



March 15, 2016

Materials Licensing Branch

U.S. Nuclear Regulatory Commission, Region III

2443 Warrenville Road, Suite 210

Lisle, IL 60532-4352

Reference: Application for Renewal of Material License 13-06932-03

Dear: NRC

Please accept this letter, our complete NRC form 313 with attachments, and application to renew our specific material license # 13-06932-03.

The purpose of the license will permit Cargill to use gauges, containing sealed radioactive material sources for the control of liquid and or solid corn products in our manufacturing process.

Should you have any questions or require additional information please contact me, at the telephone number below.

Yours truly,

A handwritten signature in cursive script that reads "James Tuinstra".

James Tuinstra

(219) 781-4411

1100 Indianapolis Boulevard

Hammond, IN 46320

RECEIVED APR 07 2016



**APPLICATION FOR MATERIALS
LICENSE**

Estimated burden per response to comply with this mandatory collection request: 4.3 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 FOIA, Privacy, and Information Collections Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to Infocollections.Resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NE0B-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.

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. *AMENDMENTS/RENEWALS THAT INCREASE THE SCOPE OF THE EXISTING LICENSE TO A NEW OR HIGHER FEE CATEGORY WILL REQUIRE A FEE.

APPLICATION FOR DISTRIBUTION OF EXEMPT PRODUCTS FILE APPLICATIONS WITH:

MATERIALS SAFETY LICENSING BRANCH
DIVISION OF MATERIAL SAFETY, STATE, TRIBAL AND RULEMAKING PROGRAMS
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:

ALABAMA, CONNECTICUT, DELAWARE, DISTRICT OF COLUMBIA, FLORIDA, GEORGIA, KENTUCKY, MAINE, MARYLAND, MASSACHUSETTS, 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
2100 RENAISSANCE BOULEVARD, SUITE 100
KING OF PRUSSIA, PA 19406-2713

IF YOU ARE LOCATED IN:

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

ALASKA, ARIZONA, ARKANSAS, CALIFORNIA, COLORADO, HAWAII, IDAHO, KANSAS, LOUISIANA, MISSISSIPPI, 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
1600 E. LAMAR BOULEVARD
ARLINGTON, TX 76011-4511

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

13-06932-03

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

Cargill, Inc.
ATTN - James Tuinstra
1100 Indianapolis Blvd.
Hammond, IN 46320

3. ADDRESS WHERE LICENSED MATERIAL WILL BE USED OR POSSESSED

1100 Indianapolis Blvd.
Hammond, IN 46320

4. NAME OF PERSON TO BE CONTACTED ABOUT THIS APPLICATION

James Tuinstra

BUSINESS TELEPHONE NUMBER

(219) 659-2000

BUSINESS CELLULAR TELEPHONE NUMBER

(219) 781-4411

BUSINESS EMAIL ADDRESS

James_Tuinstra@cargill.com

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 AND EXPERIENCE.

8. TRAINING FOR INDIVIDUALS WORKING IN OR FREQUENTING RESTRICTED AREAS.

9. FACILITIES AND EQUIPMENT.

10. RADIATION SAFETY PROGRAM.

11. WASTE MANAGEMENT.

12. LICENSE FEES (Fees required only for new applications, with few exceptions*) (See 10 CFR 170 and Section 170.31)

FEE CATEGORY

AMOUNT ENCLOSED \$

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

THE APPLICANT AND ANY OFFICIAL EXECUTING THIS CERTIFICATION ON BEHALF OF THE APPLICANT, NAMED IN ITEM 2, CERTIFY THAT THIS APPLICATION IS PREPARED IN CONFORMITY WITH TITLE 10, CODE OF FEDERAL REGULATIONS, PARTS 30, 32, 33, 34, 35, 36, 37, 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

James Tuinstra

SIGNATURE

James Tuinstra

DATE

4/5/16

FOR NRC USE ONLY

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

Item 5 Materials To Be Possessed:

- | | | |
|---------------|---|--|
| A. Cesium-137 | A. Sealed Source (Texas Nuclear Model 5191) | A. No single source to exceed 1000 mCi |
| B. Cesium-137 | B. Sealed Source (Texas Nuclear Model 5202) | B. No single source to exceed 500 mCi |
| C. Cesium-137 | C. Sealed Source (Texas Nuclear Model 5201) | C. No single source to exceed 100 mCi |
| D. Cesium-137 | D. Sealed Source (Ronan Model RLLI5890) | D. No single source to exceed .9 mCi |

Item 6 Purpose For Which Licensed Material Will Be Used:

- A. To be used in Texas Nuclear Model 5191 source holder for density measurements.
- B. To be used in Texas Nuclear Model 5202 source holder for density measurements.
- C. To be used in Texas Nuclear Model 5201 source holder for density measurements.
- D. To be used in Ronan Corporation Density System RLLI-5890 source holder to be used for density of syrup and feed co-products.

