considerations of Use' on the respective irradiator Sealed Source and Device (SSD) Registration Certificate; the floor beneath each self-shield irradiator is adequate to support the weight of the irradiator; each self-shielded irradiator is secured to prevent unauthorized access or removal; and each area where a self-shielded irradiator is located is equipped with an automatically operated fire detection and control system (sprinkler, chemical, or gas) or the location of the area and other controls ensure a low-level radiation risk attributable to fires. Currently, the self-shielded irradiators are located as follows:

A. WRAMC Building 2, 6900 Georgia Ave., Washington, D.C.

B. Building 503 (WRAIR), Forrest Glen Annex, Silver Spring, MD.

C. Building 503 (WRAIR), Forrest Glen Annex, Silver Spring, MD.

Procedures for routine maintenance of the self-shielded irradiators that follow manufacturer's written instructions are implemented and maintained. Non-routine maintenance is only performed by the irradiator manufacturer or by other persons authorized by the NRC or an Agreement State.

2. Facilities. The Radiation Safety Committee (RSC) maintains authority for approving radioactive material use, storage and waste facilities. Facilities are evaluated on their adequacy to protect health and minimize danger to life and property IAW 10CFR 30.33(a)(2) and 35.18(a)(3). As appropriate, the RSC considers factors such as ALARA design, planned use of facility, type and quantity of radioactive material, protective equipment, access control, contamination control, ventilation, filtration, shielding, alarms and radiation monitoring instruments when evaluating a facility for licensed activities. Isotope laboratories and use areas tend to have impervious floors, walls and countertops. Facility diagrams are attached for the Radiopharmacy Hot Lab, and the Radiation Therapy Sealed Source Storage Room, Building 2, WRAMC. Additional laboratory and facility diagrams may be examined during routine NRC inspections.

3. Instruments. To ensure compliance with 10CFR 20 and 35 requirements, WRAMC maintains a variety of radiation monitoring and survey instruments, as well as, gamma well counters and liquid scintillation counters. Radiation monitoring instruments will be calibrated by the manufacturer or other appropriately qualified person, business or agency. Additionally, WRAMC reserves the right to develop and implement survey meter calibration procedures compliant with 10CFR 20.1501 and 35.61. The RSO maintains authority for amending instrument specifications and the calibration program.

4. Dose Calibrators. Equipment used to measure dosages will be calibrated IAW nationally recognized standards or the manufacturer's instructions.

Ex 2

ITEM #10 ATTACHMENT
RADIATION SAFETY PROGRAM

1. Audit Program. In accordance with 10CFR 20.1101, the RSO evaluates, or arranges for guest auditors to evaluate, the radiation safety program at least once a year. Executive management and the RSC are briefed on the results of each audit. Audit findings are addressed and tracked to resolution by the RSO and/or the RSC. The RSO maintains authority for amending the audit program.

2. Material Receipt and Accountability. In accordance with 10CFR 20, 30 and 33, WRAMC has established cradle-to-grave tracking of radioactive materials. For non-exempt sealed sources, physical inventories are conducted at least every six months.

3. Occupational Dose. Occupational doses at WRAMC have been tracked for many years and are well known for the various occupational groups. Unmonitored workers are not likely to exceed 10% the allowable annual limits specified in 10CFR 20. Externally dosed workers specified by 10CFR 20.1502(a) will enter the dosimetry program and receive an extremity and/or whole body dosimeter. Internally dosed workers specified by 10CFR 20.1502(b) will enter the dosimetry program and be assessed for internal uptake via bioassay. Dosimetry services, currently provided by the Army, are NVLAP accredited.

4. Area Surveys. WRAMC has developed and implemented written procedures for area surveys IAW 10CFR 20.1101 that meets the requirements of 10CFR 20.1501 and 35.70.

5. Safe Use of Unsealed Radioactive Material. WRAMC has developed and implemented written procedures for safe use of unsealed licensed material that meets the requirements of 10CFR 20.1101 and 20.1301.

