

MATERIALS LICENSE

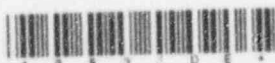
Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974 (Public Law 93-438), and Title 10, Code of Federal Regulations, Chapter I, Parts 30, 31, 32, 33, 34, 35, 36, 39, 40, and 70, and in reliance on statements and representations heretofore made by the licensee, 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.

302586

Licensee		3. License Number 21-26801-01
1. Engineering & Environmental Services Group, Inc.		4. Expiration Date May 31, 2007
2. 303 S. Waverly, Suite 4 Lansing, MI 48917		5. Docket or Reference No. 030-34454
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 source (Troxler Dwg. No. A-102112)	A. No single source to exceed 9 millicuries each
B. Americium-241	B. Sealed source (Troxler Dwg. No. A-102451)	B. No single source to exceed 44 millicuries each
9. Authorized Use:		
A. and B. To be used in Troxler Model 3400 and 3440 Series moisture/density gauges.		

CONDITIONS

10. Licensed material may be stored at the licensee's facilities located at 303 S. Waverly, Suite 4, Lansing, Michigan and may be used 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.
11. The Radiation Safety Officer for this license is Seth Garner.
12. Licensed material shall only be used by, or under the supervision and in the physical presence of, Seth Garner or individuals who have successfully completed the manufacturer's training program for gauge users, have been instructed in the licensee's routine and emergency operating procedures and who have been designated by the Radiation Safety Officer.

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**MATERIALS LICENSE
SUPPLEMENTARY SHEET**

License Number

21-26801-01

Docket or Reference Number

030-34454

13. A. Sealed sources and detector cells shall be tested for leakage and/or contamination at intervals not to exceed 6 months or at such other intervals as specified by the certificate of registration referred to in 10 CFR 32.210.
- 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 3 months.
- C. In the absence of a certificate from a transferor indicating that a leak test has been made within 6 months prior to the transfer, a sealed source or detector cell received from another person shall not be put into use until tested.
- D. Sealed sources 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 transferred 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.
- E. The leak 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 in accordance with 10 CFR 30.50(b)(2), and the source shall be removed immediately from service and decontaminated, repaired, or disposed of in accordance with Commission regulations. The report shall be filed within 5 days of the date the leak test result is known with the U.S. Nuclear Regulatory Commission, Region III, ATTN: Chief, Nuclear Materials Safety Branch, 801 Warrenville Road, Lisle, Illinois 60532-4351. The report shall specify the source involved, the test results, and corrective action taken.

COPY

**MATERIALS LICENSE
SUPPLEMENTARY SHEET**

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- F. The licensee is authorized to collect leak test samples for analysis by Troxler Electronic Laboratories, 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.
14. Sealed sources or detector cells containing licensed material shall not be opened or sources removed from source holders by the licensee.
15. When performing tests at temporary job sites, the authorized user shall not leave the moisture/density gauge unattended. Upon completion of tests the device shall be locked in the licensee's vehicle or a secure building to prevent unauthorized use, loss, or theft.
16. The licensee shall conduct a physical inventory every 6 months to account for all sources and/or devices received and possessed under the license.
17. The licensee is authorized to transport licensed material only in accordance with the provisions of 10 CFR Part 71, "Packaging and Transportation of Radioactive Material."
18. 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.
19. 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.
20. In addition to the possession limits in Item 8, the licensee shall further restrict the possession of licensed material to quantities below the minimum limit specified in 10 CFR 30.35(d) for establishing decommissioning financial assurance.
21. The licensee may not possess and use materials authorized in Items 6, 7, and 8 until:
- A. The licensee has constructed the facilities and obtained the equipment described in the application and supporting documentation; and
- B. The U. S. Nuclear Regulatory Commission, Region III, ATTN: Chief, Materials Licensing Branch, 801 Warrenville Road, Lisle, IL 60532-4351 has been notified that activities authorized by the license will be initiated.

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**MATERIALS LICENSE
SUPPLEMENTARY SHEET**

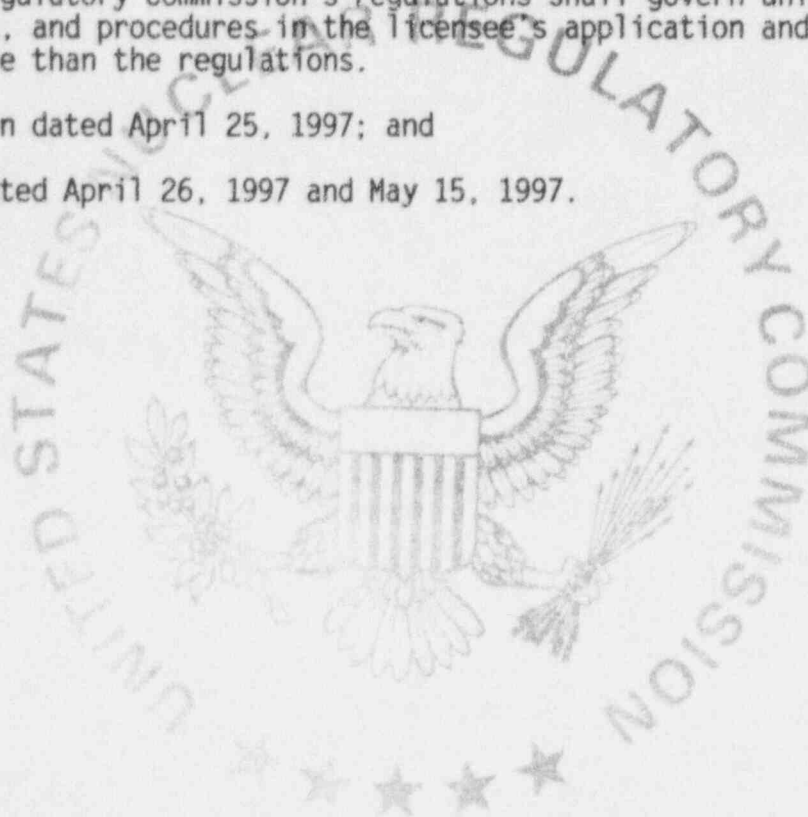
License Number

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22. Within 30 days of the date of a decision not to complete the facility, acquire equipment, or possess and use authorized material, the licensee must notify the Commission in writing of the decision.
23. 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 U.S. 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 April 25, 1997; and
- B. Letters dated April 26, 1997 and May 15, 1997.



FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Date MAY 30 1997

By

Colleen C. Casey
Materials Licensing Branch, Region III

COPY

BETWEEN:

License Fee Management Branch, ARM
and
Regional Licensing Sections

(FOR LFMS USE)
INFORMATION FROM LTS

Program Code: _____
Status Code: 3
Fee Category: _____
Exp. Date: 0
Fee Comments: _____
Decom Fin Assur Req'd: _____
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S6

LICENSE FEE TRANSMITTAL

A. REGION

1. APPLICATION ATTACHED

Applicant/License: ENGIN. & ENVIR. SERVICES GROUP, INC
Received Date: 970429
Docket No: 3034454
Control No.: 302586
License No.:
Action Type: New Licensee

2. FEE ATTACHED

Amount: 500
Check No.: 2271

3. COMMENTS

Signed D. Hersey
Date 5-2-97

B. LICENSE FEE MANAGEMENT BRANCH (Check when milestone 03 is entered / ☒)

1. Fee Category and Amount: _____

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

Amendment _____
Renewal _____
License ☒ _____

3. OTHER _____

Signed _____
Date _____

MAY 07 1997

Log	May 2 III
Remitter	
Check No.	2271
Amount	\$500
Fee Category	3P
Type of Fee	APP
Date Check Rec'd	5/5/97
Date Completed	
By	

1997 MAY -5 AM 11:23

(7-96)
1st CFR 30, 32, 33
34, 35, 36, 39 and 40

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-8 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
801 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)

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☐
☐

A. NEW LICENSE

B. AMENDMENT TO LICENSE NUMBER _____

C. RENEWAL OF LICENSE NUMBER _____

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

Engineering & Environmental Services
Group, Inc.
303 S. Waverly, Suite 4, Lansing, MI.
48917

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

As in 2.

4. NAME OF PERSON TO BE CONTACTED ABOUT THIS APPLICATION

Lenora K. Jadun, P.E.

