

MATERIALS LICENSE

Amendment No. 08

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.

<p>Licensee</p> <p>1. General Electric Company</p> <p>2. P. O. Box 8555 Philadelphia, Pennsylvania 19101</p>	<p>In accordance with letter dated March 3, 1992,</p> <p>3. License number 37-02006-09 is amended in its entirety to read as follows:</p> <hr/> <p>4. Expiration date November 30, 1992</p> <hr/> <p>5. Docket or Reference No. 030-12894</p>
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<p>6. Byproduct, source, and/or special nuclear material</p> <p>A. Cobalt 60</p>	<p>7. Chemical and/or physical form</p> <p>A. Sealed sources (AECL Model C-166, C-167, or C-198)</p>	<p>8. Maximum amount that licensee may possess at any one time under this license</p> <p>(b)(2)High <i>5mCi</i> per source and (b)(2)High <i>curies total</i></p>
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9. Authorized use

A. For use in AECL Model Gammacell 220 Irradiator for irradiation of materials.

- CONDITIONS
- Licensed material shall be used only at 230 Goddard Boulevard, King of Prussia, Pennsylvania.
  - Licensed material shall be used by individuals designated by the Ionizing Radiation Advisory Group, S. J. Mucha, M.D., Chairman.
    - The Radiation Safety Officer for this license is Charles B. Chilton.
  - Sealed sources or detector cells containing licensed material shall not be opened or sources removed from source holders or detector cells by the licensee.
  - Any sealed sources or detector cells specified in Items 7.A. shall be tested for leakage and/or contamination at intervals not to exceed 6 months. Any source or detector cell received from another person which is not accompanied by a certificate indicating that a test was performed within 6 months before the transfer shall not be put into use until tested.
    - Any sealed source or detector cell in storage and not being used need not be tested. When the source or detector cell is removed from storage for use or transfer to another person, it shall be tested before use or transfer.

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REG1 LIC30  
MATLSLICENSING PDR

"OPTIONAL RECORD COPY"

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MATERIALS LICENSE  
SUPPLEMENTARY SHEET

License number	37-02006-09
Docket or Reference number	030-12894
Amendment No. 08	

(13. Continued)

CONDITIONS

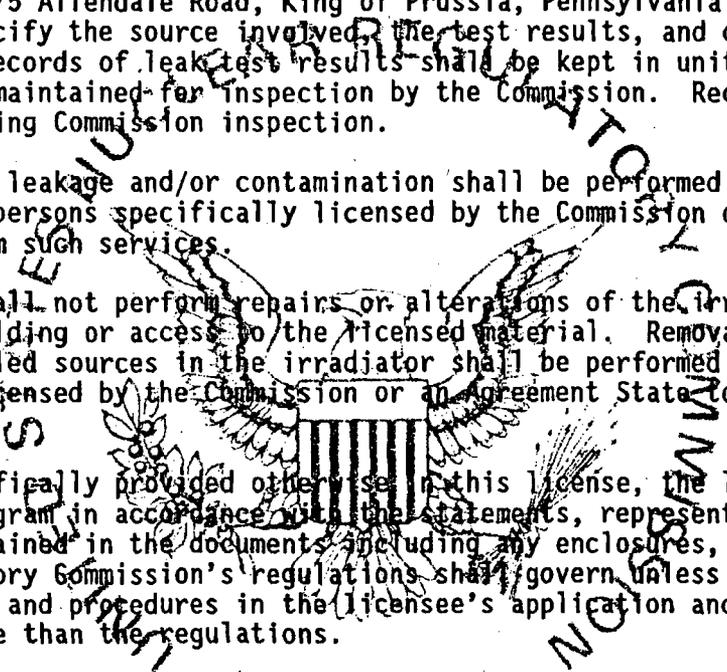
C. The test shall be capable of detecting the presence of 0.005 microcurie of radioactive material on the test sample. If the test reveals the presence of 0.005 microcurie or more of removable contamination, the source or detector cell shall be removed from service and decontaminated, repaired, or disposed 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 I, ATTN: Chief, Nuclear Materials Safety Branch, 475 Allendale Road, King of Prussia, Pennsylvania 19406. 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.

14. The licensee shall not perform repairs or alterations of the irradiator involving removal of shielding or access to the licensed material. Removal, replacement, and disposal of sealed sources in the irradiator shall be performed by a person specifically licensed by the Commission or an Agreement State to perform such services.

