

APPLICATION FOR MATERIAL LICENSE

INSTRUCTIONS: SEE THE APPROPRIATE LICENSE APPLICATION GUIDE FOR DETAILED INSTRUCTIONS FOR COMPLETING APPLICATION. SEND TWO COPIES OF THE ENTIRE COMPLETED APPLICATION TO THE NRC OFFICE SPECIFIED BELOW.

FEDERAL AGENCIES FILE APPLICATIONS WITH:

U.S. NUCLEAR REGULATORY COMMISSION
DIVISION OF FUEL CYCLE AND MATERIAL SAFETY, NMSS
WASHINGTON, DC 20555

ALL OTHER PERSONS FILE APPLICATIONS AS FOLLOWS, IF YOU ARE LOCATED IN:

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

U.S. NUCLEAR REGULATORY COMMISSION, REGION I
NUCLEAR MATERIAL SECTION B
631 PARK AVENUE
KING OF PRUSSIA, PA 19406

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

U.S. NUCLEAR REGULATORY COMMISSION, REGION II
MATERIAL RADIATION PROTECTION SECTION
101 MARIETTA STREET, SUITE 2900
ATLANTA, GA 30323

IF YOU ARE LOCATED IN:

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

U.S. NUCLEAR REGULATORY COMMISSION, REGION III
MATERIALS LICENSING SECTION
799 ROOSEVELT ROAD
GLEN ELLYN, IL 60137

ARKANSAS, COLORADO, IDAHO, KANSAS, LOUISIANA, MONTANA, NEBRASKA, NEW MEXICO, NORTH DAKOTA, OKLAHOMA, SOUTH DAKOTA, TEXAS, UTAH, OR WYOMING, SEND APPLICATIONS TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION IV
MATERIAL RADIATION PROTECTION SECTION
611 RYAN PLAZA DRIVE, SUITE 1000
ARLINGTON, TX 76011

ALASKA, ARIZONA, CALIFORNIA, HAWAII, NEVADA, OREGON, WASHINGTON, AND U.S. TERRITORIES AND POSSESSIONS IN THE PACIFIC, SEND APPLICATIONS TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION V
MATERIAL RADIATION PROTECTION SECTION
1450 MARIA LANE, SUITE 210
WALNUT CREEK, CA 94596

PERSONS LOCATED IN AGREEMENT STATES SEND APPLICATIONS TO THE U.S. NUCLEAR REGULATORY COMMISSION ONLY IF THEY WISH TO POSSESS AND USE LICENSED MATERIAL IN STATES SUBJECT TO U.S. NUCLEAR REGULATORY COMMISSION JURISDICTION.

1. THIS IS AN APPLICATION FOR (Check appropriate item)

- ☒ A. NEW LICENSE
☐ B. AMENDMENT TO LICENSE NUMBER _____
☐ C. RENEWAL OF LICENSE NUMBER _____

2. NAME AND MAILING ADDRESS OF APPLICANT (Include Zip Code)

STRATEGIC SYSTEMS PROGRAMS
DEPARTMENT OF THE NAVY
WASHINGTON, DC 20376-5002

3. ADDRESS(ES) WHERE LICENSED MATERIAL WILL BE USED OR POSSESSED.

- A. COMMANDING OFFICER, POLARIS MISSILE FACILITY ATLANTIC
CHARLESTON, SOUTH CAROLINA 29408-5700
B. COMMANDING OFFICER, STRATEGIC WEAPONS FACILITY PACIFIC
BREMERTON, WASHINGTON 98315

4. NAME OF PERSON TO BE CONTACTED ABOUT THIS APPLICATION

MR. DAVE ELLINGSON SPI13

TELEPHONE NUMBER

202-695-5266

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. **ATTACHED**

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

ATTACHED

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

ATTACHED

8. TRAINING FOR INDIVIDUALS WORKING IN OR FREQUENTING RESTRICTED AREAS.

NA

9. FACILITIES AND EQUIPMENT.

ATTACHED

10. RADIATION SAFETY PROGRAM.

ATTACHED

11. WASTE MANAGEMENT.

NA

12. LICENSEE FEES (See 10 CFR 170 and Section 170.31)

FEE CATEGORY **NA** AMOUNT ENCLOSED \$ **NA**

13. CERTIFICATION. (Must be completed by applicant) THE APPLICANT UNDERSTANDS THAT ALL STATEMENTS AND REPRESENTATIONS MADE IN THIS APPLICATION ARE BINDING UPON THE APPLICANT.