Item 7 Individual Responsible For Radiation Safety Program Training and Experience:

James Tuinstra is currently the Radiation Safety Officer (RSO). Mr. Tuinstra has been employed at Cargill for 9 years and has had the RSO responsibilities for the conduct of the Radiation Safety Program since June of 2015 with previous experience full filling the duties and responsibilities.

Mr. Tuinstra has attended Radiation Safety Officer Training in Columbus, Ohio presented by Roger Sit of Nevada Technical Associates, Inc. on October, 8 2010. Onsite training was received by previous RSO Gary Snodgrass.

Next is a copy of the certificate and training content.

James Tuinstra

Has successfully completed the 40 hour technical short course entitled

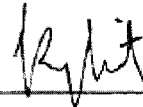
Radiation Safety Officer

October 4 – October 8, 2010

This certificate presented in Columbus, Ohio, October 8, 2010

By Nevada Technical Associates, Inc.

Approval codes for C.E. units are: ASRT 30.5 units: NVZ0146001, AAHP 32 units: 2008-00-005, ABIII 4.5 units: 08-1362



Roger Sit

Instructor

1.1 Radiation Safety Officer Training - Course Roadmap

Radiation safety (aka Health Physics) draws from many scientific disciplines in developing principles, procedures and techniques for the protection of personnel, the public, and the environment from the effects of radiation. This course presents theoretical concepts, practical information, and real-life examples to equip you to fulfill essential Radiation Safety Officer (RSO) duties.

Some subjects may be repeated in separate lessons under different contexts. Such repetition is intended, and should help you master certain key concepts. The following table summarizes the contents of each lesson.

Radiation Safety Officer Training Course RoadMap

| | | |
|-------------------------|--|--|
| Lesson 1 <i>mon</i> | <i>Introduction</i> | Atomic Structure Chemical Interactions Mass-Energy Equivalence Binding Energy Naturally Occurring Radionuclides Historical Highlights |
| Lesson 2 <i>mon</i> | <i>Radioactive Decay Processes</i> | Radioactive Decay Equations Decay Processes Chart of the Nuclides Decay Statistics |
| Lesson 3 <i>Tues</i> | <i>Interaction of Radiation with Matter</i> | Modes of Interaction and Ranges for: ✓ alpha particles ✓ beta particles ✓ gamma & x-ray ✓ neutrons |
| Lesson 4 <i>Tues</i> | <i>Radiation Detection & Measurement</i> | Operating Principles of Instrumentation Detection Issues Related to Type of Radiation |
| Lesson 5 | <i>Biological Effects of Radiation</i> | Dose units Mechanisms of Biological Damage Deterministic Effects Stochastic Effects What is Risk? |
| Lesson 6 | <i>Shielding</i> | Shielding Related to Types of Radiation: ✓ charged particles ✓ gamma rays & x-rays ✓ neutrons General Issues in Facility Shielding |

Radiation Safety Officer Training Course RoadMap, cont.

| | | |
|------------------------|--|--|
| Lesson 7 <i>wcd</i> | Personnel Dosimetry | External Dosimeters External Dose Evaluations Internal Dose Evaluations |
| Lesson 8 <i>wcd</i> | Regulations & Guides | Chronology Sources Current Regulations NRC Licensing Procedures |
| Lesson 9 <i>TK</i> | Surveys, Records & Documentation | Surveys & Inspections Radiological Controls & Work Practices ALARA Record-keeping & Documentation Operating & Emergency Procedures |
| Lesson 10 <i>TK</i> | Transportation & Disposal Regulations | Applicable Regulations Packaging for Transport Package Marking and Labels & Vehicle Placards Radioactive Waste Disposal |
| Lesson 11 <i>TK</i> | Radiological Emergencies | Emergency Classification Accident Phases Notifications Assistance Teams Emergency Response Accident Causes & Examples |
| Tab 12 | Reference Info | Mailing Lists & Websites Glossary Abbreviations List of Elements Conversion Factors References |
| Tab 13 | Reference Info | NRC Publications |
| Tab 14 | Reference Info | NRC Materials License Application Example |
| Tab 15 | Reference Info | Safety Videos & Training CDs Available from Nevada Technical Associates |

Item 8 Radiation Training for Individuals on Site:

No Cargill personnel will commission, service, remove, install, or relocate any radiation source. All previously indicated activity would only be performed by factory trained and/or other licensed individuals.

