

UNITED STATES ATOMIC ENERGY COMMISSION
APPLICATION FOR BYPRODUCT MATERIAL LICENSE

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 Commission 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: Materials Branch, Directorate of 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, and the license fee provisions of Title 10, Code of Federal Regulations, Part 170. The license fee category should be stated in Item 16 and the appropriate fee enclosed. (See Note in Instruction Sheet).

1. (a) NAME AND STREET ADDRESS OF APPLICANT. (Institution, firm, hospital person, etc. Include ZIP Code and telephone number.) Gulf Oil Company - U.S. Cincinnati Refinery P.O. Box 7 Cleveland, Hamilton County, Ohio 45002		(b) STREET ADDRESS(ES) AT WHICH BYPRODUCT MATERIAL WILL BE USED. (If different from 1(a), include ZIP Code.) Gulf Oil Company - U.S. Cincinnati Refinery State Route 128 Hooven, Ohio 45033	
2. DEPARTMENT TO USE BYPRODUCT MATERIAL Refinery Laboratory		3. PREVIOUS LICENSE NUMBER(S). (If this is an application for renewal of a license, please indicate and give number.) 34-09907-02	
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.) J. D. Fightmaster		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.) R. F. Fischer	
6. (a) BYPRODUCT MATERIAL. (Elements and mass number of each.) Americium-241		(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.) 300 millicuries, sealed source (Amersham/Searle-type X.96 capsule).	
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.) Radioactive materials covered by this application will be used in a laboratory-model sulfur analyzer build by Gulf Research & Development Company. B506170244 B50531 REG3 LIC30 34-09907-03 PDR			

(Continued on reverse side)

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 NO. 1 for Training and Experience of Individuals Named in ITEMS 4 and 5.		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 NO. 1				

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/cm ²)	USE (Monitoring, surveying, measuring)
None					

11. METHOD, FREQUENCY, AND STANDARDS USED IN CALIBRATING INSTRUMENTS LISTED ABOVE

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

Will not be used.

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

See ATTACHMENT NO. 2

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 NO. 3

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.

See ATTACHMENT NO. 4

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.

Gulf Oil Company - U.S.
Cincinnati Refinery

Applicant named in item 1

License Fee Category \$ _____

Fee Enclosed \$ _____

By: M. P. Mourning
Refinery Manager

Title of certifying official

Date August 11, 1977

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.

ATTACHMENT NO. 2

FACILITIES AND EQUIPMENT

The sealed radioactive source (300 millicuries of americium-241) covered in this application is part of an instrument for the determination of sulfur content of liquid hydrocarbon samples on the basis of an X-ray transmission measurement. The source is secured inside a shielded steel housing as shown in the attached Figure 1. The radiation intensity measured outside the source housing is less than 0.5 mr./hr. at all accessible points on the surface.

Since it is normally unnecessary to remove the source from its shielded housing, no laboratories or facilities for handling radioactive materials will be required.

ATTACHMENT NO. 3

RADIATION PROTECTION PROGRAM

The radioactive materials in the instrument described in Item 13 shall be used by or under the direct supervision of J. D. Fightmaster. The sealed source will be installed in the analyzer prior to delivery and is secured against unauthorized removal by means of a padlock. Radiation intensity outside the source housing is less than 0.5 mr./hr., and personnel monitoring devices will not be worn by individuals using the instrument.

Testing Procedures for Sealed Source. The sealed americium-241 source shall be tested for leakage at the time of installation and then at intervals not exceeding three (3) months. The test is capable of detecting the presence of at least 0.005 microcurie of removable activity and will be conducted in the following manner. A wipe sample will be collected using a piece of dry filter paper to wipe around all seals of the outer source housing. The source will not be removed from the housing for this test. The wipe sample will be sealed in a polyethylene bag and sent to Gulf Research & Development Company, Pittsburgh, PA, where the quantity of removable radioactive contamination will be determined. We will receive a certificate of the results of each of these tests, and a file of these results shall be maintained.

Under no circumstances will an attempt be made to repair a sealed source. Any source found to have a leak will be removed from use and either returned to the source supplier, Amersham-Searle Company, or shipped for disposal to Isotopes Radiological Service Company.

Signs. The outer source housing shall be equipped with a durable, clearly visible sign bearing the radiation caution symbol and the words "Caution - Radioactive Materials."

