SUMMARY OF REQUIREMENTS

1. **250 microcuries americium 241** special form sources used in M43A1 chemical agent detector, part of M8A1 alarm.

2. Covers use by Army, Marine Corps and Navy worldwide.

3. Each cell module, which contains the source, is serialized. Cell modules, and M43A1s are **tracked by serial number.** Transaction cards are processed at each receipt, shipment, wipe test, transfer, loss, recover, inventory, etc. per **AR 710-3, Chapter 4.** Cell serial number is on the cell module, detector serial number on the outside of the detector.

4. **Cell modules must be wipe tested every ~~two~~ years.** First wipe test is performed by contractor. Field wipe testing can only be done by TMDE 35H personnel, or others who have equivalent training. All wipe tests should be screened with PDR 56 or equivalent and are mailed for analysis to AIRDC. **Wipe test results must be kept in units of .XXX microcuries.**

5. Maintenance involving removal of cell **module or pump module must be performed only by TMDE calibrator custodian personnel,** 35H, or by the 39E electronics repairer at the DS level, with written approval of MACOM radiation safety officer. Maintenance personnel must have a minimum of 8 hours radiation safety.

6. **Depot level maintenance and storage of cells for disposal is authorized at Anniston Army Depot.**

7. **Bulk storage** is allowed at **Anniston, Letterkenny, Sharpe, New Cumberland, Savanna, and MCLB-Albany.** Bulk storage depots must have:
   a. RPO and Alternate.
   b. Monthly surveys of storage areas.
   c. Signs posted.
   d. Physical inventories at depot level.
   e. Flow-proportional counter (laboratory instrument).
   f. Base Radiation Safety Program.

8. **Exit port filter must be used when items are used in enclosed areas.** However, use inside moving vehicles with vents to the outside is acceptable, e.g. FOX vehicle.

9. Users are in trained radiation safety by warnings and instructions in the technical manuals, PLUS must have at least 2 hours rad safety training. Videos are available for user training.

10. AMCCOM QA must perform annual random samples of items in use and storage. Wipe samples for these QA samples may be taken by AMCCOM Safety or Quality Assurance representatives per QA direction.

11. Procurement Contracts must include requirements for leak tests be performed by an independent test lab. Contractors must also comply with the serial number tracking system.

BML 12-00722-13 NRC LICENSE INSPECTION CHECKLIST

M43A1 Chemical Agent Detector

Storage/User/Direct Support Maintenance Installations:

1. Is a serialization officer assigned per AR 710-3? Are serialization records kept IAW AR 710-3?

2. Are shipment transactions kept for at least two years?

3. Have all cell modules been wipe tested within the past ~~X~~ year~~X~~? (Wipe test exempt if in depot storage)

4. Are procedures in place so that detectors will be wipe tested when due, even if not notified by ~~AMCCOM~~? ACALA

5. Are wipe tests performed only by radiation safety trained personnel?

6. Is Direct Support maintenance involving removal of cell or pump modules performed only by radiation safety trained personnel (8 hour minimum rad safety training)?

7. Do maintenance personnel use portable alpha detection equipment or take wipe tests of maintenance areas?

8. Have all users of the M43A1 received the mandatory 2 hour radiation safety training?

9. Are exit port filters used when in enclosed areas?

10. Are radioactive sources secured against unauthorized use?

11. Are procedures in place to notify license RSO when physical inventories come up short?

12. Are labels removed from empty boxes? Pay close attention to use and storage labels on inside packaging.

Bulk storage depots (Anniston Army Depot, Savanna Army Depot Activity):

13. Have RPO and Alternate been formally appointed?

14. Are storage areas monitored with portable equipment monthly?

15. Are storage areas wipe tested quarterly? Are records of results kept? Results should indicate date and where wipes were taken, such as a diagram of room or map.

16. Are 'Caution - Radioactive Material' signs posted?

17. Are wipe tests of storage areas analyzed by flow-proportional counter?

18. Has fire department been kept apprised of radioactive material on site?

19. Are cell module serial numbers verified prior to disposal as radioactive waste?

NUCLEAR REGULATORY COMMISSION LICENSE BML 12-00722-13

EXPIRE DATE	ISSUE DATE	AM	REASON FOR AMENDMENT
05/31/89	05/23/84	OR	300uCi per source, 21 Ci total americium 241 used in M43A1 detector. Included training rqmtns, wipe and tracking requirements.
/ /	10/23/84	01	Overseas maintenance added, and independent test lab requirement.
/ /	01/02/85	02	Filter required for inside rooms; reduced use training to 6 hours.
/ /	01/10/86	03	Inventory requirements; annual physical inventory by hand receipt holders.
/ /	04/10/86	04	Reduced user training to 2 hours rad safety only, added SVADA as depot.
/ /	03/03/87	05	LaFrenz, Cardenuto alternate RPOs. (To NRC 9 Jan 87)
/ /	04/17/87	06	MCLB Albany depot added. To AMC 28Nov86, NRC 5Feb87.
/ /	06/30/87	07	Obsolete DOT instructions removed. To AMC 3 Dec 86; To NRC 16 Mar 87.
/ /	12/03/87	08	Metal locker, 3 yr wipe at transfer, removed depot RPO resumes. To AMC 23 Jan 87, to NRC 31 Mar 87.
/ /	03/03/88	09	FOX mounting. To AMC 14 Aug 87; again 20 Sept 87 To NRC 30 Sept 87.
/ /	04/14/88	10	Add Navy and Change to use anywhere in U.S. To AMC 10 Nov 87; to NRC 3 Feb 88.
/ /	04/14/88	11	Removed requirement for screening wipe tests with portable meters, and to use alpha meter instead of PDR 27 in an accident situation to locate source, letter 8 Apr 88.
/ /	/ /	om	Waiver for Chem School to use without exit port 1987. No response from AMC.
/ /	11/10/88	12	Add Nelson as alternate RPO. To AMC 19 Sept 88. Extended license. To AMC 10 Mar 89. No response from AMC. Add National Guard for DS maintenance. Thru CECOM to AMC 12 Apr 89. AMC returned 30 Jun 89 to CECOM for more information. CECOM to AMC 19 Jul 89.
/ /	/ /	13	Renewal application to AMC 26 Jul 89. Timely from NRC 26 Oct 89. Control #388050.
11/30/94	11/14/89	14	Renewed in entirety. Includes maintenance by TMDE and/or DS where trained. Wipe test within 6 months of transfer if unknown if leak test is current or not.
/ /	06/01/90	15	Wipe test interval extended to 3 year for UIC transfer. To AMC 4 May 90.

NUCLEAR REGULATORY COMMISSION LICENSE BML 12-00722-13

EXPIRE DATE	ISSUE DATE	AM	REASON FOR AMENDMENT
/ /	/ /		Decommissioning letter to NRC 21 Jun 90.
/ /	06/29/90	16	DLA added per letter 22 Jun 90.
/ /	01/23/91	17	LaFrenz and Crooks RPOs. To AMC 7 Nov 90. To NRC 19 Dec 90.
/ /	01/03/92	18	Marine Corps Labs to do analysis of wipe tests. Also MCLBs to perform depot maintenance. AMC sent to NRC 18 Dec 91.
/ /	05/14/92	19	Memo 30 May 92, Change of RPO's (removed Kelly Crooks as ARPO and added Gavin Ziegler and Joyce Kuykendahl.
/ /	11/30/92	20	Amended in its entirety due to letter 29 Sep 92.
/ /	12/23/92	21	Amended in its entirety. Remove Katheryn LaFrenz as RPO and added David Skogman.
04/30/95	10/04/94	22	Reorganizational name change from U.S. Army Armament Munitions and Chemical Command to U.S. Army Armament and Chemical Acquisition and Logistics Activity.
/ /	/ /	23	Expiration date extended to 31 March 1995.

MATERIALS LICENSE

Amendment No. 26

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.

398139

Licensee	
1. Department of the Army U.S. Army Armament and Chemical Acquisition and Logistics Activity 2. ATTN: AMSTA-AC-SF Rock Island, IL 61299-7630	In accordance with letter dated February 7, 1995 3. License Number 12-00722-13 is amended in its entirety to read as follows: 4. Expiration Date March 31, 1995 5. Docket or Reference No. 030-21073

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. Americium-241	A. Plated Foils (Amersham Corp. Model No. AMM5 of N.R.D. Model A001)	A. No single cell to exceed 300 microcuries, 25 curies total.

9. Authorized Use:

A. To be used in Model M43A1 Chemical Agent Detectors for detection of aerosols and gases.

CONDITIONS

10. Licensed material may be stored at the Marine Corps Logistics Base, Albany, Georgia, and may be used at U.S. Army, Marine Corps or Navy installations throughout the United States.

11. A. Licensed material shall be used by, or under the supervision of, John Mattila, Jeffrey Havenner, Elizabeth Peterson, Gavin Ziegler or individuals successfully completing the training program described in application dated July 19, 1989.

B. The Radiation Safety Officer for this license is Jeffrey Havenner.

C. The Alternate Radiation Safety Officer for this license is Gavin Ziegler or Elizabeth Peterson.

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License number
12-00722-13
Docket or Reference number
030-21073
Amendment No. 26

12. A. (1) The source(s) specified in Item(s) 7.(A) shall be tested for leakage and/or contamination at intervals not to exceed 3 years. Any source received from another person which is not accompanied by a certificate indicating that a test was performed within 3 years before the transfer shall not be put into use until tested.

(2) Notwithstanding the periodic leak test required by this condition, any licensed sealed source is exempt from such leak tests when the source contains 100 microcuries or less of beta and/or gamma emitting material or 10 microcuries or less of alpha emitting material.

B. Any source in storage and not being used need not be tested. When the source is removed from storage for use or transfer to another person, it shall be tested before use or transfer.

C. 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 microcuries or more of removable contamination, the source shall be removed from service and decontaminated, repaired, or disposed of in accordance with Commission regulations. A report shall be filed within 5 days of the date the leak test result is known with the U.S. Nuclear Regulatory Commission, Region III, 801 Warrenville Road, Lisle, IL 60532-4351, ATTN: Chief, Nuclear Materials Safety Branch. The report shall specify the source involved, the test results, and corrective action taken. Records of leak test results shall be kept in units of microcuries and shall be maintained for inspection by the Commission. Records may be disposed of following Commission inspection.

D. Tests for leakage and/or contamination shall be performed by the licensee or by other persons specifically licensed by the Commission or an Agreement State to perform such services.

13. Sealed sources or detector cells containing licensed material shall not be opened or sources removed from source holders by the licensee.

14. The licensee is authorized to transport licensed material only in accordance with the provisions of 10 CFR Part 71, "Packaging and Transportation of Radioactive Material."

15. The licensee shall conduct a physical inventory annually to account for all americium cell modules received and possessed under the license in accordance with letter dated October 21, 1985. The records of the inventory shall be maintained for inspection by the Commission, and shall include the quantities and kinds of byproduct material, location of americium cell modules and the date of the inventory.

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License number: 12-00722-13
Docket or Reference number: 030-21073
Amendment No. 26

16. The licensee shall maintain records of information important to safe and effective decommissioning at AMCCOM, Rock Island, Illinois per the provisions of 10 CFR 30.35(g) until this license is terminated by the Commission.

17. 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 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 July 19, 1989;

B. Letters dated October 21, 1985, April 4, 1988, May 4, 1990, June 22, 1990, December 18, 1991 (with attachments), September 29, 1992, November 19, 1992, January 26, 1994, September 2, 1994, October 12, 1994 and October 24, 1994, February 7, 1995 (with attachments); and

C. Letter received December 19, 1990.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Date May 18, 1995

By Colleen C. Casey
Materials Licensing Section, Region III

COPY

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
801 WARRENVILLE ROAD
LISLE, ILLINOIS 60532-4351

MAY 22 1995

Department of the Army
U.S. Army Armament and Chemical
Acquisition and Logistics Activity
ATTN: John A. Mattila, Chief
Safety Office
Rock Island, IL 61299-7630

Dear Mr. Mattila:

Enclosed is Amendment No. 26 to your NRC Material License No. 12-00722-13 in accordance with your request.

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 III office 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. Unless your license has been 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 Radiation Safety Officer 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. 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 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.

Sincerely,

Colleen C. Casey

Colleen C. Casey
Nuclear Materials Licensing Section

License No. 12-00722-13
Docket No. 030-21073

Enclosure: Amendment No. 26

MATERIALS LICENSE

Amendment No. 25

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.

397761

Licensee	
1. Department of the Army U.S. Army Armament and Chemical Acquisition and Logistics Activity 2. ATTN: AMSTA-AC-SF Rock Island, IL 61299-7630	In accordance with letter dated October 24, 1994 3. License number 12-00722-13 is amended in its entirety to read as follows: 4. Expiration date March 31, 1995 5. Docket or Reference No. 030-21073

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. Americium-241	A. Plated Foils (Amersham Corp. Model No. AMM5 of N.R.D. Model A001)	A. No single cell to exceed 300 microcuries, 25 curies total.

9. Authorized Use:

A. To be used in Model M43A1 Chemical Agent Detectors for detection of aerosols and gases.

CONDITIONS

10. Licensed material may be stored at the Marine Corps Logistics Base, Albany, Georgia, and may be used at U.S. Army, Marine Corps or Navy installations throughout the United States.

11. A. Licensed material shall be used by, or under the supervision of, John Mattila, Jeffrey Havenner, Elizabeth Peterson, Gavin Ziegler or individuals successfully completing the training program described in application dated July 19, 1989.

B. The Radiation Safety Officer for this license is Jeffrey Havenner.

C. The Alternate Radiation Safety Officer for this license is Gavin Ziegler or Elizabeth Peterson.

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License number
12-00722-13

Docket or Reference number
030-21073

Amendment No. 25

12. A. (1) The source(s) specified in Item(s) 7.(A) shall be tested for leakage and/or contamination at intervals not to exceed 3 years. Any source received from another person which is not accompanied by a certificate indicating that a test was performed within 3 years before the transfer shall not be put into use until tested.

(2) Notwithstanding the periodic leak test required by this condition, any licensed sealed source is exempt from such leak tests when the source contains 100 microcuries or less of beta and/or gamma emitting material or 10 microcuries or less of alpha emitting material.

B. Any source in storage and not being used need not be tested. When the source is removed from storage for use or transfer to another person, it shall be tested before use or transfer.

C. 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 microcuries or more of removable contamination, the source shall be removed from service and decontaminated, repaired, or disposed of in accordance with Commission regulations. A report shall be filed within 5 days of the date the leak test result is known with the U.S. Nuclear Regulatory Commission, Region III, 801 Warrenville Road, Lisle, IL 60532-4351, ATTN: Chief, Nuclear Materials Safety Branch 3. The report shall specify the source involved, the test results, and corrective action taken. Records of leak test results shall be kept in units of microcuries and shall be maintained for inspection by the Commission. Records may be disposed of following Commission inspection.

D. Tests for leakage and/or contamination shall be performed by the licensee or by other persons specifically licensed by the Commission or an Agreement State to perform such services.

13. Sealed sources or detector cells containing licensed material shall not be opened or sources removed from source holders by the licensee.

14. The licensee is authorized to transport licensed material only in accordance with the provisions of 10 CFR Part 71, "Packaging and Transportation of Radioactive Material."

15. The licensee shall conduct a physical inventory annually to account for all americium cell modules received and possessed under the license in accordance with letter dated October 21, 1985. The records of the inventory shall be maintained for inspection by the Commission, and shall include the quantities and kinds of byproduct material, location of americium cell modules and the date of the inventory.

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License number
12-00722-13

Docket or Reference number
030-21073

Amendment No. 25

16. The licensee shall maintain records of information important to safe and effective decommissioning at AMCCOM, Rock Island, Illinois per the provisions of 10 CFR 30.35(g) until this license is terminated by the Commission.

17. 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 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 July 19, 1989;

B. Letters dated October 21, 1985, April 4, 1988, May 4, 1990, June 22, 1990, December 18, 1991 (with attachments), September 29, 1992, November 19, 1992, January 26, 1994, September 2, 1994, October 12, 1994 and October 24, 1994; and

C. Letter received December 19, 1990.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Date 11/15/94

By James Mullauer
Materials Licensing Section, Region III

COPY

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
801 WARRENVILLE ROAD
LISLE, ILLINOIS 60532-4351

NOV 17 1994

Department of the Army
U.S. Army Armament and
Chemical Acquisition
and Logistics Activity
ATTN: John Mattila, Chief
Safety Officer
Rock Island, IL 61299-7630

Dear Mr. Mattila:

Enclosed is Amendment No. 25 to your NRC Material License No. 12-00722-13 in accordance with your request.

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 III office 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. Unless your license has been 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 an authorized user or Radiation Safety Officer 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).

Enc 1 1

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 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.

