



# Lehigh Testing Laboratories, Inc.

a division of THE MMR GROUP

308 WEST BASIN ROAD • P.O. BOX 903 • NEW CASTLE, DELAWARE 19720 • (302) 328-0500

U.S. NUCLEAR REGULATORY COMMISSION  
Region I -- 631 Park Avenue  
King of Prussia, PA 19406

July 16, 1985

ATTN: Jenny M. Johansen, M.S.  
Nuclear Materials Section B

RECEIVED

SUBJ: Request for Amendment to Radiography License No. <sup>85</sup> AUG 2 074008 3-03

(A) We are requesting an amendment to our license to replace Mr. Herman L. Ostroff with Mr. Bruce E. Dewey as Lehigh's Radiation Safety Officer. We enclose Mr. Dewey's qualifications as Revision #3 of Appendix E, Page 1 of the Manual for your review and approval. We also have revised the emergency telephone number for the RSO in Appendix A, Revision #5.

(B) We have corrected the Manual's description of the way operational checks of the Gammalarm system should be recorded. The existing manual (section 1.7, page 2) requires Gammalarm checks be recorded on "Form 213". This was an error. It should have read "Form 203", which is the "Quarterly Inspection and Maintenance Report". The error has been corrected (see Section 1.7, Page 2, Revision #4 enclosed) and a line has been added to Form 203 to provide for the Gammalarm check (see the enclosed 4-12-85 revision of Form 203).

(C): Several forms have been revised to reflect Lehigh's address change earlier this year. We enclose copies of those revised forms:

FORM 201 - This is not an official revision, but Form 201 is now available to Radiographers as Form 201-L (for work at 308 Basin Road) and Form 201-F (for work done at field worksites or customer plants). Form 201-F is identical to the former Form 201. Form 201-L includes standard entries for all work done in the lab: the location is already entered; special requirements for work done in Maryland are marked N/A; and the reverse side of the sheet includes a sketch of Lehigh's permanent radiation room.

FORM 202 - Transport Record: Address changed; see 3-8-85 revision

FORM 204 - Quarterly Inventory: Address changed; see 3-8-85 revision

FORM 208 - Management Audit: Address changed; see 3-8-85 revision

Your prompt attention to this amendment request would be sincerely appreciated. Please contact the undersigned with your questions or comments.

Sincerely,

LEHIGH TESTING LABORATORIES, INC.

Leonard A. Weston  
Vice-President

Applicant	August 1 - 1
Check No.	121854
Amount/Fee	\$280.00
Type of Fee	refund \$50
Date Check Rec'd	8/2/85
Received By	Jacqueline
	06144

Enclosures

8511270354 850819  
REG1 LIC30  
07-01173-03 PDR

OFFICIAL RECORD COPY

ML10

JUL 22 1985

QUALIFICATIONS OF RESPONSIBLE PERSONNEL FOR RADIATION SAFETY MANAGEMENTBRUCE E. DEWEY - RADIATION SAFETY OFFICER

- 1970-71 Nondestructive Testing of Metals School, US Navy Service School Command Annex, San Diego, CA - Radiographer, Level I; 80 hours Radiation Safety, 160 hours Radiography
- 1971-73 USS Vulcan (AR-5) Norfolk, VA. - Radiographer Level II
- 1973-75 Fleet Maintenance Assist Group, Little Creek, VA - Radiographer Level II
- 1975-79 USS Puget Sound (AD-38), Norfolk, VA - Radiographer Level III and Assistant Radiation Safety Officer
- 1979-81 Trident Refit Facility, Bangor, WA - Radiographer Level III and Assistant Radiation Safety Officer
- 1981-83 Shore Intermediate Maintenance Activity, San Diego, CA - Radiographer Level III and Assistant Radiation Safety Officer
- 1983-85 USS Acadia (AD-42), San Diego, CA. - Radiographer Level III, Assistant Quality Assurance Officer, and Radiation Safety Officer. Attended RSO School - US Navy Service School Command Annex, San Diego, CA, June 1984. Qualified RSO
- 1985- Lehigh Testing Laboratories, Inc., Wilmington, DE; NDT Manager, Radiation Safety Officer (as of 7-01-85)

