FORM NRC-313 I (3-80)
10 CFR 30

U.S. NUCLEAR REGULATORY COMMISSION

APPLICATION FOR BYPRODUCT MATERIAL LICENSE
INDUSTRIAL

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.

1. APPLICATION FOR: *(Check and/or complete as appropriate)*

	a. NEW LICENSE
X	b. AMENDMENT TO: LICENSE NUMBER 24-02020-06
	c. RENEWAL OF: LICENSE NUMBER

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

UNION ELECTRIC COMPANY

TELEPHONE NUMBER: AREA CODE – NUMBER EXTENSION
(314) 621-3222

3. NAME AND TITLE OF PERSON TO BE CONTACTED REGARDING THIS APPLICATION

James R. Peevy, Supt., Health Physics

TELEPHONE NUMBER: AREA CODE – NUMBER EXTENSION
(314) 676-8246

4. APPLICANT'S MAILING ADDRESS *(Include Zip Code)*
(Address to which NRC correspondence, notices, bulletins, etc., should be sent.)

Union Electric Company
P.O. Box 149
St. Louis, MO 63166

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

See Attachment 1

(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.	See Attachment 2	
b.		
c.		

7. RADIATION PROTECTION OFFICER

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.	A ELEMENT AND MASS NUMBER	B CHEMICAL AND/OR PHYSICAL FORM	C NAME OF MANUFACTURER AND MODEL NUMBER *(If Sealed Source)*	D MAXIMUM NUMBER OF MILLICURIES AND/OR SEALED SOURCES AND MAXIMUM ACTIVITY PER SOURCE WHICH WILL BE POSSESSED AT ANY ONE TIME
(1)	Am-241	See Attachment 3	Monsanto Research Corp., Model 2724C	5000 mCuries ± 10%
(2)				
(3)				
(4)				

	E DESCRIBE USE OF LICENSED MATERIAL
(1)	See Attachment 4
(2)	
(3)	
(4)	

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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)	Not Applicable per Reg. Guide 10.5, Rev. 1, December 1980		
(2)			
(3)			
(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)	Reference description of radiation detection instrumentation submitted in					
(2)	previous applications. This information is unchanged from previous					
(3)	submittal.					
(4)						

11. CALIBRATION OF INSTRUMENTS LISTED IN ITEM 10

☒ a. CALIBRATED BY SERVICE COMPANY

NAME, ADDRESS, AND FREQUENCY

Reference Previous Applications

☒ b. CALIBRATED BY APPLICANT

Attach a separate sheet describing method, frequency and standards used for calibrating instruments.

Reference Previous Applications

12. PERSONNEL MONITORING DEVICES

TYPE (Check and/or complete as appropriate.) A	SUPPLIER (Service Company) B	EXCHANGE FREQUENCY C
☐ (1) FILM BADGE ☒ (2) THERMOLUMINESCENCE DOSIMETER (TLD) ☒ (3) OTHER (Specify): Pocket Ionization Chamber Dosimeters	Eberline Instrument Corporation Santa Fe, New Mexico Further description of dosimetry provisions is delineated in Attachment 6 of the previous application.	☒ MONTHLY ☐ QUARTERLY ☐ 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.

☐ c. REMOTE HANDLING TOOLS OR EQUIPMENT, ETC.

☐ d. RESPIRATORY PROTECTIVE EQUIPMENT, ETC.

Additional description provided in previous application.

14. WASTE DISPOSAL

a. NAME OF COMMERCIAL WASTE DISPOSAL SERVICE EMPLOYED

Atomic Disposal Co., Inc.

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:

Reference previous application for detailed description of the radiation protection program and the qualifications of the individuals identified in Section 6.