TELEPHONE NUMBER

517-886-6657

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

FEE CATEGORY

3 p.

AMOUNT
ENCLOSED\$500.00
\$550.00

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

THE APPLICANT AND ANY OFFICIAL EXECUTING THIS CERTIFICATION ON BEHALF OF THE APPLICANT, NAMED IN ITEM 2, CERTIFY THAT THIS APPLICATION IS PREPARED IN CONFORMITY WITH TITLE 10, CODE OF FEDERAL REGULATIONS, PARTS 30, 32, 33, 34, 35, 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 82 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

Lenora K. Jadun, P.E., President

SIGNATURE

DATE

4/25/97

FOR NRC USE ONLY

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

RECEIVED

APR 28 1997

REGION III

April 26, 1997

Materials Licensing Section
U.S. Nuclear Regulatory Commission, Region II
801 Warrenville Rd.
Lisle, IL 60532-4351

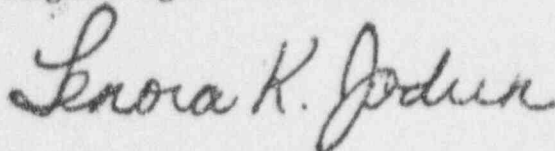
Re: Application for Material License

Dear Sir/Madame:

Hello, I represent Engineering and Environmental Services Group, Inc. (EESG) of Lansing. We are a growing civil and environmental engineering firm that is branching out into the field testing arena. We have individuals that have been trained in nuclear gauge use and safety. Please find included with this letter our application for a license to purchase and possess a Troxler 3440 Nuclear Gauge. We have work opportunities beginning in early June and would like this application processed in the quickest manner possible. If it is possible, we would like an official from your office to contact EESG with the probable time frame for application processing. If this application is going to take more than **30 days**, we would very much like to know. Please contact our offices at 517 886-6657, or fax us at 517 886-7484. Thank you for any help you can provide to speed this application up, and for your time. Have a nice day.

Sincerely,

Engineering & Environmental Services Group, Inc.



Lenora Jadun, P.E.
President and Principal Engineer

Disadvantaged Business Enterprise



Engineering & Environmental Services Group, Inc.
303 S. Waverly, Suite 4
Lansing, MI. 48917

517-886-6657

Item 5.

Manufacturer's Name:

Troxler

Model # 3440

Registration Certificate No. NC-646-D-130-S

EESG, Inc. hereby commits to limit the number of source/device combinations such that the quantities of byproduct material that would require financial assurance for decommissioning is not exceeded as defined in 10CFR 30.35(d) and discussed in Item 10.9 in the Draft Regulatory Guide DG-0008.

Item 6.

To be utilized for density and moisture testing of soils and construction materials as a gauging device. This device will be used for only the purposes for which the device was designed in accordance with the manufacturer's recommendation's for use.

The sealed source will be lowered into the ground less than 3 foot in depth for measurements.

Item 7

Radiation Safety Officer: Seth Garner

Training: Troxler Radiation Safety Course
Professional Service Industries, Inc.
(Company Training Program)

Experience: Four Years experience with use of the
Troxler Radiation Gauge for soil &
bituminous testing

Degrees: High School Diploma, Sexton H.S.,
Lansing, Mi.

Associates Liberal Arts, Lansing
Community College, Lansing, MI.

Associates Arts Engineering, Lansing

Community College, Lansing, MI.
Bachelors Civil Engineering
Michigan State University
East Lansing, MI.

Duties of the RSO:

The RSO's duties and responsibilities will be those listed in Appendix C of this regulatory guide, (Draft Regulatory Guide DG-0008).

Item 8:

All personnel utilizing the Troxler device will be trained by Troxler Electronics Laboratory, Inc., staff. They will be all trained prior to using the equipment in the Troxler Nuclear Gauge Safety Training Program.

EESG commits that before an individual is permitted to use a gauge, the individual (a) will have successfully completed a gauge manufacturer's course that meets the criteria in Part I of Appendix D of the regulatory guide, (Draft Regulatory Guide DG-0008), and (b) will have received copies of, and be trained in, the EESG's Operating and Emergency Procedures, and (c) will have been designated as an authorized user by our RSO.

Records will be maintained by EESG regarding course requirements to meet Part I in Appendix D; the course instructor's qualifications requirements to meet Part II of Appendix D; trained personnel are to receive copies of the Operating and Emergency Procedures; and that the personnel was designated as an authorized user by the RSO. These records will be maintained until three years after the employee terminates employment.

A refresher course shall be provided, by the RSO or person that meets the requirements in Part II of Appendix D of this regulatory guide (Draft Regulatory Guide DG-0008), to all gauge users at intervals not to exceed one year. The refresher course will include "dry-runs" of EESG's emergency procedures and reviewing (1) operating and emergency procedures, (2) DOT requirements, (3) changes in applicable regulations or license conditions, and (4) deficiencies identified during the performance of annual audits of the radiation safety program.

Records will be kept of annual refresher training, including date of training, instructor's name and qualifications, list of attendees, and topics covered. These records shall be kept for at least three years.

Item 9: Facilities and Equipment

1) The permanent storage facility for the Troxler Nuclear Gauge will be in a certified storage enclosure, locked and secured. The facility will be the storage enclosure located in the Southwest Corner of the Commercial Building Located at 303 S. Waverly. The enclosure will be more than 15 feet away from any permanent occupied workstation. Anticipated date for installation will be June 1, 1997.

2) The storage facility is located in an commercial office complex, in the office storage area.

3) The gauge location is on the diagram included with this application. This will be a storage enclosure dedicated solely for the storage of gauges. The enclosure will be locked. The storage area is located more than 15 feet from any occupied permanent workstation.

EESG commits to returning the portable Troxler density gauge to the permanent facility, unless temporarily stored at the jobsite.

4) The gauge may be stored at temporary locations depending on the location of the construction inspection work. The only instance this would occur is when the distance from the job site requires that the trained personnel remain there for an extended period of time. The gauge shall be secured in a construction trailer in a locked storage enclosure and secured from unauthorized removal. The area will be posted in accordance to the requirements of 10 CFR 20.1903.

The gauge shall be secured in the storage enclosure or kept under the physically surveillance and immediate control of authorized users at all times while the gauge is not in storage as described in Draft Regulatory Guideline (DG-0008), Appendix E, IN 93-18.

Item 10 - Radiation Safety Program

EESG's Radiation Safety Program will be provide to all personnel utilizing the Troxler Equipment. Other personnel shall be informed about the storage location of the Troxler and its hazards.

Personnel Monitoring Program

EESG commits to the requirements of 10 CFR 20.1502. Personnel Monitoring Equipment shall be provided. The monitoring equipment shall include a film badge or thermoluminescent dosimeter (TLD).

EESG commits to monitor all gauge users with a film badge or TLD when they use the gauges. This will include:

a. Name of supplier or monitoring equipment or use a supplier accredited by the National Voluntary Laboratory Accreditation Program as required by 10 CFR 20.1501.

b. Identification of the type of personnel monitoring equipment that will be used.

c. Specification of the frequency with which the film badges or TLD's will be exchanged.

Radiation Detection Instruments

In compliance with 10 CFR 20.1501, EESG commits that an appropriate survey meter will be available at all times for timely evaluation of source integrity following an incident at any jobsite. This survey instrument will be kept at the Permanent Storage Facility Location.

Leak Testing

In compliance for measuring leaks, EESG will engage the services of the gauge manufacturer to perform this service. The service will be performed intervals not to exceed 6 months. The procedures will be in accordance with 10 CFR 30.53.

Inventories

EESG will conduct inventories, at intervals not to exceed 6 months, to account for all sealed sources and devices received and possessed under our NRC license. Records of inventories will be maintained 3 years from the date of inventory, including the radionuclide and amount; the manufacturer's name, model number, and serial number; the location of each sealed source and device; and the date of inventory.

Maintenance:

Pursuant to 10 CFR 30.34 (e) any maintenance will always be performed with the radioactive source in the safe shielded position in accordance with the manufacturer's directions or recommendations and more extensive maintenance that requires removal of the source from its shielded position or removal of the source rod from the device will be performed by the gauge manufacturer.

