

Sent 03/13/79

FORM NRC-313 I (6-78) 10 CFR 30	U.S. NUCLEAR REGULATORY COMMISSION	APPLICATION FOR: (Check and/or complete as appropriate)
APPLICATION FOR BYPRODUCT MATERIAL LICENSE INDUSTRIAL		a. NEW LICENSE

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.

b. AMENDMENT TO: LICENSE NUMBER	
c. RENEWAL OF: LICENSE NUMBER	34-16013-01

X

2. APPLICANT'S NAME (Institution, firm, person, etc.) The Procter & Gamble Manufacturing Company TELEPHONE NUMBER: AREA CODE - NUMBER EXTENSION 419/227-4144	3. NAME OF PERSON TO BE CONTACTED REGARDING THIS APPLICATION Jerry E. Allen TELEPHONE NUMBER: AREA CODE - NUMBER EXTENSION 419/227-4144
4. APPLICANT'S MAILING ADDRESS (Include Zip Code) P.O. Box 1900 Reservoir & Mumaugh Rds. Lima, Ohio 45802	5. STREET ADDRESS WHERE LICENSED MATERIAL WILL BE USED (Include Zip Code) Same as 4

(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. Jerry E. Allen	Technician
b. Ricky G. Smith	Technician
c. Gary P. Caudill	Manager
7. RADIATION PROTECTION OFFICER Jerry E. Allen	

RECEIVED BY LFMB
Date: MAR 14 1979
By: [Signature]
Orig To: [Signature]
Action Comp: [Signature]

8. LICENSED MATERIAL			
L I N E NO.	ELEMENT AND MASS NUMBER	CHEMICAL AND/OR PHYSICAL FORM	NAME OF MANUFACTURER AND MODEL NUMBER (If Sealed Source)
	A	B	C
(1)	Americium 241	Sealed Source	Industrial Dynamics 06110-FT-12
(2)			
(3)			
(4)			

MAXIMUM NUMBER OF
SOURCES AND MAXIMUM ACTI-
VITY PER SOURCE WHICH WILL
BE POSSESSED AT ANY ONE TIME

DESCRIBE USE OF LICENSED MATERIAL E	
(1)	To be used in Industrial Dynamics CI-2 device for level detection
(2)	
(3)	
(4)	

FORM NRC 313 I (6-78)

8506070719 850529
REG3 LIC30
34-16013-01 PDR

Applicant: 7005 / 7052
Check No: 750 (34) #60
Amount/Fee Category: [Signature]
Type of Fee: [Signature]
Date Check Recd: MAR 13 1979
Received By: [Signature]

APR 2 1979

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)	Filtec Model FT-12	Industrial Dynamics	FT-12
(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)	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> N/A

12. PERSONNEL MONITORING DEVICES		
TYPE (Check and/or complete as appropriate.) A.	SUPPLIER (Service Company) B.	EXCHANGE FREQUENCY C.
<input type="checkbox"/> (1) FILM BADGE <input type="checkbox"/> (2) THERMOLUMINESCENCE DOSIMETER (TLD) <input checked="" type="checkbox"/> (3) OTHER (Specify): <u>Wipe Test Kits</u> 	Ohmart Corp., Kit #LT-1311 or equal	<input type="checkbox"/> MONTHLY <input type="checkbox"/> QUARTERLY <input checked="" type="checkbox"/> OTHER (Specify): <u>6 months</u>

13. FACILITIES AND EQUIPMENT (Check where appropriate and attach annotated sketch(es) and description(s).)	
<input type="checkbox"/> a. LABORATORY FACILITIES, PLANT FACILITIES, FUME HOODS (Include filtration, if any), ETC. <input type="checkbox"/> b. STORAGE FACILITIES, CONTAINERS, SPECIAL SHIELDING (fixed and/or temporary), ETC. <input type="checkbox"/> c. REMOTE HANDLING TOOLS OR EQUIPMENT, ETC. <input type="checkbox"/> d. RESPIRATORY PROTECTIVE EQUIPMENT, ETC.	
N/A	

14. WASTE DISPOSAL	
a. NAME OF COMMERCIAL WASTE DISPOSAL SERVICE EMPLOYED N/A	
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. N/A	

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.

