

NRC FORM 313
(10-2005)
10 CFR 30.32, 33,
34, 35, 36, 39, and 40

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0120

EXPIRES: 10/1/2008

Estimated burden per response to comply with this mandatory collection requirement is 4.4 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. Send comments regarding burden estimate to the Records and FOIA/Privacy Services Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20545-0001, or by internet e-mail to infocollects@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0120), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

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:

IF YOU ARE LOCATED IN:

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

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

MATERIALS LICENSING BRANCH
U.S. NUCLEAR REGULATORY COMMISSION, REGION III
2443 WARRENVILLE ROAD, SUITE 210
LISLE, IL 60532-4352

ALL OTHER PERSONS FILE APPLICATIONS AS FOLLOWS:

IF YOU ARE LOCATED IN:

ALABAMA, CONNECTICUT, DELAWARE, DISTRICT OF COLUMBIA, FLORIDA, GEORGIA, KENTUCKY, MAINE, MARYLAND, MASSACHUSETTS, MISSISSIPPI, NEW HAMPSHIRE, NEW JERSEY, NEW YORK, NORTH CAROLINA, PENNSYLVANIA, PUERTO RICO, RHODE ISLAND, SOUTH CAROLINA, TENNESSEE, VERMONT, VIRGINIA, VIRGIN ISLANDS, OR WEST VIRGINIA. SEND APPLICATIONS TO:

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:

LICENSING ASSISTANCE TEAM
DIVISION OF NUCLEAR MATERIALS SAFETY
U.S. NUCLEAR REGULATORY COMMISSION, REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PA 19406.1415

NUCLEAR MATERIALS LICENSING BRANCH
U.S. NUCLEAR REGULATORY COMMISSION, REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TX 76011-4005

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

45-25467-01

2 NAME AND MAILING ADDRESS OF APPLICANT (Include ZIP code)

GeoConcepts Engineering, Inc.
19955 Highland Vista Dr., Suite 170
Ashburn, Va 20147

3. ADDRESS WHERE LICENSED MATERIAL WILL BE USED OR POSSESSED

19955 Highland Vista Dr., Suite 170
Ashburn, Va 20147

4 NAME OF PERSON TO BE CONTACTED ABOUT THIS APPLICATION

R. Drew Thomas, C.P.G.

TELEPHONE NUMBER

703.726.8030

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 AREA:

9 FACILITIES AND EQUIPMENT

10 RADIATION SAFETY PROGRAM

11. WASTE MANAGEMENT.

12. LICENSE FEES (See 10 CFR 170 and Section 170.31)

FEE CATEGORY **LD**

AMOUNT ENCLOSED

NOTE: NO FEE DUE FOR RENEWALS. CHECK SOURCE FOR FEE & AMOUNT RETURNED.

\$ 2,200

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

Ronald Drew Thomas, Principal

SIGNATURE

R. Drew Thomas

DATE

2.25.09

FOR NRC USE ONLY

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

APPROVED BY

DATE

143212

NUCLEAR MATERIALS-002

RECEIVED REGION I

03035002

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Application for Materials License - Item 5

Byproduct, Source, and/or Special Nuclear Material	Chemical or Physical Form	Maximum Amount That May be Possessed
A. Cesium 137	Sealed Source (AEA Technology/QSA Model No. CDCW556 or Isotope Products Laboratories Model No. HEG-137)	No single source to exceed maximum activity specified in the certificate of registration issued by the U.S. Nuclear Regulator Commission or an agreement state
B. Americium 241	Sealed Neutron Source (AEA Technology/QSA Model No. AMNV997 or Isotope Products Laboratories Model Nos. 3021, 3027, or Am1.No2)	No single source to exceed maximum activity specified in the certificate of registration issued by the U.S. Nuclear Regulator Commission or an agreement state
C. Cesium 137	Sealed Source (HSI Dwg. 2200064)	No single source to exceed maximum activity specified in the certificate of registration issued by the U.S. Nuclear Regulator Commission or an agreement state
D. Americium 241	Sealed Neutron Source (HSI Dwg. 2200067)	No single source to exceed maximum activity specified in the certificate of registration issued by the U.S. Nuclear Regulator Commission or an agreement state

Application for Materials License - Item 6

Purpose(s) For Which Licensed Material Will Be Used
1) To be used in Troxler Model 3430 series gauges for measurement of physical properties of materials.
2) To be used in Troxler Model 3440 series gauges for measurement of physical properties of materials.
3) To be used in Humboldt Scientific Model 5001 series gauges for measurement of physical properties of materials.