THE APPLICANT AND ANY OFFICIAL EXECUTING THIS CERTIFICATION ON BEHALF OF THE APPLICANT, NAMED IN ITEM 2, CERTIFY THAT THIS APPLICATION IS PREPARED IN CONFORMITY WITH TITLE 10, CODE OF FEDERAL REGULATIONS, PARTS 30, 32, 33, 34, 35, AND 40 AND THAT ALL INFORMATION CONTAINED HEREIN IS TRUE AND CORRECT TO THE BEST OF THEIR KNOWLEDGE AND BELIEF.

WARNING: 18 U.S.C. SECTION 1001 ACT OF JUNE 25, 1948, 62 STAT. 749 MAKES IT A CRIMINAL OFFENSE TO MAKE A WILLFULLY FALSE STATEMENT OR REPRESENTATION TO ANY DEPARTMENT OR AGENCY OF THE UNITED STATES AS TO ANY MATTER WITHIN ITS JURISDICTION.

SIGNATURE - CERTIFYING OFFICER

TYPED/PRINTED NAME

TITLE

TECHNICAL DIVISION

DATE

K. C. MALLEY, COMO USN

DIRECTOR SP20

14. VOLUNTARY ECONOMIC DATA

a. ANNUAL RECEIPTS

<\$250K	\$1M-3.5M
\$250K-500K	\$3.5M-7M
\$500K-750K	\$7M-10M
\$750K-1M	>\$10M

b. NUMBER OF EMPLOYEES (Total for entire facility excluding outside contractors)

c. NUMBER OF BEDS

d. WOULD YOU BE WILLING TO FURNISH COST INFORMATION (Dollar and/or staff hours) ON THE ECONOMIC IMPACT OF CURRENT NRC REGULATIONS OR ANY FUTURE PROPOSED NRC REGULATIONS THAT MAY AFFECT YOU? (NRC regulations permit it to protect confidential commercial or financial--proprietary--information furnished to the agency in confidence)

☐ YES

☐ NO

FOR NRC USE ONLY

TYPE OF FEE FEE LOG FEE CATEGORY COMMENTS

8507160585 850705
NMSS LIC30
08-19268-02 PDR

APPROVED BY

AMOUNT RECEIVED

CHECK NUMBER

DATE

Enclosure (1) to DIRCSP 188527422/
8128 of 10 MAY 1985

PRIVACY ACT STATEMENT

Pursuant to 5 U.S.C. 552a(e)(3), enacted into law by section 3 of the Privacy Act of 1974 (Public Law 93-579), the following statement is furnished to individuals who supply information to the Nuclear Regulatory Commission on NRC Form 313. This information is maintained in a system of records designated as NRC-3 and described at 40 Federal Register 45334 (October 1, 1975).

1. **AUTHORITY:** Sections 81 and 161(b) of the Atomic Energy Act of 1954, as amended (42 U.S.C. 2111 and 2201(b)).
2. **PRINCIPAL PURPOSE(S):** The information is evaluated by the NRC staff pursuant to the criteria set forth in 10 CFR Parts 30, 32, 33, 34, 35 and 40 to determine whether the application meets the requirements of the Atomic Energy Act of 1954, as amended, and the Commission's regulations, for the issuance of a radioactive material license or amendment thereof.
3. **ROUTINE USES:** The information may be (a) provided to State health departments for their information and use; and (b) provided to Federal, State, and local health officials and other persons in the event of incident or exposure, for their information, investigation, and protection of the public health and safety. The information may also be disclosed to appropriate Federal, State, and local agencies in the event that the information indicates a violation or potential violation of law and in the course of an administrative or judicial proceeding. In addition, this information may be transferred to an appropriate Federal, State, or local agency to the extent relevant and necessary for an NRC decision or to an appropriate Federal agency to the extent relevant and necessary for that agency's decision about you.
4. **WHETHER DISCLOSURE IS MANDATORY OR VOLUNTARY AND EFFECT ON INDIVIDUAL OF NOT PROVIDING INFORMATION:** Disclosure of the requested information is voluntary. If the requested information is not furnished, however, the application for radioactive material license, or amendment thereof, will not be processed. A request that information be held from public inspection must be in accordance with the provisions of 10 CFR 2.790. Withholding from public inspection shall not affect the right, if any, of persons properly and directly concerned need to inspect the document.
5. **SYSTEM MANAGER(S) AND ADDRESS:** U.S. Nuclear Regulatory Commission
Director, Division of Fuel Cycle and Material Safety
Office of Nuclear Material Safety and Safeguards
Washington, D.C. 20555

