



CCRG

Clendenin Consulting & Remediation Group

DL-080395-04

August 3, 1995

Nuclear Materials Safety Section
U.S. Nuclear Regulatory Commission, Region II
101 Marietta Street, NW, Suite 2900
Atlanta, GA 30323

Subject: Application for Material License

Dear Sir,

An application for material license is enclosed ^{in duplicate} with following attachments for purchase and use of Troxler nuclear gauges.

1. Responses to Items 5 through 11;
2. Troxler training certificate of Radiation Safety Officer;
3. Proposed gauge storage location;
4. Check for \$570 as application fee;

Please review the application and issue the material license for us to proceed with the purchase. We can be reached at (703) 771-8816, if you have any questions.

Sincerely,

CLENDENIN CONSULTING & REMEDIATION GROUP

Bruce E. Clendenin
President

256556

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST IS 2.5 HOURS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNRB 7714) U.S. NUCLEAR REGULATORY COMMISSION WASHINGTON, DC 20545 AND TO THE PAPERWORK REDUCTION PROJECT, 3150-0120, OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

APPLICATION FOR MATERIAL LICENSE

INSTRUCTIONS: SEE THE APPROPRIATE LICENSE APPLICATION GUIDE FOR DETAILED INSTRUCTIONS FOR COMPLETING APPLICATION. SEND TWO COPIES OF THE ENTIRE COMPLETED APPLICATION TO THE NRC OFFICE SPECIFIED BELOW.

APPLICATION FOR DISTRIBUTION OF EXEMPT PRODUCTS FILE APPLICATIONS WITH

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

ALL OTHER PERSONS FILE APPLICATIONS AS FOLLOWS

IF YOU ARE LOCATED IN

CONNECTICUT, DELAWARE, DISTRICT OF COLUMBIA, MAINE, MARYLAND, MASSACHUSETTS, NEW HAMPSHIRE, NEW JERSEY, NEW YORK, PENNSYLVANIA, RHODE ISLAND, OR VERMONT, SEND APPLICATIONS TO

LICENSING ASSISTANT SECTION
NUCLEAR MATERIALS SAFETY BRANCH
U.S. NUCLEAR REGULATORY COMMISSION REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PA 19408-1415

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

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

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
799 ROOSEVELT ROAD
GLEN ELLYN, IL 60137

ARKANSAS, COLORADO, IDAHO, KANSAS, LOUISIANA, MONTANA, NEBRASKA, NEW MEXICO, NORTH DAKOTA, OKLAHOMA, SOUTH DAKOTA, TEXAS, UTAH, OR WYOMING, SEND APPLICATIONS TO

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

ALASKA, ARIZONA, CALIFORNIA, HAWAII, NEVADA, OREGON, WASHINGTON, AND U.S. TERRITORIES AND POSSESSIONS IN THE PACIFIC, SEND APPLICATIONS TO

NUCLEAR MATERIALS SAFETY SECTION
U.S. NUCLEAR REGULATORY COMMISSION REGION V
1450 MARIA LANE
WALNUT CREEK, CA 94596-5368

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 (includes zip code)

Clendenin Consulting & Remediation Group
116-G Edwards Ferry Road
Leesburg, VA 22075

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

Licensed material will be used at the address listed in item 2 and at temporary jobsites in states subject to NRC's regulatory authority.

4. NAME OF PERSON TO BE CONTACTED ABOUT THIS APPLICATION

Bruce E. Clendenin

TELEPHONE NUMBER

(703) 771-8816

SUBMIT ITEMS 5 THROUGH 11 ON 8 1/2" X 11" PAPER. THE TYPE AND SOURCE OF INFORMATION TO BE PROVIDED IS DESCRIBED IN THE LICENSE APPLICATION GUIDE.