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Application for Materials License - Item 7

Mr. R. Drew Thomas, C.P.G. is the Radiation Safety Officer (RSO) for this license. Mr. Thomas has successfully completed Radiation Safety Officer Training. In addition, before being named RSO, all future RSOs will have successfully completed nuclear gauge safety and RSO training.

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Application for Materials License - Item 8

Before using licensed materials, all gauge users will have successfully completed a nuclear gauge safety training class.

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Application for Materials License - Item 9

Licensed materials will be stored in a locked storage room specifically constructed for gauge storage which is inside a locked door leading to the materials laboratory from the outside. The walls of the storage room are constructed of 10-inch thick concrete masonry units which have had the cells filled with cement grout. In addition, lead coated dry-wall has been applied to one wall (party wall). Caution signs are posted outside the storage room. Two walls of the storage room are in our materials laboratory, one wall is an exterior wall of the building, and the fourth wall is the party wall where additional shielding was placed. Area monitors have been installed at the nearest work station to verify that workers are not receiving excessive radiation doses. We currently own and store 16 portable gauges.

Application for Materials License - Item 10

GeoConcepts Engineering, Inc. has developed a Radiation Safety Program. The following is the text from the plan:

**RADIATION SAFETY PROGRAM FOR
GeoConcepts Engineering, Inc.
19955 Highland Vista Drive
Ashburn, Virginia 20147**

General

This Radiation Safety Plan covers the procedures for the safe and proper use and possession of radioactive material as contained in portable moisture/density gauges used to measure soil and other materials. When handled in accordance with this plan, the radioactive materials present no hazard to the licensee's employees, customers, or the general public.

Radiation Safety Officer

All use and possession is under the direction and supervision of the Radiation Safety Officer (RSO). The RSO is a single point of accountability and responsibility between the Regulatory Agency and the Licensee. The RSO is responsible for all aspects of the Radiation Safety Plan, including the following specific duties:

1. Licensed material possessed by the licensee is limited to the kinds and quantities of byproduct material listed on the license.
2. Individuals using gauges: are properly trained; have read and understand the Radiation Safety Program; receive refresher training at least annually to include review of operating and emergency procedures (per 10 CFR Part 20), Department of Transportation (DOT) requirements, all changes in regulatory requirements, and deficiencies identified during annual audits; and are designated by the RSO.
3. Personnel monitoring devices are used as required and reports of personnel exposure are reviewed in a timely manner.
4. Gauges are properly secured against unauthorized removal at all times when gauges are not in use.
5. Proper authorities are notified in case of accident, damage to gauges, fire or theft.
6. Audits are performed at least annually to ensure that (a) the licensee is abiding by NRC and DOT regulations and the terms and conditions of the license (e.g., periodic leak tests, inventories, use limited to trained, approved users), (b) the licensee's radiation protection program content and implementation achieve occupational doses and doses to members of the public that are ALARA (see 10 CFR 20.1101), and (c) the licensee maintains required records with all required information (e.g., records of personnel exposure; receipt, transfer, and disposal of licensed material; gauge user training) sufficient to comply with NRC requirements.
7. Results of audits, identification of deficiencies, and recommendations for change are documented (and maintained for at least 3 years), provided to management for review, and prompt action is taken to correct deficiencies.
8. Audit results and corrective actions are communicated to all personnel who use licensed material (regardless of their location or the license under which they normally work.)

9. To serve as a point of contact and give assistance in case of emergency. All incidents, accidents, and personnel exposure to radiation in excess of ALARA or Part 20 limits are investigated and reported to NRC and other authorities, as appropriate, within required time limits.
10. Licensed material is transported in accordance with all applicable DOT Requirements.
11. The Radiation Safety Officer has up-to-date copies of NRC's regulations, reviews new or amended NRC Regulations, and revises licensee procedures, as needed, to comply with NRC regulations.
12. Licensed material is disposed of properly.
13. To ensure that the equipment is leak tested at the required intervals.
14. The license is amended whenever there are changes in: licensed activities, responsible individuals, or information or commitments provided to NRC in the licensing process.
15. To post all required signs and notices at gauge storage location.
 - Post document RH-2364, Notice to Employees
 - Label storage cabinet with "Caution, Radioactive Material" and international symbol.
 - Post notice of where a copy of the organization's license, safety plan, and copy of regulations are located.