Cargill personnel are trained as well as contractors on start date and annually after on Radiation Safety.

The learning objectives of our Safety presentation are to define radioactivity, make the hazards of radiation exposure known, make facility's devices and RSO known and introduction to the radiation safety procedures.

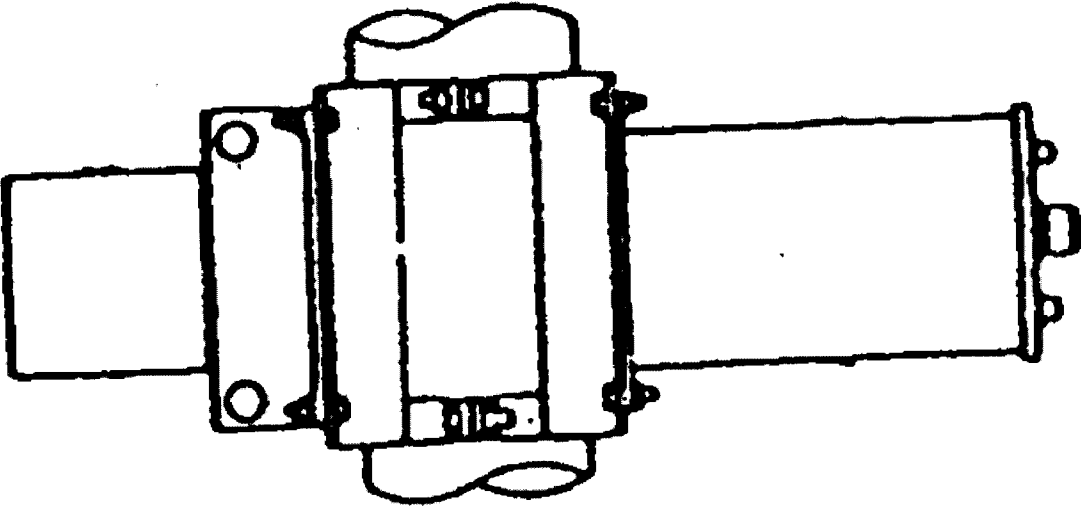
Item 9 Facilities and Equipment:

All units are located in process areas and subject to normal employee traffic. The radiation level 12" from the surface of any gauge source is less than 5mr/hr. Based on our 16 hour limited work day and infrequent working around units and installed location, it is near impossible for a person to exceed the annual dose limit to the whole body of 0.5 rem. When persons are working within said sources the RSO locks out the shutter until completion. Based on this information, no personal dosimetry or site restrictions should be required.

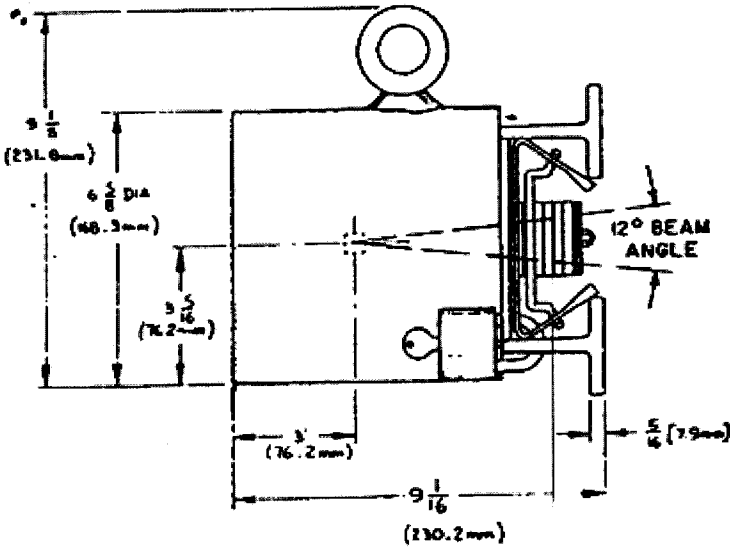
All sources are leak tested, shutter operation verified and labels/markings visible for personnel at proper intervals. Records for the previous items are also maintained.

