14 SEP 1987

License No. 29-01022-08
Docket No. 030-08535
Control No. 106754

Department of the Army
U. S. Army Communications and
Electronics Command
ATTN: Barry J. Silber
AMSEL-SF
Ft. Monmouth, New Jersey 07703

Gentlemen:

Enclosed is Amendment No. 17 to License No. 29-01022-08. This amendment terminates the license.

Your cooperation is appreciated.

Sincerely,

Original Signed By:
Edwin A. Wurtz

Edwin A. Wurtz, Ph.D.,
Nuclear Materials Safety Section C
Division of Radiation Safety
and Safeguards

Enclosure: Amendment No. 17

Information in this record was deleted
in accordance with the Freedom of Information
Act, exemptions 2&6
FOIA- 2006-0238

RI:DRSS
Wurtz/kl
8/19/87

PP/12

OFFICIAL RECORD COPY ML 29-01022-08/LTR - 0001.0.0
07/23/87

ML10

NRC Form 374A (8-82) U.S. NUCLEAR REGULATORY COMMISSION

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License number: 29-01022-08

Docket or Reference number: 030-08535

Amendment No. 17

Department of the Army
U. S. Army Communications and
Electronics Command
Ft. Monmouth, New Jersey 07703

In accordance with letter dated December 18, 1986 and concurrent with the issuance of License No. 29-0102[illegible]-14, License Number 29-01022-08 is hereby terminated.

For the U.S. Nuclear Regulatory Commission

Date 14 SEP 1987

By Original Signed By:
Edwin A. Hurta

Nuclear Materials Safety and
Safeguards Branch, Region 1
King of Prussia, Pennsylvania 19406

52

DEPARTMENT OF THE ARMY
HEADQUARTERS US ARMY MATERIEL DEVELOPMENT AND READINESS COMMAND
5001 EISENHOWER AVENUE, ALEXANDRIA, VA. 22333

DRCSF-P/84-0091

26 June 1984

Director
Nuclear Material Safety and Safeguards
ATTN: Radioisotopes Licensing Branch
US Nuclear Regulatory Commission
Washington , DC 20555

Gentlemen:

Forwarded are two copies of the US Army Communications-Electronics Command's application for renewal of Byproduct Material License Number 29-01022-08 for possession and use of strontium-90 sealed sources incorporated within the AN/UDM-2 Radiac Calibrator Set (Encl 1). Changes in the application include current radiation protection personnel and sealed source manufacturers.

CECOM has been requested to provide additional information regarding independent test procedures to verify quality of future procurements. Information concerning the quality control for items already procurred is attached as enclosure 2.

Please acknowledge receipt of correspondence on enclosed DA Form 209, Mail Reply Card (Encl 3).

Sincerely,

DARWIN D. TARAS
Chief, Health Physics,
Safety Office

Enclosures

84 JUL -2 A9:07

Copies Furnished:
HQDA (DASG-PSP-E), WASH DC 20310 w/o encl
Director, DARCOM FSA, Charlestown, IN 47111 w/encl
Commander, CECOM, ATTN: DRSEL-SF-MR, Ft. Monmouth, NJ 07703 w/o encl

[redacted]

11.7758

[illegible] COPY"

PRIORITY

00955/02004R/116A - DT: 180/1414

ACT
-----DS-SAC-SM-RE-GA-ED-PP-DP-SANG-CP-PT-CO-DM-IS-GS-SF-XAM-IN-DE-LO-
INFO----------
ACT
-----ATTNG-API-CCNC-PHA-INSCOM-XSO-CE-TM-MS-DMR-DRA-DRM-GS-MT-SGS- BOOKS
INFO----------
PTTUZYUW RUEDRIA0468 1801341-UUUU--RUKLDAR.
ZNR UUUUU
P 2812102 JUN 84
FM CDR CECOM FT MONMOUTH NJ //DRSEL-SF-MR//
TO CDR DARCOM ALEX VA //DRCSF-P//
BT
UNCLAS

SUBJ: RENEWAL AND COMPLETE REVISION OF US NUCLEAR REGULATORY COMMISSION (NRC) LICENSE NUMBER 29-01022-08

A. PONECON, 26 JUN 84, BETWEEN MS. PATRICIA A. ELKER, DARCOM SAFETY OFC, AND MR. STEVEN A. HORNE, CECOM SAFETY OFC, SAB.

1. AS REQUESTED IN REF A, THE FOLLOWING IS PROVIDED REGARDING QUALITY ASSURANCE (QA) TESTING PERFORMED ON THE SEALED SOURCES AND THE AN/UDM-2 COMPONENTS UNDER THE PRESENT REFURBISHMENT PROGRAM FOR THE AN/UDM-2 RADIAC CALIBRATOR SET.

2. GOVERNMENT WITNESSING OF THE CONTRACTOR SEALED SOURCES (3M CO. MODEL 3F1G), A COMMERCIALLY AVAILABLE AND NRC EVALUATED SEALED SOURCE, FOR COMPLIANCE TO US DEPARTMENT OF TRANSPORTATION AND INTERNATIONAL ATOMIC ENERGY AGENCY SPECIAL FORM TESTING REQUIREMENTS, AND AMERICAN NATIONAL STANDARDS INSTITUE SEALED SOURCE CLASSIFICATION TESTING REQUIREMENTS OF 45343 WAS ACCOMPLISHED BY MR. BARRY J. SILBER, CECOM SAFETY OFC, ON 11-14 APR 83 AND

PAGE 02 RUEDRIA0468 UNCLAS

19-20 APR 83. THE 3M CO. MODEL 3F1G, AS WITNESSED, SATISFACTORILY MEETS THE ABOVE REQUIREMENTS.

3. GOVERNMENT VERIFICATION OF THE CONTRACT REQUIREMENTS AS STIPULATED IN THE MILITARY SPECIFICATION, MIL-R-55350A(ER), AND IN SUBJECT LICENSE PACKET AS REVIEWED BY YOUR OFFICE, WAS PERFORMED BY MR. LEWIS E. ELKINS, DCASMA-TWIN CITIES.

4. INDEPENDENT QA INSPECTION OF THE AN/UDM-2 REFURBISHMENT PROGRAM WAS PERFORMED BY MS. PATRICIA A. ELKER AND MR. CLIFFORD R. WATSON, CECOM SAFETY OFC, AT LEXINGTON-BLUE GRASS DEPOT ACTIVITY (LBDA) ON 17-21 OCT 83. QA PROCEDURES INVOLVED THE FOLLOWING:

A. DOSERATE JIG ASSEMBLY: CHECK SERIAL NUMBER (SN): CHECK LABEL-45 MILLICURIES: PERFORM WIPE TEST: CHECK FOR DRAWER MODIFICATION: CHECK WASHERS AND SCREWS: CHECK FOR PIN AT SOURCE PLUG.

B. DISCHARGE WELL ASSEMBLY: CHECK SN: CHECK LABEL-135 MILLICURIES: CHECK LOCK MECHANISM AND SWIVEL COVER: PERFORM WIPE TEST: CHECK PLATFORM SPRING: CHECK BASE RODS AND SCREWS.

C. WIPE TEST ANALYSIS PERFORMED BY US ARMY IONIZING RADIATION DOSIMETRY CENTER (AIRDC) PERSONNEL REVEALED NO REMOVABLE RADIOACTIVE CONTAMINATION OF ALL ASSETS TESTED.

5. INDEPENDENT GOVERNMENT TESTING OF THE SEALED SOURCE LEAK TEST

PAGE 03 RUEDRIA0468 UNCLAS

REQUIREMENTS FOR SOURCES INCORPORATED IN 100 PERCENT OF THE AN/UDM-2

COMPONENTS AND QA INSPECTION OF THE AN/UDM-2 REFURBISHMENT PROGRAM WAS ACCOMPLISHED BY MESSRS JOSEPH M. SANTARSIERO AND CLIFFORD R. WATSON, CECOM SAFETY OFC, AT LRDA ON 26-30 MAR 84. LEAK TEST ANALYSIS PERFORMED BY AIRDC PERSONNEL REVEALED NO REMOVABLE RADIOACTIVE CONTAMINATION ON ALL ASSETS TESTED.

6. THIS COMMAND HAS DEVELOPED A QA INSPECTION PROCEDURE WHICH LRDA IS UTILIZING TO ASSURE THAT ALL ASPECTS OF THE AN/UDM-2 REFURBISHMENT PROGRAM ARE COMPLETED, I.E., COMPLETE ASSEMBLY OF THE AN/UDM-2.

7. AS PART OF THE LRDA QA PROGRAM, PRIOR TO FIELDING OF THESE AN/UDM-2'S, AIRDC PERFORMS THE LEAK TESTING REQUIREMENTS OF THE AN/UDM-2 COMPONENTS AND THE ARFA CALIBRATION AND REPAIR CENTER-LEXINGTON PERFORMS THE FINAL CALIBRATION CHECK OF THE RADIATION OUTPUT FOR EACH OF THE AN/UDM-2 COMPONENTS.

8. POC THIS HQ REGARDING SUBJECT LICENSE AND QA PROGRAM IS MR. STEVEN A. HORNE, AV 995-4427.

BT #0468 NNNN

NRC Form 374A (8-82) U.S. NUCLEAR REGULATORY COMMISSION

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License number: 29-01022-08

Docket or Reference number: 030-08535

Amendment No. 17

Department of the Army
U. S. Army Communications and
Electronics Command
Ft. Monmouth, New Jersey 07703

In accordance with letter dated December 18, 1986 and concurrent with the issuance of License No. 29-01022-14, License Number 29-01022-08 is hereby terminated.