Operation

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, and the transport case is locked.
 2. Sign the gauge out on the sign out sheet including the date(s) of use, name(s) of the authorized user(s) who will be responsible for the gauge, and the temporary jobsite(s) where the gauge will be used.
 3. Follow all applicable Department of Transportation (DOT) requirements when transporting the gauge.
 4. The operator will exercise suitable control over the gauge at all times and maintain constant surveillance. At no time is it to be left unattended or in the possession of an unauthorized person. Always keep unauthorized persons away from the area where the gauge is to be used.
 5. To assist operators of heavy equipment in seeing gauges at construction sites. All heavy equipment and other automobiles traveling on-site and within 40 feet of the gauge during testing should be shut down to avoid gauges from being accidentally damaged.
 6. Never look under the gauge when the source rod is being lowered into the ground.
 7. 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.
 8. After each measurement, always return the source to the shielded position and lock it there.
 9. When not being used for field measurements, the gauge will be locked and returned to its storage/transportation case in a secured storage location.
 10. When testing is complete, the gauge will be returned to its permanent place of storage as soon as possible and logged back in on the sign out sheet.
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11. When using the equipment, the operator will wear the personnel-monitoring device assigned. Never wear another person's film badge. Never store your film badge near the gauge. When the operator is not using the equipment, the monitoring device will be kept in a radiation free, low heat area.
12. At all times operators will observe ALARA principles to minimize any dose received: As Low As Reasonable Achievable
13. While the equipment is in the operators possession, the operator will have:
 - Copy of the License
 - Copy of this Radiation Safety Plan with Emergency Procedures and Telephone/Call - Down List
 - Copy of Letter of Authorized Users from RSO
 - Copy of the Gauge Operating Manual
 - Copy of the Current Leak Test Certificate

Transportation

1. During transportation, the equipment shall be fully secured in the transporting vehicle and located away from personnel. When transported in a closed vehicle (car or van), the case will be locked and vehicle will be locked when the operator is not with the vehicle. When transported in an open bed vehicle (pick-up truck), the case will be locked and the case securely fastened and locked to the truck bed when the operator is not with the vehicle, or the vehicle is being operated, even if operated on-site.
2. The equipment will only be transported in an approved DOT shipping container with all the required labels and markings.
3. During transportation the operator will have Shipping Papers on the seat adjacent to the driver or in a holder which is mounted to the inside of the door on the driver's side of the vehicle describing the radioactive material with the proper nomenclature. The gauge will be properly blocked and braced in the vehicle so as not to allow it to move around in the moving vehicle.
4. When shipping by common carrier, the package shall be in compliance with 49 CFR 170-179.

Maintenance

1. Periodic maintenance will include checking of the shutter closure prior to use and cleaning of the gauge. The operator will have received proper instruction on how to clean the gauge and will wear his/her assigned monitoring device.
 2. When finished the gauge should be cleaned and lubricated. Make sure that all the pieces are with the gauge and in the case. The user manual and shipping papers are back inside the case and not in the vehicle.
 3. No maintenance will be performed in which the radioactive source is removed from the gauge. The gauge will be returned to the manufacture or an approved service center for this type of service.
 4. A leak test will be performed every six months as stated on the license, using an approved leak test kit provided by the gauge manufacturer or GeoConcepts Engineering, Inc.'s radiation emergency response consultant and in accordance with the gauge manufacturer's instructions. The operator will have received proper instruction on how to leak test the gauge and will wear his assigned monitoring device.
 5. The shipping case will be periodically checked for integrity, and to verify that all labels are present and readable.
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Protection from the Elements

1. Rain/snow - Make every effort to keep the gauge dry. Once the gauge becomes wet or has built up moisture on the electronics it takes several days for the gauge to completely dry out. If a wet gauge is used, then the results will be erratic.
2. Extreme heat - Make every effort to keep the gauge out of direct sunlight during times of extreme heat. Direct exposure to sun on extremely hot days can damage the electronics of the gauge.

The storage case for the gauge is not weather proof. You will need to exercise the same precautions if the gauge is inside the case. If the case does get wet you will need to pull out the packing foam and allow it to fully dry, otherwise it will begin to mildew and allow moisture to build up on the electronics.

