MATERIALS LICENSE

Amendment No. 01

ORC

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974 (Public Law 93-438), and Title 10, Code of Federal Regulations, Chapter I, Parts 30, 31, 32, 33, 34, 35, 36, 39, 40, and 70, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, possess, and transfer byproduct, source, and special nuclear material designated below; to use such material for the purpose(s) and at the place(s) designated below; to deliver or transfer such material to persons authorized to receive it in accordance with the regulations of the applicable Part(s). This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954, as amended, and is subject to all applicable rules, regulations, and orders of the Nuclear Regulatory Commission now or hereafter in effect and to any conditions specified below.

Licensee	
1. Detection Systems, Inc.	In accordance with letter dated December 14, 1995, 3. License Number 31-23818-01E is amended in its entirety to read as follows:
2. 130 Perinton Parkway Fairport, New York 14450	4. Expiration Date March 31, 2004
	5. Docket or Reference No. 030-33088

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. Foil source (NRD, Inc. Model A-001)	A. Not applicable (See Condition 10)

9. Authorized Use

Pursuant to Section 32.25, 10 CFR Part 32, the licensee is authorized to distribute smoke detector devices specified in Condition 10 to persons exempt from the requirements for a license pursuant to Section 30.20, 10 CFR Part 30, or equivalent provisions of the regulations of any Agreement State.

CONDITIONS

10. The following smoke detector may be distributed pursuant to this license provided the amount of americium-241 contained in the device does not exceed the amounts specified in the following table:

Device Model	Maximum Quantity per Device
DS260	1.0 microcurie

11. This license does not authorize possession or use of licensed material.

12. The licensee may distribute only from its facility located at 130 Perinton Parkway, Fairport, NY.

13. The licensee shall file periodic reports as specified in Section 32.29(c), 10 CFR Part 32.

060029

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PDR ADOCK 03033088
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MATERIALS LICENSE
SUPPLEMENTARY SHEET

License Number 31-23818-01E

Docket or Reference Number 030-33088

Amendment No. 02

CONDITIONS

(Continued)

14. Except as specifically provided otherwise by 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 February 12, 1993;
B. Registration Certificate No. NR-0206-D-101-E;
C. Letter dated October 19, 1993;
D. Letter dated February 28, 1994; and
E. Letter dated December 14, 1995.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

8/10/18/96

10/21/96

DATE: October 22, 1996

BY: Original signed by: 8/23/96

Susan L. Greene
Medical, Academic, and Commercial
Use Safety Branch
Division of Industrial and
Medical Nuclear Safety
Office of Nuclear Material Safety
and Safeguards
Washington, DC 20555

5. Submit a complete renewal application (with proper fee) or termination request (no fee required) at least 30 days before the expiration date on your license. You should receive a reminder notice approximately 90 days before the expiration date. Continued distribution of products containing radioactive material after your license expires is a violation of NRC regulations.

6. In accordance with 10 CFR 30.36, request termination of your license if you plan to permanently discontinue activities involving distribution of products containing radioactive material.

You will be periodically inspected by NRC. Failure to conduct your program in compliance with NRC regulations, license conditions, and representations made in your license application and supplemental correspondence with NRC may result in enforcement action(s) against you. This could include issuance of a notice of violation; proposed imposition of a civil penalty; or an order suspending, modifying, or revoking your license as specified in the "General Statement of Policy and Procedures for NRC Enforcement Actions," (NUREG-1600).

If you have any questions, please feel free to contact me at (301) 415-7843.

Sincerely,

Original signed by:

Susan L. Greene
Medical, Academic, and Commercial
Use Safety Branch
Division of Industrial and
Medical Nuclear Safety
Office of Nuclear Material Safety
and Safeguards

Docket No. 030-33088

Enclosure: Amendment No. 01

cc: Paul J. Merges, Ph.D., Chief
Bureau of Radiation
Division of Hazardous Substances Regulation
Department of Environmental Conservation
50 Wolf Road, Room 442
Albany, NY 12233-7255

DISTRIBUTION:
License No. 31-23818-01E
NMSS r/f
IMNS c/f
IMAB r/f
TWRich
LWCamper
Region I

DOCUMENT NAME: G:\DETECT.CJB

To receive a copy of this document, indicate in the box: "C" = Copy without enclosures "E" = Copy with enclosures "N" = No copy

OFFICE	IMAB:NMSS	C	IMAB:NMSS	C					
NAME	ASKirkwood		SLGreene						
DATE	10/21/96		10/28/96						

OFFICIAL RECORD COPY

October 22, 1996

Detection Systems, Inc.
ATTN: Betty L. Green
Business Systems Manager
130 Perinton Parkway
Fairport, New York 14450

Dear Ms. Green:

Enclosed is Amendment No. 01 amending NRC License No. 31-23818-01E in its entirety.

Please review the enclosed document carefully and be sure that you understand all the conditions. If there are any errors or questions please contact me so that appropriate corrections and answers can be provided.

Please be advised that you must conduct your program involving radioactive materials in accordance with the conditions specified in your NRC license, representations made in your license application, and other rules, regulations, and orders of the U.S. Nuclear Regulatory Commission, now or hereafter in effect, to include the following:

1. Comply with applicable NRC regulations in 10 CFR Part 30, "Rules of General Applicability to Domestic Licensing of Byproduct Material"; 10 CFR Part 32, "Specific Domestic Licenses to Manufacture or Transfer Certain Items Containing Byproduct Material"; and other applicable regulations.

   NOTE: Licensees authorized to distribute or initially transfer products containing byproduct material must also possess a valid possession license issued either by NRC or an Agreement State(s) which authorizes possession and use of byproduct material.

2. Distribute only those products containing radioactive material which are specifically authorized in your license.

3. Notify NRC in writing within 30 days of any change in mailing address (no fee is required if the location of radioactive material remains the same).

4. Request and obtain appropriate amendments if you plan to change control or ownership of your organization, change locations of distribution of products containing radioactive material, or make any other changes in your program which are contrary to the license conditions or representations made in your license application and any supplemental correspondence with NRC. A license fee may be charged for the amendments if you are not in a fee-exempt category.

TELEPHONE CONVERSATON RECORD	**Date:** October 10, 1996	**Time:** 9:06
Mail Control No.: 021802	**License No.:** 31-23818-01E	**Docket No.:** 030-33088
Person Called: Betty Green	**Organization:** Detection Systems	**Telephone Number:** 716-223-4060
Person Calling: Anthony S. Kirkwood		
Subject: Status of Amendment		
Summary: This amendment was ready on 7/31/96. On 8/2/96 Betty green called and said they wanted to go back to the originally submitted design. Explained to Susan and on 8/23/96 SLG asked to send letter to Detection explaining need to review modifications to previous device and prepare a TAR for the SSSS. On 9/13/96, Betty Green said she would send a void letter for the amendment and send letter requesting an amendment for the old design. Neither design has ever been marketed. On 10/10/96, Betty Green said she had been told to hold on the void. Told her we are going to issue the amendment as is to remove it from our books. If there are any changes by this week for her to call us.		
Action Required/Taken: Issue amendment with latest design as work is complete and licensee has been ambivalent for a month and a half.		
Signature: A. Kirkwood	**Date:** 10/10/96	

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

June 6, 1996

MEMORANDUM TO: Susan L. Greene, License Reviewer
Commercial Section
Medical, Academic, and Commercial
Use Safety Branch

FROM: Michele L. Burgess, Mechanical Engineer MLB
Sealed Source Safety Section
Medical, Academic, and Commercial
Use Safety Branch

SUBJECT: SSD TECHNICAL ASSISTANCE REQUEST:
DETECTION SYSTEMS, INC.
CONTROL NO. - 021802
LICENSE NO. - 31-23818-01E

In response to your memorandum dated December 21, 1995 for the need of a SSD review associated with Detection Systems, Inc.'s license amendment, we have completed the SSD review. Please find enclosed a copy of registration certificate NR-0206-D-101-E.

If you have any questions, please contact me at 415-5868 or Mr. Douglas Broaddus at 415-5847.

Attachment: As stated

cc: SKimberley, LFDCB

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES
SAFETY EVALUATION OF DEVICE
(AMENDED IN ITS ENTIRETY)

NO.: NR-0206-D-101-E DATE: May 31, 1996

DEVICE TYPE: Smoke Detector

MODEL: DS260

MANUFACTURER/DISTRIBUTOR: Detection Systems, Inc.
130 Perinton Parkway
Fairport, NY 14450

SEALED SOURCE MODEL DESIGNATION: NRD A-001

ISOTOPE:	MAXIMUM ACTIVITY:
Americium-241	1.0 microcurie (37 kBq)

LEAK TEST FREQUENCY: Not required

PRINCIPAL USE: (P) Ion Generator, Smoke Detectors

CUSTOM DEVICE: _____ YES ___X___ NO

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES
SAFETY EVALUATION OF DEVICE
(AMENDED IN ITS ENTIRETY)

NO.: NR-0206-D-101-E DATE: May 31, 1996

DEVICE TYPE: Smoke Detector

DESCRIPTION:

The model DS260 smoke detector contains a single-sided ion chamber. The ion chamber incorporates the circuit board. The ion chamber/circuit board is mounted in a plastic outer cover with a maximum opening of approximately 0.18" (4.57 mm). There is a metal insect screen mounted inside the top cover that covers the top electrode. The outer cover is approximately 4" (10.16 cm) in diameter and 1.5" (3.81 cm) in height. The detector will be labeled with the the words "CONTAINS RADIOACTIVE MATERIAL", trefoil symbol, isotope, activity, and name and NRC license number of the distributor.

The model DS260 smoke detector was previously approved with a different cover and source holder design. Detection Systems states that the original model was never produced and distributed.

REFERENCES:

The following supporting documents for the Model DS260 smoke detector are hereby incorporated by reference and are made a part of this registry document.

- Detection Systems application dated February 12, 1993, with enclosures thereto.
- Detection Systems letters dated May 29, 1996, May 7, 1996, April 23, 1996, December 14, 1995, August 24, 1993, and July 8, 1993, with enclosures thereto.