Transportation of Devices to Field Locations

EESG certifies that the Troxler will be transported in accordance to 10 CFR 71.5, requirements of the Department of Transportation, found in Title 49 of the Code of Federal Regulations.

Operation and Emergency Procedures

EESG, in accordance with 10 CFR 30.34 has Operation and Emergency Procedures. We are committing to having and implementing operating and emergency procedures, as described in correspondence with the NRC; committing to providing a copy of the operating and emergency procedures to all users of gauging devices before they begin to use the gauges; committing to having a copy of EESG's operating and emergency procedures at each jobsite.

Annual Audit of Radiation Safety Program

Name of Radiation Safety of the Officer and Qualifications is included in Item 7. The Scope of the Audit will include the items noted in Appendix I in the Draft Regulatory Guidelines, DG-0008. EESG will utilize the same Audit notes forms that were provided with very little modification. Audits will be conducted at least every 12 months, and records will be kept at least 3 years after the date of the audit. EESG management is committed to reviewing and evaluation of the audit and make corrections as necessary. Personnel will be informed of the audit results and the corrections.

Financial Assurance and Recordkeeping for Decommissioning

EESG commits to the requirements of 10 CFR 30.35 for decommissions and recordkeeping.

Financial Assurance Requirements

The reader is requested to review Item 5.

Waste Management

EESG commits to disposing any licensed material as specified in 10 CFR 20.2001.

3440 & 3430 SPECIFICATIONS

Measurement Specifications

(U.S. Customary Units)

Direct Transmission Density (6")	15 sec	1 min	4 min
Precision at 120 pcf	0.42	0.21	0.11±pcf
Composition error at 120 pcf	1.25	1.25	1.25±pcf
Surface error (0.05", 100% Void) pcf	0.87	0.87	0.87±pcf

Backscatter (98%) (4")	15 sec	1 min	4 min
Precision at 120 pcf	1.00	0.50	0.25±pcf
Composition error at 120 pcf	2.50	2.50	2.50±pcf
Surface error (0.05", 100% Void) pcf	3.43	3.43	3.43±pcf

Moisture at 15 pcf	15 sec	1 min	4 min
Precision at 15 pcf	0.64	0.32	0.16±pcf
Surface error (0.05", 100% Void) pcf	1.12	1.12	1.12±pcf
Depth of measurement at 15 pcf (6")			

(S.I. Units)

Direct Transmission - 150 mm	15 sec	1 min	4 min
Precision at 2000 kg/m ³	6.8	3.4	1.7±kg/m ³
Composition error at 2000 kg/m ³	20.0	20.0	20.0±kg/m ³
Surface error (1.25 mm, 100% Void) kg/m ³	14.0	14.0	14.0 kg/m ³

Backscatter Density (98%) - 100 mm	15 sec	1 min	4 min
Precision at 2000 kg/m ³	16.0	8.0	4.0±kg/m ³
Composition error at 2000 kg/m ³	40.0	40.0	40.0±kg/m ³
Surface error (1.25 mm, 100% Void) kg/m ³	55.0	55.0	55.0 kg/m ³

Moisture	15 sec	1 min	4 min
Precision at 250 kg/m ³	10.3	5.1	2.5±kg/m ³
Surface error (1.25 mm, 100% Void)	18.0	18.0	18.0 kg/m ³
Depth of measurement at 250 kg/m ³ - 150 mm			

Calibration Specifications

Accuracy of Density Standards	±0.2%
Accuracy of Moisture Standards	±2.0%
Calibration Range	70-170 pcf (1100-2700 kg/m ³) Density 0-40 pcf (0-640 kg/m ³) Moisture

Radiological Specifications

Gamma Source	8 mCi ± 10% Co-137
Neutron Source	60 uCi ± 10% Cf-252 or 40 mCi ± 10% Am-241:Be
Source Housing	Stainless Steel Encapsulation
Shielding	Tungsten, lead and cadmium
Surface Dose Rates	20.5 nrem/hr max., neutron and gamma
Source Rod Material	Stainless Steel
Shipping Case	DOT 7A, Type A
Sealed Source Approved for Domestic and International Shipments	Special Form

Electrical Specifications

Time Accuracy and Stability	±0.005%, ±0.0002%/°C
Power Supply Stability	±0.01%/°C
Stored Power	30 watt-hours
Battery Recharge Time	14-16 hours (automatic cutoff)
Charger	110/220 VAC, 50-60 Hz or 12-14 VDC
Readout	4 x 16 alpha-numeric liquid crystal display

Gauge returns to Gauge Ready (power saving mode) after two minutes of inaction, except in standard, stat test, drift test, and in nomograph programs when a 30-minute delay is provided. After 5 hours of inactivity, gauge performs complete power shut-down.

Battery packs are fully protected against overcharge and overdischarge. (Remaining battery voltage is indicated on the display). (3440 only)

Emergency Use - Capable of operation with D size alkaline batteries.

Mechanical Specifications

Case	High Impact Plastic
Vibration Test	0.1 in. (2.5 mm) at 12.5 hz
Drop Test	300 mm on 25 mm diameter steel ball
Operating Temp: Ambient	14° to 158°F (-10° to 70°C)
Surface	350°F (175°C)
Storage Temp.	-70° to 185°F (-55° to 85°C)
Gauge Size (excluding handles)	14.8 x 9.1 x 7.2 in. (376 x 231 x 183 mm)
Gauge Height (with handles)	12", 23.25 in. (591mm) 8", 19.25 in. (489 mm)
Weight	29 lbs. (13.2 kg)
Shipping Weight	90 lbs. (40.8 kgs) with transport case
Available Models	8" or 12" index rod with 1" or 2" increments (200 or 300 mm index rod with 25 or 50 mm increments)

Standard Accessories

Reference Standard, Scraper Plate, Drill Rod Extraction Tool, 12-14 VDC Charger, AC Charger, Battery Case (Alkaline), Instruction Manual, Water Resistant Transport Case (Meets ASTM Specs), DMS Data Management System Software with cables for 3440 (in USA and Canada only)

Optional Accessories

TroxAlert™ Survey Meter, TLD Radiation Monitoring Service, Leak Test Kit, Printer, Magnalube-G Lubricant, Source Rod Pig, Concrete Adapter.

Special Functions for Model 3440

Automatic standard count comparison and storage.
Determination of count time for selected precision.
Field offsets of density and moisture data.
Field calibration for special soil types.
Nomograph method for measurement of asphalt overlays.
Method to negate effects of sidewalls on measurements in a trench.
Automatic depth indicator with manual override.
Calculator mode with storage.
Self-test and service programs.

Display, Keypad, and Ram Test He³ and G-M Tube
Test Statistical Stability and Drift Test Gauge Identification Program

Communication Specifications

Serial Port RS-232 (field-selectable 300 to 4800 baud)

Western Branch Rancho Cordova, CA (916) 631-0234 (916) 631-0272 FAX	Southwestern Branch Arlington, TX (817) 275-0571 (817) 275-8562 FAX	Mid Eastern Branch RTP, NC (919) 549-8661 ext. 146 (919) 549-0761 FAX	Maryland Service Center Baltimore, MD (410) 780-2601 (410) 780-2603 FAX	Northwestern Branch Puyallup, WA (206) 770-7864 (206) 840-1142 FAX	Northeastern Branch Baltimore, MD (301) 924-3336 (301) 299-1899 FAX
Midwestern Branch Elgin, IL (847) 695-0900 (847) 695-5094 FAX	Southern Branch Nashville, TN (615) 331-8537 (615) 331-8537 FAX	Central Branch RTP, NC (919) 549-8661 ext. 136 (919) 549-0761 FAX	Rocky Mountain Branch Lakewood, CO (303) 969-0950	Canadian Office Trolox Electronics (Canada), Ltd. Toronto, Ontario (905) 709-3665 (800) 392-1867 (905) 709-3667 FAX	European Branch Trolox Electronics GmbH Gilchinger Strasse 33 82239 Alling bei Munchen, Germany Telefon: +49-8141-71063 Telefax: +49-8141-80731



Troxler Electronic Laboratories, Inc.
3008 Cornwallis Rd., P.O. Box 12057
Research Triangle Park, NC 27709 USA
Phone: (919) 549-3661 Fax: (919) 549-0761

3440 & 3430 SPECIFICATIONS

Measurement Specifications

(U.S. Customary Units)