6. Spill Procedures. WRAMC has developed and implemented written procedures for safe response to spills of licensed material that meets the requirements of 10CFR 20.1101

7. Leak Tests. WRAMC has developed and implemented written procedures for leak tests that meet the requirements of 10CFR 20 and 35.67.

ITEM #11 ATTACHMENT
WASTE MANAGEMENT

1. Procedures. WRAMC has developed and implemented written waste disposal procedures for licensed material IAW 10CFR 20.1101, that also meet to applicable section of Subpart K to 10CFR 20 and 10CFR 35.92. Disposal of the licensed material in the irradiators will be by transfer of the irradiators to the supplier or to a licensee authorized to accept the irradiators.

2. Facility. Attached is a diagram of the Radioactive Waste Facility, Building Forrest Glen Annex. Solid waste is shipped from this facility, liquid waste is sampled for release to the sewer from this facility, and short-lived waste is decayed and released at this facility. The building was originally designed, built and operated as a research reactor facility (decommissioned in 1979) with low vulnerability to hazards. The brick and concrete building is secured with locked metal doors, perimeter fence and locked gate. It has a forced circulation air system, heating and cooling system, alarm system, walk-in freezer, fire hydrant, and fire extinguisher.

ITEMS #7 THROUGH #11
RADIATION SAFETY COMMITTEE BROAD SCOPE FLEXIBILTY

1. Except for NRC approval of the RSO, the Radiation Safety Committee (RSC) intends to continue to assume full decision and approval authority for all aspects of the broad scope license and radiation safety program. WRAMC has a long history of NRC compliance excellence and this, in part, is a result of the RSC having the authority to promptly address reach closure on issues that would otherwise enter a license amendment process. Under this renewal of the broad scope license, the WRAMC RSC requests continued flexibility by remaining exempt from submitting a multitude of license amendments related to Items #7 through #11. The criteria the RSC will use to approve new users, new procedures, new facilities and so forth, is the following:

A. The RSC decision must not be a detriment to safety, health, or the environment.

B. The criteria provided in the NUREG 1556 Series (e.g., Volumes 5, 7, 9 & 11), 10CFR20 through 10CFR35, NRC Information Notices, ANSI standards, or other appropriate references will serve a basis for the RSC's approval or disapproval decisions.

C. For all RSC decisions that directly affect the Radiation Safety Program, to include approval of radioactive material users, the RSO must be in agreement.

2. The RSC may also defer full decision authority for selected topics to the RSO. These are topics or programs that are exclusively, or nearly exclusively, the management purview of the RSO. For example, the RSO will maintain authority to approve changes to the radiation safety training program, for amending instrument specifications, and for amending the audit program.

NRC FORM 313A
(8-1999)

U.S. NUCLEAR REGULATORY COMMISSION

TRAINING AND EXPERIENCE

Note: Descriptions of training and experience must contain sufficient detail to match the training and experience criteria in the application regulations.

1. Name of Individual, Proposed Authorization (e.g. Radiation Safety Officer), and Applicable Training Requirements (e.g., 10CFR 35.50)

LTC JOHN R. MERCIER, PH.D., PE, DABR, SRO

2. For Physicians, State or Territory Where Licensed

3. CERTIFICATION

Specialty Board	Category	Month and Year Certified
American Board of Radiology	Diagnostic Radiological and Medical Nuclear Physics	June, 1995
Professional Engineer (Texas)	Nuclear Engineering License	March, 1995