For the U.S. Nuclear Regulatory Commission

Date 14 SEP 1987

By Original Signed By:
Edwin A. Wurtz
Nuclear Materials Safety and
Safeguards Branch, Region I
King of Prussia, Pennsylvania 19406

"OFFICIAL RECORD COPY"

ML10

DEPARTMENT OF THE ARMY
HEADQUARTERS, U. S. ARMY MATERIEL COMMAND
5001 EISENHOWER AVENUE, ALEXANDRIA, VA 22333-0001

December 18, 1986

U.S. Nuclear Regulatory Commission
Region I
ATTN: Materials Licensing Section
631 Park Avenue
King of Prussia, Pennsylvania 19406

Reference: AMCSF-P/86-0198-0207

Gentlemen,

Forwarded are two copies of the U.S. Army Communications-Electronics Command request for a single license consolidating 7 of their current licenses and addition of four additional sources. We recommend approval of the request. The 7 licenses include the BML 29-01022-08, BML 29-01022-11, SMB-1300, SNM-1327, SNM-1896, SNM-1900, and SUB-1150. The four additional radioactive sources include:

a. Cobalt-60, AN/UDM-1, sealed source, [redacted] curies each.

b. Cesium-137, AN/UDM-1A, sealed source, [redacted] curies each. Ex 2

c. Cobalt-60, M3A1, sealed source, 130 millicuries each.

d. Americium-241, sealed source, 10.0 millicuries each.

Please acknowledge receipt of correspondence on the enclosed DA Form 209, Mail Reply Card. If you have any questions please contact Ms. Patricia A. Elker, 202-274-5476/9340.

Sincerely,

DARWIN N. TARAS
Chief
Safety Office

Enclosures

Copies Furnished:
HQDA(DASG-PSP-E), 5111 Leesburg Pike, Falls Church, VA 22041-3250
2 cys w/encl
Director, USAMC Field Safety Activity, ATTN: AMXOS, Charlestown, IN 47111-9669 w/encl
Commander, CECOM, ATTN: AMSEL-SF

8709210254

FEB 09 1987

030-08535

DEPARTMENT OF THE ARMY

HEADQUARTERS, US ARMY COMMUNICATIONS-ELECTRONICS COMMAND
AND FORT MONMOUTH
FORT MONMOUTH, NEW JERSEY 07703-5000

REPLY TO
ATTENTION OF

AMSEL-SF-MR

8 MAY 1986

SUBJECT: US Nuclear Regulatory Commission (NRC) Consolidated License Application

Commander
US Army Materiel Command
ATTN: AMCSF-P
5001 Eisenhower Avenue
Alexandria, Virginia 22333-0001

The enclosed US Nuclear Regulatory Commission (NRC) Application for Materials License submitted by this headquarters represents a consolidation of seven NRC licenses currently issued to this command, in addition to one newly procured and three transitioned radioactive commodities/materials. Upon receipt of a consolidated license by the NRC, all the individual NRC licenses issued for the above commodities/materials will be terminated. The only commodity contained within this consolidated license application which has not previously been issued an NRC license is the Amersham Corporation Americium-241 Variable Energy X-ray Source. The enclosed application represents an effort by this command to include all the above licenses/commodities under one consolidated license.

FOR THE COMMANDER:

Encl (9 cys)

RAYMOND E. B. KETCHUM, II
Colonel, GS
Chief of Staff

"OFFICIAL RECORD COPY"

ML10 106754

FEB 09 1987

DEPARTMENT OF THE ARMY
HEADQUARTERS US ARMY COMMUNICATIONS-ELECTRONICS COMMAND
AND FORT MONMOUTH
FORT MONMOUTH, NEW JERSEY 07703

REPLY TO
ATTENTION OF:

25 MAY 1984

DRSEL-SF-MR

SUBJECT: Renewal and Complete Revision of US Nuclear Regulatory Commission (NRC) Byproduct Material License No. 29-01022-08

Commander
US Army Materiel Development and Readiness Command
ATTN: DRCSF-P
5001 Eisenhower Avenue
Alexandria, Virginia 22333

The enclosed application for the renewal and complete revision of subject license for the AN/UDM-2 Radiac Calibrator Set is submitted for review and forwarding to the NRC.

FOR THE COMMANDER:

RAYMOND E. B. KETCHUM, II
Colonel, GS
Chief of Staff

1 Encl
as

"OFFICIAL RECORD COPY"

ML18

11775

NRC Form 313 I (12-81) 10 CFR 30

U.S. NUCLEAR REGULATORY COMMISSION

APPLICATION FOR BYPRODUCT MATERIAL LICENSE
INDUSTRIAL

See attached instructions for details.

Completed applications are filed in duplicate with the Division of Fuel Cycle and Material Safety, Office of Nuclear Material Safety, and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555 or applications may be filed in person at the Commission's office at 1717 H Street, NW, Washington, D. C. or 7915 Eastern Avenue, Silver Spring, Maryland.

1. APPLICATION FOR: *(Check and/or complete as appropriate)*

	a. NEW LICENSE
	b. AMENDMENT TO: LICENSE NUMBER
X	c. RENEWAL OF: LICENSE NUMBER 29-01022-08

2. APPLICANT'S NAME *(Institution, firm, person, etc.)*
Department of the Army
US Army Communications-Electronics Command

TELEPHONE NUMBER: AREA CODE – NUMBER EXTENSION
(201) 544-4427

3. NAME AND TITLE OF PERSON TO BE CONTACTED REGARDING THIS APPLICATION
Barry J. Silber, RPO

TELEPHONE NUMBER: AREA CODE – NUMBER EXTENSION
(201) 544-4427

4. APPLICANT'S MAILING ADDRESS *(Include Zip Code) (Address to which NRC correspondence, notices, bulletins, etc., should be sent.)*
ATTN: DRSEL-SF-MR
Fort Monmouth, NJ 07703

5. STREET ADDRESS WHERE LICENSED MATERIAL WILL BE USED *(Include Zip Code)*
See Supplement A

(IF MORE SPACE IS NEEDED FOR ANY ITEM, USE ADDITIONAL PROPERLY KEYED PAGES.)

6. INDIVIDUAL(S) WHO WILL USE OR DIRECTLY SUPERVISE THE USE OF LICENSED MATERIAL
(See Items 16 and 17 for required training and experience of each individual named below)

	FULL NAME	TITLE
a.	Individuals meeting the minimum requirements stated in Items 16 and 17.	
b.	See Supplement B	
c.		

7. RADIATION PROTECTION OFFICER
See Supplement C

Attach a resume of person's training and experience as outlined in Items 16 and 17 and describe his responsibilities under Item 15.

8. LICENSED MATERIAL

LINE NO.	A ELEMENT AND MASS NUMBER	B CHEMICAL AND/OR PHYSICAL FORM	C NAME OF MANUFACTURER AND MODEL NUMBER *(If Sealed Source)*	D MAXIMUM NUMBER OF MILLICURIES AND/OR SEALED SOURCES AND MAXIMUM ACTIVITY PER SOURCE WHICH WILL BE POSSESSED AT ANY ONE TIME
(1)	^{90}Strontium	See Supplement D		
(2)	^{90}Strontium	See Supplement D		
(3)	^{90}Strontium	See Supplement D		
(4)	^{90}Strontium	See Supplement D		

	E DESCRIBE USE OF LICENSED MATERIAL
(1)	See Supplement D
(2)	
(3)	
(4)	

17758

9. STORAGE OF SEALED SOURCES

LINE NO.	CONTAINER AND/OR DEVICE IN WHICH EACH SEALED SOURCE WILL BE STORED OR USED. A.	NAME OF MANUFACTURER B.	MODEL NUMBER C.
(1)	See Supplement D		
(2)			
(3)			
(4)			

10. RADIATION DETECTION INSTRUMENTS

LINE NO.	TYPE OF INSTRUMENT A	MANUFACTURER'S NAME B	MODEL NUMBER C	NUMBER AVAILABLE D	RADIATION DETECTED (alpha, beta, gamma, neutron) E	SENSITIVITY RANGE (milliroentgens/hour or counts/minute) F
(1)			See Supplement E			
(2)						
(3)						
(4)						

CALIBRATION OF INSTRUMENTS LISTED IN ITEM 10

☐ a. CALIBRATED BY SERVICE COMPANY

NAME, ADDRESS, AND FREQU[illegible]

☒ b. CALIBRATED BY APPLICANT

Attach a separate sheet describing method, frequency and standards used for calibrating instruments.

See Supplement F

12. PERSONNEL MONITORING DEVICES

TYPE (Check and/or complete as appropriate.) A	SUPPLIER (Service Company) B	EXCHANGE FREQUENCY C
☒ (1) FILM BADGE ☒ (2) THERMOLUMINESCENCE DOSIMETER (TLD) ☐ (3) OTHER (Specify): _____	See Supplement G	☒ MONTHLY ☐ QUARTERLY ☐ OTHER (Specify):

13. FACILITIES AND EQUIPMENT (Check were appropriate and attach annotated sketch(es) and description(s).

☐ a. LABORATORY FACILITIES, PLANT FACILITIES, FUME HOODS (Include filtration, if any), ETC.
☐ b. STORAGE FACILITIES, CONTAINERS, SPECIAL SHIELDING (fixed and/or temporary), ETC.
☐ c. REMOTE HANDLING TOOLS OR EQUIPMENT, ETC.
☐ d. RESPIRATORY PROTECTIVE EQUIPMENT, ETC.

See Supplement H

14. WASTE DISPOSAL

a. NAME OF COMMERCIAL WASTE DISPOSAL SERVICE EMPLOYED

b. IF COMMERCIAL WASTE DISPOSAL SERVICE IS NOT EMPLOYED, SUBMIT A DETAILED DESCRIPTION OF METHODS WHICH WILL BE USED FOR DISPOSING OF RADIOACTIVE WASTES AND ESTIMATES OF THE TYPE AND AMOUNT OF ACTIVITY INVOLVED. IF THE APPLICATION IS FOR SEALED SOURCES AND DEVICES AND THEY WILL BE RETURNED TO THE MANUFACTURER, SO STAT

See Supplement I

INFORMATION REQUIRED FOR ITEMS 15, 16 AND 17

Describe in detail the information required for Items 15, 16 and 17. Begin each item on a separate page and key to the application as follows:

15. RADIATION PROTECTION PROGRAM. Describe the radiation protection program as appropriate for the material to be used including the duties and responsibilities of the Radiation Protection Officer, control measures, bioassay procedures *(if needed)*, day-to-day general safety instruction to be followed, etc. If the application is for sealed source's also submit leak testing procedures, or if leak testing will be performed using a leak test kit, specify manufacturer and model number of the leak test kit.