5. RADIOACTIVE MATERIAL
a. Element and mass number, b. chemical and/or physical form, and c. maximum amount which will be possessed at any one time

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

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

8. TRAINING FOR INDIVIDUALS WORKING IN OR FREQUENTING RESTRICTED AREAS

9. FACILITIES AND EQUIPMENT

10. RADIATION SAFETY PROGRAM

11. WASTE MANAGEMENT

12. LICENSE FEES (See 10 CFR 170 and Section 170)

FEE CATEGORY 3P AMOUNT ENCLOSED \$ 570.00

13. CERTIFICATION (Must be completed by applicant) THE APPLICANT UNDERSTANDS THAT ALL STATEMENTS AND REPRESENTATIONS MADE IN THIS APPLICATION ARE BINDING UPON THE APPLICANT.

THE APPLICANT AND ANY OFFICIAL EXECUTING THIS CERTIFICATION ON BEHALF OF THE APPLICANT, NAMED IN ITEM 4, CERTIFY THAT THIS APPLICATION IS PREPARED IN CONFORMANCE WITH TITLE 10, CODE OF FEDERAL REGULATIONS, PARTS 20, 32, 33, 34, 35, AND 40 AND THAT ALL INFORMATION CONTAINED HEREIN IS TRUE AND CORRECT TO THE BEST OF THEIR KNOWLEDGE AND BELIEF.

WARNING: 18 U.S.C. SECTION 1001, ACT OF JUNE 25, 1948, AS AMENDED, MAKES IT A CRIMINAL OFFENSE TO MAKE A WILLFULLY FALSE STATEMENT OR REPRESENTATION TO ANY DEPARTMENT OR AGENCY OF THE UNITED STATES AS TO ANY MATTER WITHIN ITS JURISDICTION.

SIGNATURE CERTIFYING OFFICER

TYPED PRINTED NAME

TITLE

DATE

Bruce E. Clendenin

President

8/1/95

FOR NRC USE ONLY

TYPE OF FEE FEE LOG FEE CATEGORY COMMENTS

AMOUNT RECEIVED

CHECK NUMBER

APPROVED BY

256556

ITEMS 5 THROUGH 11

ITEM 5 - Radioactive Material

RADIONUCLIDE	SEALED SOURCE	MAX. ACTIVITY/SOURCE
A. Cs-137	Troxler A-102112	9 mci
B. Am-241:Be	Troxler A-102451	44 mci
C. Cf-252	Troxler A-105779	60 μ Ci
D. Am-241:Be	Troxler A-100608	110 mci
E. Am-241:Be	Troxler A-100337	300 mci

USE

- A. For use in Troxler Model 3400, 4640 series gauges to measure the moisture/density of soil aggregates and construction materials.
- B. For use in Troxler Model 3400 series gauges measuring hydrogen with relation to moisture content of construction/building materials.
- C. For use in Troxler Model 4430 series gauges measuring hydrogen with relation to moisture content of construction/building materials.
- D. For use in Troxler Model 3241 series gauges for the measurement of hydrogen with relation to oil content in asphaltic construction materials.
- E. For use in Troxler Model 3241 series gauges for the measurement of hydrogen with relation to oil content in asphaltic construction materials.

DATA ON REGISTRATION CERTIFICATES

MANUFACTURER/DISTRIBUTOR	REGISTRY NO.	MODEL NO.
Troxler Elec. Labs.	NC-646-D-130-S	3400 Series
	NC-646-D-131-S	4640
	NC-646-D-136-S	4430
	NC-646-D-128-S	3241 Series 100 & 300 mci

POSSESSION LIMIT COMMITMENT

We commit to limit the number of source-device combinations such that we do not exceed the quantities of by-product material that would require financial assurance for decommissioning as defined in 10 CFR 30.35(d).

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ITEM 6 - Purposes for Which Licensed Material Will Be Used

Measurement of moisture content and density of construction materials. The sealed source will not be lowered into the ground more than 3 feet.