ATTACHMENT NO. 4

WASTE DISPOSAL

The use of radioactive materials described in this application will not result in the generation of radioactive waste materials of any sort. If it becomes necessary to dispose of any radioactive source, it will either be returned to Gulf Research & Development Company or shipped to Isotopes Radiological Service Company for disposal.

THE GULF LABORATORY SULFUR ANALYZER

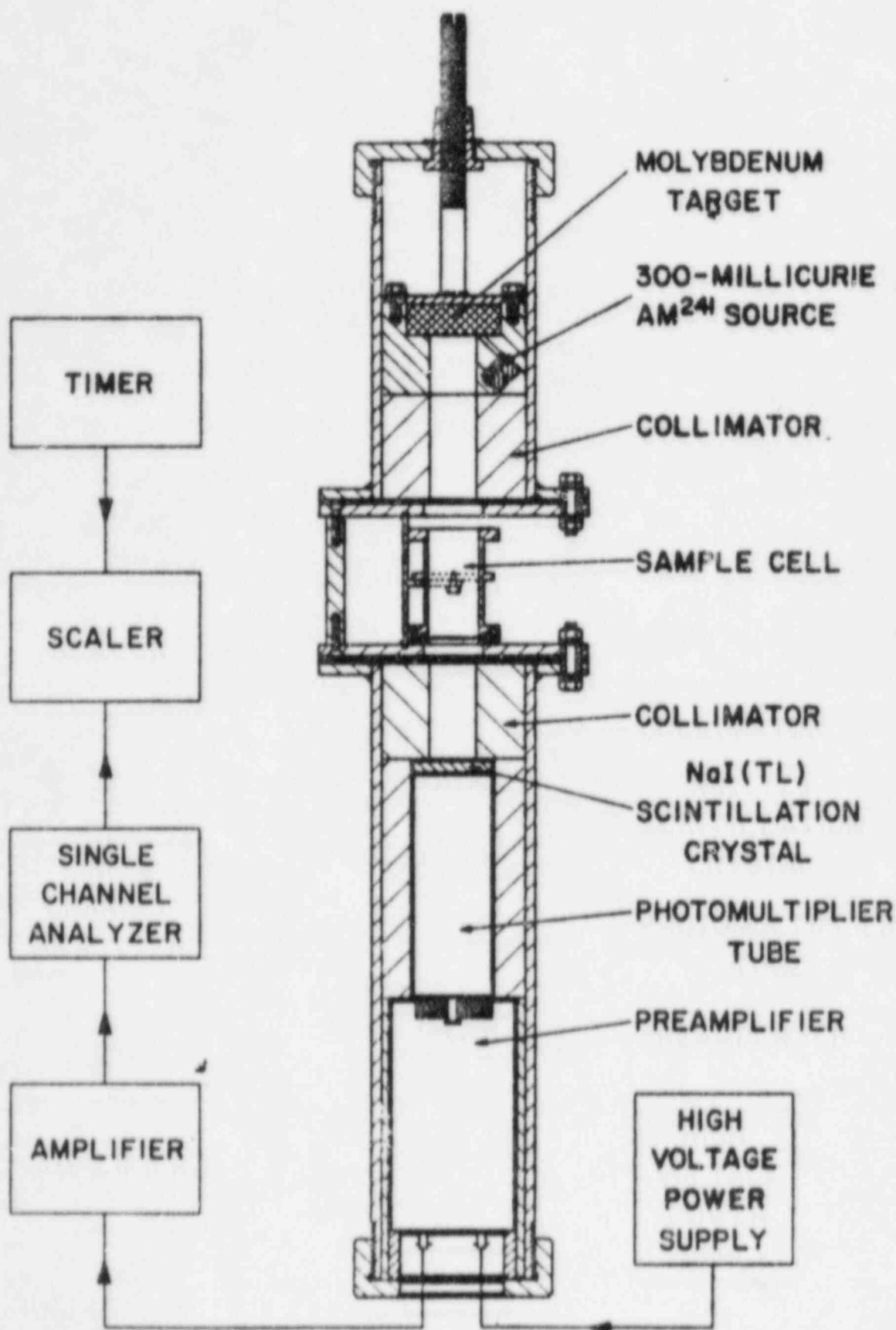


Figure 1.