LEONARD A. WESTON - VICE PRESIDENT & GENERAL MANAGEREDUCATION:

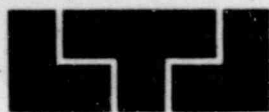
- 1967 - B.S. Marquette University: Mech. Eng'g.; Metallurgy and Mat'ls Science
- 1969 - M.S. Marquette University: Mech. Eng'g.; Metallurgy and Mat'ls Science
- 1974 - "Radiographic Testing" - General Dynamics (40 hrs)
- 1974 - "Industrial Radiography" - E. I. DuPont de Nemours & Co. (40 hrs)
- 1975 - "Occupational Safety and Health" - Del. Tech. & Comm. College
- 1978 - "Level III RT Refresher Course" - Spring Garden College

WORK EXPERIENCE:

- 1969-1970 Texas Instruments, Inc. Attleboro, Massachusetts; Materials Division, Thermostat and Specialty Metals Department; PRODUCT ENGINEER
- 1970 - 72 Massachusetts Materials Research, Inc., Worcester, MA; (Independent materials consulting and testing laboratory); PROJECT METALLURGIST
- 1972-Pres Lehigh Testing Laboratories, Inc., Wilmington, DE; TECHNICAL DIRECTOR (1972) responsible for overall technical management; GENERAL MANAGER (1974) comprehensive management responsibilities, including Quality Assurance and Radiation Safety. Promoted to VICE-PRESIDENT (1977). Assisted in establishing Operating and Emergency Procedures for Gamma Radiography (1978). Direct Supervisor of Radiation Safety Officer.

MISCELLANEOUS:

- 1967 - 69 Metallurgy Instructor, Marquette University
- 1976 Registered Professional Engineer (Delaware #5037)
- 1976 Certified by examination as Level III in RT, MT, and PT
- 1977 - 80 Lecturer on Welding Technology, Delcastle Vo-Tech School
- 1978 - 79 Metallurgy Instructor - Salem County (N.J.) School System



RADIATION SAFETY MANUAL

EMERGENCY TELEPHONE NUMBERS

A. RESPONSIBLE MANAGEMENT PERSONNEL AT LEHIGH

BRUCE E. DEWEY, RADIATION SAFETY OFFICER

(Bus): (302) 328-0500

(Res): (302) 737-2982

HUGH F. CANN, ASS'T RADIATION SAFETY OFFICER

(Bus): (302) 328-0500

(Res): (302) 998-6236

LEONARD A. WESTON, GENERAL MANAGER

(Bus): (302) 328-0500

(Res): (302) 738-6961

BRUCE KOVACS, RADIATION SAFETY CONSULTANT

(Res): (203) 721-1271

B. REGULATORY AGENCIES

U.S. NUCLEAR REGULATORY COMMISSION (isotope radiography performed in Delaware & in other non-agreement states)

Region I - Office of Inspection and Enforcement

631 Park Avenue

King of Prussia, PA 19406

(215) 337-5000 (24 hrs)

STATE OF DELAWARE (X-ray radiography operations)

Division of Public Health

Bureau of Radiological Control

Capitol Square

Dover, DE 19801

(302) 736-4731

STATE OF MARYLAND (all isotope radiography performed in Maryland)