Sincerely,

James R. Mullauer, M.H.S.
Health Physicist
Nuclear Materials Licensing Section

License No.: 12-00722-13
Docket No.: 030-21073

Enclosure: Amendment No. 25

MATERIALS LICENSE

Amendment No. 24

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 U.S. Army Armament and Chemical Acquisition and Logistics Activity 2. ATTN: AMSTA-AC-SF Rock Island, IL 61299-7630	In accordance with letter dated October 12, 1994 3. License number 12-00722-13 is amended in its entirety to read as follows:
	4. Expiration date March 31, 1995
	5. Docket or Reference No. 030-21073

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. Americium-241	A. Plated Foils (Amersham Corp. Model No. AMM5 of N.R.D. Model A001)	A. No single cell to exceed 300 microcuries, 25 curies total.

9. Authorized Use

A. To be used in Model M43A1 Chemical Agent Detectors for detection of aerosols and gases.

CONDITIONS

10. Licensed material may be stored at the Marine Corps Logistics Base, Albany, Georgia, and may be used at U.S. Army, Marine Corps or Navy installations throughout the United States.

11. A. Licensed material shall be used by, or under the supervision of, John Mattila, Jeffrey Havenner, Elizabeth Peterson, Gavin Ziegler or individuals successfully completing the training program described in application dated July 19, 1989.

B. The Radiation Safety Officer for this license is Jeffrey Havenner.

C. The Alternate Radiation Safety Officer for this license is Gavin Ziegler or Elizabeth Peterson.

12. A. (1) The source(s) specified in Item(s) 7.(A) shall be tested for leakage and/or contamination at intervals not to exceed 3 years. Any source received from another person which is not accompanied by a certificate indicating that a test was performed within 3 years before the transfer shall not be put into use until tested.

(2) Notwithstanding the periodic leak test required by this condition, any licensed sealed source is exempt from such leak tests when the source contains 100 microcuries or less of beta and/or gamma emitting material or 10 microcuries or less of alpha emitting material.

B. Any source in storage and not being used need not be tested. When the source is removed from storage for use or transfer to another person, it shall be tested before use or transfer.

C. 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 microcuries or more of removable contamination, the source shall be removed from service and decontaminated, repaired, or disposed of in accordance with Commission regulations. A report shall be filed within 5 days of the date the leak test result is known with the U.S. Nuclear Regulatory Commission, Region III, 801 Warrenville Road, Lisle, IL 60532-4351, ATTN: Chief, Nuclear Materials Safety Branch. The report shall specify the source involved, the test results, and corrective action taken. Records of leak test results shall be kept in units of microcuries and shall be maintained for inspection by the Commission. Records may be disposed of following Commission inspection.

D. Tests for leakage and/or contamination shall be performed by the licensee or by other persons specifically licensed by the Commission or an Agreement State to perform such services.

13. Sealed sources or detector cells containing licensed material shall not be opened or sources removed from source holders by the licensee.

14. The licensee is authorized to transport licensed material only in accordance with the provisions of 10 CFR Part 71, "Packaging and Transportation of Radioactive Material."

15. The licensee shall conduct a physical inventory annually to account for all americium cell modules received and possessed under the license in accordance with letter dated October 21, 1985. The records of the inventory shall be maintained for inspection by the Commission, and shall include the quantities and kinds of byproduct material, location of americium cell modules and the date of the inventory.

16. The licensee shall maintain records of information important to safe and effective decommissioning at AMCCOM, Rock Island, Illinois per the provisions of 10 CFR 30.35(g) until this license is terminated by the Commission.

17. 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 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 July 19, 1989;

B. Letters dated October 21, 1985, April 4, 1988, May 4, 1990, June 22, 1990, December 18, 1991 (with attachments), September 29, 1992, November 19, 1992, January 26, 1994, September 2, 1994 and October 12, 1994; and

C. Letter received December 19, 1990.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Date OCT 2 7 1994

By Loren J. Hueter
Materials Licensing Section, Region III

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
801 WARRENVILLE ROAD
LISLE, ILLINOIS 60532-4351

OCT 2 8 1994

Department of the Army
U.S. Army Armament and Chemical
Acquisition and Logistics Activity
ATTN: AMSTA-AC-SF
Rock Island, IL 61299-7630

Gentlemen:

Enclosed is Amendment No. 24 to your NRC Material License No. 12-00722-13 in accordance with your request.

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 III office so that we can provide appropriate corrections and answers.

The expiration date of your license has been extended for four months, from November 30, 1994, to March 31, 1995, as requested by you.

Please be advised that your license expires at the end of the day, in the month, and year stated in the license. Unless your license has been 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 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. 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 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.

Sincerely,

Loren J. Hueter

Loren J. Hueter
Nuclear Materials Licensing Section

License No. 12-00722-13
Docket No. 030-21073

Enclosures:
1. NRC Form 313
2. Amendment No. 24

MATERIALS LICENSE

Amendment No. 23

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 U.S. Army Armament and Chemical Acquisition and Logistics Activity 2. ATTN: AMSTA-AC-SF Rock Island, IL 61299-7630	In accordance with letter dated September 2, 1994 3. License number 12-00722-13 is amended in its entirety to read as follows:
	4. Expiration date November 30, 1994
	5. Docket or Reference No. 030-21073

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. Americium-241	A. Plated Foils (Amersham Corp. Model No. AMM5 of N.R.D. Model A001)	A. No single cell to exceed 300 microcuries, 25 curies total.

9. Authorized Use

A. To be used in Model M43A1 Chemical Agent Detectors for detection of aerosols and gases.

CONDITIONS

10. Licensed material may be stored at the Marine Corps Logistics Base, Albany, Georgia, and may be used at U.S. Army, Marine Corps or Navy installations throughout the United States.

11. A. Licensed material shall be used by, or under the supervision of, John Mattila, Jeffrey Havenner, Elizabeth Peterson, Gavin Ziegler or individuals successfully completing the training program described in application dated July 19, 1989.

B. The Radiation Safety Officer for this license is Jeffrey Havenner.

C. The Alternate Radiation Safety Officer for this license is Gavin Ziegler or Elizabeth Peterson.

91545

COPY

12. A. (1) The source(s) specified in Item(s) 7.(A) shall be tested for leakage and/or contamination at intervals not to exceed 3 years. Any source received from another person which is not accompanied by a certificate indicating that a test was performed within 3 years before the transfer shall not be put into use until tested.

(2) Notwithstanding the periodic leak test required by this condition, any licensed sealed source is exempt from such leak tests when the source contains 100 microcuries or less of beta and/or gamma emitting material or 10 microcuries or less of alpha emitting material.

B. Any source in storage and not being used need not be tested. When the source is removed from storage for use or transfer to another person, it shall be tested before use or transfer.

C. 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 microcuries or more of removable contamination, the source shall be removed from service and decontaminated, repaired, or disposed of in accordance with Commission regulations. A report shall be filed within 5 days of the date the leak test result is known with the U.S. Nuclear Regulatory Commission, Region III, 801 Warrenville Road, Lisle, IL 60532-4351, ATTN: Chief, Nuclear Materials Safety Branch. The report shall specify the source involved, the test results, and corrective action taken. Records of leak test results shall be kept in units of microcuries and shall be maintained for inspection by the Commission. Records may be disposed of following Commission inspection.

D. Tests for leakage and/or contamination shall be performed by the licensee or by other persons specifically licensed by the Commission or an Agreement State to perform such services.

13. Sealed sources or detector cells containing licensed material shall not be opened or sources removed from source holders by the licensee.

14. The licensee is authorized to transport licensed material only in accordance with the provisions of 10 CFR Part 71, "Packaging and Transportation of Radioactive Material."

15. The licensee shall conduct a physical inventory annually to account for all americium cell modules received and possessed under the license in accordance with letter dated October 21, 1985. The records of the inventory shall be maintained for inspection by the Commission, and shall include the quantities and kinds of byproduct material, location of americium cell modules and the date of the inventory.

16. The licensee shall maintain records of information important to safe and effective decommissioning at AMCCOM, Rock Island, Illinois per the provisions of 10 CFR 30.35(g) until this license is terminated by the Commission.

17. 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 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 July 19, 1989;

B. Letters dated October 21, 1985, April 4, 1988, May 4, 1990, June 22, 1990, December 18, 1991 (with attachments), September 29, 1992, November 19, 1992, January 26, 1994, September 2, 1994; and

C. Letter received December 19, 1990.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Date OCT 04 1994

By John L. Hooten
Materials Licensing Section, Region III

COPY

07 SEP 1994

AMSMC-SFS

U.S. Nuclear Regulatory Commission
Region III
801 Warrenville Road
Lisle, Illinois 60532-4351

Dear Sir:

Presently the U.S. Army Armament, Munitions and Chemical Command holds several licenses for the use of items of supply which contain radioactive material.

To better serve the armed forces, the commands which support these forces are reorganizing. The reorganizations which are occuring will have little impact on the day-to-day work performed by health physicists supporting the licenses currently held by the U.S. Army Armament, Munitions and Chemical Command. However, the organization that these health physicists work within will be significantly altered.

On October 1, 1994, several functions will cease to be performed by the U.S. Army Armament, Munitions and Chemical Command. These are the armament and chemical acquisition and logistics functions. These functions, and the personnel who support them, will be separated from the U.S. Army Armament, Munitions and Chemical Command, and will form a new organization called the U.S. Army Armament and Chemical Acquisition and Logistics Activity. This organization will remain located at Rock Island, Illinois, where the day-to-day management will reside. The U.S. Army Armament and Chemical Acquisition and Logistics Activity group at Rock Island is one of several organizations which will report to the Commander, U.S. Army Tank-automotive and Armament Command, Warren, Michigan.

Due to this change, the certifying official named on the license applications will change. Where as the Chief of Staff of the U.S. Army Armament, Munitions and Chemical Command previously signed license applications, now the Chief of the U.S. Army Armament and Chemical Acquisition and Logisitics Activity will

FR On 20 Sep I provide to Debbie at NRC Region III (708) 829-9846 the following Proper name of Nas Organization ACALA. Proper address for new organization AMSTA-AC, specifically for safety AMSTA-AC-SF. Betty Pilerson 20 Sep 1994

c. Mr. Jeffrey Havenner, Health Physicist, U.S. Army Armament and Chemical Acquisition and Logisitics Activity Safety Office, Radiation Protection Officer for 12-00722-13 and 12-00722-14. Alternate Radiation Protection Officer for 12-00722-06, 12-00722-04, SUB 1340, and XB001141.

d. Mr. Gavin Ziegler, Health Physicist, U.S. Army Armament and Chemical Acquisition and Logisitics Activity Safety Office, Alternate Radiation Protection Officer 12-00722-06, 12-00722-04, 12-00722-13, 12-00722-14, SUC 1340, XB001141.

Enclosed are the resumes of the named personnel who will support these licenses.

The point of contact is Mrs. Betty Peterson, AMSMC-SFS, (309) 782-2962.

Sincerely,

SIGNED

Glenn S. Leach
Acting Chief, Safety Office

Enclosures

Amendment No. 22

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, 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 HQ, U.S. Army Armament, Munitions & Chemical Command (AMCCOM) 2. ATTN: AMSMC-SFS Rock Island, IL 61299-6000	In accordance with letter dated January 26, 1994 3. License number 12-00722-13 is amended in its entirety to read as follows: 4. Expiration date November 30, 1994 5. Docket or Reference No. 030-21073

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. Americium-241	A. Plated Foils (Amersham Corp. Model No. AMM5 of N.R.D. Model A001)	A. No single cell to exceed 300 microcuries, 25 curies total.

9. Authorized Use

A. To be used in Model M43A1 Chemical Agent Detectors for detection of aerosols and gases.

CONDITIONS

10. Licensed material may be stored at the Marine Corps Logistics Base, Albany, Georgia, and may be used at U.S. Army, Marine Corps or Navy installations throughout the United States.

11. A. Licensed material shall be used by, or under the supervision of, David P. Skogman, Gavin Ziegler or individuals successfully completing the training program described in application dated July 19, 1989.

B. The Radiation Safety Officer for this license is David P. Skogman.

C. The Alternate Radiation Safety Officer for this license is Gavin Ziegler.

12. A. (1) The source(s) specified in Item(s) 7.(A) shall be tested for leakage and/or contamination at intervals not to exceed 3 years. Any source received from another person which is not accompanied by a certificate indicating that a test was performed within 3 years before the transfer shall not be put into use until tested.

12. (Continued)

(2) Notwithstanding the periodic leak test required by this condition, any licensed sealed source is exempt from such leak tests when the source contains 100 microcuries or less of beta and/or gamma emitting material or 10 microcuries or less of alpha emitting material.

B. Any source in storage and not being used need not be tested. When the source is removed from storage for use or transfer to another person, it shall be tested before use or transfer.

C. 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 microcuries or more of removable contamination, the source shall be removed from service and decontaminated, repaired, or disposed of in accordance with Commission regulations. A report shall be filed within 5 days of the date the leak test result is known with the U.S. Nuclear Regulatory Commission, Region III, 801 Warrenville Road, Lisle, IL 60532-4351, ATTN: Chief, Nuclear Materials Safety Branch. The report shall specify the source involved, the test results, and corrective action taken. Records of leak test results shall be kept in units of microcuries and shall be maintained for inspection by the Commission. Records may be disposed of following Commission inspection.

D. Tests for leakage and/or contamination shall be performed by the licensee or by other persons specifically licensed by the Commission or an Agreement State to perform such services.

13. Sealed sources or detector cells containing licensed material shall not be opened or sources removed from source holders by the licensee.

14. The licensee is authorized to transport licensed material only in accordance with the provisions of 10 CFR Part 71, "Packaging and Transportation of Radioactive Material."

15. The licensee shall conduct a physical inventory annually to account for all americium cell modules received and possessed under the license in accordance with letter dated October 21, 1985. The records of the inventory shall be maintained for inspection by the Commission, and shall include the quantities and kinds of byproduct material, location of americium cell modules and the date of the inventory.

16. The licensee shall maintain records of information important to safe and effective decommissioning at AMCCOM, Rock Island, Illinois per the provisions of 10 CFR 30.35(g) until this license is terminated by the Commission.

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License number
12-00722-13

Docket or Reference number
030-21073

Amendment No. 22

17. 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 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 July 19, 1989; and

B. Letters dated October 21, 1985, April 4, 1988, May 4, 1990, June 22, 1990, December 18, 1991 (with attachments), September 29, 1992, November 19, 1992 and January 26, 1994; and

C. Letter received December 19, 1990.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Date FEB 2 2 1994

By Dorothy E. Hueter
Materials Licensing Section, Region III

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
801 WARRENVILLE ROAD
LISLE, ILLINOIS 60532-4351

FEB 2 3 1994

Department of the Army
HQ, U.S. Army Armament,
Munitions & Chemical Command (AMCCOM)
ATTN: AMSMC-SFS
Rock Island, IL 61299-6000

Gentlemen:

Enclosed is Amendment No. 22 to your NRC Material License No. 12-00722-13 in accordance with your request.

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 III office so that we can provide appropriate corrections and answers.

Please note that License Condition 11.A. has been modified to delete Joyce KuyKendall as an authorized user. Also note that License Condition 11.C. has been added to specifically name the remaining alternate radiation safety officer previously authorized by Amendment No. 19. (reference letter dated April 30, 1992). This action was concerned with by Betty Peterson of your staff during a telecon on February 11, 1994.

Please be advised that your license expires at the end of the day, in the month, and year stated in the license. Unless your license has been 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 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. 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 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.

Sincerely,

Loren J. Hueter

Loren J. Hueter
Nuclear Materials Licensing Section

Enclosures:
1. NRC Form 313
2. Amendment No. 22

A-Approval X-Signature C-Concurrence R-Review

FOR
X-AMSTA-AC

Mrs. Betty Peterson, AMSTA-AC-SF, x2962

AMSTA-AC-SF

24 Feb 95

SUBJECT: Request for Renewal of Nuclear Regulatory Commission (NRC) Byproduct Material License 12-00722-13

1. PURPOSE: To forward the renewal request to the NRC.

2. DISCUSSION:

a. This license covers the world-wide use of the M8A1, Chemical Agent Alarm by Army and Marine Corps personnel. The license package is essentially the same as has been submitted previously.

b. The significant change is the change from a wipe test required every three years to wipe test every year. The basis for this change is discussed in Wipe test Results From Field Assets (encl 3).

3. CONCLUSION: The NRC license 12-00722-13 must be renewed.

4. RECOMMENDATION: That the Director sign the facing memorandum and the three copies of the NRC Form 313, Application for Material License.

ORIGINAL SIGNED BY
JOHN MATTILA

Encls

JOHN A. MATTILA
Chief, Safety Office

DEPARTMENT OF THE ARMY
ARMAMENT AND CHEMICAL ACQUISITION AND LOGISTICS ACTIVITY
ROCK ISLAND, ILLINOIS 61299-7630

February 24, 1995

AMSTA-AC-SF

Nuclear Regulatory Commission, Region III
Nuclear Materials Licensing Section
801 Warrenville Road
Lisle, IL 60532-4351

Dear Sir:

Attached are three signed copies of the application for renewal of Byproduct Material License 12-00722-13, issued to U.S. Army Armament and Chemical Acquisition and Logistics Activity.

This action has been coordinated with and approved by the Headquarters, Army Material Command Safety Office.

The point of contact is Mrs. Betty Peterson, AMSTA-AC-SF, (309) 782-2962, e-mail address bpeterso@ria-emh2.army.mil.

