

UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON, D.C. 20545

40-8006

KERR-MCGEE CORPORATION
KERR-MCGEE BUILDING
OKLAHOMA CITY OKLAHOMA 73102

PROGRAM CODE 11300
LICENSE NUMBER SUB-986
NOTICE DATE 03/11/74

SUBJECT: NOTICE OF EXPIRATION

YOUR SOURCE MATERIAL LICENSE EXPIRES ON 05/31/74.

IF YOU DESIRE TO CONTINUE YOUR PROGRAM USING SOURCE MATERIAL(S), AN APPLICATION FOR RENEWAL OF THE LICENSE SHOULD BE FILED WITH THIS OFFICE PURSUANT TO TITLE 10, CODE OF FEDERAL REGULATIONS, PART 40 SECTION 40.43(B). THE APPLICATION SHOULD BE SUBMITTED USING FORM AEC-2 IN ACCORDANCE WITH THE INSTRUCTIONS PROVIDED WITH THE FORM.

IT IS TO YOUR ADVANTAGE TO FILE SUCH AN APPLICATION AT LEAST THIRTY (30) DAYS BEFORE THE EXPIRATION OF YOUR EXISTING LICENSE. YOUR PROGRAM WILL THEN BE COVERED BY YOUR EXISTING LICENSE UNTIL ACTION IS TAKEN ON YOUR APPLICATION FOR LICENSE RENEWAL. IF AN APPLICATION IS RECEIVED LESS THAN THIRTY (30) DAYS PRIOR TO THE EXPIRATION DATE OF YOUR LICENSE AND CANNOT BE PROCESSED BEFORE YOUR EXISTING LICENSE EXPIRES, THIS COULD RESULT IN YOUR POSSESSING MATERIAL WITHOUT A VALID LICENSE.

IF YOU DO NOT WISH TO RENEW THE LICENSE, PLEASE COMPLETE THE ENCLOSED FORM AEC-314, CERTIFICATE OF DISPOSITION OF MATERIALS, AND RETURN TO THIS OFFICE

THIS NOTICE OF YOUR LICENSE EXPIRATION IS SENT FOR YOUR CONVENIENCE, BUT IT SHOULD NOT BE INTERPRETED THAT SIMILAR NOTICES WILL BE SENT IN THE FUTURE. THE RESPONSIBILITY FOR LICENSE RENEWAL REMAINS WITH THE LICENSEE.

PLEASE DISREGARD THIS NOTICE IF YOU HAVE OBTAINED AN AMENDMENT WHICH HAS EXTENDED THE EXPIRATION DATE OF ABOVE LICENSE OR IF A NEW LICENSE HAS BEEN ISSUED WHICH SUPERSEDES THE ABOVE LICENSE.

ENCLOSURES: AEC-314
AEC-2

MATERIALS BRANCH
DIRECTORATE OF LICENSING

9/9


KERR-MCGEE NUCLEAR CORPORATION

KERR-MCGEE CENTER • OKLAHOMA CITY, OKLAHOMA 73125

May 9, 1974



Mr. Cecil Buchanan
 Materials Branch
 Directorate of Licensing
 U.S. Atomic Energy Commission
 Washington, D.C. 20545

Dear Mr. Buchanan:

Subject: Application for Renewal of Source Material
 License SUB-986, Docket No. 40-8006

As per your request the subject document previously submitted for renewal on April 30, 1974, has been updated to include all previous references. In accordance with 10 CFR 40.43(B), Form AEC-2 and supporting references are submitted in quadruplicate.

Sincerely yours,

W. J. Shelley, Director
 Regulation and Control

WJS:m1

Attachment



UNITED STATES ATOMIC ENERGY COMMISSION

APPLICATION FOR SOURCE MATERIAL LICENSE

Pursuant to the regulations in Title 10, Code of Federal Regulations, Chapter 1, Part 40, application is hereby made for a license to receive, possess, use, transfer, deliver or import into the United States, source material for the activity or activities described.