Division of Radiation Control

Department of Health and Mental Hygiene

201 Preston Street

Baltimore, MD 21202

(301) 383-2744

(301) 243-8700 << Call this number in event of actual radiation emergencies



1.7.2 Radiation Cell for Performing Radiographic Operations (cont'd)

- (B) The exposure room, located along the west wall of the laboratory building, has external dimensions of 16' x 28', and this entire area is covered by the steel/lead ceiling. Beyond the north, east, and south walls of the exposure room is occupied laboratory space; beyond the west wall of the radiation room is a parking area. The exterior wall of the laboratory building, adjacent to the west wall of the exposure room, consists of standard 8" thick hollow cinder blocks. See sketch of Lehigh's radiation exposure room and surrounding areas on the last page of this section.
- (C) There is one entrance to the exposure room, approximately 8' wide, from the NDT Dep't. There is no direct path of radiation through the entrance-way to unrestricted areas due to the maze-type arrangement of the concrete shielding walls. The Radiographer manipulates the crank and maintains surveillance from point (A). A swinging gate is positioned at this entrance-way; the gate is closed and locked when radiography operations are not in progress in the room to prevent unauthorized access.
- (D) The exposure room is a High Radiation Area and is a Restricted Area during radiographic operations. All adjacent areas -- the parking lot and the adjacent laboratory areas -- are treated as Unrestricted Areas for the reasons discussed in section 1.8.0.
- (E) A radiation monitoring device (Tech/Ops "Gammalarm" Model 492D) is positioned within the exposure room, at point (B). When radiation is detected by this unit, a visible alarm (flashing red light) is activated on this unit. In addition, an "electric eye", activated by the Gammalarm, is positioned at point (C), across the entranceway to the exposure room. If, during radiography operations, the light beam is broken, such as by unauthorized or inadvertent entry into the High Radiation Area, an audible alarm will sound.
- (F) Operational checks of the Gammalarm, the electric eye, and the visible and audible alarms shall be made at intervals not to exceed three months, and records of these tests shall be kept for at least two years.

SEE SKETCH OF RADIATION CELL, STORAGE VAULT AND ADJACENT AREAS - NEXT PAGE

\*Gammalarm operational checks shall be performed and recorded as part of the Quarterly Inspection and Maintenance Report (Form 203)



QUARTERLY INSPECTION AND MAINTENANCE REPORT

NOTE: A separate report sheet is required for each Device/Crank/Source set-up.

Exposure Device: TECH/OPS MODEL 660 S/N \_\_\_\_\_ Crank S/N: \_\_\_\_\_

Source Type: IRIDIUM-192 Model: TECH/OPS A 424-9 S/N: \_\_\_\_\_ Activity: \_\_\_\_\_ Ci

INSPECTION CHECKLIST

COMPLETED

1. Clean the drive cables as specified in the procedure. \_\_\_\_\_
  2. Inspect connector on control cable with Tech/Ops 550 gage. \_\_\_\_\_
  3. Clean the drive cable housings as specified. \_\_\_\_\_
  4. Dissassemble and clean crank mechanism; examine for wear or damage. \_\_\_\_\_
  5. Lightly grease and reassemble the crank mechanism. \_\_\_\_\_
  6. Lightly grease and install the drive cable. \_\_\_\_\_
  7. Set the odometer to zero. \_\_\_\_\_
  8. Clean the exposure device as specified (do not disassemble). \_\_\_\_\_
  9. Examine exposure device for: proper operation of locking ring; labels \_\_\_\_\_
  10. Inspect the connector on the exposure device with the 550 gage. \_\_\_\_\_
  11. Lubricate the locking mechanism. \_\_\_\_\_
  12. Crank: examine operating characteristics for:
    - (a) free but firm turning of crank handle; \_\_\_\_\_
    - (b) proper number of turns; proper odometer operation; \_\_\_\_\_
    - (c) firm stopping of crank handle when source reaches stored position \_\_\_\_\_
  13. Clean the source guide tubes as specified. \_\_\_\_\_
  14. Operational checks: Gammalarm, electric eye, visible & audible alarms \_\_\_\_\_
  15. Repairs made, repairs recommended, or other comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
  16. Defective equipment removed from service: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
- Date of Maintenance: \_\_\_\_\_ Inspected By: \_\_\_\_\_