SIGNED

R. D. HUSSON
Director, Armament Chemical Acquisition
and Logistics Activity

Enclosures

Copies Furnished:
HQ, AMC, ATTN: AMCSF-P (Mr. J. Manfre), 5001 Eisenhower Ave, Alexandria, VA 22333

NRC FORM 313 (10-94)
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 6-30-96

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 9 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. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (T-6 F33), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0120), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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:

CONNECTICUT, DELAWARE, DISTRICT OF COLUMBIA, MAINE, MARYLAND, MASSACHUSETTS, NEW HAMPSHIRE, NEW JERSEY, NEW YORK, PENNSYLVANIA, RHODE ISLAND, OR VERMONT, SEND APPLICATIONS TO:

LICENSING ASSISTANT SECTION
NUCLEAR MATERIALS SAFETY BRANCH
U.S. NUCLEAR REGULATORY COMMISSION, REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PA 19406-1415

ALABAMA, FLORIDA, GEORGIA, KENTUCKY, MISSISSIPPI, NORTH CAROLINA, PUERTO RICO, SOUTH CAROLINA, TENNESSEE, VIRGINIA, VIRGIN ISLANDS, OR WEST VIRGINIA, SEND APPLICATIONS TO:

NUCLEAR MATERIALS LICENSING SECTION
U.S. NUCLEAR REGULATORY COMMISSION, REGION II
101 MARIETTA STREET, NW, SUITE 2900
ATLANTA, GA 30323-0199

IF YOU ARE LOCATED IN:

ILLINOIS, INDIANA, IOWA, MICHIGAN, MINNESOTA, MISSOURI, OHIO, OR WISCONSIN, SEND APPLICATIONS TO:

MATERIALS LICENSING SECTION
U.S. NUCLEAR REGULATORY COMMISSION, REGION III
801 WARRENVILLE RD.
LISLE, IL 60532-4351

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 SECTION
U.S. NUCLEAR REGULATORY COMMISSION, REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TX 76011-8064

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 ~~BML 12-00722-13~~

2. NAME AND MAILING ADDRESS OF APPLICANT *(Include Zip code)*
   DIRECTOR, Armament and Chemical Acquisition and Logistics Activity
   ATTN: AMSTA-AC-SF
   Rock Island, IL 61299-7630

3. ADDRESS(ES) WHERE LICENSED MATERIAL WILL BE USED OR POSSESSED
   U.S. Army, U.S. Marine Corps temporary jobsites worldwide

4. NAME OF PERSON TO BE CONTACTED ABOUT THIS APPLICATION
   Jeffrey Havenner

   TELEPHONE NUMBER
   (309) 782-2965

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. See Supplement A

6. PURPOSE(S) FOR WHICH LICENSED MATERIAL WILL BE USED.
   See Supplement B

7. INDIVIDUAL(S) RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR TRAINING EXPERIENCE.
   See Supplement C

8. TRAINING FOR INDIVIDUALS WORKING IN OR FREQUENTING RESTRICTED AREAS.
   See Supplement D

9. FACILITIES AND EQUIPMENT.
   See Supplement E

10. RADIATION SAFETY PROGRAM.
    See Supplement F

11. WASTE MANAGEMENT.
    See Supplement G

12. LICENSEE FEES *(See 10 CFR 170 and Section 170.31)*
    FEE CATEGORY Exempt
    AMOUNT ENCLOSED $

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 OFJUNE 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
RICHARD D. HUSSON, DIRECTOR, ACALA	SIGNED	14 FEB 1005

FOR NRC USE ONLY

TYPE OF FEE	FEE LOG	FEE CATEGORY	AMOUNT RECEIVED	CHECK NUMBER	COMMENTS
			$		
APPROVED BY				DATE	

Executive Summary

This application is to renew Nuclear Regulatory Commission License BML-12-00722-13 in its entirety.

The M8A1 Chemical Agent Automatic Alarm consists of the M43A1 Chemical Agent Detector (CAD) and the M42 Remote Sensing Alarm. A component of the M43A1 CAD is the cell module that contains 250 microcuries of americium 241.

The source is located in the cell module of the detector and is a foil disk made of americium dioxide in a gold matrix. The foil layer containing the americium is pressed between a gold-palladium alloy face and a silver backing this is done by means of mechanical rolling. The completed source disk is affixed using epoxy, to a metal screen which is secured by a retainer ring within the sensing Cell Module. The source is certified as special form by the manufacturer.

The M43A1 CAD is used to detect the presence of battlefield chemical agents and warn troops of their presence. It is intended to be used outdoors either emplaced on the ground or on the exterior of a vehicle by special mounting brackets. Indoor operation for training or maintenance purposes must use an exit port filter unit. Distribution of this device will be world wide to all combat deployable units of the Army and Marine Corps.

The Cell Module is wipe tested for leakage annually. This represents a significant change which takes effect with this license renewal. The reasons for this change are discussed in enclosure 3.

No manufacturing of sources is done under this license. Manufacturers of the source and cell module are required to obtain their own license to do so from the NRC or appropriate Agreement State.

NRC LICENSE FORM 313
SUPPLEMENTAL INFORMATION

SECTION	DESCRIPTION
SUPPLEMENT A	RADIOACTIVE MATERIAL
SUPPLEMENT B	PURPOSE FOR WHICH LICENSED MATERIAL WILL BE USED
SUPPLEMENT C	INDIVIDUALS RESPONSIBLE FOR RADIATION SAFETY AND THEIR EXPERIENCE
SUPPLEMENT D	TRAINING FOR INDIVIDUALS WORKING IN OR FREQUENTING RESTRICTED AREAS
SUPPLEMENT E	FACILITIES AND EQUIPMENT
SUPPLEMENT F	RADIATION PROTECTION PROGRAM
SUPPLEMENT G	WASTE MANAGEMENT
Enclosure 1	Source Drawing
Enclosure 2	Device Drawing
Enclosure 3	Wipe Test Results From Field Assets
Enclosure 4	Radiation Caution Plate
Enclosure 5	Resumes
Enclosure 6	Record of Environmental Consideration

SUPPLEMENT A

Supplement A

Item 5. Radioactive Material

a. Element and Mass Number: americium 241

b. Chemical and Physical Form: americium dioxide as a foil

c. Maximum amount which will be possessed at any one time: 25 curies or a maximum of 100,000 sources. Each individual source will contain 250 microcuries +/- 20% (301.5 microcuries max).

SUPPLEMENT B

Supplement B

Item 6. Purposes for which Licensed Material will be Used:

The americium-241 source described in this application is an integral part of the M43A1 Chemical Agent Detector. This instrument is used to detect and warn soldiers of the presence of toxic nerve gases on the battle field. The Am-241 source is located in the cell module of the detector and is a foil disk made of americium dioxide in a gold matrix. The foil layer containing the americium is pressed between a gold-palladium alloy face and a silver backing this is done by means of mechanical rolling. The completed source disk is affixed using epoxy, to a metal screen which is secured by a retainer ring within the sensing Cell Module. The source is certified as special form by the manufacturer. The cell module itself is a zinc metal alloy box which is designed to preclude direct contact with the source either by operators or by personnel servicing the instrument. The cell module is never opened at any time during use of the device or during maintenance.

The M43A1 CAD functions specifically to detect the presence of battlefield chemical agents and warn troops of their presence. It is intended to be used outdoors either emplaced on the ground or on the exterior of a vehicle by special mounting brackets. Indoor operation for training or maintenance purposes must use a filter designed to affix to the air outlet port of the instrument.

SUPPLEMENT C

Supplement C

Item 7, Individuals Responsible for the Radiation Safety Program, Their Training and Experience.

Mr. John Mattila, ACALA Safety Director, is designated License Manager. Mr. Jeffrey Havenner, ACALA Health Physicist is the Radiation Safety Officer (RSO). Ms. Elizabeth Peterson and Mr. Gavin Ziegler, ACALA Health Physicists are the Alternate Radiation Safety Officers.

Resumes are at Enclosure 5.

SUPPLEMENT D

Item 8, Training for Individuals Working in or Frequenting Restricted Areas.

1. User Training

a. For purposes of this license a user is defined as an individual or unit of the Army or Marine Corps which operates or possesses M43A1 Chemical Agent Detector.

b. Users of the M43A1 Chemical Agent Detector are provided with a published technical manual. This publication informs the user of the device that americium 241 is a radioactive material and is contained in the device. The manual specifies the precautions that must be taken and controls that must be observed for the safe use of the device. The published instructions to the users ensure uniformity in the use of the device throughout the Army during its life cycle regardless of the locations in which the device is used. The technical manual instructions are further specific in giving storage requirements for maintaining security over the device. Current copies of the technical manual are maintained in the files of this Activity for inspection by the Commission.

c. The Users of the M43A1 detector are authorized to store and operate the device. The technical manual instructions are specific in prohibiting users of the device from removing the cell module containing the radioactive source and/or the pump module for any reason.

d) Procedures limit the user to a performing a visual inspection of the M43A1 for obvious defects which might result from wear and tear, i.e. missing or broken components. The performance of a simple check for proper air flow is also authorized at the user level. None of these procedures requires disassembly of the device into subassemblies nor involves any potential exposure to Am-241. Users of the M43A1, therefore, do not come in direct contact with the Am-241 source at any time under normal operation.

e. The Users of this device receive 2 hours of awareness instruction from their supervisors. Supervisors are defined in paragraph f. The awareness training is to insure use of the device in accordance with the technical manual.

f. User supervisors are formally appointed individuals designated as Chemical, Biological, Radiological (CBR) Officer or Noncommissioned Officer; Nuclear, Biological, Chemical (NBC) Officer or Noncommissioned Officer; Radiological Protection Officer (RPO) or other accountable individual designated to insure local compliance with the license requirements as presented in the technical manual. Any of these individuals may provide users of the M43A1 with the required training.

2. Maintenance Training

a. Maintenance personnel who repair the M43A1 Chemical Agent Detector are assigned to support maintenance units at posts camps and stations in the U.S. Army and Marine Corps.

b. Maintenance personnel are provided with a published technical manual. This publication informs the maintainer of the device that americium 241 is a radioactive material and is contained in the device. The technical manual specifies the precautions that must be taken and controls that must be observed for this to maintain the device in a safe manner and minimize the potential for exposure to americium-241.

c. The published instructions to the maintenance personnel ensures that uniform procedures will be used to service the device in all locations which are authorized to perform direct support maintenance on this device. These instructions reflect the same control provisions for the device as established in this license application. Current copies of these direct support technical manual are maintained in the files of this Activity for inspection by the Commission.

d. Maintenance personnel for the M43A1 may be required to remove the pump module or cell module. They also will perform the required leakage tests on the device. These operations do not involve any direct contact with the Am-241 source since the cell module is never to be further disassembled. There is, however, a slightly increased risk of exposure for these individuals as their tasks involve opening the air path of the device as the modules are removed. This has the potential to expose them to any Am-241 that may have leaked from the source and been deposited in the air path. The risk is still judged to be minimal since the air path is again sealed when the modules are replaced.

e. For personnel performing maintenance on the M43A1 CAD, 8 hours of radiation safety training are required. This training incorporates the 2 hours of instruction described in paragraph 1c above and is augmented with the following information:

1) Introduction to the hazards of americium 241 and personal protection against those hazards.

2) Basic radiation units and biological effects of radiation.

3) Use of alpha radiation detection and survey instrumentation.

4) Wipe testing the M43A1 Chemical Agent Detector.

5) Emergency procedures in the event of release.

6) Serial number tracking of the Am-241 source.

f. The following facilities are authorized to perform direct support maintenance of the M43A1:

- o Test Measurement Diagnostic Equipment Support Groups;
- o Repair Depots;
- o Intermediate Direct Support Maintenance facilities
- o National Guard State Calibration shops

3. Depot Training

a. Depot personnel perform maintenance on the M43A1 Chemical Agent Detector which involves removal of the cell or pump modules or wipe testing the cell modules. In addition they may remove and replace the tubing of the air path and overhaul the pump module assembly. The procedures are performed at Anniston Army Depot, Anniston, AL or Marine Corps Logistics Base, Albany, Ga.

b. Depot personnel are provided with a Depot Maintenance Work Requirement for the M43A1. This publication informs the depot personnel of the hazards associated with the americium 241 contained in the device and specify the precautions that must be taken and controls that must be observed for this device during and after maintenance activities. Current copies of these Depot Maintenance Work Requirements are maintained in the files of this Activity for inspection by the Commission.

c. Each depot will have a designated Radiation Protection Officer (RPO) and at least one alternate. The RPO's at depot will have formal training in the following areas.

- o Principles and Practices of Radiation Protection
- o Radioactivity Measurement Standardization and Monitoring Techniques and Instruments.
- o Mathematics and Calculations Basic to the Use and Measurement of Radioactivity.
- o Biological Effects of Radiation.
- o Use of alpha radiation detection and survey instrumentation.
- o Wipe testing the M43A1 Chemical Agent Detector.
- o Emergency procedures in the event of release.

Successful completion of the U.S. Army Radiological Safety Course (4J-F3/494/-f14, formerly 7KF3) offered at the U.S. Army Chemical School, Ft. McClellan AL. or the RPO Course offered by the U.S. Navy Radiation Affairs Support Office (RASO), Yorktown, Va, satisfies this requirement. Alternate training for depot RPO's must be evaluated and approved by the ACALA RSO. The depot RSO is responsible for training depot maintenance personnel for the M43A1 CAD at least to the standards of paragraph 2e of this suppliment.

SUPPLEMENT E

Supplement E

Item 9. Facilities and Equipment:

1. User Requirements.

a. The M43A1 Chemical Agent Detector is portable and is used in backpack, mobile and fixed position. When operated indoors for any purpose, a 0.2 micron exit port filter must be used in accordance with instructions in the technical manual.

b. When mounted on a vehicle and operated when the vehicle is in motion, the M43A1 must be mounted externally on the vehicle or in a manner such that the exit port is vented to the outside.

c. The user must ensure compliance with the Radiation Testing and Tracking System and ensure the following:

1) The M43A1 Detector is submitted to an authorized maintenance facility for leakage testing annually from the date on which the test was last performed. This represents a change from previous procedures.

2) M43A1 detectors which have exceeded the one year period between wipe tests must be wipe tested prior to putting the device in service.

3) Ensure that all shipments, receipts and other transactions regarding changes of ownership are properly reported to the tracking system.

d. User storage areas will be secured against unauthorized access. The storage areas will be located so as to be free from the danger of flooding and outside the danger radius of flammable materials and explosives.

2. Depot Storage Requirements.

a. Depots authorized to store bulk quantities of M43A1 Chemical Agent Detectors and Cell Modules will store these items in rooms, or caged areas designated for the storage of radioactive items.

b. Buildings in which these items are to be stored will also be those designated for the purpose of storing radioactive items. Buildings and storage areas for the M43A1 and Cell Modules will be posted with signs stating "Radioactive Material". The storage locations will be secured against unauthorized access and will be free from the danger of flooding and outside the danger radius of flammable materials and explosives.

c. There is no limit to the number of detectors and/or cell modules per storage area at bulk storage locations.

d. Depot storage areas for the M43A1 and Cell Module will be monitored monthly with appropriately calibrated portable alpha radiation survey meters. Wipe test surveys of bulk storage areas will be performed quarterly. Wipe tests will be analyzed using gas flow proportional counting system or equivalent alpha counting instrumentation. **Limits for removable alpha contamination given in AR 385-11 table 4-3 will apply (100 dpm/100cm^2).**

ch to 5d

e. Scintillation Counting Systems or equivalent may be used to analyze wipe tests. This is permissable provided that the machines are calibrated in accordance with paragraph 4d of this suppliment.

f. Depots will process receipt, shipment and other transactions and report these to the Radiation Testing and Tracking System.

g. Any M43A1 Chemical Agent detector or Cell Module that is in depot storage is exempt from the routine annual leakage testing requirement. Instead, M43A1 Chemical Agent Detectors and Cell Modules will be leak tested prior to shipment to a new owning unit. These wipe tests will be posted to the Radiation Testing and Tracking System.

3. User Maintenance Facilities

a. Personnel responsible for maintenance involving removal and replacement of cell or pump modules will have an AN/PDR 77, AN/PDR 56F or AN\PDR 60 or equivalent alpha survey instrument. The maintenance areas will be surveyed at the end of each work day that maintenance is performed.

b. Maintenance facilities will process receipt, shipment, wipe test, cell exchange and other transactions for spare cell modules and returns to depot as required for the Radiation Testing and Tracking System, described in Supplement F.

4. **Depot Maintenance Facilities**

a. Maintenance Depots will wipe test all field returned M43A1 detectors and obtain results prior to start of work. These wipe tests may be analyzed locally provided the conditions of paragraph 4d of this supplement are certified by the Depot Safety Office as being complied with.

5d

b. Results of wipe tests in excess of 20 dpm will be considered to indicate a leaking source. Any such device will be turned in through supply channels to Anniston Army Depot or the Marine Corps Logistics Base at Albany GA.

Ch to 5.