The following drawings of the three types of sources we use with the typical mounting of source and electronics to production piping for density measurement of products produced.

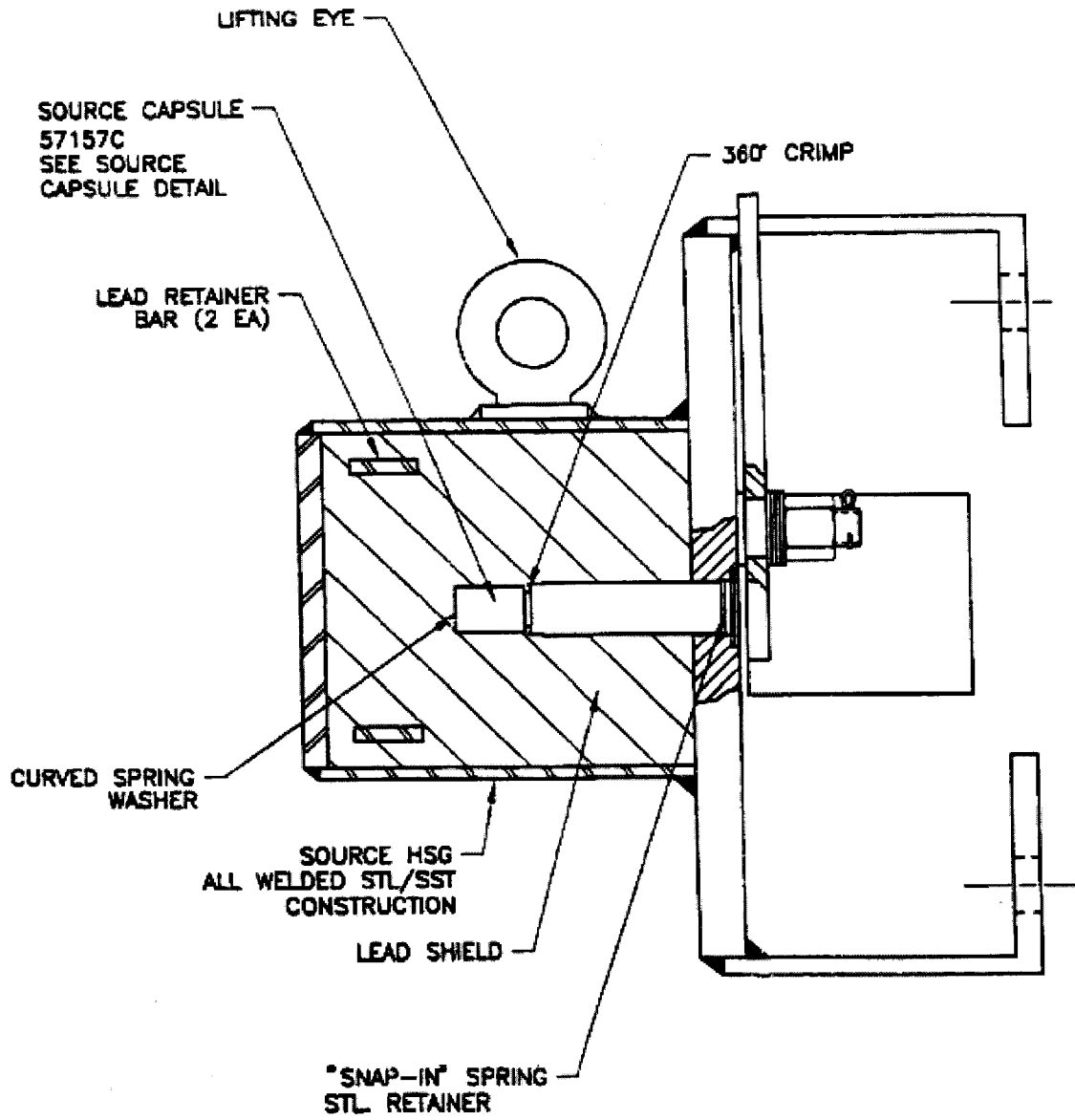
Typical Installation



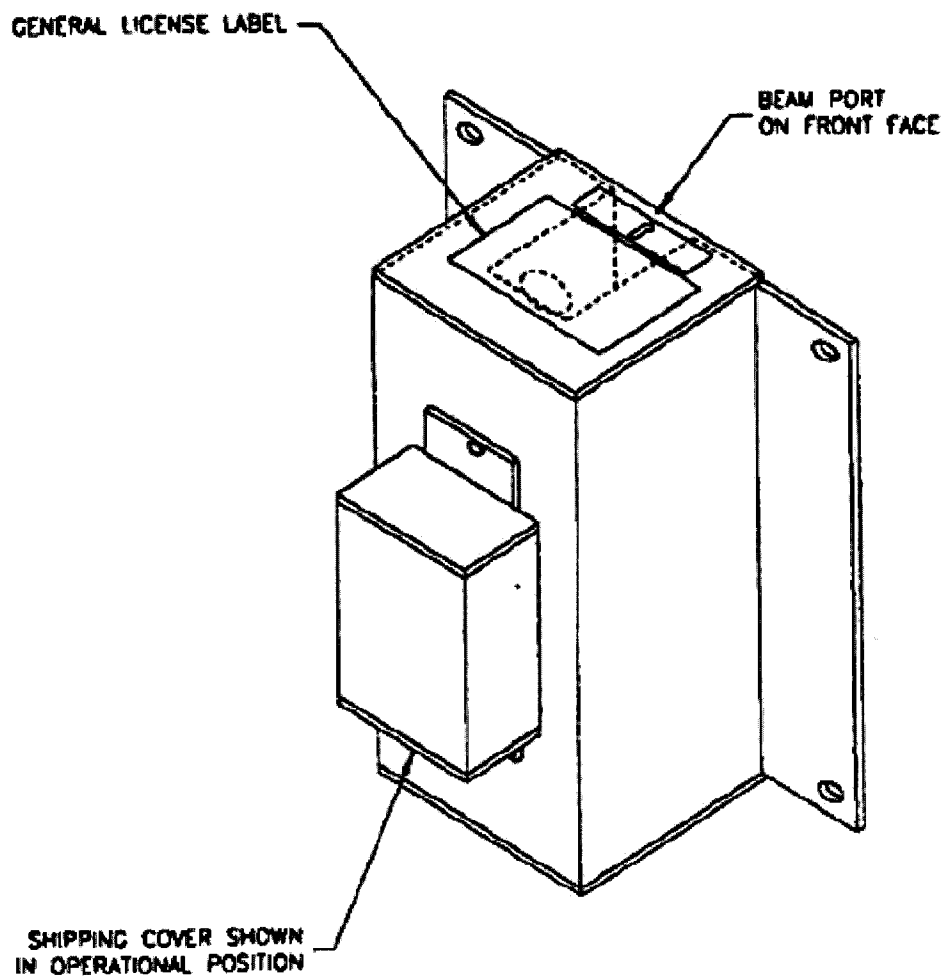
Texas Nuclear Model 5191



Texas Nuclear Model 5202 & Model 5201



Ronan Corporation Density System RLLI-5890



Item 9 Facilities and Equipment Continued:

Cargill has the following procedure for emergency.

Employee Information Notice:

Cargill, Incorporated located in Hammond, IN, is licensed under the United States Nuclear Regulatory Commission Material License Number 13-06932-03 to use radioactive material devices in plant instrumentation for the Cargill's Grind and Refinery plants.

The radiation for the three (3) Grind plant density measuring instruments is produced by Cesium-137 sources. These radioactive sources are installed in lead filled housings, which contains the radioactive material directing it into the material being measured. The source housing has a shutter, which must be locked in the closed position in the event it is necessary to work inside a monitored vessel.

The radiation for the Refinery plant is produced by a Cesium-137 source. This radioactive source is installed in a lead filled housing, which contain the radioactive material directing it into the material being measured. Source housings have a shutter, which must be locked in the closed position in the event it is necessary to work inside a monitored vessel.

The radiation produced by these sources is gamma or alpha radiation - a form of energy. There is no radon gas or other radioactive by-product produced in the decay of these sources. Material exposed to this radiation does not become radioactive.

The Hammond facility has the following personnel trained in radiation safety. Every effort is made to use these devices in a safe, conscientious manner and to keep personnel exposures, "As Low As Reasonable Achievable" (ALARA). If there are questions about the application of these devices, our license, regulations, procedures, or if anything unusual is observed, the following personnel should be contacted:

| | <u>Name</u> | <u>Cell number</u> |
|------|----------------|--------------------|
| RSO: | James Tuinstra | 219-781-4411 |

The license, regulations, and any notices of violations may be reviewed in Building #86 with the RSO during business hours.