5.
 - a. Ni 63
 - b. Solid, electro-deposited sealed source.
(EG & G Part No 328986)
 - c. 300 Millicuries and 40 microcuries per source
6. The licensed material is Nickel 63 used as overvoltage gap switches to protect high voltage gap switches in TRIDENT I (C4) missile terminal and destruct firing units.
7. Individuals responsible for Radiation Safety Program
 - a. Polaris Missile Facility Atlantic (POMFLANT): Mr. David Unwin
 1. Completed the Radiation Safety Officer Course (A-4J-0016) on 15 May 1981
 2. Radiation Safety Officer at POMFLANT from 24 Dec 1981 to present.
 - a. Strategic Weapons Facility Pacific (SWFPAC): Mr. Jerry Lyman
 1. Completed the Radiation Safety Officer Course (A-4J-0016) on 7 May 1976
 2. Radiation Safety Officer at SWFPAC from 7 May 1976 to present.
8. N/A
9. Use of Licensed Material - The overvoltage gap switch is a two electrode gas filled device hermetically sealed in ceramic and metal casing. This gap switch operates in an arc discharge mode, conducting moderate to high peak currents for very short periods.

The radioactive material used in these devices is Nickel 63, a pure beta radionuclide with a half life of 85 years. This by-product material is metallic Nickel electro-plated on the electrode base material in a barrel plating process by New England Nuclear Corporation of Boston. The irradiated parts within these devices are in the form of plated anode and cathode electrodes. The total calculated deposition of Nickel 63 in any one device is less than 40.0 microcuries. The effective level of radiation of the combined cathode anode electrodes is less than 5.0 microcurie, as measured in a Baird Atomic Proportional Counter #134.

The basic structure of the overvoltage gap is represented in the attachment (1). The Nickel 63 may only be released by crushing, grinding or abrading the finished device. In normal use, such treatment is unlikely to occur. Completed units have been shock tested to withstand as high as 3500 Gs in 0.5 millisecond pulses in each of three perpendicular planes. The gap withstands a thermal shock of plunging from boiling water (97 C) into a supercooled (-55 C) fluorinert and again into boiling water for five cycles. It has also been vibration tested for ten minutes of 50 to 3000 HZ sinusoidal forcing function with a constant power spectral density of 0.6 G2/HZ with no effect. With the exception of destroying (crushing) the device it is otherwise unlikely that the Nickel 63 contained within the overvoltage gap will be released to the environment.

Each unit is visually inspected to 20X during assembly and rejected for any of several defective categories. In addition, each unit is preconditioned and electrically tested for its low and high speed overload protection performance prior to acceptance. The units are labeled with the decal bearing the standard yellow and magenta radioactivity caution symbol identifying Nickel 63. The manufacturer's name is stenciled upon the ceramic body, attachment (2).

The requirements of Section 32.14 (b) (7), 10CFR, Part 32 are met by observing less than 1 mR per hour on a Tracerlab SU 14 End Window Geiger Muller Counter with the window of that instrument in direct contact with the side of the envelope of each finished device. The window thickness of this instrument is 2 mg. per square centimeter.