Calibration of Instruments

a. Calibration service for active level portable survey may be obtained from regional U. S. Army Test, Measurement and Diagnostic Equipment Support Group calibration facilities.

b. All radiation survey equipment used under this license will be calibrated at intervals will be those specified for calibration and repair Army materiel. For ionizing radiation monitoring instrumentation used in personnel safety application under this license, these intervals will not exceed one year in duration.

c. Calibration sources used for all active level RADIAC equipment (which includes both alpha and beta/gamma radiation measurement instruments must be traceable to National Institute of Standards Technology (formerly the National Bureau of Standards).

d. Gas flow proportional or Liquid Scintillation counting systems used to evaluate wipe tests will be calibrated at least every 90 days using alpha radiation reference sources traceable to national standards. Certified alpha radiation check sources will be used prior to each day's operation.

SUPPLEMENT F

Supplement F

The ACALA Radiation Safety Program:

1. General:

The U.S. Army Armament and Chemical Acquisition and Logistics Activity is responsible for management and support of the M8A1 Chemical Agent Alarm of which the M43A1 Chemical Agent Detector is a component. This includes the radiation protection officer and NRC license management functions.

2. Organization of the ACALA Safety Office:

a) The ACALA Safety Office reports directly to the Director of the ACALA, Mr. Richard D. Husson, who is the signature authority for license applications. The License Manager is Mr. John Matilla, Chief of the ACALA Safety Office.

b) The Health physics staff of the ACALA administers the radiation safety program under the technical supervision of the Radiation Protection Officer and Alternates whose resumes appear at Enclosure 5.

3. Ionizing Radiation Control Committee:

a) In addition to the health physics staff, the Safety Office is assisted in executing the radiation safety program for its NRC license by the Ionizing Radiation Control Committee (IRCC). This committee meets at least quarterly and includes representatives from all of the functional directorates of the ACALA listed below.
The IRCC provides the license manager with guidance for the formulation of policy and assistance in the implementation of policy for the management of NRC licensed Materials.

b) IRCC Membership

Safety Office
Acquisition Center (Procurement)
Logistic Engineering and Maintenance Directorate
Materiel Management Directorate
Customer Support Directorate
Weapon Systems Management Directorate
Security Assistance Management Directorate
Legal Group
Quality Assurance

4. Radiation Safety Supervision:

a) Local Radiation Protection Officers (RPO):

(1) The commodities covered by this application are issued to United States Army and Marine Corps units for use at

locations world wide. The U.S. Army and Marine Corps, under authority of their own regulations governing the use of radioactive commodities, requires that each post, camp and station where commodities containing radioactive materials are used, maintained and/or stored have a Radiation Protection Officer (RPO) appointed on orders by the local commander.

(2) The local or installation RPO acts as the licensee's representative for ensuring that license conditions are fulfilled at the site where the material is used. The task of local RPO's at posts, camps and stations and alternates is to ensure the safe handling, storage and maintenance of commodities containing radioactive sources. In addition the installation RPO is responsible for the following:

i) Maintain an inventory of radioactive materials at the post camp or station.

ii) Conduct regular inspections and perform routine radiation monitoring and survey tasks.

iii) Ensure that training for individuals working with licensed material is accomplished.

iv) Respond to incidents and or accidents involving licensed material and reporting the same to the ACALA RPO.

v) Maintaining records of his or her actions at the local level for inspection by the ACALA RPO.

(3) All installation RPO's are required to complete the U.S. Army Radiological Safety Course (4J-F3/494-F14, formerly 7KF3) offered at the U.S. Army Chemical School, Ft. McClellan AL or equivalent.

b) Major Command (MACOM) Radiation Protection Officers:

(1) The Army/Marine Corps is organized into several Major Commands (MACOMs). All posts, camps and stations fall under the jurisdiction of one of these MACOMS. Each MACOM safety office has a Radiation protection officer appointed by the MACOM Commander.

(2) The MACOM RPO's task is to oversee the actions of the local installation RPOs under the MACOM Commander's jurisdiction.

(3) The MACOM RPO is the primary point of contact for the ACALA radiation protection officer to ensure that license requirements are adhered to at the user level.

(4) The list of MACOMs and RPOs is as follows:

(a) Marine Corps is under the jurisdiction of the Commandant of the Marine Corps, Safety Division (SD), Headquarters U.S. Marine Corps, 2 Navy Annex, Washington, DC 20380-1775. RSO: Radiation Safety Specialist.

(b) Depot receipt, bulk storage, and shipping activities are under the jurisdiction of the Defense Logistics Agency (DLA), ATTN: DLA-WH (RSO), Cameron Station, Alexandria, VA.

(c) The Army is organized into several Major Army Commands (MACOMS). Army MACOMs are as follows:

(1) U.S. Army Forces Command, ATTN: FCJI-SO (RSO), Fort McPherson, GA 30330-6000.

(2) U.S. Army Training and Doctrine Command, ATTN: ATOS-ER (RSO), Fort Monroe, VA 23651-5000.

(3) U.S. Army Special Operations Command, ATTN: AAOS (RSO), Fort Bragg, NC 28307-5000.

(4) U.S. Army Reserve Command, ATTN: AFRC-SA (RSO), 3800 SW Camp Creek Parkway, Atlanta, GA 30331.

(5) U.S. Army National Guard Bureau, Washington, DC 20310-2500. RSO: CECOM (see below).

(6) U.S. Army South Command, ATTN: UNIT 7101 SOSF (RSO)

(7) U.S. Forces, Korea/Eighth U.S. Army, ATTN: EASF (RSO)

(8) U.S. Army Pacific command, ATTN: APSL (RSO)

(9) U.S. Army Europe & 7th Army, ATTN: AEAGA-S (RSO)

(10) U.S. Army Materiel Command (AMC), ATTN: AMCSF-P (RSO), 5001 Eisenhower Avenue, Alexandria, VA 22333-0001. Subordinates to AMC include:

a. Depot maintenance activities are managed by U.S. Army, Industrial Operations Command (IOC), ATTN: AMSMC-SFS (RSO), Rock Island, IL 61299-6000.

b. U.S. Army Communications-Electronics Command (CECOM), ATTN: AMSEL-SF-RER (RSO), Fort Monmouth, NJ 07703-5000. This organization serves as the National Guard RSO.

c. U.S. Army, Armament and Chemical Acquisition and Logistics Activity (ACALA), ATTN: AMSTA-AC-SF (RSO), Rock Island, IL 61299-7630.

5. Depot Storage Facilities: Depot Facilities managed by the Defense Logistics Agency or the Army are authorized to store bulk quantities of the M43A1 Chemical Agent Detector.

6. Radiation Safety Inspection Program:

a) The ACALA health physicists conduct a regular program of license compliance inspections of posts camps and stations where commodities are used under this license. Inspections are also conducted on a regular basis at storage facilities and maintenance facilities named in this application as conducting NRC licensed activities.

b) The ACALA is assisted in conducting a program of inspections by the U.S. Army Communications/Electronics Command (CECOM), which is designated as Radiation Protection Officer for Army National Guard units. Their health physicists conduct independent inspections of National Guard facilities and incorporates our license inspection checklists regarding ACALA commodities. The CECOM inspectors provide copies of their reports to the ACALA Safety Office. The ACALA is also using other Army organizations, U.S. Army Test Measurement and Diagnostic Equipment Activity to assist with inspections.

c) Independent inspections of ACALA NRC License compliance are conducted by the U.S. Army Environmental Hygiene Agency which is under the command of the Army Medical Department under authority of the Army Surgeon General. These inspection results are reported to this command through medical channels..

7. Radiation Testing and Tracking System (RATTS):

a) This is a computerized tracking system which records the owner of each cell module covered by this license. This system also monitors and records compliance with the requirement of this license to perform leakage testing of all cell modules covered by this license. Each cell module for the M43A1 Chemical Agent Detector is tracked by means of its own unique serial number.

b) Users and maintainers of the M43A1 Chemical Agent Detector are required to submit reports to the tracking system each time a cell module covered by this license changes ownership or is tested for leakage.

c) When a defective cell module is removed by the appropriate Army maintenance unit it is returned to the Anniston Army depot for disposal as radioactive waste. This transaction is recorded via the tracking system.

d) Anniston Army Depot maintains a record of the cell module serial numbers that have been disposed of as radioactive waste. These records are available to the ACALA RPO during inspection and upon request.

8. Quality Assurance Program:

a) During production the ACALA requires independent testing of manufactured items (cell modules) to ensure their integrity.

b) The ACALA has established a quality assurance program to conduct independent surveillance of source integrity in the field.

9. Radioactive Waste Disposal:

a) The ACALA is supported for disposal of radioactive waste from its commodity programs by the U.S. Army Armament, Munitions and Chemical Command (AMCCOM). The AMCCOM is tasked with proper disposal of all DOD Radioactive Waste through its Radioactive Waste Disposal office.

b) The destination for disposal of the radioactive waste is determined by the geographic location of the material at the time it is declared to be waste. Cell modules determined to be nonfunctional become radioactive waste under this license . This determination is made at the Anniston Army Depot maintenance facility which resides in the Southeast Low Level Radioactive Waste Disposal Compact and currently has access to the Barnwell S.C. disposal facility.

c) Restrictions on the disposal of americium-241 at the Barnwell facility may dictate that waste generated under this license be placed in interim storage at a NRC licensed radioactive waste storage facility.

SUPPLEMENT G

Supplement G

Item 11. **Waste Management.**

1. The responsible agency for the safe disposal of all unwanted, low-level radioactive waste in the Department of Defense is the Department of Defense Executive Agency for Low Level Radioactive Waste, located at Rock Island, Illinois. As program manager, the Agency issues instructions to all military users on proper packaging and marking of shipments of radioactive waste. The agency contracts with qualified companies to provide brokerage, shipping and disposal services. In addition, the Agency conducts on-site audits of some prospective radioactive waste shipments.

2. The ACALA is supported for disposal of radioactive waste from its commodity programs by this agency. Radioactive waste generated by users, maintenance facilities and depots is packaged in containers acceptable for commercial land burial. Unwanted cell modules containing americium-241 sources are shipped and disposed in accordance with all current DOT and NRC regulations.

3. Facility Decommissioning. Decontamination will be conducted prior release of facilities and equipment to unrestricted areas. Surveys will be conducted for removable contamination on potentially contaminated surfaces (e.g., floors, walls, furnishings, equipment, etc.). Decontamination procedures will be repeated until contamination levels are ALARA or additional efforts do not significantly reduce contamination levels below 20[1] DPM per 100 cm^2. Decommissioning of Army facilities will be conducted in accordance with Army radiation safety program closeout survey instructions. Other services will operate similarly.

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[1] Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source, or Special Nuclear Material, U.S. NRC, August 1987.

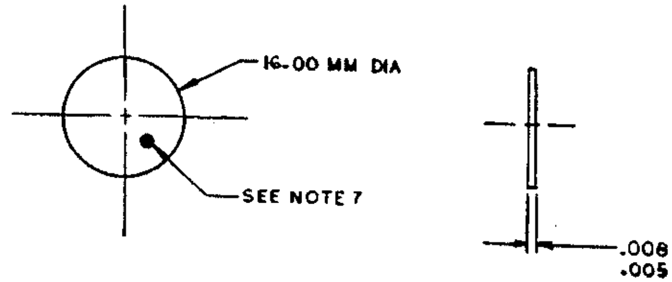
ENCLOSURE 1

DESCRIPTION			DATE	APPROVED
A	NOR Z03-090-001 INC		2 MAY 83	
B	NOR S9C3089-0001	89-05-09	89-10-02	

FSCM	PART NUMBER	NAME AND ADDRESS
51431	AMM 5	AMERSHAM/SEARLE CORP. 2636 S CLEARBROOK DRIVE ARLINGTON HEIGHTS, IL 60005
5K923	NRD A001	NRD DIV. MARK IV INDUSTRIES 2937 ALT. BOULEVARD GRAND ISLAND, NY. 14072

FOR QUALITY ASSURANCE PROVISIONS
SEE QAP 5-15-8155

- AMERICIUM 241-SPECIAL FORM
- SOURCE MAT'L TO BE 125 ±20% MICROCURIES/Sq. CM. OVER ENTIRE DISK, ONE SIDE ONLY.
- MARK APPROX 1/8" DIA SPOT ON INACTIVE SIDE.
- CAUTION-RADIOACTIVE MATERIAL-PROCESS AND HANDLING IN ACCORDANCE WITH CODE OF FEDERAL REGULATIONS-CFR-10. TRANSPORTATION IN ACCORDANCE WITH CFR-49
- THE AMERICIUM FOIL SOURCE SHOULD BE WIPE TESTED USING STANDARD SCINTILLATION TECHNIQUES BEFORE ASSEMBLY INTO CELL. TOTAL REMOVABLE SURFACE CONTAMINATION SHOULD BE LESS THAN 5 NANOCURIES.



NOTES:

THIS DRAWING SHALL BE INTERPRETED IN ACCORDANCE WITH APPLICABLE STANDARDS LISTED IN MIL SPEC DOD-D-1000

THE FOLLOWING ARE MANDATORY WHEN INDICATED BY ■

☐ REMOVE BURRS ☐ BREAK SHARP EDGES .010 MAX

☐ FILLETS .010 MAX R.

☐ V ALL OVER, EXCEPT AS NOTED

☐ DIMENSIONS APPLY AFTER PLATING

☐ TOLERANCES ON STOCK MATERIAL SIZES, SHALL BE AS SPECIFIED IN APPLICABLE SPECIFICATIONS.

ONLY THE ITEM DESCRIBED ON THIS DRAWING WHEN PROCURED FROM THE VENDOR(S) LISTED HEREON IS APPROVED BY CHEMICAL SYSTEMS LABORATORY, ABERDEEN PROVING GROUND, MD.21010 FOR USE IN THE APPLICATION(S) SPECIFIED HEREON. A SUBSTITUTE ITEM SHALL NOT BE USED WITHOUT PRIOR APPROVAL BY CHEMICAL SYSTEMS LABORATORY, ABERDEEN PROVING GROUND, MD. 21010.

IDENTIFICATION OF THE APPROVED SOURCE(S) HEREON IS NOT TO BE CONSTRUED AS A GUARANTEE OF PRESENT OR CONTINUED AVAILABILITY AS A SOURCE OF SUPPLY FOR THE ITEM DESCRIBED ON THE DRAWING.

SOURCE CONTROL DRAWING

QTY REQD	DRAWING OR PART NO.	NOMENCLATURE	MATERIAL	SPECIFICATION	ITEM NO

LIST OF MATERIALS

APPLICATION — NEXT ASSY: B5-15-8154

END ITEM CODE NO.: Z03

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON:
2 PLACE DECIMALS ±.25MM
3 PLACE DECIMALS ±
FRACTIONS ± 1/16
ANGLES ± 0°30'

MATERIAL: SEE NOTE 5&6

ORIGINAL DATE OF DRAWING: 80-08-15

DRAFTSMAN: ERA | CHECKER: WC | GR LEADER:

SUBMITTED: James Alsop
APPROVED: Raymond C. LeBlanc
APPROVED BY ORDER OF CG: A. L. Olenry

HONEYWELL INC
ST PETERSBURG FLA

U.S. ARMY ARMAMENT RESEARCH AND DEVELOPMENT COMMAND
CHEMICAL SYSTEMS LABORATORY
ABERDEEN PROVING GROUND, MARYLAND, 21010

DISK, SOURCE

CODE IDENT NO.	SIZE	
81361	C	C5-15-8155

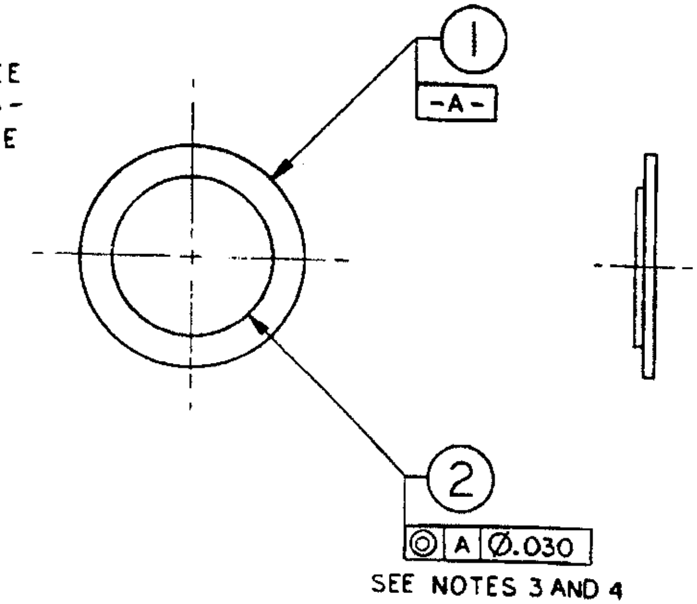
SCALE 2/1 | DAAK11-78-C-0040 | SHEET

REVISIONS			
LTR	DESCRIPTION	DATE	APPR
A	NOR Z03-008-001 INC	17FEB81	

E: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA SED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY TED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOV. ENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHAT. R: AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, SHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS HER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS Y MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPO. N, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, LL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED TO.