ISSUING AGENCY:

U.S. Nuclear Regulatory Commission

Date: May 31, 1996 Reviewer: Douglas A. Broaddus
Douglas A. Broaddus

Date: May 31, 1996 Concurrence:
Steven L. Baggett

DETECTION SYSTEMS, INC.

130 PERINTON PARKWAY
FAIRPORT, NEW YORK 14450 USA

716-223-4060
FAX: 716-223-9180

May 29, 1996

Ms. Michele L. Burgess, Mechanical Engineer
Sealed Source Safety Section
Nuclear Regulatory Commission
Commercial Section - Mail Stop T8 F5
Washington, D.C. 20555

Re: Amendment to License #: 31-23818-01E

Dear Ms. Burgess:

We have removed Note 11 from Drawing #D24354 that states that the slots on the source electrode may be extended. It is not our intent to allow the source to be pushed through this opening. We would be pleased to supply you with a copy of the revised drawing upon request.

We look forward to your favorable reply.

Sincerely,

Betty L. Green
Business Systems Manager

Bruce Kaminsky
Site Radiation Safety Officer

/byg

DETECTION SYSTEMS, INC.
130 PERINTON PARKWAY
FAIRPORT, NEW YORK 14450 USA
716-223-4060
FAX: 716-223-9180

May 7, 1996

Ms. Michele L. Burgess, Mechanical Engineer
Sealed Source Safety Section
Nuclear Regulatory Commission
Commercial Section - Mail Stop T8 F5
Washington, D.C. 20555

Re: Amendment to License #: 31-23818-01E

Dear Ms. Burgess:

The following is in response to our phone conversation of May 6, 1996 in which you requested additional information and clarification.

1. As stated during our call, the DS260 is an AC direct-wired smoke detector. The purpose for the drop test was to show the design's ability to hold the source in the assembled unit. It became readily apparent after 5 drops that further drops would only cause the source to be more secure since the outer electrode collapsed around the insulator which closed any opening where the source could escape. In terms of functionality, it is possible that a single drop at 10 meters could decrease the units effectiveness. If the unit was dropped, we would expect our customers to return the unit to us for repair or order a replacement unit.

2. The screen and top electrode are permanently assembled into the cover. If the cover is removed from the rest of the assembly, the screen and top electrode would remain assembled to the cover.

3. Figure 16-3 in our application for amendment and Figure A referenced in our letter dated April 23, 1996, were designed to show how the screen and top electrode are fastened into the cover. We have included with this letter a detailed drawing of the DS260 cover (D27933, Rev. C) and have highlighted how the electrode and screen are fastened.

We hope this information clears up your remaining questions. As stated previously, we are anxious to begin production of this newly designed product and look forward to your favorable reply to our amendment request.

Sincerely,

Betty L. Green
Business Systems Manager

Bruce Kaminsky
Site Radiation Safety Officer

byg

Enclosure

DETECTION SYSTEMS, INC.

130 PERINTON PARKWAY
FAIRPORT, NEW YORK 14450 USA

716-223-4060
FAX: 716-223-9180

April 23, 1996

Ms. Michele L. Burgess, Mechanical Engineer
Sealed Source Safety Section
Nuclear Regulatory Commission
Commercial Section - Mail Stop T8 F5
Washington, D.C. 20555

Re: Amendment to License #: 31-23818-01E

Dear Ms. Burgess:

The following is in response to your letter of April 16, 1996 in which you requested additional information and clarification.

1. As stated in Summary Data 3.3, and as can be seen on the attached figures A and B, the openings to the metal cover are completely covered with a screen. In addition, baffles are molded into the plastic cover to provide additional blockage of the holes. We apologize that the screen was not clearly labeled in our original drawings.

2. The flange and retaining ring were used in our original design. In our new design, for which we requested the amendment, we replaced the flange and retaining ring with a groove and stainless steel fingers. As demonstrated in Figure 4 of Summary Data 3.3, the source electrode has stainless steel fingers that snap over this groove and are seated against the shaft. The source holder is captive after being inserted into the source electrode. If for some reason the source holder should slip in the direction that would cause it to come out of the source electrode, the stainless steel fingers will snap into the groove on the source holder shaft and prevent additional slippage. Removal can only be accomplished by first unsoldering and decrimping (straightening) the outer electrode tabs. The middle electrode must then be unsoldered and removed. The source electrode with the source holder and source may then be unsoldered, decrimped and removed. The source holder can then be removed from the source electrode only by driving it out with a hammer and punch.

   Drop testing of the unit confirmed that neither the flange nor the retaining ring were necessary to secure the source holder in the source electrode. After repeated drops from 10 meters, the stainless steel fingers of the source electrode held the source holder in place with no apparent relative change in position.

3. Regarding the attachment of the outer electrode to the metal screen, the screen is crimped between the plastic cover and the top electrode as shown in Figure A. There is a spring tab on the top electrode that makes a spring loaded pressure contact with the outer electrode. This is shown in the enclosed drawing C24353 (Rev. C).

4. In the drop test, the detector was dropped **five** times from a height of 10 ...eters. The determination that further drops would only cause the source to be more secure was due to the fact that the outer electrode collapsed around the insulator which closed any opening where the source could escape.

5. The frisking was performed using a Ludlum 43-5 Scintillator and a Ludlum 1000 Scaler not the Ludlum 2929 Scaler. This discrepancy was due to a word processing error.

6. We do not consider any of the information we have submitted to be proprietary. Please disregard any statements or references that indicate the information is "proprietary" or "confidential."

If you have any additional questions regarding our application please contact us immediately at 1-800-289-0096. We are anxious to begin production of this newly designed product and look forward to your favorable reply to our amendment request.

