Form AEC-313 8-64 10 CFR 30	UNITED STATES ATOMIC ENERGY COMMISSION **APPLICATION FOR BYPRODUCT MATERIAL LICENSE**	Form approved Budget Bureau No. 38-R0027

INSTRUCTIONS. – Complete Items 1 through 16 if this is an initial application or an application for renewal of a license. Information contained in previous applications filed with the Commisson with respect to Items 8 through 15 may be incorporated by reference provided references are clear and specific. Use supplemental sheets where necessary. Item 16 must be completed on all applications. Mail two copies to: U.S. Atomic Energy Commission, Washington, D.C., 20545, Attention: Isotopes Branch, Division of Materials Licensing. Upon approval of this application, the applicant will receive an AEC Byproduct Material License. An AEC Byproduct Material License is issued in accordance with the general requirements contained in Title 10, Code of Federal Regulations, Part 30, and the Licensee is subject to Title 10, Code of Federal Regulations, Part 20.

1. (a) NAME AND STREET ADDRESS OF APPLICANT (Institution, firm, hospital person, etc. Include ZIP Code.)

Kerr-McGee Corporation
Kerr-McGee Building
Oklahoma City
Oklahoma 73102

(b) STREET ADDRESS(ES) AT WHICH BYPRODUCT MATERIAL WILL BE USED (If different from 1 (a). Include ZIP Code.)

Mixing will be done at:
Cato Oil & Grease Company
(Wholly owned subsidiary of Kerr-McGee)
915 North Eastern
Oklahoma City, Oklahoma 73117
(Also see Attachment 1(b).)

2. DEPARTMENT TO USE BYPRODUCT MATERIAL

See Attachment 2

3. PREVIOUS LICENSE NUMBER(S) (If this is an application for renewal of a license, please indicate and give number.)

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4. INDIVIDUAL USER(S) (Name and title of individual(s) who will use or directly supervise use of byproduct material. Give training and experience in Items 8 and 9.)

Dee H. Carroll

5. RADIATION PROTECTION OFFICER (Name of person designated as radiation protection officer if other than individual user. Attach resume of his training and experience as in Items 8 and 9.)

Howard C. Eberline
Allen M. Valentine

6. (a) BYPRODUCT MATERIAL (Elements and mass number of each.)

Iodine-131

(b) CHEMICAL AND/OR PHYSICAL FORM AND MAXIMUM NUMBER OF MILLICURIES OF EACH CHEMICAL AND/OR PHYSICAL FORM THAT YOU WILL POSSESS AT ANY ONE TIME (If sealed source(s), also state name of manufacturer, model number, number of sources and maximum activity per source.)

The I-131 will be obtained and used as sodium iodide (NaI) in sodium thiosulfate solution (pH 8-10) (Amersham/Searle Product No. IBS-1P).

The maximum quantity in possession at any one time will not exceed 40 millicuries of I-131.

7. DESCRIBE PURPOSE FOR WHICH BYPRODUCT MATERIAL WILL BE USED. (If byproduct material is for "human use," supplement A (Form AEC-313a) must be completed in lieu of this item. If byproduct material is in the form of a sealed source, include the make and model number of the storage container and/or device in which the source will be stored and/or used.)

See Attachment 7

TRAINING AND EXPERIENCE OF EACH INDIVIDUAL NAMED IN ITEM 4 *(Use supplemental sheets if necessary)*

8. TYPE OF TRAINING	WHERE TRAINED	DURATION OF TRAINING	ON THE JOB (Circle answer)	FORMAL COURSE (Circle answer)
a. Principles and practices of radiation protection	See Attachment 8/9		Yes No	Yes No
b. Radioactivity measurement standardization and monitoring techniques and instruments			Yes No	Yes No
c. Mathematics and calculations basic to the use and measurement of radioactivity			Yes No	Yes No
d. Biological effects of radiation			Yes No	Yes No

