

MATERIALS LICENSE

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.

OFFICIAL RECORD COPY

Licensee		
1. The Driggs Corporation		3. License Number 19-30341-01
2. 8700 Ashwood Drive Capitol Heights, Maryland 20743		4. Expiration Date September 30, 2001
		5. Docket or Reference No. 030-34241
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. Cesium 137	A. Sealed sources	A. 100 millicuries
B. Americium 241	B. Sealed neutron sources	B. 500 millicuries

9. Authorized use

- A. and B. For possession and use in Troxler Electronic Laboratories, Inc., Campbell Pacific Nuclear Corp., Humboldt Scientific, Inc., Seaman Nuclear Corporation, or Soiltest, Incorporated devices which have been evaluated and approved for licensing purposes under a license issued by the U.S. Nuclear Regulatory Commission or any Agreement State.

CONDITIONS

10. A. Licensed material may be used only at temporary job sites of the licensee anywhere in the United States where the U.S. Nuclear Regulatory Commission maintains jurisdiction for regulating the use of licensed material.
- B. The licensee may not possess and use materials authorized in Items 6, 7, and 8, until: (1) the licensee has constructed the facilities and obtained the equipment described in the application and supporting documentation; and (2) the U.S. Nuclear Regulatory Commission, Region I, APTN: Chief, Nuclear Materials Safety Branch, 475 Allendale Road, King of Prussia, Pennsylvania 19406 has been notified in writing that activities authorized by the license will be initiated.
- In accordance with the requirements set forth in 10 CFR 30.36(b), 40.42(b), and 70.38(b), the licensee shall promptly notify the Nuclear Regulatory Commission, in writing, of a decision not to complete the facility, acquire equipment, or possess and use authorized material.
11. A. Licensed material shall only be used by, or under the supervision and in the physical presence of, individuals who have received the training described in application dated September 12, 1996 and have been designated in writing by the Radiation Safety Officer.
- B. The Radiation Safety Officer for this license is Charles H. Robinson, III.

**MATERIALS LICENSE
SUPPLEMENTARY SHEET**

License Number

19-30341-01

Docket or Reference Number

030-34241

12. A. Sealed sources and detector cells containing licensed material shall be tested for leakage and/or contamination at intervals not to exceed six months or at such other intervals as are specified by the certificate of registration referred to in 10 CFR 32.210, not to exceed three years.
- B. Notwithstanding Paragraph A of this Condition, sealed sources designed to emit alpha particles shall be tested for leakage and/or contamination at intervals not to exceed three months.
- C. In the absence of a certificate from a transferor indicating that a leak test has been made within six months prior to the transfer, a sealed source or detector cell received from another person shall not be put into use until tested.
- D. Each sealed source fabricated by the licensee shall be inspected and tested for construction defects, leakage, and contamination prior to any use or transfer as a sealed source.
- E. Sealed sources and detector cells need not be leak tested if:
- (i) they contain only hydrogen-3; or
 - (ii) they contain only a radioactive gas; or
 - (iii) the half-life of the isotope is 30 days or less; or
 - (iv) they contain not more than 100 microcuries of beta and/or gamma emitting material or not more than 10 microcuries of alpha emitting material; or
 - (v) they are not designed to emit alpha particles, are in storage, and are not being used. However, when they are removed from storage for use or transfer to another person, and have not been tested within the required leak test interval, they shall be tested before use or transfer. No sealed source or detector cell shall be stored for a period of more than 10 years without being tested for leakage and/or contamination.
- F. 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, a report shall be filed with the U.S. Nuclear Regulatory Commission and the source or detector cell shall be removed immediately from service and decontaminated, repaired, or disposed of in accordance with Commission regulations. The report shall be filed within five 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 or detector cell involved, the test results, and corrective action taken.
- G. The licensee is authorized to collect leak test samples for analysis by Troxler Electronic Laboratories, Inc. or RSO, Inc.. Alternatively, tests for leakage and/or contamination may be performed by persons specifically licensed by the Commission or an Agreement State to perform such services.

**MATERIALS LICENSE
SUPPLEMENTARY SHEET**

License Number

19-30341-01

Docket or Reference Number

030-34241

13. Sealed sources or detector cells containing licensed material shall not be opened or sources removed from source holders by the licensee.
14. The licensee shall conduct a physical inventory every six months to account for all sealed sources and devices containing licensed material received and possessed under the license.
15. The licensee shall not acquire licensed material in a sealed source or device unless the source or device has been registered with the U.S. Nuclear Regulatory Commission pursuant to 10 CFR 32.210 or equivalent regulations of an Agreement State.
16. Each portable nuclear gauge shall have a lock or outer locked container designed to prevent unauthorized or accidental removal of the sealed source from its shielded position. The gauge or its container must be locked when in transport, storage or when not under the direct surveillance of an authorized user.
17. Any cleaning, maintenance, or repair of the gauge(s) that requires removal of the source rod shall be performed only by the manufacturer or by other persons specifically licensed by the Commission or an Agreement State to perform such services.
18. The licensee is authorized to transport licensed material in accordance with the provisions of 10 CFR Part 71, "Packaging and Transportation of Radioactive Material."
19. 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 September 12, 1996
 - B. Letter dated September 24, 1996

For the U.S. Nuclear Regulatory Commission

Original Signed By:

Kathleen Dolce

By

Division of Nuclear Materials Safety
Region I
King of Prussia, Pennsylvania 19406

Date

SEP 24 1996

SEP 24 1996

License No. 19-30341-01
Docket No. 030-34241
Control No. 123692

Mr. Jeff Driggs
Executive Vice President
The Driggs Corporation
8700 Ashwood Drive
Capitol Heights, Maryland 20743

Dear Mr. Driggs:

Please review the enclosed document carefully and be sure that you understand all conditions. If there are any errors or questions, please notify the U.S. Nuclear Regulatory Commission, Region I Office, Licensing Assistance Team, (610) 337-5093 or 5239, so that we can provide appropriate corrections and answers.

Please be advised that your license expires at the end of the day, in the month, and year stated in the license. Until your license is terminated, you must conduct your program involving byproduct materials in accordance with the conditions of your NRC license, representations made in your license application, and NRC regulations. In particular, note that you must:

1. Operate in accordance with NRC regulations 10 CFR Part 19, "Notices, Instructions and Reports to Workers; Inspections," 10 CFR Part 20, "Standards for Protection Against Radiation," and other applicable regulations.
2. Not possess and use materials authorized in Items 6, 7, and 8, on the license until:
 - a. you have constructed the facilities and obtained the equipment described in the license application and supporting documentation; and
 - b. you have notified the U.S. Nuclear Regulatory Commission, Region I, ATTN: Chief, Nuclear Materials Safety Branch, 475 Allendale Road, King of Prussia, Pennsylvania 19406 in writing, that activities authorized by the license will be initiated.
3. Notify NRC, in writing, within 30 days:
 - a. when an authorized user or Radiation Safety Officer, permanently discontinues performance of duties under the license or has a name change; or

- b. when the mailing address on the license changes (no fee is required if the location of byproduct material remains the same).
4. In accordance with 10 CFR 30.36(b) and/or license condition, notify NRC, promptly, in writing, and request termination of the license:
 - a. when you decide to terminate all activities involving materials authorized under the license; or
 - b. if you decide not to complete the facility, acquire equipment, or possess and use authorized material.
5. Request and obtain a license amendment before you:
 - a. permit anyone to work as an authorized user under the license;
 - b. change Radiation Safety Officer;
 - c. order byproduct material in excess of the amount, or radionuclide, or form different than authorized on the license;
 - d. add or change the areas of use, or address or addresses of use identified in the license application or on the license; or
 - e. change ownership of your organization.
6. Submit a complete renewal application with proper fee or termination request at least 30 days before the expiration date of your license. You will receive a reminder notice approximately 90 days before the expiration date. Possession of byproduct material after your license expires is a violation of NRC regulations. A license will not normally be renewed, except on a case-by-case basis, in instances where licensed material has never been possessed or used.

In addition, please note that NRC Form 313 requires the applicant, by his/her signature, to verify that the applicant understands that all statements contained in the application are true and correct to the best of the applicant's knowledge. The signatory for the application should be the licensee or a certifying official of the licensee rather than the Radiation Safety Officer or a consultant.

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

J. Driggs
The Driggs Corporation

-3-

Since serious consequences to employees and the public can result from failure to comply with NRC requirements, prompt and vigorous enforcement action will be taken when dealing with licensees who do not achieve the necessary meticulous attention to detail and the high standard of compliance which NRC expects of its licensees.

Thank you for your cooperation.

Sincerely,

Original Signed By:

Kathleen Dolce
Division of Nuclear Materials Safety

License No. 19-30341-01
Docket No. 030-34241
Control No. 123692

Enclosures:

1. License No. 19-30341-01
2. 10 CFR Parts 2, 19, 20, 21, 30, 71, and 170
3. NRC Forms 3 and 313

DOCUMENT NAME: R:\WPS\MLTR\L1930341.01

To receive a copy of this document, indicate in the box: "C" = Copy w/o attach/encl "E" = Copy w/ attach/encl "N" = No copy

OFFICE	DNMS/RI	N	DNMS/RI				
NAME	Dolce\kd1						
DATE	09/24/96	09/	/96	09/	/96	09/	/96

OFFICIAL RECORD COPY

MS-16
P3

FACSIMILE TRANSMITTAL

COVER SHEET

DATE

SEPT. 24, 1996

TRANSMITTED TO

PERSON:

KATHY DOLCE

COMPANY:

NRC

FAX NUMBER:

(610) 337-5269

FROM

PERSON:

CHUCK ROBINSON

FAX NUMBER:

(301) 317-0303

Number of pages being transmitted (including cover sheet): 3

Please call CHUCK at (301) ~~317-0300~~ ³¹⁷⁻⁰³⁰⁰, ext.
if you have any questions/concerns regarding this transmission.

Thank you.

MESSAGE

KATHY,

I AM ONLY FAXING THE COVER LETTER. THIS ADDRESSES
ALL OF THE ITEMS WE SPOKE ABOUT. A HARD COPY
OF THE LETTER AND REVISIONS WILL BE MAILED.

C

123692

The Driggs Corporation
8700 Ashwood Drive
Capitol Heights, Maryland 20743

OFFICIAL RECORD COPY ML 10



September 24, 1996

Ms. Kathy Dolce
Licensing Assistant Section
Nuclear Materials Safety Branch
U.S. Nuclear Regulatory Commission, Region I
475 Allendale Road
King of Prussia, Pa. 19406-1415

Re: License Application, Control # 123692

Dear Ms. Dolce,

As we discussed on Friday, here are the revisions to our license application. Attached are the corrected responses and another copy of our Safety and Operating Procedures Manual. Below is a brief summary of these revisions:

1. Response to Item 8, page 7.
All nuclear gauge operators shall be issued a copy of Driggs Radiation Safety and Operating Procedures Manual prior to being authorized as an operator.
2. Response to Item 9, page 8.
Each job-site shall be provided with a copy of Driggs Radiation Safety and Operating Procedures Manual.