15. Except as specifically provided otherwise in this license, the licensee shall conduct its program in accordance with the statements, representations, and procedures contained in the documents including any enclosures, listed below. The Nuclear Regulatory Commission's regulations shall govern unless the statements, representations and procedures in the licensee's application and correspondence are more restrictive than the regulations.

- A. Application dated August 28, 1987
- B. Letter dated July 5, 1989
- C. Letter dated April 12, 1990
- D. Letter dated March 3, 1992
- E. Letter dated May 18, 1992



For the U.S. Nuclear Regulatory Commission

Original signed by:  
Paul D. Sweland

Date JUN 22 1992

By  
Nuclear Materials Safety Branch  
Region I  
King of Prussia, Pennsylvania 19406

JUN 22 1992

License No. 37-02006-09  
Docket No. 030-12894  
Control No. 116309

General Electric Company  
ATTN: S. J. Mucha, M.D.  
Chairman  
Astro-Space Division  
P. O. Box 8555  
Philadelphia, Pennsylvania 19101

Dear Dr. Mucha:

Please find enclosed an amendment to your NRC Material License.

Please review the enclosed document carefully and be sure that you understand all conditions. If there are any errors or questions, please notify the Region I Material Licensing Section, (215) 337-5093, so that we can provide appropriate corrections and answers.

Please be advised that you must conduct your program involving licensed radioactive materials in accordance with the conditions of your NRC license, representations made in your license application, and NRC regulations. In particular, please note the items in the enclosed, "Requirements for Materials Licensees."

Since serious consequences to employees and the public can result from failure to comply with NRC requirements, the NRC expects licensees to pay meticulous attention to detail and to achieve the high standard of compliance which the NRC expects of its licensees.

You will be periodically inspected by NRC. A fee may be charged for inspections in accordance with 10 CFR Part 170. Failure to conduct your program safely and in accordance with NRC regulations, license conditions, and representations made in your license application and supplemental correspondence with NRC will result in prompt and vigorous enforcement action against you. This could include issuance of a notice of violation, or in case of serious violations, an imposition of a civil penalty or an order suspending, modifying or revoking your license as specified in the General Policy and Procedures for NRC Enforcement Actions, 10 CFR Part 2, Appendix C.

General Electric Company

-2-

We wish you success in operating a safe and effective licensed program.

Sincerely,

Original Signed By:  
Paul D. Swetland

Paul D. Swetland, Chief  
Industrial Applications Section  
Division of Radiation Safety  
and Safeguards

Enclosures:

1. Amendment No. 08
2. Requirements for Materials Licensees

DRSS:RI *JK*  
Kirkwood/EB

06/3/92

*PS*  
DRSS:RI  
Swetland

05/19/92

MS 16  
P9  
030-12894

TO: United States  
Nuclear Regulatory Commission  
Region 1

ATTN: John Kirkwood

DATE: 18 May 1992

RE: Amendment request for change of location for  
License no. 37-02006-09, previously submitted.  
(Your request for additional fire information.)

Dear John,

Regarding your inquiry on Thurs May 14 concerning the presence of adequate fire protection in the area where the two Cobalt 60 irradiators will be housed, please be assured the area is adequately sprinklered to meet all state, local and federal regulations. In addition, fire extinguishers will be provided as recommended by our insurance company's agent (Factory Mutual).

Also, a well trained and equipted "Emergency Response Team" is available in-house to ensure the development and maintenance of an effective fire protection and prevention program.

If there are any further questions or concerns on this issue please feel free to contact me at the phone number listed below.

Sincerely,

*Don Cheater*  
Don Cheater  
SR. EHS Specialist  
(215) 354-3917



030-12894

GE Astro Space

Astro-Space Division  
General Electric Company  
P.O. Box 8555, Philadelphia, PA 19101  
215 354-1000

US Nuclear Regulatory Commission  
Division of Radiation Safety & Safegaurds  
Region I  
475 Allendale Road  
King of Prussia, PA 19406

March 3, 1992

RECEIVED  
DIVISION OF ADMINISTRATION  
MAR 13 1992  
U.S. NUCLEAR REGULATORY COMMISSION

Reference: Irradiator License 37-02006-09  
Docket Number 030-12894

Dear Sir/Madam,

General Electric Company, Aerospace, requests an amendment to the above referenced license to permit the change of location for use of the two AECL Gamma Cell 220 Cobalt-60 irradiators.

