

APPLICATION FOR BYPRODUCT MATERIAL LICENSE
INDUSTRIAL

a. NEW LICENSE

b. AMENDMENT TO:
LICENSE NUMBER

c. RENEWAL OF:
LICENSE NUMBER
34-16180-01

See attached instructions for details.

Completed applications are filed in duplicate with the Division of Fuel Cycle and Material Safety, Office of Nuclear Material Safety, and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555 or applications may be filed in person at the Commission's office at 1717 H Street, NW, Washington, D. C. or 7915 Eastern Avenue, Silver Spring, Maryland.

2. APPLICANT'S NAME (Institution, firm, person, etc.)

Cardinal Operating Company

TELEPHONE NUMBER: AREA CODE - NUMBER EXTENSION

614-598-4164

3. NAME OF PERSON TO BE CONTACTED REGARDING THIS APPLICATION

R. L. Kriete, Performance Superintendent

TELEPHONE NUMBER: AREA CODE - NUMBER EXTENSION

614-598-4164 - Ext. 522

4. APPLICANT'S MAILING ADDRESS (Include Zip Code)

P. O. Box B
Brilliant, Ohio 43913

5. STREET ADDRESS WHERE LICENSED MATERIAL WILL BE USED
(Include Zip Code)

Cardinal Plant
Old Route 7
Brilliant, Ohio 43913

(IF MORE SPACE IS NEEDED FOR ANY ITEM, USE ADDITIONAL PROPERLY KEYED PAGES.)

6. INDIVIDUAL(S) WHO WILL USE OR DIRECTLY SUPERVISE THE USE OF LICENSED MATERIAL

(See Items 16 and 17 for required training and experience of each individual named below)

FULL NAME

TITLE

a. R. L. Kriete

Performance Superintendent

b. W. P. Weith

Control Supervisor

7. RADIATION PROTECTION OFFICER

K. R. Dennis

Attach a resume of person's training and experience as outlined in Items 16 and 17 and describe his responsibilities under Item 15.

8. LICENSED MATERIAL

| LINE NO. | ELEMENT AND MASS NUMBER | CHEMICAL AND/OR PHYSICAL FORM | NAME OF MANUFACTURER AND MODEL NUMBER (If Sealed Source) | MAXIMUM NUMBER OF MILLICURIES AND/OR SEALED SOURCES AND MAXIMUM ACTIVITY PER SOURCE WHICH WILL BE POSSESSED AT ANY ONE TIME |
|----------|-------------------------|-------------------------------|--|---|
| A | B | C | D | |
| (1) | Cesium - 137 | Sealed Source | Texas Nuclear Model 570-57157C | 38 sources at 20 millicuries each |
| (2) | Cesium - 137 | Sealed Source | Kay-Ray, Inc. Model 7700-D | 28 sources at 100 millicuries each |
| (3) | Cesium - 137 | Sealed Source | Kay-Ray, Inc. Model 7700-B | 24 sources at 25 millicuries each |
| (4) | | | | |

DESCRIBE USE OF LICENSED MATERIAL
E

(1) These devices are used for level detection for plugged coal chutes.

(2) The devices listed in items 2 and 3 are to be used for level detection in fly ash collection hoppers

(3) 8512060232 850412
REG3 LIC30
(4) 34-16180-01 PDR

9. STORAGE OF SEALED SOURCES

| LINE NO. | CONTAINER AND/OR DEVICE IN WHICH EACH SEALED SOURCE WILL BE STORED OR USED. A. | NAME OF MANUFACTURER B. | MODEL NUMBER C. |
|----------|---|----------------------------|--------------------|
| (1) | Source housing | Texas Nuclear | 5189 |
| (2) | Source housing | Kay-Ray Inc. | 7080 |
| (3) | Source housing | Kay-Ray Inc. | 7062P |
| (4) | | | |

10. RADIATION DETECTION INSTRUMENTS

| LINE NO. | TYPE OF INSTRUMENT A | MANUFACTURER'S NAME B | MODEL NUMBER C | NUMBER AVAILABLE D | RADIATION DETECTED (alpha, beta, gamma, neutron) E | SENSITIVITY RANGE (milliroentgens/hour or counts/minute) F |
|----------|-------------------------|--------------------------|-------------------|-----------------------|--|--|
| (1) | N.A. | | | | | |
| (2) | | | | | | |
| (3) | | | | | | |
| (4) | | | | | | |