4. DIDACTIC TRAINING

Description of Training	Location	Clock Hours	Dates of Training
Radiation Physics and Instrumentation	University of Texas at Austin	300	Sep 81 – Dec 84
	Cornell University, NY	300	Aug 89 – May 91
	Univ. of Texas Health Science Center	550	Aug 96 – Aug 99
Radiation Protection	University of Texas at Austin	50	Sep 81 – Dec 84
	Cornell University, NY	100	Aug 89 – May 91
	Univ. of Texas Health Science Center	150	Aug 96 – Aug 99
Mathematics Pertaining to the Use and Measurement of Radioactivity	University of Texas at Austin	200	Sep 81 – Dec 84
	Cornell University, NY	150	Aug 89 – May 91
	Univ. of Texas Health Science Center	100	Aug 96 – Aug 99
Radiation Biology	University of Texas at Austin	50	Sep 81 – Dec 84
	Cornell University, NY	150	Aug 89 – May 91
	Univ. of Texas Health Science Center	150	Aug 96 – Aug 99
Chemistry of Byproduct Material for Medical Use	Univ. of Texas Health Science Center	100	Aug 96 – Aug 99
Radiation Dosimetry	University of Texas at Austin	50	Sep 81 – Dec 84
	Cornell University, NY	150	Aug 89 – May 91
	Univ. of Texas Health Science Center	150	Aug 96 – Aug 99

5. PRACTICAL EXPERIENCE WITH RADITION (Actual use of radionuclides or equivalent experience)

Description of Experience	Name of Supervising Individual	Location and Corresponding Material License Number	Dates and Clock Hours of Experience	Related Radiation Safety Exam Score
Nuclear Medical Science Officer, U.S. Army Environmental Hygiene Agency. Radiation protection, dosimetry and calibration duties for: Any byproduct material with atomic no.'s 1 – 84, any form, not to exceed 800 mCi each or 10 Ci total. Any byproduct material with atomic no.'s 1 – 100, any form, not to exceed 15 uCi each or 500 uCi total. J.L Shepard Cs-137 sealed 130 mCi calibration source. Various plutonium and uranium sources.	LTC Eugene Potter, CHP	Aberdeen Proving Ground, MD USNRC Licenses: #19-09880-01, #SMB-707and #SNM-860	Jan 85 – Dec 85 (900 hours)	N/A
Radiation Safety Officer, Darnall Army Community Hospital. Radiation protection, dosimetry radioactive waste management, health physics program management and calibration duties for: Any byproduct material with atomic no.'s 1 – 83 for use as radiopharmaceuticals in diagnosis and therapy. Various calibration sources.	MAJ Jerome Karwacki,M.D.	Fort Hood, TX USNRC License #42-19113-01	Jan 86 – Dec 88 (6000 hours)	N/A
Graduate Student, Cornell University. Senior reactor operator for TRIGA reactor, with 10^{14} neutron flux in core and 10^{12} neutron flux at beam ports. Gamma cell operator with 10 MCi Co-60 irradiation source.	Dr. K. Bingham Cady, Sc.D.	Ithaca, NY USNRC License #SOP-10973	Aug 89 - May 91 (1000 hours)	N/A
Project Engineer, Defense Nuclear Agency Plutonium Mining Project. Spectroscopy, calibration and respiratory protection duties for a unique environmental restoration project. Various plutonium and americium samples and sources.	Dr. Ed Bramlitt, Ph.D.	Johnston Island, Pacific Ocean	Jun 91 – Jun 92 (1000 hours)	N/A
Radiation Safety Officer (Broad Scope), Tripler Army Medical Center. Radiation protection, dosimetry radioactive waste management, health physics program management and calibration duties for: Any byproduct material with atomic no.'s 1 – 83 for use as radiopharmaceuticals in diagnosis and therapy. J.L Shepard Cs-137 sealed 2200 Ci irradiation source. Various calibration sources.	COL Tom Cashman, M.D.	Honolulu, HI USNRC License #53-00458-04	Jun 92 – Jun 96 (8000 hours)	N/A
Doctoral Candidate, University of Texas Health Science Center. Various research and calibration sources.	Dr. Dave Kopp, Ph.D.		Aug 96 – Aug 99 (100 hours)	N/A
Nuclear Scientist, U.S. Army Nuclear and Chemical Agency. Scientific editor and contributing author to a North Atlantic Treaty Organization allied engineering publication on sampling and identification of radiological agents.	Dr. Chuck Davidson, Ph.D.		Aug 99 – Aug 02 (500 hours)	N/A