<p>1. (Check one)</p> <p><input type="checkbox"/> (a) New license</p> <p><input type="checkbox"/> (b) Amendment to License No. _____</p> <p><input checked="" type="checkbox"/> (c) Renewal of License No. <u>SUB-986</u></p> <p><input type="checkbox"/> (d) Previous License No. _____</p>		<p>2. NAME OF APPLICANT</p> <p style="text-align: center;">KERR-McGEE CORPORATION</p> <hr/> <p>3. PRINCIPAL BUSINESS ADDRESS</p> <p>McGee Tower Okla. City, Okla. 73125</p>																	
<p>4. STATE THE ADDRESS(ES) AT WHICH SOURCE MATERIAL WILL BE POSSESSED OR USED</p> <p>Technical Center, Kerr-McGee Corp., 3301 N.W. 150th St., Okla. City, OK Physical Science & Measurement Dept., KM Center, Okla. City, OK 73125</p>																			
<p>5. BUSINESS OR OCCUPATION</p> <p>Prod. of Nuclear Fuel Mat'ls.</p>		<p>6. (a) IF APPLICANT IS AN INDIVIDUAL, STATE CITIZENSHIP</p> <p style="text-align: center;">N/A</p>	<p>(b) AGE</p> <p style="text-align: center;">N/A</p>																
<p>7. DESCRIBE PURPOSE FOR WHICH SOURCE MATERIAL WILL BE USED</p> <p>Thorium materials used in solvent extraction process for the separation and purification of thorium. Uranium material - provide radiation sources of known composition for experimental work, design and calibration of new instruments and related investigations.</p>																			
<p>8. STATE THE TYPE OR TYPES, CHEMICAL FORM OR FORMS, AND QUANTITIES OF SOURCE MATERIAL YOU PROPOSE TO RECEIVE, POSSESS, USE, OR TRANSFER UNDER THE LICENSE</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:20%;">(a) TYPE</th> <th style="width:25%;">(b) CHEMICAL FORM</th> <th style="width:30%;">(c) PHYSICAL FORM (Including % U or Th.)</th> <th style="width:25%;">(d) MAXIMUM AMOUNT AT ANY ONE TIME (in pounds)</th> </tr> </thead> <tbody> <tr> <td>NATURAL URANIUM</td> <td style="text-align: center;">U_3O_8</td> <td>Ore (0.1-0.4% U) Yellowcake (85-90%U)</td> <td style="text-align: center;">500 pounds</td> </tr> <tr> <td>URANIUM DEPLETED IN THE U-235 ISOTOPE</td> <td></td> <td></td> <td></td> </tr> <tr> <td>THORIUM (ISOTOPE)</td> <td>Natural Thorium $ThO_2, ThCl_4, Th(NO_3)_4$</td> <td>Wet cakes and Solutions 10% Thorium</td> <td style="text-align: center;">300 pounds</td> </tr> </tbody> </table> <p>(e) MAXIMUM TOTAL QUANTITY OF SOURCE MATERIAL YOU WILL HAVE ON HAND AT ANY TIME (in pounds)</p> <p style="text-align: center;">800 pounds (Uranium plus Thorium)</p>				(a) TYPE	(b) CHEMICAL FORM	(c) PHYSICAL FORM (Including % U or Th.)	(d) MAXIMUM AMOUNT AT ANY ONE TIME (in pounds)	NATURAL URANIUM	U_3O_8	Ore (0.1-0.4% U) Yellowcake (85-90%U)	500 pounds	URANIUM DEPLETED IN THE U-235 ISOTOPE				THORIUM (ISOTOPE)	Natural Thorium $ThO_2, ThCl_4, Th(NO_3)_4$	Wet cakes and Solutions 10% Thorium	300 pounds
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<p>9. DESCRIBE THE CHEMICAL, PHYSICAL, METALLURGICAL, OR NUCLEAR PROCESS OR PROCESSES IN WHICH THE SOURCE MATERIAL WILL BE USED, INDICATING THE MAXIMUM AMOUNT OF SOURCE MATERIAL INVOLVED IN EACH PROCESS AT ANY ONE TIME, AND PROVIDING A THOROUGH EVALUATION OF THE POTENTIAL RADIATION HAZARDS ASSOCIATED WITH EACH STEP OF THOSE PROCESSES.</p> <p>Thorium - Extracted with organic solvent from impure solutions; Solvent stripped with water, purify thorium by precipitation. Maximum of 30 lbs. with negligible radiation hazard. Uranium - diluted with portions of natural sand and used in the calibration & standardization of instruments; research on radiation measurements.</p>																			
<p>10. DESCRIBE THE MINIMUM TECHNICAL QUALIFICATIONS INCLUDING TRAINING AND EXPERIENCE THAT WILL BE REQUIRED OF APPLICANT'S SUPERVISORY PERSONNEL INCLUDING PERSON RESPONSIBLE FOR RADIATION SAFETY PROGRAM (OR OF APPLICANT IF APPLICANT IS AN INDIVIDUAL).</p> <p>Responsible Personnel - at least 10 yrs. experience in the handling and processing of radioactive materials. At least 5 yrs. directly associated with radiological health. W. J. Robertson - 14 yrs. experience; H. C. Eberline - 24 yrs. experience. Addendum paragraph 10, page 1</p>																			
<p>11. DESCRIBE THE EQUIPMENT AND FACILITIES WHICH WILL BE USED TO PROTECT HEALTH AND MINIMIZE DANGER TO LIFE OR PROPERTY AND RELATE THE USE OF THE EQUIPMENT AND FACILITIES TO THE OPERATIONS LISTED IN ITEM 9; INCLUDE: (a) RADIATION DETECTION AND RELATED INSTRUMENTS (including film badges, dosimeters, counters, air sampling, and other survey equipment as appropriate. The description of radiation detection instruments should include the instrument characteristics such as type of radiation detected, window thickness, and the range(s) of each instrument).</p> <p>Addendum paragraph 11(a), Page 1 Addendum paragraph 11(a), Page 3</p>																			
<p>(b) METHOD, FREQUENCY, AND STANDARDS USED IN CALIBRATING INSTRUMENTS LISTED IN (a) ABOVE, INCLUDING AIR SAMPLING EQUIPMENT (for film badges, specify method of calibrating and processing, or name supplier).</p> <p>Addendum paragraph 11(b), page 1 Addendum paragraph 11(b), page 3</p>																			

