

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.

APPLICATIONS FOR DISTRIBUTION OF EXEMPT PRODUCTS FILE APPLICATIONS WITH:

U.S. NUCLEAR REGULATORY COMMISSION
DIVISION OF FUEL CYCLE AND MATERIAL SAFETY, NM55
WASHINGTON, DC 20555

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:

U.S. NUCLEAR REGULATORY COMMISSION, REGION I
NUCLEAR MATERIALS SAFETY SECTION B
475 ALLENDALE ROAD
KING OF PRUSSIA, PA 19406

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

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

IF YOU ARE LOCATED IN:

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

U.S. NUCLEAR REGULATORY COMMISSION, REGION III
MATERIALS LICENSING SECTION
799 ROOSEVELT ROAD
GLEN ELLYN, IL 60137

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

U.S. NUCLEAR REGULATORY COMMISSION, REGION IV
MATERIAL RADIATION PROTECTION SECTION
611 RYAN PLAZA DRIVE, SUITE 1000
ARLINGTON, TX 76011

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

U.S. NUCLEAR REGULATORY COMMISSION, REGION V
NUCLEAR MATERIALS SAFETY SECTION
1450 MARIA LANE, SUITE 210
WALNUT CREEK, CA 94596

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 JURISDICTION.

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)

Amoco Chemical Company
Whiting Plant
2357 Standard Avenue
P. O. Box 792
Whiting, IN 46394

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

Amoco Chemical Company
Whiting Plant
2357 Standard Avenue
Whiting, IN 46394

4. NAME OF PERSON TO BE CONTACTED ABOUT THIS APPLICATION

Debra E. Jurvich, Technical Supervisor

TELEPHONE NUMBER

219-473-4131

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

FEE CATEGORY

AMOUNT
ENCLOSED \$ 230.00

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, 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.

SIGNATURE—CERTIFYING OFFICER

TYPED/PRINTED NAME

TITLE

DATE

L. L. Raiford

L. L. Raiford

Operating Supervisor

8/4/88

8907110200 880831
REG3 LIC30
13-25952-01 PDR

FOR NRC USE ONLY

| | | | | |
|---------------------------------|-----------------------------|---------------------------|----------|--------------------------|
| TYPE OF FEE <i>app</i> | FEE LOG <i>Aug 11</i> | FEE CATEGORY <i>BP</i> | COMMENTS | APPROVED BY <i>CP</i> |
| AMOUNT RECEIVED <i>\$230</i> | CHECK NUMBER <i>1439</i> | CONTROL NO 85868 | | DATE <i>8/16/88</i> |

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Amoco Chemical Company
Whiting Plant
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5. RADIOACTIVE MATERIAL

Please see the attached "Data Sheet No. 1 Radioactive Materials".

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DATA SHEET NO.1
RADIOACTIVE MATERIALS