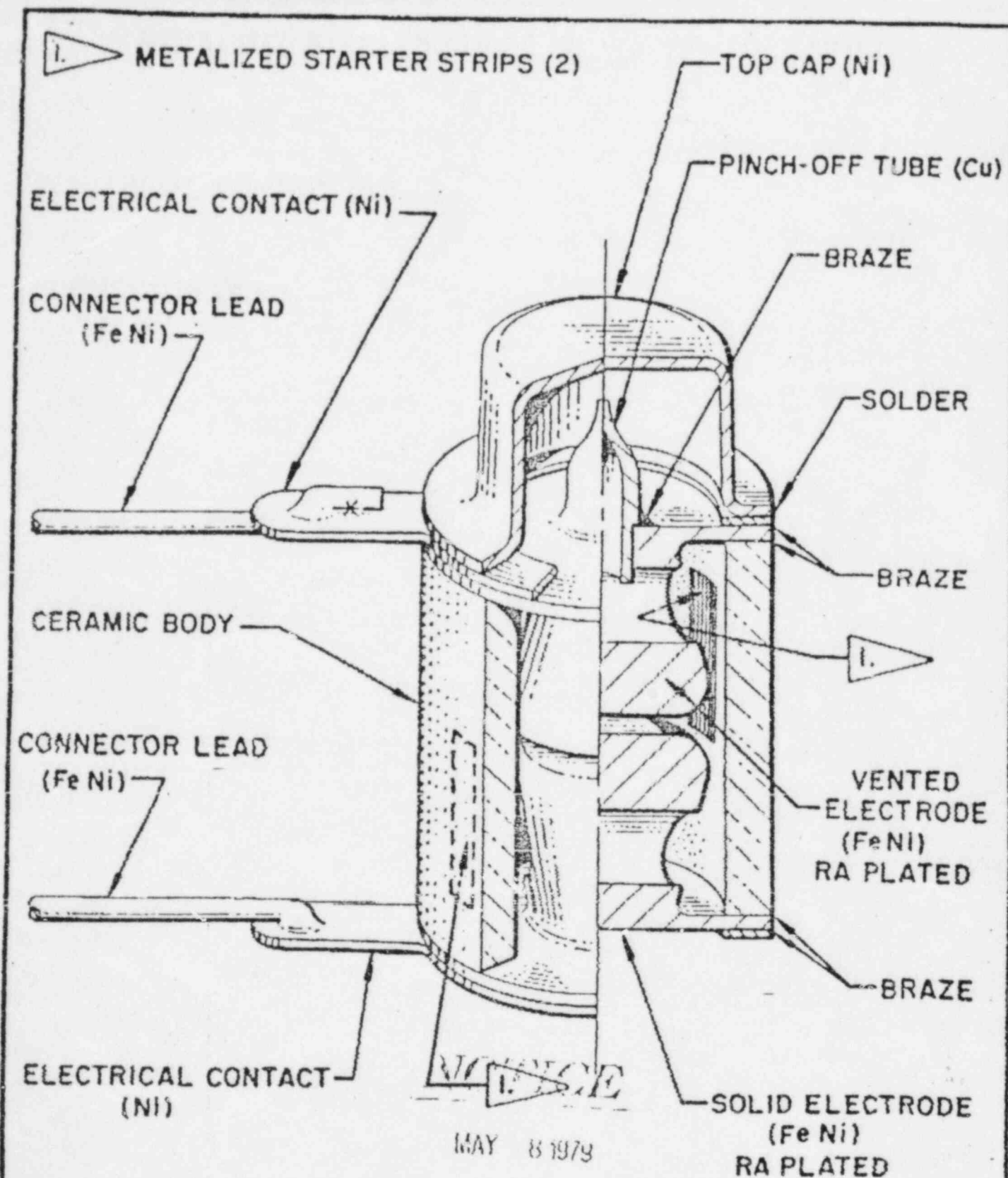
The electron tubes containing the by-product material are mounted securely in one of two devices, the Firing Unit, Terminal (FUT), P/N 3084388, and Destruct Initiation Unit (DIU), P/N 3084360. The electron tubes are mounted on printed circuit boards in the center of the unit, and in the FUT, potted within a sealed aluminum case, which in turn is covered with insulating material. In the DIU, the electron tube is locked in place by a saddle device and a protective end cap, coated with silicon, and sealed in a dual aluminum case covered with insulating material. The inherent strength of the ceramic-metal structure, further protected by the resilient conformal coating and final use container provides an extremely safe and tamper free application.