ADDENDUM TO APPLICATION FOR RENEWAL
OF
SOURCE MATERIAL LICENSE (URANIUM)

SUB-986

KERR-McGEE CORPORATION
Oklahoma City, Oklahoma

10. Personnel responsible for supervision of use of source material and for radiation safety will have had at least 10 years of responsible experience in the handling and processing of radioactive materials and at least 5 years directly associated with radiological health and safety programs.

For the foreseeable future, both overall supervision and safety will be the responsibility of Howard C. Eberline who has had 24 years of experience in the nuclear field, including design, production and operation of radiation measurement instruments and systems, and supervision of health safety programs for the AEC.

11. (a) Approximately 50% of the source material will be buried in sealed test pits located out-of-doors on a 160-acre fenced site and some 250 yards from normal working areas. The containers will be fabricated of 12-gauge galvanized steel, 6 feet in diameter x 12 feet long with welded bottoms. The source material will be about 3 feet below grade and will be covered by 3 feet of sand and 4 inches of concrete. Access to the material will be through a center fiber glass tube which will be protected by a locked steel cover when not in use.

That portion of source material not placed in test pits will be kept in locked cabinets or rooms adequately marked with approved radiation warning signs. Air samples will be taken every 30 days or oftener if conditions require.

In addition to various scintillation and Geiger-type instruments with which we will be working, periodic radiation checks will be made using the following or equal:

1. Personnel film badges.
2. Alpha Counter (Eberline Instrument Co., Model PAC-3G).
3. Air sampling equipment (Eberline Instrument Co.).
4. Geiger Counter, range 0-20mr (Eberline Instrument Co., Model E-112).