<p>a. LICENSE FEE REQUIRED (See Section 170.31, 10 CFR 170)</p> <p>\$50</p>	<p>b. CERTIFYING OFFICIAL (Signature)</p> <p><i>R. M. Glover</i></p>
<p>(1) LICENSE FEE CATEGORY: E</p>	<p>c. NAME (Type or print) R. M. Glover</p>
<p>(2) LICENSE FEE ENCLOSED: \$ 50.00</p>	<p>d. TITLE Plant Manager</p> <p>e. DATE March 5, 1979</p>



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

TO: John Cooper, Chief
Radioisotopes Licensing Section
NMSS, Region III

FROM: William O. Miller, Chief
License Fee Management Branch
Office of Administration

SUBJECT: LICENSE FEE INFORMATION

Applicant/Licensee Procter & Gamble

City/State Cincinnati, Ohio

License No. 34-16013-01

Control No. — (3/5/79 app)

Fee Information:

Type of Fee Renewal

Check No. 7052

Amount \$ 60

Fee Category 3L

Date of Check 3/27/79

Date Check Rec'd 4/2/79

OK to issue:

Amendment —

* Renewal ✓

License —

Additional
Fee Due —

Signed Glenda Jackson
License Fee Management Branch

Date 4/3/79

FORM 2

faxed
APR 03 1979

Item #15

The Filtec source and detector will be used in liquid level inspection units. Storage, installation, surveying, relocation and leak testing (using Ohmart Corp., Kit #LT-1311 or equal) shall be performed by or under the direction of Jerry Allen or other such persons specifically licensed by the commission to perform such services. Sealed sources shall not be opened or removed from the source holder by the licensee. Case may be opened to perform electrical repairs inside the case.

A copy of the radiation protection program is attached.

PROCTER & GAMBLE
RADIATION PROTECTION PROGRAM

I. Responsibility

A. Radiation Protection Officer (R.P.O.)

1. The Plant R.P.O. designated by the license is responsible for all phases of this program.
2. In some cases, the Individual User will be given the same training as an R.P.O. His name will also be listed as Plant R.P.O.

B. Delegation of Responsibility

1. While others may assist (formally or informally) in carrying out this program, the responsibility shall not be delegated.

(c-)

C. Informing Others

1. The R.P.O. is responsible for ensuring that all personnel involved are aware of his responsibility and his duties. For example: the following shall be informed --
 - a. Plant Operating Department utilizing the source.
 - b. Plant Mechanical Department maintaining equipment in the vicinity of the source.
 - c. Plant Protection and Fire Personnel.
 - d. Plant Physician.
 - e. Plant Safety Engineer.
 - f. Plant Union Officer (employee of the Company). It is suggested that this contact be made during the Plant Manager's periodic meeting with the Union.
 - g. Civil Fire Departments.

(c)

Note: Others may be added to this list as required.

D. Information Sources

1. The R.P.O. shall possess and be familiar with the:
 - a. Code of Federal Regulations (CFR) Title 10, Parts 20 and 30.
 - b. State and Local regulations for radiation sources.

(c+)

(c-)

D. Information Sources (Cont'd.)

- c. Complete license covering the source or sources.
- d. Complete application and backup material for source or sources.
- e. Manufacturing Standards, Industrial Relations Division-Health, Pages 6, 6.1, 6.2.
- f. Instrument Design Practice (IDP) #330.
- g. Instrument Maintenance Practice (IMP) #4-2.
- h. The Radiation Protection Program.

II. Administration

A. Disagreement Between Authorities

- I. In any case of disagreement between authorities, the following precedence is to be followed:
 - a. State or AEC license for the source involved.
 - b. License application including appended information.
 - c. P&G Manufacturing Standards.
 - d. Local regulations.
 - e. Other Company publications.

Note: If an acceptable conclusion cannot be reached, the R.P.O. shall notify the Power Systems and Corporate Electrical Section, Engineering Division. If a health problem is involved, the Industrial Hygiene Section, Health Department, Industrial Relations Division, shall be notified. In both cases, full details must be provided.

III. Equipment

A. Survey Meter

- (c+) I. In the event that a survey meter is required, an appropriate meter with proper calibration will be obtained through the Corporate & Utilities Systems Control Group.

(c-)

IV. Normal Procedure

A. Receipt and Storage

- (c+) I. No source shall be accepted unless the R.P.O. has:
 - (c) a. Received and read the appropriate license.
 - (c) b. Surveyed the source holder and found the results acceptable.

- (c) c. Found the wipe test history acceptable.

2. Storage

- (c) a. The source is to be stored with the shutter locked closed in a locked locker. (Access to the key will be controlled by the R.P.O.)
- b. The radiation level at any point on the outside surface of the locker shall not exceed 2 mr/hr. Under these circumstances, the area need not be posted (20.204a).