9. EXPERIENCE WITH RADIATION. *(Actual use of radioisotopes or equivalent experience.)*

ISOTOPE	MAXIMUM AMOUNT	WHERE EXPERIENCE WAS GAINED	DURATION OF EXPERIENCE	TYPE OF USE
		See Attachment 8/9		

10. RADIATION DETECTION INSTRUMENTS *(Use supplemental sheets if necessary.)*

TYPE OF INSTRUMENTS (include make and model number of each)	NUMBER AVAILABLE	RADIATION DETECTED	SENSITIVITY RANGE (mr/hr)	WINDOW THICKNESS (mg/cm²)	USE (Monitoring, surveying, measuring)
Eberline E-510	1	Gamma	0-200	-	Monitoring
MESA - A specially designed, ultra-sensitive scintillation counter	1	Gamma	(0-0.1 (0-1 (0-10		Monitoring

11. METHOD, FREQUENCY, AND STANDARDS USED IN CALIBRATING INSTRUMENTS LISTED ABOVE.
Instruments will be calibrated before each use using radium (10 microcuries), Co-60 (1.11 microcurie) and Cs-137 (1.09 microcurie).

12. FILM BADGES, DOSIMETERS, AND BIO-ASSAY PROCEDURES USED. *(For film badges, specify method of calibrating and processing, or name of supplier.)*

Personnel film badges supplied by Landauer.

INFORMATION TO BE SUBMITTED ON ADDITIONAL SHEETS IN DUPLICATE

13. FACILITIES AND EQUIPMENT. Describe laboratory facilities and remote handling equipment, storage containers, shielding, fume hoods, etc. Explanatory sketch of facility is attached. *(Circle answer)* Yes No
Not Applicable

14. RADIATION PROTECTION PROGRAM. Describe the radiation protection program including control measures. If application covers sealed sources, submit leak testing procedures where applicable, name, training, and experience of person to perform leak tests, and arrangements for performing initial radiation survey, servicing, maintenance and repair of the source.
See Attachment 14

15. WASTE DISPOSAL. If a commercial waste disposal service is employed, specify name of company. Otherwise, submit detailed description of methods which will be used for disposing of radioactive wastes and estimates of the type and amount of activity involved.
Not Applicable

CERTIFICATE (This item must be completed by applicant)

16. THE APPLICANT AND ANY OFFICIAL EXECUTING THIS CERTIFICATE ON BEHALF OF THE APPLICANT NAMED IN ITEM 1, 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.

1970 MAY 25 PM 1 55

Kerr-McGee Corporation
Applicant named in item 1

Date May 22, 1970

RECEIVED

By [signature]

Senior Vice President
Title of certifying official

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.

* U.S. GOVERNMENT PRINTING OFFICE : 1968 O—316-327

ATTACHMENT 1(b)

BYPRODUCT MATERIAL LICENSE APPLICATION OF KERR-McGEE CORPORATION

These are plants of wholly owned subsidiaries of Kerr-McGee at which the I-131 will actually be used.

Moss-American, Inc.
P. O. Box 25
McAlpine Street and L.V. Railroad Tracks
Avoca, Pennsylvania 18641

Moss-American, Inc.
P. O. Box 5235
600 Hamilton Road
Bossier City, Louisiana 71010

Moss-American, Inc.
P. O. Box 906
14th Avenue and 20th Street North
Columbus, Mississippi 39602

Moss-American, Inc.
P. O. Box 657
2500 South 20th Street
East St. Louis, Illinois 62202

Moss-American, Inc.
1450 Earhart Street
Indianapolis, Indiana 46203

Moss-American, Inc.
P. O. Box 6204, Centropolis Station
2300 Oakland
Kansas City, Missouri 64126

Moss-American, Inc.
P. O. Box 166
Washington Avenue South of Race Street
Madison, Illinois 62060

Moss-American, Inc.
P. O. Box 789
Arundel Road
Meridian, Mississippi 39302

Moss-American, Inc.
8716 North Granville Road
Milwaukee, Wisconsin 53224

(Continued on next page)

Moss-American, Inc.
P. O. Box 233
Sackett Road Between State and Maple Avenues
North Haven, Connecticut 06473

Moss-American, Inc.
2800 West High Street
Springfield, Missouri 65803

Moss-American, Inc.
P. O. Box 1491
Nevassa Industrial Area
Wilmington, North Carolina 28402