# SOURCE UTILIZATION REPORT

Date/Time: \_\_\_\_\_; Location Used: 308 W. BASIN ROAD NEW CASTLE, DE

Lehigh Job No: \_\_\_\_\_; Customer Name: \_\_\_\_\_

EQUIPMENT ID: Isotope Type: IRIDIUM 192; Source S/N: \_\_\_\_\_; Activity: \_\_\_\_\_ Curies;  
 Exposure Device - TECH/OPS Model \_\_\_\_\_; S/N: \_\_\_\_\_; Crank Model No: \_\_\_\_\_;  
 Crank S/N: \_\_\_\_\_; Survey Meter(A) - Model: \_\_\_\_\_; S/N: \_\_\_\_\_;  
 Survey Meter(B) - Model: \_\_\_\_\_; S/N: \_\_\_\_\_; Collimator ID: \_\_\_\_\_

DAILY EQUIPMENT INSPECTION CHECKLIST: Device: \_\_\_\_\_; Lock: \_\_\_\_\_; End Fittings: \_\_\_\_\_;  
 Safety Caps, Screws: \_\_\_\_\_; Control Cable: \_\_\_\_\_; Warning Labels: \_\_\_\_\_; Selector Ring: \_\_\_\_\_;  
 Control Crank: \_\_\_\_\_; Guide Tubes: \_\_\_\_\_; Survey Meter(A): \_\_\_\_\_; Cal.Due Date: \_\_\_\_\_;  
 Survey Meter(B): \_\_\_\_\_; Cal.Due Date: \_\_\_\_\_; Operational Check of System: \_\_\_\_\_

REQUIRED DOCUMENTATION CHECKLIST: Radiation Safety Manual: \_\_\_\_\_; LTL License & Amend.: \_\_\_\_\_;  
 Source Decay Curve: \_\_\_\_\_; Record of Personal Qualifications (Pocket Card): \_\_\_\_\_;  
 Special Requirements For All Work in Maryland: Quarterly Maint. Record for All Equipment  
 Being Used: N/A; Personal Dosimetry Record: N/A; Copy of MD Regulations: N/A \_\_\_\_\_;  
 Copy of Notification to Maryland Officials Regarding Lehigh's Work Schedule: N/A \_\_\_\_\_

USAGE & STORAGE OF SOURCE: Total Number of Exposures Made: \_\_\_\_\_; Total Time for all  
 Exposures: \_\_\_\_\_ min; Maximum Exposure Time in any One Hour: \_\_\_\_\_ min;  
 Date/Time Source Stored: \_\_\_\_\_; Storage Location: Vault - 308 W. Basin Rd