Each nuclear gauge user shall always maintain constant surveillance and immediate control the nuclear gauge whe not in its permanent storage location.

3. Response to Item 10, page 9
Audits will be conducted following the sample guidelines set forth in NRC Draft Regulatory Guide DG-0008, Appendix I.

All records concerning portable nuclear gauges, audits and exposure are kept on file at;

The management at The Driggs Corporation shall review each audit report and commits to take prompt action to correct any deficiencies or oversights.

4. Attachment A, section 4, page 9
 - a. A Troxalert survey meter will be available at the laboratory for making radiation surveys of each nuclear unit.
 - b. Survey meters will be calibrated by the manufacturer at a maximum of twelve month intervals.
5. Attachment A, section 2, page 7
 - Conduct bi-annual inventories and maintenance program.

Very Truly Yours,

THE DRIGGS CORPORATION



Charles H. Robinson III, C.E.T., R.S.O.
Quality Control Manager
8615 Dorsey Run Road
Jessup, Md. 20794

Telephone Deficiency

Docket No. 030-34241
Control No. 123692

2:00PM
9/20/96

Mr. Jeff Driggs
Executive Vice President
The Driggs Corporation
8700 Ashwood Drive
Capitol Heights, Maryland 20743

Dear Mr. Driggs:

This is in reference to your application dated September 12, 1996 requesting a NRC license. In order to continue our review, we need the following additional information:

1. Submit the type of radiation detection instrumentation you possess and specify that the instrument(s) will be returned to the manufacturer for calibration.
2. State that you will conduct inventories, at intervals not to exceed 6 months, to account for all sealed sources and devices received and possessed under the license. State that you will maintain records of the inventories. Your inventory records should include: the radionuclide and amount (in units of becquerels or curies) of byproduct material in each sealed source; the manufacturer's name, model number, and serial number (if appropriate) of each device containing byproduct material; the location of each sealed source and device; and the date of the inventory.
3. Commit to (1) providing a copy of your operating and emergency procedures to all users of gauging devices before they begin using the gauges and (2) having a copy of your operating and emergency procedures at each jobsite.
4. Please confirm that your gauge users will always maintain constant surveillance and immediate control of the gauge when it is not in storage.
5. Submit (1) a description of the scope and extent of the audits, (2) a commitment to maintain records of the audits for at least 3 years after the record is made, (3) management's commitment to review the documented results of the audit promptly after the audit's completion, and (4) a commitment to take prompt action to correct deficiencies identified during audits, to inform all personnel (including those at other locations and those working under other licenses) of the deficiencies and the actions management expects its personnel to take to avoid similar deficiencies.

OFFICIAL RECORD COPY

ML 10



DRIGGS

September 6, 1996

Licensing Assistant Section
Nuclear Materials Safety Branch
U.S. Nuclear Regulatory Commission, Region I
475 Allendale Road
King of Prussia, Pennsylvania 19406-1415

Re: License Application

Dear Sir:

Please find our application for a material license to use portable nuclear gauges on federal property and non-agreement states. We would like to start work on or before January 1, 1997.

Enclosed is the completed NRC Form 313, Attachment "A", Driggs Corporation Radiation Safety and Operating Procedures, and Attachment "B", Maryland State Radioactive Material License.

I hope this is sufficient to issue a license. The information presented here is true and correct to the best of my knowledge. If there should be any questions regarding our application or its contents, please do not hesitate to call me at (301)317-0300.

Very truly yours,

THE DRIGGS CORPORATION

Charles H. Robinson II, C.E.T., R.S.O.
Quality Control Manager

CHR/kb

LL 30341
030-34241
03121

APPLICATION FOR MATERIAL LICENSE

Estimated burden per response to comply with this information collection request: 7 hours. Submittal of the application is necessary to determine that the applicant is qualified and that adequate procedures exist to protect the public health and safety. Forward comments regarding burden estimate to the Information and Records Management Branch (T-6 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and to the Paperwork Reduction Project (3150-0120), Office of Management and Budget, Washington, DC 20503. NRC may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

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.

APPLICATION FOR DISTRIBUTION OF EXEMPT PRODUCTS FILE APPLICATIONS WITH:

DIVISION OF INDUSTRIAL AND MEDICAL NUCLEAR SAFETY
OFFICE OF NUCLEAR MATERIALS SAFETY AND SAFEGUARDS
U.S. NUCLEAR REGULATORY COMMISSION
WASHINGTON, DC 20555-0001

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:

LICENSING ASSISTANT SECTION
NUCLEAR MATERIALS SAFETY BRANCH
U.S. NUCLEAR REGULATORY COMMISSION, REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PA 19406-1415

ALABAMA, FLORIDA, GEORGIA, KENTUCKY, MISSISSIPPI, NORTH CAROLINA, PUERTO
RICO, SOUTH CAROLINA, TENNESSEE, VIRGINIA, VIRGIN ISLANDS, OR WEST VIRGINIA,
SEND APPLICATIONS TO:

NUCLEAR MATERIALS LICENSING SECTION
U.S. NUCLEAR REGULATORY COMMISSION, REGION II
101 MARIETTA STREET, NW, SUITE 2900
ATLANTA, GA 30323-0199

IF YOU ARE LOCATED IN:

ILLINOIS, INDIANA, IOWA, MICHIGAN, MINNESOTA, MISSOURI, OHIO, OR WISCONSIN,
SEND APPLICATIONS TO:

MATERIALS LICENSING SECTION
U.S. NUCLEAR REGULATORY COMMISSION, REGION III
601 WARRENVILLE RD.
LISLE, IL 60532-4351

ALASKA, ARIZONA, ARKANSAS, CALIFORNIA, COLORADO, HAWAII, IDAHO, KANSAS,
LOUISIANA, MONTANA, NEBRASKA, NEVADA, NEW MEXICO, NORTH DAKOTA,
OKLAHOMA, OREGON, PACIFIC TRUST TERRITORIES, SOUTH DAKOTA, TEXAS, UTAH,
WASHINGTON, OR WYOMING, SEND APPLICATIONS TO:

NUCLEAR MATERIALS LICENSING SECTION
U.S. NUCLEAR REGULATORY COMMISSION, REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TX 76011-8064

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 JURISDICTIONS.

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)

The Driggs Corporation
8700 Ashwood Drive
Capitol Heights, Maryland 20743

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

M.C.A.S.
Cherry Point, N.C.
28533
Driggs (A.J.)
8615 Dorsey Rd.
Annapolis Jct., MD
20794

Driggs(Waldorf)
Piney Church Rd.
Waldorf, MD
20601
Charles H. Robinson III
TELEPHONE NUMBER
(301)317-0300

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 EXPERIENCE

8. TRAINING FOR INDIVIDUALS WORKING IN OR FREQUENTING RESTRICTED AREAS

9. FACILITIES AND EQUIPMENT

10. RADIATION SAFETY PROGRAM

11. WASTE MANAGEMENT

12. LICENSE 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, 36, 39 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.

CERTIFYING OFFICER - TYPED/PRINTED NAME AND TITLE

SIGNATURE

DATE

Jeff Driggs - EXEC V-P.

[Signature]

Sept 12, 1996

FOR NRC USE ONLY

TYPE OF FEE	FEE LOG	FEE CATEGORY	AMOUNT RECEIVED	CHECK NUMBER	COMMENTS
			\$		

APPROVED BY

DATE

ML 10

123692

SEP 16 1996

Application for new license
Response to Item 5

	Radionuclide	Sealed Source	Maximum Activity
A.	Cesium-137	Troxler dwg A-102112	No source to exceed 10 millicuries
B.	Americium-241:Be	Troxler dwg A-102451	No source to exceed 50 millicuries
C.	Americium-241:Be	Troxler dwg A-100608	No source to exceed 110 millicuries

Authorized Use:

- A. For use in Troxler Model 4640 asphalt density gauge to measure asphalt density.
- B. For use in Troxler 3400 Series moisture/density gauge to measure construction materials.
- C. For use in Troxler 3241 Series asphalt content gauge to measure asphalt content.

Possession Limit Commitment:

We will confine our possession of licensed material to quantities such that we will not exceed the applicable limits in 10 CFR 30.35(d).

Data On Registration Certificates

Manufacturer/Distributor	Registry No.	Model No.
Troxler	NC-646-D-131-S	Model 4640 series device
Troxler	NC-646-D-130-S	Model 3400 series device
Troxler	NC-646-D-128-S	Model 3241 series device

Application for new license
Response to Item 6

- A. Troxler Model 4640 asphalt density gauge to measure density on the surface of asphalt pavements.
- B. Troxler 3400 Series moisture/density gauge to measure soil, stone or other sub-base materials to a depth of 8 inches.
- C. Troxler 3241 Series asphalt content gauge to measure asphalt content of freshly made bituminous mixtures in a laboratory environment.

Note: None of the devices listed herein will be used at depths greater than eight inches below the surface.

Application for new license
Response to Item 7

R.S.O. Qualifications

Charles H. Robinson III, R.S.O.
High School Graduate, 1981.

Completed the Nuclear Safety and Gauge Usage Training Course for the use of Nuclear Testing Equipment in accordance with Nuclear Regulatory Commission License No. 19-19822-01 on June 20, 1987. See attached certificate. Subjects included in this course are as follows:

Radiological Safety

- o Principles and practices of radiation protection.
- o Leak testing procedures.
- o Mathematics and calculations basic to the use and measurement of radioactivity.
- o Biological effects of radiation.
- o Radioactivity measurement standardization and monitoring techniques and instruments.
- o Accidents and incident procedures.
- o Procedures for nuclear gauge storage and transportation.
- o General safety precautions.

Gauge Operation

- o Instrument theory
- o Operating procedures
- o Field applications
- o Field maintenance

Assumed the duties of R.S.O. for The Driggs Corporation in September of 1992 on State of Maryland license no. MD-93-093-01

R.S.O. Responsibilities

- o Maintain control of material and personnel as designated by the applicable guidelines set forth by safety and agency regulations.
- o Insure that all necessary records are reviewed and maintained.
- o Insure that all personnel are adequately trained in radiation safety initially and annually.
- o Conduct reviews with personnel about, but not limited to, emergency procedures, operation and transportation.
- o Maintain adequate storage facilities for radioactive material.
- o Maintain personnel monitoring records.
- o Maintain properly calibrated survey instruments.
- o Either conduct or assign the performance of leak testing
- o Perform periodic inspections of operations.
- o Conduct quarterly inventories and maintenance.

In addition, R.S.O.'s duties and responsibilities will be those listed in Appendix C of Draft Regulatory Guide (DG-0008)

ATEC Associates, Inc.