Direct Transmission Density (6")	15 sec	1 min	4 min
Precision at 120 pcf	0.42	0.21	0.11±pcf
Composition error at 120 pcf	1.25	1.25	1.25±pcf
Surface error (0.05", 100% Void) pcf	0.87	0.87	0.87-pcf

Backscatter (98%) (4")	15 sec	1 min	4 min
Precision at 120 pcf	1.00	0.50	0.25±pcf
Composition error at 120 pcf	2.50	2.50	2.50±pcf
Surface error (0.05", 100% Void) pcf	3.43	3.43	3.43-pcf

Moisture at 15 pcf	15 sec	1 min	4 min
Precision at 15 pcf	0.64	0.32	0.16±pcf
Surface error (0.05", 100% Void) pcf	1.12	1.12	1.12-pcf
Depth of measurement at 15 pcf (6")			

(S.I. Units)

Direct Transmission - 150 mm	15 sec	1 min	4 min
Precision at 2000 kg/m ³	6.8	3.4	1.7±kg/m ³
Composition error at 2000 kg/m ³	20.0	20.0	20.0±kg/m ³
Surface error (1.25 mm, 100% Void) kg/m ³	14.0	14.0	14.0-kg/m ³

Backscatter Density (98%) - 106 mm	15 sec	1 min	4 min
Precision at 2000 kg/m ³	16.0	8.0	4.0±kg/m ³
Composition error at 2000 kg/m ³	40.0	40.0	40.0±kg/m ³
Surface error (1.25 mm, 100% Void) kg/m ³	55.0	55.0	55.0-kg/m ³

Moisture	15 sec	1 min	4 min
Precision at 250 kg/m ³	10.3	5.1	2.5±kg/m ³
Surface error (1.25 mm, 100% Void)	18.0	18.0	18.0-kg/m ³
Depth of measurement at 250 kg/m ³ - 150 mm			

Calibration Specifications

Accuracy of Density Standards	±0.2%
Accuracy of Moisture Standards	±2.0%
Calibration Range	70-170 pcf (1100-2700 kg/m ³) Density 0-40 pcf (0-640 kg/m ³) Moisture

Radiological Specifications

Gamma Source	8 mCi ± 10% Cs-137
Neutron Source	60 uCi ± 10% Cf-252 or 40 mCi ± 10% Am-241:Be
Source Housing	Stainless Steel Encapsulation
Shielding	Tungsten, lead and cadmium
Surface Dose Rates	20.5 nrem/hr max., neutron and gamma
Source Rod Material	Stainless Steel
Shipping Case	DOT 7A, Type A
Sealed Source Approved for Domestic and International Shipments	Special Form

Electrical Specifications

Time Accuracy and Stability	±0.005%, ±0.0002%/°C
Power Supply Stability	±0.01%/°C
Stored Power	30 watt-hours
Battery Recharge Time	14-16 hours (automatic cutoff)
Charger	110/220 VAC, 50-60 Hz or 12-14 VDC
Readout	4 x 16 alpha-numeric liquid crystal display

Gauge returns to Gauge Ready (power saving mode) after two minutes of inaction, except in standard, stat test, drift test, and in nomograph programs when a 30-minute delay is provided. After 5 hours of inactivity, gauge performs complete power shut-down.

Battery packs are fully protected against overcharge and overdischarge. (Remaining battery voltage is indicated on the display). (3440 only)

Emergency Use - Capable of operation with D size alkaline batteries.

Mechanical Specifications

Case	High Impact Plastic
Vibration Test	0.1 in. (2.5 mm) at 12.5 hz
Drop Test	300 mm on 25 mm diameter steel ball
Operating Temp: Ambient	14° to 158°F (-10° to 70°C)
Surface	350°F (175°C)
Storage Temp.	-70° to 185°F (-55° to 85°C)
Gauge Size (excluding handles)	14.8 x 9.1 x 7.2 in. (376 x 231 x 183 mm)
Gauge Height (with handles)	12": 23.25 in. (591mm) 8": 19.25 in. (489 mm)
Weight	29 lbs. (13.2 kg)
Shipping Weight	90 lbs. (40.8 kgs) with transport case
Available Models	8" or 12" index rod with 1" or 2" increments (200 or 300 mm index rod with 25 or 50 mm increments)

Standard Accessories

Reference Standard, Scraper Plate, Drill Rod Extraction Tool, 12-14 VDC Charger, AC Charger, Battery Case (Alkaline), Instruction Manual, Water Resistant Transport Case (Meets ASTM Specs), DMS Data Management System Software with cables for 3440 (in USA and Canada only)

Optional Accessories

TroxAlert™ Survey Meter, TLD Radiation Monitoring Service, Leak Test Kit, Printer, Magnalube-G Lubricant, Source Rod Pig, Concrete Adapter.

Special Functions for Model 3440

Automatic standard count comparison and storage.
Determination of count time for selected precision.
Field offsets of density and moisture data.
Field calibration for special soil types.
Nomograph method for measurement of asphalt overlays.
Method to negate effects of sidewalls on measurements in a trench.
Auto-matic depth indicator with manual override.
Calculator mode with storage.
Self-test and service programs.

Display, Keypad, and Ram Test He³ and G-M Tube
Test Statistical Stability and Drift Test Gauge Identification Program

Communication Specifications
Serial Port

RS-232 (field-selectable 300 to 4800 baud)

Western Branch
Rancho Cordova, CA
(915) 631-0234
(916) 631-0272 FAX

Southwestern Branch
Arlington, TX
(817) 275-0571
(817) 275-8562 FAX

Mid Eastern Branch
RTP, NC
(919) 549-8661 ext. 146
(919) 549-0761 FAX

Maryland Service Center
Baltimore, MD
(410) 780-2601
(410) 780-2603 FAX

Northwestern Branch
Puyallup, WA
(206) 770-7864
(206) 840-1142 FAX

Northeastern Branch
Baltimore, MD
(301) 924-3336
(301) 299-1899 FAX

Midwestern Branch
Elgin, IL
(847) 695-0900
(847) 695-5094 FAX

Southern Branch
Nashville, TN
(615) 331-8537
(615) 331-8537 FAX

Central Branch
RTP, NC
(919) 549-8661 ext. 136
(919) 549-0761 FAX

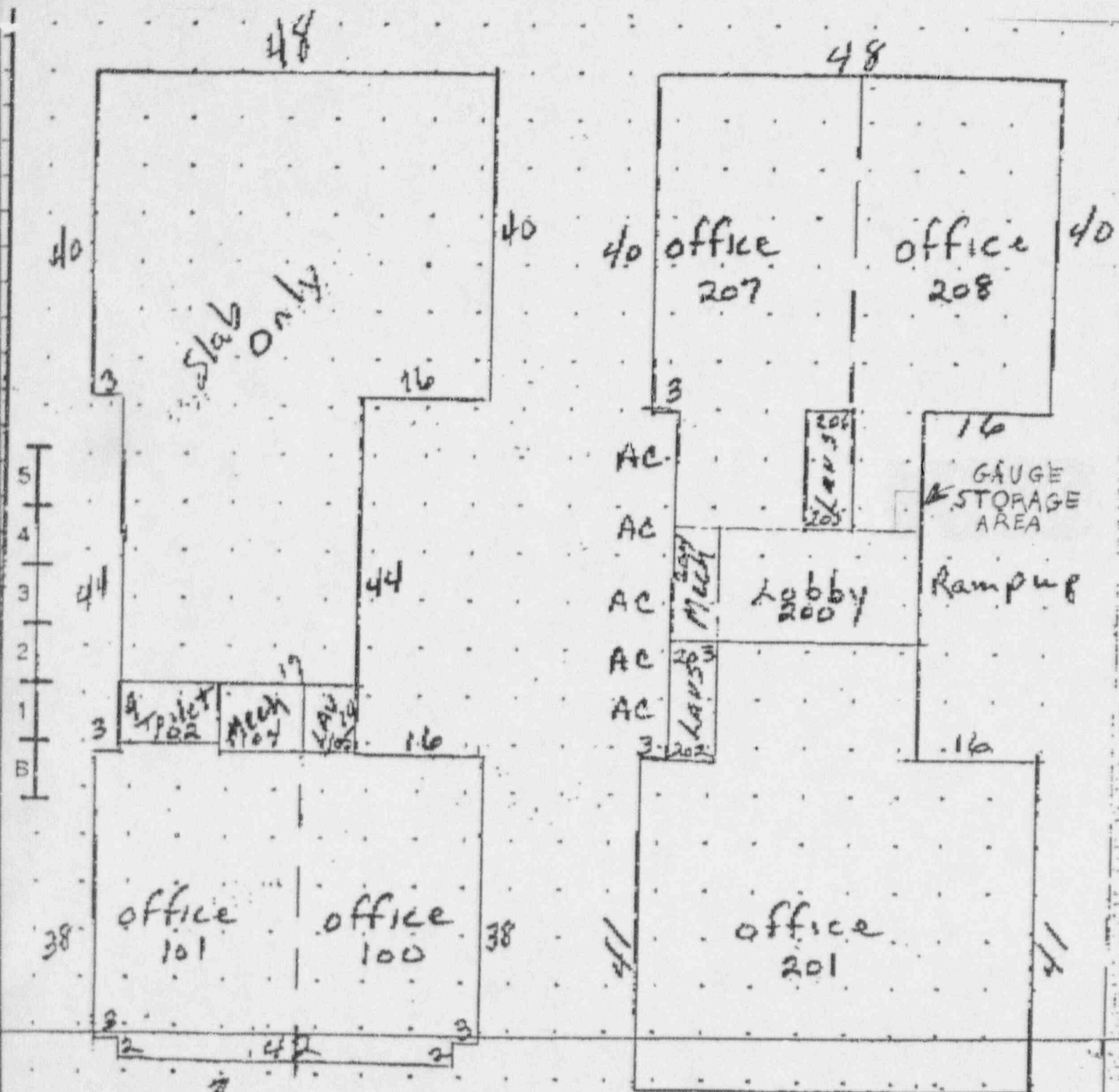
Rocky Mountain Branch
Lakewood, CO
(303) 959-0950