See Supplement J

16. FORMAL TRAINING IN RADIATION SAFETY. Attach a resume for each individual named in Items 6 and 7. Describe individual's formal training in the following areas where applicable. Include the name of person or institution providing the training, duration of training, when training was received, etc.

a. Principles and practices of radiation protection.

b. Radioactivity measurement standardization and monitoring techniques and instruments.

c. Mathematics and calculations basic to the use and measurement of radioactivity.

d. Biological effects of radiation. See Supplements B and C

17. EXPERIENCE. Attach a resume for each individual named in Items 6 and 7. Describe individual's work experience with radiation, including where experience was obtained. Work experience or on-the-job training should be commensurate with the proposed use. Include list of radioisotopes and maximum activity of each used.

See Supplements B and C

18. CERTIFICATE

(This item must be completed by applicant)

The applicant and any official executing this certificate on behalf of the applicant named in Item 2, certify that this application is prepared in conformity with Title 10, Code of Federal Regulations, Part 30, and that all information contained herein, including any supplements attached hereto, is true and correct to the best of our 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.

FOR THE COMMANDER:

a. LICENSE FEE REQUIRED *(See Section 170.31, 10 CFR 170)*	b. CERTIFYING OFFICIAL *(Signature)*
	c. NAME *(Type or print)* RAYMOND E.B. KETCHUM, II
(1) LICENSE FEE CATEGORY:	d. TITLE Colonel, GS, Chief of Staff
(2) LICENSE FEE ENCLOSED: $	e. DATE 25 May 1984

NOTE

1. Enclosures 1 through 6 are the concurrences from the major field commands who are responsible for the use of the AN/UDM-2 Radiac Calibrator Sets.

2. Enclosure 7 is the concurrence from the US Army TMDE Support Group who is responsible for the major use of the AN/UDM-2 Radiac Calibrator Sets.

3. Enclosure 8 is the concurrence from US Army Depot Systems Command which provide bulk storage and/or maintenance of these devices.

4. Enclosure 9 is the concurrence from the Secretary, US Air Force Radioisotope Committee for use of the calibrators by Army, civilian and/or military personnel located on Air Force property.

5. The Fort Monmouth Radiation Control Committee and appropriate CECOM directorates have concurred in the renewal application.

AFLG-FMC (5 Mar 84) 1st Ind
SUBJECT: Renewal and Complete Revision of US Nuclear Regulatory Commission (NRC) Byproduct Material License (BML) Number 29-01022-08

HQ FORSCOM, Ft McPherson, GA 30330 17 APR 1984

TO: Commander, U. S. Army Communications-Electronics Command & Fort Monmouth, ATTN: DRSEL-SF-MR, Fort Monmouth, New Jersey 07703

1. The draft copy of subject renewal application has been reviewed by the Radiation Control Officer as requested.

2. Concur with the renewal application which includes the environmental documentation in accordance with AR 200-2.

FOR THE COMMANDER:

wd Incl 1

CHARTLEY M. MCMASTER
Captain, AGC
Assistant Adjutant General

Encl 1

DEPARTMENT OF THE ARMY
HEADQUARTERS UNITED STATES ARMY TRAINING AND DOCTRINE COMMAND
FORT MONROE, VIRGINIA 23651

REPLY TO
ATTENTION OF:

19 MAR 1984

ATCD-NC

SUBJECT: Renewal and Complete Revision of US Nuclear Regulatory Commission (NRC) Byproduct Material License (BML) Number 29-01022-08

Commander
US Army Communications-Electronics
Command
ATTN: DRSEL-SF-MR
Fort Monmouth, NJ 07703

1. Reference letter, DRSEL-SF-MR, CECOM, 5 March 1984, SAB.

2. This headquarters has reviewed both the NRC license renewal application and the environmental documentation for the AN/UDM-2 Radiac Calibrator Set. We concur with both documents.

3. POC at this headquarters is CPT Fisher, AUTOVON 680-4411.

FOR THE COMMANDER:

DORETHA MANGRUM
ASSISTANT ADJUTANT GENERAL

Encl

DEPARTMENTS OF THE ARMY AND THE AIR FORCE
NATIONAL GUARD BUREAU
WASHINGTON, D.C. 20310

REPLY TO ATTENTION OF

NGB-AVN-S

14 May 1984

SUBJECT: Renewal and Complete Revision of US Nuclear Regulatory Commission (NRC) By-Product Material License (BML) Number 29-01022-08

Commander
US Army Communications - Electronics Command
ATTN: DRSEL-SF-MR
Fort Monmouth, NJ 07703

1. The National Guard Bureau concurs with draft copy of subject renewal applicatio for the AN/UDM-2 Radiac Calibrator Set.

2. Concurrence with the environmental documentation of subject document will be rendered by NGB-ARI-E under separate correspondence.

3. Point of contact in NGB-AVN-S is Mrs. Judith Smith, AUTOVON 584-4727.

(for) Alvin A. Marshall

JOHN J. STANKO, Jr.
Chief, Army Aviation Division
National Guard Bureau

ALVIN A. MARSHALL
Chief, Aviation Logistics Branch

CF:
NGB-ARI-E
NGB-ARL-M

5-12

ROUTINE

PT 00463 151/2248Z PAGE 01

(2 ACT 1 INFO) ORSEL PM'S ERAD OTHER
GS:CC:CP:ED:FMD:HI:IG:IL:IO:LG ATC:GARS:MSCS: AQ:CP-FM AA:AR:CCNC:CMB:CHS
ME:MICO:MM:MS:PA:PC:PL:PT:OC: OTDS:PLRS:SC: CS:ET:EW CSA:DEN:II:JITF:MA
SF:SM:SP:SS:SCCO: TE:TF: BD:FF: SA:SD: MCR:PH:PMO:SSD:TSC
RUXO:FI:POD: COM:SDSC:SEI:TCS: MI: ASE: ACSC: SSC: USMC:54:235:513:90

RCTUZEXW RULNETC3890 1511735-UUUU--RUEDBIA.
ZNR UUUUU
R 2914307 MAY 84 ZEX
FM CNGB APG MD//NGB-AVN-SG//
TO RUEDBIA/COR CECOM FT MONMOUTH NJ//ORSEL-SF-MR//
INFO ZEN CNGB APG MD//NG2-ARI-E//
RUEAUSA/CNGB WASHDC//NGB-ARI/NGB-ARS/
NGB-ARL/NGB-JA/NGN-PA/NGB-PO/
NGB-ARO//
BT
UNCLAS
SUBJECT: RENEWAL AND COMPLETE REVISION OF US NUCLEAR REGULATORY COMMISSION (NRC) BYPRODUCT MATERIAL LICENSE (BML) NUMBER 29-01022-08
A. LETTER, NGB-AVN-S, 14 MAY 84, SAB.
B. LETTER, ORSEL-SF-MR, 5 MAR 84, SAB.
C. AR 200-1, ENVIRONMENTAL PROTECTION AND ENHANCEMENT, 15 JUL 82.
D. AR 385-11, IONIZING RADIATION PROTECTION, 1 MAY 80.
E. TM 3-261, HANDLING AND DISPOSAL OF UNWANTED RADIOACTIVE MATERIAL, MAR 81.
F. AR 200-2, ENVIRONMENTAL EFFECTS OF ARMY ACTIONS, 15 OCT 82 WITH DARCOM SUPPLEMENT 1, 26 FEB 82.
2. IAW PARA 2, REF A, THE SUBJECT NRC LICENSE APPLICATION (REF B)

PAGE 02 RULNETC3890 UNCLAS
AND SUPPORTING ENVIRONMENTAL DOCUMENTATION HAS BEEN REVIEWED BY THE NGB AND CONCURRENCE IS PROVIDED BASED ON THE FOLLOWING:
A. DISPOSAL OF UNWANTED RADIOACTIVE WASTE WILL BE IAW REFERENCES C, D, AND E. IN ADDITION, IT SHOULD BE NOTED THAT IAW REF D, DISPOSAL OF UNWANTED RADIOACTIVE MATERIAL IS THE RESPONSIBILITY OF THE US ARMY MATERIEL DEVELOPMENT AND READINESS COMMAND (DARCOM) AND NOT NGB.
B. STORAGE AND DISPOSAL PROCEDURES FOR UNWANTED RADIOACTIVE MATERIAL ARE ADDRESSED IN SUPPLEMENT 1, REF B, AND IN PARAGRAPHS III-B-11 AND III-B-13 OF ANNEX 1, REF B.
C. ENVIRONMENTAL ASSESSMENT AT ANNEX 1 (REF B) HAS BEEN PREPARED IAW REF F, WHICH CONCLUDED IN THE FINDING OF NO SIGNIFICANT IMPACT (FNSI) AT PARA II-A, ANNEX 1.
D. IAW PARA 1-4D, REF F, OPSEC REVIEW HAS BEEN ADDRESSED AT PARA I, ANNEX 1, REF B.
3. RECOMMEND THAT COMPLETED EA AND FNSI BE PROCESSED IAW PARA 3-2C, DARCOM SUPPLEMENT 1 TO AR 200-2 AND IAW PARA 5-5, AR 200-2 (REF F).
4. FINALLY, REQUEST THAT CECOM PROVIDE NGB-ARI-E:
A. A COPY OF THE FINAL, SIGNED EA.

17750

ROUTINE

B. A COPY OF THE FINAL, SIGNED FNSI.
C. A COPY OF THE PUBLIC NOTIFICATION DOCUMENTS PROCESSED IAW

PAGE 03 RULNETC3890 UNCLAS
PARAGRAPHS 5-5C AND 5-5D, AR 200-2 (REF F).
5. NGB POINTS OF CONTACT ARE:
A. MS. JUDITH SMITH, INDUSTRIAL HYGIENIST, SAFETY BRANCH, ARMY AVIATION DIVISION, NGB-AVN-S, AUTOVON 584-4727 (PRIMARY NGB ACTION OFFICE).
B. MR. JAMES HENSLEY, ENVIRONMENTAL PROTECTION SPECIALIST FOR HAZARDOUS/TOXIC MATERIALS/WASTE, ENVIRONMENTAL RESOURCES BRANCH, ARMY INSTALLATIONS DIVISION, NGB-ARI-E, AUTOVON 584-4701.
C. MR. STEVEN HORNE, NGB-RCO, ORSEL-SF-MR, AUTOVON 995-4427.
BT
#3890

NNNN

AEAGD-MMC-RA-CS (1 Dec 83) 2d Ind CPT Short/lo/ZBN Mil (2281-)6211
SUBJECT: Review of US Nuclear Regulatory Commission by Product Material License Number 29-01022-08

DA, Headquarters 200th TAMMC APO 09052 24 January 1984

TO: Commander USA CECOM, ATTN: DRSEL-SF-MR Fort Monmouth, New Jersey, 07703

1. IAW basic letter, the draft renewal for NRC BML number 29-01022-08 has been reviewed.

2. 10th Medical Laboratory comments are provided with concurrence from USAREUR RPO and RCO.

