

William B. Yelon Ph.D.

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July, 13, 2007

Materials Licensing Branch
U.S. Nuclear Regulatory Commission, Region III
2443 Warrensville Road, Suite 210
Lisle, IL 60532-4352

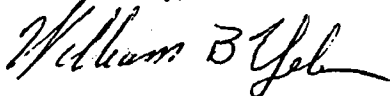
Dear Sirs,

Enclosed is an application from Ideal Source International, LLC, for a license for the possession of radioactive materials. This application is submitted simultaneously with our application to the D.C. office for the importation and release of irradiated topaz with activity less than the exempt limits established in 10CFR. Although the location of the facility in Columbia MO to be used for the QA program is presently unspecified in our application, I am in the process of negotiation for a small property that would be used for office and laboratory. I will notify the NRC of the location as soon as it is established.

The 3B application describes a novel method for the identification of outliers. This work would be carried out at the off-shore irradiation facility. The facility in Missouri would be used to verify the procedures applied at the irradiation facility to guarantee that NRC regulations are met. This appears to be more logical than importing and screening stones that may have high activities, and that would require long term storage in a location less secure than readily available in the irradiation facility. Thus, our possession license will cover only material meeting the exempt limits and a small number of reference materials with higher activity, to be used for instrument calibration and as "spiked samples".

I hope you find our application satisfactory. I will be happy to answer any questions about our methods and to respond to any concerns that the NRC may express relative to the adequacy of any aspect of our program.

Yours sincerely,



William B. Yelon, Ph.D.
Fellow, American Physical Society
Professor (adjunct) University of Missouri, Columbia - Physics
Senior Research Investigator, Material Research Center, University of Missouri-Rolla
Q/A Manager - Ideal Source International, LLC

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Exemption 6

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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: 10/31/2008

Estimated burden per response to comply with this mandatory collection request: 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 20555-0001, or by internet e-mail to infocollections@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:

LICENSING ASSISTANCE TEAM
DIVISION OF NUCLEAR MATERIALS SAFETY
U.S. NUCLEAR REGULATORY COMMISSION, REGION I
476 ALLENDALE ROAD
KING OF PRUSSIA, PA 19406-1415

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 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

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

IDEAL Source International LLC
55 West 39th St 17th Floor
New York, NY 10018

3. ADDRESS WHERE LICENSED MATERIAL WILL BE USED OR POSSESSED

Columbia Missouri
To be determined

4. NAME OF PERSON TO BE CONTACTED ABOUT THIS APPLICATION

William B. Yelon Ph.D.

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

5. RADIOACTIVE MATERIAL

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

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

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

8. TRAINING FOR INDIVIDUALS WORKING IN OR FREQUENTING RESTRICTED AREAS

9. FACILITIES AND EQUIPMENT.

10. RADIATION SAFETY PROGRAM.

11. WASTE MANAGEMENT.

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

FEE CATEGORY 3P AMOUNT ENCLOSED \$1200

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 (2 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 - TYPE/PRINTED NAME AND TITLE

William B. Yelon, QA Manager

SIGNATURE

William B. Yelon

DATE

7/13/07

FOR NRC USE ONLY

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

APPROVED BY

DATE

A. Basic Information: (numbering according to NRC form 313)

1. A. New License.

Ideal Source International LLC

2. Mailing address of applicant:

55 West 39th St. 17th Floor
New York, NY 10018
Phone # 212-575-5800

3. Address where licensed material will be used or possessed

Location in Columbia, Missouri,
To be determined.

4. Name of person to be contacted about this application

William B. Yelon Ph.D.

Telephone number:

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(home)

(mobile)

exemption 6

5. Radioactive Material

A: Element and mass number:

Elements 3-92, mass numbers 7-238,

Consisting primarily of ^{182}Ta , ^{54}Mn , ^{46}Sc , ^{96}Ge and ^{58}Co , but may contain other isotopes in very low (usually undetectable) levels.