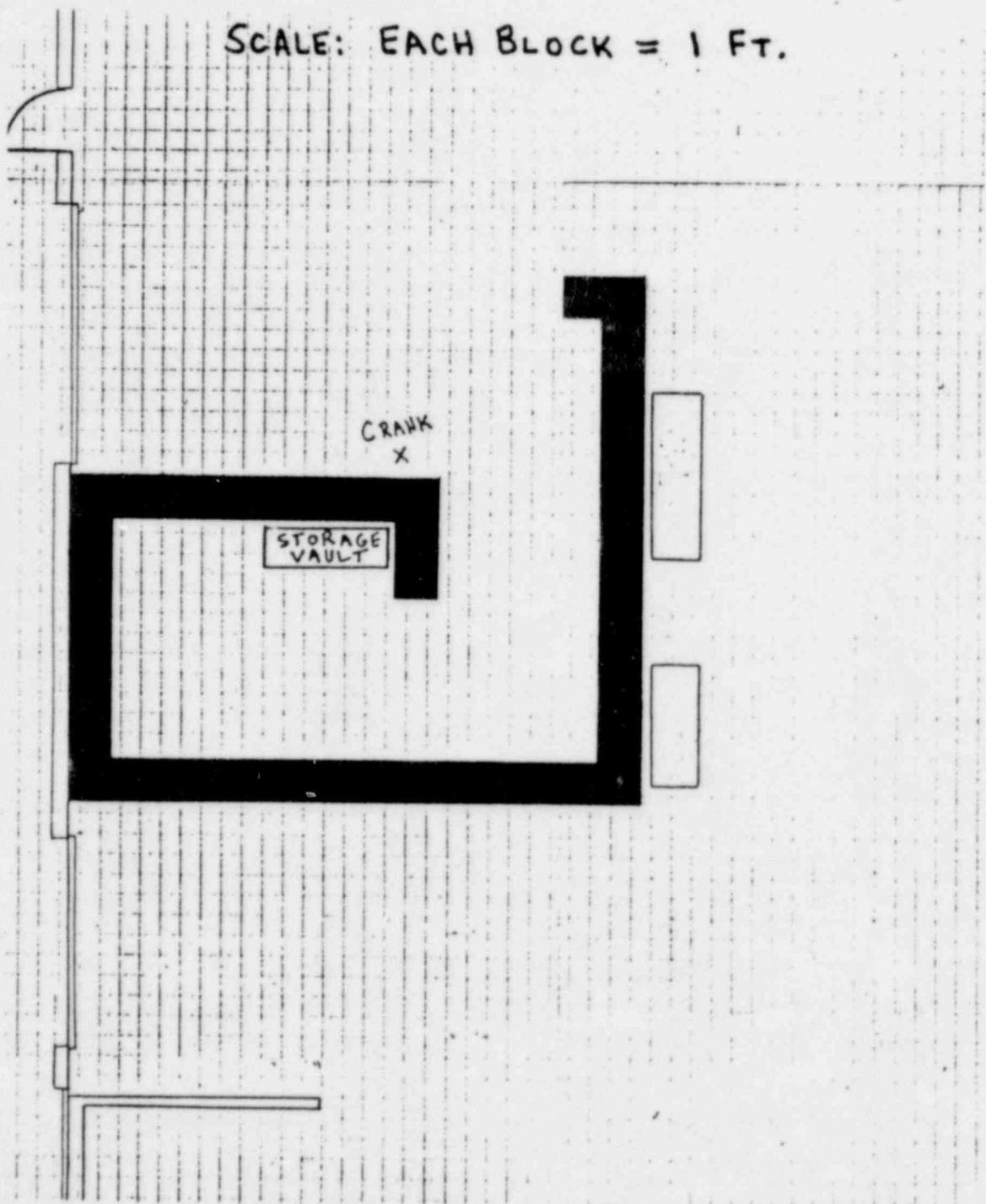
MANDATORY RADIATION SURVEYS: Initial Survey at Surface of Exposure Device: \_\_\_\_\_ mR/hr;  
 Vehicle Used (if any) N/A \_\_\_\_\_; Vehicle Surveys - At Surface: N/A mR/hr;  
 Inside Passenger Compartment: N/A mR/hr; Final Survey Readings - At Surface of  
 Device: \_\_\_\_\_ mR/hr; At Surface of Vault: \_\_\_\_\_ mR/hr; At Boundary of Unrestricted Area  
 Surrounding Temporary Field Storage Location, if not in Lab Storage Vault: N/A mR/hr

REMARKS (Describe any unusual occurrences, malfunctions, temporary storage locations, etc):  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

SKETCH OF RADIOGRAPHIC SETUP: The permanent radiation room is sketched on the reverse  
 side of this sheet. Show the position and orientation of source; show perimeter and  
 approximate dimensions of restricted area with actual survey values; and show position of  
 crank, walls, shields, barrier ropes, etc.

Signatures: \_\_\_\_\_  
 (Radiographer in charge) (Assistant Radiographer) (SUR approved by)

SCALE: EACH BLOCK = 1 FT.