Canadian Office
Trolox Electronics (Canada), Ltd.
Toronto, Ontario
(905) 709-3665
(800) 392-1867
(905) 709-3667 FAX

European Branch
Trolox Electronics GmbH
Gilchinger Strasse 33
82239 Ailing bei Munchen, Germany
Telefon: +49-8141-71063
Telefax: +49-8141-80731

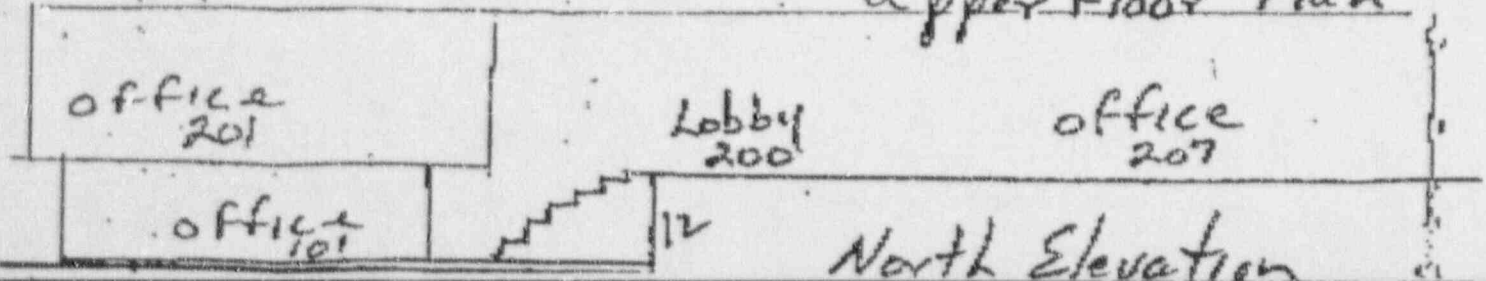


Troxler Electronic Laboratories, Inc.
3068 Cornwallis Rd., P.O. Box 12057
Research Triangle Park, NC 27709 USA
Phone: (919) 549-8661 Fax: (919) 549-0761



Lower floor

Upper floor Plan



North Elevation

RADIATION SAFETY TRAINING PROGRAM FOR DENSITY GAUGES

THIS IS TO CERTIFY THAT

SETH GARNER

OF

Professional Service Industries, Inc.

Has Successfully Completed the Radiation Safety Training Program for Moisture/Density Gauges.


Subjects included in the course were as follows:

Gauge Operation

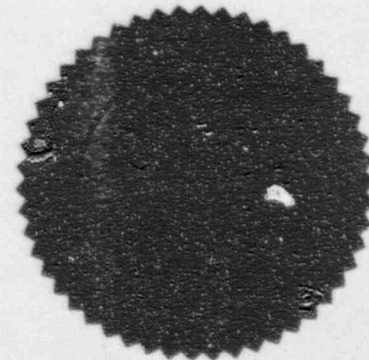
- 1. Instrument Theory*
- 2. Operating Procedures*
- 3. Maintenance*
- 4. Field Use*

Radiation Safety

- 1. Principles of Radiation Safety*
- 2. Shipping and Storage*
- 3. Radiation dosage calculations*
- 4. Radiation detection and measurement*
- 5. Biological effects*
- 6. Emergency Procedures*

 06/28/90

Corporate Radiation Safety Director



TROXLER ELECTRONIC LABORATORIES, INC.

HEREBY CERTIFIES THAT

SETH A. GARNER

of

TESTING ENGINEERS & CONSULT

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

Tom Donnelly
TOM DONNELLY

INSTRUCTOR

CERTIFICATE #: 069383

6/20/95

DATE

WILLIAM F. TROXLER

PRESIDENT

Michigan State University

Upon the Nomination of the Faculty of the
College of Engineering

has conferred upon

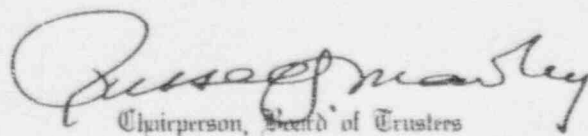
Seth Allen Garner

the Degree of

Bachelor of Science

With a Major in Civil Engineering

Given under the seal of the University at East Lansing in the
State of Michigan on this fifteenth day of December in the
year Nineteen Hundred and Ninety-five.


Chairperson, Board of Trustees




President of the University

MAY 30 1997

Lenora K. Jadun, P.E.
Engineering & Environmental
Services Group, Inc.
303 S. Waverly, Suite 4
Lansing, MI 48917

Dear Ms. Jadun:

Enclosed is your NRC Material License Number 21-26801-01 in accordance with your request.

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 III office at (630) 829-9887 so that we can provide appropriate corrections and answers.

- A. 1. This is to confirm our understanding of your commitments and intentions, as expressed in your correspondence to us, listed in Condition No. 23, regarding your personnel monitoring program:

It is our understanding that you will obtain thermoluminescent dosimeter devices (TLD's) from a NVLAP approved supplier, who will process the badging devices on a quarterly basis. Badges will be assigned to and worn by all users of the licensed gauges.

If our understanding of these commitments is incorrect please contact Colleen C. Casey of this office immediately at either (630) 829-9841 or (800) 522-3025.

2. Please note that Items 8.A. and 8.B. of your license limit your possession of each sealed source type to 9 millicuries/source for cesium-137 and 44 millicuries/source for americium-241.

This is because the Sealed Source and Device Registry limits each of your sealed sources to these activities, instead of the 10 millicuries of cesium-137 and 50 millicuries of americium-241, requested in your letter dated May 15, 1997.

- B. Please be advised that your license expires at the end of the day, in the month, and year stated in the license. Unless your license has been 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:

302586

MAY 30 1997

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 III, ATTN: Chief, Nuclear Materials Licensing Branch, in writing, that activities authorized by the license will be initiated.
3. Notify NRC, in writing, within 30 days:
 - a. When the Radiation Safety Officer permanently discontinues performance of duties under the license or has a name change; or
 - b. When the mailing address listed 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. Change Radiation Safety Officers;
 - b. Order byproduct material in excess of the amount, or radionuclide, or form different than authorized on the license;
 - c. Add or change the areas of use or address or addresses of use identified in the license application or on the license; or

MAY 30 1997

- d. 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 certifying official rather than a consultant.

You will be periodically inspected by 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. 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.