HEREBY CERTIFIES THAT

CHARLES H. ROBINSON

HAS SUCCESSFULLY COMPLETED THE NUCLEAR SAFETY & GAUGE USAGE TRAINING COURSE FOR THE USE OF NUCLEAR TESTING EQUIPMENT IN ACCORDANCE WITH NUCLEAR REGULATORY COMMISSION LICENSE NO. 19-19822-01. SUBJECTS INCLUDED IN THIS COURSE WERE AS FOLLOWS:

Radiological Safety

- | | |
|--|---|
| 1. Principles and practices of radiation protection. | 5. Radioactivity measurement standardization and monitoring techniques and instruments. |
| 2. Leak testing procedures. | 6. Accident and incident procedures. |
| 3. Mathematics and calculations basic to the use and measurement of radioactivity. | 7. Procedures for nuclear gauge storage and transportation. |
| 4. Biological effects of radiation. | 8. General safety precautions. |

Gauge Operation

- | | |
|-------------------------|-----------------------|
| 1. Instrument theory | 3. Field applications |
| 2. Operating procedures | 4. Field maintenance |

Catherine J. Haney

INSTRUCTOR

6/20/87

DATE

Robert J. Haney

RADIATION SAFETY OFFICER

JEFF DRIGGS
EXECUTIVE VICE PRESIDENT

TOM COLLINS
VICE PRESIDENT / ASPHALT DIVISION

DAVID B. JONES
DIRECTOR OF PLANT OPERATIONS

CHARLES H. ROBINSON, III
RADIATION SAFETY OFFICER

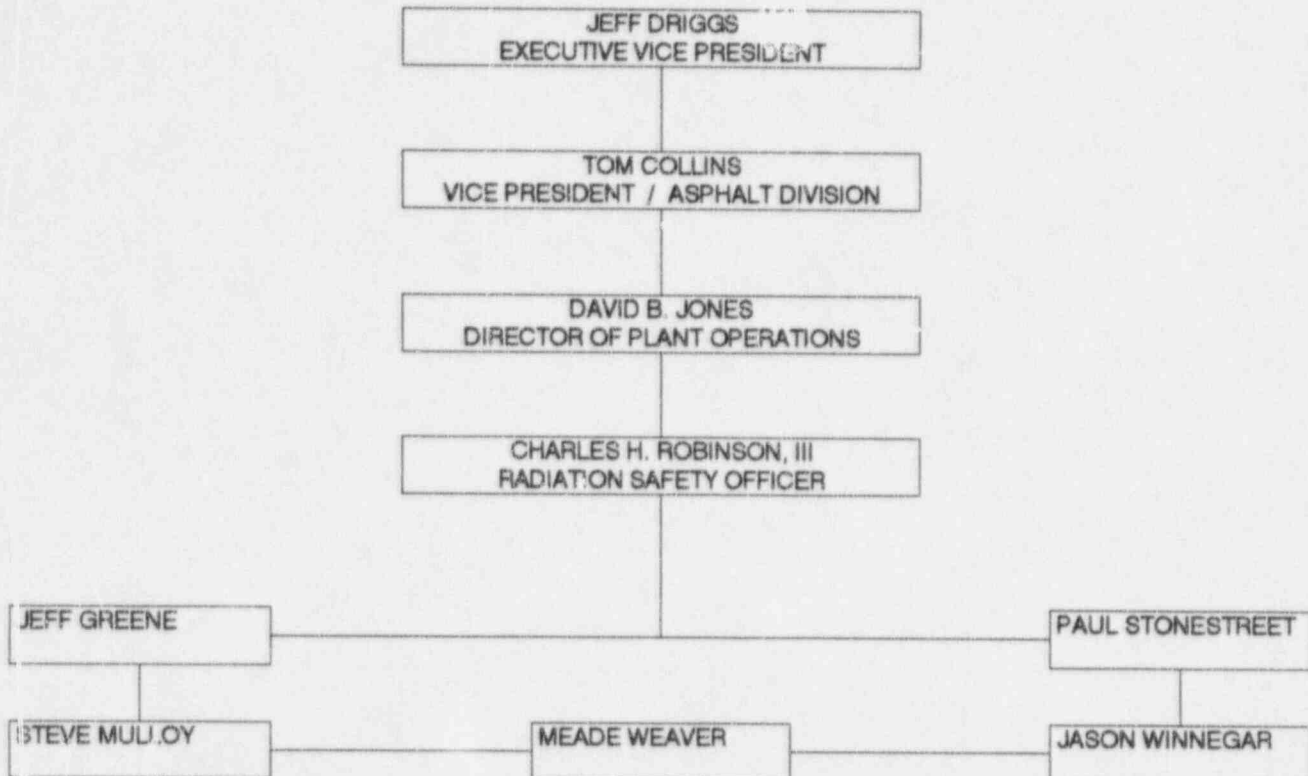
JEFF GREENE

PAUL STONESTREET

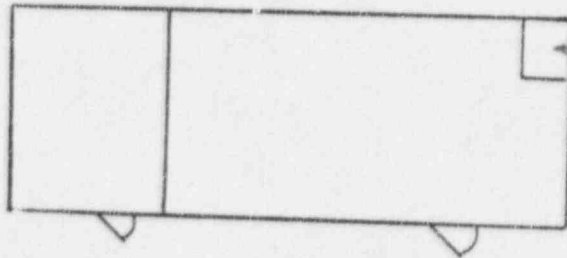
STEVE MULLOY

MEADE WEAVER

JASON WINNEGAR



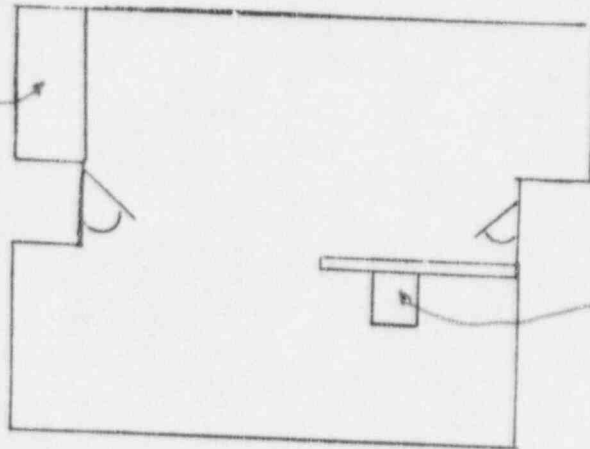
Gauge Storage



Driggs Corp., M.C.A.S. Cherry Point, N.C.

Gauge Storage

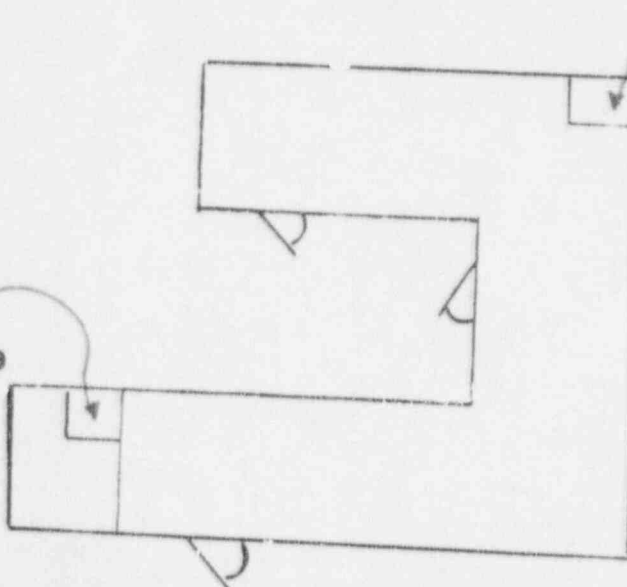
Gauge Storage



Driggs Corp., Jessup, Md.

Gauge Storage

Gauge Storage

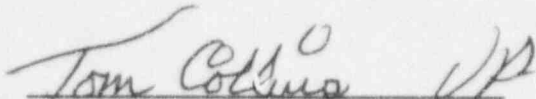


Driggs Corp., Waldorf, Md.


Application for new license
Response to Item 7

Managements Commitment to Radiation Safety

The corporate offices and management of The Driggs Corporation pledge that the R.S.O. has full independent authority to stop unsafe operations and will be given sufficient time and resources to fulfill his radiation safety duties and responsibilities without reproach. Management will meet with the R.S.O. annually to review current, new and revised regulations. Management and the R.S.O. will implement changes to the procedures as needed to comply.


Tom Collins, V.P.


David B. Jones, Director of Plant Operations


Charles H. Robinson, R.S.O.

Application for new license
Response to Item 8

Operator Training and Certification

No person shall be considered an authorized nuclear gauge operator until one of the following conditions are met.

- A. Provide copy of completion of an approved manufacturer's training course.
- B. Show proof that operator has been included on an NRC or agreement state license.
- C. Show proof of training in an alternative training course and provide R.S.O. with documentation that said course meets or exceeds the minimum requirements for nuclear safety and gauge usage training.

Employees selected to operate portable nuclear gauges and not already holding a training certificate will complete and pass an approved manufacturer's training course.

All authorized nuclear gauge operators must attend an annual mandatory safety meeting/refreshers training class to be given in-house by the R.S.O. and the field operations supervisor. Topics to be discussed are as follows:

- o Emergency procedures; including a mock emergency.
- o Transportation and D.O.T. regulations.
- o Changes in regulations and/or procedures.
- o Review and comment on the previous seasons performance
- o Personal safety and dosimetry.

Records and certifications shall be kept in the nuclear file and will be made available anytime to anyone who desires to review them.

Application for new license
Response to Item 9

The portable nuclear gauges shall be stored when not in use at;

M.C.A.S., Cherry Point
Havlock, N.C., 28533 or

Driggs Waldorf
Piney Orchard Rd
Waldorf, Md. 20601 or

Driggs AJ
8615 Dorsey Run Road
Jessup, Md. 20794

in a mobile office-type trailer located adjacent to the asphalt plant on-site.

The gauges shall be locked in a closet reserved for just that purpose. Both the trailer and the closet shall be placarded with the appropriate cautionary signs and remain locked when unattended.

When transporting portable gauges to and from temporary job-sites, gauges will be locked in the trunk or cargo area of the transport vehicle. Chains and padlocks will be used in open-bed trucks. If the operator should have to leave sight of the gauge the above security procedures shall be followed. At no time will an unattended gauge be accessible to the public.

All gauges will be returned to the permanent storage area at the end of each work day. If in the event the gauge cannot be returned by the original user, arrangements will be made to have the R.S.O. or another authorized operator return the nuclear gauge to its permanent storage location.

Application for new license
Response to Item 10

For details concerning our safety and operation program see attachment "A" enclosed. In addition to the program please note that The Driggs Corporation will not perform any maintenance or repairs beyond simple battery charging/replacement.