# SOURCE UTILIZATION REPORT

Date/Time: \_\_\_\_\_; Location Used: \_\_\_\_\_;  
 Lehigh Job No: \_\_\_\_\_; Customer Name: \_\_\_\_\_

EQUIPMENT ID: Isotope Type: IRIDIUM 192; Source S/N: \_\_\_\_\_; Activity: \_\_\_\_\_ Curies;  
 Exposure Device - TECH/OPS Model \_\_\_\_\_; S/N: \_\_\_\_\_; Crank Model No: \_\_\_\_\_;  
 Crank S/N: \_\_\_\_\_; Survey Meter(A) - Model: \_\_\_\_\_; S/N: \_\_\_\_\_;  
 Survey Meter(B) - Model: \_\_\_\_\_; S/N: \_\_\_\_\_; Collimator ID: \_\_\_\_\_

DAILY EQUIPMENT INSPECTION CHECKLIST: Device: \_\_\_\_\_; Lock: \_\_\_\_\_; End Fittings: \_\_\_\_\_;  
 Safety Caps, Screws: \_\_\_\_\_; Control Cable: \_\_\_\_\_; Warning Labels: \_\_\_\_\_; Selector Ring: \_\_\_\_\_;  
 Control Crank: \_\_\_\_\_; Guide Tubes: \_\_\_\_\_; Survey Meter(A): \_\_\_\_\_; Cal.Due Date: \_\_\_\_\_;  
 Survey Meter(B): \_\_\_\_\_; Cal.Due Date: \_\_\_\_\_; Operational Check of System: \_\_\_\_\_

REQUIRED DOCUMENTATION CHECKLIST: Radiation Safety Manual: \_\_\_\_\_; LTL License & Amend.: \_\_\_\_\_;  
 Source Decay Curve: \_\_\_\_\_; Record of Personal Qualifications (Pocket Card): \_\_\_\_\_;  
 Special Requirements For All Work in Maryland: Quarterly Maint. Record for All Equipment  
 Being Used: \_\_\_\_\_; Personal Dosimetry Records: \_\_\_\_\_; Copy of MD Regulations: \_\_\_\_\_;  
 Copy of Notification to Maryland Officials Regarding Lehigh's Work Schedule: \_\_\_\_\_

USAGE & STORAGE OF SOURCE: Total Number of Exposures Made: \_\_\_\_\_; Total Time for all  
 Exposures: \_\_\_\_\_ min; Maximum Exposure Time in any One Hour: \_\_\_\_\_ min;  
 Date/Time Source Stored: \_\_\_\_\_; Storage Location: \_\_\_\_\_

MANDATORY RADIATION SURVEYS: Initial Survey at Surface of Exposure Device: \_\_\_\_\_ mR/hr;  
 Vehicle Used (if any): \_\_\_\_\_; Vehicle Surveys - At Surface: \_\_\_\_\_ mR/hr;  
 Inside Passenger Compartment: \_\_\_\_\_ mR/hr; Final Survey Readings - At Surface of  
 Device: \_\_\_\_\_ mR/hr; At Surface of Vault: \_\_\_\_\_ mR/hr; At Boundary of Unrestricted Area  
 Surrounding Temporary Field Storage Location, if not in Lab Storage Vault: \_\_\_\_\_ mR/hr

REMARKS (Describe any unusual occurrences, malfunctions, temporary storage locations, etc):  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

SKETCH OF RADIOGRAPHIC SETUP: Show sketch on reverse side of this sheet. Note that a  
 separate room is required for each different radiographic set-up. Show the position and  
 orientation of source; show perimeter and approximate dimensions of restricted area with  
 actual survey values; and show position of crank, walls, shields, barrier ropes, etc.

Signatures: \_\_\_\_\_  
 (Radiographer in charge) (Assistant Radiographer) (SUR approved by)



TRANSPORT RECORD FOR RADIOACTIVE MATERIAL

Proper Shipping Name: RADIOACTIVE MATERIAL, SPECIAL FORM, N.O.S. - UN 2974

Type of Source: IRIDIUM-192

Activity of Source: \_\_\_\_\_ Curies

Label Type: RADIOACTIVE \_\_\_\_\_

Transport Index: \_\_\_\_\_

Source Serial No: \_\_\_\_\_

Container Model No: \_\_\_\_\_

Container Serial No: \_\_\_\_\_

Container Specification No: NRC ID# USA/ \_\_\_\_\_ /B TYPE B

Date of Shipment: \_\_\_\_\_

Shipper: LEHIGH TESTING LABORATORIES, INC.  
308 WEST BASIN ROAD, PO BOX 903  
NEW CASTLE, DE 19720

Destination: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

ALL SHIPPING PROCEDURE REQUIREMENTS HAVE BEEN SATISFIED.