Radiation Safety Officer (Broad Scope), Walter Reed Army Medical Center. Manages one of the largest health physics programs in both breadth and depth in the United States. Program oversight for medical diagnostic and therapeutic uses; Cs-137 and Co-60 irradiators; equipment calibration; human and animal research; pharmaceutical research and development; and related biomedical applications. Other institutions operating under the WRAMC NRC licenses include the Walter Reed Army Institute of Research, the Naval Medical Research Command and the Armed Forces Institute of Pathology.	COL Dallas Hack, M.D.	Washington D.C. USNRC Licenses #08-01738-02 #08-01738-03	Sep 02 – present (3000 hours)	N/A

6. FORMAL TRAINING

Degree, Area of Study	Name of Program and Location with Corresponding Materials License Number	Dates	Name of Organization that Approved the Program (e.g., Accreditation Council for Graduate Medical Education) and the Applicable Regulation (e.g., 10 CFR 35.294)
B.E.S., Nuclear Engineering	University of Texas at Austin		ABET Accredited
M.Eng., Nuclear Engineering	Cornell University, NY		ABET Accredited
Ph.D., Radiological Physics	Univ. of Texas Health Science Center		CAMPEP Accredited

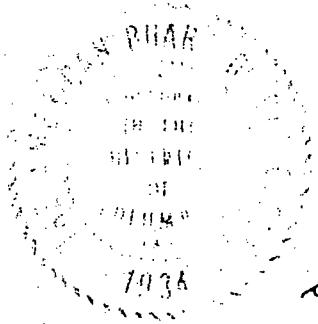
The American Board of Radiology

Organized through the cooperation of the
American College of Radiology, the American Roentgen Ray Society,
the American Radium Society, the Radiological Society of North America,
the Section on Radiology of the American Medical Association,
the American Society for Therapeutic Radiology and Oncology, the Association of
University Radiologists, and American Association of Physicists in Medicine
Hereby certifies that

John Rene Mercier, M.E.

Has pursued an accepted course of graduate study
and clinical work, has met certain standards and qualifications and
has passed the examinations conducted under the authority of
The American Board of Radiology
On this seventh day of June, 1995
Thereby demonstrating to the satisfaction of the Board
that he is qualified to practice the specialty of

Diagnostic Radiological and Medical Nuclear Physics



Douglas Maynard, M.D.
President

William Jennelle, M.D.
Secretary-Treasurer

M. Paul Capp, M.D.
Executive Director

LIEUTENANT COLONEL JOHN R. MERCIER, Ph.D., PE, DABR, SRO
Leader, U.S. Army Radiological Advisory Medical Team
Chief, Health Physics, Walter Reed Army Medical Center
Radiation Safety Officer, Walter Reed Army Medical Center
Radiation Safety Officer, North Atlantic Regional Medical Command
Chair, DoD Weapons of Mass Destruction Human Response Panel
Senior NATO Umpire, Operational and Forensic Sampling of Radiological Agents

Walter Reed Army Medical Center
6900 Georgia Ave., NW
Bldg 41, Room 38
Washington, D.C. 20307-5001
wk: (202) 356-0058
john.mercier@us.army.mil

FORMAL EDUCATION

Ex 6

Doctor of Philosophy (Radiological Physics), The University of Texas Health Science Center, San Antonio, Texas
Master of Engineering (Nuclear), Cornell University, Ithaca, New York,
Bachelor of Engineering Science (Nuclear), The University of Texas, Austin, Texas

PROFESSIONAL CREDENTIALS

Diplomate, American Board of Radiology, Dual Certified in Diagnostic Radiological Physics and Medical Nuclear Physics, DABR Physicist # P1779, 1995
Licensed Medical Physicist, Texas, # MP0402, 1995
Licensed Professional Nuclear Engineer, Texas PE Registration # 80363, 1995
Licensed Nuclear Plant Senior Reactor Operator, TRIGA Reactor, NRC License #SOP-10973, 1990
Certified Hazard Control Manager, International Board of Hazard Control Management, Master Certification # 2490, 1993
"A" Proficiency Designator – Professional credential awarded to recognized experts by the Surgeon General of the United States Army, 2003