The R.S.O. shall conduct an audit on safety and operations quarterly and send a copy of the audit to David B. Jones, Director of Plant Operations at the main office located at;

8700 Ashwood Drive
Capitol Heights, Md. 20743

All records concerning portable nuclear gauges are kept on file at;

Driggs AJ
8615 Dorsey Run Rd.
Jessup, Md. 20794 and

8700 Ashwood Drive
Capitol Heights, Md. 20743

The corporate offices and management of The Driggs Corporation pledge that we will not possess nor acquire more nuclear devices than the maximum allowed before having to post a bond for financial assurance for decommissioning as stated in 10 CFR 30.35

We currently possess the following portable nuclear gauges:

Five (5)	Troxler Model 4640 Series Thin-Lift Density Gauges
Three (3)	Troxler Model 3241 Series Asphalt Content Gauges
One (1)	Troxler Model 3400 Series Moisture/Density Gauge

Application for new license
Response to Item 11

As stated in our program, Attachment "A", section 11, all licensed material will be disposed of by transfer to an authorized recipient.

Materials will be returned to:

Troxler Electronic Laboratories, Inc.
3008 Cornwallis Road
Research Triangle Park, N.C. 27709

ATTACHMENT "A"

**RADIATION SAFETY AND OPERATING PROCEDURES FOR
USE OF NUCLEAR DENSITY GAUGES**

RADIATION SAFETY AND OPERATING PROCEDURES FOR
USE OF NUCLEAR DENSITY GAUGES

Table of Contents

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Section 4 -	Physical Radiation Surveys
Section 5 -	Operating and Emergency Requirements
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Section 7 -	Certification Requirements
Section 8 -	Transportation Requirements
Section 9 -	Special Requirements
Section 10 -	Storage Requirements
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1. INTRODUCTION

1.1 General

The quantities of radioactive material contained in nuclear moisture and density gauges are quite small, and an operator may safely use a gauge day after day without receiving any bodily damage due to radiation. In addition, each radioactive source is doubly sealed to afford even greater protection for the operator. However, all radioactive sources, no matter how small, should be handled with care.

1.2 Radiation Characteristics

a. Types of Radiation

The radioactive materials in gauges emit four types of radiation which the operator should know about: alpha particles, beta particles, gamma rays, and neutrons. Of these four, the alpha and beta particles are completely stopped by the walls of the source container; therefore, only the characteristics of the gamma rays and neutrons need to be discussed in detail.

Gamma rays (sometimes called photons) are a form of electromagnetic radiation, somewhat similar to radio waves and rays of light. They travel in straight lines with the speed of light, and are electrically neutral. However, unlike light rays, gamma rays are extremely penetrating, and may pass through several inches of lead or concrete without being deflected. The energy of a gamma ray is usually expressed in units of millions of electron volts, or MeV. This need not be discussed any further except to state that, in general, the higher the energy, the more penetrating the gamma ray will be.

When a gamma ray (photon) enters a slab of material one of three things may happen. First, the photon may be absorbed (stopped) by the material. Second, the photon may be deflected or "scattered" in the material, and come out of the material with a different direction and lower energy than when it entered. (Of course, sometimes the photon is scattered several times before being absorbed or coming out of the material.) Third, the photon may pass through the material without being scattered or absorbed.

It is impossible to accurately predict what will happen to a single gamma ray entering a certain material. However, if a beam of photons is directed at the material, it is possible to calculate the percentages of

the beam that will be absorbed, scattered or transmitted. The percentage of photons that will pass through a material depends mostly on the energy of the photons and the density of the material. For example, if a beam of 1.25 MeV photons were directed at a concrete block 11.2 inches thick, 10% of the beam would be transmitted. However, only 1.73 inches of lead would be required to cut this same beam down to 10%, because lead is much heavier than concrete.

Neutrons, instead of being rays, are extremely small, very dense particles. They are electrically neutral and quite penetrating. Unlike gamma rays, the penetrating power of neutrons through a material does not depend on the density of the material, but on the material composition. Neutrons are slowed down most effectively by a material containing hydrogen atoms (such as water or polyethylene).

b. Characteristics of Radioactive Source Materials

Almost all gauges use as source material Radium-226, and Cesium - 137, either singly or in combination. A brief description of the characteristics of each type of source is now given.

Radium-226 emits alpha particles and low-energy gamma rays. It has half life of 1620 years, which means that in a given sample of pure Radium-226 atoms, half of these atoms would decay in 1620 years. Of the Radium-226 atoms remaining after the first 1620 years, half again would decay in 1620 more years, and so on. However, when a Radium-226 atom undergoes radioactive decay, it is transformed into Radon-222, which is also radioactive element. Actually, each original atom of Radium-226 must decay a total of eight times before it finally becomes a stable (non-radioactive) element. For each decay process, energy is given off in the form of alpha particles, beta particles, gamma rays, or combinations of these. Therefore, even though the Radium-226 atom gives off a low energy gamma ray, several members of its following decay chain emit gamma rays with high energies.

Cesium-137 decays with the emission of a beta particle, which is stopped by the walls of the source container. However, when Cesium-137 decays, it is transformed into an unstable Cesium-137 atom, which in turn decays to a stable state with the emission of a gamma ray. Cesium-137 has a half life of 30 years.

c. Radiation Units

Although there are several units of radiation measurement, there are only two with which the operator of a gauge needs to be familiar. These are the curie and the rem.

The curie is defined as the quantity of any radioactive material giving 3.7×10^{10} disintegrations per second (dps). That is, in a curie of radium, 3.7×10^{10} atoms would decay each second.

The strength of sources used in gauges is usually expressed in millicuries (one millicurie is one-thousandth of a curie, or 3.7×10^7 dps.). Therefore, a 3 millicurie Radium source would yield $(3)(3.7 \times 10^7) = 11.1 \times 10^7$ dps, or 111 million dps.

In order to calculate the amount of radiation absorbed by a human being, a unit called the rem is used. Because the amount of absorbed radiation is usually small, doses are usually expressed in millirem (thousandths of a rem). The millirem is actually a measure of the effectiveness of the body in absorbing radiation, and depends on the type and energy of the radiation.

d. Exposure Limitations

In order to protect personnel from overexposure to radiation, the NRC and the Federal Radiation Council have established exposure limits for radiation workers. These limits, expressed in millirems, are reproduced in the following table.

EXPOSURE LIMITS FOR RADIATION WORKERS

Type of Exposure	Millirem Limits for	
	<u>13 Weeks</u>	<u>1-Week Rate</u>
Sensitive Region (whole body, eyes, gonads, skull)	1,250	96
Kidneys, spleen, lungs, liver	5,000	385
Skin of whole body	7,500	577
Hands, arms, feet, ankles	18,750	1,442

These limits are intended to be highly conservative, and do not represent the absolute maximum exposure a person could receive without being ill or suffering radiation damage. However, it is advisable to remain under the limits whenever possible. This can be done quite easily with gauges by following established handling precautions.

e. Radiation Protection

There are three basic ways in which a person can protect himself from a radioactive source: distance, the interposition of shielding material and spending as little time next to an exposed source as possible.

As a person moves away from a source, the amount of radiation which he is receiving from the source falls off sharply. In fact, radiation obeys the "inverse square" law which states that the radiation intensity falls as the inverse square of the distance from the center of the source to the "target". For example, if a person standing one foot from a source were receiving forty millirem per hour, moving back another foot would cut the intensity to ten millirem per hour. By moving back, the person represents a small "target area" to the source.

The other method of protection is obtained by placing matter between the source and the target. To a reasonable approximation, it makes no difference where the shielding material is placed between the source and the target, as long as the thickness of the material remains the same. As was mentioned earlier, dense material provides the best shielding against gamma radiation, while hydrogenous (hydrogen-containing) material affords good protection against neutrons. The type of shielding in general use is as follows for the various encapsulated source materials:

RA226 -	Heavy material
Cs137 -	Heavy material
Ra226 + Be -	Heavy material and hydrogenous material
AM241 + Be -	Hydrogenous material

2. RESPONSIBILITY

- 2.1 It is the responsibility of the Radiation Safety Officer, District Manager, or Field Supervisor to assure that this procedure will be followed to achieve radiation safety to our personnel as well as general public.

2.1.1 - Radiation Safety Officer

The RSO duties and responsibilities will be as follows:

- Maintain control of material and personnel as designated by the applicable guidelines set forth by gout regulations.
 - Insure that all personnel are adequately trained in radiation safety.
 - Insure that all necessary records are maintained and copies forwarded to RADIATION RECORDS.
 - Maintain adequate storage facilities for radioactive material.
 - Maintain personnel monitoring records.
 - Maintain properly calibrated survey instruments.
 - Either conduct or assign the performance of leak testing.
 - Perform periodic inspections of operations in his particular district.
 - Conduct quarterly inventories and maintenance program.
- 2.2 This procedure must be given to all persons who will handle and/or use these devices for the purpose of giving them instructions into radiation safety and emergency procedure.
- 2.3 Contact the following named individuals should you have any questions regarding this procedure:
- a. Charles H. Robinson, Radiation Safety Officer
 - b. David Jones, Plant Manager

3. PERSONNEL MONITORING

- 3.1 Special TLD badges must be worn by all persons using gauging devices.
- 3.2 TLD badges will be issued quarterly and issued to each person who use gauging devices.
- a. Film badges cannot be worn by more than one person for each period. Therefore, spare badges could be kept on hand for persons who are not originally assigned badges or the supplier can be contacted for additional badges.

- b. At no time will any individual exchange a film badge with another person. The film badge is for measuring the amount of radiation the individual receives. Records are kept according to the badge number assigned to the individual.
- 3.3 The Radiation Safety Officer will return all used and unused badges to Tech/Ops Landauer, Inc.
- 3.4 Film badges must be worn with the open window facing the radiation and either worn on the shirt pocket or in center of body on the belt.
- 3.5 Should a film badge be lost, a report to the Radiation Safety Officer must be submitted indicating to whom the badge was assigned, when, where and how the badge was lost.
- 3.6 In the event a film badge is dropped near a source of radiation, a report must be submitted as above.
- 3.7 Film badge reports will be maintained at Radiation Records Department for inspection and/or needed distribution.

4. PHYSICAL RADIATION SURVEYS

4.1 Radiation Survey Meters

- a. A survey meter will be available at the laboratory for making radiation surveys of each nuclear unit.
- b. Survey meters must be calibrated at a maximum of 12 month intervals.
- c. Survey meter must be capable of detecting at least two (2) milliroentgens per hour of gamma radiation.
- d. Operators must be instructed on the exact use of the survey meter prior to being responsible for conducting radiation surveys.

4.2 Radiation Surface Surveys

- a. A radiation surface survey will be made on each unit and recorded at the following times:
 - 1. Upon receipt from either manufacturer or other office.
 - 2. Prior to shipment to another district laboratory or

manufacturer.