ITEM 7 - Individuals Responsible for Radiation Safety Program

Mr. Bruce E. Clendenin has been designated as the company Radiation Safety Officer (RSO). Mr. Clendenin holds a Masters degree in Geology and has received Nuclear Gauge Training from Troxler Electronic Laboratories. A copy of his Troxler Nuclear Gauge Training Certificate is attached for your review. The RSO is the company president, and therefore has the independent authority to stop unsafe operations and will be given sufficient time to fulfill his radiation safety duties and responsibilities.

The RSO will be kept up to date on changes to the rules and regulations in the CFR by means of on-line telecommunications. The RSO is the company president. Therefore, the RSO is at the top of the organization structure, and is the one who signs the Item 13 of NRC Form 313.

The RSO's duties and responsibilities will be those listed in Appendix C of Policy and Guidance Directive PG 2-07 (Rev. 0), dated September 1994.

ITEM 8 - Training for Individuals Working in or Frequenting Restricted Area

Each individual who will operate the nuclear gauge will complete a Troxler nuclear gauge training course that meets the criteria in Part I of Appendix D of the Policy and Guidance Directive PG 2-07 (Rev. 0), dated Sept. 1994. The course instructor's qualifications will meet the criteria in Part II of the Policy and Guidance Directive. Each individual using a gauge will be approved by our Radiation Safety Officer. Copies of each individual's training certificate will be maintained on file.

Refresher training, including "dry runs", will be provided by the RSO to all gauge users at least every twelve months. Refreshers will include operating and emergency procedures, DOT requirements, changes in regulations or license conditions, and deficiencies identified during the performance of annual audits of the radiation safety program. A record of refresher training and a list of attenders will be maintained for at least three years.

ITEM 9 - Facilities and Equipment

Facilities

The permanent facility listed in Item 3 is a currently existing office complex. The restricted area does not include residential quarters. Unrestricted areas will be monitored for radiation with a TROXALERT - GM Beta, Gamma 0-100 MR/hr Survey Instrument. The gauge will be stored in a restricted access closet as shown on the attached diagram. Security of the gauge includes triple-lock access and surveillance by on-site personnel.

Security during transport will include one of the following:

1. Lock and chain in an open bed truck.
2. Lock in the trunk of a car.
3. Hidden from view while in a locked van.

Gauges that are in use at temporary job sites will always be within view of the user. Gauges that are not in use at temporary job sites will be secured in the same manner as when transported. The gauge will be returned to the permanent storage facility at the end of each work day.

A sketch of the area where gauges will be stored when not in use is attached.

Equipment

1. Survey instruments: Annually calibrated by manufacturer.

<u>Types of Instrument</u>	<u>Radiation Detected</u>	<u>Sensibility Range</u>	<u>Use</u>
TROXALERT - GM Survey Instrument	Beta, Gamma	0-100 MR/hr	Surveying

2. Personnel Monitoring Devices

Type - Thermoluminescent Dosimeter (TLD) Beta, Gamma, X-Ray, and Neutron Measurement

Exchange frequency: Monthly or quarterly

Monitoring services by: Troxler Radiation Monitor Services
Division of Troxler Electronic Labs, Inc.
P.O. Box 12057
Research Triangle Park, NC 27709

ITEM 10 - Radiation Safety Program

10.1 Personal Monitoring Program

All gauge users will be monitored with a thermoluminescent dosimeter (TLD) when they use gauges. Personnel monitoring equipment will consist of TLDs supplied by Troxler Radiation Monitoring Services on a quarterly exchange period.

10.2 Radiation Detection Instruments

At each jobsite, we will have at least one survey instrument capable of measuring between 0.01 millirem per hour and 100 millirems per hour. This instrument will be used to perform surveys after an incident. Each instrument will be calibrated by the manufacturer at intervals

not to exceed 12 months. Before using a survey instrument, we will check the response of the instrument with a dedicated check source that was supplied with the instrument and, if the instrument does not respond properly, then we will not use the instrument until it is repaired and operable or until we retain an operable instrument.

10.3 Leak Testing

The gauge will be leak tested at intervals not to exceed 6 months. This testing will be performed by the RSO named in Item 7. The leak test will be performed using the TROXLER Model 3880 Leak Test Kit. The leak test will be performed using the manufacturer's instructions. The smear will be sent to Troxler, the kit supplier, who will report test results to the RSO. A TLD monitoring device will be used while performing the leak test.

