

APPLICATION FOR MATERIAL LICENSE

030-02465

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.

APPLICATIONS FOR DISTRIBUTION OF EXEMPT PRODUCTS FILE APPLICATIONS WITH:

U.S. NUCLEAR REGULATORY COMMISSION
DIVISION OF INDUSTRIAL AND MEDICAL NUCLEAR SAFETY, NMSS
WASHINGTON, DC 20545

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:

U.S. NUCLEAR REGULATORY COMMISSION, REGION I
NUCLEAR MATERIALS SAFETY SECTION B
475 ALLENDALE ROAD
KING OF PRUSSIA, PA 19606

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
NUCLEAR MATERIALS SAFETY SECTION
101 MARIETTA STREET, SUITE 2900
ATLANTA, GA 30303

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
NUCLEAR MATERIALS SAFETY SECTION
1480 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 one) (NRC Form 313)

☐ A. NEW LICENSE

☐ B. AMENDMENT TO LICENSE NUMBER

☒ C. RENEWAL OF LICENSE NUMBER

29-03047-01

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

Beth Israel Hospital
70 Parker Avenue
Passaic, NJ 07055

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

Beth Israel Hospital
70 Parker Avenue
Passaic, NJ 07055

4. NAME OF PERSON TO BE CONTACTED ABOUT THIS APPLICATION

Dennis Owens, M.S.

TELEPHONE NUMBER

(201) 365-5088

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.

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

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

8. TRAINING FOR INDIVIDUALS WORKING IN OR FREQUENTING RESTRICTED AREAS

9. FACILITIES AND EQUIPMENT

10. RADIATION SAFETY PROGRAM

11. WASTE MANAGEMENT

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

FEE CATEGORY 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, 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

DATE

Jeffrey Moll

Executive Director

FOR NRC USE ONLY

TYPE OF FEE

FEE LOG

FEE CATEGORY

COMMENTS

REN

I
SAN 5

7C

AMOUNT RECEIVED

CHECK NUMBER

\$ 580

037884

APPROVED BY

9301070090 920520
PDR FOIA
STOL 92-58 PDR

DATE

1/11/90



BETH ISRAEL HOSPITAL

70 PARKER AVENUE / PASSAIC, NEW JERSEY 07055 / (201) 365-5000

Renewal Request of NRC license 29-03047-01

Item 5 - Radioactive Material and Item G - Purpose

Table I

<u>Radioactive Material</u>	<u>Amount</u>	<u>Purpose</u>
5.a Material in 35.100	as needed	6.a Medical Use
5.b Material in 35.200	as needed	6.b Medical Use
5.c Material in 35.300	as needed	6.c Medical Use
5.d Implant Material in 35.400	as needed	6.d Medical Use
5.e Eye application in 35.400	as needed	6.e Medical Use
5.f Material in 35.500	as needed	6.f Medical Use
5.g Palladium 103	as needed	6.g Medical Use

5.h Licensee request the use of Iodine-125 to be used with eye plaque for medical use in temporary eye implants

Therapy Physics Services, Inc.



Suite 182 1771 Post Rd. E.

Westport, CT 06880

Telephone

(914) 949-3504

May 10, 1990

Ms. Millie Walker
Employment Coordinator
Beth Israel Hospital
70 Parker Avenue
Passaic, NJ 07055.

Dear Ms. Walker,

Mr. Murthy who will be joining your hospital has been an employee of our company for past three years. Under my supervision and that of others Mr. Murthy has performed various tests and calibrations of diagnostic and therapeutic devices relating to radiation safety and hygiene at various hospitals that our company is associated with. He has also worked with various radioactive isotopes for intercalary and interstitial brachytherapy and was entrusted to keep the records of same.

I am Radiation Safety Officer at the Our Lady of Mercy Hospital in Bronx NY., for many years and I feel that Mr. Murthy possesses the knowledge and experience to satisfactorily manage the radiation safety program at your institution.

Sincerely Yours

Donald F. Simon, M.S.