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 infotmation 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)* $40	b. CERTIFYING OFFICIAL *(Signature)* Donald F. Schnell
	c. NAME *(Type or print)* Donald F. Schnell
(1) LICENSE FEE CATEGORY: 3L	d. TITLE Vice President, Nuclear
(2) LICENSE FEE ENCLOSED: $ 40	e. DATE April 21, 1983

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ATTACHMENT 1

Street Address where licensed material will be used:

A. For licensed material purchased either through SNUPPS and/or Bechtel:

Street Address:
Union Electric Company
Daniel International Corporation
Callaway Plant
Highway CC - 5 miles North of Highway 94
Portland, Missouri 65067

Mailing Address:
Daniel International Corporation
Callaway Plant
P.O. Box 108
Fulton, Missouri 65251

B. For licensed material purchased by Union Electric Nuclear Operations:

Street Address:
Union Electric Company
J. S. Gravot
Callaway Plant
Highway CC - 5 miles North of Highway 94
Portland, Missouri 65067

Mailing Address:
Union Electric Company
Nuclear Operations
P.O. Box 620
Fulton, Missouri 65251

ATTACHMENT 2

Individuals who will use or directly supervise the use of licensed material.

Patrick A. Walsh - Supervisor, Health Physics Technical Support

Ronald R. Roselius - Supervisor, Health Physics Operations

Jay R. Polchow - Rad/Chem Foreman

Jerry A. Ridgel - Supervisor, Radwaste

Eldred T. Mitchell - Rad/Chem Foreman

The formal training and work experience in radiation protection have been described in resume's submitted in previous applications.

ATTACHMENT 3

The subject licensed material is an AmBe neutron source, double encapsulated in stainless steel in accordance with the attached manufacturer's drawing C2724-CA00, Rev. 0. The source has the following characteristics:

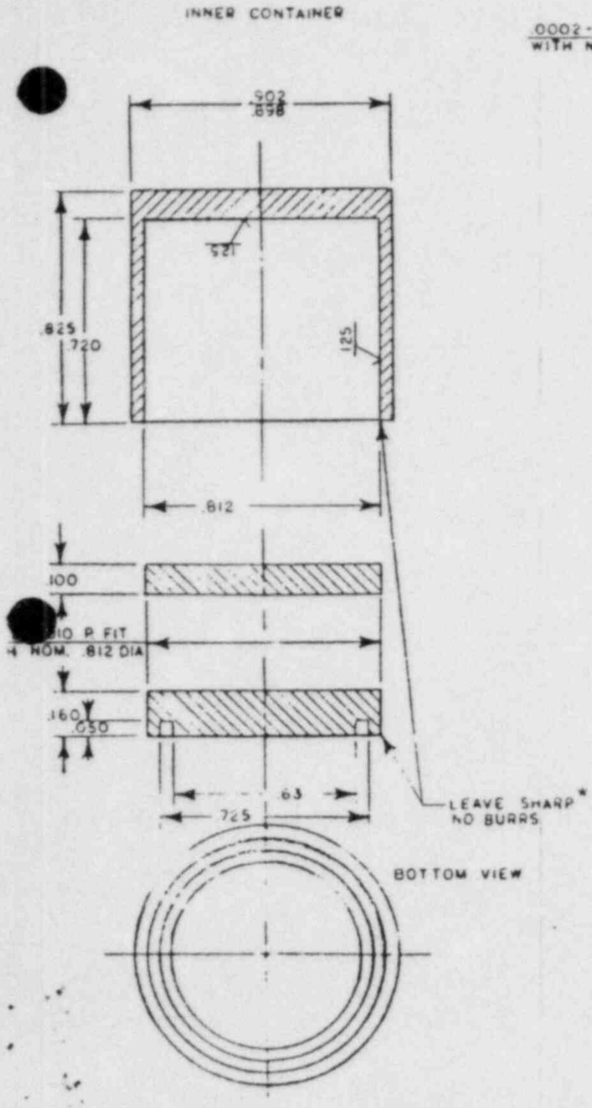
Half Life	433y
Yield, n/sec ($x10^6$) minimum	11.0
Avg. neutron energy	$\sim$ 4 Mev
Gamma Radiation (unshielded) mr/hr/@ m	20