Sincerely,

Betty L. Green
Business Systems Manager

Bruce Kaminsky
Site Radiation Safety Officer

/byg

Enclosures

DETECTION SYSTEMS, INC.
130 PERINTON PARKWAY
FAIRPORT, NEW YORK 14450 USA
716-223-4060
FAX: 716-223-9180

Figure A

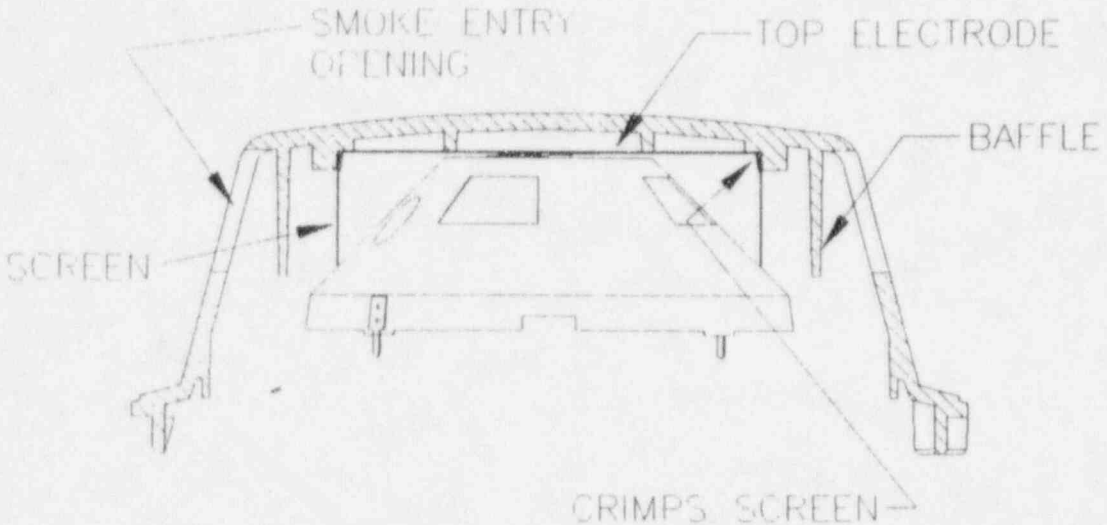
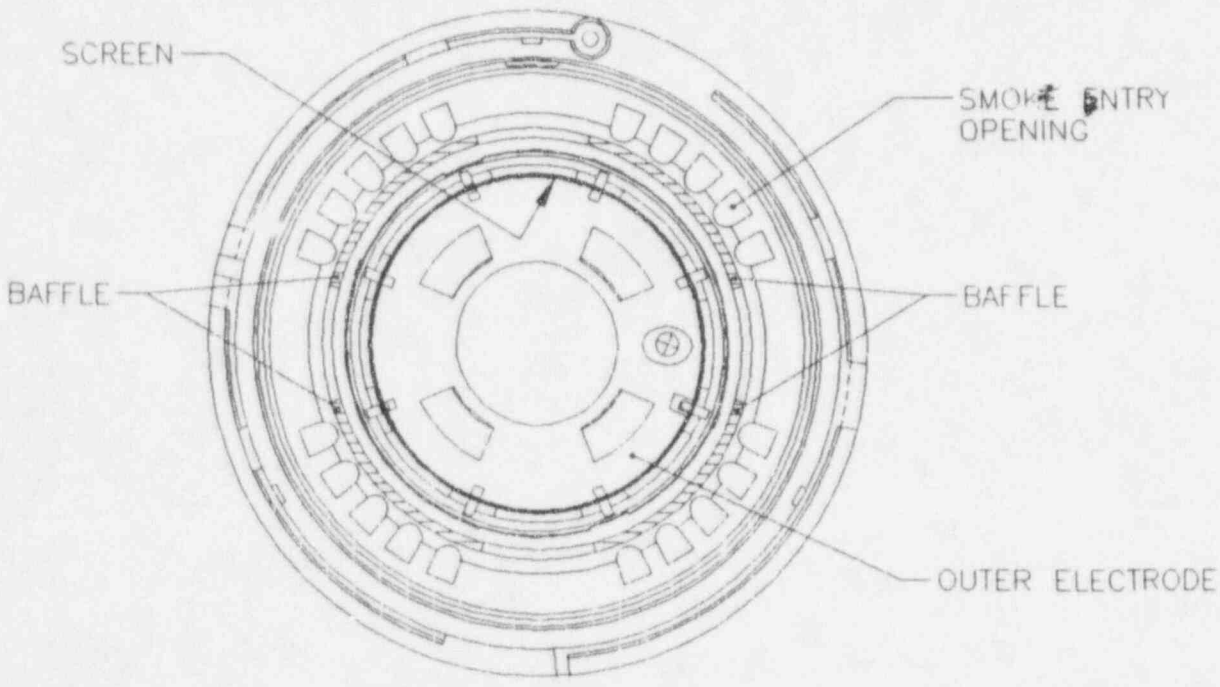
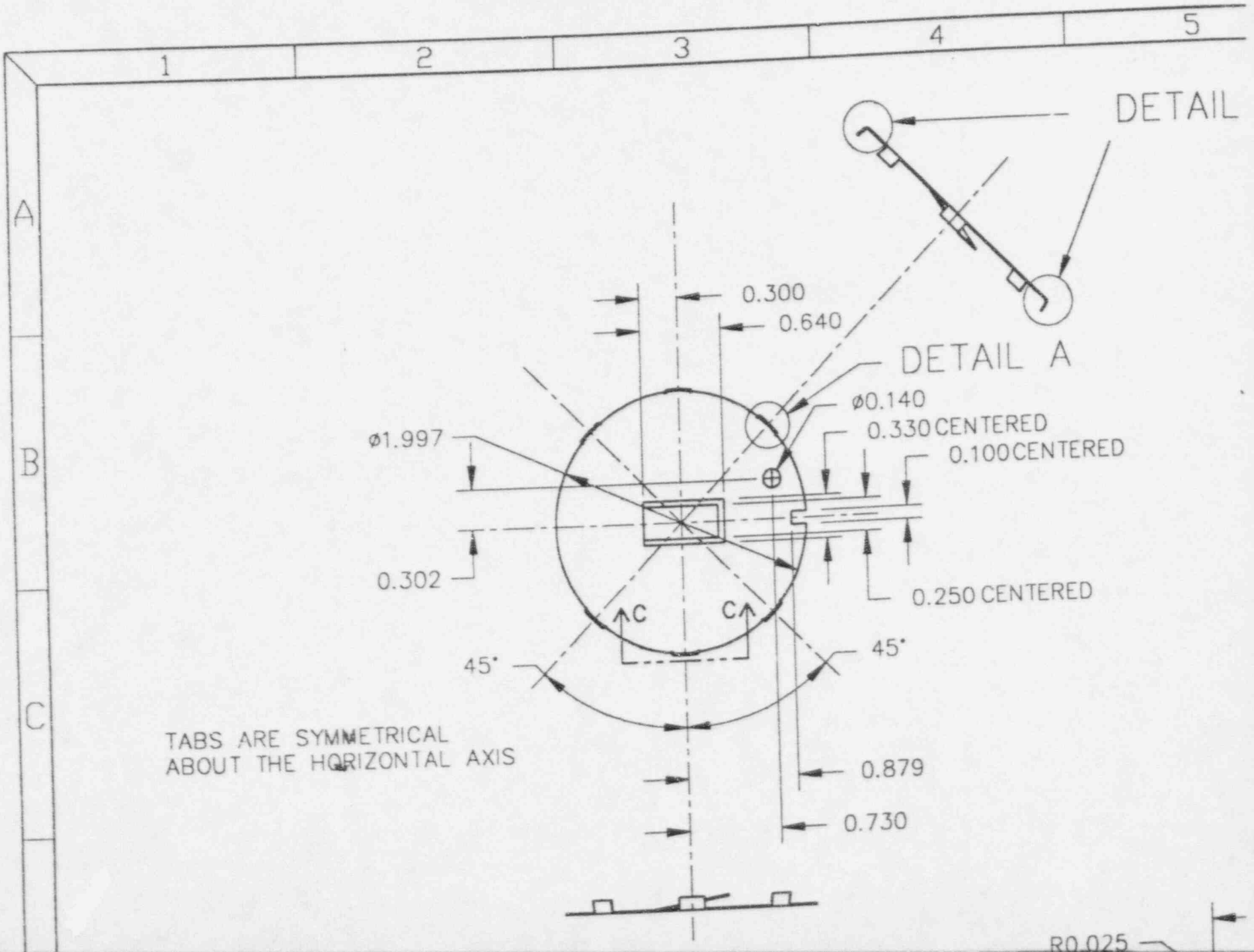
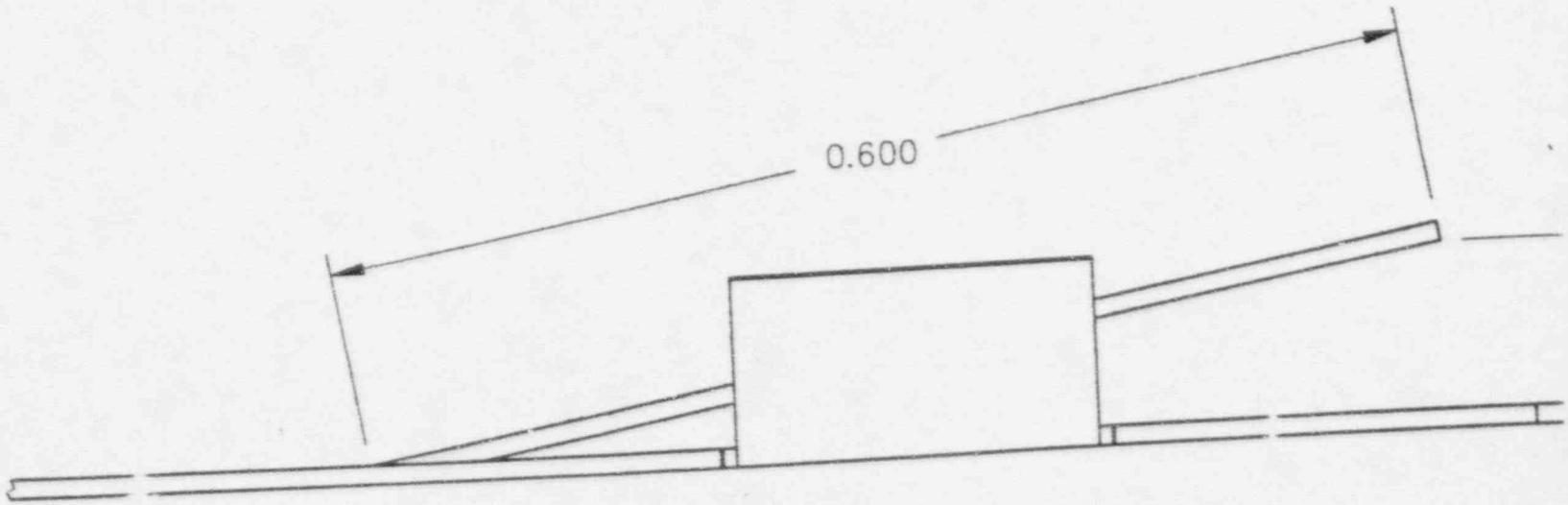


Figure B

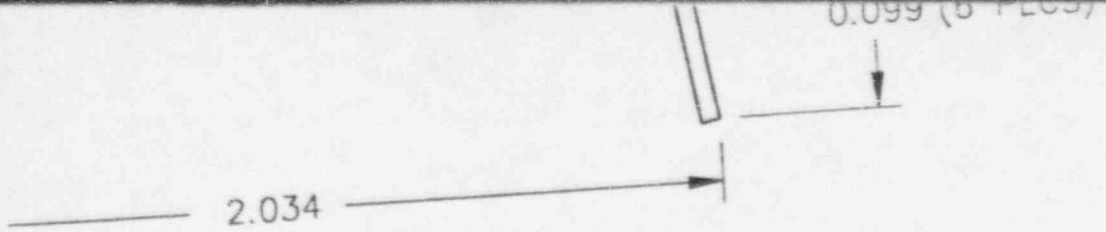


April 23, 1996

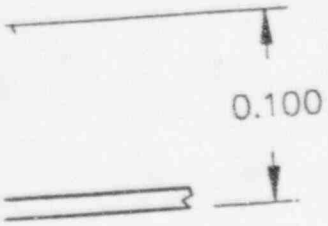

1
2
3
4
5
A
B
C
DETAIL
DETAIL A
0.300
0.640
ø0.140
0.330 CENTERED
0.100 CENTERED
ø1.997
0.302
0.250 CENTERED
C
C
45°
45°
TABS ARE SYMMETRICAL
ABOUT THE HORIZONTAL AXIS
0.879
0.730
R0.025



VIEW C–C
SCALE 10=1



DETAIL B
ROTATED
SCALE 10=1



ORIGINAL
IF IN RED

NOTES

1. REMOVE BURRS GREATER THAN .005
2. BUTTED CORNERS SHALL NOT BE WELDED
3. ALL DIMENSIONS ARE IN INCHES
4. TOLERANCES : .XX±.010 .XXX±.005
   ANGULAR : ±1°
5. INSIDE BEND RADII: .000 TO .016 MAX
6. DO NOT SCALE DRAWING
7. PARTS SHALL BE SUPPLIED FREE OF FOREIGN MATERIAL I.E. GREASE, CHIPS, OIL, ETC.
8. PARTS SHALL BE PACKED IN A MANNER THAT WILL PREVENT THEIR DEFORMATION

PART NO.	MATERIAL SPECIFICATION
24353C	MATERIAL : .0100 ±.0015 TYPE 304 STAINLESS STEEL, FULL HARD, MINIMUM YIELD STRENGTH 140 ksi. MINIMUM TENSIL STRENGTH 185 ksi. 40 –45 ROCKWELL C SCALE.
SUPPLIER	MAX LEADER LIMITED