AFFILIATIONS AND PROFESSIONAL MEMBERSHIPS

Member, Sigma Xi – The Scientific Research Society
Member, Tau Beta Pi – The National Engineering Honor Society
Member, American Nuclear Society
Member, Health Physics Society
Past President for Hawaii Chapter
Member, American Association of Physicists in Medicine
North Atlantic Treaty Organization (NATO):
Senior NATO Umpire, Land Group 7 Expert Subgroup on Sampling and Identification of Biological, Chemical and Radiological Agents
Past Head of U.S. Delegation, Expert Subgroup on Sampling and Identification of Radiological Agents
Past Member, Land Group 7 on Joint Nuclear, Biological and Chemical (NBC) Defense
Past Member, Land Group 7, Expert Working Group on Low-Level Radiation
Past Member, Operational NBC Working Group
Past Member, Medical NBC Working Party
Past Member, Task Group on Radiation Treatments and Countermeasures
The Technical Cooperation Program (TTCP) of the American, British, Canadian, and Australian (ABCA) Alliance:
Member, Technical Panel 13 on Radiation Hazards

Department of Defense:

Leader, U.S. Army Radiological Advisory Medical Team
Chair, DoD Weapons of Mass Destruction Human Response Panel
Lead Scientist, Special Weapons Operational Reconnaissance Detachment
Past Member, Nuclear Warfare Casualty Panel of Experts, Joint Readiness Clinical Advisory Board
Standing Member, DoD RADIAC Working Group
Member, Joint DoD/DOE Nuclear Weapon Accident Response Steering Group (NWARSG) and the NWARSG Technical Working Group

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Mercier, J. R., *Measurement and Monte Carlo Prediction of Diagnostic Tungsten X-Ray Spectra,* Ph.D. Dissertation, Graduate School of Biomedical Sciences, The University of Texas Health Science Center, San Antonio, TX, 1999. Available from UMI Dissertation Services, Ann Arbor, MI, 1999, UMI No. 9938769.

Seibert, J. A. (Chair), T. Bogucki, T. Ciona, J. Dugan, W. Huda, A. Karellas, **J. Mercier**, E. Samai, J. Sheppard, B. Stewart, O. Suleiman, D. Tucker, R. Uzenoff, J. Weiser, and C. Willis, *Acceptance Testing and Quality Control of Photostimulable Storage Phosphor Imaging Systems, Report of Task Group #10*, American Association of Physicists in Medicine, 1998.

Willis, C. E., **J. Mercier**, M. Patel, *Modification of Conventional Quality Assurance Procedures to Accommodate Computed Radiography*, Proceedings of the 13th Conference of Computer Applications in Radiology, Society for Computer Applications in Radiology, Denver, CO, 1996.

Mercier, J. R., and Bramlitt, E. T., *A Soil Cleanup on Johnston Atoll*, Proceedings of the First Symposium on Soil Cleanup in the Pacific Islands, American Society of Civil Engineers, Honolulu, HI, 1993.

Moroney, J. D., Johnson, N. R., Moroney, K. S., **Mercier, J. R.**, *An Improved Method for Removing Transuranics from Coral Soil at Johnston Atoll*, Proceedings of the 1992 Federal Environmental Restoration Conference, Hazardous Materials Control Resources Institute, Vienna, VA, 1992.

ABSTRACTS AND POSTERS

Mercier, J. R., The U.S. Army Radiological Advisory Medical Team, 6th Annual Force Health Protection Conference, Albuquerque, NM, August 11-17, 2003.