3. Prior to leak test.
4. At time of any malfunction or suspected problem.

4.3 Controlling Access to Test Areas

- a. It is the responsibility of the individual performing the test to keep the test area under constant surveillance while tests are being conducted.

5. OPERATING AND EMERGENCY REQUIREMENTS

5.1 Operating Procedures

- a. Gauging device shall not be moved unless the source rod is in the SAFE or up position.
- b. Make the test set-up by positioning gauging device for operations per manufacturers instructions.
- c. Clear all unauthorized persons from work area.
- d. Unlock gauging device.
- e. Prepare gauge for operations.
- f. Release trigger and depress source rod to desired position. Depress "measure" key.

SPECIAL NOTE: Do not touch source rod with fingers, hands, or any part of the body.

- g. Return source to safe position in device.
- h. Lock gauging device.

5.2 Although gauges can be operated safely, the following general precautions should be observed.

- a. Do not operate or attempt to operate gauge unless you have been authorized to do so.

- b. Keep the gauge in the "SAFE" or storage position when not in use and locked.
- c. Wear your film badge.
- d. Keep unauthorized persons away from work area.
- e. Keep gauge locked at all times when not in use.
- f. Follow gauge operating instructions.

5.3 Emergency Procedures

- a. If the source should, for any reasons, fail to be returned to its shielded position in the device, or any other emergency arises (such as hit by moving vehicle, dropped a great distance, vehicle road accident, etc.) the following steps must be taken:
 - 1. An area of 15 feet in radius from the gauge must be sealed or cordoned off to prevent entry by unauthorized persons.
 - 2. If a vehicle is involved, it must not be moved until the extent of contamination (if any) of the vehicle is determined.
 - 3. Make a visual inspection of the gauge to determine whether any damage to the source housing or shield has been sustained.
 - 4. As soon as possible, after the situation has been stabilized and is under control, notify the Radiation Safety Officer. Describe the present existing conditions and follow the instructions of the Radiation Safety Officer. Obtain the offices' survey meter and survey the gauge prior to transport if visible damage exists.
- b. In the event that a gauge is damaged, lost or stolen, the Radiation Safety Officer is to be notified immediately. In turn the R.S.O. will contact the police and the appropriate Government Agency.

NRC Emergency Operations Center: (301)816-5100

Charles H. Robinson, RSO: (301)317-0300 - Work
 (301)701-8163 - Pager
 (410)255-2510 - Home

David B. Jones, Director:

(301)499-1900 - Work
(301)701-1024 - Pager
(410)349-1797 - Home

- c. The R.S.O., shall submit a report describing the event, damage and resolution to appropriate Government Agency within 30 days of said event.

6. LEAK TESTING REQUIREMENTS

6.1 General Information

Each sealed source containing byproduct material shall be tested for leakage and/or contamination at intervals not to exceed six (6) months. The test sample will be taken by authorized personnel from the sealed source or from the surface of the device in which the sealed source is permanently mounted or stored on which one might expect contamination to accumulate.

6.2 Responsibility

It is the responsibility of the Radiation Safety Officer to see that the leak test is made and the sample is properly forwarded.

6.3 Procedure

- a. Read instructions in leak test kit.
- b. Complete the data form of the leak test sample to identify the source being tested.
- c. Be sure the person performing the test is wearing a film badge and has an operable survey meter to monitor area during test.
- d. Prepare the applicator that will swab area being tested per instructions in leak test kit.
- e. Perform the test in accordance with the proper method listed in 6.4.
- f. Return applicator to leak test kit per instructions outlined in kit.
- g. Monitor exterior of the kit containing the sample with appropriate instrument to be certain gamma-beta radiation levels do not exceed 0.4 MR/HR for mailing.

- h. Providing the exterior of kit meets the above requirements, forward kit to appropriate supplier.

6.4 Specific Instructions for Leak Test Gauging Devices

- a. These devices contain Cesium 137 up to 10 millicuries, which are operated remotely in and out of the device with the aid of the control rod. All sources are mounted in rods which travel from device out into the open and return in the same manner. Therefore, these types of devices are more likely to receive more wear, and chances for the sealed source to break open and cause contamination problems are more likely to exist.
- b. After applicator has been prepared for test and all necessary monitoring equipment is available, be sure that source is exposed.
- c. Wipe the exterior of tube by running the swab around the rod. Rotate the swab around the rod to collect as many particles as possible.
- d. Return the applicator per instructions in kit and follow the monitoring requirements.

SPECIAL NOTE: Do not touch swab of applicator with hands.
Return applicator with caution.

6.5 Notification of Leak Test Results

Results of all leak tests are reported directly to the Radiation Safety Officer who was responsible for the leak test.

If a sample contains excess of 0.005 microcuries of removable contamination, the Radiation Safety Officer will notify the Manager responsible for the leak test as well as management and regulatory agencies under license involved.

6.6 Device Requirements

A device must not be transported or used unless it has been leak tested at proper intervals and notice of satisfactory results has been received.

If device is found to be contaminated, the device must remain in the same location as when discovered and will not be put into use until a certified health physicist has completed the decontamination work and authorizes its use.

Radiation Safety Officer will make all necessary arrangements with a certified health physicist to complete decontamination.

6.7 Leak Test Supplier

Leak test kit Model 3880 will be supplied by and returned for analysis to:

Troxler Electronic Laboratories, Inc.
P.O. Box 12057
Research Triangle Park, North Carolina 27709

OR

RSO, Inc.
5204 Minnick Road
Laurel, Maryland 20707

7. **CERTIFICATION REQUIREMENTS**

7.1 Scope

The purpose of this section is to establish a procedure for the documentation and certification of nuclear moisture density gauge technicians.

7.2 Responsibility

It is the responsibility of the nuclear gauge operator to provide a copy of the appropriate training certificate or document before being authorized.

8. **TRANSPORTATION REQUIREMENTS**

8.1 Nuclear moisture-density gauges are a category, "Yellow II" Radioactive Material. According to Federal Regulations a "Yellow II" radioactive material does not require the placarding of a vehicle when transporting.

8.2 When transporting a gauge in a vehicle it must be carried in its approved shipping container and the source rod must be in the safe position and locked.

8.3 Transportation to locations must be accomplished by the Radiation Safety Officer, or a qualified nuclear gauge operator.

a. Must be forwarded by ground transportation or "CARGO-ONLY AIRCRAFT".

b. Radioactive "Yellow II" labels must appear on shipping container.

c. Shippers Certification Report must be completed and given to forwarding agent.

8.4 The gauge should not be transported near the driver location and should be braced and secured in the vehicle to prevent theft and/or loss due to accident.

9. **SPECIAL PRECAUTIONS**

Source rods will not be removed from gauge for repairs or modifications by gauge operators.

10. **STORAGE REQUIREMENTS**

10.1 All density gauges used by T.D.C. are provided with a padlock to secure the source rod in the unit. All devices must be kept locked at all times except when in direct use.

10.2 Upon completion of gauging operations the unit will be locked and returned to its storage/transport container.

10.3 Upon returning the container to the laboratory it will be locked in the permanent storage room. This room is posted with "Caution - Radioactive Material."

10.4 Only personnel that have successfully completed an approved training program shall be issued with keys for the storage room and device lock.

10.5 With field work it is sometimes necessary to leave the work area to eat lunch, discuss problems, etc. In such cases the gauge must be placed in a locked storage area (such as a room or vehicle). Entrances to the storage area must be posted as stated in 10.3.

11. **WASTE MANAGEMENT**

All licensed material will be disposed of by transfer to an authorized recipient.

Materials will be returned to:

Troxler Electronic Laboratories, Inc.
3008 Cornwallis Road at Alexander Drive
Research Triangle Park, North Carolina 27709

or the appropriate manufacturer.

ATTACHMENT "B"



DEPARTMENT OF THE ENVIRONMENT
RADIOLOGICAL HEALTH PROGRAM
RADIOACTIVE MATERIAL LICENSE

Page 1 of 5 pages

Pursuant to the Maryland Radiation Act, 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 radioactive material listed below; and to use such radioactive material for the purpose(s) and at the place(s) designated below. This license is subject to all applicable rules, regulations and orders of the Maryland State Department of the Environment, now or hereinafter in effect and to any conditions specified below. In accordance with application dated December 15, 1992 Radioactive Material License MD-33-093-01 is amended in its entirety.

LICENSEE

1. Name The Driggs Corporation
8700 Ashwood Drive
2. Address Capitol Heights, Maryland 20743

3. License No.

MD-33-093-01

4. Amendment No.

07

5. Expiration Date

April 30, 1998

6. Radioactive material (element and mass number)

A. Cesium-137

B. Americium-241:Be

C. Americium-241:Be

7. Chemical and/or physical form

A. Sealed Source
(Troxler dwg A-102112)

B. Sealed Source
(Troxler dwg A-102451)

C. Sealed Source
(Troxler dwg A-100608)

8. Maximum amount of radioactivity which licensee may possess at any one time

A. No source to exceed 10 millicuries

B. No source to exceed 50 millicuries

C. No source to exceed 110 millicuries

9. Authorized Use

- A. For use in Troxler Model 4640 asphalt density gauge to measure asphalt density.
- B. For use in Troxler 3400 Series moisture/density gauge to measure construction materials.
- C. For use in Troxler 3241 Series asphalt content gauge to measure asphalt content.



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Supplementary Sheet

License No. MD-33-093-01

Amendment No. 07

CONDITIONS

10. Radioactive materials may be used at:
- A. Piney Church Road
Waldorf, Maryland 20601
 - B. 8615 Dorsey Run Road
Annapolis Junction, Maryland 20794
 - C. and temporary job sites throughout Maryland
- 11A. The radiation protection program shall be under the supervision of Charles Robinson.
- B. Radioactive material shall be used by, or under the supervision and in the physical presence of Herlindo DelCid, Paul Stonestreet, Charles Robinson and/or Russell Shaw.
12. The licensee shall comply with provisions of Part D, "Standards for Protection Against Radiation" and Part J, "Notices, Instructions and Reports to Workers; Inspections" of the Maryland Regulations 26.12.01.01 "Regulations for Control of Ionizing Radiation".
13. Sealed sources containing radioactive material shall not be opened or removed from their respective source holders by the licensee.

FOR THE MARYLAND DEPARTMENT OF THE ENVIRONMENT

Date _____

ADMINISTRATOR, RADIOLOGICAL HEALTH PROGRAM



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RADIOACTIVE MATERIAL LICENSE

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Supplementary Sheet

License No.

MD-33-093-01

Amendment No.