This amendment request is being pursued due to GE, Management and Data Systems Operations (M&DSO) decision to not renew the lease on Building 8 - the facility currently cited on our license. This decision to not renew the lease, which expires year end 1992, was finalized in February 1992.

A review of alternative locations was conducted and Building 100 Complex (230 Goddard Blvd) was selected as the new site for the Radiation Effects Laboratory and the irradiators. Due to contractural committments, however, it is critical that the relocation and start up of the Laboratory be completed by the end of May 1992. Heavy testing workloads are anticipated at that time.

A detailed description of the facility and pertinent facility layouts are enclosed with this request for your review.

The new installation affords the opportunity to increase the amount of shielding around the units (from plaster walls to 6 to 12 inch thick high density concrete). This is being conducted to further protect the workers for whom the highest individual annual dose measured over the last five years has been 160 millirem. The increased shielding along with the location of the irradiators within Building 100 Complex will assure that public dose levels are maintained below 100 millirem. Once installed, exposure monitoring studies will be conducted to confirm the expected worker and public dose.

For this project, it is the intention of General Electric Company to procure the services of a specifically NRC licensed contractor to package, remove, handle, transport and install the two irradiators into their new location.

Division Headquarters-East Windsor, P.O. Box 800, Princeton, NJ 08540-0800

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License Fee Information

OFFICIAL RECORD COPY as Next Page

MAR 4 1992

In relocating the irradiators to 230 Goddard Boulevard, all relevant documentation will be obtained and kept on file. This information will include:

- 1) The contractors US NRC license for the removal, relocation and installation of Co-60 irradiators.
- 2) Radioactive material package design certification.
- 3) External and surface (leak test) radiation survey of the irradiators for shipment and receipt.
- 4) Copies of standard hazardous material shipping documents and internal radioactive material transfer documents.
- 5) Final "clearance" radiation survey for the 780 Third Avenue, King of Prussia, PA facility.
- 6) Ionizing Radiation Advisory Group approval to operate the relocated Gamma Cell 220 irradiators.

General Electric will continue to comply with all other conditions of license 37-02006-09 at the new location and will be submitting the renewal application in June 1992.

Finally, we are requesting that this amendment review be expedited to enable GE to meet the contractual commitments which will significantly impact specific programs beginning in June 1992.

Enclosed is a check in the amount of \$250.00 to cover the cost of the amendment. If there are any questions concerning this request, please contact us at (215) 354-1085.

Sincerely,

*S. J. Mucha*  
S.J. Mucha, M.D.  
Chairman, IRAG

cc: S.J. Mucha  
C.B. Chilton  
D.M. Sternberg  
J.F. McLaverty  
D. Cheater  
M. West

Log	19 Mar 6 I
Number	
Check No.	108940
Amount	\$250
Fee Category	FE
Type of Fee	AMD
Date Check Rec'd	3/11/92
Date Completed	
By:	B. Brown

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ITEM II

FACILITIES AND EQUIPMENT

The irradiator facility is located within the Building 100 Complex of the Valley Forge Space Center. The address for the Building 100 Complex is 230 Goddard Boulevard, King of Prussia, PA 19406.

**Figure 1** - plan view of Radiation Effects Laboratory within its current facility at 780 Third Avenue, King of Prussia, PA.

**Figure 2** - plan view of interior of Radiation Effects Laboratory at current location.

**Figure 3a** -plan view of Radiation Effects Laboratory within Building 100 Complex.

**Figure 3b** -plan view of Radiation Effects Laboratory within Building 100 Complex.

**Figure 4** - plan view of interior of Radiation Effects Laboratory at proposed location.

**Figure 3a:**

The Building 100 complex is secured by

(b)(2)High  
(b)(2)High  
(b)(2)High

**Figure 3b:**

The perimeter fence which

(b)(2)High  
(b)(2)High

**Figure 4:**

The irradiators are located in

(b)(2)High  
(b)(2)High

An access list is maintained of personnel authorized to possess the combination to the (b)(2)High Personnel on this list shall have the prior approval of the Ionizing Radiation Advisory Group (IRAG). When an individual is removed from the list, the (b)(2)High combination will be changed.