Liu, H. L., Y. Pu, T. Andrews, **J. Mercier**, P. T. Fox, and J.-H. Gao, Cerebral Blood Flow Measurement Using Adaptive Threshold for Singular Value Decomposition Technique on Dynamic Contrast Agent MR Perfusion Imaging, 7th Meeting of the International Society for Magnetic Resonance in Medicine, Philadelphia, PA, 1999.

Mercier, J. R., D. T. Kopp, D. M. Tucker, C. E. Willis and J. L. Lancaster, X-Ray Spectra Resolution Requirements for Characterization of Image Receptors, 84th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, Il, 1998.

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Willis, C. E., **J. R. Mercier**, M. G. Patel, Unresolved Issues in Computed Radiography, 38th Annual Meeting of the American Association of Physicists in Medicine, Medical Physics, 1996, 23(6), p.1076.

PROFESSIONAL AND LEADERSHIP EXPERIENCE

Chief, Health Physics 8/02 – present
Walter Reed Army Medical Center, Washington, D.C.

Lead the U.S. Army Radiological Advisory Medical Team (RAMT) in rapid response missions to save lives anywhere in the world. Chair the DoD Weapons of Mass Destruction Human Response Panel which is responsible for defining casualty criteria and developing casualty prediction models. Serve as executive agent and Radiation Safety Officer for broad-scope USNRC radioactive material and irradiator licenses (#'s 08-01738-02 and 08-01738-02). Direct comprehensive health physics services for world-renowned medical and research centers to include Walter Reed Army Institute of Research, the Armed Forces Institute of Pathology and Walter Reed Army Medical Center. Serve as regional Radiation and Laser Safety Officer and provide oversight and mission support services to Army medical facilities within the 21-state North Atlantic Regional Medical Command's umbrella of responsibility. Identify and train military scientists, as well as, develop test plans, techniques and procedures for the DoD Special Weapons Operational Reconnaissance Detachment (SWORD) in support of Combatant Commanders. Manage ~$500K annually and supervise 20 health physics professionals.

Nuclear Scientist 8/99 – 8/02
U.S. Army Nuclear and Chemical Agency, Springfield, VA

Served as primary consulting subject matter expert (SME) to Army Staff and other DoD/NATO/U.S. Government agencies on the medical effects of nuclear weapons and radiation. Set policy on friendly troop safety risk criteria and enemy personnel casualty criteria for nuclear weapons effects. Developed casualty estimation models for nuclear, biological and chemical (NBC) weapons. Served on numerous DoD and NATO SME panels for NBC research, operational doctrine and equipment development. Developed Army R&D requirements for radiobiology, biomedical technology and NBC operations. Served as Alternate Army Reactor Officer for the Army Reactor Office that maintains oversight of WSMR and APG fast burst reactors. Served on the Nuclear Employment Augmentation Team in support of Combatant Commanders.

Doctoral Student [redacted] Ex 6
The University of Texas Health Science Center, San Antonio, TX

Research focused on diagnostic imaging, the use of Monte Carlo codes to simulate x-ray beam formation and transport, measurement of x-ray spectra, computed radiography and other digital imaging systems. Teaching duties and course work broadly covered the medical radiological physics profession.

Chief, Health Physics 6/92 – 6/96
Tripler Army Medical Center, Honolulu, HI 96859-5000

Executive agent and Radiation Safety Officer for a broad-scope USNRC radioactive material license (#53-00458-04). Directed comprehensive health physics services for a major teaching and research hospital. Developed or approved nuclear medicine, diagnostic radiology and radiation therapy QC protocols. Performed gamma camera acceptance testing. Evaluated and approved all Pacific region radiological facility designs. Conducted health and medical physics audits. Routinely provided formal and informal radiation safety training and imaging science lectures to nuclear medicine and radiology technologists. Routinely counseled physicians, patients, and hospital staff on radiation effects. Occasionally lectured radiology residents in imaging physics.

