

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
511 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)

Dayco Technical Center
P. O. Box 3258 G.S.
Springfield, MO 65808

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

Dayco Technical Center
Battlefield Road & Scenic
Springfield, MO 65807

4. NAME OF PERSON TO BE CONTACTED ABOUT THIS APPLICATION

Dr. James J. Gibbons

TELEPHONE NUMBER

417/881-7440

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 3E AMOUNT ENCLOSED \$ 230.00

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

Jerry W. Rogers

Hose Technical Director

May 20, 1985

14. VOLUNTARY ECONOMIC DATA

a. ANNUAL RECEIPTS

\$250K
\$250K - 500K
\$500K - 750K
\$750K - 1M

\$1M - 3.5M
\$3.5M - 7M
\$7M - 10M
> \$10M

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

180

c. NUMBER OF BEDS

N/A

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 information furnished to the agency in confidence)

☒ YES

RECEIVED

MAY 24 1985

FOR NRC USE ONLY

TYPE OF FEE

FEE LOG

FEE CATEGORY

COMMENTS

8507230550 850628
REG3 LIC30
24-24515-01 PDR

REGION III

APPROVED BY

AMOUNT RECEIVED

CHECK NUMBER

CONTROL NO. 79026

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

RECEIVED

MAY 2 1982

REGION III

SUPPLEMENTAL INFORMATION
DAYCO Technical Center

5.
 - a) Iodine-125
 - b) Solid-Sealed Source LIXI scope Model LS-82-235 series with AECL C-324 or Amersham IMC P2.
 - c) 500 mCi per source, maximum possession will be two sources per LIXI scope.
6. The LIXI scope will be used for nondestructive x-ray inspection of manufactured products and raw materials. The LIXI scope will be used in the Technical Center, or may be taken to a temporary job site. It will be the responsibility of the RSO or the Assistant RSO to train the on-line users in the safe handling procedures of the LIXI scope, which will be used under the supervision of the RSO, the Assistant RSO, or the Inspection Supervisors.
7.

Dr. James J. Gibbons	RSO
Mark W. Krueger	Assistant RSO
Joseph P. Miranti, Jr.	Assistant RSO
L. Allen Baumgardner	Inspection Supervisor
Raymond L. Collison	Inspection Supervisor
Roger G. Hackard	Inspection Supervisor
Matthew L. Hull	Inspection Supervisor
Kurt M. Pfitzinger	Inspection Supervisor
Melvin Williams	Inspection Supervisor

All of the above individuals have completed the LIXI Radiation Safety Training Course. Their certificates are attached along with a resume of their educational and work experience.

8. Not applicable - there are no restricted areas with the use of the use of the LIXI scope.
9. Facility sketch and equipment description sheet are attached.
10. Radiation Protection Program is attached.
11. All spent or depleted sources will be returned to the manufacturer for disposal.

TRAINING CERTIFICATE
IN
RADIATION SAFETY AND EXPERIENCE

APPENDIX I

This is to certify that the following individuals have attended the "Lixi Radiation Safety Training Course" in accordance with the Lixi, Inc. and S.A. Huber Consultant's Inc. course descriptions on file with the Nuclear Regulatory Commission:

Names (Type or Print)	Signatures
<u>MARK WALTER KRUEGER</u>	<u>Mark Walter Krueger</u>
<u>KURT MATTHEW PFITZINGER</u>	<u>Kurt Matthew Pfitzinger</u>
<u>MATTHEW LELAND HULL</u>	<u>Matthew Leland Hull</u>
<u>Dr. James F. Gibbons</u>	<u>James F. Gibbons, PhD</u>
<u>Melvin Williams</u>	<u>Melvin Williams</u>
<u>RAYMIE COLLISON</u>	<u>Raymie Collison</u>

This training was completed on: March 14, 1985 (Date)

A brief resume is attached for each individual to be covered under items 6 and 7 on form NRC 3131. This also certifies that such individual(s) have personally operated a working LIXI scope, under supervision, in the aforementioned course.