Radiation Safety Officer Training Course
Outline

1. Math and Science Review

- Scientific Notation
- Positive and Negative Exponents
- Natural Logarithms
- Using the Scientific Calculator
- Exponents of the Base

2. Background Radiation

- Cosmic Radiation
- Radioactivity of Earth
- Radioactivity of Water
- Radioactivity in the Human Body
- Artificial (Man-made) Radioactivity

3. Atomic Structure

- Nucleus
 - Binding Energy
- Electrons
 - shells
- Elements
- Isotopes

4. Types of Radiation

- Units of Radiation Energy
- Alpha Particles
- Beta Minus
- Beta Plus (Positrons)
- Gamma and X-rays
- Neutrons
- Protons

5. Radioactivity and Decay

- Half Life and Decay Constant
- Types of Decay
 - beta minus
 - beta plus
 - alpha
 - electron capture
 - isomeric transition
 - internal conversion
- The Curie
- Specific Activity
- Chart of the Nuclides
- Natural Decay Chains

6. Ionization

- Charged Particles Interactions
- X- and Gamma Ray Interactions
- Neutron Interactions
- Bremsstrahlung

7. Units of Radiation and Radioactivity

- The Curie and Sub Units
- Radiation Exposure vs. Dose
 - Roentgens
 - Rads
- Dose Equivalent
 - Rem
- Dose and Dose Rate
- Source Activity vs. Gamma Dose Rate
- Radiation vs. Contamination
- SI Units

8. Detection and Measurement

- Thermoluminescent Dosimeters
- Film Badge
- Pocket Ion Chambers
- "Chirpers" and Alarming Dosimeters
- Gas-Filled Detectors
 - Six Region Curve
 - Proportional Counters
 - Ionization Chambers
 - G-M Detectors
- Solid State Detectors
 - Sodium Iodine
 - Cadmium Telluride
 - Zinc Sulfide
 - Germanium Lithium
 - Intrinsic Germanium
- Multi-Channel Analyzers
- Whole Body Counters

9. Biological Effects

- Radiosensitivity (Law of Bergonie and Tribondeau)
- Dose-Response (Linear vs. Threshold Hypothesis)
- Pre-Natal Exposure
- Acute Exposure Effects
- Chronic Exposure Effects
- Somatic vs. Genetic Effects
- Internally Deposited Radioactive Materials
- Bioassay
- Biological Effective Half Life

10. Air Sampling and Evaluation

Types of Contaminants

Particulates

Iodines

Tritium

Noble Gases

Accuracy of Air Samples

Sources of Airborne Concentrations

Sample Media

Air Sample Efficiency

Calculation of Airborne Concentrations

Calculation of MPC Fraction

Calculation of Stay Time

11. Basic Counting Statistics

The Mean and Standard Deviation

Confidence Level

Minimum Detectable Count Rate

Minimum Detectable Activity

Lower Limit of Detection

Problems

12. Shielding

Alpha

Beta

Density-Thickness

Range-Energy Curve

Gamma

Half Value Layer

Tenth Value Layer

Neutron

Elastic Scatter

Inelastic Scatter

13. NRC and Agreement State Regulators

License Application

License Amendments

Inspections

Liability

14. Regulations and Limits

10 CFR 19

10 CFR 20

Regulatory Guides

NUPEGs

Regulatory Workshop

15. Eye Protection From Beta Radiation

Cataract Induction

Structure of the Eye

16. External Exposure Control

- ALARA
- Time-Distance-Shielding
- Radiation Surveys
 - Appropriate Instruments
 - alpha
 - beta
 - gamma and x-rays
 - neutrons
 - mixed fields
 - Documentation
 - Evaluation
 - Corrective Action
- Posting and Control
 - Radiation Area
 - High Radiation Area
 - Locked High Radiation Area
 - Radiation Work Permit
 - Administration Exposure Limits

17. Contamination Control

- Fixed vs. Loose contamination
- Activated Materials
- Contamination Surveys
 - Appropriate Methods
- Survey Evaluation
 - Appropriate Instruments
- Posting and Control of Contaminated Areas
- Protective Clothing
- Airborne Contamination Potential

18. Internal Exposure Control

- Survey Methods
- Survey Evaluation
- MPC Fraction
- Stay Time
- Tracking MPC Hours
- Internal Exposure Control
 - Engineering Controls
 - Ventilation
 - Limitation of Stay Time
 - Respiratory Protection

19. Transportation of Radioactive Material (49 CFR)

- Packaging for Shipment (10 CFR 71)
 - Labeling
 - Surveys
 - Storage

20. The Radiation Safety Program

Worker Safety

Protection of the General Public

Visitors

Personnel Dosimetry

Procedures

Accountability and Responsibility

Records

Audits

Worker Training

Regulatory Guides

Reference Materials

Radiation Protection Management

Health Physics Society Journal and Newsletter

Health Physics Society Local Chapters

Personal Call List

Responsibilities of the Radiation Safety Officer