Project Engineer, Johnston Atoll Plutonium Mining Project 5/91 - 6/92
Defense Nuclear Agency, Kirtland AFB, NM 87115-5000

Spearheaded the Defense Nuclear Agency's $15 million Plutonium Mining Project. Led world's first successful remediation of plutonium contaminated soil. Designed several multichannel analyzer radioassay systems using sodium iodide and high-pure germanium spectroscopy detectors. Developed and enforced various radiation safety, bioassay, and respiratory protection programs.

Ex 6

Graduate Student
Cornell University, Ithaca, NY

Research focused on characterizing radiation damage to electronic components using the Cornell gamma irradiation facility. Gained experience as a federally licensed nuclear plant senior reactor operator (License # SOP-10973) that required mastery of all research facilities and radiological monitoring equipment within the reactor building. Developed experimental research protocols for the TRIGA reactor and assisted in training a reactor operator. Course work broadly covered the nuclear engineering profession.

Radiation Protection Officer 12/85 - 12/88
Darnall Army Community Hospital, Ft Hood, TX 76544-5063

Executive agent and Radiation Safety Officer for USNRC limited-scope radioactive material license (#42-19113-01). Hospital consultant for health physics, diagnostic radiology physics, & medical nuclear physics. Developed radiation protection, radiology QA/QC, & nuclear medicine QA/QC programs. Performed health & medical physics audits, calibrations, x-ray system & shielding surveys. Troubleshooted image quality problems. Trained all radiation workers.

Nuclear Medical Science Officer 1/85 - 12/85
US Army Environmental Hygiene Agency, APG, MD 21010-5422

Consulted Army and DoD installations for adequate radiation protection, radiology QA/QC, and nuclear medicine QA/QC programs. Wrote safety and QC procedures and evaluated x-ray system performance. Conducted radiological shielding evaluations and health hazard assessments of equipment and facilities.

Commander, Detachment 1, A Company 12/82 – 12/84
249th Supply and Transport Battalion, 49th Armored Division,
Texas Army National Guard, Killeen, TX

Exercised command. Led with honor and respect.

Platoon Leader, HHQ Company 8/81 – 11/82
249th Supply and Transport Battalion, 49th Armored Division,
Texas Army National Guard, Austin, TX

Developed leadership skills.

RECENT PROFESSIONAL SHORT COURSES AND EXERCISES

Radiological Mass Casualty Medical Preparations Course, 17-20 Feb 2004
Course Director and Lead Instructor, Walter Reed Army Medical Center

Nuclear, Radiation and High-Yield Explosives (NRE) Course, 10 Feb – 4 May 2004
Invited Lecturer, Uniformed Services University of the Health Sciences

North Atlantic Treaty Organization (NATO) Sampling and Identification of Radiological Agents (SIRA) Field Trials, 21-26 Sep 2003
Senior NATO Umpire, NATO Land Group 7 (Joint NBC Defense)

Radiological Accident Command, Control, and Coordination Course, 18-21 Aug 2003
Student, Defense Nuclear Weapons School

Hazard Prediction Assessment Capability (HPAC) Software Basic Course, 15-18 Jul 2003
Student, Defense Threat Reduction Agency

Medical Effects of Ionizing Radiation Course, 6-7 May 2003
Student, Uniformed Services University of the Health Sciences

Center for Disease Control (CDC) Radiological Event Tabletop Exercise – Louisville, KY, 11 Feb 03
Leader, U.S. Army Radiological Advisory Medical Team, DoD

Train the Trainer: Transportation Emergency Preparedness Program, 25 Jan 2003
Student, Department of Energy -- National Nuclear Security Administration

Operation Diligent Warrior Nuclear Weapon Accident Exercise, 7-25 Oct 2002
Leader, U.S. Army Radiological Advisory Medical Team, DoD

NATO Staff Officer's NBC Defense Policy Course, 9-13 Jul 2001
Lecturer and Student, The NATO School – Supreme Headquarters Allied Powers Europe

Joint Nuclear Operations and Targeting Course, 12-16 Jun 2000
Student, Defense Nuclear Weapons School