

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: 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.) Westinghouse Electric Corporation Box #2278 Pittsburgh, Pa. 15230 Attention: C. P. Skillern		(b) STREET ADDRESS(ES) AT WHICH BYPRODUCT MATERIAL WILL BE USED (If different from 1 (a). Include ZIP Code.) Westinghouse Electric Corporation Astronuclear Experimental Facility Waltz Mill Site Westmoreland Co., Pa.	
2. DEPARTMENT TO USE BYPRODUCT MATERIAL Astronuclear Laboratory Reactor Analysis Dept.		3. PREVIOUS LICENSE NUMBER(S). (If this is an application for renewal of a license, please indicate and give number.) Renewal: 37-9442-1 (H-65)	
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.) W. Kovacik, Manager, Astronuclear Experimental Facility E. H. Brooks, Fellow Scientist		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.) A. T. Sabo, Manager, Industrial Hygiene and Safety See Attachment #1	
6. (a) BYPRODUCT MATERIAL. (Elements and mass number of each) A. Any byproduct material B. Any byproduct material	(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.) A. Any/all chemical or physical form contained in sealed sources B. Any/all chemical or physical form		
A. Not to exceed 50 c/isotope; not to exceed 100c total; not to exceed 30c per sealed source. B. Not to exceed 50c per isotope; not to exceed 100c total			

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.)

These materials will be used for research, development, and calibration associated with the operation of a critical assembly or in studies of various dosimeter systems used in the NERVA reactor and related tests. The sealed sources are stored in shipping containers or equivalent shielded source holders. Byproduct materials will be used as described in this completely revised application and as approved by the Isotopes Committee in the future.

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

B. 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 #1		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 #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)
See Attachment #2					

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

See Attachment #3

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

Film badge service furnished by commercial vendor (presently supplied by R. S. Landauer, Jr. and Co., Matteson, Ill.) See attachment #4 for further information and for Dosimeter and Bioassay Procedures.

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 #5

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 #6

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 #7

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.

Date July 29, 1965

Please send license & correspondence to address in 1(a).

Westinghouse Electric Corp.

Applicant named in item 1

By:

C. P. Skillern

License Administrator

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.

ATTACHMENT #1

This attachment furnishes the information requested in Items 4, 5, 8 and 9 of the Application Form:

The training and experience of the individuals listed in Items 4 and 5 of the Application Form and the Chairman of the Isotopes Committee are given on the following pages. Brief resumés for members of the Isotopes Committee are as follows:

W. S. Geiger - Health Physicist

Hiram College, B. A. Physics

Mr. Geiger is a graduate of the AEC Radiological Physics fellowship program at Vanderbilt University and has about six years experience in Radiation Protection at major nuclear facilities.

J. A. Roll - Supervisor, Physical Sciences

University of Pittsburgh, B.S. Physics

Mr. Roll has about 15 years experience in the radiochemistry and radioanalytical field at several nuclear facilities.

D. A. Brown - Supervisor Accountability

Mt. Union College, A.B. Chemistry

Mr. Brown is the Westinghouse Astronuclear Laboratory accountability representative, and he has about 10 years experience in the nuclear industry.

NAME: W. P. Kovacik

<u>Type of Training</u>	<u>Where Trained</u>	<u>Duration of Training</u>	<u>On Job</u>		<u>Formal Courses</u>	
			<u>Yes</u>	<u>No</u>	<u>Yes</u>	<u>No</u>
a. Principles and practices of radiation protection	Mass. Inst. of Tech.	1 month	x		x	
	Carnegie Tech.	5 months	x			x
	Ⓢ Reactor Evaluation Center	3.5 months	x			x
	Ⓢ Astronuclear Lab.	1.5 months	x			x
b. Radioactivity measurement standardization and monitoring techniques and instruments	Mass. Inst. of Tech.	1 month	x		x	
	Carnegie Tech.	5 months	x			x
	Ⓢ Reactor Evaluation Center	3.5 months	x			x
	Ⓢ Astronuclear Lab.	1.5 months	x			x
c. Mathematics and calculations basic to the use and measurement of radioactivity	Mass. Inst. of Tech.	4 months	x		x	
	Carnegie Tech.	5 months	x		x	
d. Biological effects of radiation	Mass. Inst. of Tech.	1 month	x		x	
	Carnegie Tech.	5 months	x			
	Ⓢ Reactor Evaluation Center	3.5 months	x			
	Ⓢ Astronuclear Lab.	1.5 months	x			