(c+) B. Installation of Source Holder (When authorized by the License)

The R.P.O. will personally direct and supervise the:

- (c)
1. Informing of all personnel involved in the installation concerning the nature of the source, the hazards involved, and the measures taken for personal protection.
 2. Rehearsing of the installation prior to the actual work.
 3. Installation to make every feasible use of exposure time, distance, and minimum handling to control individual exposure.
 4. Informing of the Plant Fire Department, the Plant Physician, and Safety Engineer concerning the time and distance limits to be observed during an emergency. These limits are to be based on the computed field strength without the holder.

C. Wipe Testing

(c-)

I. Wipe Test

- a. Wipe tests will be conducted at the frequency specified in the current license.
- b. Unless otherwise specified in the license, the wipe test is to be conducted as follows. The R.P.O. will:
 - (1) Obtain a wipe swab from the vendor or other Licensed Wipe Test Service.
 - (2) Carefully wipe all openings on the source holder as instructed by the Test Service.
 - (3) Return the swab to the Test Service in the container provided per their instructions.
 - (4) Note and file the report as required by State or AEC regulations.
 - (5) Whenever significant removable contamination is detected, the source shall immediately be removed

(c+)

(c)

from service and sealed in a separate container. As soon as practical, it should be returned to the supplier or other licensed organization for repair or disposal. The R.P.O. will be certain that the instructions from the consignee are followed.

(c+)

- (6) All equipment in contact with the unit should be checked for contamination and decontaminated if necessary. (VI-B)

Note: Significant leakage is leakage in excess of that stated on the License as being acceptable.

- (7) The Power Systems & Corporate Electrical Section, Engineering Division and the Industrial Hygiene Section, Industrial Relations Division must be notified of its removal from service due to leakage.

D. Source Holder Work

1. "Source Holder" is defined as that portion of the permanent source container contributing significantly to the shielding of the source. It is recognized that the mounting flange, for instance, may need to be redrilled or shimmed for proper orientation with the sensing cell.
2. The source holder must never be disassembled by P&G personnel. All maintenance work on the source holder itself will be done by the vendor or other licensed consultants.
3. Work necessitating removal and reinstallation of the source will be handled as in V-A-B-C above.

(c-)

(c-)

V. Emergency Procedures

A. Fire and Explosion

1. General

(c)

Since the source holder is an integral block of stainless steel, the only conceivable but unlikely failure would be a ruptured source holder.

2. Notification

(c)

- a. Notify the Licensing Agency if the source may cause exposures in excess of those mentioned in their regulations.

(c)

- b. The R.P.C. or, in his absence, the Power Systems & Corporate Electrical Section, Engineering Division, will be notified when emergency measures are taken in the vicinity of the source holder.

3. Procedure

(c)

- a. The Operating Department and Plant Fire Department personnel shall determine the location of the source holder and will proceed to handle the emergency, observing the time and distance limits supplied by the R.P.O., in accordance with Section V-B-6. Unauthorized personnel must not be allowed in the area until the R.P.O. completes his survey.
- b. The R.P.O. will survey the holder as soon as possible to determine that:
 - (1) The source is still inside the holder.
 - (2) The shielding is intact.
 - (3) The leakage is not excessive as defined by the Licensing Agent.
- c. The R.P.O. will advise the emergency personnel concerning the extent of the hazard.
- d. Any source which may have been damaged by a nearby fire or explosion will be wipe tested as soon as feasible.

B. Spillage and Suspected Spillage

1. Spillage

(c)

If there is any reason to suspect that a disruption of a sealed source has occurred, any or all of the following emergency measures may be appropriate. The appropriate ones shall be taken:

- a. No immediate attempt shall be made to clean up the spill.
- b. All windows shall be closed, fans and air-conditioners shall be shut off, and everyone shall leave the room.
- c. All doors shall be closed and locked.
- d. If powdered or gaseous sources are involved, the door and all other openings leading into the room shall be sealed with wide masking tape or adhesive tape and heavy wrapping paper.
- e. Every person who might have been contaminated shall be tested and immediate steps taken to remove any radioactive contamination.
- f. Entrance to the contaminated area shall be prohibited except to authorized persons requiring access in the performance of their special duties.