07

CONDITIONS CONTINUED

- 14A. Each sealed source containing radioactive material, other than Hydrogen-3 with a half-life greater than thirty days and in any form other than gas shall be tested for leakage and/or contamination at intervals not to exceed six (6) months. In the absence of a certificate from a transferor indicating that a test has been made within six (6) months prior to the transfer, the sealed source shall not be put into use until tested. If there is reason to suspect that a sealed source might have been damaged, or might be leaking, it shall be tested for leakage before further use.
- B. The test shall be capable of detecting the presence of 0.005 microcurie of radioactive material on the test sample. The test sample shall be taken from the sealed source or from the surfaces of a device in which the sealed source is permanently mounted or stored on which one might expect contamination to accumulate.
- C. Records of leak tests shall be kept in units of microcuries and maintained for inspection by the Department.
- D. If the test reveals the presence of 0.005 microcurie or more of removable contamination, the licensee shall immediately withdraw the sealed source from use and shall cause it to be decontaminated and repaired or to be disposed of in accordance with Department regulations. A report shall be filed within five (5) days of the test with the Administrator, Radiological Health Program, 2500 Broening Highway, Baltimore, Maryland 21224 describing the equipment involved, the test results, and the corrective action taken.
- E. Test for leakage and/or contamination shall be performed by licensee using Troxler Model 3830 Leak Test Kit or by other persons specifically authorized by the Department, the U.S. Nuclear Regulatory Commission or another Agreement State to perform such services.

FOR THE MARYLAND DEPARTMENT OF THE ENVIRONMENT

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CONDITIONS CONTINUED

15. The licensee shall conduct a physical inventory every six (6) months to account for all sealed sources received and possessed under the license. The records of the inventories shall be maintained for two (2) years from the date of the inventory for inspection by the Department, and shall include the quantities and kinds of radioactive material, location of sealed sources, and the date of the inventory.
16. Maintenance and repair of devices containing radioactive material and installation, replacement, and disposal of sealed sources shall be performed by Troxler or by other persons specifically authorized by the Department, the U.S. Nuclear Regulatory Commission or another Agreement State to perform such services.
- 17A. Transportation of radioactive material in the State of Maryland shall be in compliance with Section C.100 "Transportation of Radioactive Material" of COMAR 26.12.01.01.
 - B. The licensee shall transport licensed material or deliver licensed material to a carrier for transport in accordance with the provisions of Section C.103, "General License for Delivery of Radioactive Material to a Carrier for Transport" of COMAR 26.12.01.01.
- 18A. The licensee shall not make any false statement, representation, or certification in any application, record, report, plan, or other document regarding radiation levels, tests performed or radiation safety conditions or practices. Nor shall the licensee falsify, tamper with, or render inaccurate any monitoring device or method.
 - B. Violation of any term, condition, or regulation could subject the licensee to administrative or civil penalty or criminal prosecution, as specified in Title 8, Radiation, of the Article Environment of the Annotated Code of Maryland.

FOR THE MARYLAND DEPARTMENT OF THE ENVIRONMENT

Date _____

ADMINISTRATOR, RADIOLOGICAL HEALTH PROGRAM



DEPARTMENT OF THE ENVIRONMENT
RADIOLOGICAL HEALTH PROGRAM
RADIOACTIVE MATERIAL LICENSE

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Supplementary Sheet

License No. MD-33-093-01

Amendment No. 07

CONDITIONS CONTINUED

19. Except as specifically provided otherwise by this license, the licensee shall possess and use radioactive material authorized by this license in accordance with statements representations, and procedures contained in application dated December 15, 1992 and letter with attachments dated March 11, 1993. OCMAR 26.12.01.01 "Regulations for Control of Ionizing Radiation" shall govern the licensee's statements in applications or letters, unless the statements are more restrictive than the regulations.

FOR THE MARYLAND DEPARTMENT OF THE ENVIRONMENT

Date April 19, 1993

CRF/alb

Roland H. Fletcher

ADMINISTRATOR, RADIOLOGICAL HEALTH PROGRAM



DEPARTMENT OF THE ENVIRONMENT
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RADIOACTIVE MATERIAL LICENSE

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Supplementary Sheet

License No. MD-33-093-01

Amendment No. 08

The Driggs Corporation
8700 Ashwood Drive
Maryland 20743

In accordance with letter dated March 21, 1994, Radioactive Material License Number MD-33-093-01 is amended as follows:

Condition 11B to read:

11B. * Radioactive material shall be used by or under the supervision and in the physical presence of Charles Robinson, Paul Stonestreet, Jeffry A. Greene and/or Ronald L. Ashmead.

FOR THE MARYLAND DEPARTMENT OF THE ENVIRONMENT

Date March 23, 1994

CRF

Roland L. Fletcher
ADMINISTRATOR, RADIOLOGICAL HEALTH PROGRAM



DEPARTMENT OF THE ENVIRONMENT
RADIOLOGICAL HEALTH PROGRAM
RADIOACTIVE MATERIAL LICENSE

Page 1 of 1 pages

Supplementary Sheet

License No. MD-33-093-01	Amendment No. 09
--------------------------	------------------

The Driggs Corporation
8700 Ashwood Drive
Capitol Heights, Maryland 20743

In accordance with letter dated May 16, 1994, Radioactive Material License Number MD-33-093-01 is amended as follows:

Condition 11B to read:

- 11B. Radioactive material shall be used by or under the supervision and in the physical presence of Charles Robinson, Paul Stonestreet, Jeffry A. Greene, Ronald L. Ashmead and/or Russell A. Berger.

FOR THE MARYLAND DEPARTMENT OF THE ENVIRONMENT

Date June 3, 1994

CRF

Roland H. Fletcher
ADMINISTRATOR, RADIOLOGICAL HEALTH PROGRAM



FEB 13 1995

DEPARTMENT OF THE ENVIRONMENT
RADIOLOGICAL HEALTH PROGRAM
RADIOACTIVE MATERIAL LICENSE

Page 1 of 1 pages

Supplementary Sheet

License No. MD-33-093-01

Amendment No. 10

The Driggs Corporation
8700 Ashwood Drive
Capitol Heights, Maryland 20743

In accordance with letter dated January 30, 1995, Radioactive Material License Number MD-33-093-01 is amended as follows:

Condition 11B to read:

11B. Radioactive material shall be used by or under the supervision and in the physical presence of Charles Robinson, Paul Stonestreet, Jeffry A. Greene, and/or Russell A. Berger.

FOR THE MARYLAND DEPARTMENT OF THE ENVIRONMENT

Date February 7, 1995

ADMINISTRATOR, RADIOLOGICAL HEALTH PROGRAM

CRF

MDER-L1 (supp) (11/90)

NAC



DEPARTMENT OF THE ENVIRONMENT
RADIOLOGICAL HEALTH PROGRAM
RADIOACTIVE MATERIAL LICENSE

Page 1 of 1 pages

Supplementary Sheet

License No. MD-33-093-01	Amendment No. 11
--------------------------	------------------

The Driggs Corporation
8700 Ashwood Drive
Capitol Heights, Maryland 20743

In accordance with letter dated March 27, 1996, Radioactive Material License Number MD-33-093-01 is amended as follows:

Condition 11B to read:

11B. Radioactive material shall be used by or under the supervision and in the physical presence of Charles Robinson, Paul Stonestreet, Jeffry A. Greene, Jason Winneger or Meade Weaver.

Condition 19 to add letter dated March 27, 1996 changing meter calibration frequency to every twelve (12) months.

FOR THE MARYLAND DEPARTMENT OF THE ENVIRONMENT

Date April 24, 1996

Roland H. Fletcher
RADIOLOGICAL HEALTH PROGRAM MANAGER II

NAO

DET

MDER-L1 (supp) (11/90)

OFFICIAL RECORD COPY

ML 10

123692





DRIGGS

MS16

P-3

September 24, 1996

Ms. Kathy Dolce
Licensing Assistant Section
Nuclear Materials Safety Branch
U.S. Nuclear Regulatory Commission, Region I
475 Allendale Road
King of Prussia, Pa. 19406-1415

Re: License Application, Control # 123692

Dear Ms. Dolce,

As we discussed on Friday, here are the revisions to our license application. Attached are the corrected responses and another copy of our Safety and Operating Procedures Manual. Below is a brief summary of these revisions:

1. Response to Item 8, page 7.
All nuclear gauge operators shall be issued a copy of Driggs Radiation Safety and Operating Procedures Manual prior to being authorized as an operator.
2. Response to Item 9, page 8.
Each job-site shall be provided with a copy of Driggs Radiation Safety and Operating Procedures Manual.

Each nuclear gauge user shall always maintain constant surveillance and immediate control the nuclear gauge whe not in its permanent storage location.

3. Response to Item 10, page 9
Audits will be conducted following the sample guidelines set forth in NRC Draft Regulatory Guide DG-0008, Appendix I.

All records concerning portable nuclear gauges, audits and exposure are kept on file at;

The management at The Driggs Corporation shall review each audit report and commits to take prompt action to correct any deficiencies or oversights.

OFFICIAL RECORD COPY

ML 10

123692

SEP 27 1996

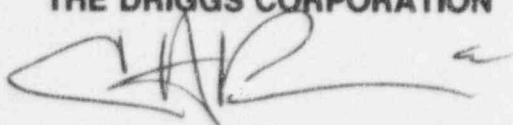
SEP 24 1996

FAX REC'D

4. Attachment A, section 4, page 9
 - a. A Troxalert survey meter will be available at the laboratory for making radiation surveys of each nuclear unit.
 - b. Survey meters will be calibrated by the manufacturer at a maximum of twelve month intervals.
5. Attachment A, section 2, page 7
 - Conduct bi-annual inventories and maintenance program.

Very Truly Yours,

THE DRIGGS CORPORATION

A handwritten signature in black ink, appearing to read 'CH Robinson III', with a horizontal line extending to the right.

Charles H. Robinson III, C.E.T., R.S.O.
Quality Control Manager
8615 Dorsey Run Road
Jessup, Md. 20794

Application for new license
Response to Item 8

Operator Training and Certification

No person shall be considered an authorized nuclear gauge operator until one of the following conditions are met.

- A. Provide copy of completion of an approved manufacturer's training course.
- B. Show proof that operator has been included on an NRC or agreement state license.
- C. Show proof of training in an alternative training course and provide R.S.O. with documentation that said course meets or exceeds the minimum requirements for nuclear safety and gauge usage training.

Employees selected to operate portable nuclear gauges and not already holding a training certificate will complete and pass an approved manufacturer's training course.

All authorized nuclear gauge operators must attend an annual mandatory safety meeting/refresher training class to be given in-house by the R.S.O. and the field operations supervisor. Topics to be discussed are as follows:

- o Emergency procedures; including a mock emergency.
- o Transportation and D.O.T. regulations.
- o Changes in regulations and/or procedures.
- o Review and comment on the previous seasons performance
- o Personal safety and dosimetry.

All nuclear gauge operators shall be issued a copy of Driggs Radiation Safety and Operating Procedures Manual prior to being authorized as an operator.

Records and certifications shall be kept in the nuclear file and will be made available anytime to anyone who desires to review them.