- (b) Radiation instruments will be calibrated using small radium or standard isotopic sources for which AEC license is not required. Calibration will be done routinely every 30 days or oftener if conditions require. Personnel film badges are supplied by Landauer on a monthly basis.
 - (c) Test pits will be out-of-doors with no special ventilation needed. The residual source material will be kept in closed containers so that no dust will be released.
12. (a) The location and storage conditions for the source material are such that the chances of nonnuclear accidents are extremely remote. For that portion kept indoors, normal fire protection is afforded by the fact that (1) the building is rated fireproof and (2) fire extinguishers are readily accessible. Access will be restricted to personnel who are competent to handle such material.

11. (a) The bulk of the thorium used in these studies will be in solution. Solutions and thorium cakes will be stored in covered containers well marked with approved warning signs.

Radiation monitoring will be accomplished by the following means:

1. Personnel film badges
 2. Alpha Counter, range 0-100,000 dpm (Eberline Instrument Company, Model PAC-3G)
 3. Geiger Counter, range 0-50 mr (Eberline Instrument Company, Model E-120)
- (b) Radiation instruments will be calibrated quarterly using standard isotopic sources. Personnel film badges are supplied by Landauer on a monthly basis.
- (c) Materials will be received as pure thorium compounds or wet cakes, and actual work will be done with solutions. No dusty operations are envisioned. Ordinary chemical laboratory hoods (face velocity 70-80 fpm) are available for solution preparation.
12. (a) The severity of a possible accident is minimized by the limited size scale of the proposed operations. Although flammable solvents will be used, the quantity on hand at any time is restricted so as not to constitute undue hazard. The building and storage areas are rated as fireproof construction. Normal safety procedures applicable to a good chemical laboratory are adhered to.
- (b) In case of accident involving source material, the affected area will be evacuated until adequate clean-up and decontamination procedures are carried out. A physician who has specialized in nuclear medicine is a consultant for the corporation. He has established a working arrangement with the University of Oklahoma Medical Center staff for assistance in case of emergency.
- (c) The radiation survey program comprises:
1. Personnel film badges (plus control badges).

2. Routine survey on a monthly basis of the areas where source materials are stored or used. This includes use of a beta-gamma instrument and an alpha survey instrument.
3. Any additional monitoring for which a need develops as the material is used.

Note: Paragraph 12(b) and (c) are applicable to uranium and/or thorium source material.

13. (a) Small amounts of raffinate solution from thorium extraction containing Ra-228 and Ac-228, will be generated. Analytical residues containing small quantities of natural thorium will also be generated.
- (b) These solutions will be disposed of within the limits of 10 CFR 20.



KERR-McGEE NUCLEAR CORPORATION

KERR-McGEE CENTER • OKLAHOMA CITY, OKLAHOMA 73125

April 30, 1974

Regulatory

File Cy.



Mr. J. C. Malaro, Chief
Materials Branch
Directorate of Licensing
U.S. Atomic Energy Commission
Washington, D.C. 20545

Dear Mr. Malaro:

Subject: Application for Renewal of Source Material License SUB-986, Docket No. 40-8006

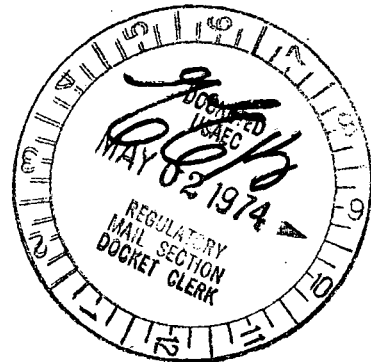
Kerr-McGee Nuclear Corporation hereby files application for renewal of Source Material License No. SUB-986 for the Kerr-McGee Corporation's Technical Division located in Oklahoma City, Oklahoma. In accordance with 10 CFR 40.43(B), Form AEC-2 is submitted in quadruplicate. The activities to be conducted under the renewed license will be in accordance with the conditions of our current license SUB-986.