11. CALIBRATION OF INSTRUMENTS LISTED IN ITEM 10

| | |
|---|--|
| <input type="checkbox"/> a. CALIBRATED BY SERVICE COMPANY NAME, ADDRESS, AND FREQUENCY N.A. | <input type="checkbox"/> b. CALIBRATED BY APPLICANT <i>Attach a separate sheet describing method, frequency and standards used for calibrating instruments.</i> |
|---|--|

12. PERSONNEL MONITORING DEVICES

| TYPE (Check and/or complete as appropriate.) A | SUPPLIER (Service Company) B | EXCHANGE FREQUENCY C |
|---|------------------------------------|---|
| (See Attachment) <input type="checkbox"/> (1) FILM BADGE <input type="checkbox"/> (2) THERMOLUMINESCENCE DOSIMETER (TLD) <input type="checkbox"/> (3) OTHER (Specify): _____ _____ _____ | N.A. | <input type="checkbox"/> MONTHLY <input type="checkbox"/> QUARTERLY <input type="checkbox"/> OTHER (Specify): _____ _____ _____ |

13. FACILITIES AND EQUIPMENT (Check were appropriate and attach annotated sketch(es) and description(s).)

- ☐ a. LABORATORY FACILITIES, PLANT FACILITIES, FUME HOODS (Include filtration, if any), ETC.
☐ b. STORAGE FACILITIES, CONTAINERS, SPECIAL SHIELDING (fixed and/or temporary), ETC. N.A.
☐ c. REMOTE HANDLING TOOLS OR EQUIPMENT, ETC.
☐ d. RESPIRATORY PROTECTIVE EQUIPMENT, ETC.

14. WASTE DISPOSAL

- a. NAME OF COMMERCIAL WASTE DISPOSAL SERVICE EMPLOYED
N.A., See Attached Sheet
- b. IF COMMERCIAL WASTE DISPOSAL SERVICE IS NOT EMPLOYED, SUBMIT A DETAILED DESCRIPTION OF METHODS WHICH WILL BE USED FOR DISPOSING OF RADIOACTIVE WASTES AND ESTIMATES OF THE TYPE AND AMOUNT OF ACTIVITY INVOLVED. IF THE APPLICATION IS FOR SEALED SOURCES AND DEVICES AND THEY WILL BE RETURNED TO THE MANUFACTURER, SO STATE.

INFORMATION REQUIRED FOR ITEMS 15, 16 AND 17

Describe in detail the information required for Items 15, 16 and 17. Begin each item on a separate page and key to the application as follows:

15. RADIATION PROTECTION PROGRAM. Describe the radiation protection program as appropriate for the material to be used including the duties and responsibilities of the Radiation Protection Officer, control measures, bioassay procedures (if needed), day-to-day general safety instruction to be followed, etc. If the application is for sealed source's also submit leak testing procedures, or if leak testing will be performed using a leak test kit, specify manufacturer and model number of the leak test kit.
16. FORMAL TRAINING IN RADIATION SAFETY. Attach a resume for each individual named in Items 6 and 7. Describe individual's formal training in the following areas where applicable. Include the name of person or institution providing the training, duration of training, when training was received, etc.
 - a. Principles and practices of radiation protection.
 - b. Radioactivity measurement standardization and monitoring techniques and instruments.
 - c. Mathematics and calculations basic to the use and measurement of radioactivity.
 - d. Biological effects of radiation.
17. EXPERIENCE. Attach a resume for each individual named in Items 6 and 7. Describe individual's work experience with radiation, including where experience was obtained. Work experience or on-the-job training should be commensurate with the proposed use. Include list of radioisotopes and maximum activity of each used.

18. CERTIFICATE

(This item must be completed by applicant)

The applicant and any official executing this certificate on behalf of the applicant named in Item 2, certify that this application is prepared in conformity with Title 10, Code of Federal Regulations, Part 30, and that all information contained herein, including any supplements attached hereto, is true and correct to the best of our 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.

a. LICENSE FEE REQUIRED
(See Section 170.31, 10 CFR 170)

\$110.00

b. CERTIFYING OFFICIAL (Signature)

Frank N. Bein

c. NAME (Type or print)
Frank N. Bein

(1) LICENSE FEE CATEGORY: 3L

d. TITLE

Vice President of Cardinal Operating Co.