E: THIS DRAWING IS FOR USE ONLY IN CONNECTION WITH PROCUREMENT E UNITED STATES GOVERNMENT AND SHALL NOT BE USED NOR REPRO. EITHER WHOLLY OR IN PART FOR ANY OTHER PURPOSE EXCEPT WHEN ICALLY AUTHORIZED

CAUTION — RADIOACTIVE MATERIAL — PROCESS AND HANDLE IN ACCORDANCE WITH CODE OF FEDERAL REGULATIONS - CFR-10, TRANSPORTATION IN ACCORDANCE WITH CFR-49



TES:

THIS DRAWING SHALL BE INTERPRETED IN ACCORDANCE WITH APPLICABLE STANDARDS LISTED IN MIL SPEC DOD-D-1000.

THE FOLLOWING ARE MANDATORY WHEN INDICATED BY ■

] REMOVE BURRS ☐ BREAK SHARP EDGES .010 MAX

] FILLETS .010 MAX R.

] ‴V ALL OVER, EXCEPT AS NOTED

] DIMENSIONS APPLY AFTER PLATING

TOLERANCES ON STOCK MATERIAL SIZES, SHALL BE AS SPECIFIED IN APPLICABLE SPECIFICATIONS.

ATTACH ITEM 2 TO ITEM 1 WITH MARKING SPOT AGAINST ITEM 1.

CEMENT ITEM 2 TO ITEM 1 USING ITEM 3

SEE PARTS LIST PL5-15-8154

NEXT ASSY	CODE NO.
B5-15-8101	Z03

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON:
2 PLACE DECIMALS ±.01
3 PLACE DECIMALS ±.005
FRACTIONS ± 1/16
ANGLES ± 0°30'

MATERIAL

ORIGINAL DATE OF DRAWING 80-08-15

DRAFTSMAN	CHECKER	GR LEADER
FAS	WC	

SUBMITTED James Alsop
APPROVED Raymond C. LeBlanc
APPROVED, BY ORDER OF CG: J. R. Olmsted

HONEYWELL INC
ST PETERSBURG FLA

U.S. ARMY ARMAMENT RESEARCH AND DEVELOPMENT COMMAND
CHEMICAL SYSTEMS LABORATORY
ABERDEEN PROVING GROUND, MARYLAND, 21010

SOURCE & SCREEN ASSEMBLY

CODE IDENT NO.	SIZE	
81361	B	B5-15-815
SCALE 2/1		DAAK11-78-C-0040

REVISIONS

LTR	DESCRIPTION	DATE	APPROVED

LIST OF MATERIALS

LINE	QTY REQD	DRAWING OR PART NO.	NOMENCLATURE	MATERIAL	FSCM	SPECIFICATION	ITEM NO.
1	---	B5-15-8154	SOURCE & SCREEN ASSEMBLY				---
2							
3	1	C5-15-8156-1	SCREEN, CELL				1
4	1	C5-15-8155	DISK, SOURCE				2
5	AR		CEMENT COND. EPOXY				3
6		3022	ACME CHEMICAL & INSULATION CO		70103		
7							
8							
9							
10							
11							
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29							
30							

APPLICATION	
NEXT ASSY	
B5-15-8101	
END ITEM CODE NO.	
Z03	

ORIGINAL DATE OF DRAWING: 80-08-15

DRAFTSMAN	CHECKER	GR LEADER
FAS	WC	

SUBMITTED: *(signature)*

APPROVED: *(signature)*

APPROVED BY ORDER OF CG: *(signature)*

HONEYWELL INC
ST PETERSBURG FLA

U.S. ARMY ARMAMENT RESEARCH AND DEVELOPMENT COMMAND
CHEMICAL SYSTEMS LABORATORY
ABERDEEN PROVING GROUND, MARYLAND, 21010

SOURCE & SCREEN ASSEMBLY

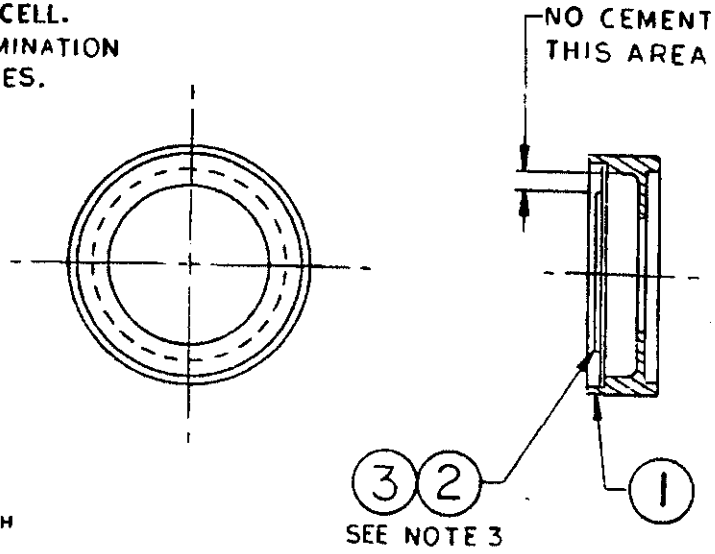
CODE IDENT NO.	SIZE	
81361	B	PL5-15-8154

SCALE — DAAK11-78-C-0040 SHEET

FOR SUPPLEMENTARY QUALITY ASSURANCE PROVISIONS SEE SQAP 5-15-8101

REVISIONS			
LTR	DESCRIPTION	DATE	AP

5. THE AMERICIUM FOIL SOURCE SHOULD BE WIPE TESTED USING STANDARD SCINTILLATION TECHNIQUES BEFORE ASSEMBLY INTO CELL. TOTAL REMOVABLE SURFACE CONTAMINATION SHOULD BE LESS THAN 5 NANOCURIES.



OTES:

. THIS DRAWING SHALL BE INTERPRETED IN ACCORDANCE WITH APPLICABLE STANDARDS LISTED IN MIL SPEC DOD-D-1000.

THE FOLLOWING ARE MANDATORY WHEN INDICATED BY ■

☐ REMOVE BURRS ☐ BREAK SHARP EDGES .010 MAX

☐ FILLETS .010 MAX R.

☐ ""V ALL OVER, EXCEPT AS NOTED

☐ DIMENSIONS APPLY AFTER PLATING

☐ TOLERANCES ON STOCK MATERIAL SIZES, SHALL BE AS SPECIFIED IN APPLICABLE SPECIFICATIONS.

. CEMENT ITEM 2 TO ITEM 1 USING ITEM 3.

. CAUTION - RADIOACTIVE MATERIAL--PROCESS AND HANDLE IN ACCORDANCE WITH CODE OF FEDERAL REGULATIONS CFR-10.

SEE PARTS LIST PL5-15-8101

D5-15-8103	Z 03
NEXT ASSY	CODE NO.
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON:
2 PLACE DECIMALS ±.01
3 PLACE DECIMALS ±.005
FRACTIONS ± 1/16
ANGLES ± 0°30'
MATERIAL

ORIGINAL DATE OF DRAWING 80-08-15

DRAFTSMAN	CHECKER	OR LEADER
FAS	WC	

SUBMITTED: James Alsop
APPROVED: Raymond E. Blanc
APPROVED BY ORDER OF CO: G. R. Thomas

HONEYWELL INC
ST PETERSBURG FLA

U.S. ARMY ARMAMENT RESEARCH AND DEVELOPMENT COMMA
CHEMICAL SYSTEMS LABORATORY
ABERDEEN PROVING GROUND, MARYLAND, 21010

SCREEN AND RETAINER ASSEMBL

CODE IDENT NO.	SIZE	
81361	B	B5-15-810
SCALE 2/1	DAAK11-78-C-0040	

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED
A	INC NOR 203-203-001	2 MAY 83	

(a) ALTERNATE

LIST OF MATERIALS

LINE	QTY REQD	DRAWING OR PART NO.	NOMENCLATURE	MATERIAL	FSCM	SPECIFICATION	ITEM NO.
1	---	85-15-8101	SCREEN AND RETAINER ASSEMBLY				---
2							
3	1	85-15-8056	RETAINER, SOURCE				1
4	1	85-15-8154	SOURCE AND SCREEN ASSEMBLY				2
5	AR	ABLEBOND 163-4	CEMENT COND. EPOXY	(a)			3
6			ABLESTIK LABS				
7			833 WEST 182ND ST				
8			GARDENA, CA 90248				
9	ALT	3026	E-SOLDER	(a)			4
10			ACME CHEMICAL		70103		
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
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27							
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30							

APPLICATION / NEXT ASSY	
DS-15-8103	
END ITEM CODE NO.	
203	

ORIGINAL DRFT. OF DRAWING: 80-08-15

DRAFTSMAN	CHECKER	OR LEADER
FAS	WC	

SUBMITTED: James Alsop

APPROVED: Raymond C. LeBlanc

APPROVED BY ORDER OF OR: G.R. Olsen

HONEYWELL INC
ST PETERSBURG FLA

U.S. ARMY ARMAMENT RESEARCH AND DEVELOPMENT COMMAND
CHEMICAL SYSTEMS LABORATORY
ABERDEEN PROVING GROUND, MARYLAND, 21010

SCREEN AND RETAINER ASSEMBLY

CODE IDENT NO.	SIZE	
81361	B	PL5-15-8101

SCALE 2/1 | DAAK11-78-C-0040 | SHEET

ENCLOSURE 2

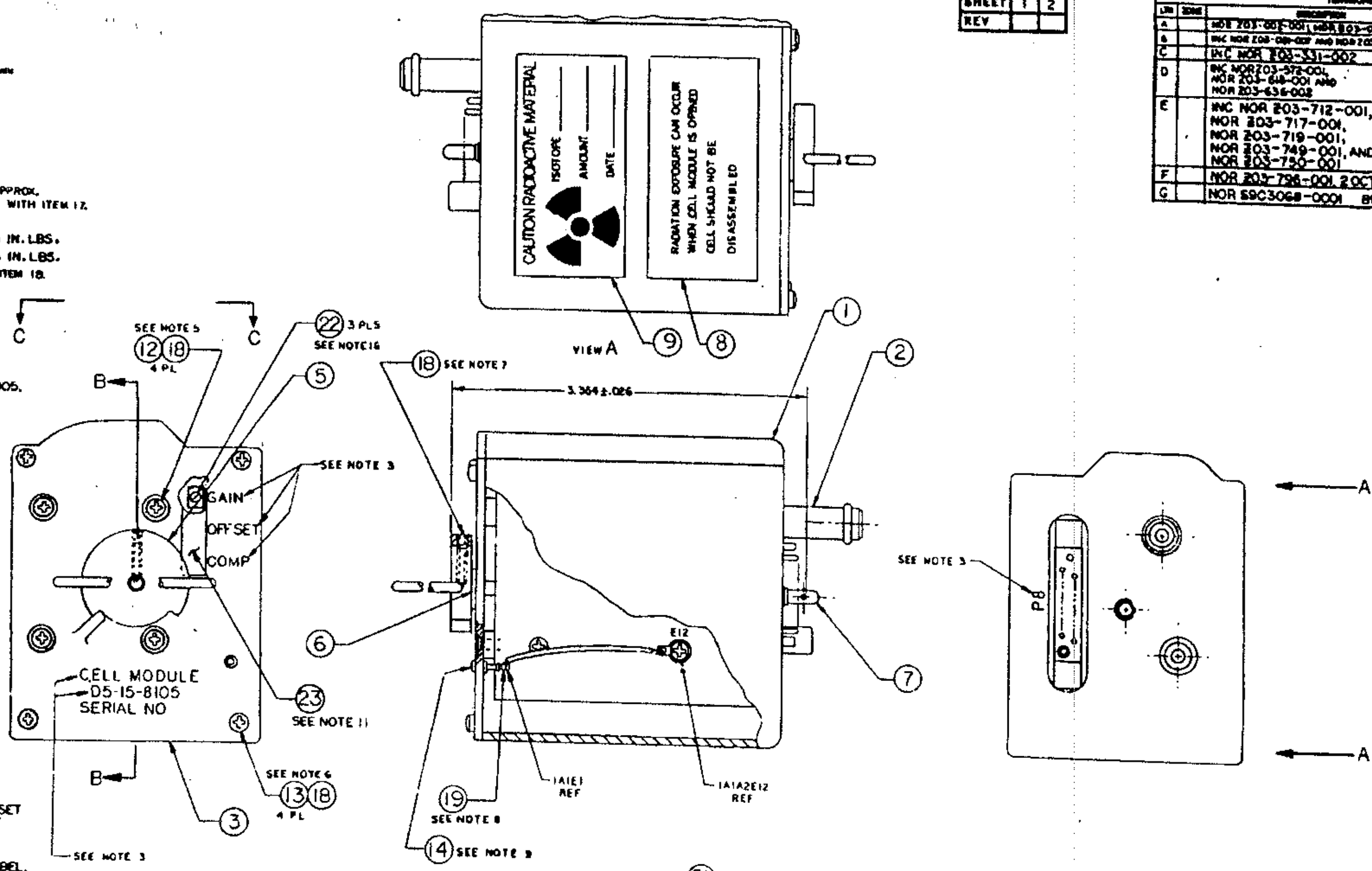
SHEET	1	2
REV		

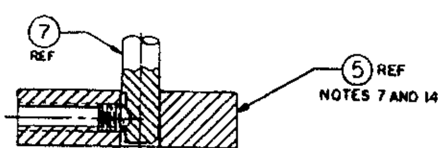
REVISIONS

LTR	ZONE	DESCRIPTION	DATE	APPROVED
A		NOR 203-[illegible]-001, NOR 203-[illegible]-001 [illegible]	[illegible]	[illegible]
B		INC NOR 203-[illegible] AND NOR 203-[illegible]-002	2 MAY 80	[illegible]
C		INC NOR 203-531-002	[illegible]	[illegible]
D		INC NOR203-572-001, NOR 203-618-001 AND NOR 203-636-002	[illegible]	[illegible]/JR
E		INC NOR 203-712-001, NOR 203-717-001, NOR 203-719-001, NOR 203-749-001, AND NOR 203-750-001	4OCT85	[illegible]
F		NOR 203-796-001, 2OCT85	[illegible]	[illegible]
G		NOR 89C3068-0001 89-04-18	89-10-02	[illegible]

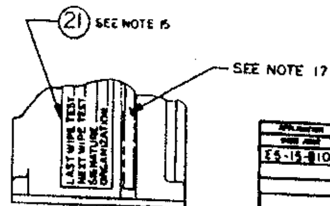
NOTES:

1. [illegible]
2. [illegible]
3. MARK WITH .08 HIGH CHARACTERS APPROX. AS SHOWN USING ITEM 16 AND COAT WITH ITEM 17.
4. FOR WIRING DIAGRAM SEE SHEET 2.
5. TORQUE ITEM 12 TO 4 IN.LBS ± 0.5 IN. LBS.
6. TORQUE ITEM 13 TO 4 IN.LBS ± 0.5 IN. LBS.
7. COAT THREADS OF SETSCREW WITH ITEM 18.
8. SOLDER PER MIL-STD-454 REQ. 5.
9. SWAGE ITEM 19 TO SECURE.
10. FOR ADDITIONAL REQUIREMENTS SEE EA-C-1243
11. ITEM 23 TO BE APPLIED OVER ADJUSTMENT HOLES AFTER CALIBRATION PER DOM 5-15-8105.
12. A SURVEY SHOULD BE MADE ON THE OUTSIDE OF THE COMPLETED CELL MODULE WITH A SOFT GAMMA GEIGER METER DEVICE CAPABLE OF READING 2000 MICROREMS PER HOUR FULL SCALE. THE MAXIMUM READING OBTAINED SHOULD BE NO MORE THAN 1200 MICROREMS PER HOUR AT 1 INCH.
13. DESCRIPTION OF MANUFACTURE, DOM 5-15-8105 IS A SUGGESTED METHOD OF ASSY AND CALIBRATION ONLY. THIS METHOD IS NOT MANDATORY FOR USE AND IN NO WAY RELIEVES THE CONTRACTOR FROM PERFORMING THE INSPECTIONS AS SET FORTH IN SPEC. EA-C-1243.
14. ITEM 5 SHALL BE ASSEMBLED ONTO ITEM 7 SO THAT SET-SCREW IN ITEM 5 SEATS FIRMLY IN CAVITY ON FLAT SECTION OF ITEM 7 AS SHOWN.
15. LOCATE ITEM 21 APPROXIMATELY AS SHOWN.
16. APPLY ITEM 22 TO THE GAIN, OFFSET AND COMP RESISTOR ADJUSTMENT SCREWS PRIOR TO INSTALLING ITEM 23.
17. MANUFACTURERS BAR CODE LABEL, FOR SERIALIZATION PURPOSES, PERMISSABLE ON THIS SURFACE.
18. UNLESS OTHERWISE INSTRUCTED, WHEN PACKAGING THIS PART FOR DELIVERY TO THE GOVERNMENT AS A CONTRACT LINE ITEM, USE SPI P5-15-8105.