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| Vessel Identification/Instrument No. | | a. Element & mass no. | | b. chemical/physical form c. max. amount | |
|--------------------------------------|-----------|--|-----------|--|--|
| SR-101 Zone 1 | SLT-237 | Cesium Kay-Ray, Inc. Source housing Model 7063 | 137 inert | solid | 200 mCi Kay-Ray, Inc. Model 7700-200 |
| | SLT-238-A | Americium Kay-Ray, Inc. Source housing Model 4160 | 241 inert | solid | 500 mCi Kay-Ray, Inc. Model 7701-500 |
| | SLT-238-B | Americium Kay-Ray, Inc. Source housing Model 4160 | 241 inert | solid | 500 mCi Kay-Ray, Inc. Model 7701-500 |
| | SLT-238-C | Americium Kay-Ray, Inc. Source housing Model 4160 | 241 inert | solid | 500 mCi Kay-Ray, Inc. Model 7701-500 |
| SR-101 Zone 2 | SLT-239 | Cesium Kay-Ray, Inc. Source housing Model 7063 | 137 inert | solid | 200 mCi Kay-Ray, Inc. Model 7700-200 |
| | SLT-240-A | Americium Kay-Ray, Inc. Source housing Model 4160 | 241 inert | solid | 500 mCi Kay-Ray, Inc. Model 7701-500 |
| | SLT-240-B | Americium Kay-Ray, Inc. Source housing Model 4160 | 241 inert | solid | 500 mCi Kay-Ray, Inc. Model 7701-500 |
| | SLT-240-C | Americium Kay-Ray, Inc. Source housing Model 4160 | 241 inert | solid | 500 mCi Kay-Ray, Inc. Model 7701-500 |
| ST-103 Bottoms | SLT-241 | Cesium Kay-Ray, Inc. Source housing Model 7062 B | 137 inert | solid | 50 mCi Kay-Ray, Inc. Model 7700-50 |
| | SLT-242-A | Americium Kay-Ray, Inc. Source housing Model 4160 | 241 inert | solid | 500 mCi Kay-Ray, Inc. Model 7701-500 |
| | SLT-242-B | Americium Kay-Ray, Inc. Source housing Model 4160 | 241 inert | solid | 500 mCi Kay-Ray, Inc. Model 7701-500 |

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RADIOACTIVE MATERIALS

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| | | | | | |
|---------------|-----------------------------|--|-----------|-------|--|
| SE-115 Reboil | SLT-243 | Cesium Kay-Ray, Inc. Source housing Model 7062 B | 137 inert | solid | 100 mCi Kay-Ray, Inc. Model 7700-100 |
| | SLT-244 | Americium Kay-Ray, Inc. Source housing Model 4160 | 241 inert | solid | 500 mCi Kay-Ray, Inc. Model 7701-500 |
| SD-108 | SLT-245 | Cesium Kay-Ray, Inc. Source housing Model 7063 | 137 inert | solid | 200 mCi Kay-Ray, Inc. Model 7700-200 |
| | SLT-246 | Americium Kay-Ray, Inc. Source housing Model 4160 | 241 inert | solid | 500 mCi Kay-Ray, Inc. Model 7701-500 |
| Totals | Cesium 137 Americium 241 | 750 mCi 5000 mCi | | | |

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

All the radioactive sources will be sealed in nonportable gauging devices used for the measurement and control of liquid and foam levels in vessels containing hydrocarbon mixtures. Please see the attached "Data Sheet No. 2 Uses by Type and Model". Summary narrative follows on pages 8 and 9.

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DATA SHEET NO.2
USES BY TYPE AND MODEL

| Vessel Identification | Instrument No. | Element and mass no. | Application |
|-----------------------|----------------|--|------------------|
| SR-101 Zone 1 | SLT-237 | Cesium 137 Kay-Ray, Inc. Source housing Model 7063 | Continuous Level |
| | SLT-238-A | Americium 241 Kay-Ray, Inc. Source housing Model 4160 | Foam Detection |
| | SLT-238-B | Americium 241 Kay-Ray, Inc. Source housing Model 4160 | Foam Detection |
| | SLT-238-C | Americium 241 Kay-Ray, Inc. Source housing Model 4160 | Foam Detection |
| SR-101 Zone 2 | SLT-239 | Cesium 137 Kay-Ray, Inc. Source housing Model 7063 | Continuous Level |
| | SLT-240-A | Americium 241 Kay-Ray, Inc. Source housing Model 4160 | Foam Detection |
| | SLT-240-B | Americium 241 Kay-Ray, Inc. Source housing Model 4160 | Foam Detection |
| | SLT-240-C | Americium 241 Kay-Ray, Inc. Source housing Model 4160 | Foam Detection |
| ST-103 Bottoms | SLT-241 | Cesium 137 Kay-Ray, Inc. Source housing Model 7062 B | Continuous Level |
| | SLT-242-A | Americium 241 Kay-Ray, Inc. Source housing Model 4160 | Foam Detection |
| | SLT-242-B | Americium 241 Kay-Ray, Inc. Source housing Model 4160 | Foam Detection |