Certain personnel (escorts), as approved by the IRAG shall have the authority to admit visitors to the irradiator room. A visitors log is maintained.

The irradiator console keys shall be kept under combination lock when not in use. Knowledge of the combination shall be limited to currently approved operators.

LICENSE NO. 37-02006-09  
DOCKET NO. 30-12894  
CONTROL NO. 116309

NAME GENERAL ELECTRIC CO.  
ATTN: S. J. MUCHA, M.D., CHAIRMAN  
ADDRESS P. O. BOX 8555  
PHILADELPHIA, PA 19101

GENTLEMAN,

THIS IS TO CONFIRM THE TELEPHONE CONVERSATION ON \_\_\_\_\_  
BETWEEN YOURSELF AND \_\_\_\_\_ OF THIS OFFICE.

*R*  
*X* THIS IS TO CONFIRM <sup>the</sup> TELEPHONE CONVERSATION ON 5/14/92 with Don Teeter  
*of your staff.*  
THE INFORMATION NEEDED TO CONTINUE REVIEW OF YOUR  
APPLICATION DATED 3/3/92 WAS DISCUSSED.

THESE ITEMS ARE RESTATED BELOW:

- Paragraph 30.33(a)(2) of 10 CFR Part 30 states that an application will be
1. approved if, among other things, the applicant's proposed equipment and facilities are adequate to protect health and to minimize danger to life or property.

*OVER →*

IF WE DO NOT RECEIVE A REPLY FROM YOU WITHIN 30 CALENDAR DAYS  
FROM THE DATE OF THIS LETTER, WE SHALL ASSUME THAT YOU DO NOT  
WISH TO PURSUE YOUR APPLICATION.

SINCERELY,

*A. Kirkwood*

NUCLEAR MATERIALS SAFETY SECTION *C*  
NUCLEAR MATERIALS SAFETY BRANCH

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*ML 10*

CONCURRENCES: \_\_\_\_\_

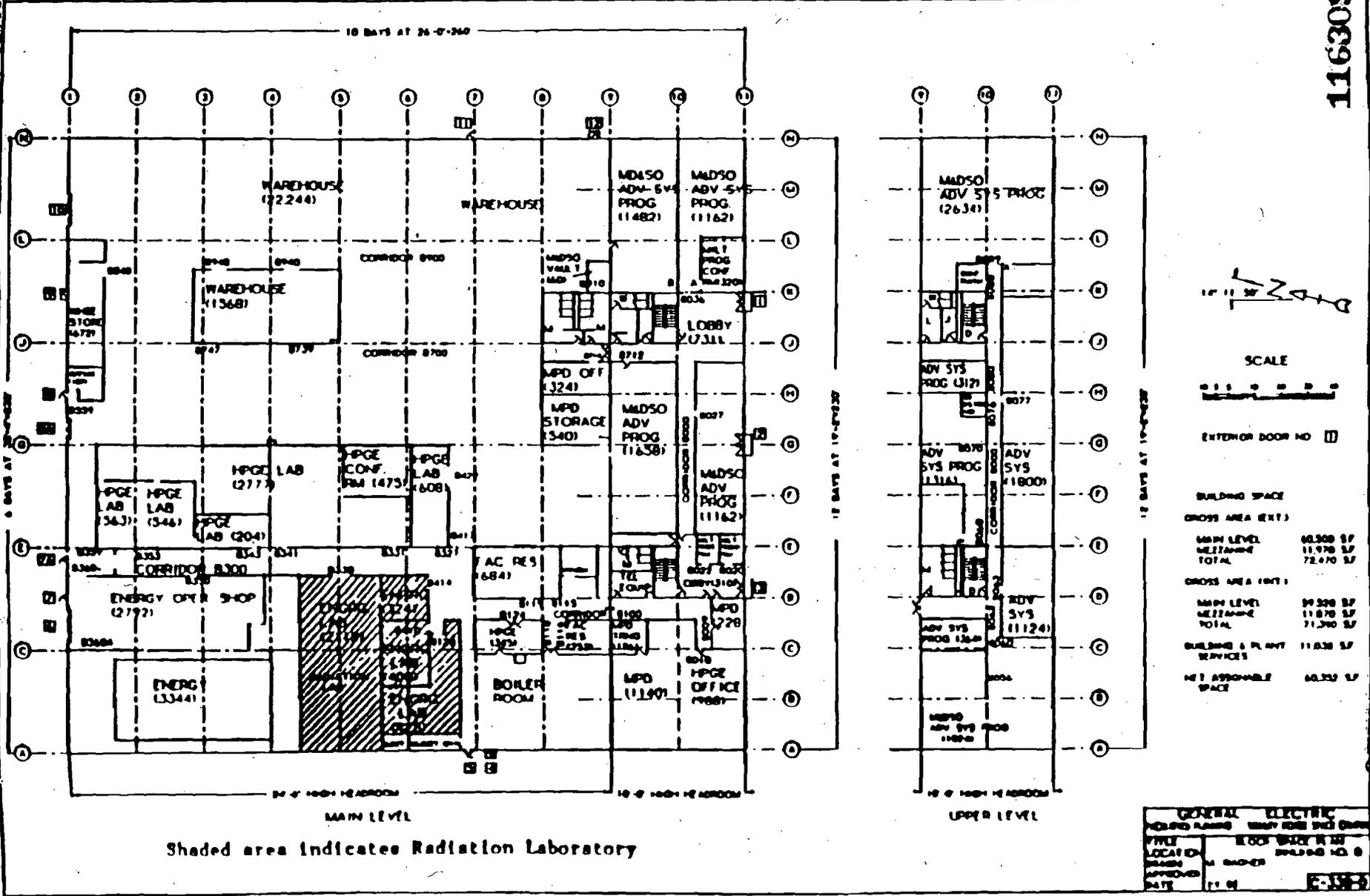
Regarding fire protection, you should confirm that the room where the irradiator will be located will be equipped with an automatically operated fire detection and control system (sprinkler, chemical, or gas) that is adequate to ensure the integrity of the irradiator and source in a fire. Alternatively, you should describe the conditions (e.g., ground floor location in fire-resistant building with little combustible material) and other controls (e.g., coordination with and training of fire-fighting personnel) that ensure a very low level of radiation risk attributable to fires.