Sincerely,
Original Signed By
Colleen C. Casey
Nuclear Materials Licensing Branch

License No.: 21-26801-01
Docket No.: 030-34454
Enclosures: 1. License No. 21-26801-01
2. 10 CFR Part 19
3. 10 CFR Part 20
4. 10 CFR Part 30
5. 10 CFR Part 71
6. 10 CFR Parts 170 & 171
7. Form NRC-3
8. NRC Form 313
9. Reg. Guide DG-0008

DOCUMENT NAME: M:\03034454.CL7

To receive a copy of this document, indicate in the box: "C" = Copy without attachment/enclosure "E" = Copy with attachment/enclosure "N" = No copy

OFFICE	DNMS/RIII	CC						
NAME	CCASEY:jaw							
DATE	05/30/97							

OFFICIAL RECORD COPY

May 15, 1997

Materials Licensing Section
U.S. Nuclear Regulatory Commission, Region III
601 Warrenville Road
Lisle, IL. 60532-4351

Attn: Ms. Colleen Casey

Re: License for Engineering & Environmental Services Group, Inc.

Dear Ms. Casey:

Thank you for contacting our offices to promptly to report the deficiencies in our application. We have done our best to amend our information and clarify. As we discussed, please review the following:

- 1) Item 3: EESG will be utilizing the gauge at temporary job sites in States subject to NRC's regulatory authority.
- 2) Item 5: Please see Attached Item 5 description provided for the Radioactive Material.
- 3) Item 7: Seth Garner, Radiation Safety Officer has the independent authority to stop unsafe operations and will be given sufficient time to fulfill his duties and responsibilities. EESG will be informed of the regulations by contacting the NRC directly and will provide copies to the RSO, EESG management and the RSO together will review all new and revised regulations, and will make changes as needed, in our procedures to comply with the regulations.

The organizational chart is attached for the materials testing division of EESG. Mr. Garner reports directly to Sean Riley, however, he has been given the authority to contact myself, owner and president of EESG to assist in the NRC regulations and complying with our license requirements. The RSO's duties and responsibilities will be those listed in Appendix C of the regulatory guide (Draft Regulatory Guide, DG-0008).

4) Item 9: Number 5:

EESG will be transporting the gauge. The gauge shall be locked in a car trunk, hidden from view in a locked van, or secured by a lock and chain while in an open bed truck.

5) Item 10, Personnel Monitoring Program

EESG will use the monitoring equipment and frequency as described herein.

RECEIVED

MAY 19 1997

REGION III

Disadvantaged Business Enterprise



Pm: 5-16-97

10.1 Personnel Monitoring Program - Appropriate personnel monitoring (e.g. quarterly Thermoluminescent Dosimeters [TLDs] provided by Troxler Electronic Laboratories, Inc. [3008 Cornwallis Road, P.O. Box 12057, Research Triangle Park, NC, 27709] or equivalent) shall be provided to individuals for whom personnel monitoring is required by 10 CFR 1502.

10.2 Radiation Detection Instruments - At least one operable survey instrument (e.g. the Troxler Model TroxAlert Radiation Survey Meter or equivalent), capable of measuring between 1 microsievert/hour (0.1 millirem/hour) and 1 millisievert/hour (100 millirem/hour) will be available to perform surveys after an incident where damage to the sealed source is suspected. The survey meter(s) shall be calibrated by the manufacturer at six month intervals.

10.3 Leak Testing - Tests for leakage and/or contamination shall be performed at six month intervals using an approved (commercial) leak test kit (e.g. Troxler Model 3880 leak test kit or equivalent). Leak test samples to be analyzed by the leak test kit manufacturer (e.g. Troxler Electronic Laboratories, Inc., 3008 Cornwallis Road, P.O. Box 12057, Research Triangle Park, NC 27709 [NC RAM Licence No. 032-0182-1]) or other individual(s) specifically licensed by the NRC or an Agreement State Agency to provide such services.

10.4 Inventories - Physical inventories to account for the device(s) possessed under the authorization of the license shall be performed at six month intervals. Inventory records should include the radioactive material and activity (in units of curies or becquerels), manufacturer's name, model, and serial number of each device, and should be maintained for a period of three years after the date of the inventory.

10.5 Maintenance - Any maintenance (e.g., cleaning, etc.) Of the gauge will be performed with the source rod in the fully retracted "safe" (shielded) position in accordance with the manufacturer's directions or recommendations. More extensive maintenance that requires removal of the source rod from the shielded position to be performed by the gauge manufacturer or other individual(s) specifically licensed by the NRC or an Agreement State Agency to provide such services.

6) Standard Operating and Emergency Procedures

EESG will follow the Standard Operating and Emergency Procedures attached.

7) Item 10.8 Annual Audit of Radiation Safety Program

The Radiation Safety Audit shall be conducted by the Sean Riley, Manager of the Materials Testing Division who has taken the Radiation Safety Course offered by Troxler. He will be objective and factual in identifying any potential deficiencies or necessary improvements. In no case shall the audit be conducted by the company's Radiation Safety Officer. It is the option of the President to designate a Radiation Safety Consultant to perform this audit in lieu of company management.

8) Item 11. EESG will make disposal of the radioactive material by transfer to a person who is specifically licensed to receive and possess it.

In closing, we are facing an upcoming deadline as you know and we hope to resolve the license

issues as soon as possible. Please contact our offices at 517-886-6657 should you have any further questions. Thank you.

Sincerely,

Lena K. Jadun
/s/

Lena K. Jadun, P.E.
President & Principle Engineer

Engineering & Environmental Services Group, Inc.

Standard & Emergency Operations Procedures for Troxler Gauges

Operating Procedures

1. Before removing the gauge from its place of storage, check to make sure that the gauge source rod is in the shielded, locked position, then lock the transport case if possible.
2. Sign the gauge out in the log book, stating the dates of use, names of the authorized users who will be responsible for the gauge, and the temporary job sites where the gauge will be used.
3. Never leave the gauge unattended while in your custody.
4. Follow all applicable Department of Transportation (DOT) requirements when transporting the gauge.
5. Do not touch the source rod with your fingers, hands, or any part of your body, and always make sure the source rod is in the shielded position after each measurement is made.
6. Always wear your assigned thermoluminescent dosimeter (TLD) or film badge when using the gauge.
7. Never wear another person's TLD or film badge.
8. Never store your TLD or film badge near the gauge.
9. Always keep unauthorized persons away from the area where the gauge is to be used.
10. Always maintain constant surveillance and immediate control of the gauge when it is not in storage.
11. To make gauges more viable to operators of heavy equipment at construction sites, always "stake and flag" each gauge, being sure that the flags are tall enough to be seen by heavy equipment operators. A fiberglass whip with a flag at the top (bicycle accessory available at local bicycle stores) must be attached to the gauge to make its location more obvious to heavy equipment operators.
12. Never look under the gauge when the source rod is being lowered into the ground.
13. After each measurement, always return the source to the shielded position and lock it there.

14. When the gauge is not in use at the temporary job site, place the gauge in a secured storage location (e.g. locked in a car trunk, in the company van secured so that it will not move, or in a storage shed that may be made available at the site.)
15. Return the gauge to its proper storage location at the end of the work shift.
16. When the gauge is returned to storage, indicate in the source log.

Emergency Procedures

If the source fails to return to the shielded position (e.g. as a result of being damaged) or if any other emergency or unusual situation arises (e.g., the gauge is struck by a moving vehicle, is dropped, or is in a vehicle involved in an accident):

1. Immediately secure the area around the gauge.
2. Prevent unauthorized personnel from entering the secured area.
3. If any heavy equipment is involved, detain the equipment until it is determined there is no contamination present.
4. Notify EESG management of the situation, calling company personnel in the order listed below.