3. This center provides one additional comment. Para five of supplement B gives instructions for Maintenance Depot without any reference to Reserve Storage Activities (RSA). The assumption that Maintenance Depot are RSA cannot be made. Some reference must be made for RSA. This reference should be included in all future NRC License.

4. Point of contact for this center is, CPT Paul Short, USAREUR Radiological Control Officer, AUTOVON (494-)7328/6211.

FOR THE COMMANDER:

ROBERT L. NIER, JR.
LTC, GS
Chief, Armament & Chemical Equipment Systems Division

CF:
HQ USAREUR, ATTN: AEAGA-SE, APO 09403
HQ 10th Medical Laboratory, APO 09180

Encl 4

AFOP-NC (5 Mar 84) 1st Ind
SUBJECT: Renewal and Complete Revision of US Nuclear Regulatory Commission (NRC) Byproduct Material License (BML) Number 29-01022-08

HQ, United States Army Western Command, Fort Shafter, HI 96858, 16 Apr 84

TO: Commander, HQ USA Communications-Electronics Command and Fort Monmouth, ATTN: DRSEL-SF-MR, Fort Monmouth, New Jersey 07703

This headquarters concurs with subject renewal application.

FOR THE COMMANDER:

wd all incl

JAMES T. BUSHONG
Colonel, GS
Chief, NC Div, ODCSOPS

Encl 5

DJ-MS-MC (5 Mar 84) 3rd Ind
SUBJECT: Renewal and Complete Revision of US Nuclear Regulatory Commission (NRC) By-product Material License (BML) Number 29-01022-08

Headquarters, Eighth United States Army, APO San Francisco 96301 9 APR 84

TO: Commander, United States Army Communications-Electronics Command and Fort Monmouth, ATTN: DRSEL-SF-MR, Fort Monmouth, New Jersey 07703

1. Subject license application has been reviewed by qualified members of this command and we concur with renewal application and environmental documentation provided.

2. POC this headquarters is MSG Kruse, 293-8230/8914.

FOR THE COMMANDER:

wd all incl

MISIUATA A. MAGA
CPT, AGC
Assistant Adjutant General

Encl 6

(2 ACT 1 INFO) DRSEL PR*S ERAD OTHER

65:CC:CP:ED:FMD:HI:IG:IL:IO:LG ATC:GARS:MSCS: AQ:CP-FP AA:AR:CCNC:CHB:CHS
ME:MICO:MR:PS:PA:PC:PL:PT:OC: OTDS:PLRS:SC: CS:ET:EW CSA:DEN:II:JITF:PA
SF:SM:SP:SS:SCEO: TE:TF: BD:FF: SA:SD: MCR:PH:PMO:SSD:TSO
RGXO:FI:POD: COM:SDSC:SEI:TCS: MI: ASE: ACSC: SSC: USMC:54:235:513:90:

PCTUZYUW RUCDSRA1167 1431938-UUUU--RUEDBIA.
ZNR UUUUU
P 2220012 MAY 84
FM CDR USATSG REDSTONE ARSENAL AL//DRXTM-SR//
TO CDR CECOM FT MONMOUTH NJ//DRSEL-SF-MR//
ACCT DA-8MCSVD
BT
UNCLAS
SUBJ: US NUCLEAR REGULATORY COMMISSION (NRC) LICENSE NO. 29-01022-06.
A. MSG, DRSEL-SF-MR, 1714002 MAY 84, SAB.
CONCUR WITH US NUCLEAR REGULATORY COMMISSION LICENSE NO. 29-01022-08 RENEWAL APPLICATION WITH THE INCLUSION OF THE CHANGES LISTED IN REFERENCE MSG.
BT
#1167

NNNN

Encl 7

PRIORITY

UNCLAS

1 3 171400Z MAY 84 PP PP UUUU TT 1381400

CDR CECOM FT MONMOUTH NJ //DRSEL-SF-MR//

CDR USATSG REDSTONE ARSENAL AL //DRXTM-SR//

UNCLAS

SUBJ: US NUCLEAR REGULATORY COMMISSION (NRC) LICENSE NO. 29-01022-08

A. LETTER, DRXTM-SR, UNDATED, SUBJECT: USNRC LICENSE NO. 29-01022-08.

1. IN RESPONSE TO REFERENCE A, THE FOLLOWING IS PROVIDED:

2. ITEM 2A AND 2B: CONCUR. REFERENCED DOCUMENT, I.E., LBDA RADIOLOGICAL SAFETY PROGRAM, IS THE RESPONSIBILITY OF LEXINGTON BLUE - GRASS DEPOT ACTIVITY (LBDA). AS SUCH, THIS COMMAND DOES NOT HAVE THE AUTHORITY TO ALTER REFERENCED DOCUMENT IN ANY MANNER. HOWEVER, A LETTER HAS BEEN PROVIDED TO LBDA REQUESTING APPROPRIATE ACTION BE TAKEN IN THIS REGARD.

#.**3. ITEM 2C: CONCUR.

4. ITEM 2D: CONCUR. ON 2 DEC 83, A REQUEST WAS MADE TO CHANGE PARAGRAPH 3.4.3 OF MIL-R-55350A (ER) TO INDICATE A SURFACE DOSE RATE CONSISTENT WITH THE NRC CONCEPT OF AS LOW AS REASONABLY ACHIEVABLE (ALARA).

5. ITEM 2E: USE OF THE TERM "COMBAT AREA" IN TB 11-6665-227-12 IS INTENDED TO DESIGNATE ACTUAL COMBAT AREAS. EXCLUDING THE CALIBRATOR SETS IN ~~THERE***~~ THESE AE*REAS, ALL AN/UDM-2'S ARE TO BE LEAK TESTED AT

CG READING FILE

JOSEPH M. SANTARSIERO, HEALTH PHYSICIST

DRSEL-SF-MR, 54427

B.M.SAVAIKO,C,SAF OFC, DRSEL-SF,54427

2 3 1714002 MAY 84 PP PP UUUU TT 1381400

INTERVALS NOT TO EXCEED 6 MONTHS.

6. ITEM 2F: CONCUR.

7. ITEM 2G: DUE TO THE LARGE NUMBER AND WORLDWIDE DISTRIBUTION OF AN/UDM-2 CALIBRATOR SETS IN USE/STORAGE, IT IS NOT FEASIBLE TO FURNISH EACH USER/OPERATOR WITH NOTICES OF VIOLATIONS* REGARDING INDIV*-VIDUAL FACILITIES. PRACTICALITY, THEREFORE, DICTATES THAT VIOLATION NOTICES, LICENSE CONDITIONS, APPROPRIATE REGULATIONS, AMENDMENTS AND OTHER PERTINENT DOCUMENTATION RELATED TO THE LICENSING OF THE AN/UDM-2 BE MADE AVAILABLE TO MAJOR COMMAND AND USERS AS INDICATED IN SUPPLEMENT J, PARAGRAPH H, OF SUBJECT LICENSE. MOREOVER, THE PROCEDURE OF MAKING THE AFOREMENTIONED MATERIALS AVAILABLE TO THE USER/OPERATOR OF THE AN/UDM-2 IN LIEU OF ACTUAL POSTING OF SAME, HAS BEEN PREVIOUSLY APPROVED BY THE NRC. GIVEN THESE CIRCUMSTANCES, SUPPLEMENT J, PARAGRAPH H, OF SUBJECT LICENSE SHALL REMAIN AS PRESENTED.

8. SUBJECT NRC APPLICATION HAS BEEN/WILL BE REVISED TO INCORPORATE RECOMMENDATIONS INDICATED IN ITEMS 2A, 2B, 2C, 2D AND 2F OF A.

9. REQUEST YOU PROVIDE THIS HQ, ATTN: DRSEL-SF-MR, WITH COMMENTS TO INDICATED CHANGES/REVISIONS AND CONCURRENCE TO SUBJECT NRC ~~LICN~~ BB LICENSE APPLICATION BY 25 MAY 1984.

3 3 171400Z MAY 84 PP PP UUUU TT 1381400

10. POC, THIS COMMAND, IS MR. BARRY J. SILBER OR MR. JOSEPH M. SANTARSIERO, AV 995-4427.

DEPARTMENT OF THE ARMY
UNITED STATES ARMY TEST, MEASUREMENT AND DIAGNOSTIC EQUIPMENT SUPPORT GROUP
REDSTONE ARSENAL, ALABAMA 35898

REPLY TO
ATTENTION OF

DRXTM-SR

SUBJECT: Review of US Nuclear Regulatory Commission (NRC) By-Product Material License No. 29-01022-08

Commander
HQ, US Army Communications - Electronics Command
ATTN: DRSEL-SF-MR
Fort Monmouth, NJ 07703

1. Reference letter and document dated 5 March 1984 from your office regarding SAB.

2. Comments pursuant to SAB are as follows:

a. (Ref. Supplement C - LBDA Radiological Safety Program, Section 6.d.(6)). "Caution Radiation" is not an approved sign IAW AR 385-30 and 10 CFR 20. The sign should read "Caution - Radiation Area," "Caution - Radioactive Material," or "Restricted Area - Do Not Enter," depending upon applicable situation.

b. (Ref. Supplement C - LBDA Radiological Safety Program, Section 6.e.(2)) RPO or individual knowledgeable in radioactive contamination should accompany the individual with an appropriate survey meter to afford monitoring capability and technical advice to medical personnel.

c. (Ref. Supplement D - 9.a.) Constituency of sealed sources per device is too ambiguously portrayed. Three separate totals per device can be derived from the license application.

d. (Ref. Supplement D, MIL-R-55350A, p.6, 3.4.3) The requirement for the maximum allowable dose rate at the external surface of the device to be less than 5.0 mrem per hours is in conflict with the specified requirement in paragraph 3.4.3. of MIL-R-55350.

e. (Ref. TB 11-6665-227-12, p.4, para. 5.e.) Are combat areas designated as zones of potential combat (cease fire in Korea) or areas of actual combat?

f. (Ref. Supplement J, para.4.f.) Recalibration and recertification of the AN/UDM-2 is accomplished by the Area Calibration and Repair Center (ACRC) - Lexington and not the AIRDC as indicated in this paragraph.

g. (Supplement J, para. h) It appears that the NRC requires that all notices of violation regarding any facility be posted at that

DRXTM-CR
SUBJECT: Review of US Nuclear Regulatory Commission (NRC) By-Product Material License No. 29-01022-08

facility IAW 10 CFR Part 19. Retention of such documents at CECOM Headquarters may not suffice in meeting this requirement.