SECTION B-B
SCALE: 4/1
ROTATED 90° CCW



VIEW C-C
SCALE: NONE

SEE PARTS LIST PL5-15-8105

	E5-15-8100
DATE	80-08-15
DRAWN / CHECKED	FAS / WC
TOLERANCES	2 PLACE DECIMALS ± .01; 3 PLACE DECIMALS ± .005
	203

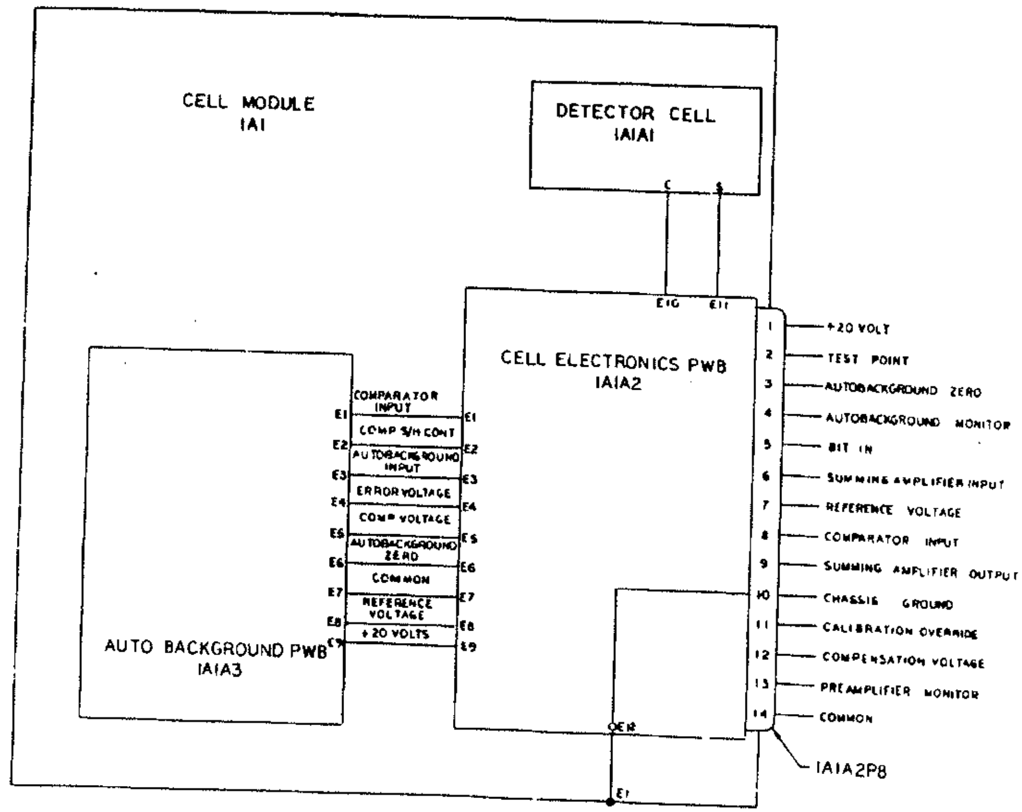
CHEMICAL SYSTEMS LABORATORY

CELL MODULE

HONEYWELL INC
ST PETERSBURG FLA

CODE IDENT NO.	SIZE	
81361	D	D5-15-8105
SCALE 2/1	DAAK11-78-C-0040	SHEET 1 OF 2

LTR	ZONE	DESCRIPTION	DATE	APPROVED
A		NOR Z03-636-002 INC		



E5-15-8100

203

80-08-15

FAS WC

CELL MODULE

HONEYWELL INC
ST. PETERSBURG FLA

81361	D	D5-15-8105
	DAAK11-78-C-0040	SHEET 2 OF 2

REVISIONS

LTR	DESCRIPTION	DATE	APPROVED
E	REPLACES PL5-15-8105, REV D, DATED 8 MAR 85 AND ADDED SHEET 2 OF 2 AND INC NOR Z03-717-002	4 OCT 85	[illegible]
F	NOR S9C3068-0002, 89-04-18 NOR S9C3042-0001, 89-04-06	89-10-02	SM/RJ

PARTS LIST

LINE	QTY REQD	DRAWING OR PART NO.	NOMENCLATURE	MATERIAL	FSCM	SPECIFICATION	ITEM NO.
1	---	D5-15-8105	CELL MODULE				---
2							
3	1	D5-15-8081	CELL HOUSING, MACHINING				1
4	1	D5-15-8104	CELL SUBASSY				2
5	1	C5-15-8058	COVER, CELL				3
6							
7	1	C5-15-8424	DISC, LOCKING SUBASSY				5
8	2	5804-74-1	WASHER, CRESENT STYLE SPRING	SEASTROM MFG CO	86928		6
9	1	B5-15-8068	TURNLOCK FASTENER, CELL ASSY				7
10	1	B5-15-8176	LABEL, WARNING				8
11	1	B5-15-8177	LABEL, RADIOACTIVE MAT'L				9
12							
13	AR		SEALING COMPOUND, GRADE AA			MIL-S-22473	11
14							
15	4	MS24693-C2	SCREW, MACHINE, FLAT HEAD				
16			100° 4-40 X 1/4 LG	CRES			12
17	4	MS51957-13	SCREW, MACHINE, PAN HEAD				
18			4-40 X 1/4 LG, CROSS-RECESSED	CRES			13
19	1	SE12XC05S	TERMINAL, TURRET	BRASS, TIN DIP		MIL-T-55155/12	14
20							
21	AR		FAB-ORG COAT LABELS				
22			BLACK ON CLEAR			MIL-STD-130	16
23	AR		PROTECTIVE COATING			FED-STD-141	17
24	AR		COMPOUND, RETAINING, GR B			MIL-S-22473	18
25	AR		SOLDER SN60 OR 63	SEE NOTE 8		QQ-S-571	19
26							
27							
28		DOM5-15-8105	DESCRIPTION OF MANUFACTURE				
29	1	C5-15-12600	LABEL, WIPE TEST				21
30	AR	GE1201	GLYPTAL RED ENAMEL		50293		22

APPLICATION	
NEXT ASSY	E5-15-8100
END ITEM CODE NO.	Z03

ORIGINAL DATE OF DRAWING: 80-08-15

DRAFTSMAN: FAS | CHECKER: WC | GR LEADER:

SUBMITTED: B Schlitt / James Alsop

APPROVED: Raymond C LeBlanc

APPROVED: BY ORDER OF CG: A. R. [illegible]

U.S. ARMY ARMAMENT RESEARCH AND DEVELOPMENT COMMAND
CHEMICAL SYSTEMS LABORATORY
ABERDEEN PROVING GROUND, MARYLAND, 21010

CELL MODULE

CODE IDENT NO.	SIZE	
81361	B	PL5-15-8105

SCALE ——

[redacted]

NOTICE: THIS DRAWING IS FOR USE ONLY IN CONNECTION WITH PERFORMANCE OF THE UNITED STATES GOVERNMENT AND SHALL NOT BE USED AND DISCLOSED OTHERWISE OR COPIED FOR ANY OTHER PURPOSE.

REVISIONS

LTR	DESCRIPTION	DATE	APPROVED

PARTS LIST

LINE	QTY REQD	DRAWING OR PART NO.	NOMENCLATURE	MATERIAL	SPECIFICATION	ITEM NO.
1	1		LABEL, VOID CHROME,			
2			1/4 X 1 INCH LONG, IMPACT			
3			LABEL CO., 4612 W.			
4			BUFFALO AVE., TAMPA,			
5			FL 33614			23
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APPLICATION NEXT ASSY	
E5-15-8100	
END ITEM CODE NO.	
203	

GENERAL RELEASE OF DRAWING: 80-08-15

DRAFTSMAN	CHECKED	AS LEADER
M.A.B.	W C	

SUBMITTED: James Wloop

APPROVED: Raymond O. LaBlanc

APPROVED BY ORDER OF CO: A. E. Henning

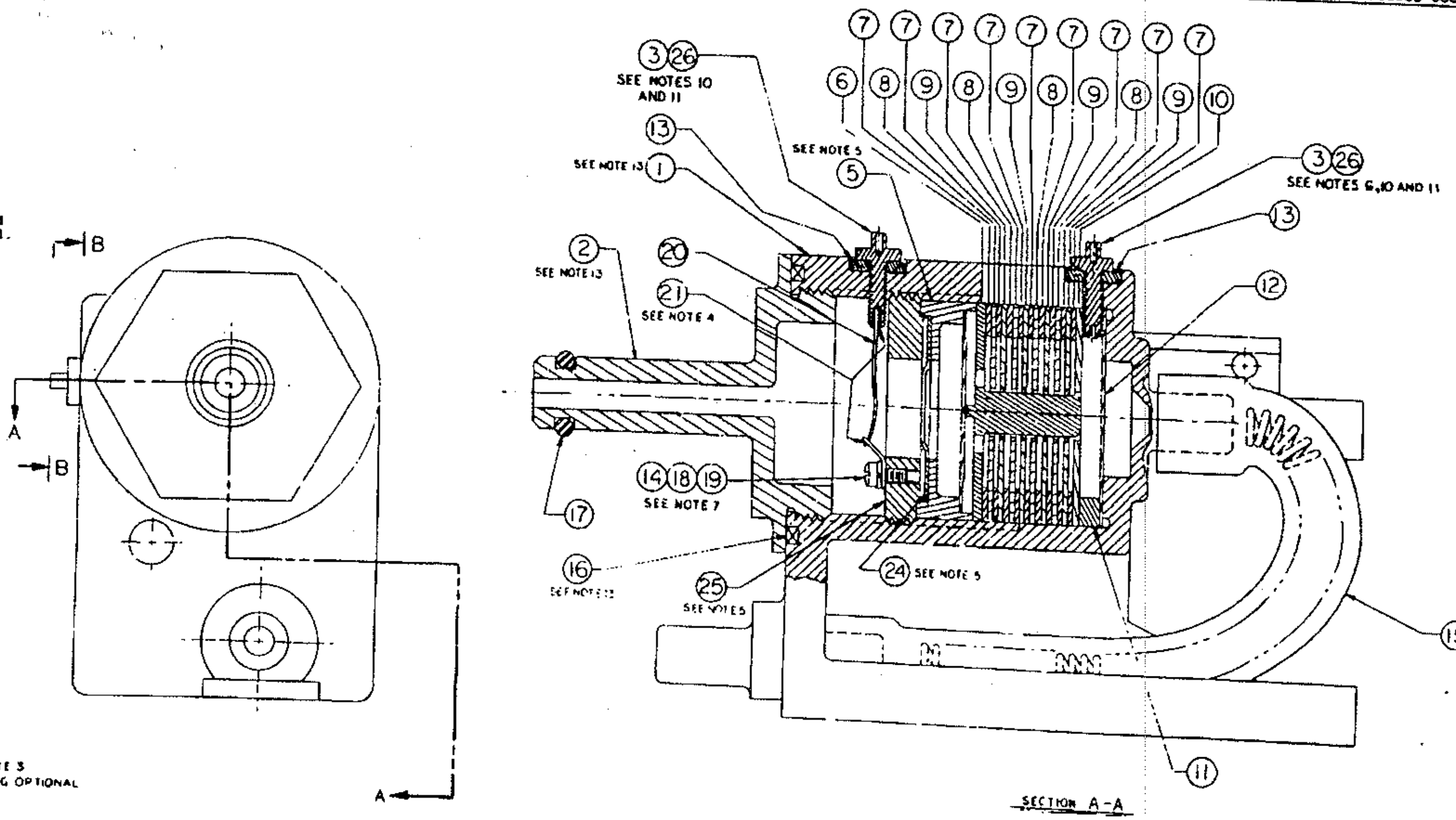
U.S. ARMY ARMAMENT RESEARCH AND DEVELOPMENT COMMAND
CHEMICAL SYSTEMS LABORATORY
ABERDEEN PROVING GROUND, MARYLAND, 21010

CELL MODULE

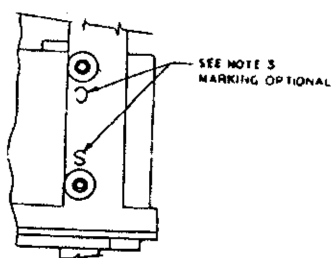
CODE IDENT NO.	SIZE	
81361	B	PL5-15-8105
SCALE ———		SHEET 2 OF 2

MARK WITH .09 HIGH CHARACTERS APPROX. AS SHOWN USING ITEM 22 AND COAT WITH ITEM 23, PER MIL-STD-454 REQ. 67.
SOLDER PER MIL-STD-454 REQ. 5.
TO PROPERLY LOAD ALL INTERNAL CELL ITEMS, RECORD THE TORQUE REQUIRED TO TURN ITEM 25 INTO ITEM 1. THEN ADD AN ADDITIONAL 5 INCH-LBS FOR FINAL TORQUE TO COMPRESS AND LOAD ITEM 24.
INSERT ITEM 3 INTO HOLE IN ITEM 1 AND INTO THREADED HOLE IN ITEM 11.
TORQUE ITEM 18 TO 12 IN. OZ.
CAUTION-RADIOACTIVE MATERIAL--PROCESS AND HANDLE IN ACCORDANCE WITH CODE OF FEDERAL REGULATIONS -CFR-10.
AFTER ASSEMBLY THE MODULE SHOULD BE WIPE TESTED USING STANDARD SCINTILLATION TECHNIQUES. THE TOTAL REMOVABLE SURFACE CONTAMINATION SHOULD BE LESS THAN 100 DISINTEGRATIONS PER MINUTE PER 100 SQUARE CENTIMETERS ON THE OUTSIDE OF THE MODULE.
APPLY ITEM 26 TO THE THREADS OF ITEM 3.
TORQUE ITEM 3 UNTIL THE WASHER (ITEM 13) IS COMPRESSED AND AN AIR TIGHT SEAL IS ACHIVED.
UNLESS OTHERWISE SPECIFIED, ALL TORQUE TOLERANCES SHALL BE ±10%.
TORQUE ITEM 2 INTO ITEM 1 SUFFICIENTLY TO FLATEN GASKET ITEM 16 COMPLETELY INTO GROOVE.

LTR	ZONE	DESCRIPTION	DATE	APPROVED
A		NOR Z03-036-001 INC	27FEB81	[illegible]
B		NOR Z03-138-001 INC	2MAY83	[illegible]
C		NOR Z03-636-025 INC	[illegible]	[illegible]
D		INC NOR Z03-710-001	24 JUN[illegible]	[illegible]
E		INC NOR Z03-760-001	4 OCT 85	[illegible]
F		INC NOR 89C3038-0001 6APR89	90-04-10	[illegible]



SECTION A-A



VIEW B-B
ROTATED 90° CLOCKWISE
SCALE: 2/1

SEE PARTS LIST PL5-15-8103

NEXT ASSY	D5-15-8104
DRAWING DATE	80-08-15
DRAWN	FAS
CHECKED	WC
	U.S. ARMY ARMAMENT RESEARCH AND DEVELOPMENT COMMAND CHEMICAL SYSTEMS LABORATORY ABERDEEN PROVING GROUND, MARYLAND 21010
TITLE	DETECTOR CELL ASSEMBLY
	HONEYWELL INC
CODE IDENT NO.	81361
SIZE	D
DWG NO.	D5-15-8103
	203

REVISIONS

LTR	DESCRIPTION	DATE	APPROVED
A	NOR Z03-006-001 INC	17FEB81	[signature]
B	NOR Z03-412-004 INC	25JUN84	[signature] JRK
C	NOR Z03-636-026 INC	8 MAR 85	[signature] JRK

LIST OF MATERIALS

LINE	QTY REQD	DRAWING OR PART NO.	NOMENCLATURE	MATERIAL	FSCM	SPECIFICATION	ITEM NO.
1	- -	D5-15-8103	DETECTOR CELL ASSEMBLY				- -
2							
3	1	D5-15-8083	BLOCK AND INSERT ASSY				1
4	1	C5-15-8085	TUBE, INLET				2
5	2	D5-15-8051	TERMINAL, STUD				3
6							
7	1	D5-15-8101	SCREEN AND RETAINER ASSY				5
8	1	C5-15-8157	MANIFOLD, CELL				6
9	8	D5-15-8159-1	SPACER, CELL				7
10	4	D5-15-8159-3	SPACER, CELL				7
11	4	D5-15-8158	BAFFLE, CELL				8
12	1	D5-15-8159-2	SPACER, CELL				9
13	1	D5-15-8052	SPACER, TAPPED				10
14	1	C5-15-8156-2	SCREEN, CELL				11
15	2	C5-15-8148-4	WASHER, NON-METALIC				12
16	1	A5-15-8184	TERMINAL, LUG,	COPPER			13
17	1	C5-15-8102-20	TUBING ASSEMBLY, PLASTIC				14
18	1	M83248/1-023	PACKING, PREFORMED			MIL-R-83248/1	15
19	1	M83248/1-008	PACKING, PREFORMED			MIL-R-83248/1	16
20	1	MS51957-1	SCREW, PMH, 2-56 X 1/8 LG	CRES			17
21	1	MS35338-134	WASHER, LOCK, NO. 2	CRES			18
22			WIRE, UNINSULATED, SOFT	(SOLID COPPER)		QQ-W-343	19
23	AR		DRAWN AND ANNEALED, AWG 22	TIN PLATED		TYPE S	20
24	AR		SOLDER, SN60 OR 63			QQ-S-571	
25	AR		FAB-ORG COAT LABELS, BLACK ON CLEAR			MIL-STD-130	21
26	AR		PROTECTIVE COAT			FED-STD-141	22
27	1	C5-15-8421	WASHER, SPRING TENSION				23
28	1	C5-15-8422	RING, RETAINER				24
29	AR	3M 2216	ADHESIVE		04963		25
30							26

APPLICATION	
NEXT ASSY	
D5-15-8104	
END ITEM CODE NO.	
Z03	

ORIGINAL DATE OF DRAWING: 80-08-15

DRAFTSMAN: ERA | CHECKER: WC | GR. LEADER:

SUBMITTED: [signature] James Alsop, B. Hollister

APPROVED: [signature] Raymond ... ...