Cargill is required to report any significant exposure incidents or unusual situations happening to the source housing to the Regulatory Agency as a condition of our license. If, after contacting the persons listed above, any employee has concern that the matter is not being properly handled, the employee may contact:

United States Nuclear Regulatory Commission
Region III 2443 Warrrenville Road, Suite 210, Lisle, IL 60532-4352
(630) 829-9500, After Hours Duty Officer (301) 816-5100

Fixed Gauge Emergency Response Information

*Refer to specific plant SOP's for detailed operation procedures.

POTENTIAL HAZARDS

1) IMMEDIATE HAZARDS TO HEALTH

- External radiation hazard from unshielded radioactive material.
- Low-level radioactive material; little personal radiation hazard when shielded.
- Materials in special form are not expected to cause contamination in accidents.
- Commonly available instruments cannot detect some radioactive materials.
- Potential internal radiation hazard from inhalation, ingestion, or breaks in skin, only if special form capsule is breached.

2) FIRE OR EXPLOSION

- No risk of fire or explosion.
- Radioactivity does not change flammability or other properties of the materials.

EMERGENCY PROCEDURES

CALL THE FOLLOWING FOR EMERGENCY ASSISTANCE:

RADIATION SAFETY OFFICER: James Tuinstra 219-781-4411

3) IMMEDIATE PRECAUTIONS

- Isolate hazard area and restrict access.
- Emergency response actions may be performed prior to any measurement of radiation; limit entry to shortest time possible.
- Notify local authorities, (fire department, etc.)

RSO will notify United States Nuclear Regulatory Commission

Detain uninjured persons, isolate equipment with suspected contamination, and delay radiation cleanup until receiving instruction from United States Nuclear Regulatory Commission.

4) FIRE

- Do not move damaged containers
- Small Fires: Dry Chemical, CO₂, water spray, or regular foam.
- Large Fires: Water spray, fog (flooding amounts).

5) SPILL OR LEAK

- Do not touch damaged containers or exposed contents.
- Damage to outer container may not affect primary inner container.
- Special form capsules are not expected to leak as a result of an accident or fire.

6) FIRST AID

- Use first aid treatment according to the nature of the injury.
- Advise medical personnel that victim may be contaminated with low-level radioactive material. Except for the injured, detain persons exposed to radioactive material until arrival or instruction of United States Nuclear Regulatory Commission

United States Nuclear Regulatory Commission

Region III 2443 Warrrenville Road, Suite 210, Lisle, IL 60532-4352

(630) 829-9500, After Hours Duty Officer (301) 816-5100

Item 10 Radiation Safety Program:

Inventory check, shutter test and leak test will be done the week of February 19th of each year.

Inventory check will be done the week of May 19th of each year.

Inventory check, 2nd shutter test and 2nd leak test will be done the week of August 19th of each year.

Inventory check will be done the week of November 19th of each year.

Internal audit will be done the week of December 19th of each year.

Currently all of the leak tests are performed by Global Gauge Corporation 3200 Kettering Blvd. Moraine, Ohio 45439.

Cargill possessed one portable gamma-ray and ion chamber survey meter identified below:

Manufacturer- Nuclear Chicago Corp.

Model- 2650

Range- 0.2 mr/hr to 200 mr/hr

Manufacturer- Fluke

Model- 451P

Range- 0 to 500 ur/hr, 0 to 5 mr/hr, 0 to 50 mr/hr, 0 to 500 mr/hr, 0 to 5 r/hr

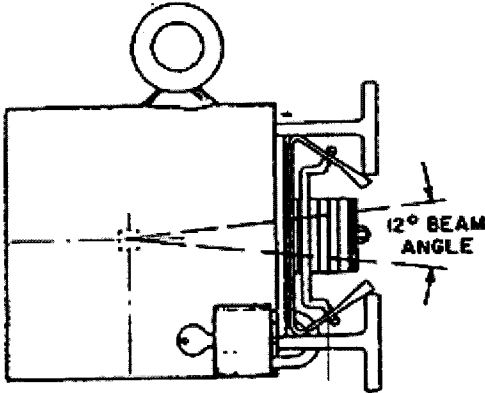
This devices are calibrated currently by Isotronics 618 Sandpebble Drive Schaumburg, IL 601933.