2. Emergency Care of Possibly Contaminated Persons

(c)

- a. All persons suspected of having been contaminated should be surveyed. If this cannot be done immediately, such persons should not be permitted to leave beyond what will be considered a safe distance from the contaminated area.
- b. If no monitoring instrument is available, all possibly exposed persons should be regarded as contaminated. Wipes from various parts of the bodies of these persons and their clothing should be made with some type of disposable tissue, filter paper, or blotting paper, and the samples placed in separate labeled envelopes for future study.
- c. Contaminated clothing should be removed carefully and placed in some type of disposable container or bag. If this is not available, clothing should be put on sheets of paper to prevent contamination of floor and furniture. The clothing and paper can be monitored later to determine the presence of contamination and the need for decontamination or disposal.
- d. If necessary, contaminated persons should be taken to a shower area for bathing.
- e. Bathing should be done under showers and commercially available detergents and soaps can be used. Several separate washings should be performed. Highly alkaline soaps, abrasives, organic solvents, or cleaners that tend to increase permeability of the skin should not be used. Special emphasis should be given to cleaning of fingernails, toenails, nostrils, scalp, ears, and body folds.
- f. Scrub brushes should be used, but care should be taken that the skin surfaces do not become abraded.
- g. After the body is well washed, the person should be surveyed with a suitable monitoring instrument and additional smears taken with disposable tissues, cotton-tipped applicators, or filter paper. The ear canals and nostrils should be swabbed for contamination. Smear tests are especially important if alpha contamination is suspected and appropriate survey instruments are not available. Clothing known not to be contaminated should be put on.
- h. Small cuts and other breaks in the skin surface should be sought for carefully, since absorption of radionuclides can occur by this route.
- i. A physician should be called immediately to recommend and take further action. Any or all of the following steps may assist in the formulation of his recommendations:

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(c)

- (1) Complete medical history and physical examination, with special emphasis on previous occupational history and possible exposure to radiation, and chest X-rays.
- (2) Complete blood count, including hematocrit reading and routine urinalysis.
- (3) Samples of blood within 72 hrs. for determination of radioactivity.
- (4) The specimens of urine, feces, and blood should be refrigerated and kept until arrangements can be made for analysis at a qualified laboratory. Proper collection and storage of these samples may be of great value to the contaminated persons and, also, in obtaining further data concerning the metabolism of the radionuclide involved.

3. Area Decontamination

- a. A traffic control program shall be instituted to minimize trackage.
- b. The recommendations of a consultant regarding decontamination are to be followed in detail.
- c. P&G personnel will not direct an attempt to clean up a spill.

(c)

VI. Loss of the Source

A. Notification

(c)

1. Anyone having reason to believe that a source is missing shall notify the R.P.O.
 2. Upon verification of the loss, the R.P.O. will immediately notify the:
 - a. Licensing Agency.
 - b. Plant Safety Engineer.
 - c. Plant Physician.
 - d. Power Systems & Corporate Electrical Section, Eng. Div.
 - e. Industrial Hygiene Section, Industrial Relations Division.
- The following information shall be given to each:
- a. The size and license number of the source.
 - b. Whether it was removed from the holder.

c. When it was missed.

d. Action being taken.

3. Personnel working in any area where the source might be shall be informed of the:

a. Loss.

b. Possible effect of exposure.

(c)

c. Appearance of the source. (See Appendix C)

d. Contamination possibility inherent in a ruptured source.

e. Need for its immediate recovery.

f. Reasons for requiring that only authorized personnel with instruments be permitted to aid in the search.

g. Measures being taken to recover the source safely.

B. Search

(c-)

1. An outside consultant should be employed to direct the search.

2. Only authorized, properly equipped, P&G personnel may take part in the search.

VII. Radioactive Material Disposal

A. Sources

(c)

1. Should the source no longer be of use due either to decay or changes in process control, the Power Systems & Corporate Electrical Section, Engineering Division, should be notified prior to disposal.

Note: Shipping instructions must be obtained from the consignee prior to shipment.

2. Notification of Disposal

a. Licensing Agency

The AEC or State Agency must be notified of the transfer in order to properly amend or cancel the license.

b. Registering Agency

The Local and/or State registering agencies shall be notified to amend their records.

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c. Company

The R.P.O. shall notify the:

- (1) Plant Safety Engineer.
- (2) Plant Physician.
- (3) Plant Protection and Fire Personnel.
- (4) Industrial Hygiene Section, Industrial Relations Div.

(c-)

(c-)

VIII. Records

A. Personnel

1. The R.P.O. shall be responsible for ensuring that all records required by the licensing and registering agencies are kept up to date.

(c-)

B. Equipment

1. The R.P.O. will maintain the records required by the licensing and registering agencies which will include the:
 - a. Current license (renewals and amendments).
 - b. Current use of the equipment.
 - c. Specifications and correspondence pertaining to the equipment.
 - d. Results of wipe tests.