3. POC regarding SAB is Mr. Bob Owen, AV 746-5042/2879.

Del Loney

DELBERT D. LONEY
Chief
Radiation Standards & Development Lab
Metrology Directorate
US Army TMDE Support Group

DRSDS-T (7 May 84) 1st Ind
SUBJECT: Renewal and Complete Revision of US Nuclear Regulatory Commission (NRC) Byproduct Material License (BML) Number 29-01022-08

HQ, US Army Depot System Command, Chambersburg, PA 17201 16 May 1984

TO: Commander, US Army Communications-Electronics Command, ATTN: DRSEL-SF-MR, Fort Monmouth, NJ 07703

1. Forwarded is concurrence on subject renewal and revision.

2. "Quality Equipment and Support for an Excellent Army."

FOR THE COMMANDER:

1 Encl
nc

JOHN E. RANKIN
Chief
Safety Office

Encl 8

DEPARTMENT OF THE ARMY

HEADQUARTERS, LEXINGTON-BLUE GRASS DEPOT ACTIVITY
LEXINGTON, KENTUCKY 40511

REPLY TO ATTENTION OF

SDSAN-LAS

20 Apr 84

SUBJECT: Renewal and Complete Revision of US Nuclear Regulatory Commission (NRC) Byproduct Material License (BML) Number 29-01022-08

THRU: Commander
Anniston Army Depot
ATTN: SDSAN-SF
Anniston, AL 36201

Commander
US Army Depot Systems Command
ATTN: DRSDS-T
Chambersburg, PA 17201

TO: Commander
US Army Communications-Electronics Command
ATTN: DRSEL-SF-MR
Fort Monmouth, NJ 07703

1. Reference letter, DRSEL-SF-MR, 5 Mar 84, SAB.

2. Pursuant to your request, basic concurrence is submitted, however, the following comments are offered:

a. The ISSA agreement between USA TMDE Support Group and LBDA states that IRDC will serve as LBDA RPO in the absence of the designated RPO and alternate. The ISSA agreement further states that John R. Dorton serves as Alternate RPO for LBDA. Due to qualification and time factors, Mr. Dorton was not appointed as alternate and as of this date no one has been appointed to that position. The lack of a properly qualified alternate RPO was a significant finding of the DESCOM Safety Program Evaluation conducted 17-28 Oct 83. It was requested by LBDA that DESCOM provide an overhire space for the position of alternate RPO, but no action has been taken to date. In the absence of an alternate RPO, IRDC has been acting as Depot RPO in the absence of the designated RPO, Bill Baber.

b. Supplement D, Encl 4, 3.4.3, page 6, Surface Dose Rate. This section states that no point on the surface of the calibrator set shall exceed 5m R/hr. However,

actual measurement of the surface with the AN/PDR-27 will locate points with readings significantly higher than the stated limit.

3. An updated resume for the LBDA RPO is enclosed.

4. "Quality Equipment and Support for an Excellent Army".

FOR THE COMMANDER:

1 Encl
as

JOHN R. DORTON
Safety Director

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
BOLLING AFB, D.C. 20332

REPLY TO ATTN OF: AFMSC/ SGPA
BROOKS AFB TEXAS 78235

14 March 1984

SUBJECT: USNRC License Number 29-01022-08

TO: Department of the Army
U.S. Army Communications - Electronics Command
ATTN: DRSEL-SF-MR
Fort Monmouth NJ 07703

1. Application for renewal of subject license has been reviewed and the following comments are provided:

a. Reference Supplement A, paragraph 4: Recommend that authorized users be identified as calibration personnel at DOD facilities. As currently written, other users are limited to Army facilities.

b. Reference Supplement B, paragraph 2: Recommend that Radiation Protection Officer (RPO) training and experience requirements be commensurate with the hazard involved as related to the routine operation of the UDM-2 in lieu of specific formal training requirements. This would preclude potential differences in individual Service requirements for designating RPO's.

c. Reference Supplement B, paragraph 3: Training of users should indicate that training and experience with similar uses/quantities of radioactive material may be substituted for the training requirements specified.

d. Reference Supplement B, paragraph 4: The distinction between an RPO and an RCO is not clear. A definition of the RPO/RCO functions may eliminate the ambiquity.

e. Reference Supplement F: Calibration of radiation detection equipment should be performed at least annually in accordance with the applicable Service end-item directives. Current Air Force directives indicate 180 day calibration frequency for the AN/PDR-27.

f. Reference Supplement G: The requirements for personal dosimetry should be determined and provided in accordance with applicable Service directives. Also recommend elimination of reference to film badges as the Air Force has converted to TLD dosimetry.

Encl 9

g. Reference Supplement J, paragraph 3: As written, it is implied that Army inspection elements would conduct inspections of other Service organizations. Possessing organizations outside the Army should be inspected by individual Service inspection elements and the NRC to assess compliance with applicable Service directives and 10CFR.

2. Concur with draft application contingent upon inclusion/clarification of the information indicated above.

LANCE J. BOLLINGER, Captain, USAF, BSC
Secretary, USAF Radioisotope Committee
Office of the Surgeon General

DEPARTMENT OF THE ARMY
HEADQUARTERS US ARMY COMMUNICATIONS-ELECTRONICS COMMAND
AND FORT MONMOUTH
FORT MONMOUTH, NEW JERSEY 07703

REPLY TO
ATTENTION OF:

DRSEL-SF-MR 9 May 1984

SUBJECT: US Nuclear Regulatory Commission (NRC) Byproduct Material License Number 29-01022-08

Department of the Air Force
Aerospace Medical Division
ATTN: AFMSC/SGPA
Brooks Air Force Base, Texas 78235

1. Reference, letter, AFMSC/SGPA, 14 March 1984, subject: USNRC License Number 29-01022-08.

2. Item 1a of referenced letter: Concur.

3. Item 1b and 1c of referenced letter: Use of the AN/UDM-2 Radiac Calibrator Set will be under the supervision of qualified DA personnel who have met, at a minimum, the requirements stipulated in Supplement B, paragraphs 2 and 3 of subject license application. If individuals other than DA personnel were to assume sole responsibility for the AN/UDM-2 Calibrator Set, the minimum requirements stipulated in the aforementioned Supplement should be maintained.

4. Item 1d of referenced letter: The RCO designation is applicable to DA personnel with functions as outlined in AR 385-11. Qualifications stipulated in AR 385-11 are as outlined in Supplement B, paragraph 4 of subject license. Selection of a local RPO is contingent upon review and written approval by the RCO.

5. Item 1e of referenced letter: Concur.

6. Item 1f of referenced letter: Concur.

7. Item 1g of referenced letter: Concur.

8. Subject NRC application has been revised to incorporate recommendations indicated in Items 1a, 1e, 1f and 1g of referenced letter.

FOR THE COMMANDER:

For Steven A. Horne
BERNARD M. SAVAIKO
Chief, Safety Office

SUPPLEMENT A

1. Reference: Item 5 of NRC Form 313 I.

2. The AN/UDM-2 Radiac Calibrator Sets will be possessed, maintained and used by US Department of Defense (DOD) installations and activities world-wide under the control of Department of the Army (DA) military or civilian personnel. Storage of assets containing radioactive material will be provided by Lexington-Blue Grass Depot Activity (LBDA), Lexington, Kentucky.

3. The AN/UDM-2 Radiac Calibrator Sets will be issued only to authorized calibration activities at the direct, general and depot support levels. Typically, instrumentation will be sent to authorized calibration activities or will be calibrated by a visiting mobile calibration activity (team). Active Army calibration activities are managed by the US Army Test Measurement and Diagnostic Equipment (TMDE) Support Group on the basis of approved Table of Distribution and Allowances/Modification Table of Organization and Equipment, authorized facilities, equipment, standards, procedures and qualifications of personnel as specified in those documents.

4. Most of the sets will be used by four to seven-man Army TMDE Support Teams who have received training in the safe use of the calibrator set. At least one team member will be qualified and approved as a local Radiation Protection Officer (RPO) receiving a minimum of 40 hours formal training in radiation protection as outlined in paragraph 2 of Supplement B. The teams will operate at various Army installations/activities described in Supplement H which possess beta-gamma detection instrumentation. Other users will be authorized calibration personnel located at Army training facilities, Army National Guard calibration facilities, and other approved DOD facilities.

SUPPLEMENT B

1. Reference: Item 6 of NRC Form 313 I.

2. Local Radiation Protection Officer/Designated Calibrator Custodian. All calibration in which the AN/UDM-2 Calibrator Set is used will be supervised by a qualified local RPO. To be qualified as a local RPO, a person must have received a minimum of 40 hours of formal training in radiation protection inclusive of the following :

a. Principles and practices of radiation protection.

b. Biological effects of radiation.

c. Radioactivity measurement standardization and monitoring techniques and instrumentation.

d. Mathematics and calculations basic to the use and measurement of radioactivity.

e. The operation and use of the AN/UDM-2.

NOTES

A. Completion of the Radiological Safety or Calibrator Custodian Course at the US Army Chemical School or at the US Army Ordnance Center and School meets these requirements.

B. Where circumstances warrant, alternate training may be substituted if this training is approved by Commander, US Army Communications-Electronics Command, ATTN: DRSEL-SF-NR, Fort Monmouth, New Jersey 07703. Such training must be received under the guidance of a qualified local RPO, and must include at least 16 hours of actual experience in the use of the AN/UDM-2.

3. Operator or User. The operator or user of the AN/UDM-2 shall have a minimum of 8 hours training under the guidance of a qualified local RPO for the AN/UDM-2 in the basic fundamentals of radiological operations, radiac instrumentation theory, application, survey techniques and 16 hours on-the-job training in operation and care of the AN/UDM-2. Instructions shall include safe working practices and inherent hazards associated with the instrument.