Sincerely yours,

W. J. Shelley, Director
Regulation and Control

WJS:m1

Attachment



1125-



KERR-MCGEE CORPORATION

KERR-MCGEE CENTER • OKLAHOMA CITY, OKLAHOMA 73102

November 11, 1975

Mr. Jack M. Bell
Materials Branch
Division of Materials and Fuel Cycle Facility Licensing
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Mr. Bell:

If the subject matter of this letter does not fall in your province, I should appreciate your directing it to the proper party.

I am writing for clarification of questions raised by Part 170 of the NRC Rules and Regulations which we received recently as part of Supplement 06. I am responsible for two of Kerr-McGee's licenses:

Source Material License No. SUB-986
Byproduct Material License No. 35-12636-05

My basic question is: does Kerr-McGee owe any fees for these two licenses and, if so, how much? We did not receive the usual invoices in January of this year and have been uncertain as to what should be done about these fees.

Thank you for any clarification which you can give me.

Sincerely,

J. P. Hewlett
Administrative Manager
Physical Science and
Measurement Department

JPH:k1

FRC

McCree Nuclear Corp.
Oklahoma City, OK 73235

DATE OF DOCUMENT
May 9, 1974

DATE RECEIVED
May 1974

1195

LTR. MEMO: PORT: OTHER:

TO:
Cecil Buchanan

ORIG.: **1** CC: OTHER:

ACTION NECESSARY CONCURRENCE DATE ANSWERED:
NO ACTION NECESSARY COMMENT BY:

CLASSIF: **U** POST OFFICE REG. NO:

FILE CODE:
Docket No. 40-8006

DESCRIPTION: (Must Be Unclassified)
ltr. trans: updated info pertaining to their appl.(for a renewal of their license)

REFERRED TO	DATE	RECEIVED BY	DATE
Buchanan	5-14		
w/reg file cy Distribution			

ENCLOSURES:
AEC-2
Addendum to appl. for renewal

PDR
RO

DO NOT REMOVE

REMARKS:

1195 eeb

U.S. ATOMIC ENERGY COMMISSION

MAIL CONTROL FORM FORM AEC-3265 (8-60)

UNITED STATES ATOMIC ENERGY COMMISSION

APPLICATION FOR SOURCE MATERIAL LICENSE

Pursuant to the regulations in Title 10, Code of Federal Regulations, Chapter 1, Part 40, application is hereby made for a license to receive, possess, use, transfer, deliver or import into the United States, source material for the activity or activities described.

<p>1. (Check one)</p> <p><input type="checkbox"/> (a) New license</p> <p><input type="checkbox"/> (b) Amendment to License No. _____</p> <p><input checked="" type="checkbox"/> (c) Renewal of License No. <u>SUB-986</u></p> <p><input type="checkbox"/> (d) Previous License No. _____</p>		<p>2. NAME OF APPLICANT</p> <p style="text-align: center;">KERR-McGEE NUCLEAR CORPORATION</p>																	
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<p>11. DESCRIBE THE EQUIPMENT AND FACILITIES WHICH WILL BE USED TO PROTECT HEALTH AND MINIMIZE DANGER TO LIFE OR PROPERTY AND RELATE THE USE OF THE EQUIPMENT AND FACILITIES TO THE OPERATIONS LISTED IN ITEM 9; INCLUDE: (a) RADIATION DETECTION AND RELATED INSTRUMENTS (including film badges, dosimeters, counters, air sampling, and other survey equipment as appropriate. The description of radiation detection instruments should include the instrument characteristics such as type of radiation detected, window thickness, and the range(s) of each instrument).</p> <p>Addendum to original application for Source Material, dated May 8, 1969, 11(a) sheet 1. Addendum to Amendment No. 2 dated September 13, 1972, paragraph 11,(a), page 1</p>																			
<p>(b) METHOD, FREQUENCY, AND STANDARDS USED IN CALIBRATING INSTRUMENTS LISTED IN (a) ABOVE, INCLUDING AIR SAMPLING EQUIPMENT (for film badges, specify method of calibrating and processing, or name supplier).</p> <p>Addendum, May 8, 1969, paragraph 11(b), sheet 1</p> <p>Addendum to Amendment No. 2 September 13, 1972, paragraph 11(b), page 1</p>																			

11(c). VENTILATION EQUIPMENT WHICH WILL BE USED IN OPERATIONS WHICH PRODUCE DUST, FUMES, MISTS, OR GASES, INCLUDING PLAN VIEW SHOWING TYPE AND LOCATION OF HOOD AND FILTERS, MINIMUM VELOCITIES MAINTAINED AT HOOD OPENINGS AND PROCEDURES FOR TESTING SUCH EQUIPMENT.