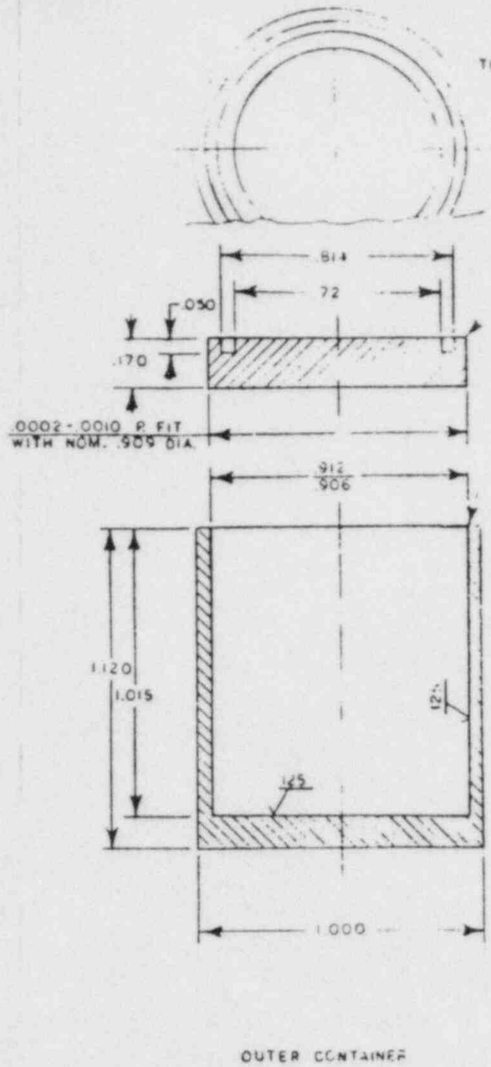
REVISIONS							
ZONE	SYM	DESCRIPTION	DATE	APPROVAL			

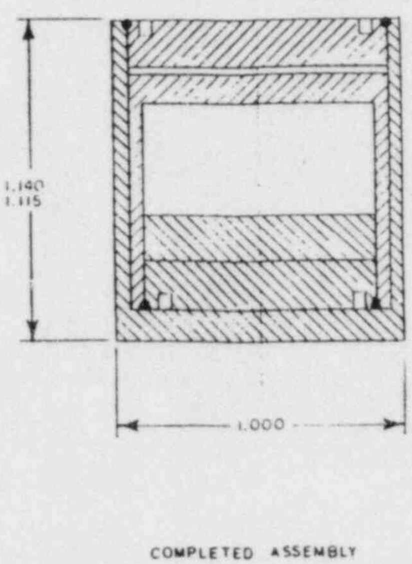
NOTES:

1. MIN. WELD PENETRATION .030 FOR EACH CONTAINER.
2. UNLESS OTHERWISE SPECIFIED: BREAK OUTSIDE CORNERS .010 - .020* RADIUS INSIDE CORNERS .010*
3. *INDICATES VISUAL INSPECTION IS ACCEPTABLE.
4. INNER CAPSULE TO BE INSERTED WELDED END FIRST INTO THE OUTER CAPSULE.
5. IF NECESSARY, S.S. SHIMS MAY BE PLACED BETWEEN INNER AND OUTER CONTAINER TO LIMIT MOVEMENT.

Docket No. 07842







DWG NO	REV
SHEET OF	

ATTACHMENT 3 Page 2 of 2

NOTICE

This drawing is the property of Monsanto Research Corporation and must be returned, without reproduction or duplication, at any time upon request, but in any event at completion of the work or job. While in the possession of the recipient, it must be properly safeguarded against revelation or disclosure to anyone except those employees who require it for the work or job. The recipient must keep confidential, and require his (its) employees to keep confidential, the information contained hereon.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES DECIMALS .XX = ± .02 .XXX = ± .005 .XXXX BASIC FRACTIONS ± ANGLES ± 30' ALL SURFACES	MS APPD		3/10 8
	QA APPD		3/31
	MFG APPD		3/
MATERIAL 304 SS	DE APPD		
FINISH	CHECKED		
	DRAWN	HAM	2268
	SIGNATURE		DATE

MONSANTO RESEARCH CORPORATION
DAYTON LABORATORY
DAYTON, OHIO

NEUTRON SOURCE CONTAINER
MODEL 2724 C

SCALE 5:1	WT CALC ACT
CODE IDENT NO	
DWG NO. C2724-CA00	REV
SHEET	OF

B A

ATTACHMENT 4

The primary use of this source will be for the calibration of portable neutron survey instruments, and neutron sensitive TLD's. In addition, the source will be used to functional check installed plant neutron instrumentation.