C. Inspections and Audits

1. The R.P.O. will be sure that both equipment and records are available for inspection by the licensing agencies.
2. The R.P.O. will forward a review of the items listed in the Manufacturing Standards, Industrial Relations Division-Health Department, Pages 6.0, 6.1, 6.2, annually through the Safety Engineer to the Industrial Hygiene Section, Industrial Relations Division.
3. The Industrial Hygienist will review the procedures and records with the R.P.O. during the biennial visit.

(c)

IX. Training and Liaison

A. Training

1. The R.P.O. shall insist that:

- a. Individual Users and all others working in the vicinity are familiar with the:
 - (1) Nature of the source.
 - (2) Routine protective measures for any potential hazards.
 - (3) Emergency procedures to be followed.
 - (4) Company's legal requirements as licensee.
 - (5) Need for and procedures for liaison with the R.P.O., the Power Systems & Corporate Electrical Section, Engineering Division, and the Industrial Hygiene Section, Industrial Relations Division.
 - (6) Rules governing what can and cannot be done with the source.
- b. No transfers of personnel (himself included) shall result in the loss of adequate training or of safe operation.

B. Liaison

1. The R.P.O. must be certain that:
 - a. All personnel know under what circumstances the R.P.O. must be contacted.
 - b. All personnel involved know who to call when the R.P.O. cannot be reached, and know that the Power Systems & Corporate Electrical Section, Engineering Division, has people with equivalent training to advise and assist them.
2. The R.P.O. shall advise the Plant Manager if, at any time, he is unable to properly discharge his duties. When health problems are involved, contact the Industrial Hygiene Section, Health Department, Industrial Relations Division.
3. The R.P.O. and/or Plant Manager shall contact the Power Systems & Corporate Electrical Section, Engineering Division, if they are unable to ensure proper continuation of the R.P.O.'s duties.

Central Power & Control Systems Department
Engineering Division

Item 16. Formal Training

<u>NAME</u>	<u>TYPE OF TRAINING</u>	<u>WHERE TRAINED</u>	<u>DURATION</u>	<u>WHEN TRAINING REVD.</u>
Jerry E. Allen Ricky G. Smith	A. Principle and practices of radiation protection	Ohmart Co. - Radiation Safety, P&G Protection Program	12 hrs.	Feb. 1979
	B. Radioactivity measurement standardization and monitoring techniques and instruments	Ohmart Co. - Radiation Protection Survey Meters & Wipe Testing	3 hrs.	Feb. 1979
	C. Mathematics and calculations basic to the use and measurement of radioactivity	Included in above	-	-
	D. Biological effects of radiation	Included in above	-	-
Gary P. Caudill	A. Same as above	Same as above	16 hrs.	June 1977
	B.		3 hrs.	June 1977
	C.		-	-
	D.		-	-

Item 17. Experience

<u>NAME</u>	<u>ISOTOPE</u>	<u>MAXIMUM AMOUNT</u>	<u>WHERE EXPERIENCE WAS GAINED</u>	<u>DURATION OF EXPERIENCE</u>	<u>TYPE OF USE</u>
A. Jerry E. Allen	Americium 241	100 MC	Assisted Gary P. Caudill, former Radiation Protection Officer, in administering Radiation Protection Program and conducting wipe tests of sources. Has more than four years experience working with the installed Filtec equipment.	6 months	Liquid Level Detection
B. Ricky G. Smith	Same as A.	Same as A.	Same as A.	Same as A.	Same as A.
C. Gary P. Caudill	Americium 241	100 MC	Assisted Jerry Jacobson, former Radiation Protection Officer, in Administering Radiation Protection Program and conducting wipe testing of sources. Conducted Radiation Protection Program for 18 months.	24 months	Liquid Level Detection

In addition to the above training and experience, Mr. Caudill successfully completed 6 months of intensive instruction on nuclear physics, nuclear reactor theory and operation and radiation chemistry, health and physics at the U. S. Naval Prototype Training Unit, Idaho Falls, ID, during which time he qualified as Engineering Officer of the Watch on the AlW nuclear reactor. He served aboard the nuclear submarine, USS SHARK (SSN 591) from October 1971 until July 1973, during which time he qualified as Engineering Officer of the Watch (to supervise the operation and maintenance of that ship's S5W-Core 2 nuclear reactor). From January 1974, until April 1976, he served aboard the nuclear submarine USS TECUMSEH (SSBN 628-Blue). During this time he was qualified as Engineering Officer of the Watch on that ship's S3G-Core 3 nuclear reactor, and served as Reactor Controls Officer (in charge of all nuclear instrumentation and detection devices) for 15 months. In March, 1975, he qualified as Engineer Officer on a nuclear submarine.