Addendum, May 8, 1969, paragraph 11(c), sheet 1
 Addendum to Amendment No. 2, September 13, 1972, paragraph 11(c), page 1

12. DESCRIBE PROPOSED PROCEDURES TO PROTECT HEALTH AND MINIMIZE DANGER TO LIFE AND PROPERTY AND RELATE THESE PROCEDURES TO THE OPERATIONS LISTED IN ITEM 9; INCLUDE: (a) SAFETY FEATURES AND PROCEDURES TO AVOID NONNUCLEAR ACCIDENTS, SUCH AS FIRE, EXPLOSION, ETC., IN SOURCE MATERIAL STORAGE AND PROCESSING AREAS.

Addendum, May 8, 1969, paragraph 12(a), sheet 2
 Addendum to Amendment No. 2, September 13, 1972, paragraph 11(c), page 1

(b) EMERGENCY PROCEDURES IN THE EVENT OF ACCIDENTS WHICH MIGHT INVOLVE SOURCE MATERIAL.

Addendum to Amendment No. 2, September 13, 1972, paragraph 12(b), sheet 1.

(c) DETAILED DESCRIPTION OF RADIATION SURVEY PROGRAM AND PROCEDURES.

Addendum, May 8, 1969, paragraph 12(c), sheet 2
 Addendum, September 13, 1969, paragraph 12(c), page 1

13. WASTE PRODUCTS: *If none will be generated, state "None" opposite (a), below. If waste products will be generated, check here and explain on a supplemental sheet:*

(a) Quantity and type of radioactive waste that will be generated. Addendum Sept. 13, 1972
 paragraph 13(a) and (b),
 page 2

(b) Detailed procedures for waste disposal.

14. IF PRODUCTS FOR DISTRIBUTION TO THE GENERAL PUBLIC UNDER AN EXEMPTION CONTAINED IN 10 CFR 40 ARE TO BE MANUFACTURED, USE A SUPPLEMENTAL SHEET TO FURNISH A DETAILED DESCRIPTION OF THE PRODUCT, INCLUDING:

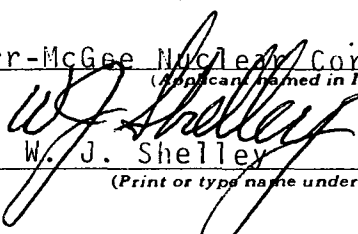
- (a) PERCENT SOURCE MATERIAL IN THE PRODUCT AND ITS LOCATION IN THE PRODUCT.
- (b) PHYSICAL DESCRIPTION OF THE PRODUCT INCLUDING CHARACTERISTICS, IF ANY, THAT WILL PREVENT INHALATION OR INGESTION OF SOURCE MATERIAL THAT MIGHT BE SEPARATED FROM THE PRODUCT.
- (c) BETA AND BETA PLUS GAMMA RADIATION LEVELS (*Specify instrument used, date of calibration and calibration technique used*) AT THE SURFACE OF THE PRODUCT AND AT 12 INCHES.
- (d) METHOD OF ASSURING THAT SOURCE MATERIAL CANNOT BE DISASSOCIATED FROM THE MANUFACTURED PRODUCT.

CERTIFICATE

(This item must be completed by applicant)

15. 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 40, and that all information contained herein, including any supplements attached hereto, is true and correct to the best of our knowledge and belief.

Kerr-McGee Nuclear Corporation
(Applicant named in Item 2)



Dated April 30, 1974

BY: W. J. Shelley
(Print or type name under signature)

Director, Regulation and Control
(Title of certifying official authorized to act on behalf of the applicant)

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.