A copy of this certificate is to be provided to the NRC or Agreement State as proof that the trainee has had the necessary experience to make a specific application for a Byproduct Material License to possess and use a LIXI scope.

The applicant(s) and the instructor executing this certificate on behalf of the person(s) listed above, certify that this document is prepared in conformity with Title 10, Code of Federal Regulations, and that all information contained herein, is true and correct to the best of our knowledge and belief.

The instructor named below certifies that he is licensed by the NRC or Agreement State to provide the training as approved by the NRC under S.A. Huber Consultants, Inc. License No. 12-17503-01.

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.

Certified by: LIXI, Inc.

Date: 3/14/85

Instructor Name: Joseph E. Plevak

Signature: Joseph E. Plevak

Under License No.: 12-18215-01

CONTROL NO. 79026

TRAINING CERTIFICATE
IN
RADIATION SAFETY AND EXPERIENCE

APPENDIX I

This is to certify that the following individuals have attended the "Lixi Radiation Safety Training Course" in accordance with the Lixi, Inc. and S.A. Huber Consultant's Inc. course descriptions on file with the Nuclear Regulatory Commission:

Names (Type or Print)

Signatures

Roger G. Hackard
L. Allen Baumgardner
Joseph P. Miranti, Jr.

Roger G. Hackard
L. Allen Baumgardner
Joseph P. Miranti, Jr.

This training was completed on: March 14, 1985 (Date)

A brief resume is attached for each individual to be covered under items 6 and 7 on form NRC 313I. This also certifies that such individual(s) have personally operated a working LIXI scope, under supervision, in the aforementioned course.

A copy of this certificate is to be provided to the NRC or Agreement State as proof that the trainee has had the necessary experience to make a specific application for a Byproduct Material License to possess and use a LIXI scope.

The applicant(s) and the instructor executing this certificate on behalf of the person(s) listed above, certify that this document is prepared in conformity with Title 10, Code of Federal Regulations, and that all information contained herein, is true and correct to the best of our knowledge and belief.

The instructor named below certifies that he is licensed by the NRC or Agreement State to provide the training as approved by the NRC under S.A. Huber Consultants, Inc. License No. 12-17503-01.

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.

Certified by: LIXI, Inc.

Date: 3/14/85

Instructor Name: Joseph F. Plevaty

Signature: Joseph F. Plevaty

Under License No.: 12-18215-01

CONTROL NO. 79026

BRIEF RESUME - DR. JAMES J. GIBBONS

EDUCATION: A.B. magna cum laude, Drury College, Springfield, MO, 1968.
Majors: Chemistry and Mathematics.

Ph.D., Louisiana State University, Baton Rouge, LA, 1974.
Majors: Analytical and Inorganic Chemistry; Minors: Computer Science
and Physics.

COURSES RELATED TO RADIATION: Instrumental Analysis (using x-ray methods),
Neutron Activation Analysis (using nuclear reactors), and undergraduate
chemical research (using radioisotope tracers).

PREVIOUS WORK EXPERIENCE: Research Chemist, Syntex Pharmaceuticals, Inc.,
1968-69; Environmental Science Officer, U.S. Army Medical Service Corps,
1969-71; Graduate Teaching Assistant, Department of Chemistry, Louisiana
State University, 1971-74; Lecturer in Chemistry, Drury College, 1974-75;
Assistant Professor of Chemistry, Drury College, 1975-80; Associate Prof-
essor of Chemistry, Drury College, Drury College, 1980-84; Visiting Assoc-
iate Professor of Chemistry, University of Oklahoma, spring, 1983; Acting
Chairman, Department of Chemistry, summers, 1976, 1982, 1983, fall, 1981;
Director, Drury Research Institute, Drury College, 1974-84; Coordinator of
Chemistry, Department of Chemistry, Mathematics and Physics, Drury College,
1978-79; Manager, Analytical Services Laboratory, DAYCO Technical Center,
1985-present.