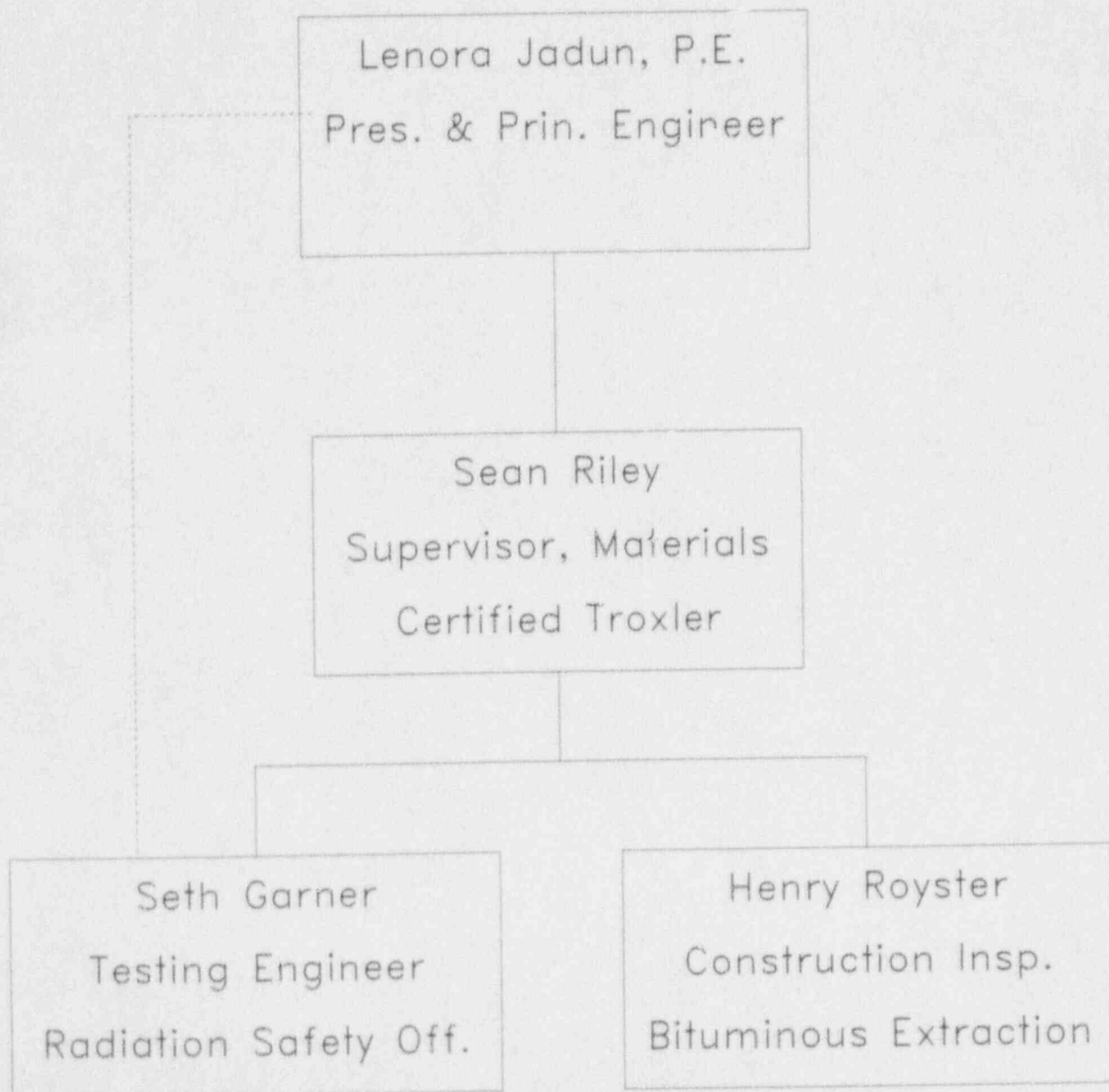
Name	Work Phone Number	Home Telephone Number
Seth Garner	517-886-6657 517-285-6347	517-887-6742
Sean Riley	517-886-6657 517-285-6347	517-347-4126
Lenora Jadun	517-886-6657 Pager: 517-251-1296 Cellular: 517-285-4889	517-484-9870

5. Follow the directions provided by the person contacted in step 4.
6. EESG MANAGEMENT MUST:
 - 6.1 Arrange for a survey to be conducted by the Radiation Safety Officer, using a survey meter. This survey meter will be kept at the EESG offices at the Permanent Storage Facility Location and will be made available to evaluate the integrity following the incident in a timely manner.

- 6.2 Make necessary notifications to local authorities (such as state police, fire marshals, DOT officials, etc.); notify the NRC as ** required, by calling the Emergency Operations Center at (301)816-5100 which is open 24 hours a day. They will accept collect calls if necessary. Contact this number when a gauge is lost, stolen or damaged or involved in incidents that result in doses in excess of the dose limits in 10 CFR 20.2203. Follow the attached guidelines from R.E. Cunningham, dated July 1, 1993.
- 6.3 It is very important to gather and report the incident to the NRC as soon as possible. In a normal situation, the Radiation Safety Officer or the Management listed in Item 4 will report the incident as soon as it is reported by the field personnel.
- 6.4 The Radiation Safety Officer shall review the reporting requirements, which are found in 10 CFR 20.2201-2203 and 10 CFR 30.50.

EESG Organizational Chart

Materials Testing Division



ATROXLER

MID-WEST BRANCH
784 Church Road
Elgin, IL 60123
(847) 695-0900
FAX (847) 695-5094

Thursday, May 15, 1997

ENGINEERING & ENVIRONMENTAL SERVICES GROUP, INC.
303 SOUTH WAVERLY, SUITE 4
LANSING, MI 48917

ATTN: LENORA JADUN


Re: Fax Dated 05/15/97

Dear Ms. Jadun:

In accordance with my telephone conversation with Mr. Sean Riley, please find attached the requested information regarding the Troxler personnel monitoring and leak testing program equipment. Regarding the status of your gauge, I submitted (faxed) an order for your gauge on 05/12/97, which will be processed but held for shipment pending receipt of a copy of your radioactive materials license.

Troxler Electronic Laboratories, Inc. greatly appreciates the opportunity to serve the testing equipment needs of your organization. Should you have any questions or if I may be of assistance, please contact me at the Troxler Midwestern Sales/Service Center in Elgin, Illinois at 847/695-0900.

Sincerely,



JOHN THORNTON
MIDWEST BRANCH MANAGER

JTT/

Attachment(s) - 1 (as stated)

cc: File

APPENDIX B

ITEM 5 OF NRC FORM 313 - RADIOACTIVE MATERIAL

RADIONUCLIDE	SEALED SOURCE	MAX. ACTIVITY/SOURCE (MILLICURIES)
A. Cesium-137	Troxler Drawing No. A-102112	10
B. Americium-241	Troxler Drawing No. A-102451	50

AUTHORIZED USE

A. & B. For use in Troxler Model 3400 Series Moisture/Density Gauge(s) to measure moisture content and/or density of construction materials.

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-130-S	3400 Series
Troxler	NC-646-D-138-S	3400 Series

FAX TRANSMISSION

ENGINEERING & ENVIRONMENTAL SERVICES GROUP, INC.

303 S. WAVERLY, SUITE 4

LANSING, MI 48917

(517) 886-6657

FAX: (517) 886-7464

To: MS. COLLEEN CASEY

Date: 5/29/97

Fax #: 630-515-1078
630-515-1259

Pages: 2 , including this cover sheet.

From: SEAN RILEY

Subject: ITEM 5 ATTACHMENT

COMMENTS:

THANK YOU FOR PROCESSING THIS
STUFF SO QUICKLY!!



UNITED STATES
NUCLEAR REGULATORY COMMISSION

REGION III
801 WARRENVILLE ROAD
LISLE, ILLINOIS 60532-4351

May 5, 1997

Seth Garner
Radiation Safety Officer
Engineering & Environmental Services
Group, Inc.
303 S. Waverly, Suite 4
Lansing, MI 48917

SUBJECT: ACKNOWLEDGEMENT OF CORRESPONDENCE
(Letter & Application Dated 04/26/97 & 04/25/97)

Dear Licensee:

In response to your request, we have completed the initial processing, which is an administrative review of your application for a(n):

☒ New License ☐ Amendment ☐ Renewal
☐ Termination ☐ Auth User (Amendment not required)
☐ Other _____

No administrative deficiencies were identified during this initial review. However, it should be noted that a technical review may identify omissions in the submitted information.

It appears that your request is routine (see 1-3 below, as applicable).

1. New and amendment actions are normally processed within 90 days, unless we find major deficiencies, or policy issues requiring central program office assistance.
2. Renewal actions are normally processed within 180 days, however, under timely filing (before expiration), you may continue to operate under your existing license.
3. Termination actions are normally processed within 90 days, unless confirmatory surveys following decontamination/decommissioning activities are involved.