APPROVED: BY ORDER OF CG: [signature] A. L. Ohrvig

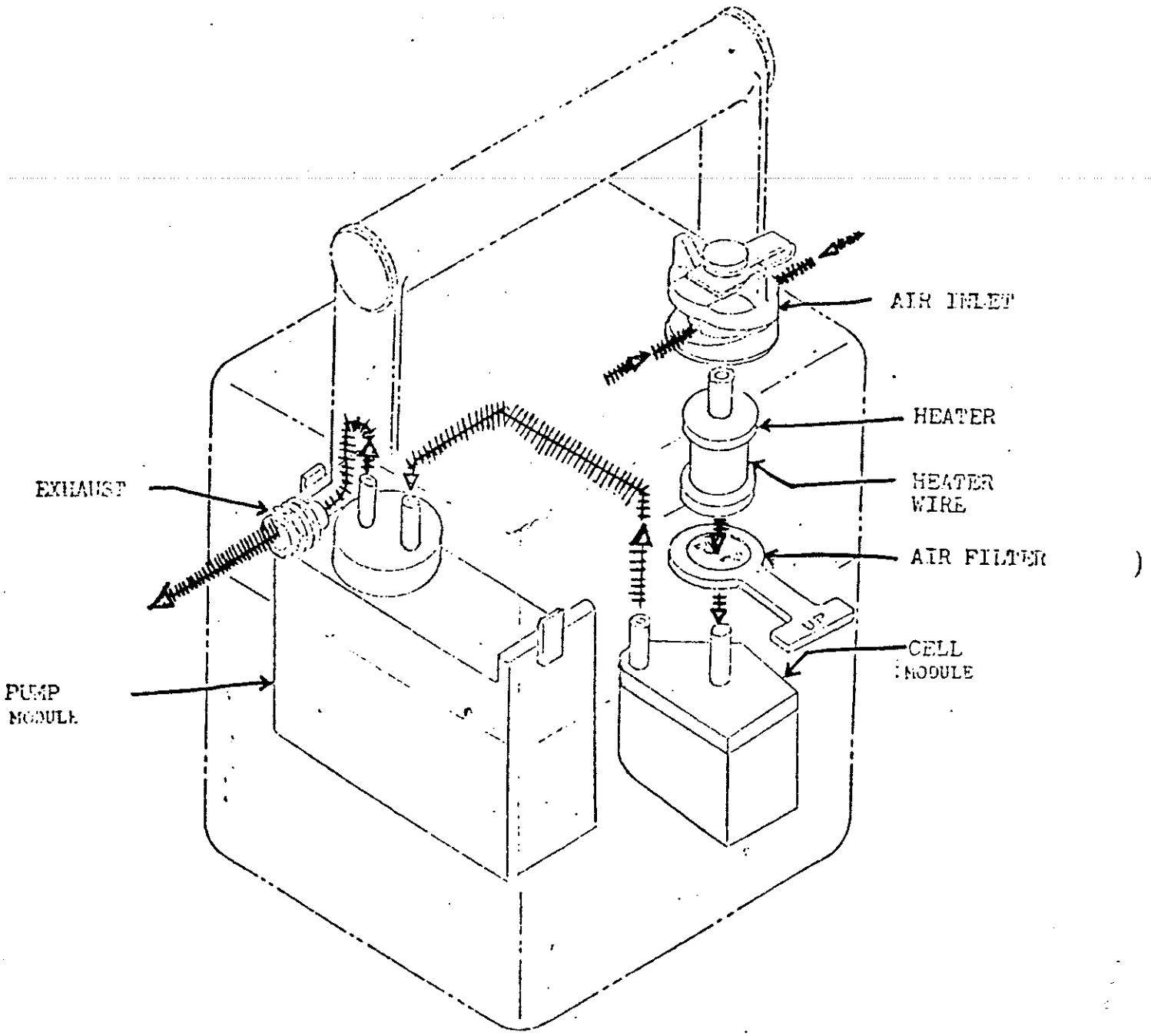
HONEYWELL INC
ST PETERSBURG, FLA

U.S. ARMY ARMAMENT RESEARCH AND DEVELOPMENT COMMAND
CHEMICAL SYSTEMS LABORATORY
ABERDEEN PROVING GROUND, MARYLAND, 21010

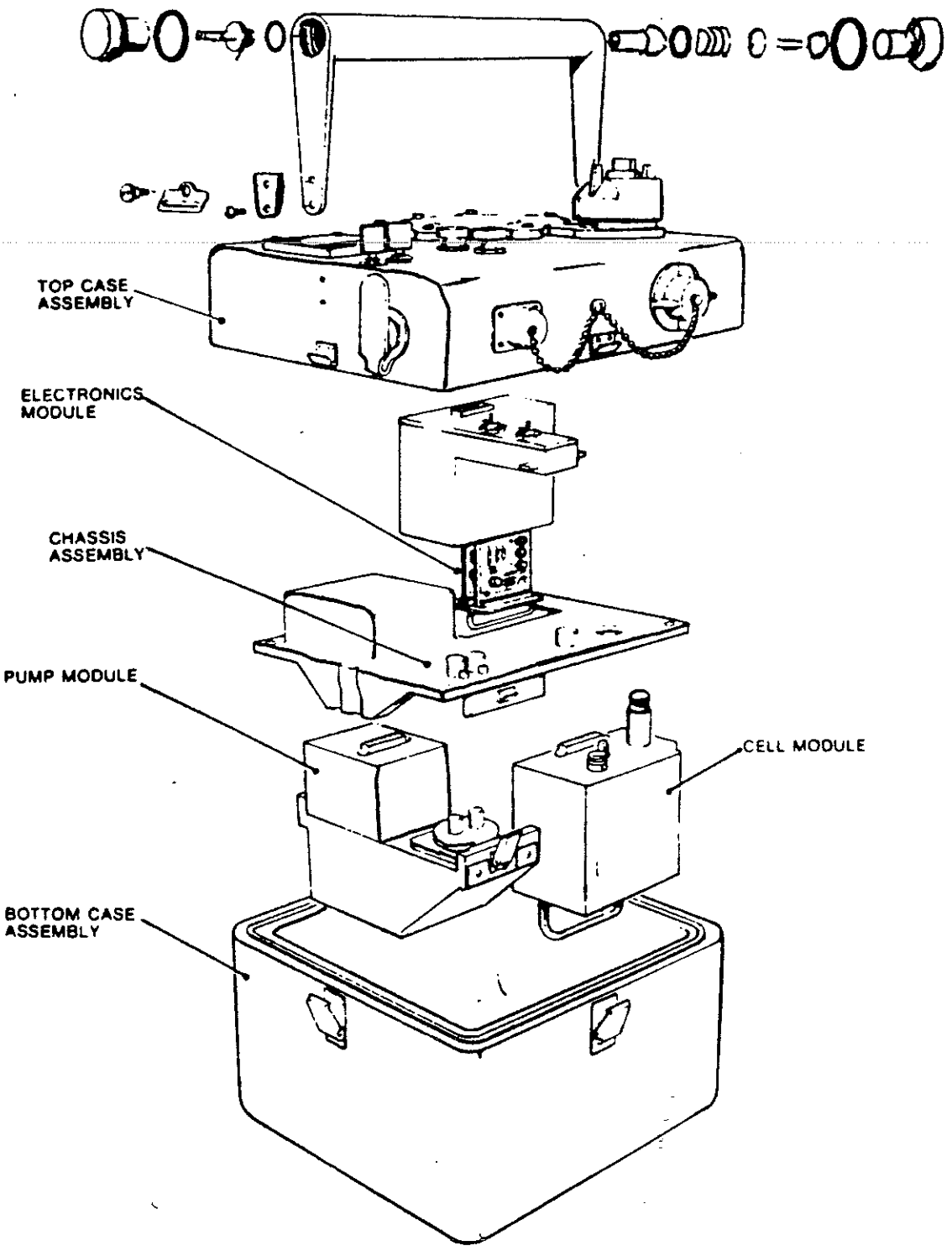
DETECTOR CELL ASSEMBLY

CODE IDENT NO.	SIZE	
81361	B	PL5-15-8103

SCALE | DAAK11-78-C-0040 | SHEET



M43E-1 PNEUMATIC PATH



Isometric Sketch of the M43A1 Detector Unit

Enclosure 3

Wipe Test Results from Field Assets

The M43A1 Chemical Agent Alarm has been in the field since 1984. The cell module containing the Am-241 source disk cannot be opened and so it has not been possible to perform direct leakage tests on the disk itself. Instead the external surfaces of the cell module and the device have been wipe tested. In that time the wipe testing program has never shown any removable americium-241 on the areas that are accessible to users and maintainers of the device.

In 1992 the AMCCOM Safety office began receiving reports from maintenance activities of M43A1 Chemical Agent Detectors observed to have a "white powder" accumulating in the air path tubing. The observations were made during maintenance on the devices. In each instance the maintainers we instructed to treat the devices to be potentially leaking radioactive material and turn them in to the Army's central collection point at Anniston AL.

Wipe tests later showed that this white powder, contained detectable levels of Am-241. The highest result obtained from these samples was 0.00047 microcuries. Since no tests had ever exceeded minimum detectable levels these results were cause for concern.

Special studies were initiated to examine the integrity of the Am-241 sources given their 8-10 year age. These studies were performed by Battelle's Columbus Ohio Laboratory. In some cases the studies found measurable levels of removable americium-241 inside the cell module. In at one case the removable material within the cell module was 0.018 microcurie . The cell modules used in these studies already had been withdrawn from service and were disposed of as radioactive waste at the Barnwell, South Carolina site.

The Battelle study indicates that deterioration of the Am-241 source is be occurring. Due to the alpha particle bombardment of the micro-pores or micro-fractures are developing in the gold matrix. Micrographs of source disks showed discrete spots of silver from the source backing that had migrated through the gold layers to the surface. This was interpreted to be transport and deposition of dissolved silver through channels which develop due to alpha particle bombardment and recoil effects. Water vapor condensing in the fractures could be dissolving material and allowing it to be transported to the surface. The conclusion was that if silver was being transported to the surface of the source in this manner the same was occurring with americium.

Concern arising from this was that Am-241 might be escaping from the cell module. Thus a wipe test designed to look specifically at the air path at the outlet of the cell module was designed. The air path wipe tests have found low levels of free Am-241 in the plastic tubing between the cell module and the pump module. In the highest instance the level of activity was less than 200 dpm.

About 4% of the devices in the sample population of 500 detectors examined showed any removable activity. The levels found have varied between just above minimum detectable (3 dpm) to 180 dpm. We believe that the design of the cell module, through which air flows in a "U" shaped path from inlet to outlet, is functioning to trap most of the free Am-241 released from the source disk.

The cell module is never opened in any servicing procedure. Some maintenance procedures do call for removing and replacement of the cell module. We are, therefore, initiating a change to the wipe test procedure to be used in the field. The new test is designed to directly examine the air path tubing at the cell module outlet to detect removable Am-241. This can be done without any disassembly of the device beyond removal of the cell module.

Removal of the cell module is authorized at the support maintenance level. In this way we will be able to detect any migration of Am-241 from the cell module. Wipe test results showing removable Am-241 above 20 dpm will be considered a contaminated device and removed from service. This wipe test will be performed annually and prior to any maintenance bring performed on the device.

ENCLOSURE 4

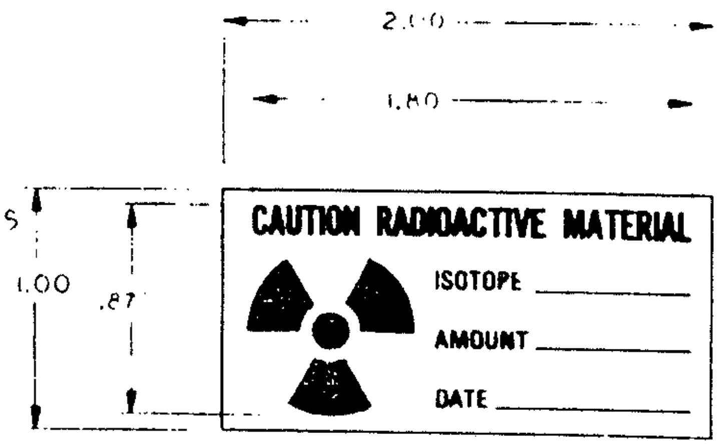
FOR SUPPLEMENTARY QUALITY ASSURANCE SEE SQAP 5-15-8177

REVISIONS

LTR	DESCRIPTION	DATE	APPROVAL

NOTES CONTINUED:

6. LABEL MATERIAL, ADHESIVE, AND MARKING MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF MIL-STD-129



NOTES:

1. THIS DRAWING SHALL BE INTERPRETED IN ACCORDANCE WITH APPLICABLE STANDARDS LISTED IN MIL SPEC DOD D-1000
2. THE FOLLOWING ARE MANDATORY WHEN INDICATED BY ■
   - ☐ REMOVE BURRS ☐ BREAK SHARP EDGES .010 MAX
   - ☐ FILLETS .010 MAX R
   - ☐ ""V ALL OVER, EXCEPT AS NOTED
   - ☐ DIMENSIONS APPLY AFTER PLATING
   - ☐ TOLERANCES ON STOCK MATERIAL SIZES SHALL BE AS SPECIFIED IN APPLICABLE SPECIFICATIONS
3. MATERIAL ADHESIVE BACKED, PREMIUM LITHO PAPER
4. COLORS: MAGENTA ON YELLOW BACKGROUND.
5. SUGGESTED SOURCE(S) OF SUPPLY
   IMPACT LABEL CO.
   4612 W. BUFFALO AVE
   TAMPA, FLA 33614

NEXT ASSY	CODE NO.
D5-15-8105	203
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
2 PLACE DECIMALS ± .03
3 PLACE DECIMALS ±
FRACTIONS ± 1/16
ANGLES ± 0°30'

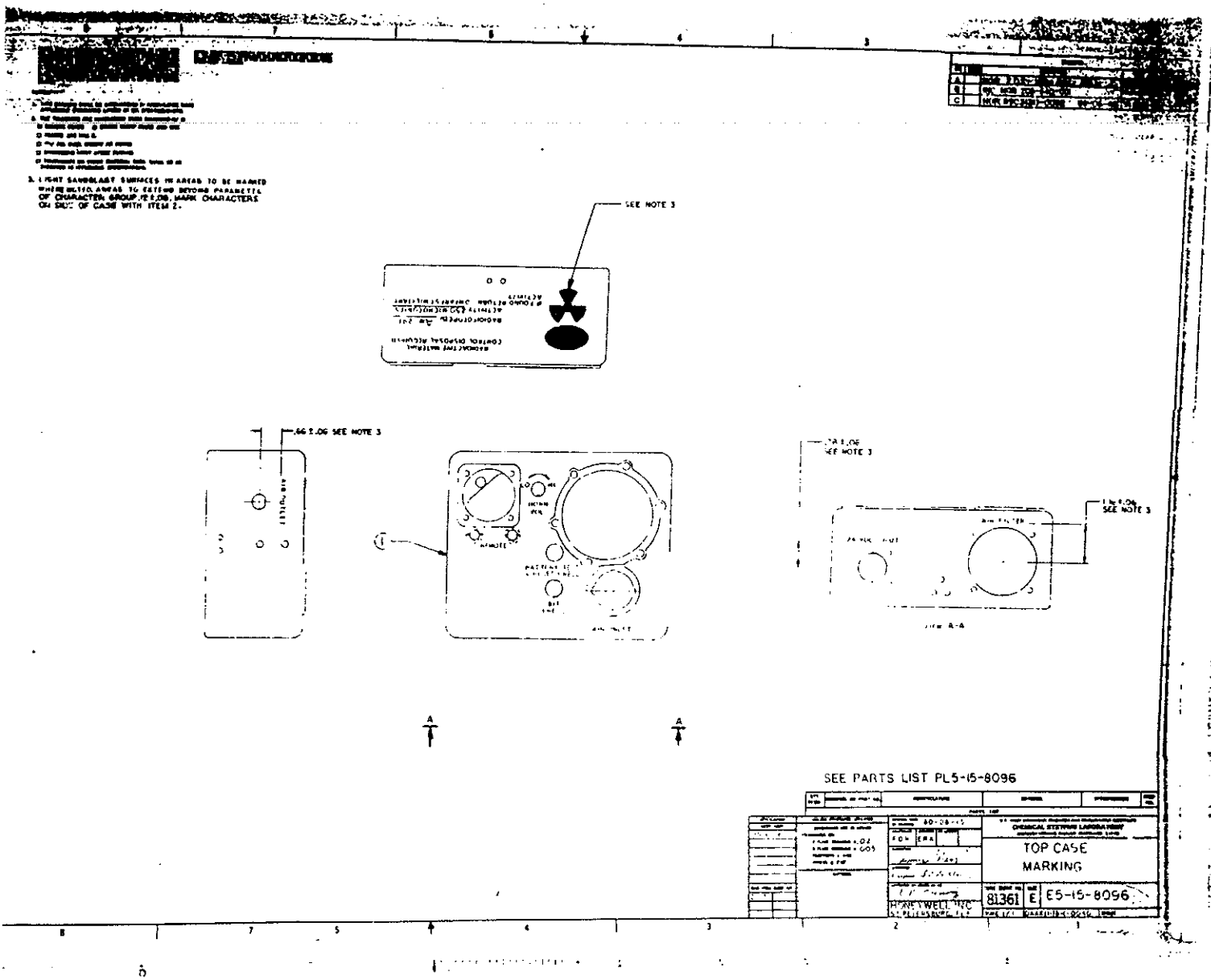
MATERIAL: SEE NOTE 3

ORIGINAL DATE OF DRAWING: [illegible]-15
DRAFTSMAN: FAS
CHECKER: WC
SUBMITTED: [illegible]
APPROVED: [illegible]
APPROVED BY ORDER OF CG: [illegible]
H. NESWELL INC
ST. PETERSBURG, FLA

U.S. ARMY ARMAMENT RESEARCH AND DEVELOPMENT COMMAND
CHEMICAL SYSTEMS LABORATORY
ABERDEEN PROVING GROUND, MARYLAND 21010

LABEL, RADIOACTIVE MAT'L.