THIRD ANGLE
PROJECTION

DETECTION SYSTEMS, INC.
130 PERINTON PARKWAY
FAIRPORT, NEW YORK 14450–9199, U.S.A.
(716) 223 4060, FAX (716) 223 9180

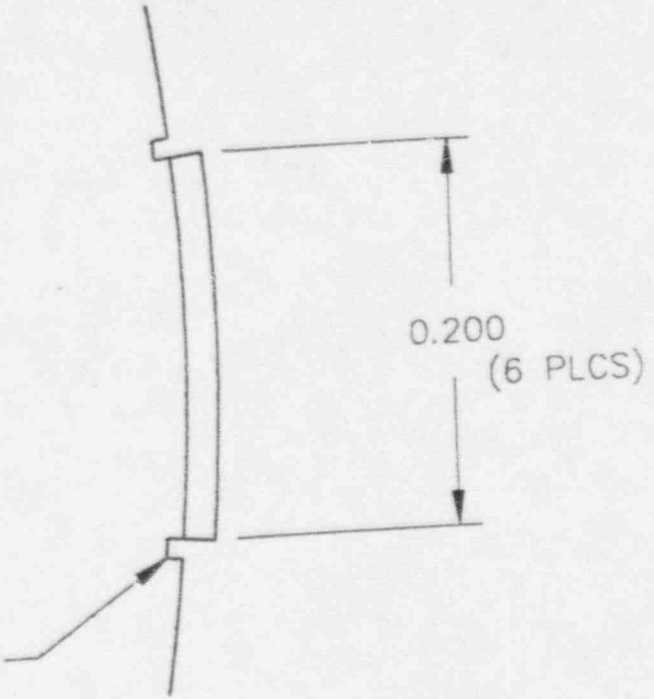
DRAWING TITLE
TOP ELECTRODE

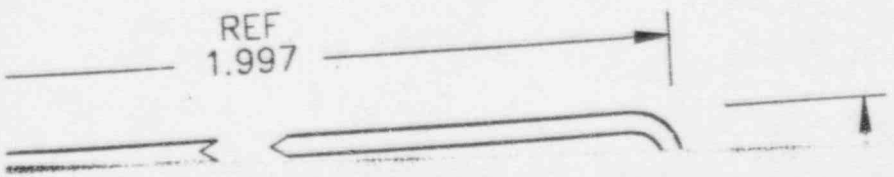
DATE DRAWN	DRAWN BY	
29MAY91	MC TECHNICAL SERVICES, INC	SCALE 1=1
TOOL DRAWING NUMBER	REVISION LEVEL	SHEET 1 OF 1
C24353	C	

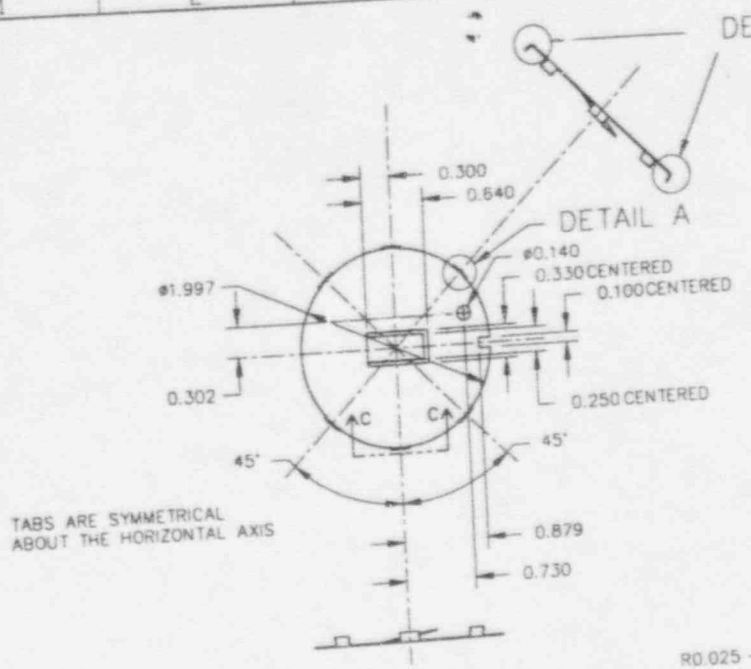
7 8 9 10

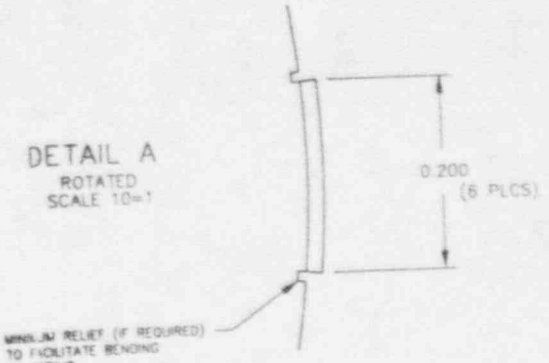
REV	DATE	ZONE (S) DESCRIPTION	ECR	CHK	DFT
A2	18JUL91	RELEASED FOR QUOTE	-	-	MCT
A3	020CT91	B2,B3 REMOVED 2 TABS B3 ADDED NOTCH	-	-	MCT
A4	04FEB92	CHANGED DETAIL C TO VIEW C-C. REMOVED ALTERNATE DIMENSIONS.	-	-	MCT
A5	20MAR92	UPDATED '45° VIEW.	-	-	MCT
A6	01APR92	MATERIAL SPECIFICATION MOVED FROM NOTE BLOCK TO TITLE BLOCK. PART NUMBER ADDED.	-	-	MCT
A7	15APR92	RELEASED FOR TOOLING	-	-	MCT
A8	20AUG92	AT E6 2.034 WAS 2.031, AT G4 MATERIAL TYPE CHANGED FROM 302 TO 304 AND SPECIFIED MATERIAL STRENGTH.	-	-	MCT
A9	10SEP92	AT B2 R0.070 WAS R0.160	-	RLM	MCT
B	4JUN93	RELEASED FOR PRODUCTION	-	RLM	MCT
C	9JUN94	AT B4 RELOCATED Ø0.140 HOLE, CORRECTED VIEW ORIENTATION TO THIRD ANGLE PROJECTION	3343	RLM	MCT

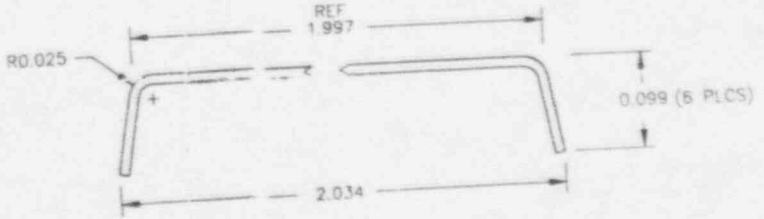
DETAIL A
ROTATED
SCALE 10=1



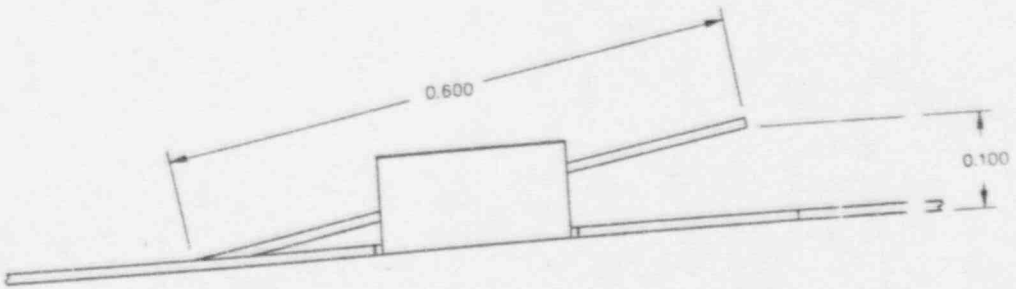








DETAIL B
ROTATED
SCALE 10=1



VIEW C–C
SCALE 10=1

REV	DATE	ZONE (S)	DESCRIPTION	ECR	CHK	APP
A2	18JUL91		RELEASED FOR QUOTE	-	-	MCT
A3	03OCT91		R0.83 REMOVED 2 TABS R3 ADDED NOTCH	-	-	MCT
A4	04FEB92		CHANGED DETAIL C TO VIEW C-C REMOVED ALTERNATE DIMENSIONS	-	-	MCT
A5	28MAR92		UPDATED AT VIEW	-	-	MCT
A6	01APR92		MATERIAL SPECIFICATION MOVED FROM NOTE IN DESK TO SYS1 IN DESK PART NUMBER ADDED	-	-	MCT
A7	14APR92		RELEASED FOR TOOLING	-	-	MCT
A8	20AUG92		AT ZB 2.034 WAS 2.031 AT 09 MATERIAL TYPE CHANGED FROM 302 TO 304 AND SPECIFIED MATERIAL STRENGTH	-	-	MCT
A9	17SEP92		AT B3 10.030 WAS R0.150	-	-	MCT
B	14JAN93		RELEASED FOR PRODUCTION	-	RJM	MCT
C	15APR94		AT B4 RELOCATED 40.140 NOT DIMENSIONED VIEW ORIENTATION TO HARD ANGLE PROJECTION	3345	RJM 97-05-	MCT

NOTES
1. REMOVE BURRS GREATER THAN .005
2. BUTTED CORNERS SHALL NOT BE WELDED
3. ALL DIMENSIONS ARE IN INCHES
4. TOLERANCES: XXX ±.010 XXXX ±.005
   ANGULAR: ±1°
5. INSIDE BEND RADII: .000 TO .016 MAX
6. DO NOT SCALE DRAWING
7. PARTS SHALL BE SUPPLIED FREE OF FOREIGN MATERIAL I.E. GREASE, CHIPS, OIL, ETC.
8. PARTS SHALL BE PACKED IN A MANNER THAT WILL PREVENT THEIR DEFORMATION

PART NO.	MATERIAL SPECIFICATION
24353C	MATERIAL: .0100 ±.0015 TYPE 304 STAINLESS STEEL, FULL HARD, MINIMUM YIELD STRENGTH 140 KSI, MINIMUM TENSILE STRENGTH 185 KSI, 40 – 45 ROCKWELL C SCALE

SUPPLIER: MAX LEADER LIMITED

[redacted]

THIRD ANGLE PROJECTION

DETECTION SYSTEMS, INC.
130 PERINTON PARKWAY
FAIRPORT, NEW YORK 14450-9199, U.S.A.
(716) 223 4060, FAX (716) 223 9180

TOP ELECTRODE

REV. DRAW. 29MAY91	PROJ. ENG. MC TECHNICAL SERVICES, INC.		
TOP DRAWING NUMBER C24353	REVISION LTR. C	SCALE 1=1	SHEET 1 OF 1

ORIGINAL
IF SIGNED

030-33088

DETECTION SYSTEMS, INC.
130 PERINTON PARKWAY
FAIRPORT, NEW YORK 14450 USA
716-223-4060
FAX: 716-223-9180

December 14, 1995

Ms. Susan Greene
Nuclear Regulatory Commission
Commercial Section - Mail Stop T8 F5
Washington, D.C. 20555

Re: License #: 31-23818-01E

Dear Ms. Greene:

As discussed with Betty Green yesterday, we have modified the design of our DS260 ionization smoke detector and would like to request an amendment to our license. We have enclosed two copies of documentation regarding the design change for your review. Also enclosed is our check for $2,190 to cover the associated fees (category 3H, $990; category 9A, $1,200).