Mr. Don Teeter of your staff confirmed that you would send us assurance of fire protection by 22 May 92. He can be reached on 354-3917.

Figure 1

General Electric Co.-SSD  
37-02006-09  
Renewal application 8/82

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Shaded area indicates Radiation Laboratory

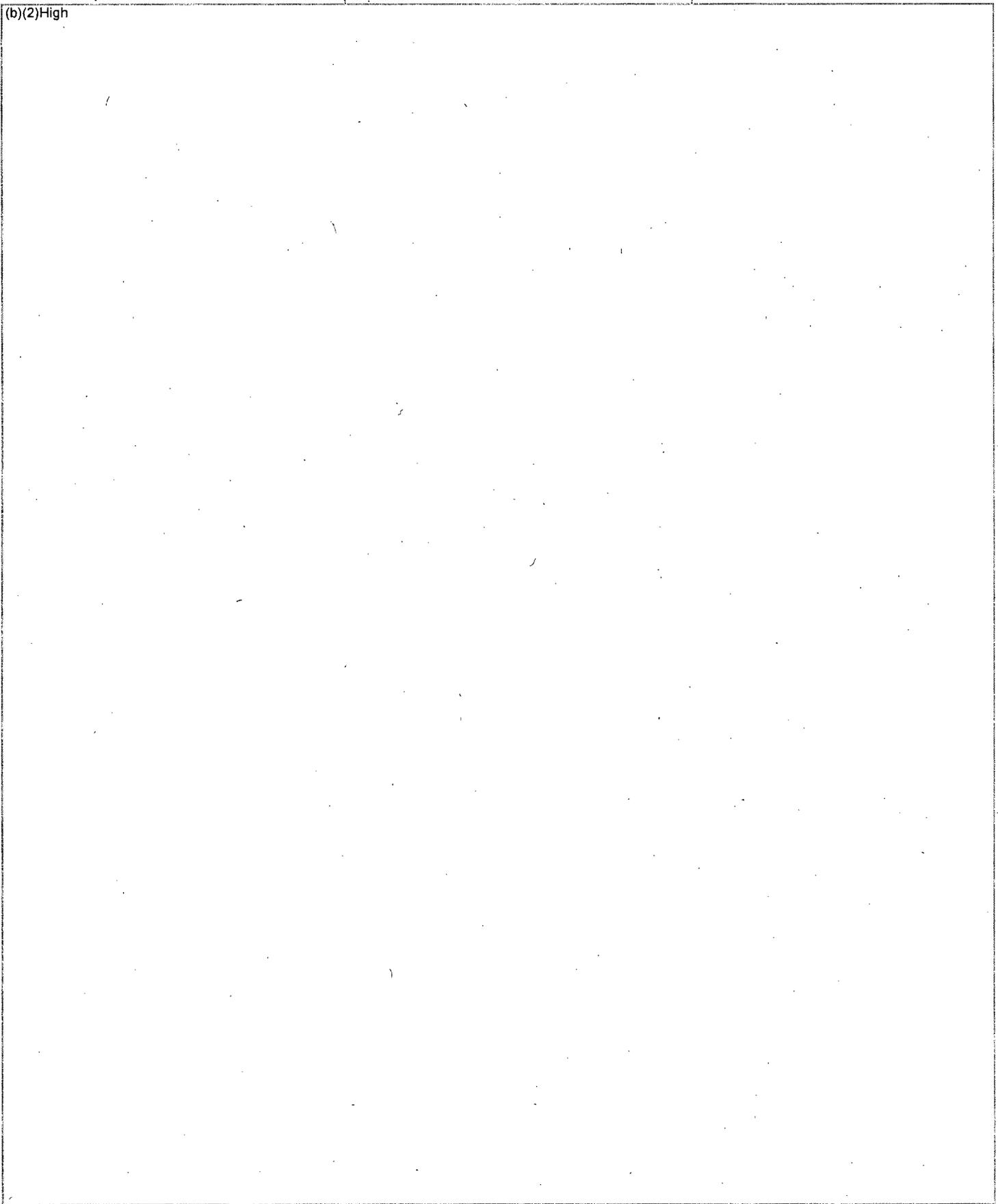
FIGURE 1. CC&P 8 BUILDING LAYOUT

OFFICIAL RECORD COPY - 10

GENERAL ELECTRIC	
PROJECT NAME	ISSUE FOR THIS DRAWING
PROJECT LOCATION	ROOM NO. & BUILDING NO.
DATE	DATE



(b)(2)High



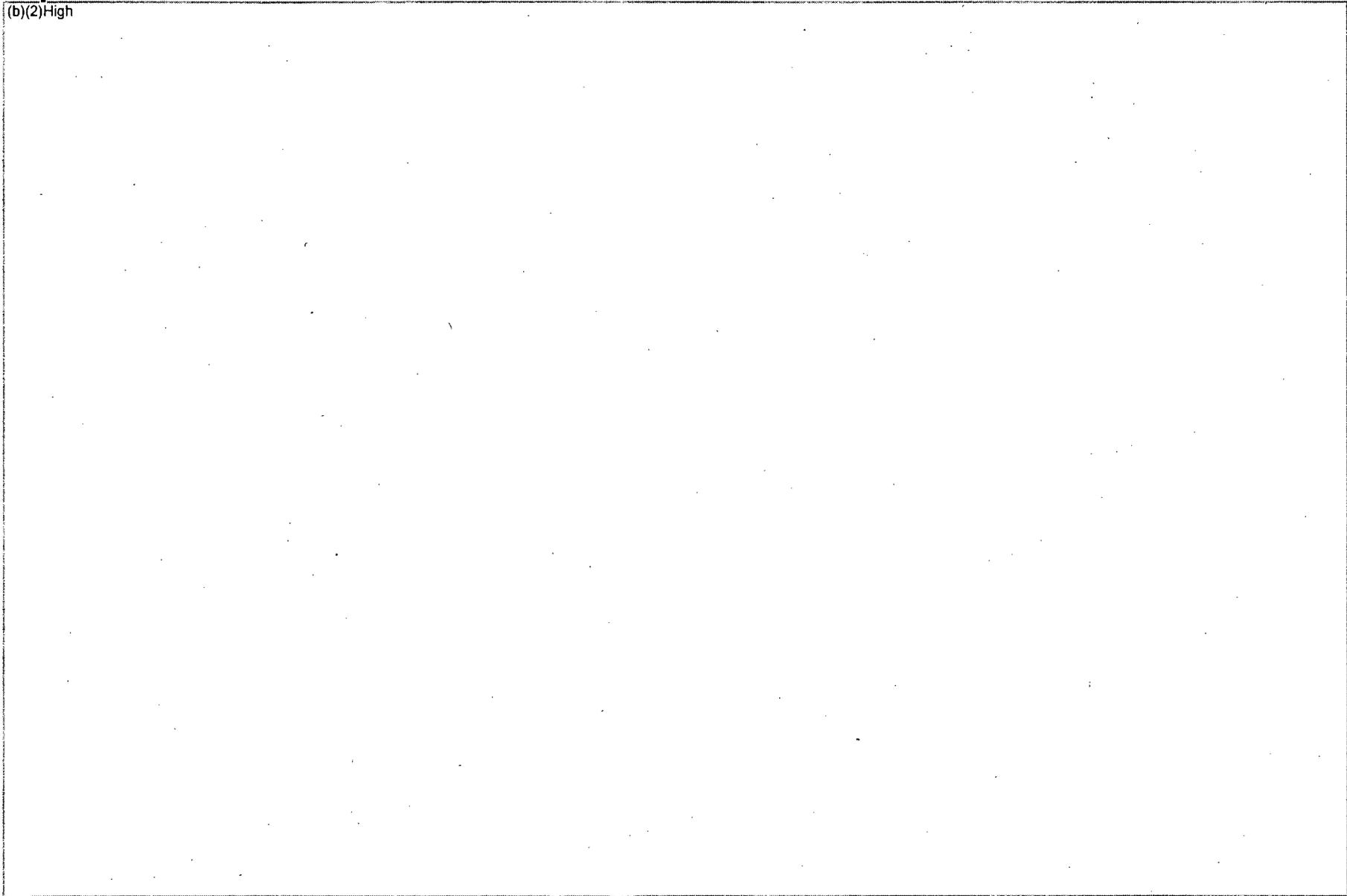
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Figure 3b  
Building 100 Complex