Shipper's Certification: THIS IS TO CERTIFY THAT THE ABOVE NAMED MATERIALS ARE  
PROPERLY CLASSIFIED, DESCRIBED, PACKAGED, MARKED, AND  
LABELED, AND ARE IN PROPER CONDITION FOR TRANSPORTA-  
TION, ACCORDING TO THE APPLICABLE REGULATIONS OF THE  
U.S. DEPARTMENT OF TRANSPORTATION.

Signed for Shipper: \_\_\_\_\_ Date \_\_\_\_\_

## QUARTERLY INVENTORY OF RADIOACTIVE MATERIALS

DATE INVENTORY PERFORMED: \_\_\_\_\_

ISOTOPE	TYPE	SERIAL NO.	DATE REC'D	REC'D FROM	DEVICE MODEL	DEVICE S/N	ACTIVITY

ALL RADIOACTIVE MATERIALS ARE STORED IN THE SHIELDED STORAGE VAULT LOCATED AT 308 WEST BASIN ROAD, NEW CASTLE, DELAWARE UNLESS OTHERWISE NOTED BELOW.

REMARKS:

PREPARED BY: \_\_\_\_\_  
                    (signature)                      (title)                      (date)

NEXT INVENTORY DUE: \_\_\_\_\_

MANAGEMENT AUDIT OF RADIOGRAPHY PERSONNEL & OPERATIONS

NOTE: ATTACH COPY OF APPLICABLE SOURCE UTILIZATION REPORT (Form 201) TO THIS AUDIT

Date & time \_\_\_\_\_ Location: \_\_\_\_\_

RT personnel audited: \_\_\_\_\_

Operations observed during audit: \_\_\_\_\_

AUDIT CHECKLIST

	SAT	UNSAT	N/A
a. Pocket dosimeter - init. reading logged, checked periodically	___	___	___
b. Proper film badge or TLD badge; worn properly	___	___	___
c. Survey meter - valid calibration, operating properly	___	___	___
d. Daily inspection of equipment performed and recorded properly	___	___	___
e. All required equipment and documentation on hand	___	___	___
f. Survey of transporting vehicle performed and documented	___	___	___
g. Transportation conducted properly; Form 202 completed	___	___	___
h. Restricted area properly established, posted and monitored	___	___	___
i. High radiation area properly posted	___	___	___
j. Device surveyed after each exposure & before storage	___	___	___
k. Exposure device handling techniques - radiation doses ALARA	___	___	___
l. For 308 West Basin Road: all special restrictions in effect	___	___	___
m. Proper source security and storage	___	___	___
n. Source Utilization Report, incl. sketch, complete & accurate	___	___	___
o. Other _____	___	___	___

Description of unsatisfactory findings: \_\_\_\_\_

Corrective actions: \_\_\_\_\_

Audit performed by: \_\_\_\_\_  
(signature) (title) (date)

BETWEEN: William O. Miller, Chief  
License Fee Management Branch  
Office of Administration

John E. Glenn, Chief  
Nuclear Materials Section 9  
Division of Engineering and  
Technical Programs

LICENSE FEE TRANSMITTAL

A. REGION I

1. APPLICATION ATTACHED

Applicant/Licensee: Lehigh Testing

Application Dated: 7-16-85

04144

Control No.:                     

License No.: 07-01173-03

2. FEE ATTACHED

Amount: \$280

Check No.: 0121854

3. COMMENTS

Signed SLJ

Date 7-26-85

03320

B. LICENSE FEE MANAGEMENT BRANCH

1. Fee Category and Amount: 30 - 4230/ (450 refunded) 9/89

2. Correct Fee Paid. Application may be processed for:

Amendment ✓

Renewal                     

License                     

Signed B Jackson

Date 8/5/85