Item 10 Radiation Safety Program Continued:

Lockout Procedures are as follows:

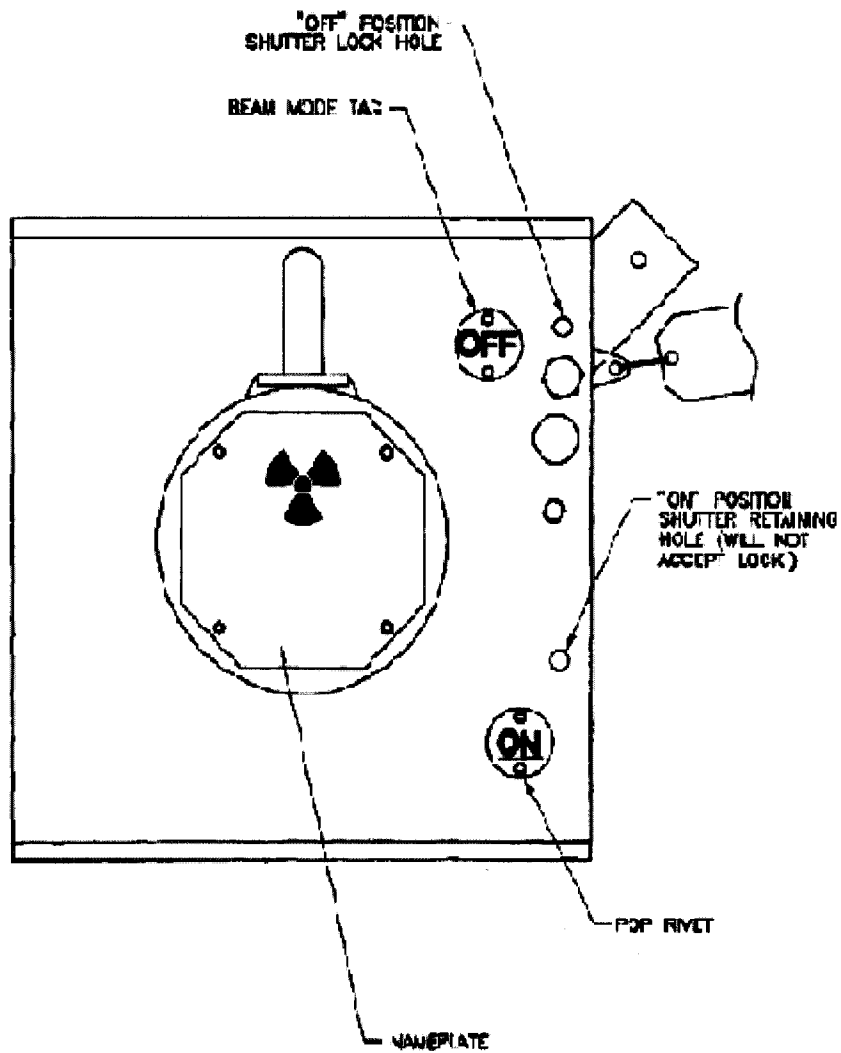
Cargill is setup only to allow RSO to do the following lockouts.

Texas Nuclear Model 5191



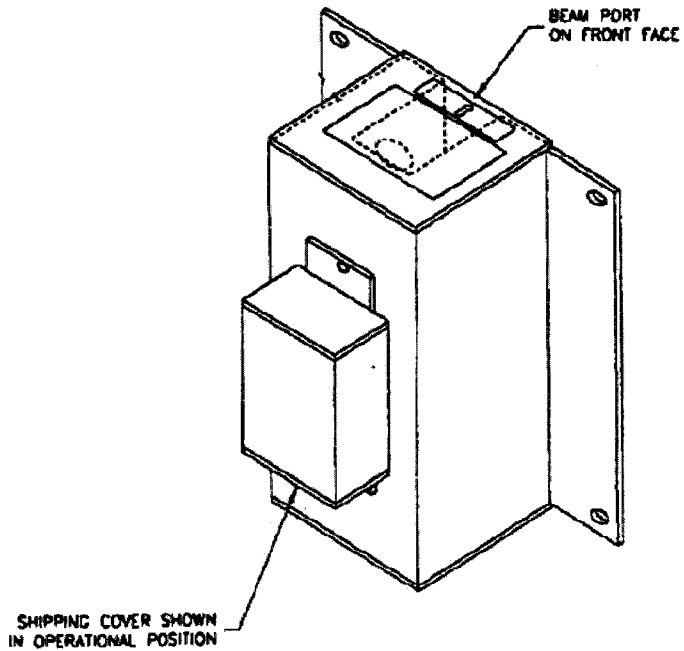
The slide Shutter plate has 2 sets of lead plate blocks bolted to the shutter with a section of the shutter without lead plates. To lock shutter in position, pull shutter until first lead plate is outside of the source area and second will be covering the source beam. The holes will now line up to accept a lock. To verify the position of the shutter, obtain Survey Meter readings upon arrival and after moving the shutter in place.