B: Chemical or physical form:

Radioactive elements contained in topaz gemstones, produced through neutron and/or electron irradiation. No loose, concentrated, radioactive byproducts will be encountered. No removable contamination is expected.

C: Maximum amount:

8×10^6 Bq total activity

6. Purpose for which licensed material will be used:

The radioactive material will consist of irradiated topaz gemstones intended for importation and exempt release with specific activities below exempt limits specified by 10 CFR. (Application submitted to NRC headquarters simultaneously with this application). Limited quantities of topaz gemstones with higher activities as well as (possible) low activity (30Bq) beads of ^{152}Eu , will be used for calibration of the instrumentation used for verification of the activities of the topaz gemstones to be released.

7. Individual responsible for radiation safety program and their training experience:

William B. Yelon, Ph.D.

Professor Yelon has a Ph.D. in physics and over 30 years of experience as a researcher and research manager at research reactors, including the HFR at Brookhaven National Lab., the Institute Laue-Langevin in Grenoble, France and the University of Missouri Research Reactor, in Columbia MO. As such he has been thoroughly trained in the principles of radiation, radiation detection and radiation protection. He has specialized in neutron detection (and discrimination of neutron and gamma radiation) and in the use and detection of high intensity (KCi) gamma-ray sources. He is thoroughly familiar with the use of a variety of radiation detection equipment including beta-gamma detectors, NaI detection and high resolution (Ge) gamma counting. He has trained numerous students in safe practices in a research reactor environment. He has assisted in the development of the topaz irradiation program at the Maria Reactor, including the design of shielding to minimize the induced radioactivity and participated in the design of the counting systems used to determine the isotopic distribution of the isotopes and the specific activities of the irradiated stones.

8. Training for individuals working in or frequenting restricted areas.

No high radiation areas are expected due to the low activities of the topaz to be verified.

Workers at the facility will be trained in the principles of radiation, detection and radiation protection, using one of the many manuals available on-line, such as the "RADIATION SAFETY TRAINING AND REFERENCE MANUAL" found at www.safety.caltech.edu/manuals/radiation_safety_training_manual.pdf.

Lectures will be given by Professor Yelon and an exam will be administered to assure that the workers understand the material presented. A score of at least 80% will be required on the exam. It is expected that visitors to the facility will not be exposed to radiation levels above background, and they will not be trained. However, they will carry self-reading ionization chambers.

9. Facilities and equipment:

The laboratory will consist of two rooms, one with administrative offices and secure storage, the other with the counting equipment needed for the verification of the topaz activities. The equipment consists of a well shielded NaI(Tl) detector system (and coupled balance for specific activity determination), and related electronics and computer, plus hand-held beta-gamma counters. The personnel will carry self reading ionization chambers.

10. Radiation safety program:

Imported material will be stored in a secure, shielded vault and only material removed for counting will be unshielded and available for manipulation. These will typically be in quantities of 2 Kg or less, per parcel. All workers will carry self-reading ionization chambers that will be monitored at least on arrival and at the end of the work shift and at any other time that the worker leaves the facility. The workers will be required to leave the chambers at the work site to avoid accidental exposure or mishandling of the chambers in another environment. Radiation detectors will also be mounted at several locations within the facility

and periodically monitored for total dose in the work area. Workers will be limited to the time that can be spent inside the vault and storage will be organized in order to minimize the time needed to locate any specific parcel. Only stones that meet the U.S. exempt release limits will be sent to the facility for verification, and once cleared will be shipped to customers as quickly as possible, minimizing the total isotope inventory at the facility. Although no removable contamination is expected, workers will wear latex gloves and lab coats while handling stones and will be required to leave the coats behind and wash hands prior to exiting.

11. Waste management:

No radioactive waste is expected other than stone fragments. Even though the activity of these fragments should be below the exempt limits, these will be periodically packaged and returned to the neutron irradiation facility for ultimate disposal.

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- 2. PAYMENT METHOD**
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- 3. ATTACH LABEL (Optional)**
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