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DATA SHEET NO.2 Cont.
USES BY TYPE AND MODEL

| | | | |
|---------------|---------|----------------|------------------|
| SE-115 Reboil | SLT-243 | Cesium 137 | Continuous Level |
| | | Kay-Ray, Inc. | |
| | | Source housing | |
| | | Model 7062 B | |
| | SLT-244 | Americium 241 | Foam Detection |
| | | Kay-Ray, Inc. | |
| | | Source housing | |
| | | Model 4160 | |
| SD-108 | SLT-245 | Cesium 137 | Continuous Level |
| | | Kay-Ray, Inc. | |
| | | Source housing | |
| | | Model 7063 | |
| | SLT-246 | Americium 241 | Foam Detection |
| | | Kay-Ray, Inc. | |
| | | Source housing | |
| | | Model 4160 | |

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Based on experience, technical literature and manufacturer's representatives recommendations, gamma radiation energy sources will be used in devices to measure for and then control otherwise hard to measure hydrocarbon liquid levels. The Cesium 137 sources, each providing the lowest practical level of narrowly focused gamma radiation energy, will each be attached to the exterior of a different vessel. The gamma energy from each source will be attenuated in proportion to the amount of liquid level in the bottom of a vessel. For each source, on the opposite exterior side of the vessel, a gas filled chamber will ionize in the presence of the gamma energy. The ionization will result in an electrical current in proportion to the gamma energy. The amount of ionization generated current will also be in proportion to the level in the vessel. The electrical current will be amplified and converted into a liquid level measurement and then converted to control signals for the effluent pumping system. In essence, the Cesium 137 sources will be used in liquid level control of our critical petrochemical manufacturing vessels.

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Based on experience, technical literature and manufacturer's representatives recommendations, neutron radiation energy sources will be used in devices to detect otherwise hard to measure hydrocarbon foams. The Americium 241 Beryllium sources, each providing the lowest practical level of narrowly focused neutron radiation energy, will be attached to the exteriors of the different vessels. For the vessels SR-101 zone 1 and SR-101 zone 2 there may eventually be three of these sources, for ST-103 bottoms there may eventually be two of these sources. The neutron energy from each source will be reflected in proportion to the amount of hydrocarbons opposite the source inside the vessel. Neutron energy reflected will be least for hydrocarbon vapors, more for foams and maximum for liquids. For each source, in a separate portion of the housing, a gas filled chamber will ionize in the presence of the neutron energy. The ionization will result in an electrical current in proportion to the neutron energy. The amount of ionization generated current will also be in proportion to the foaming present in the vessel at the height of the device.

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

As noted in The U.S. Nuclear Regulatory Commission, Office of Nuclear Regulatory Research, ' Draft Regulatory Guide and Valve/Impact Statement ', of January 1985, entitled Guide for the Preparation of Applications for Licenses for the Use of Sealed Sources in Nonportable Gauging Devices, page 6, we are employing the manufacturer's licensed field service engineer(s) to perform services such as " installation, initial radiation survey, maintenance, and leak testing " and we agree that the initial " training will be given at the time the gauges are installed " and we also agree that the " gauges will not be operated until training has been received " and that finally, we " will maintain records of the training received for 5 years".

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

As noted in The U.S. Nuclear Regulatory Commission, Office of Nuclear Regulatory Research, ' Draft Regulatory Guide and Valve/Impact Statement ', of January 1985, entitled Guide for the Preparation of Applications for Licenses for the Use of Sealed Sources in Nonportable Gauging Devices, page 6, we are also employing the manufacturer's licensed field service engineer(s) to train each of the operating foremen in the operation and use of the devices.

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9. FACILITIES AND EQUIPMENT

Please see the attach drawing no. " LA-101 " for locations at the Whiting Plant of the proposed gauges.