Application for new license
Response to Item 9

The portable nuclear gauges shall be stored when not in use at;

M.C.A.S., Cherry Point
Havlock, N.C., 28533 or

Driggs Waldorf
Piney Church Rd
Waldorf, Md. 20601 or

Driggs AJ
8615 Dorsey Run Road
Jessup, Md. 20794

in a mobile office-type trailer located adjacent to the asphalt plant on-site.

Each job-site shall be provided with a copy of Driggs Radiation Safety and Operating Procedures Manual.

The gauges shall be locked in a closet reserved for just that purpose. Both the trailer and the closet shall be placarded with the appropriate cautionary signs and remain locked when unattended.

Each nuclear gauge user shall always maintain constant surveillance and immediate control the nuclear gauge when not in its permanent storage location.

When transporting portable gauges to and from temporary job-sites, gauges will be locked in the trunk or cargo area of the transport vehicle. Chains and padlocks will be used in open-bed trucks. If the operator should have to leave sight of the gauge the above security procedures shall be followed. At no time will an unattended gauge be accessible to the public.

All gauges will be returned to the permanent storage area at the end of each work day. If in the event the gauge cannot be returned by the original user, arrangements will be made to have the R.S.O. or another authorized operator return the nuclear gauge to its permanent storage location.

Application for new license
Response to Item 10

For details concerning our safety and operation program see attachment "A" enclosed. In addition to the program please note that The Driggs Corporation will not perform any maintenance or repairs beyond simple battery charging/replacement.

The R.S.O. shall conduct an audit on safety and operations quarterly and send a copy of the audit to David B. Jones, Director of Plant Operations at the main office located at;

8700 Ashwood Drive
Capitol Heights, Md. 20743

Audits will be conducted following the sample guidelines set forth in NRC Draft Regulatory Guide DG-0008, Appendix I.

All records concerning portable nuclear gauges, audits and exposure are kept on file at;

Driggs AJ
8615 Dorsey Run Rd.
Jessup, Md. 20794 and

8700 Ashwood Drive
Capitol Heights, Md. 20743

The management at The Driggs Corporation shall review each audit report and commits to take prompt action to correct any deficiencies or oversights.

The corporate offices and management of The Driggs Corporation pledge that we will not possess nor acquire more nuclear devices than the maximum allowed before having to post a bond for financial assurance for decommissioning as stated in 10 CFR 30.35

We currently possess the following portable nuclear gauges:

Five (5)	Troxler Model 4640 Series Thin-Lift Density Gauges
Three (3)	Troxler Model 3241 Series Asphalt Content Gauges
One (1)	Troxler Model 3400 Series Moisture/Density Gauge

**RADIATION SAFETY AND OPERATING PROCEDURES FOR
USE OF NUCLEAR DENSITY GAUGES**

**RADIATION SAFETY AND OPERATING PROCEDURES FOR
USE OF NUCLEAR DENSITY GAUGES**

Table of Contents

Section 1 -	Introduction
Section 2 -	Responsibility
Section 3 -	Personnel Monitoring
Section 4 -	Physical Radiation Surveys
Section 5 -	Operating and Emergency Requirements
Section 6 -	Leak Testing Requirements
Section 7 -	Certification Requirements
Section 8 -	Transportation Requirements
Section 9 -	Special Requirements
Section 10 -	Storage Requirements
Section 11 -	Waste Management

1. INTRODUCTION

1.1 General

The quantities of radioactive material contained in nuclear moisture and density gauges are quite small, and an operator may safely use a gauge day after day without receiving any bodily damage due to radiation. In addition, each radioactive source is doubly sealed to afford even greater protection for the operator. However, all radioactive sources, no matter how small, should be handled with care.

1.2 Radiation Characteristics

a. Types of Radiation

The radioactive materials in gauges emit four types of radiation which the operator should know about: alpha particles, beta particles, gamma rays, and neutrons. Of these four, the alpha and beta particles are completely stopped by the walls of the source container; therefore, only the characteristics of the gamma rays and neutrons need to be discussed in detail.

Gamma rays (sometimes called photons) are a form of electromagnetic radiation, somewhat similar to radio waves and rays of light. They travel in straight lines with the speed of light, and are electrically neutral. However, unlike light rays, gamma rays are extremely penetrating, and may pass through several inches of lead or concrete without being deflected. The energy of a gamma ray is usually expressed in units of millions of electron volts, or MeV. This need not be discussed any further except to state that, in general, the higher the energy, the more penetrating the gamma ray will be.

When a gamma ray (photon) enters a slab of material one of three things may happen. First, the photon may be absorbed (stopped) by the material. Second, the photon may be deflected or "scattered" in the material, and come out of the material with a different direction and lower energy than when it entered. (Of course, sometimes the photon is scattered several times before being absorbed or coming out of the material.) Third, the photon may pass through the material without being scattered or absorbed.

It is impossible to accurately predict what will happen to a single gamma ray entering a certain material. However, if a beam of photons is directed at the material, it is possible to calculate the percentages of the beam that will be absorbed, scattered or transmitted. The percentage of photons that will pass through a material depends mostly on the energy of the photons and the density of the material. For example, if a beam of 1.25 MeV photons were directed at a concrete block 11.2 inches thick, 10% of the beam would be transmitted. However, only 1.73 inches of lead would be required to cut this same beam down to 10%, because lead is much heavier than concrete.

Neutrons, instead of being rays, are extremely small, very dense particles. They are electrically neutral and quite penetrating. Unlike gamma rays, the penetrating power of neutrons through a material does not depend on the density of the material, but on the material composition. Neutrons are slowed down most effectively by a material containing hydrogen atoms (such as water or polyethylene).

b. Characteristics of Radioactive Source Materials

Almost all gauges use as source material Radium-226, and Cesium - 137, either singly or in combination. A brief description of the characteristics of each type of source is now given.

Radium-226 emits alpha particles and low-energy gamma rays. It has half life of 1620 years, which means that in a given sample of pure Radium-226 atoms, half of these atoms would decay in 1620 years. Of the Radium-226 atoms remaining after the first 1620 years, half again would decay in 1620 more years, and so on. However, when a Radium-226 atom undergoes radioactive decay, it is transformed into Radon-222, which is also radioactive element. Actually, each original atom of Radium-226 must decay a total of eight times before it finally becomes a stable (non-radioactive) element. For each decay process, energy is given off in the form of alpha particles, beta particles, gamma rays, or combinations of these. Therefore, even though the Radium-226 atom gives off a low energy gamma ray, several members of its following decay chain emit gamma rays with high energies.

Cesium-137 decays with the emission of a beta particle, which is stopped by the walls of the source container. However, when Cesium-137 decays, it is transformed into an unstable Cesium-137 atom, which in turn decays to a stable state with the emission of a gamma ray. Cesium-137 has a half life of 30 years.

c. Radiation Units

Although there are several units of radiation measurement, there are only two with which the operator of a gauge needs to be familiar. These are the curie and the rem.

The curie is defined as the quantity of any radioactive material giving 3.7×10^{10} disintegrations per second (dps). That is, in a curie of radium, 3.7×10^{10} atoms would decay each second.

The strength of sources used in gauges is usually expressed in millicuries (one millicurie is one-thousandth of a curie, or 3.7×10^7 dps.). Therefore, a 3 millicurie Radium source would yield $(3)(3.7 \times 10^7) = 11.1 \times 10^7$ dps, or 111 million dps.

In order to calculate the amount of radiation absorbed by a human being, a unit called the rem is used. Because the amount of absorbed radiation is usually small, doses are usually expressed in millirem (thousandths of a rem). The millirem is actually a measure of the effectiveness of the body in absorbing radiation, and depends on the type and energy of the radiation.

d. Exposure Limitations

In order to protect personnel from overexposure to radiation, the NRC and the Federal Radiation Council have established exposure limits for radiation workers. These limits, expressed in millirems, are reproduced in the following table.

EXPOSURE LIMITS FOR RADIATION WORKERS

Type of Exposure	Millirem Limits for	
	<u>13 Weeks</u>	<u>1-Week Rate</u>
Sensitive Region (whole body, eyes, gonads, skull)	1,250	96
Kidneys, spleen, lungs, liver	5,000	385
Skin of whole body	7,500	577
Hands, arms, feet, ankles	18,750	1,442

These limits are intended to be highly conservative, and do not represent the absolute maximum exposure a person could receive without being ill or suffering radiation damage. However, it is advisable to remain under the limits whenever possible. This can be done quite easily with gauges by following established handling precautions.

e. Radiation Protection

There are three basic ways in which a person can protect himself from a radioactive source: distance, the interposition of shielding material and spending as little time next to an exposed source as possible.

As a person moves away from a source, the amount of radiation which he is receiving from the source falls off sharply. In fact, radiation obeys the "inverse square" law which states that the radiation intensity falls as the inverse square of the distance from the center of the source to the "target". For example, if a person standing one foot from a source were receiving forty millirem per hour, moving back another foot would cut the intensity to ten millirem per hour. By moving back, the person represents a small "target area" to the source.

The other method of protection is obtained by placing matter between the source and the target. To a reasonable approximation, it makes no difference where the shielding material is placed between the source and the target, as long as the thickness of the material remains the same. As was mentioned earlier, dense material provides the best shielding against gamma radiation, while hydrogenous (hydrogen-containing) material affords good protection against neutrons. The type of shielding in general use is as follows for the various encapsulated source materials:

RA226 -	Heavy material
Cs137 -	Heavy material
Ra226 + Be -	Heavy material and hydrogenous material
AM241 + Be -	Hydrogenous material

2. **RESPONSIBILITY**

- 2.1 It is the responsibility of the Radiation Safety Officer, District Manager, or Field Supervisor to assure that this procedure will be followed to achieve radiation safety to our personnel as well as general public.

2.1.1 - Radiation Safety Officer

The RSO duties and responsibilities will be as follows:

- Maintain control of material and personnel as designated by the applicable guidelines set forth by gov't regulations.
- Insure that all personnel are adequately trained in radiation safety.
- Insure that all necessary records are maintained and copies forwarded to RADIATION RECORDS.
- Maintain adequate storage facilities for radioactive material.
- Maintain personnel monitoring records.
- Maintain properly calibrated survey instruments.
- Either conduct or assign the performance of leak testing.
- Perform periodic inspections of operations in his particular district.
- Conduct bi-annual inventories and maintenance program.