4. Radiation Control Officer (RCO). To be qualified as an RCO for the AN/UDM-2, a person must have a technical, scientific, or engineering background and have successfully completed a minimum of 80 hours of formal training in radiation protection including the topics listed in item 2 above.

5. Maintenance Depot for the AN/UDM-2.

a. Depot Radiation Protection Officer and Alternate(s) must have as a minimum:

(1) A Bachelor's degree, or specialty, in Science, Engineering, Health Physics or equivalent discipline.

(2) 160 nours of specialized training in radiation protection including:

(a) Principles and practices of radiation protection.

(b) Biological effects of radiation.

(c) Radioactivity measurement standardization and monitoring techniques and instrumentation.

(d) Mathematics and calculations basic to the use and measurement of radioactivity.

(e) At least one year of satisfactory experience in applied Health Physics.

b. Technicians/Calibration Specialists. The following are the minimum requirements necessary for persons performing leak tests:

(1) Same as in 3 above, and

(2) Sufficient training by the depot RPO or his appointed representative(s) in the use of radiation detection instruments for leak test analysis, which shall include the method of performing the test, e.g., points on equipment to be smeared and method of taking smear; method of instrument calibration; and analysis of smears and reporting of smear results.

SUPPLEMENT C

1. Reference: Item 7 of Form NRC-313 I

2. Enclosures 1, 2, 3, and 4 are the qualifications of the US Army Communications-Electronics Command (CECOM) RPO, Alternate RPOs, and License Manager, respectively.

BARRY J. SILBER, Health Physicist, US Army Communications-Electronics Command (CECOM), Fort Monmouth, New Jersey

a. Education:

(1) A.A. - Brooklyn College of the City University of New York, Brooklyn, New York -

(2) B.S. - Brooklyn College of the City University of New York, Brooklyn, New York - Major: Chemistry.

Ex 6

b. Professional Experience:

(1) October 1966 - May 1967:
Allen Pharmacal Corporation, 175 Pearl Street, Brooklyn, New York.
Laboratory Technician - Analytical Chemistry Laboratory.
Laboratory analyses of pharmaceuticals at various stages of manufacture to insure compliance with Food and Drug Administration Regulations as well as United States Pharmacopeia and National Formulary Monographs.

(2) June 1967 - March 1970:
EON Corporation, 175 Pearl Street, Brooklyn, New York.
Chemist - Responsible for all health physics activities, including radiation surveys, air sampling and wipe tests, leak testing of sealed sources, decontamination of facilities and equipment, disposal of radioactive wastes, calibration of radiation survey and measurement instrumentation, record-keeping, etc., to insure compliance with US Nuclear Regulatory Commission (NRC) and New York State Regulations; liaison between regulatory agencies and corporate management; authorized radiation worker (user) of multiple types of radioactive materials used in the manufacture of radiation sources for commercial, military and highly specialized (custom-made) use; responsible for all chemistry activities including metallurgical applications on products at various stages of manufacture to meet quality control specifications.

(3) March 1970 - June 1977:

State of New York Department of Labor, Division of Safety and Health, 2 World Trade Center, New York, New York.
Senior Radiophysicist - Radiological Health Unit.
Responsible for the review of applications, including the evaluation of facilities, equipment, personnel and products containing radioactive materials, and in the preparation of State licenses authorizing the possession and use of radioactive materials by persons in industry and related activities in this State; assist in the administration of the licensing program; consult with and assist industrial management personnel and others in establishing radiation protection programs; conduct inspections, special prelicensing investigations, radiation surveys and tests at the sites of licensees and registrants using radiation sources to enforce state regulations and to insure that radiation workers and the general public are fully protected; assemble environmental research data, analyze and interpret this data, assist in the publication of scientific reports, and training of new staff members.

Page 1

(4) June 1977 - January 1978:
US Army Electronics Command (ECOM), Fort Monmouth, New Jersey.
Health Physicist - Responsible for health physics functions in the establishment and implementation of the ECOM Safety Program aimed at establishing life cycle controls of ECOM commodities utilizing radioactive material and ionizing radiation producing devices; responsible for the evaluation of radiological protection programs and radiation facilities to determine their adequacy and to insure compliance with DA Authorizations and NRC Licenses; perform studies and evaluations necessary to minimize the health risks to personnel; prepare and review applications for DA Authorizations and NRC Licenses; establish and maintain radiation protection records and files.

(5) January 1978 - April 1981:
US Army Communications and Electronics Materiel Readiness Command (CERCOM), Fort Monmouth, New Jersey.
Duties are the same as in Item b(4) above. Name change from ECOM to CERCOM.

(6) May 1981 - Present:
CECOM, Fort Monmouth, New Jersey.
Duties are the same as in Item b(4) above. Name change from CERCOM to CECOM.

c. Formal Training in Radiation Protection Methods, Measurements and Effects:

	Duration of Training	On-The-Job	Formal Course
(1) X-Ray Technology for Radiological Health Personnel-Memorial Hospital for Cancer and Allied Diseases, 444 East 68th Street, New York, New York - 11 January - 14 January 1971.	3 Days	No	Yes
(2) Orientation Course in Regulatory Practices and Procedures - NRC, Bethesda, Maryland - 1 March - 19 March 1971.	3 Weeks	No	Yes
(3) Health Physics and Radiation Protection - Special Training Division, Oak Ridge Associated Universities, Oak Ridge, Tennessee - 12 February 1973 to 20 April 1973. Sponsored by the NRC for Agreement State regulatory personnel.	10 Weeks	No	Yes
(4) Radiological Safety Course - US Army Ordnance and Chemical Center and School, Aberdeen Proving Ground, Maryland - 25 October - 15 November 1977.	3 Weeks	No	Yes
(5) Internal Dosimetry for Fixed Nuclear Facilities-Oak Ridge Associated Universities, Oak Ridge, Tennessee - 5 November - 9 November 1979.	1 Week	No	Yes
(6) Managers' Environmental Course - US Army Logistics Management Center, Fort Lee, Virginia - 13 July - 17 July 1981.	1 Week	No	Yes

d. Experience with Radiation.

Isotope		Maximum Amount	Duration of Experience	Type of Use
(1)	^{14}C	60 mCi	3 Years	For items 1 through 10-manufacture of sealed sources, health physics surveys and wipe tests.
(2)	^{32}P	10 mCi	3 Years	
(3)	^{36}Cl	10 mCi	3 Years	
(4)	^{63}Ni	10 mCi	3 Years	
(5)	$^{90}Sr/^{90}Y$	50 mCi	3 Years	For items 11 and 14-calibration of radiation instrumentation, health physics surveys and wipe tests.
(6)	^{99}Tc	100 mCi	3 Years	
(7)	$^{106}Ru/^{106}Rh$	50 mCi	3 Years	
(8)	$^{144}Ce/^{144}Pr$	500 mCi	3 Years	
(9)	^{147}Pm	500 mCi	3 Years	For items 12 and 13-health physics surveys and wipe tests.
(10)	^{204}Tl	50 mCi	3 Years	
(11)	^{60}Co	10 mCi	3 Years	
(12)	^{60}Co	200 Ci	3 Years	
(13)	^{137}Cs	250 Ci	3 Years	
(14)	^{226}Ra	20 mCi	3 Years	

STEVEN A. HORNE, Health Physicist, US Army Communications - Electronics Command (CECOM), Fort Monmouth, New Jersey 07703

1. Educational Background:

Old Dominion University Norfolk, Virginia	3 Years	[redacted] - Associate in Applied Science
The Catholic University of America Washington, DC	2 Years	[redacted] - BSE Nuclear Science and Engineering
The Catholic University of America Washington, DC	-	1975 - Graduate Work in Nuclear Science and Engineering

EX 6

2. Formal Training and Experience in Radiation Protection Methods, Measurements and Effects:

	Duration of Training	On The Job	Formal Course
a. Fifty-six semester hours pertaining to radiation, including college physics, Environmental Aspects of Nuclear Power Plant Management, Environmental Radioactivity, Nucleonic Fundamentals, Nuclear Properties and Interactions, Nuclear Physics, Nuclear Radiation Detection, Nuclear Reactor Physics, Radiation Biology, Radioisotope Techniques and Radiological Physics - Old Dominion University and The Catholic University of America.	1961-1975	No	Yes
b. Radiation Detection Effects and Devices Utilizing various type of high energy accelerators - Virginia Associated Research Center Newport News, Virginia, and NASA Langley Research Center, Langley, Virginia.	1 Year	Yes	No
c. Radiation safety, detection instrumentation and isotopic handling equipment - Flow Corp, Fort Belvoir, Virginia.	2 Months	Yes	No

	Duration of Training	On The Job	Formal Course
d. Radiological Safety Course pertaining to Nuclear Moisture/ Density Instrumentation - Seaman Nuclear Corporation, Milwaukee, Wisconsin.	24 Hours	No	Yes
e. Occupational Radiation Protection Course 212 - Public Health Services, Las Vegas, Nevada.	80 Hours	No	Yes
f. Fundamentals of Non-Ionizing Radiation Protection Course 264 - Public Health Service, Rockville, Maryland.	40 Hours	No	Yes
g. Laser Safety Course - University of Cincinnati, Ohio.	40 Hours	No	Yes
h. Radionuclide Analysis by Gamma Spectrocopy Course 208 - Public Health Service, Winchester, Massachusetts.	80 Hours	No	Yes
i. Radiation Guides and Dose Assessment Course 272 - Environmental Protection Agency, Las Vegas, Nevada.	80 Hours	No	Yes

3. Experience with Radioisotopes:

Isotope	Maximum Activities in Curies	Duration of Experience	Type of Experience
^{241}Am	1	3 Years	For all radionuclides listed, experience consisted of laboratory analysis, wipe tests, experiments and evaluations utilizing these sources.
^{252}Cf	.27	3 Years	
^{57}Co	0.1	4 Years	
^{60}Co	1200	8 Years	
^{137}Cs	1	8 Years	
^{3}H	20	8 Years	
^{192}Ir	100	8 Years	
^{147}Pm	1	8 Years	

Isotope	Maximum Activities in Curies	Duration of Experience
^{226}RaBe	1	5 Years
^{239}PuBe	1	1 Year
^{90}Sr	0.1	2 Years

4. Experience with other Radiation Producing Machines:

Radiation Machine	Duration of Experience	Type of Experience
a. NASA Langley Research Center, and Virginia Associated Research Center's, Space Radiation Effects Laboratory consisting of a 2 MeV Van de Graff accelerator, 3 MeV Dynamitron accelerator, 10 MeV Linear Electron Accelerator, a 600 MeV Proton Synchrocyclotron Accelerator and a 14 MeV Neutron Generator.	1.5 Year	Radiation damage Shielding Experiments and Related Health Physics Studies.
b. 250 KeV General Electric Corporation X-ray machine	8 Years	Health Physics and laboratory experiments.
c. Various energy dispersive and wave length X-ray fluorescence spectrometry with X-ray generators up to 50 KeV.	8 Years	Health Physics and laboratory experiments.