HONORS AND AWARDS: Phi Eta Sigma (honorary, scholastic, freshmen)
Omicron Delta Kappa (honorary, leadership)
Phi Lambda Upsilon (honorary, chemistry)
Alpha Chi Sigma (professional, chemistry)
Phi Kappa Phi (honorary, scholastic)
Sigma Pi Sigma (honorary, physics)
Sigma Xi (honorary, scientific research)
Outstanding Young Educator (from Springfield, MO, Junior
Chamber of Commerce), 1980
Biography appears in Who's Who in the Midwest (beginning
with 17th edition), 1980-81
Biography appears in International Who's Who in Education
(Cambridge, England, 2nd edition), 1982
Biography appears in Leaders in American Men and Women of
Science (beginning with 13th edition), 1978

ORGANIZATIONS: American Association for the Advancement of Science
American Chemical Society
American Institute of Chemists (FELLOW)
American Society for Testing and Materials
Royal Society of Chemistry (London, England)
New York Academy of Science
Missouri Academy of Science

PRESENTATIONS AND PUBLICATIONS: Published or presented more than 150 papers
at national and international meetings and in scientific journals
of renown, including Anal. Chem., J. Phys. Chem., J. Soln. Chem.,
J. Amer. Chem. Soc., J. Chem. Soc. (London), etc.

REVIEWER OF JOURNAL ARTICLES: Reviewed numerous journal articles for various
scientific journals, such as J. Soln. Chem., Amer. Chem. Soc. Adv.
in Chem. Series, Anal. Chem. Acta, etc.

March 12, 1985

Subject: Personal Resume for Nuclear Regulatory Commission

Name: Mark Walter Krueger
Address: 2324 West Village Lane
Town: Springfield
State: Missouri
Zip: 65807

Schooling: Received BS degree in Group Science from Buena Vista college in Storm Lake, Iowa in 1964.

Courses:	14 Hours	Math 3.4	Basic Skills
		Math 5	Algebra & Trig
		Math 23	Anal Geom & Calc
	32 Hours	Chem 1	General Chemistry
		Chem 2	Inorganic & Qual. Anal
		Chem 21,22	Quantitative
		Chem 125,126	Organic
		Chem 140,141	Bio Chem
	8 Hours	Phy 1 & 2	Physics
	3 Hours	Biol 6	Botany
	7 Hours	Bio 3	Zoology
		Bio 5	Botany

Work Record:	1964 - 1965	Federal Food & Drug
	1965 - 1966	Gooches Milling
	1966 - 1971	Goodyear
	1971 - Present	Dayco

To date I have had no formal training or experience with any type of X-ray or radioactive equipment.

BRIEF RESUME

Joseph P. Miranti, Jr.
Route 2, Box 198C
Nixa, Missouri 65714

Date of Birth: 10 May 1950

Education:

High School: University H.S., Southern Illinois University
Carbondale, Illinois 62901
Graduated 1968

Undergraduate: Westminster College
Fulton, Missouri 65251
B.A., 1972 Major: Chemistry

Additional coursework at S.I.U. during 1967-68
Summer courses at University of Illinois (Urbana)
in 1971

Graduate: Chemistry Department
University of Kansas
Lawrence, Kansas
Fall semester, 1973

Other: Southwest Missouri State University
Springfield, Missouri
Several courses in Industrial Technology Management,
Business, and Chemistry between 1973 and 1984

Currently enrolled in Masters-level course in
Engineering Management through the University of
Missouri (Rolla)

Employment History:

Current: DAYCO Corporation
DAYCO Technical Center
P.O. Box 3258, G.S.
Springfield, MO 65808

Chief Engineer-CVT Development (Feb. 84 to present)
Development Engineer (Jan. 79 to Feb. 84)
Acting Chief Development Engineer (Apr./May 82 and
Feb. 83)
Research Chemist-Textiles (Feb. 73 to Dec. 78)

Miscellaneous: Amateur photographer and computer hobbyist
Some experience with individual x-ray unit

BRIEF RESUME

L. Allen Baumgardner
510 South Burton
Springfield, MO 65804
(417) 831-5614

Education: 4 Years of College (not scientifically related)