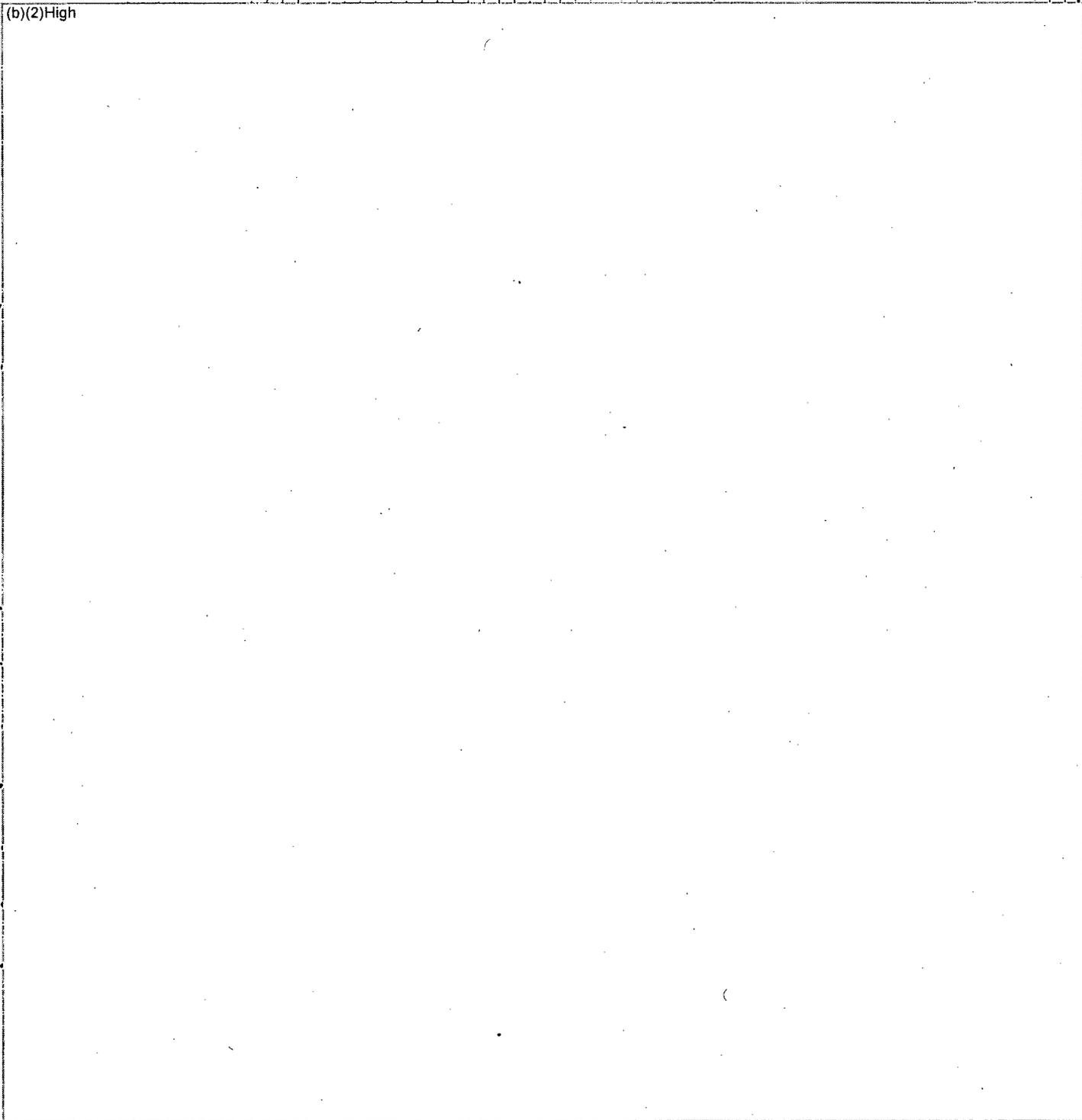
(b)(2)High



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5/25/51

(b)(2)High



BUILDING 100 ROOM M8820

L STRIP

Figure 4

Radiation Effects Laboratory  
Building 100 Complex

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ITEM III

Projected Annual Dose Levels

**Assumptions:**

(b)(2)High

1. Gammacell activity at start of year.
2. Exposure rate - 1.7 mrem/hour at one meter (chest height) directly in front of irradiator in expose condition.
3. In load position, the dose rate is 50% less. (as per manufacturer).
4. Gammacell is in expose mode for 80% shift year (2000 hrs) 20% full year Sunset
5. The shielding around the irradiator room will consist of high density concrete walls (8 ft. height) at thicknesses of:  
North wall - 12 inches  
South wall - 12 inches  
East wall - 24 inches  
West wall - 6 inches
6. Refer to Figure 4 for locations. Dose estimates are based on (b)(2)High serial #186) and (b)(2)High (serial #157) irradiator activities. These numbers also include dose contribution from Flash X-Ray machine.

<u>Location</u>	<u>Annual shift dose (mrem)</u>	<u>Annual full dose (mrem)</u>
1.	124	286
2.	71	169