A copy of your correspondence has been forwarded to our Licensing Fee and Debt Collection Branch (301/415-6097) for approval of the fee category and amount, if required.

If you have a compelling safety or business-related reason for requesting expedited review, please contact the Materials Licensing Branch at (630) 829-9887. We will try to complete your request as soon as practicable. Any correspondence about this request should reference the control number.

Nuclear Materials Support Branch

Mail Control No. 302586
License No. 21-26801-01

SRP followed: Colleen C. Casey
5/6+7/97

PORTABLE GAUGE CHECKLIST

Acceptable (A) Deficient (D) Not Applicable (N/A) (A) (D) (N/A)

Item 1. New Amendment, renewal, termination

Item 2. Applicant's Name and Mailing Address..... ☒ — —

Item 3. Locations of Use and Storage

A. Addresses for all permanent storage/use facilities; correlate activity w/address... ☒ — —

pg 9 (B) Temporary job sites not addressed — ☒ —

Item 4. Person to be contacted -- No review needed ☒

Item 5. Material to be possessed

Radionuclide, maximum activity per source.. Troley 3440

Sealed source; manufacturer's name and model no., no. of Sealed Source and Device (SSD) registration certificate..... materials

C. Device; manufacturer's name and model no., SSD certificate no..... NC-646-D-130-5

D. Sealed source/device combinations registered by NRC/Agreement State (check SSD Registry) ☒ — —

(E) Commitment to not exceed 10 CFR 30.35(d) limits OR maximum no. of identical source/device combinations..... ☒ — —

Item 6. Purpose for Which Licensed Material Will be Used; depth >3 ft?..... no. ☒ — —

Item 7. Individuals Responsible for Radiation Safety Program, Training and Experience

A. RSO identified by name..... ☒ — —

B. RSO's training [High school or GED + gauge user training] adequate and documented..... ☒ — —

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#3 C. Management commitment that RSO is authorized to stop unsafe operation; has sufficient time to perform radiation safety duties and responsibilities..... Def. — —

D. RSO duties and responsibilities meet the minimum criteria of Appendix C..... ☒ — —

(E) Organizational chart showing RSO position, position of person signing in Item 13..... Def. — —

Telephone Deficiency call on 5/6/97 @ 9:55 am
Senora Jadun + C. Casey

TELECON RECORD

Item 8. Training Provided to Other Users

8.1 Initial Training: Gauge Manufacturer's Course

1. Commitment that, before use, each user will (a) complete manufacturer's course (Part I, App. D) by instructor (Part II, App. D); (b) receive copy of, & training in operating and emergency procedures & (c) be designated in writing by RSO..... ✓ — —
2. Commitment to provide annual refresher training, topics, instructor..... ✓ — —

8.2 Initial Training: Alternative Course (ref. App. D)

1. Course description:
 - a. Total time..... — — —
 - b. Topics covered..... — — —
 - c. Time spent on each topic..... — — —
2. Name of instructor(s), qualifications: high school (GED); mfg's course or approved alternative; 40-hr radiation safety course; 32 hr (min) hands-on experience..... — — —
3. Method of determining trainees' competency (tests, copies w/answers, min. passing grade)..... — — —
4. Commitment that, before use, each user will (a) complete alternative course (as described above) & (b) receive copy of, & training in, applicant's operating and emergency procedures... — — —
5. Commitment to provide annual refresher training, topics, instructor..... — — —

Item 9. Facilities

- A. Status of facility: exists, being built, planned; estimated completion date..... ✓ — —
- B. General location: industrial park, office complex, residential, etc.; if residential: zoning, diagrams, no restricted area in residential area, how comply w/ 10 CFR 20.1301..... ✓ — —
- C. Description and diagram of storage locations for each address in Item 3..... ✓ — —
- D. Method of securing gauge(s) in storage at Item 3 locations..... ✓ — —
- E. Method of securing gauge(s) in vehicles.. — — —
- F. Method of securing gauge(s) in storage and method of maintaining constant surveillance when gauge(s) are not in storage at temporary job sites..... ✓ — —

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#5 E

- G. If storage is at a residence, justification:
location/posting: not "attractive nuisance";
general public not exposed to levels *OK. N/A* ☒
> 10 CFR 20.1301..... ☐ ☐ ☐

Item 10. Radiation Safety Program

10.1 Personnel Monitoring Program

1. Document unlikely to receive >10% of
10 CFR Part 20 limit..... ☐ ☐ ☒
OR
2. Commitment to monitor all gauge users ☒ ☐ ☐
Pgs 19-20 (a) Vendor or commitment to NVLAP.. ☐ ☒ ☐
b. Film badge or TLD..... ☒ ☒ ☐
2a+2c (c) Frequency of exchange..... ☐ ☒ ☐

10.2 Radiation Detection Instruments

1. Commitment to have at least one survey
meter at each jobsite..... ☐ ☐ ☐
a. Type(s), range(s)..... ☐ ☐ ☐
b. Calibration frequency..... ☐ ☐ ☐
c. Calibration: mfg or name, address
and NRC/Agreement State lic. no.
of org'n auth'd to calibrate
instruments for others..... ☐ ☐ ☐
OR
2. Explanation of timely access to survey
meter in case of incident..... ☒ ☐ ☐
@ prelim storage location

10.3 Leak Tests

1. 6-month frequency or consistent with
SSD Registry..... ☒ ☐ ☐
2. Consultant: name, address, lic. no.. ☒ ☒ ☐
(3) Commercial leak test kit: name, address,
lic. no. of kit supplier; model no. of
kit; follow supplier's instructions;
submit copy of supplier's procedures for
analysis, reports; samples taken by
RSO..... ☐ ☒ ☐
4. Applicant performs his/her own leak test:
a. Collection procedures..... ☐ ☐ ☒
b. Instrumentation adequate
for analysis..... ☐ ☐ ☐
c. Sample calculation provided.... ☐ ☐ ☐
d. Qualified person performs test. ☐ ☐ ☐

10.4 Inventories

1. Conducted at 6-month intervals..... ☒ ☐ ☐

10.5 Maintenance

1. All maintenance by licensee with source in shielded position following mfg.'s directions/recommendations; more extensive maintenance performed by manufacturer..... ☒ ☐ ☐
2. "Extended" maintenance by licensee; Appendix F information acceptable... NIA ☒ ☐

10.6 Transportation of Devices to Field Locations

1. Commitment to follow all applicable DOT requirements..... ☒ ☐ ☐

10.7 Operating/Emergency Procedures

1. Commitment to have and implement..... ☒ ☐ ☐
2. Commitment to provide to all users... ☒ ☐ ☐
3. Commitment to have at each jobsite... ☒ ☐ ☐
4. Copy submitted, includes all items in Appendix H; use at depths >3-ft. procedures to minimize "stuck" source (e.g., use of casing), to recover "stuck" source; notify NRC..... ☒ ☐ ☐

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#4

Def.

Def. 10.8
They don't
say B50
will be
auditor.
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10.8 Annual Audit

1. Name, qualifications of auditor..... ☒ ☐ ☐
2. Scope, extent of audit or App. B.F. ☒ ☐ ☐
3. Frequency: 12-month intervals; records maintained for 3 years..... ☐ ☐ ☐
4. Management's prompt review of documented results of audit..... ☒ ☐ ☐
5. Prompt action to correct deficiencies, to inform personnel (including those at other locations, working under other licenses) of deficiencies and corrective steps..... ☒ ☐ ☐

Def.

10.9 Financial Assurance and Recordkeeping for Decommissioning

1. Financial Assurance
 - a. Restrict possession to quantities < 10 (FR 30.35(d))..... ☒ ☐ ☐
 - b. Certification of financial assurance for \$75k..... ☐ ☐ ☐
 - c. Cost estimate and decommissioning funding plan..... ☐ ☐ ☐
2. Recordkeeping
 - a. Commitment to maintain records important to decommissioning..... ☒ ☐ ☐
 - b. Record location identified..... ☒ ☐ ☒

OK

Item 11. Waste Management

8/3/32A.

specific
Disposal by transfer to manufacturer or other
licensee authorized to possess material....

Def

Item 12. License Fees -- No review needed

Item 13. Proper signature and date..... *✓*