Experience: 20 Years as Technician in the Chemistry Laboratory at DAYCO
3 Years operating Picker Hotshot 110 KV portable x-ray unit

BRIEF RESUME

Raymond L. Collison
500 W. Walnut Lawn, Apt. 20
Springfield, MO 65807
(417) 887-4081

Education: 2 1/2 Years of College, at Missouri Southern State College
(Joplin) and Southwest Baptist University (Bolivar)

Experience: 2 Years as Technician in the Chemistry Laboratory at DAYCO

BRIEF RESUME

Roger G. Hackard
DAYCO Technical Center
P.O. Box 3258, G.S.
Springfield, MO 65808

Employment: Mechanical Engineer, DAYCO Corporation

Education: Bachelors Degree in Mechanical Engineering at the University
of Missouri in Rolla (1969).

Courses: Nuclear Chemistry (Burlington High School, Burlington, Iowa)
Nuclear Physics (University of Missouri, Rolla, Missouri)

Experience: Visited Nuclear Reactor Museum at Oak Ridge, Tennessee

BRIEF RESUME

MATTHEW LELAND HULL
500 W. Walnut Lawn, Apt. 5
Springfield, Missouri 65807
(417) 883-7904

Education: Bachelor of Science in Mechanical Engineering from the
University of Missouri (Columbia), May, 1984

Courses included:	Statics	Dynamics
	Chemistry for Engineers	Calculus 1, 2, 3
	Thermodynamics 1 & 2	Physics 1, 2, 3
	General Chemistry	Materials 1 & 2
	Instruments and Measurements	Heat Transfer
	Differential Equations	Circuits

Employment: Permanent employment began at DAYCO in June, 1984

Experience: Have had no direct experience with radioactive materials

BRIEF RESUME

Kurt M. Pfitzinger
1326 E. Meadowmere
Springfield, MO 65804
(417) 862-8587

Education: B.S., Mechanical Engineering, University of Missouri (Rolla),
May, 1984

Courses included: Statics	Calculus I, II, III
Dynamics	Physics
Chemistry	Science of Materials
Instruments and Measurements	Heat Transfer
Differential Equations	Circuits

Employment: Permanent employment at DuPont, May, 1984 to September, 1984
Permanent employment at DAYCO, September, 1984 to present

Experience: No experience with radioactive materials

BRIEF RESUME

Melvin Williams

Education: 2 Years College at Baptist Bible College (Springfield, MO)

Experience: 5 Years as Technician in the Chemistry Laboratory at DAYCO
1 Year operating Picker Hotshot 110 KV Portable x-ray unit

FACILITIES AND EQUIPMENT

Ref: NRC 313

Item 9

Storage Facilities:

The LIXI scopes(s) defined in this application will be kept locked in their individual carrying cases (marked with appropriate labeling) when not in use, and stored in the lab area as shown in the attached sketch. This is a locked and secured area at the licensee's address. When the LIXI scope is in transit to temporary job sites in another plant area of our company, the LIXI scope will be kept locked in its individual carrying case and under the supervision of the licensed users listed herein, until signed out and in by each licensed user, so the location of the device(s) is accounted for at all times.

Containers and Special Shielding:

The LIXI scope is a self-shielded device and there is no radiation above normal background (about 0.05 mR/hr when the LIXI scope is in its carrying case). The primary concerns are that the device must only be used by, or under the direct supervision of trained and licensed users, and that the LIXI scope be accounted for and secured at all times to prevent any unauthorized use, loss or theft of the device.

Remote Handling Equipment and Safety Procedures:

The LIXI scope Instruction Manual directions will be followed. Remote handling devices, such as tongs or forceps, will be used when indicated to avoid any licensed user from ever placing his hands in the LIXI scope radiation beam.

Survey measurements are taken by the manufacturer (Lixi, Inc.) prior to shipment. When shipped by the manufacturer, NO UNIT EXCEEDS 0.5 mR/hr at the surface, and therefore, no radiation detection instruments are necessary. Also, personnel monitoring devices (ring badges) are not necessary.