CODE IDENT NO.	SIZE	
81361	B	B5-15-8177
SCALE 2/1		DAAK11-78-C-0040


SEE NOTE 3
SEE PARTS LIST PL5-15-8096
TOP CASE
MARKING
81361
E
E5-15-8096

Enclosure 5

RESUME OF TRAINING AND EXPERIENCE

John A. Mattila

1. **Educational Background:**

Purdue University - BSME Mechanical Engineering 1956-1960

University of Iowa - Graduate Studies
Intermediate Thermodynamics (3 sem hrs) 1964
Differential Equations (3 sem hrs) 1965

2. **Formal Training in Radiation Protection:**

Radiation Protection Officer (RPO) Course (1 week) 1-5 Aug 94
Given by U.S. Army Communications-Electronics Command (CECOM) at Phoenix, AZ

Conventional Ammunition Radiation Training (CART) (2 weeks) 12-23 Sep 94
Given by U.S. Army Defense Ammunition Center & School (USADACS) at Savanna, IL

3. **Experience Background:**

Weapons design and project engineer, research and development (R&D) artillery and aircraft weapons. Feb 64 - Dec 67
Rock Island Arsenal (RIA), Rock Island, IL

Reliability, Availability, and Maintainability (RAM) engineer team leader, R&D and production artillery, aircraft weapons, and small arms. Jan 68 - Jan 74
RIA, Army Weapons Command, and Rodman Laboratory, Rock Island, IL

RAM and process quality engineer team leader and branch chief production aircraft weapons, small arms, air defense, fighting vehicles, related ammunition, and defensive chemical equipment. Army Armament Command (ARMCOM)/ Armament Readiness Command (ARRCOM)/Armament, Munitions & Chemical Command (AMCCOM), Rock Island, IL Feb 74 - Apr 94

3. **Experience Background**: **(continued)**

Temporary detail of 120 days to Logistic Engineering & Maintenance Directorate, co-located in AMCCOM Safety Office to provide introduction/experience to Radiation Safety Program. Detail is in preparation for future assignment as Chief of Armament and Chemical Acquisition Logistic Activity (ACALA) Safety Office. Duties will include designation as License Manager for ACALA Radiation Licenses on transfer from AMCCOM, Rock Island, IL.	May 94 - Sep 94
Chief of ACALA Safety Office on production weapons and defensive chemical equipment. Oversees management of ACALA Radiation License actions, Radiation Safety Program, Army Radiation Authorizations, System Safety Engineering Program and Safety-of-Use Message Program.	Oct 94 - Present

RESUME OF TRAINING AND EXPERIENCE
ELIZABETH A PETERSON

Radiation Protection Officer for Licenses 12-00722-04, 12-00722-06, and SUC1340, XB001141 and Alternate Radiation Protection Officer for Licenses 12-00722-13 and 12-00722-14.

1. GENERAL EDUCATION BACKGROUND:
Bachelor of Science in Chemistry (1964), minors math and physics. Mary Washington College of the University of Virginia, Fredericksburg, Virginia

Graduate work, Inorganic chemistry (1964-66)
Oklahoma State University, Stillwater, Oklahoma

2. FORMAL TRAINING IN RADIATION SAFETY:

A. Principles and Practices of Radiation Protection.

Course	Duration of Training	Completion
Radiological Safety Fundamentals 133 Correspondence Course Aberdeen, MD	13 credit hours	Sept 1975
Radiological Safety 7K-F3 Aberdeen, MD	120 hours	Oct 1975
Laser Safety Field safety Activity Charlestown, IN	24 hours	Oct 1980
Nuclear Accident/Incident Control Operations and Planning Defense Ammo Center & School Savanna, IL	80 hours	Dec 1980
Radioactive Waste Disposal Work Shop US Ecology Inc Rock Island, IL	16 hours	March 1981
Applied Health Physics Oak Ridge Assoc Universities Oak Ridge, TN	200 hours	Jun 1983
Depleted Uranium Safety course Battelle PNL US Army Belvoir Research and Development Center Fort Belvoir, VA	40 hours	Mar 1984
Basic Radiation Protection and Tritium Illumination Devices, Allied Tech Group, Inc	24 hours	Aug 1994

Atlanta, GA

B. Radioactivity Monitoring Techniques and Instruments:

Course	Duration of Training	Completion
Alpha, Beta, Gamma, and Liquid scintillation Counting Rock Island Arsenal Rock Island, IL	1966-77(on the job)	1977
Applied Health Physics Oak Ridge Assoc U. Oak Ridge, TN	200 hours	Jun 1993

C. Mathematics and Calculations:

Course	Duration of Training	Completion
Shielding, Decay Calculations	1966-78 (on the job)	1978
Applied Health Physics	200 hours	Jun 1983

D. Biological Effects of Radiation.

Course	Duration of Training	Completion
Radiological Safety 7K-F3	120 hours	Oct 1975
Applied Health Physics	200 hours	Jun 1983
Radiation Emergency Response Radiation Management Corp. US Army Belvoir Research and Development Center Ft Belvoir, VA	40 hours	Jan 1984

3. EXPERIENCE WITH RADIOISOTOPES:

Isotope	Max. Activity	Duration of Experience	Type of Experience
Co60	120 Ci	6 years	leak test, irradiation experiments
Pm147	1mCi	3 years	leak tests of sealed sources, tracer studies
Po210	180mCi	5 years	leak test of sealed sources
H3	10 Ci	10 years	leak test sealed sources, invintory, lab analyses

Atlanta, GA

B. Radioactivity Monitoring Techniques and Instruments:

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Alpha, Beta, Gamma, and Liquid scintillation Counting Rock Island Arsenal Rock Island, IL	1966-77(on the job)	1977
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Course	Duration of Training	Completion
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Po210	180mCi	5 years	leak test of sealed sources
H3	10 Ci	10 years	leak test sealed sources, invintory, lab analyses

3. EXPERIENCE WITH RADIOISOTOPES:

Isotope	Max. Activity	Duration of Experience	Type of Experience
S35	10mCi	4 years	tracer studies
Sr90	10mCi	4 years	tracer studies
Mo99	10mCi	4 years	tracer studies

4. EXPERIENCE WITH OTHER RADIATION PRODUCING MACHINES:

Instrument	Duration of Experience	Completion
X-ray Diffraction Spectrometer	10 years	1977
X-ray Fluorescence Spectrometer	10 years	1977
Scanning Electron Microscope with energy and wave length dispersive spectrometers	5 years	1980

5. GENERAL RADIATION WORK BACKGROUND:

a. Was employed by Rock Island Arsenal at Rock Island, IL from 1966-1980 and assigned to the Materials Evaluation Branch of the Engineering Directorate. Conducted tracer analyses, leak tests, surveys, and calibrations of various types of radiation detection equipment.

b. Was employed as a health physicist for Headquarters, US Army Armament, Munitions and Chemical Command (HQ, AMCCOM) at Rock Island from 1980-1986. Duties included working as alternate AMCCOM RPO, advising the Commanding General on radiological safety matters, preparing NRC licenses, and DA authorizations for radioactive items of issue managed by AMCCOM, conducting inspections of radiation safety programs at Army ammunitions plants, and conducting inspections of compliance to NRC license requirements at user and storage locations.

c. Am currently again employed as a health physicist for the Armament and Chemical Acquisition and Logistics Activity at Rock Island since Feb 1993. Duties include working as ACALA RPO, advising the Commanding General on radiological safety matters, preparing NRC licenses for radioactive items of issue managed by ACALA, conducting inspections of radiation safety programs for compliance to NRC license requirements at user and storage locations.

Resume of Training and Experience
Jeffrey A. Havenner

ACALA Health Physicist

1. **General Educational Background**:

Bachelor of Science, 1973, University of Maryland, College Park, Md. Major: Microbiology

Master of Science, 1976, University of Maryland, College Park, Md. Major: Microbiology, Emphasis in Cell Physiology and Biochemistry

2. **Training in Radiation Safety**

a. 1977-1978 Laboratory Technician, Litton Bionetics Inc, Fredrick Cancer Research Center. Training in radiation safety practices and procedures in handling, accounting for and proper disposal of radioisotopes used in biomolecular research projects.

b. 1979-1982 Microbiologist, U.S. Army Walter Reed Army Institute of Research, Department of Rickettsial Diseases. Training in radiation safety practices and procedures in handling, accounting for and proper disposal of radioisotopes. Training in the use of cobalt-60 cell irradiation equipment.

c. 1982 U.S. Army Radiological Safety Course (7KF3) at the U.S. Army Chemical School, Ft. McClellan AL. (Duration 3 weeks)

d. 1991 Depleted Uranium/Heavy Metals, U.S. Army Armaments Research, Development and Engineering Center, Dover N.J. Course covered manufacture, characteristics and handling of depleted uranium materials. (duration 1 week)

e. 1992 Low Level Radioactive Waste Packaging and Transportation Course, U.S. Ecology Inc, Las Vegas Nevada.

f. 1992 Site Safety Training, Department of Energy, Fernald Environmental Management Program, Fernald, OH. (Duration 2 weeks) Training in use of monitoring and survey equipment, personal protective equipment and emergency response to accidental releases of radioactive material and criticality emergencies.

3. **Experience with Radionuclides**

a) 1974-1976 Department of Microbiology, University of Maryland, College Park, MD. Research involving bacterial uptake and metabolism of carbon-14 and tritium labeled amino acid and vitamin preparations. Work involved calculation of specific activity, scintillation counting procedures, inventory procedures, safe storage, handling and disposal techniques as well as performing surveys of work areas.

b) 1977-1978 Litton Bionetics, Fredrick Cancer Research Center, Division of Viral Oncology, Fort Detrick, Md. Used carbon-14, tritium and phosphorus-32 labeled nucleotide preparations in DNA and RNA sequencing and virus genome isolation procedures. Work involved calculations of specific activity, scintillation counting procedures, inventory procedures, safe storage, handling and disposal techniques as well as performing surveys of work areas.

c) 1979-1982 Walter Reed Army Institute of Research, Walter Reed Army Medical Center, Washington, D.C. Used a cobalt-60 cell irradiator to inhibit reproduction of viable cell populations for the purpose of cultivating rickettsia. Used preparations of carbon-14 and tritium labeled amino acids in vivo in mice to detect immune response to rickettsial infections and isolate labeled antisera to rickettsial strains.

d) 1983 U.S. Army, Chemical Staff Officer, 3rd Armored Division Headquarters. Participated in emergency response to and environmental clean up of one of the first tank fires involving up loaded depleted uranium ammunition.

e) 1988-1991 U.S. Army Armament Munitions and Chemical Command, Chemical Equipment Branch, Rock Island, IL. Americium-241, Weapon System Manager of the M43A1 Chemical Agent Detector fielding program and the for the Advanced Chemical Agent Detector which incorporated a nickel-63 source.

4. **General Health Physics Background**

a) 1991-1992 U.S. Army Armament Munitions and Chemical Command, Safety Office, Rock Island, IL. Health Physicist, Worked on licensing and radiation safety issues involving the Army's war reserve depleted uranium (U-238) ammunition stock pile manufacturing, maintenance and storage.

b) 1992-1994 U.S. Army Armament Munitions and Chemical Command, Radioactive Waste Disposal Office, Rock Island, IL. Health Physicist. Developed and executed radioactive waste packaging, transportation and disposal projects including large scale remediation and decontamination projects.

c)1994-present U.S. Army Armament Munitions and Chemical Command, Safety Office, Rock Island, IL. Health Physicist for licensing and radiation safety issues involving tritium, americium-241 and nickel-63 sources in NRC licensed Army commodities.

RESUME OF TRAINING AND EXPERIENCE
GAVIN ZIEGLER

GENERAL EDUCATION BACKGROUND: Bachelor of Science in Engineering Mechanics (1986), Southern Illinois University, Carbondale, Illinois

FORMAL TRAINING IN RADIATION SAFETY:

A. Principles and Practices of Radiation Protection.

B. Radioactivity Monitoring Techniques and Instruments.

C. Mathematics and Calculations.

D. Biological Effects of Radiation.

Category	Course	Duration
C	Calculus, Physics, and other math courses. Southern Illinois University, Carbondale, Illinois	30 hrs (1982-86)
A B C D	Radiological Safety I - Fundamentals U.S Army Training Support Center, Newport News, Virginia	13 hrs (1990)
A B C D	Radiological Protection Management Course Field Safety Activity, Charlestown, Indiana	24 hrs (1990)
A B C D	Radiological Safety Course U.S. Army Chemical School, Fort McClellan, Alabama	120 hrs (1990)
A B C D	Radioactive Waste Guidance Chem Nuclear Systems, Inc., Columbia, South Carolina	40 hrs (1990)
C D	Radiological Bioassay and Dosimetry Software Training Fort Belvoir, Virginia	40 hrs (1992)

GENERAL DUTIES: Health Physicist for Headquarters, U.S. Army Armament, Munitions and Chemical Command, October 1990 to present. Duties include:

Assist in preparation of Nuclear Regulatory Commission (NRC) licenses and amendments and Department of the Army (DA) authorizations held by the command.

Reviews applications submitted by subordinate installations.

Assess installation radiation safety programs and compliance with AMCCOM NRC license requirements.

Assist in the performance of assigned inspections.

Provide response to special problems, questions, and directions.

ITEM 8, NRC FORM 313
TRAINING FOR INDIVIDUALS WORKING IN OR FREQUENTING RESTRICTED AREAS

There is no use of the M7 and M8 sources. Therefore, there are no training requirements.

ITEM 9, NRC FOR 313
FACILITIES AND EQUIPMENT

There is no use of the M7 and M8 sources. Therefore, there are no facilities and equipment requirements.

ITEM 10, NRC FORM 313
RADIATION SAFETY PROGRAM

The M7 and M8 radioactive sources are obsolete and have been repeatedly recalled from use. Attached are the recall documents.

ITEM 11, NRC FORM 313
WASTE MANAGMENT

The only radioactive waste associated with this license is the 13 M8 sources in storage at Richland Washington. As soon as preparations can be made for disposal, disposal will occur. Once disposal is accomplished, a request for termination of the license will be requested.

Enclosure 6

Record of Environmental Consideration

1. **PROJECT TITLE:** Renewal of Nuclear Regulatory Commission License BML 12-00722-13.

2. **BRIEF DESCRIPTION:** Renewal of License BML 12-00722-13 is required for continued use and possession of the M43A1 chemical agent detector. The M43A1 contains a 250 microcurie americium-241 source.

3. **ANTICIPATED DATE AND/OR DURATION OF PROPOSED ACTION:** Mar 95 to Mar 2000.

4. **REASON FOR USING RECORD OF ENVIRONMENTAL CONSIDERATION:** Is categorically excluded under the provisions of CX number 6, AR 200-2 Appendix A, (and no extraordinary circumstances exist as defined in AR 200-2, Paragraph 4-3), because these items are manufactured items.

Signed _____ Date 2-06-95
JOHN MATTILA
Director, ACALA Safety Office

Signed _____ Date 2-23-95
FOR 15 Feb 95
HQ, AMCCOM, Environmental Coordinator