- 2.2 This procedure must be given to all persons who will handle and/or use these devices for the purpose of giving them instructions into radiation safety and emergency procedure before authorization or use.
- 2.3 Contact the following named individuals should you have any questions regarding this procedure:
 - a. Charles H. Robinson, Radiation Safety Officer
 - b. David Jones, Plant Manager

3. **PERSONNEL MONITORING**

- 3.1 Special TLD badges must be worn by all persons using gauging devices.
- 3.2 TLD badges will be issued quarterly and issued to each person who use gauging devices.
 - a. Film badges cannot be worn by more than one person for each period. Therefore, spare badges could be kept on hand for persons who are not originally assigned badges or the supplier can be contacted for additional badges.
 - b. At no time will any individual exchange a film badge with another person. The film badge is for measuring the amount of radiation the individual receives. Records are kept according to the badge number assigned to the individual.
- 3.3 The Radiation Safety Officer will return all used and unused badges to Tech/Ops Landauer, Inc.
- 3.4 Film badges must be worn with the open window facing the radiation and either worn on the shirt pocket or in center of body on the belt.
- 3.5 Should a film badge be lost, a report to the Radiation Safety Officer must be submitted indicating to whom the badge was assigned, when, where and how the badge was lost.
- 3.6 In the event a film badge is dropped near a source of radiation, a report must be submitted as above.
- 3.7 Film badge reports will be maintained at Radiation Records Department for inspection and/or needed distribution.

4. PHYSICAL RADIATION SURVEYS

4.1 Radiation Survey Meters

- a. A Troxalert survey meter will be available at the laboratory for making radiation surveys of each nuclear unit.
- b. Survey meters will be calibrated by the manufacturer at a maximum of twelve month intervals.
- c. Survey meter must be capable of detecting at least two (2) milliroentgens per hour of gamma radiation.
- d. Operators must be instructed on the exact use of the survey meter prior to being responsible for conducting radiation surveys.

4.2 Radiation Surface Surveys

- a. A radiation surface survey will be made on each unit and recorded at the following times:
 1. Upon receipt from either manufacturer or other office.
 2. Prior to shipment to another district laboratory or manufacturer.
 3. Prior to leak test.
 4. At time of any malfunction or suspected problem.

4.3 Controlling Access to Test Areas

- a. It is the responsibility of the individual performing the test to keep the test area under constant surveillance while tests are being conducted.

5. **OPERATING AND EMERGENCY REQUIREMENTS**

5.1 Operating Procedures

- a. Gauging device shall not be moved unless the source rod is in the SAFE or up position.
- b. Make the test set-up by positioning gauging device for operations per manufacturers instructions.
- c. Clear all unauthorized persons from work area.
- d. Unlock gauging device.
- e. Prepare gauge for operations.
- f. Release trigger and depress source rod to desired position. Depress "measure" key.

SPECIAL NOTE: Do not touch source rod with fingers, hands, or any part of the body.

- g. Return source to safe position in device.
- h. Lock gauging device.

5.2 Although gauges can be operated safely, the following general precautions should be observed.

- a. Do not operate or attempt to operate gauge unless you have been authorized to do so.
- b. Keep the gauge in the "SAFE" or storage position when not in use and locked.
- c. Wear your film badge.
- d. Keep unauthorized persons away from work area.
- e. Keep gauge locked at all times when not in use.
- f. Follow gauge operating instructions.

5.3 Emergency Procedures

- a. If the source should, for any reasons, fail to be returned to its shielded position in the device, or any other emergency arises (such as hit by moving vehicle, dropped a great distance, vehicle road accident, etc.) the following steps must be taken:
 1. An area of 15 feet in radius from the gauge must be sealed or cordoned off to prevent entry by unauthorized persons.
 2. If a vehicle is involved, it must not be moved until the extent of contamination (if any) of the vehicle is determined.
 3. Make a visual inspection of the gauge to determine whether any damage to the source housing or shield has been sustained.
 4. As soon as possible, after the situation has been stabilized and is under control, notify the Radiation Safety Officer. Describe the present existing conditions and follow the instructions of the Radiation Safety Officer. Obtain the offices' survey meter and survey the gauge prior to transport if visible damage exists.
- b. In the event that a gauge is damaged, lost or stolen, the Radiation Safety Officer is to be notified immediately. In turn the R.S.O. will contact the police and the appropriate government agency.
 1. Charles H. Robinson, RSO
Office (301) 317-0300
Home (410) 255-2510
Pager (301) 701-8163
 2. David B. Jones, Director
Office (301) 499-1900
Home (410) 349-1797
Pager (301) 901-1024
 3. NRC Emergency Operations Center (24 hours)
(301) 816-5100
- c. The R.S.O. shall submit a report describing the event, damage and resolution to the appropriate government agency within 30 days of said event.

6. LEAK TESTING REQUIREMENTS

6.1 General Information

Each sealed source containing byproduct material shall be tested for leakage and/or contamination at intervals not to exceed six (6) months. The test sample will be taken by authorized personnel from the sealed source or from the surface of the device in which the sealed source is permanently mounted or stored on which one might expect contamination to accumulate.

6.2 Responsibility

It is the responsibility of the Radiation Safety Officer to see that the leak test is made and the sample is properly forwarded.

6.3 Procedure

- a. Read instructions in leak test kit.
- b. Complete the data form of the leak test sample to identify the source being tested.
- c. Be sure the person performing the test is wearing a film badge and has an operable survey meter to monitor area during test.
- d. Prepare the applicator that will swab area being tested per instructions in leak test kit.
- e. Perform the test in accordance with the proper method listed in 6.4.
- f. Return applicator to leak test kit per instructions outlined in kit.
- g. Monitor exterior of the kit containing the sample with appropriate instrument to be certain gamma-beta radiation levels do not exceed 0.4 MR/HR for mailing.
- h. Providing the exterior of kit meets the above requirements, forward kit to appropriate supplier.

6.4 Specific Instructions for Leak Test Gauging Devices

- a. These devices contain Cesium 137 up to 10 millicuries, which are operated remotely in and out of the device with the aid of the control rod. All sources are mounted in rods which travel from device out into the open and return in the same manner. Therefore, these types of devices are more likely to receive more wear, and chances for the sealed source to break open and cause contamination problems are more likely to exist.
- b. After applicator has been prepared for test and all necessary monitoring equipment is available, be sure that source is exposed.
- c. Wipe the exterior of tube by running the swab around the rod. Rotate the swab around the rod to collect as many particles as possible.
- d. Return the applicator per instructions in kit and follow the monitoring requirements.

SPECIAL NOTE: Do not touch swab of applicator with hands.
Return applicator with caution.

6.5 Notification of Leak Test Results

Results of all leak tests are reported directly to the Radiation Safety Officer who was responsible for the leak test.

If a sample contains excess of 0.005 microcuries of removable contamination, the Radiation Safety Officer will notify the Manager responsible for the leak test as well as management and regulatory agencies under license involved.

6.6 Device Requirements

A device must not be transported or used unless it has been leak tested at proper intervals and notice of satisfactory results has been received.

If device is found to be contaminated, the device must remain in the same location as when discovered and will not be put into use until a certified health physicist has completed the decontamination work and authorizes its use.

Radiation Safety Officer will make all necessary arrangements with a certified health physicist to complete decontamination.

6.7 Leak Test Supplier

Leak test kit Model 3880 will be supplied by and returned for analysis to:

Troxler Electronic Laboratories, Inc.
P.O. Box 12057
Research Triangle Park, North Carolina 27709

OR

RSO, Inc.
5204 Minnick Road
Laurel, Maryland 20707

7. **CERTIFICATION REQUIREMENTS**

7.1 Scope

The purpose of this section is to establish a procedure for the documentation and certification of nuclear moisture density gauge technicians.

7.2 Responsibility

It is the responsibility of the nuclear gauge operator to provide a copy of the appropriate training certificate or document before being authorized.

8. **TRANSPORTATION REQUIREMENTS**

- 8.1 Nuclear moisture-density gauges are a category, "Yellow II" Radioactive Material. According to Federal Regulations a "Yellow II" radioactive material does not require the placarding of a vehicle when transporting.
- 8.2 When transporting a gauge in a vehicle it must be carried in its approved shipping container and the source rod must be in the safe position and locked.
- 8.3 Transportation to locations must be accomplished by the Radiation Safety Officer, or a qualified nuclear gauge operator.
 - a. Must be forwarded by ground transportation or "CARGO-ONLY AIRCRAFT".
 - b. Radioactive "Yellow II" labels must appear on shipping container.
 - c. Shippers Certification Report must be completed and given to forwarding agent.

- 8.4 The gauge should not be transported near the driver location and should be braced and secured in the vehicle to prevent theft and/or loss due to accident.

9. **SPECIAL PRECAUTIONS**

Source rods will not be removed from gauge for repairs or modifications by gauge operators.

10. **STORAGE REQUIREMENTS**

- 10.1 All density gauges used by T.D.C. are provided with a padlock to secure the source rod in the unit. All devices must be kept locked at all times except when in direct use.
- 10.2 Upon completion of gauging operations the unit will be locked and returned to its storage/transport container.
- 10.3 Upon returning the container to the laboratory it will be locked in the permanent storage room. This room is posted with "Caution - Radioactive Material."
- 10.4 Only personnel that have successfully completed an approved training program shall be issued with keys for the storage room and device lock.
- 10.5 With field work it is sometimes necessary to leave the work area to eat lunch, discuss problems, etc. In such cases the gauge must be placed in a locked storage area (such as a room or vehicle). Entrances to the storage area must be posted as stated in 10.3.

11. **WASTE MANAGEMENT**

All licensed material will be disposed of by transfer to an authorized recipient.

Materials will be returned to:

Troxler Electronic Laboratories, Inc.
3008 Cornwallis Road at Alexander Drive
Research Triangle Park, North Carolina 27709
or the appropriate manufacturer.

(FOR LFMS USE)
INFORMATION FROM LTS

BETWEEN:

LICENSE FEE MANAGEMENT BRANCH, ARM
AND
REGIONAL LICENSING SECTIONS

PROGRAM CODE: 03121
STATUS CODE: 3
FEE CATEGORY: -----
EXP. DATE: 0
FEE COMMENTS: -----
DECOM FIN ASSUR REQD: -----
.....

LICENSE FEE TRANSMITTAL

A. REGION I

1. APPLICATION ATTACHED
APPLICANT/LICENSEE: DRIGGS CORPORATION (THE)
RECEIVED DATE: 960916
DOCKET NO: 3034241
CONTROL NO.: 123692
LICENSE NO.:
ACTION TYPE: NEW LICENSEE

2. FEE ATTACHED
AMOUNT: \$550.00
CHECK NO.: 06872

3. COMMENTS

SIGNED M. A. Perkins
DATE: 9/17/96

B. LICENSE FEE MANAGEMENT BRANCH (CHECK WHEN MILESTONE 03 IS ENTERED 1 1)

1. FEE CATEGORY AND AMOUNT: 3P \$550

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

3. OTHER -----

SIGNED
DATE -----

I (96)
Log Aug 25
Transit 06872
Check No. 06872
Amount \$550
Fee Category 3P
Type of Fee APP
Date Check Rec'd 9/23/96
Date Completed CA
By: CA

1096 SEP 20 PM 4:18