5. Experience with radiation:

1964-1965 - Virginia Associated Research Center, NASA, Langley Research Center, Virginia as Health Physics Technologist.

1965-1966 - E.R. Squibb, New Brunswick, New Jersey as Radiochemist Isotope Technologist.

1966-1968 - Flow Corporation, Nuclear Division, Fort Belvoir, Virginia as Radiation Engineer.

1968-1976 - US Army Mobility Equipment Research and Development Command, Fort Belvoir, Virginia as Health Physicist.

1976-1978 - US Army Electronics Command, Fort Monmouth, New Jersey as Health Physicist.

1978-1981 - US Army Communications and Electronics Materiel Readiness Command, Fort Monmouth, New Jersey, as Health Physicist.

1981-Present - US Army Communications-Electronics Command, Fort Monmouth, New Jersey, as Chief, Materiel Safety Engineering Division, Safety Office and Supervisory Health Physicist.

JOSEPH M. SANTARSIERO, Health Physicist, US Army Communications-Electronics Command (CECOM), Fort Monmouth, New Jersey 07703

a. Education:

(1) Seton Hall University, East Orange, New Jersey
Biology program 1972-1973.

(2) Brookdale Community College, Lincroft, New Jersey

(3) Rutgers, The State University, New Brunswick, New Jersey
BS degree in Biology

(4) Middlesex General Hospital, New Brunswick, New Jersey
Certification in Nuclear Medicine Technology, May 1978.

(a) American Registry of Radiologic Technologists (ARRT).

(b) Certifying Board of Nuclear Medicine Technology (CBNMT).

(c) State of New Jersey Certification - Nuclear Medicine Technology.

(5) Rutgers, the State University, New Brunswick, New Jersey
Presently completing program of graduate study in Radiation Science (Masters Program). Course work has included: Advanced Special Problems; Special Topics in Radiological Health; Radiation Detection and Measurement; Radiation Chemistry; Radiation Safety; Radiation Health Physics; Nuclear Instrumentation; Radionuclide Chemistry and Radiopharmaceuticals; Radiation Protection; Radiation Biology; Radiation Biochemistry; Clinical Applications of Radionuclides; Radiation Dosimetry; Radiation Therapy; Interactions of Radiation with Matter; Atomic Theory and Structure; Nuclear Theory and Structure; Radioactivity and the Environment; Instrumentation and Radiation; Nuclear Physics; Radiation Biophysics.

b. Professional Experience:

(1) May 1978-August 1982:

Monmouth Medical Center, 3rd and Pavillon Avenues, Long Branch, New Jersey.

Senior Nuclear Medicine Technologist-Department of Nuclear Medicine. Licensed to prepare and administer radiopharmaceuticals for diagnostic imaging of disease in or on human beings. Responsible for the quality control of imaging systems and computers, dose calculation and assay prior to administration, patient orientation to procedures and on-call emergency procedures. Performed various health physics activities including radiation surveys, air sampling and wipe tests, leak testing of sealed sources, decontamination of facilities and equipment, disposal of radioactive wastes, calibration of

radiation survey and measurement instrumentation, record-keeping, etc., to insure compliance with US Nuclear Regulatory Commission (NRC) and New Jersey State Regulations.

(2) August 1982-September 1983:

Bio-Med Associates, Inc., 753 Boulevard, Kenilworth, New Jersey.
Provide consultation to hospitals, doctors, administrators, etc., regarding the safe and proper use of radiation and radioactive materials. Determine the requirements of, and design the shielding for X-ray installations and nuclear medicine departments. Prepare applications for the use of radioactive materials for both USNRC and State regulated radioactive materials. Amend licenses as requested and required. Evaluate radiation safety programs, prepare and give lectures to physicians, nurses, administrators, etc., regarding radiation and radioactivity. Design areas where radioactive materials are stored and/or used. Perform quality control procedures on X-ray machines and nuclear medicine instruments. Instruct X-ray students. Review personnel monitoring records and methods, evaluate personnel performance regarding radiation and its use, perform sealed source leak tests on various radionuclides.

(3) September 1983-February 1984:

State of New Jersey, Department of Environmental Protection, Bureau of Radiation Protection, 380 Scotch Road, Trenton, New Jersey.
Radiation Physicist.
Approved or rejected licenses or amendments for possession and use of radioactive materials, in the State of New Jersey, after assessment of user qualification, radiation safety program, and compliance with State rules and regulations. Reorganized program format and developed inspection procedures, criteria and forms. Evaluated and provided recommendations for quality assurance of radiopharmaceuticals and instruments at user facilities. Performed inspections and violation investigations of facilities utilizing State licensable materials, initiated legal proceedings for areas found to be in non-compliance, and issued letters of compliance. Authorized to impound non-compliant units to prevent usage that may be detrimental to public and/or occupational safety. Conducted special projects evaluating radiation hazards and development of procedures for control and reduction of unnecessary radiation. Investigated violations and incidents post notification of radiation hazard with authority to establish improved radiation safety requirements. Registered NRC licensable materials. Registered accelerators and reviewed radiation safety surveys. Member of emergency response team with authority to make immediate decisions relative to public health and safety regarding the control of radiation. Responsible for monthly report and statistic preparation involving radioactive material users, inspections, violations, NRC registrations, and accelerators. Responded to all public and private inquiries involving radioactive materials or non-ionizing radiations. Proposed regulations for NJ Administrative Code adoption.

(4) February 1984-present

US Army Communications-Electronics Command (CECOM), Fort Monmouth, New Jersey.
Health Physicist - Responsible for health physics functions in the

establishment and implementation of the CECOM Safety Program aimed at establishing life cycle controls of CECOM commodities utilizing radioactive material and ionizing radiation producing devices; responsible for the evaluation of radiological protection programs and radiation facilities to determine their adequacy and to insure compliance with DA Authorizations and NRC Licenses; perform studies and evaluations necessary to minimize the health risks to personnel; prepare and review applications for DA Authorizations and NRC Licenses; establish and maintain radiation protection records and files.

c. Experience with Radioactive Materials:

	Isotope	Maximum Amount		Duration of Experience	Type of Use
1.	$^{99}Mo/^{99m}Tc$	2	Ci	5 years	For items 1 through 19, radiopharmaceutical preparation, dose injection, and/or related diagnostic/therapeutic procedures, health physics surveys, wipe test analysis, and instrument calibration.
2.	^{131}I	20	mCi	5 years	
3.	^{75}Se	5	mCi	5 years	
4.	^{67}Ga	50	mCi	5 years	
5.	^{201}Tl	30	mCi	5 years	
6.	^{32}P	40	mCi	5 years	
7.	^{133}Xe	200	mCi	5 years	
8.	$^{81}Rb/^{81m}Kr$	25	mCi	2 years	
9.	^{125}I	50	mCi	5 years	
10.	^{123}I	10	mCi	5 years	
11.	^{137}Cs	5	Ci	5 years	
12.	^{226}Ra	800	mg	5 years	
13.	^{192}Ir	80	Ci	6 months	
14.	^{60}Co	100	Ci	3 months	
15.	^{57}Co	30	mCi	5 years	
16.	^{133}Ba	10	mCi	5 years	
17.	^{51}Cr	25	mCi	5 years	
18.	^{59}Fe	20	mCi	1 year	
19.	^{111}In	3	mCi	5 years	

BERNARD M. SAVAIKO, Chief, Safety Office, US Army Communications-Electronics Command (CECOM), Fort Monmouth, New Jersey

a. Education: B.S. Industrial Engineering, Columbia University, New York, New York. Ex. 6

b. Professional Experience:

(1) 5 years - Safety Officer - US Air Force.

(2) 4 years - Industrial Safety - U.S. Steel Corporation.

(3) 20 years - Industrial Safety and Chief, Safety Office- USACECOM (formerly US Army Communications and Electronics Materiel Readiness Command and US Army Electronics Command) Fort Monmouth, New Jersey, including 3 years experience as a Radiation Protection Officer with responsibilities for the control of various commodities containing radioactive materials.

Mr. Savaiko is designated as the manager of Nuclear Regulatory Commission Licenses and Department of the Army Authorizations.

Encl 4

SUPPLEMENT D

1. Reference: Item 8 and 9 of NRC Form 313 I.

2. The maximum number of sealed sources and maximum activity per source to be possessed at any one time shall include:

a. Source A: Sealed sources (ECOM Drawing Number SM-B-509057) not to exceed 50 millicuries (mCi) per source or [redacted] curies total.

b. Source B: Sealed sources (ECOM Drawing Number SM-B-509043) not to exceed 150 microcuries (uCi) per source or 75 mCi total.

c. Source C: Sealed Sources (3M Drawing Number 12-1921-0474-8) not to exceed 45 mCi per source or [redacted] curies total.

d. Source D: Sealed Sources (3M Drawing Number 12-1921-0474-8) not to exceed 36 uCi per source or 18 mCi total.

3. The sealed sources incorporated in the AN/UDM-2 Radiac Calibrator Sets have been manufactured by various corporations. Based on the useful lifetime of the sealed sources, new sources are being procured for the refurbishment of all calibrator sets utilized by authorized activities. AN/UDM-2 Radiac Calibrator Sets incorporating Sources A and B will be utilized by authorized DOD activities until such time as refurbishment with Sources C and D is achieved. Upon refurbishment is completed, all AN/UDM-2 Radiac Calibrator Sets not included in the refurbishment program will be maintained at LBDA in storage until such time as proper disposal of these sources can be accomplished.