Records

Records will consist of:

Personal Monitoring, Leak Test, Training and Gauge Inventory:

(A checkout log will be attached to storage cabinet. Information on log will include serial number of gauge, operator checking out gauge, date checked out, destination, estimated return date, and actual date of return.)

Training

All operators will complete an Operator's Radiation Safety Training Course. Operators will be given special training as required for their individual work assignments.

Physical Damage

1. If any moving equipment is involved, stop its movement until the extent of contamination, if any, can be established.
2. Cordon the area around the incident. An area with a radius of fifteen (15) feet will be sufficient. In some incidents it may be necessary to cordon a larger area depending on the existing circumstances.
3. The RSO or approved facility will visually inspect the gauge to determine the extent of the damage to the source(s), source housing(s), and shielding.
4. At the earliest possible time, when the situation is under control, contact the RSO. In the event that the RSO is not available, contact one of the other company personnel or agencies listed below. Describe the conditions and follow the instructions of the individual contacted. The RSO or other appropriate individual will immediately notify the appropriate regulatory agency.

Emergency Telephone Numbers

R. Drew Thomas - RSO:	Work: (703) 726-8030 Home: (703) 754-9820 Mobile: (703) 926-7268
Tadeusz W. Lewis - Operations Manager:	Work: (703) 726-8030 Home: (703) 742-4011 Mobile: (703) 926-7265
Eaton King - CPS Manager:	Work: (703) 726-8030 Mobile: (571) 237-8398

Police or Fire: 911

NRC Region I ☐(800) 432-1156

Humboldt Scientific, Inc:

(800) 537-4183

Troxler Electronic Laboratories, Inc.

(919) 549-8661

REMINDER TO LICENSEE MANAGEMENT AND RSO:

1. In the event that there is damage to a source or a gauge, an authorized cleanup facility will remove the damaged equipment after verifying that the source is not leaking and safe to remove.
2. Arrange for survey to be conducted as soon as possible by a knowledgeable person using appropriate radiation detection instrumentation. (This person could be a licensee employee using a survey meter or a consultant.)
3. Make necessary notifications to local authorities as well as the NRC as required. (Even if not required to do so, you may report ANY incident to NRC by calling NRC's Emergency Operations Center at (301) 816-5100, which is staffed 24 hours a day and accepts collect calls.) NRC notification is required when gauges containing licensed material are lost and stolen, when gauges are damaged or involved in incidents that result in doses in excess of 10 CFR 20.2203 limits.
4. Timeliness of reports to the NRC needs to be considered.
5. Reporting requirements are found in 10CFR 20.2201-2203 and 10CFR 30.50.

Theft or Loss

Immediately notify the RSO. The RSO will immediately notify the appropriate regulatory agency and the police.

Fire

1. Call the Fire Department. Notify the RSO.
2. Stand by to advise the fire fighters as to the nature, locations, and potential hazards of the radioactive materials. Supply them with an information packet consisting of the facility layout and a data sheet of the equipment including a photograph. Be sure to include any other important information (e.g., explosives, guard dogs, etc.).
3. Take action appropriate with a fire to protect personnel.

<u>Melting Points:</u>	°F.	°C
Stainless Steel	2550	1400
Carbide	2000	1090
Aluminum	1005	540
Lead	620	327
Polyethylene	257	125

Temperatures in an industrial fire will normally range from 500°F at floor level to a high at the ceiling of 1400°F to 1800°F. The polyethylene and lead would melt in most fires, the aluminum only in a severe fire. The stainless steel capsule would not reach its melting point.

Disposal/Decommissioning

1. Disposal will only be performed by transferring to a properly licensed organization.
2. The regulatory agency will be notified 30 or more days in advance of any relocation of the storage area. Formal decommissioning will not be required, provided leak tests are current.

RADIATION SAFETY PLAN

This radiation safety plan will be implemented at all times. A copy of these procedures shall be maintained in the licensee's radioactive materials license file, and another copy in the shipping case of the nuclear gauge at all times.

Signed: _____

Date: _____

Application for Materials License - Item 11

In general, GeoConcepts Engineering, Inc. does not produce radioactive waste. However, during the course of business, it may be possible that we will either want to sell gauges or return them to the manufacturer for disposal. Before transferring licensed material, we will ensure that the person or company receiving the licensed material is authorized to receive licensed materials.

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