(2) LICENSE FEE ENCLOSED: \$ \$110.00

e. DATE

8/29/79

ATTACHMENT A

| | <u>Sealed Source</u> | <u>Activity</u> | <u>Kay-Ray ID Number</u> | <u>**Source Manufacturers Model No.</u> |
|--------|--------------------------|-----------------|------------------------------|---|
| Line 2 | Cs-137 | 100 m Ci | 7700-D | 1. NER 570 |
| Line 3 | Cs-137 | 25 m Ci | 7700-B | 2. VD |
| | | | | 3. 850233 |
| | | | | 4. 4P6M |
| | | | | 5. X.8 |
| | | | | 6. X.9 |
| | | | | 7. X.19 |

** SOURCE MANUFACTURER

1. New England Nuclear
2. Gamma Industries
3. General Radioisotope Products
4. 3M Company
- 5, 6, 7. Amersham Searle

Item 15 Leak Test Kit

The appropriate model number of the leak test kit used to test the sealed sources at Cardinal Plant is Kay-Ray Model A.

ATTACHMENT TO FORM NRC -313-1

ITEM 12 "Personnel Monitoring Devices"

No personnel monitoring devices are required with this type gauge. Adequate shielding is provided in the construction of the source head. A shutter will be locked in the closed position anytime the source is not properly installed or when personnel would be working in line with the radiation beam.

ITEM 14 "Waste Disposal"

No waste disposal is involved. If the gauge is damaged or its use discontinued it shall be returned to the manufacturer for disposal of the source material.

ATTACHMENT TO FORM NRC - 313-1

ITEM 15 "Radiation Protection Program"

Our program is based on procedures and instructions given by the manufacturer for handling the sealed source devices. No sources are removed or worked on without assistance of the manufacturer. Instructions are given to all plant personnel that anytime work is performed in or around the source beam, the shutter is to be closed and locked. All leak tests on source devices will be performed using Kay-Ray Model 162.3 test kits.

ATTACHMENT TO FORM NRC-313-1

ITEM 16 "Formal Training in Radiation Safety"

The personnel in items 6 and 7 have received no formal training in radiation safety. W. P. Weith and K. R. Dennis attended a program in October, 1963 on Radiological Detection and Monitoring which was presented by American Electric Power personnel. This course demonstrated methods of detecting alpha, beta, gamma, and neutron radiation.

RESUME OF:

Robert L. Kriete
354 Terri Avenue
Steubenville, Ohio 43952

EMPLOYER:

Cardinal Operating Company
Cardinal Plant
P.O. Box B
Brilliant, Ohio 43913

EMPLOYMENT DATE: 3/1/79
TITLE: Performance Superintendant

EDUCATION:

Tri - State College, Angola, Indiana
B.S.M.E. (9-66 to 9-70)
Drafting and Design Certificate(1-68 to 6-68)

Bailey Motor School (6-19-82 to 6-30-72)

WORK EXPERIENCE :

(1) Indiana - Kentucky Electric Corporation
Clifty Creek Plant
Madison, Indiana

Employed: 9-8-70 to 12-31-72

Title: Test Engineer

Duties: Responsible for testing and performance evaluation of equipment on Unit No. 2. Considerable surveying assignments, including coal pile storage inventory. Limited experience supervising instrument maintenance men.

- (2) American Electric Power Service Corporation
Canton, Ohio

Employed: 1-1-73 to 2-28-79

Title: Engineer in Steam Generation Section

Duties: Responsible for engineering design of replacement and/or new systems and equipment in generating stations on the AEP system. This included replacement of CR pulverizers to MPS pulverizers at Cardinal Plant. Also the design of a new steam coil air heater system for Cardinal Plant. Also responsible for inspections of the steam generators and associated equipment at Cardinal.

- (3) Cardinal Operating Company
Cardinal Plant
P. O. Box B
Brilliant, Ohio 43913

Employed: 3-1-79 to present

Title: Performance Superintendent

Duties: Responsible for planning, scheduling, supervising, and coordinating the work of the employees in the Performance (lab.) control and Engineering sections. Supervise the testing of plant equipment to determine the operating condition and make recommendations for improvement in efficiency in the equipment. Supervise the repair, calibrate and adjustment of plant instrumentation and controls.

ATTACHMENT TO FORM NRC-313-1

ITEM 17 "Experience"

Work experience includes time spent with manufacturer during installation
of sources.

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