3.	87	298
4.	42	45
5.	61	82
6.		64
7.		90
8.		69
9.		54
10.		91
11. @ 1 meter	3400	8900

(b)(2)High

10

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Figure 4

HEALTH, SAFETY & ENVIRONMENT  
Radiation Effects Laboratory  
Building 100 Complex

116309

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Exhibit P inserted  
See page 12

BETWEEN:

LICENSE FEE MANAGEMENT BRANCH, ARM  
AND  
REGIONAL LICENSING SECTIONS

(FOR LFMS USE)  
INFORMATION FROM LTS  
-----  
PROGRAM CODE: 03520  
STATUS CODE: 0  
FEE CATEGORY: 3E  
EXP. DATE: 19921130  
FEE COMMENTS: -----  
DECOM FIN ASSUR REQD: Y  
-----

LICENSE FEE TRANSMITTAL

1. REGION Z

1. APPLICATION ATTACHED  
APPLICANT/LICENSER: GENERAL ELECTRIC CO.  
RECEIVED DATE: 920304  
DOCKET NO.: 3012374  
CONTROL NO.: 116309  
LICENSE NO.: 37-02006-09  
ACTION TYPE: AMENDMENT

2. FEE ATTACHED  
AMOUNT: \$250.00  
CHECK NO.: R108760

3. COMMENTS

SIGNED M.A. Perkins  
DATE 3/11/92

LICENSE FEE MANAGEMENT BRANCH (CHECK WHEN MILESTONE 03 IS ENTERED /W/)

FEE CATEGORY AND AMOUNT: 3E \$250

CORRECT FEE PAID.  APPLICATION MAY BE PROCESSED FOR:  
AMENDMENT -----  
RENEWAL -----  
LICENSE -----

OTHER -----

SIGNED R. Brown  
DATE 3/17/92