The FUTs and DIUs are handled at DOD facilities as sealed units with no maintenance capability authorized for opening these units in the field. The units are received in shipping containers by supply personnel. Prior to use for missile build-up, the units in their containers are transferred to a processing area where facility personnel open the contractor, inspect the units and perform functional tests. The units are repackaged in the shipping containers and transferred to the assembly area. Facility personnel then install the FUTs on production missiles. The assembled missiles are loaded into a missile liner for storage or transfer to an FBM submarine (SSBN); or for loading on a Resupply ship for further transfer to a submarine Tender.

The DIUs are part of the test missile kit that is installed by Naval Ordnance Test Unit (NOTU) personnel on missile in an SSBN launch tube.

Units removed from production or test missiles are packaged in shipping containers and returned to supply for either return to Lockheed Missiles & Space Company (failed units), or to system stock for reissue.

Facilities processing FUTs are POMFLANT, Charleston, SC, and SWFPAC, Bangor, WA. DIUs receive normal processing at these two facilities, and at ETR, Cape Canaveral, FL. In addition, NOTU personnel process DIUs at all three facilities and onboard SSBNs at these facilities. The missiles onboard the Tender are stored in the missile liners, and SSBN personnel do not process or handle either FUTs or DIUs.



MAY 8 1979

"X" INDICATES WELD

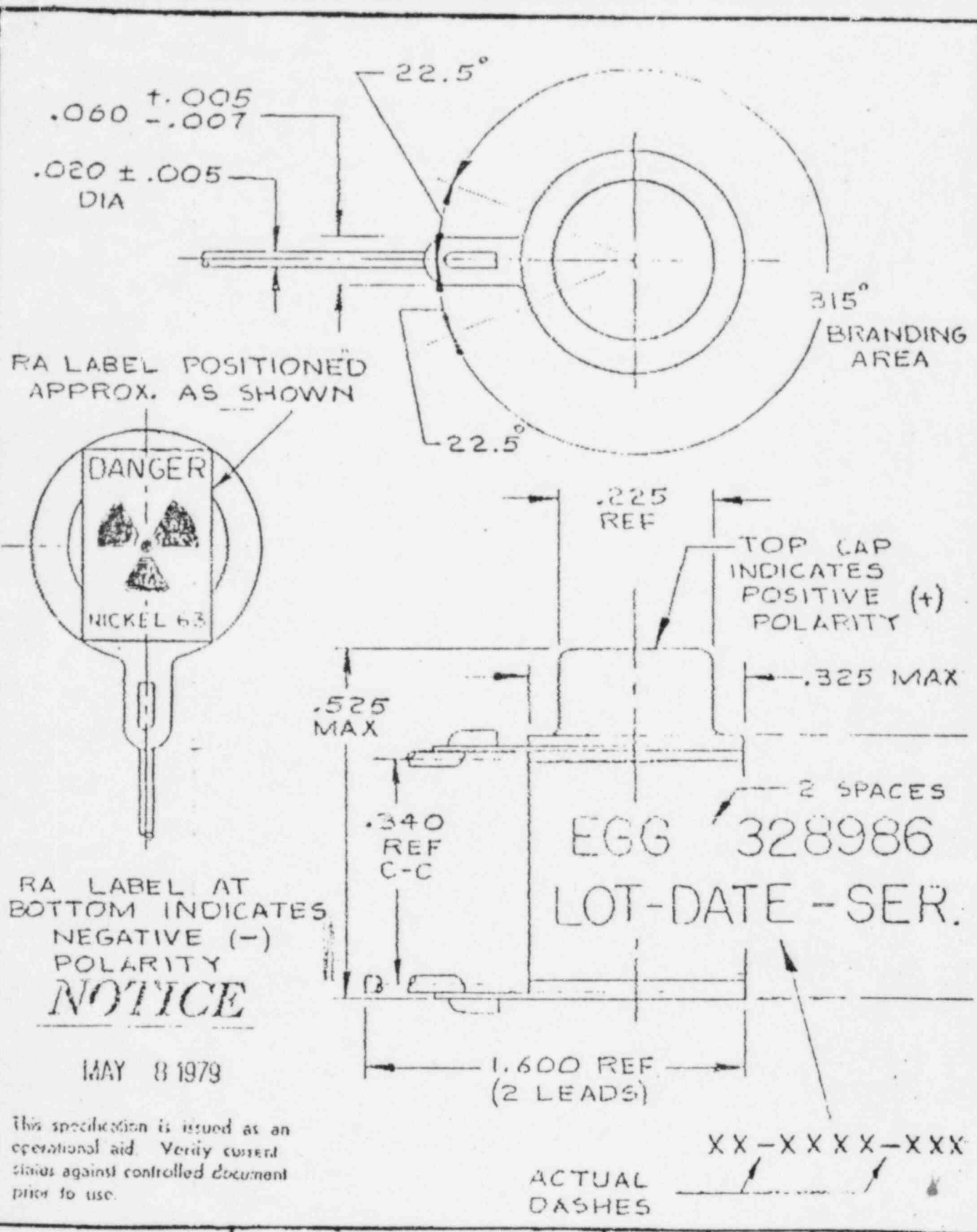
This specification is issued as an operational aid. Verify correct assembly and controlled environment.