The LIXI scope is classified as Radioactive Material Instrument and from labeling and marking requirements. We will follow the manufacturer's instructions for return shipments of isotopes.

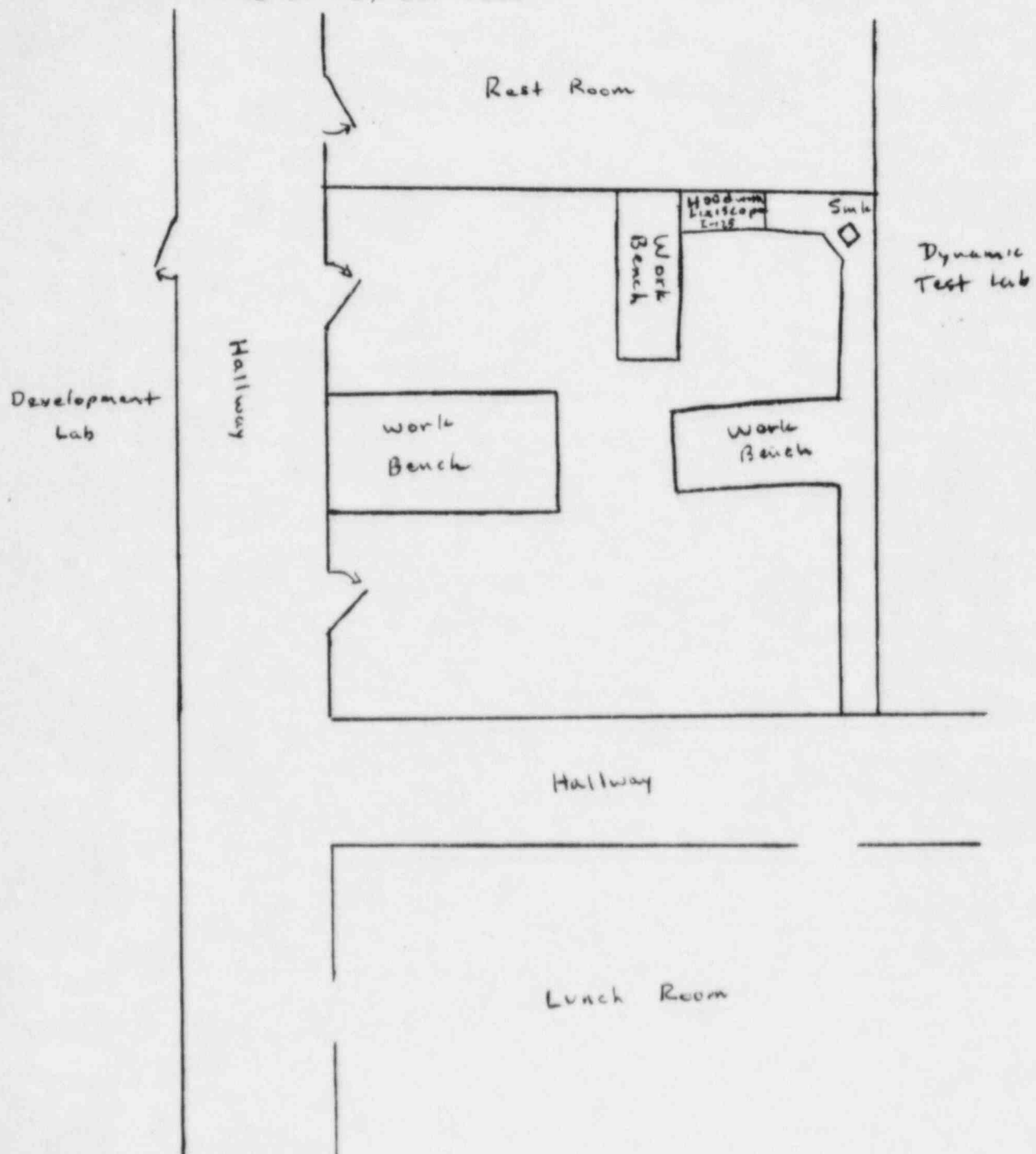
Ref: NRC 313

Item 9

Facility Sketch

Storage Area for Iodine-125 Lixiscope

As of May 20, 1985



RADIATION PROTECTION PROGRAM
(for Lixiscope Operations)