All gauges will be located out-of--doors and exposed to the ambient weather conditions. Therefore, the radiation detection electronics will be electrical resistance tape heated as needed. Cooling and other protections are not needed. Other anticipated environmental exposures are within normal ambient conditions. No excessive temperatures, pressures, corrosion, and/or vibration is expected.

Maintenance of the gauges will be performed, as operating and visual experience shows a need, under contract by the manufacture's field service engineer(s) during the periodic, probably annual, maintenance shutdowns.

The Whiting Plant is staffed around the clock every day of the year. The Control Room Operator has radio communication to the supervisor on call and the most recent list of emergency call out telephone numbers. Please see the attached " EMERGENCY PROCEDURES, OPERATOR GUIDELINES FOR REPORTING SPILLS " list of emergency phone numbers. In the event of any accident and/or unusual occurrence the supervisor on call will be contracted by the Control Room Operator. The supervisor will then contact the U.S. Nuclear Regulatory Commission Region III Office at telephone number 312-790-5500.

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10. RADIATION SAFETY PROGRAM

As noted in The U.S. Nuclear Regulatory Commission, Office of Nuclear Regulatory Research, ' Draft Regulatory Guide and Valve/Impact Statement ', of January 1985, entitled Guide for the Preparation of Applications for Licenses for the Use of Sealed Sources in Nonportable Gauging Devices, page 8 through 10, we are employing the manufacturer's licensed field service engineer(s) to perform the necessary radiation safety services including " installation, initial radiation survey, maintenance, leak testing, device relocation, etc.". Therefore, we do not need to " have and use personnel monitoring equipment or radiation detection equipment." The manufacturer is Kay-Ray, Inc., 390 Holbrook Drive, Wheeling Illinois 60090, N.R.C. License No. 12-11184-01 Amendment No. 47, Expiration date 1992. In the event of problems with any of the devices all Plant personnel will be instructed to stay well away from the problem device and contact the supervisor on call. The supervisor will contact the manufacturer to send licensed field service engineer(s) to determine the exact nature of the problem, eliminate any hazards and repair the device.

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11. WASTE MANAGEMENT

In the event any devices become unneeded and/or unserviceable we will contact Adco Service, Inc., 17650 South Duvan Drive, Tinley Park Illinois 60477, telephone number 312-429-1660 for proper disposal.

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12. LICENSE FEES

As discussed by telephone on Tuesday, August 3, 1988 with Sandra Kimberley of the N.R.C., Washington D.C. Office, please find attached a check for \$ 230.00 for a new site license. Thank you.

145.

08/03/88 13:52:50 F1-01

EMERGENCY PROCEDURES

OPERATOR GUIDELINES FOR REPORTING SPILLS

SPILL TO ENVIRONMENT IS DEFINED AS ANYTHING NOT WHOLLY CONTAINED WITHIN BUILDING OR STRUCTURES.

- A. TAKE ACTION TO CONTAIN SPILL.
- B. IDENTIFY SUBSTANCE AND QUANTITY SPILLED. (REFER TO ITEM F, BELOW).
- C. CALL ONE OF THE FOLLOWING PEOPLE. IN THIS ORDER.
EMERGENCY COORDINATOR: DEBBIE JURVICH:

OFFICE: 131
HOME: 8-815-485-6300
WEEKEND DUTY ASSIGNEE: PAGER NO 738-0602
ALTERNATES: GARY NIEDERMEIER:

OFFICE: 115
HOME: 9-1-365-3060
LES RAIFORD:
OFFICE: 101
HOME: 9-1-865-2075

CASUALTY CONTROL OFFICER: GEORGE BREWER:

COMMUNICATIONS COORDINATOR: TERRY MARKIEL

PUBLIC RELATIONS: ELISE SIMMS:

(PRESS NEXT TO CONTINUE PROCEDURES)

FORWARD PAGING EMER

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