Texas Nuclear Model 5202 & Model 5201



To perform lockout move the lever from the on position to the off position. Pull the lever into position and insert lock. Once in off position the holes will line up and they are large enough to insert a lock.

Ronan Corporation Density System RLLI-5890



Unbolt shutter from back of unit and bolt onto the front. Shown above is in operational position, with the shutter located on the back of the unit.

Item 11 Waste Management:

All sources will be returned to manufacturer or other licensed individuals.

ull to open.

FedEx
Express

fedex.com 1.800.GoFedEx 1.800.463.3339

FZ
RT 493
6 16:00
D 0901 04 07

RECEIVED APR 07 2016

FedEx
TRK# 8088 3412 3901
0200

THU - 07 APR AA
STANDARD OVERNIGHT

60532
IL-US
ORD

79 ENLA



FID 220369 06APR16 JDTA 539C1/1042/4810

FedEx NEW Package Express US Airbill
FedEx Tracking Number 8088 3412 3901

1 From Date 4/6/16

Sender's Name Cheri Dorman Phone 870 741-9000

Company Cargill, Inc.

Address 1100 Indianapolis Blvd Dept./Floor/Suite/Room

City Hammond State IN ZIP 46320

2 Your Internal Billing Reference

3 To Recipient's Name Materials Licensing Branch Phone 219 689-8436

Company US Nuclear Regulatory Commission Region III

Address 2443 Warrenville Rd, Suite 210
We cannot deliver to PO boxes or PO ZIP codes. Dept./Floor/Suite/Room

Address Use this line for the HOLD location address or for continuation of your shipping address.

City Lisle State IL ZIP 60532



8088 3412 3901

4 Express Package Service *To meet locations. Packages up to 150 lbs. For packages over 150 lbs., use the new FedEx Express Freight US Airbill. NOTE: Service order has changed. Please select carefully.

| Next Business Day | 2 or 3 Business Days |
|---|---|
| <input type="checkbox"/> FedEx First Overnight Earliest next business morning delivery to select locations. Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected. | <input type="checkbox"/> FedEx 2Day A.M. Second business morning. Saturday Delivery NOT available. |
| <input type="checkbox"/> FedEx Priority Overnight Next business morning. *Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected. | <input type="checkbox"/> FedEx 2Day Second business afternoon. *Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected. |
| <input checked="" type="checkbox"/> FedEx Standard Overnight Next business afternoon. *Saturday Delivery NOT available. | <input type="checkbox"/> FedEx Express Saver Third business day. *Saturday Delivery NOT available. |

5 Packaging *Declared value limit \$500.
 FedEx Envelope* FedEx Pak* FedEx Box FedEx Tube Other

6 Special Handling and Delivery Signature Options
 SATURDAY Delivery
NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.

No Signature Required
Package will be left without obtaining a signature for delivery.

Direct Signature
Someone at recipient's address may sign for delivery. Fee applies.

Indirect Signature
If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only. Fee applies.

Does this shipment contain dangerous goods?
One box must be checked.

No Yes
As per attached Shipper's Declaration.

Yes
Shipper's Declaration not required.

Dry Ice
Dry Ice, 9.5 LUN 1945 _____ kg

Cargo Aircraft Only

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging or placed in a FedEx Express Drop Box.

7 Payment B/E to:
Sender Account No. in Section 7000 (B/E) Recipient Third Party Credit Card Cash/Check

Total Packages Total Weight _____
Credit Card Acct. No. _____

Your liability is limited to US\$100 unless you declare a higher value. See the current FedEx Service Guide for details.

644

Insert shipping document here.