Ref: NRC 313 I

Item 10

1. Radiation Surveys

Since the source of radiation in the Lixiscope and the radioactive material (low energy I-125) are well known and controlled, it is considered unnecessary to make physical radiation surveys. The initial certification of radiation survey of the loaded source holder (Lixiscope head) is provided with each unit and should be kept on file. These certificates give the original radiation readings of each Lixiscope in the "on" and "off" positions and those radiation levels become less as the I-125 sealed source decays, until the source is again eventually replaced.

2. Records Management Program

In addition to reviewing and keeping the radiation survey records for each Lixiscope, the Radiation Safety Officer (RSO) (listed in the facility's Lixiscope NRC license application or amendments) is responsible for maintaining the following records:

- a) Quarterly physical inventory of the Lixiscope(s). This condition can be met by maintaining the attached "Lixiscope Accountability and Source Exchange Record", if each Lixiscope is used at least once every 3 months or more frequently.
- b) Receipt, use and disposal records. The just described "Lixiscope Accountability and Source Exchange Record" has written instructions to properly record the original Lixiscope receipt and return, as well as all subsequent source head receipt details and return dates.
- c) Personnel monitoring is not required since radiation survey documentation, plus training and security requirements, indicates that it is highly unlikely any individual will receive a dose equal or greater than the radiation levels at which such monitoring is required as indicated in Title 10 Code of Federal Regulations Part 20.
- d) Documentation of at least an annual radiation safety review of this written radiation protection program and the facility's Lixiscope license application and any amendments, shall be made by the RSO for all licensed users of the Lixiscope that are under his/her responsibility. Such a documented review shall also be performed with any new trained personnel.
- e) License applications, amendment application copies and corresponding license and amendment documents shall be maintained in an organized manner for review at any time.

Radiation Protection Program - Item 15 - (Cont'd)

- f) Semi-annual leak test records for each I-125 source head must be maintained.

3. Semi-annual Leak Tests

The semi-annual leak tests are to be performed by using the "Leak Test Kit for Sealed Sources" from S.A. Huber Consultants, Inc. - 235 Essex Lane, New Lenox, IL 60451 and following the instructions with that kit. S.A. Huber Consultants, Inc. NRC license number is 12-17503-01. Their Leak Test kits and procedures are on file with the NRC Product Certification Branch.

4. Instructions to Personnel

In addition to the radiation safety instructions already specified in this written program, all personnel using the Lixiscope must have either attended the Lixiscope Training Program or received similar documented training, as indicated in item 2d of this safety program. In this manner, all users will be well aware of the needs to:

- a) Never leave the Lixiscope unattended or in an area where there is access by unauthorized personnel.
- b) Be completely familiar with the Lixiscope operating manual and safety precautions, "on" and "off" indicators, etc.
- c) Account for the Lixiscope at all times and return it after use to its locked storage area, which is posted with a "Caution Radioactive Material" sign.
- d) Be familiar with good radiation safety practices, ALARA philosophy, and to notify the Radiation Safety Officer (RSO) immediately if any questions or problems arise. The RSO can then call Lixi, Inc.; a nuclear consultant or the NRC, if any further assistance is needed.
- e) Emergency procedures, in the event of any fire, damage, loss or theft of the Lixiscope, the RSO is to be immediately notified at the phone number(s) listed below.
- f) Incoming radioactive shipments (source head exchanges) are to be immediately delivered to the RSO for proper checking and records maintenance as defined earlier herein. If any package is apparently damaged, the RSO will immediately arrange to have a calibrated survey meter delivered to check the outside package radiation level prior to opening and, if proper, to check the inside and Lixiscope readings after consulting with Lixi, Inc. or a nuclear consultant.

Radiation Safety Officer: Dr. James J. Gibbons

Office Phone: (417) 881-7440 ext 421

Home Phone: (417) 881-4226