4. Sources A and B have been manufactured by the following corporations in accordance with requirements set forth in Military Specification MIL-R-[illegible] (EL) (Enclosure 1) and ECOM Drawing Numbers SM-B-509043 (Enclosure 2) and SM-B-509057 (Enclosure 3).

a. Gamma Industries, Inc., Houston, Texas: Corning Glass Company vycor porous disk of specific dimension is immersed into a ^{90}Strontium Oxide aqueous solution of specific concentration for a specified period of time in order to enable sufficient radioactive material to penetrate deep into the disk. The disk is then dried and fired at elevated temperatures, i.e., 1000 to 1300 degrees Celsius, in order to insure that the pores shrink or collapse around the radioactive material thus sealing the pores. This method is best described in US Patent Number 3,364,148, High Silica Matrix Radioactive Source And Method Of Preparation, dated 16 January 1968.

b. Gulf Nuclear, Inc. (formerly Nuclear Environmental Engineering, Inc.) Houston, Texas: Union Carbide Corporation, Linde Division, molecular sieves compressed into disk or pellet form are immersed into a ^{90}Strontium Nitrate aqueous solution of specific concentration for a specified period of time. Molecular sieves are sodium, calcium or potassium aluminum silicates. The chemical composition of the molecular sieve may vary depending upon the type used. The molecular sieve used in the manufacture of these sealed sources is the Type AW-500 and has a chemical composition of $Ca_4[(AlO_2)_3(SiO_2)_{16}]H_2O$. The

^{90}Strontium (^{90}Sr) exchanges with some of the calcium in this compound by the ion exchange method forming a strontium calcium aluminum silicate. To insure that the ^{90}Sr remains, the molecular sieve is dried at approximately 300 degrees Celsius. The source descriptions for Gamma Industries, Inc., and Gulf Nuclear, Inc., are similar to the Minnesota Mining and Manufacturing (3M) Company sealed sources with the exception of the radiating microspheres. The descriptions provided of the manufacturing processes used by these corporations identify microsphere equivalency.

5. Sources C and D have been manufactured by the 3M Company, New Brighton, Minnesota and designated with the Model Number 3F1G. The ^{90}Sr contained in these sources are chemically combined with a ceramic base which is then fired to produce "microspheres" of controlled shape and particle size of approximately fifty (50) microns in diameter. This provides for an extra factor of safety in addition to the safety factors provided by the double encapsulation and special form testing requirements. These sources are manufactured in accordance with Military Specification MIL-R-55350A(ER) (Enclosure 4) and 3M Drawing Number 12-1921-0474-8 (Enclosure 5).

6. As indicated, all sealed sources are subjected to and comply with production/quality assurance tests as outlined within the applicable military specification. These tests are witnessed by Defense Contract Administration Service (DCAS) representatives. Testing includes but is not limited to:

a. First encapsulation leak test.

b. Source bloat test.

c. Second encapsulation leak test.

d. Second encapsulation bloat test.

e. Source contamination test.

f. Source radioactivity test.

g. Environmental durability/Source integrity (i.e., temperature, immersion, humidity, vibration, shock, etc).

The applicable military specification should be referenced for detailed description of each test.

7. All sources are manufactured as special form material in accordance with applicable drawing numbers and Titles 10 and 49, Code of Federal Regulations.

8. Use Of The AN/UDM-2 Radiac Calibrator Set

a. The AN/UDM-2 Radiac Calibrator Set is utilized for checking calibration of pocket dosimeters and radiac survey instruments. Prior to use, the eight container latches are released, the two halves of the calibrator are placed on the work surface open side up, and shipping locks are unfastened.

b. Checking Calibration of Pocket Dosimeters - The Discharge Well Assembly is unlocked with a key and the cover (with set and wound stop watch) is swung aside. A clean, zeroed pocket dosimeter is inserted into the Discharge Well access hole. For low range dosimeters (usually less than 1 R maximum reading), the dosimeter rests on the undepressed, spring-loaded dosimeter platform and the cover swings against the body of the dosimeter to the low intensity field of the 36 uCi source*. For high range dosimeters (usually more than 1 R maximum reading), the dosimeter is pressed down so that the cover swings over the dosimeter. This procedure exposes the chamber of the dosimeter to the high intensity field of the three 45* mCi sources. The dosimeter is removed after the fixed time determined for each specific type of dosimeter. The stop watch mounted on the swivel is used to time each exposure. The dosimeter reading is then checked against acceptable limits also listed in the applicable calibration report. When a dosimeter is not in the discharge well, the spring-pivoted cover automatically swings back over the discharge well access hole. Upon completion of use of the Discharge Well Assembly, the cover is relocked in the closed position.

c. Calibration of Radiac Survey Instruments - The Doserate Jig Assembly is used to calibrate standard Army radiacmeters in a variety of configurations to produce varying gamma equivalent fields for the specific instruments. The detector probe is placed appropriately exterior to the Doserate Jig Assembly, on the open drawer, or through an access hole in the drawer. A specially designed Spacer Block is provided for proper positioning of some probes. After positioning of the operating instrument, the instrument reading is read with the shutter in one of three positions, "closed", "10 rad/hr", and "100 rad/hr". The shutter can be rotated to the open positions only after unlocking with a key and only with the drawer tightly closed.

9. Description Of The AN/UDM-2 Radiac Calibrator Set

a. The AN/UDM-2 Radiac Calibrator Set is comprised of two major assemblies, the Doserate Jig Assembly (TS 3494/UDM-2) and the Discharge Well Assembly (TS 3495/UDM-2). The Doserate Jig Assembly contains one 35 mCi±20.0 percent ^{90}Sr sealed source and the Discharge Well Assembly contains three 35 mCi±20.0 percent ^{90}Sr sealed sources and one 30 uCi±20 percent ^{90}Sr sealed source. The calibrator sets have been labeled to indicate a nominal activity of 150 mCi based on the quantity of radioactive material incorporated. The Doserate Jig Assembly is labeled as containing a 45 mCi ^{90}Sr sealed source and the Discharge Well Assembly indicates a 135 mCi quantity. Sealed ^{90}Sr sources referred to in this document will be 45 mCi and 36 uCi as applicable. Enclosure 6 (3M Drawing No. 12-1921-3466-1 shows the construction of the plug assembly, the rear portion of the source assembly, and how the threaded source can be screwed into and out of its shield with the use of an allen wrench. The Doserate Jig Assembly is used to calibrate contingent standard Army beta-gamma radiac survey instruments while the Discharge Well Assembly is used to check the calibration of standard Army pocket dosimeters. Each assembly is housed in one-half of a waterproof, aluminum case. Enclosures 7 and 8 are Technical Manual (TM) 11-6665-227-12 and Technical Bulletin (TB) 11-6665-227-12 which describe the operation, control, maintenance and calibration of the calibrator.

*Quantities specified are based on sealed sources contained in all refurbished AN/UDM-2 Radiac Calibrator Sets. Statements regarding the 36 uCi source (Source D) are applicable to the 150 uCi source (Source B) as are statements regarding the 45 mCi source (Source C) equivalent to the 50 mCi source (Source A) identified in paragraph 2 above.

b. Discharge Well Assembly

(1) The construction of the Discharge Well Assembly is described in enclosure 9 (ECOM Drawing SM-D-508975). A parts list is also provided with this enclosure. The threaded 36 uCi source is screwed directly into the upper housing as described in enclosure 10 (ECOM Drawing SM-D-508991), and is locked into position by the Shield Plug described in enclosure 11 (ECOM Drawing SM-B-509029). Its window is about 1/4 inch from the access hole. The three threaded 45 mCi sources are screwed into the "doughnut" shield as described in enclosures 12 (ECOM Drawing SM-B-508981) and 13 (ECOM Drawing SM-B-508983), and are backed by the Shield Plugs described in enclosure 14 (ECOM Drawing SM-B-508984). Their windows are approximately 0.1 inch recessed from the dosimeter access hole with respect to the retaining pins to prevent the source from entering the access hole.

(2) The Discharge Well Assembly, which is attached by environmentally sealed screws to one half of the aluminum case, consists of a discharge well, a dosimeter shelf, and a stopwatch. The dosimeter shelf contains 30 holes to hold dosimeters to be tested and the discharge well. The discharge well has an access hole to the central cavity centered in the top. The cover over the access hole is mounted on a spring-loaded pivot and is key-locked in the closed position when the well is not in use. The lock is a standard National Lock filing cabinet lock held in place by a set screw. The tongue drops down into a slot in the cover and blocks movement of a pin which projects from the upper housing. The pin guides through the slot in the cover when the cover is swung aside. A shipping lock fastens the cover closed for shipment. The tungsten alloy "doughnut" containing the three 45 mCi sources is mounted between the two anodized aluminum halves of the discharge well. Three long bolts pass through the doughnut and fasten the two halves together. A spring mounted dosimeter platform plugs the center of the cavity (about 0.01 inch clearance) and rests on a steel spring. The spring is mounted on a stop that is an integral part of the bottom cover. The bottom cover is screw-fastened to a cylinder that is force fitted into the lower housing.

c. Doserate Jig Assembly

(1) The construction of the Doserate Jig Assembly is described in enclosure 15 (ECOM Drawing SM-D-508994). A parts list is also provided with this enclosure. A threaded 45 mCi source screws into the tungsten alloy shield cylinder which is force fitted on an arbor press into the aluminum shield assembly. The source is locked in place by the threaded Shield Plug described in enclosure 14 (ECOM Drawing SM-B-508984) and the window of the source is recessed approximately 1/4 inch from the edge of the shield assembly. Enclosure 16 (ECOM Drawing SM-C-509011) describes the shutter absorber which shields the window end of the source.

(2) The Doserate Jig Assembly consists of a drawer unit which is fastened to the other half of the aluminum case by environmentally sealed screws and an aluminum spacer block which is stored in the drawer when not in use. The drawer unit is constructed primarily of anodized aluminum with tungsten alloy shielding around the 45 mCi source. The drawer unit consists of a housing assembly, a drawer assembly, (with a clearance of about 0.01 inch above the shield assembly between the source and the drawer) and a thumbwheel shutter by which the radiation reaching the drawer can be controlled. The shutter has three position indications as follows: closed (source is shielded), "10 rad/hr" (hole with an