The method of analysis as provided by Troxler is described below:

"Troxler Electronic Laboratories, Inc. Leak Test Service is licensed according to NC Radioactive Materials License Number 032-0182-1. Leak test analysis is performed on samples from the Troxler Model 3880 leak test kit. Samples are analyzed with a Baird Polyspec Research Nuclear Spectrometer Model #987514 utilizing a Baird Atomic Scintillation Probe Model #062422 that is calibrated with NIST traceable sources of Cs-137, Cl-136, and Am-241. Analysis and return of results is typically performed on the day of receipt of the leak test wipe. Troxler will request a retest for activity detected between 0.00005 and 0.005 microCuries. Troxler will immediately notify the customer for activity detected that is greater than 0.005 microCuries, and advise that the sealed source(s) should be removed from service. A written report to the customer will follow. A perpetual record of all leak tests is maintained by Troxler and duplicates are available upon request for a nominal handling fee."

10.4 Inventories

The RSO will conduct inventories, at intervals not to exceed 6 months, to account for all sealed sources and devices received and possessed under the license. Inventory records will be maintained for three years from the date of inventory. The inventory will include the radionuclides and the amount 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.

10.5 Maintenance

Periodic maintenance will include cleaning the gauge. During any maintenance, the source will be in the shielded position. The person performing the cleaning will wear his/her TLD monitoring device. Accepted cleaning and lubrication procedures developed by the manufacturer will be followed. No maintenance will be performed in which the radioactive source is removed from the gauge. For this type of maintenance, the gauge will be returned to the manufacturer.

10.6 Transportation

We have and will maintain current copies of applicable DOT regulations and will develop and implement procedures for complying with applicable DOT regulations.

10.7 Operating and Emergency Procedures

We will commit to having and implementing operating and emergency procedures, as described in correspondence with NRC. All users of gauging devices will have a copy of the operating and emergency procedures before they begin using the gauge. Each jobsite will have a copy of the operating and emergency procedures. Our procedures will include the requirements and prohibitions outlined in Appendix H, but will be detailed to accommodate our particular situation.

10.8 Annual Audit of Radiation Program

Radiation safety audits will be performed by the RSO, Bruce Clendenin. The radiation safety qualifications of the auditor include the Troxler Electronic Laboratories training course for the use of nuclear testing equipment. This course includes the following:

Radiological Safety

1. Principles and practices of radiation protection.
2. Leak testing procedures.
3. Mathematics and calculations basic to the use and measurement of radioactivity.
4. Biological effects of radiation.
5. Radioactivity measurement standardization and monitoring techniques.
6. Accident and incident procedures
7. Procedures for nuclear gauge storage and transportation.
8. General safety precautions.
9. 40-hr OSHA Health and Safety Training

Gauge Operation

1. Instrument theory
2. Operating procedures
3. Maintenance
4. Field application
5. Gauge calibration

The RSO, Bruce Clendenin, will conduct radiation safety audits at least every 12 months as described in Appendix I of Policy and Guidance Directive PG 2-07 (Rev. 0), dated September 1994. Records of the audit will be maintained for at least 3 years after the audit is conducted. Management will review the results of the audit promptly after it is performed. Prompt action will be taken to correct deficiencies identified in the audit, and all personnel will be informed of the deficiencies and how to avoid similar deficiencies.

10.9 Financial Assurance and Recordkeeping for Decommissioning

We will commit to restrict the possession of licensed material to quantities below the level specified in 10 CFR 30.35(d).

Records which are important for decommissioning will be kept in the office listed in Item 2 until the license is terminated by NRC. These records include information relating to spills, leaking sources, or other unusual incidents that involve the spread of contamination.

ITEM 11 - Waste Management

Disposition of the gauge will be by transfer to either another licensee specifically licensed to possess the radioactive material or to a licensed disposal facility. The manufacturer will assist in locating a properly licensed disposal facility.