International Creosoting and Construction Company
P. O. Box 3347
710 Pine Street
Beaumont, Texas 77704

International Creosoting and Construction Company
P. O. Box 690
155 Buchanan Road
Texarkana, Texas 75501

ATTACHMENT 2

BYPRODUCT MATERIAL LICENSE APPLICATION OF KERR-McGEE CORPORATION

Material will be used by personnel of Kerr-McGee Corporation at plants of two wholly owned subsidiaries:

Moss-American, Inc.
International Creosoting and Construction Company

(Also, see Attachment 1)

ATTACHMENT 7

PYPRODUCT MATERIAL LICENSE APPLICATION OF KERR-McGEE CORPORATION

The I-131 will be used as a tracer to ensure uniform application of a material to seal joints between steel plates of riveted tanks. The tracer will be mixed with an organic sealant (no chemical reaction involved) in the ratio of 2 millicuries of I-131 to 5 quarts of sealant. The mixture will be injected into joints between the steel plates through pressure grease fittings using a commercial type of grease gun. One member of the crew will be assigned to monitor continuously the immediate area of application. The final concentration of I-131 will be only about 3 microcuries per square foot of cylindrical surface contained between steel plates 0.75" thick. In normal plant operation, personnel proximity to these tanks is not closer than 3' and then only for short periods of time (usually < 30 minutes/day). At this distance, the radiation level should be less than 0.1 mR/hr.

ATTACHMENT 8/9

BYPRODUCT MATERIAL LICENSE APPLICATION OF KERR-McGEE CORPORATION

Dee H. Carroll: Two years at the Hanford Facility of USAEC. Work involved on-the-job training in production and handling of plutonium. Since 1955, he has been associated with the Nuclear Division of Kerr-McGee Corporation in various capacities involving the processing of uranium for the production of nuclear fuels.

Howard C. Eberline: In addition to acting as radiation protection officer, Mr. Eberline will serve as expert consultant in the extablishment of operational procedures and in the actual use of this material. Mr. Eberline has been involved in the nuclear field for 25 years at Los Alamos Scientific Laboratory, Nevada Test Site, as founder of Eberline Instrument Company, and as consultant to the nuclear industry. He has worked with a wide variety of isotopes including Co-60 (350 curies) for calibration of equipment and radioactive lanthanum (kilogram quantities) for checking the integrity of test cells.

Allen M. Valentine: B.S. Chemistry; M.S. Radiation Biophysics. Seven years of varied health physics and radiation protection experience at the Hanford Facility, at the University of California Lawrence Radiation Laboratories, and Los Alamos Scientific Laboratories. Since March, 1969 Health Physics Officer in the Nuclear Division of Kerr-McGee Corporation.

BYPRODUCT MATERIAL LICENSE APPLICATION OF KERR-McGEE CORPORATION

Handling and use procedures have been designed to prevent personnel exposure, and will be carried out under the supervision of Dee H. Carroll or his designated alternate.

Precautions to be taken during mixing operations are summarized below:

1. Personnel handling I-131 will wear protective clothing including coveralls, gloves, and face shields (or goggles).
2. Containers and packing material will be checked for leakage during unpacking.
3. Containers will be handled with tongs so as to prevent breakage before introduction of the I-131 into the sealant.
4. All containers and other items known to be, or suspected of being, contaminated will be collected, sealed in plastic bags and stored in a rigid container (properly labeled) until radiation levels are sufficiently low for discard.
5. During mixing, personnel, equipment and work area surfaces will be monitored with an E-510 beta-gamma instrument.
6. Upon completion of the operations, release surveys will be conducted to assure that all remaining items are free of contamination.

Individual 5-quart containers will be filled with the sealant/I-131 mixture, sealed and properly labeled as to contents. These containers will be stored and shipped in a manner which will prevent inadvertent exposure and in conformity with DOT regulations. At the plant site, individual containers will be opened under the supervision of Dee H. Carroll or his designated alternate. Adequate protective clothing will be worn by individuals performing the actual application of the sealant, and accepted personal hygiene practices will be followed.

Dee H. Carroll or his designated alternate will wear a film badge type of beta-gamma dosimeter while performing or supervising these operations.