There have been several minor revisions to our Radiation Safety Program for which New York State has granted amendments. These changes have not reduced the frequency of checks or tests including surveys and calibrations, reduced any standards or action limits nor otherwise made the Radiation Safety Program at Detection Systems, Inc. any less protective. Copies of correspondence related to these changes are enclosed for your reference. There have been no significant changes to our quality assurance program since our original application.

We are anxious to begin production of this newly designed product and look forward to your favorable reply. Any questions you may have regarding this application may be directed to Bruce Kaminsky, our site Radiation Safety Officer; Betty Green, our Business Systems Manager, or me at 1-800-289-0096.

Sincerely,

David B. Lederer
Executive Vice President

/byg

Enclosures

021802

Detection Systems, Inc.

130 Perinton Parkway
Fairport, NY 14450

Request for Amendment to License 31-23818-01E

Radioactive Material -- No change from original license.

Purposes For Which Licensed Material Will be Used -- No change from original license, except that the design of the DS260 Ionization Smoke Detector has been modified as described in Summary Data Sections 3.2 and 3.3. Drawings are enclosed for your review.

Individuals Responsible for the Radiation Safety Program -- No change from original license except that David Pennington is no longer with the Company. Mr. Bruce Kaminsky is currently serving as the Assistant or Site Radiation Safety Officer. Our New York State License was amended November 17, 1995, to reflect this change (copy enclosed).

Training for Individuals Working in or Frequenting Restricted Areas -- No change from original license.

Facilities and Equipment -- No change from original license.

Radiation Safety Program -- Our Operating and Emergency Manual as well as operating procedures regarding the Company's Radiation Safety Program have been updated periodically to reflect changes in State and Federal requirements as well as to document changes that have resulted from experience in the program. These changes have not reduced the frequency of checks, tests, surveys, or calibrations; reduced any standards or action limits or otherwise made the Radiation Safety Program at Detection Systems any less protective. Revision level "October 27, 1995" of our Manual was approved by the NYS Department of Labor on December 5, 1995. Copies of amendments and/or correspondence related to our State license are enclosed for your reference.

Quality Assurance Program -- No significant changs from original license.

021802

Summary Description:

The sealed source will be used as the means of detecting combustion in a local area using the principle of ionization. The construction and design of the product completely encloses the Americium 241 source within a metal case. There are 0.030" holes in a metal screen to allow smoke to enter the sensing chamber. This metal screen is surrounded by a plastic enclosure with a maximum opening of approximately 0.18 inches. This opening or slot allows smoke entry to the metal screen.

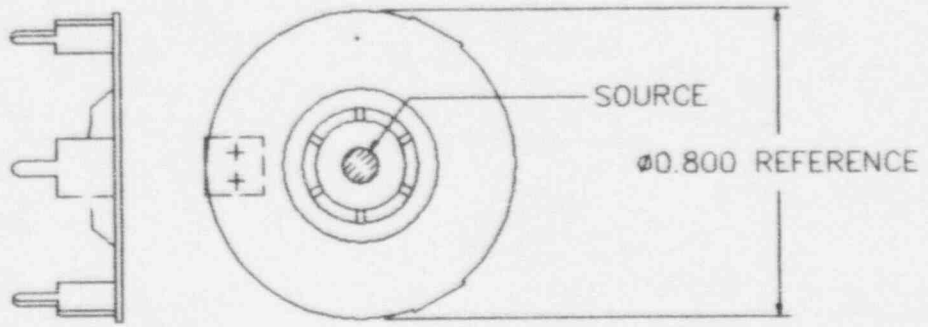
The metal screen is held into the plastic enclosure and can be removed for cleaning. A narrow bladed screwdriver must be used to assist removal by inserting the blade between the cover and the appropriate slots in the enclosure. This technique is designed to decrease the likelihood of a child accidentally opening the cover.

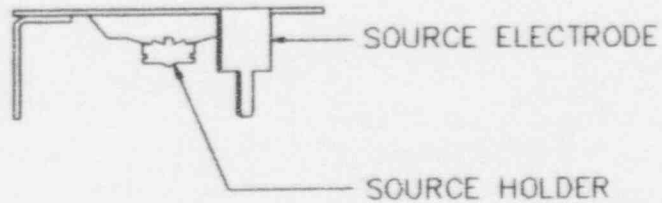
When the cover is removed for cleaning, a "CAUTION RADIOACTIVE MATERIAL" notice is etched in plain view on the top of a stationary metal shield located inside the screen. The metal shield and screen form the outer electrode of the chamber. The outer electrode is crimped and soldered to the printed circuit board and has openings approximately 0.35" high by 0.55" wide at the bottom and 0.4" wide at the top. The radiation source is located at the bottom of a small cylindrical "well like" reference chamber that further restricts access to the foil.

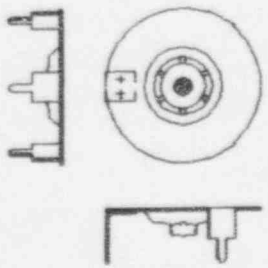
Written Description:

No change from original application.

REV	DATE	ZONE (S) DESCRIPTION	ECR	CHK	DFT
A2	28JAN93	ADDED INDICATORS FOR SRC HLDR AND ELCTRD			MCT
A2	13NOV95	REVISED SOURCE HOLDER			MCT







SCALE 1=1

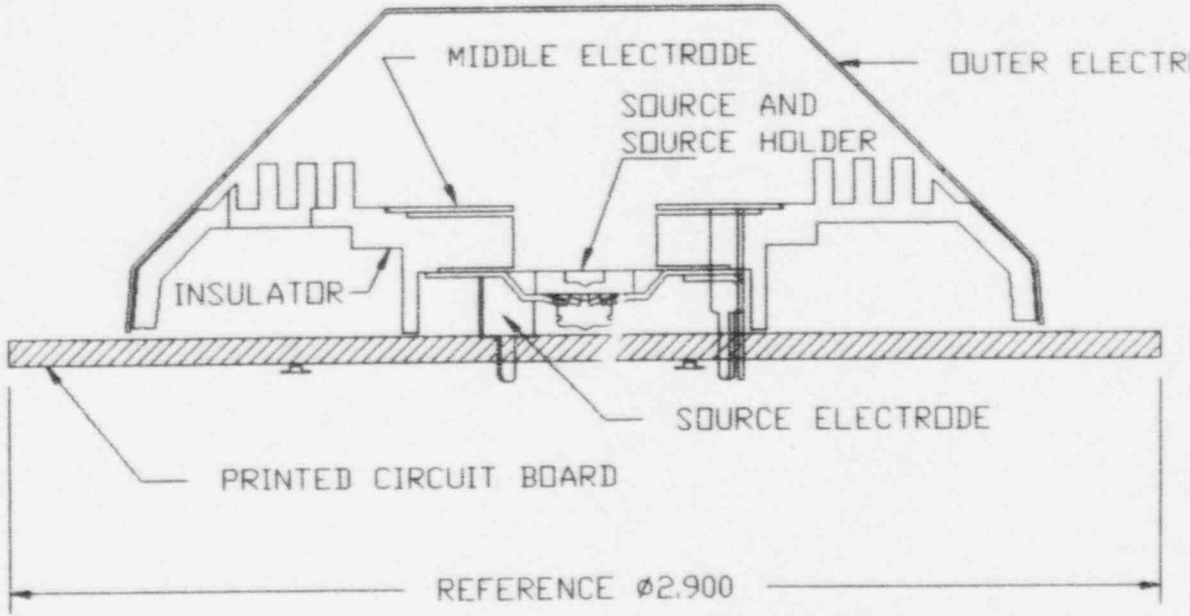
DETECTION SYSTEMS, INC.
130 PERINTON PARKWAY
FAIRPORT, NEW YORK 14450-9199, U.S.A.
(716) 223 4060, FAX (716) 223 9180

DRAWING TITLE
SOURCE ASSEMBLY
AS PURCHASED

DATE DRAWN	DRAWN BY
14AUG92	MC TECHNICAL SERVICES INC.