TROXLER ELECTRONIC LABORATORIES, INC.

HEREBY CERTIFIES THAT

BRUCE CLENDENIN

of

CLENDENIN CONSULTANTS

HAS SUCCESSFULLY COMPLETED THE TROXLER ELECTRONIC LABORATORIES, INC.
TRAINING COURSE FOR THE USE OF NUCLEAR TESTING EQUIPMENT.

SUBJECTS INCLUDED IN THIS COURSE WERE AS FOLLOWS:

Radiological Safety

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

Gauge Operation

1. Instrument theory
2. Operating procedures
3. Maintenance
4. Field application
5. Gauge calibration

Frank D. Jones
INSTRUCTOR

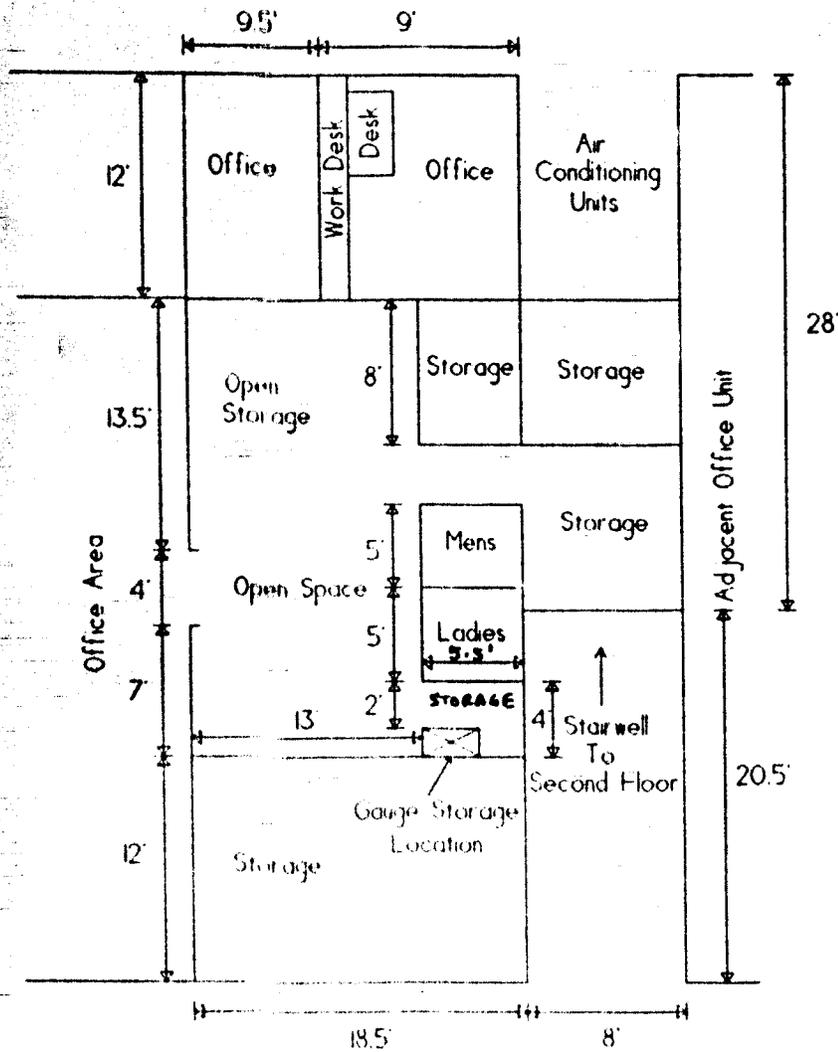
12-18-82

DATE

NO 32279

WILLIAM F. TROXLER

PRESIDENT



CCRG

Clendenin Consulting & Remediation Group

Nuclear Gauge Storage Location

Date: August 2, 1995

Scale: 1" = 10'

Drawn by: KST

Approved by: NMJ

Project #:

Figure: 1