19001

PICTORIAL SPECIFICATION		TITLE	PRODUCT	CODE IDENT NO.	SPEC. NO.	SL1-328986-0
RDC#	C76			328986	PART NO.	328986
INIT	18				DATE	3-14-79
					SHEET	1 OF 1

BRUNING 40-135 35608

SL56 B



CONSTRUCTION SPECIFICATION				TITLE		Gap Outline Drawing						CODE IDENT NO. 25508	SPEC. NO.	
				PRODUCT									328986	
RDC #	76										PART NO.		328986	
INIT	117										DATE		3-14-72	
											SHEET	1 OF 1		

10. RADIATION SAFETY PROGRAM (1)

RADIATION SAFETY PROGRAM FOR OVERVOLTAGE GAP SWITCH USED IN TRIDENT I(C4) MISSILE SYSTEM

1.0 BACKGROUND

An overvoltage gap switch (P/N 3084386) is used in packages integral to the TRIDENT I (C4) Missile. These gap switches contain less than 40 microcuries of Ni^{63} , a radioactive isotope of nickel. The amount of radioactive material in these components places them under the requirements of Federal regulations pertaining to control of radiation sources.

2.0 PURPOSE AND SCOPE

The purpose of this program is to define the requirements for facilities and ships designated for use, processing, and transfer of TRIDENT I (C4) missile controlled packages. Policies and procedures for implementing the requirements of this program will be reviewed by SSPO for adequacy and completeness.

3.0 RECORDS

Designated facilities and ships shall establish a system for recording all receipts and transfer of these controlled units. Records shall include, by serial number, date received, each transfer of custody, and installation by missile serial number. A summary of receipts and transfers for the previous six months shall be reported to SSPO in January and July.

4.0 INSTRUCTION OF AFFECTED PERSONNEL

All personnel involved in handling controlled packages shall be given instructions pursuant to the requirements of the Code of Federal Regulations Title 10 (10CFR), Part 19.12. 10CFR Parts 19 and 20, Form NRC-3, the license, and the license application shall be posted in the vicinity of the work area or made available to affected personnel.

5.0 STORAGE AND WORK AREA CONTROL

When not in use, controlled packages shall be secured to prevent unauthorized access or removal. All receipt, processing, and transfer of controlled packages must be controlled by personnel who have satisfied requirements of paragraph 4.0. All work areas containing three or more controlled packages must be posted with "CAUTION RADIOACTIVE MATERIAL" signs.

6.0 AUDITS

Compliance with the Radiation Protection Program shall be assessed by frequent and random audits of the affected areas and associated functions by local safety personnel.

19001
19002