TOOL DRAWING NUMBER	REVISION LEVEL	
16-1	A3	SCALE 2=1
		SHEET 1 OF 1

REV	DATE	ZONE (S)	DESCRIPTION	ECR	CHK	DFT
A2	13NOV95		REVISED SOURCE HOLDER	-	-	STC



DETECTION SYSTEMS, INC.
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FAIRPORT, NEW YORK 14450-9199, U.S.A.
(716) 223 4060, FAX (716) 223 9180

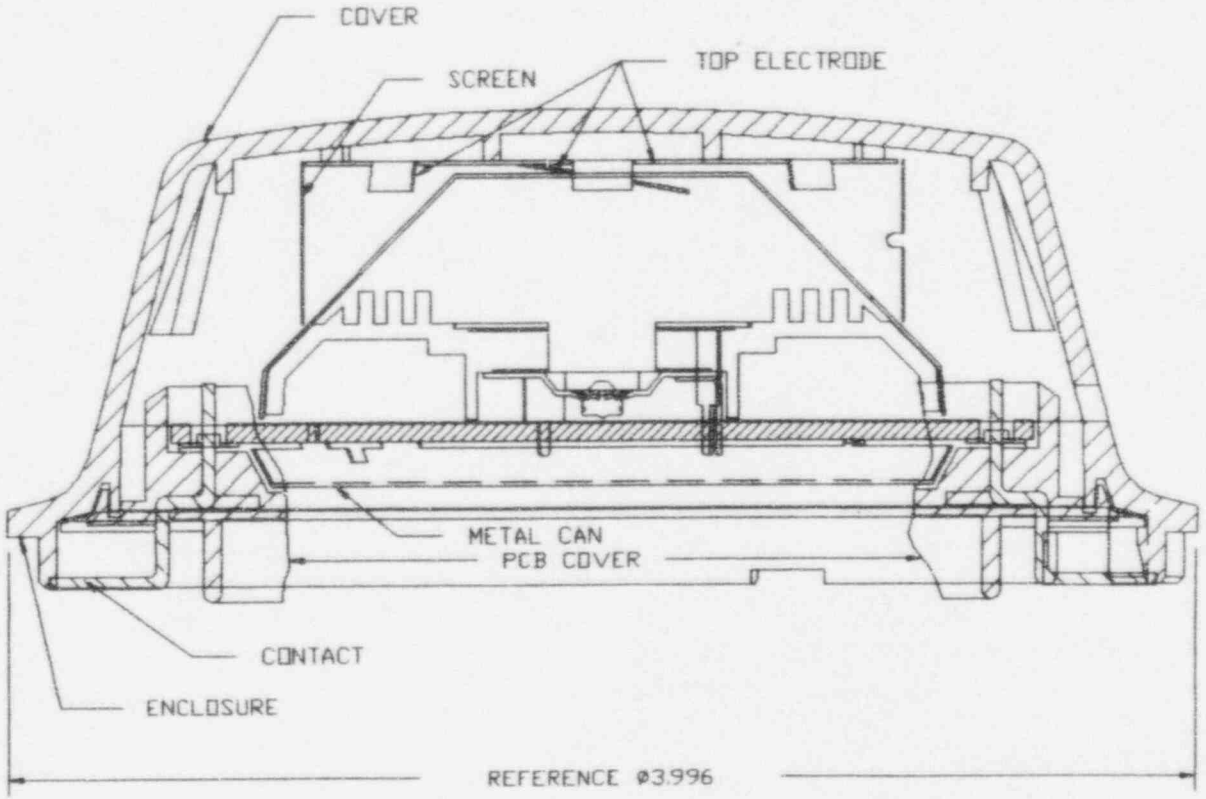
INTRINSICALLY SAFE SMOKE DETECTOR SUB ASSEMBLY

DATE DRAWN	DRAWN BY
14AUG92	MC TECHNICAL SERVICES INC.
TOOL DRAWING NUMBER	REVISION LEVEL
16-2	A2

NOT TO SCALE

SHEET 1 OF 1

REV	DATE	ZONE (S)	DESCRIPTION	ECR	CHK	DFT
A2	[illegible]		DELINEATION OF REVISED COVER, OUTER ELECTRODE & PCB COVER TO AGREE WITH REDESIGN	-	-	-



DETECTION SYSTEMS, INC.
130 PERINTON PARKWAY
FAIRPORT, NEW YORK 14450-9199, U.S.A.
(716) 223 4060, FAX (716) 223 9180

COMPLETED DS260 SMOKE DETECTOR ASSEMBLY

DATE DRAWN 14AUG92	DRAWN BY MC TECHNICAL SERVICES INC.	
TOOL DRAWING NUMBER 16-3	REVISION LEVEL A2	SCALE NONE
		SHEET 1 OF 1

Part 32.26 (b) (1) -- *Product Description and Intended Use*

No change from original application.

Part 32.26 (b) (2) --*Type and Quantity of Byproduct Material*

No change from original application.

Part 32.26 (b) (3) *--Chemical and Physical Form of Materials*

No change from original application.

Part 32.26 (b) (4) *--Solubility in water and body fluids*

No change from original application.

Part 32.26 (b) (5) -- *Design and Safety*

The construction and design of the product completely enclose the Americium 241 source within a metal case. There are 0.030" holes in a metal screen to allow smoke to enter the sensing chamber. This metal case is surrounded by a plastic enclosure with a maximum opening of approximately 0.18 inches. This opening or slot allows smoke entry into the metal screen. (See Figure 1)

The metal screen is held into the plastic enclosure and can be removed for cleaning. A narrow bladed screwdriver must be used to assist removal by inserting the blade between the cover and the appropriate slots in the enclosure. This technique is designed to decrease the likelihood of a child accidentally opening the cover.

When the cover is removed for cleaning, a "CAUTION RADIOACTIVE MATERIAL" notice is etched in plain view on the top of a stationary metal shield located inside the screen. The metal shield and screen form the outer electrode of the chamber. The outer electrode is crimped and soldered to the printed circuit board and has openings of approximately 0.35" high by 0.55" wide at the bottom and 0.4" wide at the top. The radiation source is located at the bottom of a small cylindrical "well like" reference chamber that further restricts access to the foil. The slanted openings in the outer electrode in conjunction with the "well like" reference chamber make touching the sealed source even more difficult. (See Figure 2)

A standard pencil cannot touch the Americium 241 source. The top of the opening in the outer electrode and the middle electrode contact points prevent the pencil point from reaching the source. (See Figure 3)

Figure 1:

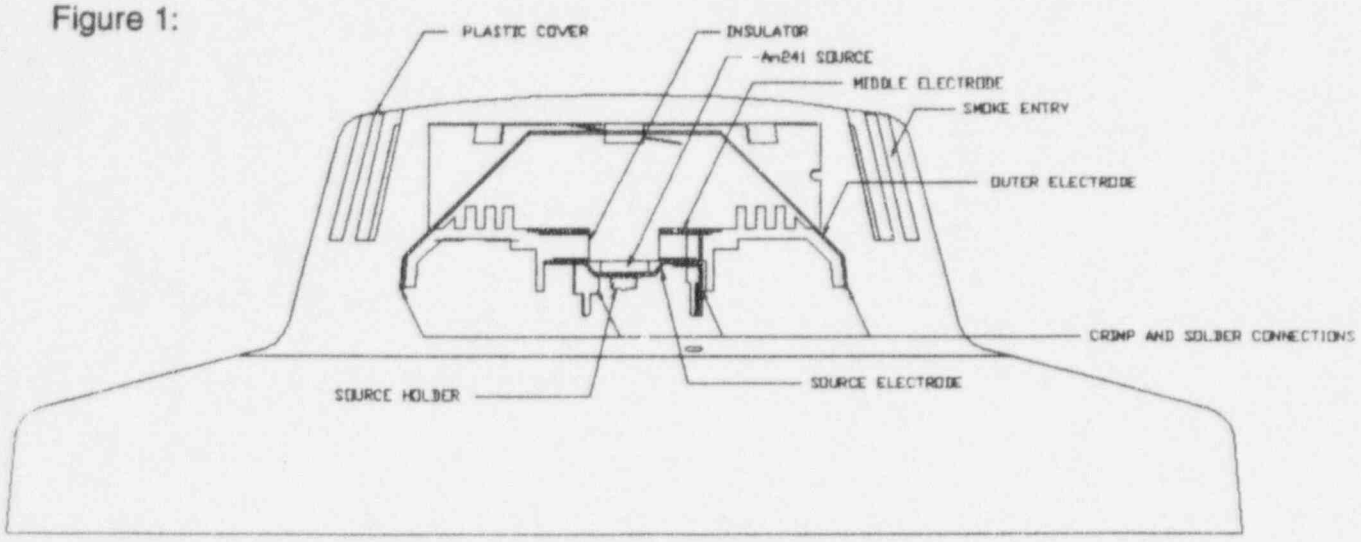
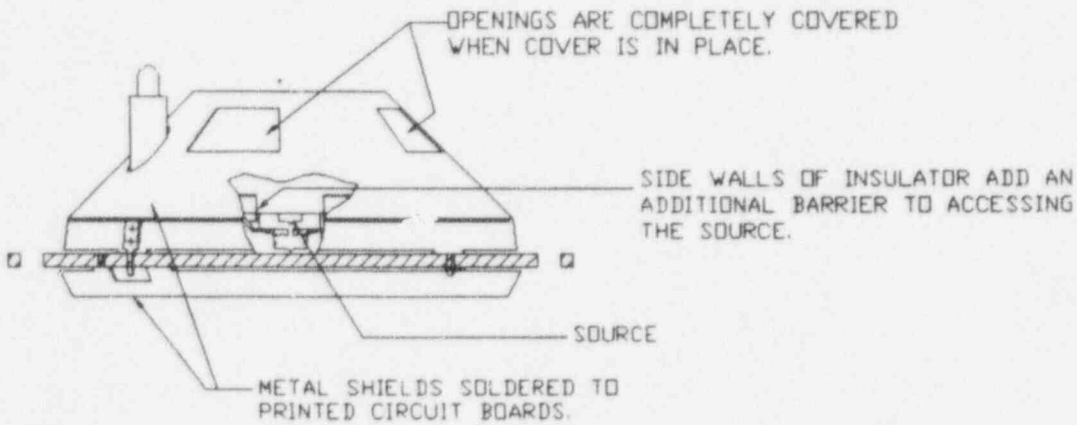


FIG.1 NOT TO SCALE

Figure 2:



DS260 WITH ALL THE PLASTIC ENCLOSURE PARTS REMOVED
CUT-AWAY TO SHOW LOCATION OF SOURCE.
FIG. 2. SCALE IS 1 TO 1 (ACTUAL SIZE)

Figure 3:

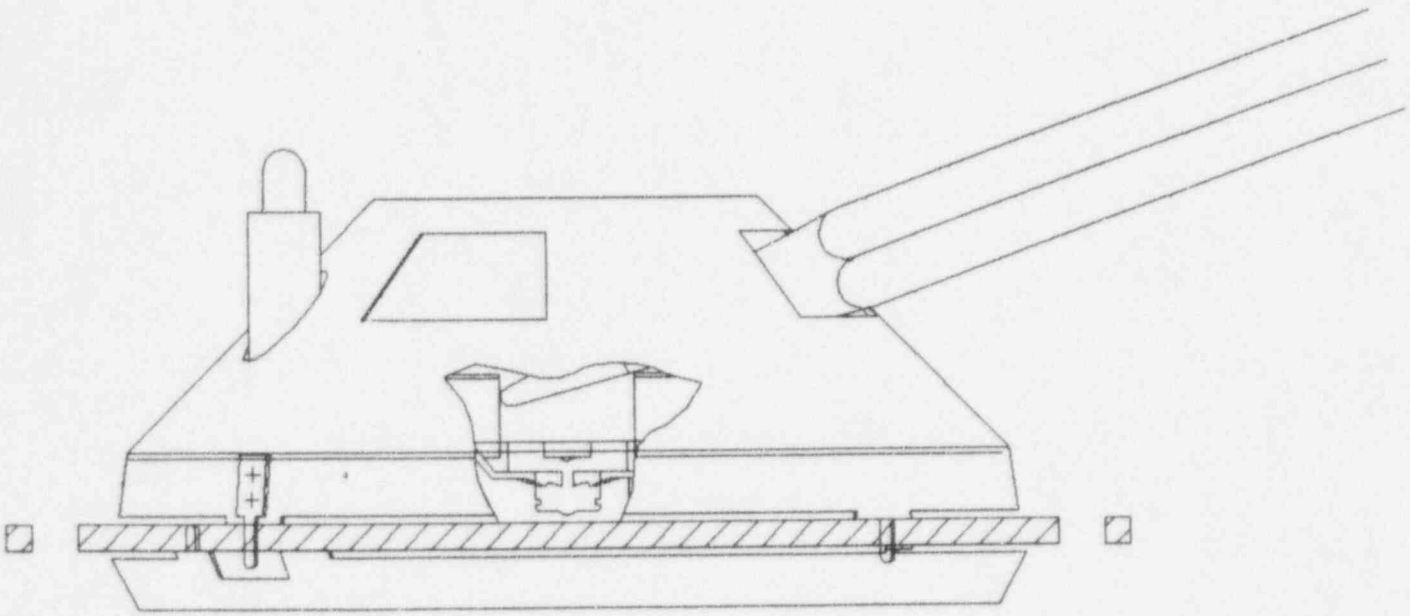


FIG. 3 NOT TO SCALE

Part 32.26 (b) (6)-- *Maximum External Radiation Levels*

No change from original application.

Part 32.26 (b) (7) --*The Degree of Access to Human Beings*

The source is secured in a source holder and supplied by an approved vendor. The source holder (with source) is secured in a source electrode having tabs which are crimped and soldered to the printed circuit board. Access to the source is prevented by the outer electrode which is also crimped and soldered to the printed circuit board. There is an insulator and middle electrode between the source electrode and the outer electrode. See Figure 1 in Part 32.26 (b) (5).

A groove on the source holder is located near the base of a shaft. The source electrode has stainless steel fingers that snap over this groove and are seated against the shaft. The source holder is captive after being inserted into the source electrode. If for some reason the source holder should slip in the direction that would cause it to come out of the source electrode, the stainless steel fingers will snap into the groove on the source holder shaft and prevent additional slippage. Removal can only be accomplished by first unsoldering and decrimping (straightening) the outer electrode tabs. The middle electrode must then be unsoldered and removed. The source electrode with the source holder and source may then be unsoldered, decrimped and removed. The source holder can then be removed from the source electrode only by driving it out with a hammer and punch. (See Figure 4)

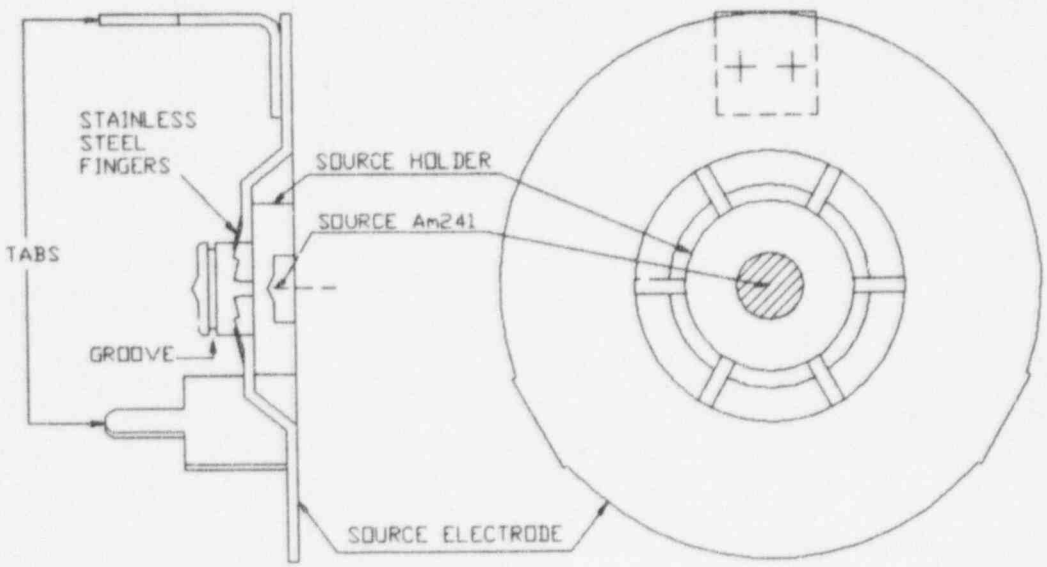


FIG. 4 NOT TO SCALE

Drop testing of the product has demonstrated that neither the flange nor the retaining ring is necessary to secure the source holder in the source electrode. After repeated drops from 10 meters, the stainless steel fingers of the source electrode held the source holder in place with no apparent relative change in position.

Part 32.26 (b) (8) -- *The total quantity to be distributed annually*

No change from original application.

Part 32.26 (b) (9) -- *The expected useful life of the product*

No change from original application.

Part 32.26 (b) (10) -- *Labeling of the detector*

The metal electrode that surrounds the Americium 241 source will have the Radiation Symbol and "CAUTION RADIOACTIVE MATERIAL" stamped into the metal. The outside back surface of the smoke detector will be labeled as shown in **Appendix A, Label, DS260 General Product.**

The smoke detector Box, otherwise known as the point of sale container, will be labeled as shown in **Appendix A, DS260 Shipping Label.**

Part 32.26 (b) (11-12) -- *Procedures for Prototype Testing*

There are several references to which we will refer, as testing of the Americium 241 foil sources has been detailed in many federal and private industry reports.

1) Americium 241 Foil Integrity Tests: No change from original application.

2) High Temperature Testing of Smoke Detector Sources (ORNL/NUREG/TM-246): No change from original application.

3) Emersion tests (ORNL/2468): No change from original application.

4) Product Design and Drop Tests:
In addition to the above mentioned tests, DSI performed it's own testing of the product to insure proper design and construction of the detector. These tests included a detailed dose rate and contamination survey of the device while under initial development and construction as well as a drop test of the product from 10

meters. This height was chosen because of the fact that the device will be used primarily as an industrial facility smoke detector.

The results of the drop test are as follows:

The device was dropped 4 times from a height of 10 meters. On the first drop, the plastic casing surrounding the internal components broke away. This exposed the outer electrode, but not the source. The device was dropped 3 additional times, with no further separation of parts. At no time did the source separate from it's retaining device or give such indications.

In addition to determining the dose rate, smears were taken of the detector exterior and interior as well as the general area where the detector landed. There were no positive indications of contamination as a result of the drop tests. These results are as follows.

Drop Test Smear Results

Instrument Used: Ludlum 2929 Smear Counter, Calibrated 10/95.

The instrument's response was checked prior to counting any smears by placing a N.I.S.T. traceable Americium 241 source in the source holder and counting it for one minute. The alpha counter responded with 257,328 counts, or approximately 18% 4π efficiency. This is within the bands of expected performance for the source. Next, a background check was performed. There were no background counts in one minute. Previous background determinations have indicated that the background count rate is approximately 0.1 cpm. The analysis of the smears following the drop test are as follows:

Analysis Number	Smear Location/Other	Results (α cpm)
1	Outside of Detector, G.A.	0
2	1st drop, floor near area	0
3	Detector interior, outer electrode	0
4	Bent case, outer electrode	0
5	Drop 2 detector interior	0
6	Floor, G.A. near impact	0
7	Drop 3, outer electrode	0

8	Drop 4, Floor G.A. after impact	0
9	Drop 4, outer electrode, base	0
10	Drop 5, G.A., outer electrode	0

Note: The outer electrode never separated from the base. At no time did the source separate from its source electrode. It was soon apparent that further drops would only cause the source to be more secure. Therefore, after 5 drops, the test was terminated.

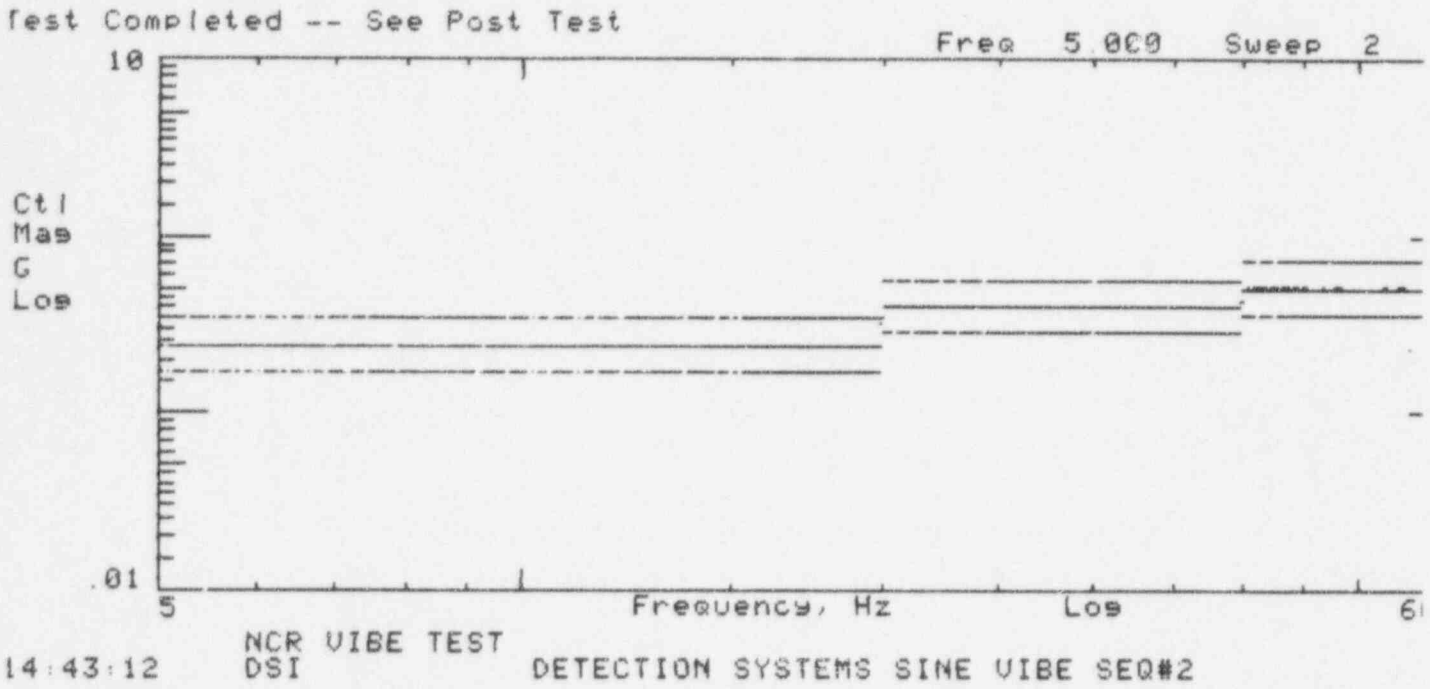
5) **Product Design Vibration Test:**

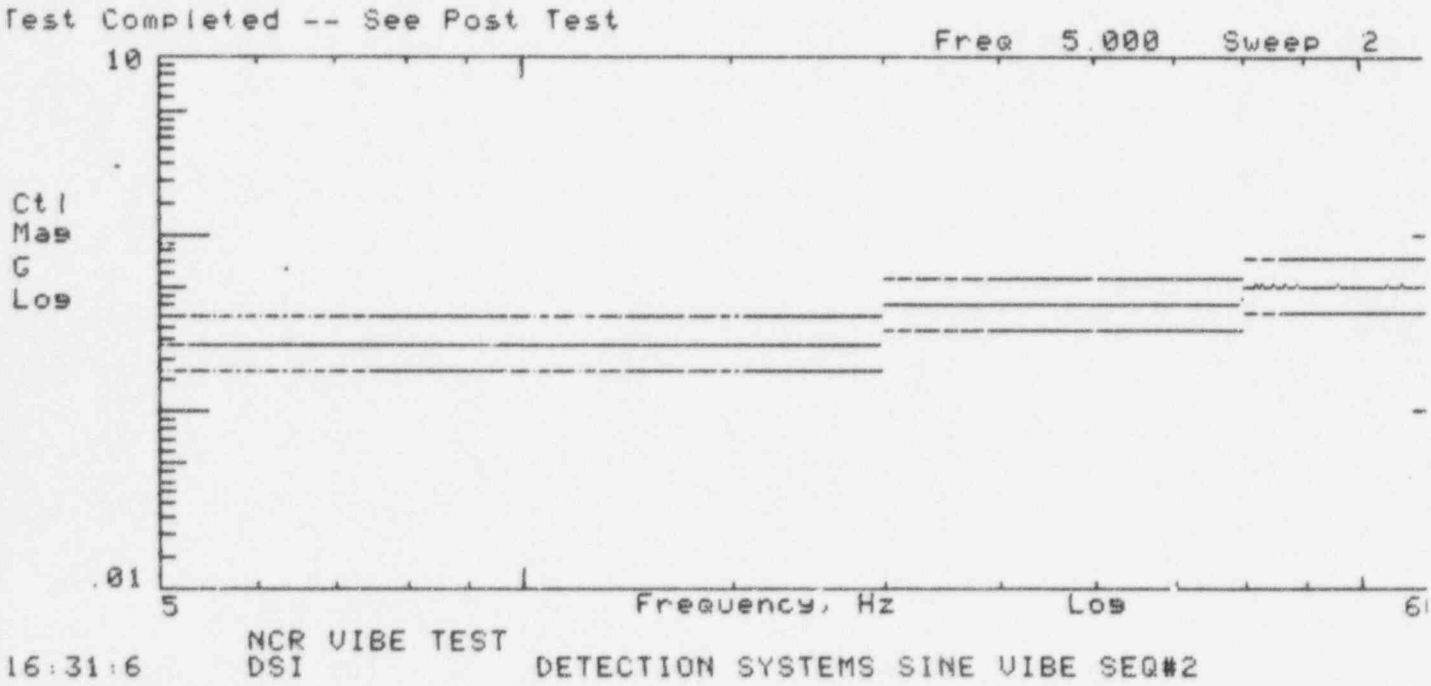
A vibration test was performed on the DS260 Ionization Smoke Detector on 11/29/95 using a Ling Electronics Model APS-106-1, D390 vibration table. The unit was run through two sweeps ranging in frequency from 5 Hz to 60 Hz. As can be seen on the graphs that follow, no resonant frequencies were found.

Following the vibration test, frisks and smears were performed on the unit. The frisks were done using a Ludlum 1000 Scaler and Model 43-5 Scintillator. No alpha contamination was found on the external surfaces of the unit. Two smears were then taken. One smear was taken of the external surfaces of the DS260 head. The second smear was of the smoke detector base and vibration fixture. The smears were then analyzed using a Ludlum 2929 Scaler and 43-10-1 alpha/beta sample counter. In both cases, no contamination was found.

A final visual inspection was then performed. The DS260 Ionization Smoke Detector was disassembled to a level where the source holder and electrodes could be inspected. The source was found to be intact and seated firmly and correctly in its appropriate operation location. It was concluded that the vibration test had no detrimental effect on the smoke detector.

DS260 Vibration Test Results





6) **Impact Test Results**

An impact test was performed on the DS260 Ionization Smoke Detector on 10/26/95 following the criteria described in Annex Prototype, pages 19-22, which was provided to Detection Systems by John Lubinski at the USNRC.

The ionization smoke detector was placed on a concrete floor and a 0.5 kgm. weight was dropped onto it from a height of 0.5 meters per ISO2919 so that the ionization chamber would suffer the maximum damage. Following this, the unit was frisked and smeared. The smears were counted using a Ludlum 43-10-1 alpha-beta counter and a Ludlum 2929 Scaler. The frisking was performed using a Ludlum 43-5 Scintillator and a Ludlum 2929 Scaler. The frisking was performed using a Ludlum 43-5 Scintillator and a Ludlum 1000 Scaler. No contamination was found on the ionization smoke detector nor on the adjacent floor.

Part 32.26 (b) (13), (14) -- *Estimated External Radiation Doses*

No change from original application.

Part 32.26 (b) (15) -- *Quality Control Procedures During Production*

No change from original application.

Part 32.26 (b) (16) – *Any Additional Information*

No change from original application.

APPENDIX A
DS260 PRODUCT DRAWINGS

021802

DETECTION SYSTEMS, INC.

130 PERINTON PARKWAY
FAIRPORT, NEW YORK 14450 USA

716-223-4060
FAX: 716-223-9180

November 20, 1995

Mr. Michael Lamastra, Section Chief
Commercial Section
Mail Stop T8F5
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Re: NRC License #: 31-23818-01E

Dear Mr. Lamastra:

Please mark your records to show that David Pennington has left the Company and that Bruce Kaminsky has assumed the role of Assistant Radiation Safety Officer at Detection Systems. Mr. Kaminsky has been with the Company for over three years and has been heavily involved in our Radiation Safety Program during that time. Frederic Mis, our Consultant Radiation Safety Officer, is working closely with Mr. Kaminsky to ensure a smooth transition.

Please feel free to contact me at 716-223-4060 if you have any questions or if additional information is required.

Sincerely,

David B. Lederer
Executive Vice President

/byg

BETWEEN:

License Fee Management Branch, ARM
and
Regional Licensing Sections

(FOR LFMS USE)
INFORMATION FROM LTS

Program Code: 03255
Status Code: 0
Fee Category: 3H
Exp. Date: 19990331
Fee Comments: _____
Decom Fin Assur Reqd: N

Pat -
pls assign.
CB
-SLG

LICENSE FEE TRANSMITTAL

A. REGION HQ

1. APPLICATION ATTACHED
   Applicant/Licensee: DETECTION SYSTEMS, INC.
   Received Date: 951215
   Docket No: 3033088
   Control No.: 021802
   License No.: 31-23818-01E
   Action Type: Amendment

2. FEE ATTACHED
   Amount: $ 2190.00
   Check No.: 42522

3. COMMENTS

Signed M. Moriarty
Date 12-18-95

B. LICENSE FEE MANAGEMENT BRANCH (Check when milestone 03 is entered) (✓)

1. Fee Category and Amount: 3H $ 99C

2. Correct Fee Paid. Application may be processed for:
   Amendment ✓
   Renewal _____
   License _____

3. OTHER _____

Signed _____
Date 12/21/95

Log Dec. 1 1995
Receipt
Check No. 42522 ($2190)
Amount $99D 3H See also Dec. 95 ISSUED
Fee Category
Type of
Date Check
Date Completed 12/21/95
By