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x
x
x

NAME: W. P. Kovacik

EXPERIENCE WITH RADIATION

<u>Isotope</u>	<u>Maximum Amount</u>	<u>Where Experience Was Gained</u>	<u>Duration of Experience</u>	<u>Type of Use</u>
Al-28	1 μ c	Mass. Inst. of Tech.	1 yr.	Cross section studies
Mixed Fission Products	Equiv. to 10R/hr	Nevada Test Site	3 mo.	Atomic Weapon tests
Co-60, Na-22, Cs-137	1 μ c	Carnegie Tech.	5 yrs.	Gamma check source
Au-198, In-116, Lu-176 Dy-165, U-238, U-235	10 μ c	Ⓢ Reactor Evaluation Center	3.5 yrs.	Irradiated foils in criticals
Pu-239	7 c	Ⓢ Reactor Evaluation Center	3.5 yrs.	PuBe Source
U-235, U-238	>200, >7000 kg	Ⓢ Reactor Evaluation Center	3.5 yrs.	Reactor Fuel
U-235	170 kg	Ⓢ Astro. Experimental Facility	0.5 yr.	Reactor Fuel
Po-210	7.5 c	Ⓢ Astro. Experimental Facility	0.5 yr.	PoBe Source
Tritium	50 c	Ⓢ Astro. Experimental Facility	0.5 yr.	Tritiated Targets

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NAME: E. H. Brooks

Type of Training	Where Trained	Duration of Training	On Job		Formal Courses	
			Yes	No	Yes	No
a. Principles and practices of radiation protection	G.E., Cincinnati, Ohio	3 mos.	x			x
	G.E., Cincinnati, Ohio	16 hours		x	x	
b. Radioactivity measurement standardization and monitoring techniques and instruments	G.E., Cincinnati, Ohio	6 mos.	x			x
	G.E., Syracuse, N.Y.	3 mos.	x			x
c. Mathematics and calculations basic to the use and measurement of radioactivity	G.E., Cincinnati, Ohio	6 mos.	x			x
	G.E., Cincinnati, Ohio	3 mos.	x			x
d. Biological effects of radiation	G.E., Cincinnati, Ohio	16 hours		x	x	

EXPERIENCE WITH RADIATION*

Isotope	Maximum Amount	Where Experience Was Gained	Duration of Experience	Type of Use
Cs-137	100 mc.	G.E. - Cincinnati	6 mo.	Instrument Calibration
Na-22	10 mc.	G.E. - Cincinnati	6 mo.	Instrument Calibration
Co-60	10 c	G.E. - Cincinnati	6 mo.	Instrument Calibration
Co-60	5000 c	G.E. - Syracuse, N.Y.	2.5 yrs.	Radiation Effects

*Mr. Brooks had experience at various accelerators and reactors performing radiation effects experiments, from 1961 to 1964. Some of these were the Sandia pulsed reactor, Battelle Memorial Institute Research Reactor, and others.

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NAME: Andrew T. Sabo, Manager, Industrial Hygiene and Safety
(Radiation Protection Officer)

<u>Type of Training</u>	<u>Where Trained</u>	<u>Duration of Training</u>	<u>On Job</u>		<u>Formal Courses</u>	
			<u>Yes</u>	<u>No</u>	<u>Yes</u>	<u>No</u>
a. Principles and practices of radiological health safety	Pa. Dept. of Health	3 yrs.	x			x
	Univ. of Pittsburgh	4 mos.		x	x	
	Bettis Atom. Pwr. Lab.	6 yrs.	x			x
	Nucl. Mtls. & Eqpt. Cor.	1 yr.	x			x
	Ⓢ Atomic Power Div.	3 yrs.	x			x
b. Radioactivity measurements standardization & monitoring techniques and instruments	Pa. Dept. of Health	3 yrs.	x			x
	Bettis Atom. Pwr. Lab.	6 yrs.	x			x
	Nucl. Mtls. & Eqpt. Cor.	1 yr.	x			x
	Ⓢ Atomic Power Div.	3 yrs.	x			x
c. Mathematics & calculations basic to the use and measurement of radioactivity	Univ. of Pittsburgh	2 yrs.		x	x	
	Bettis Atom. Pwr. Lab.	6 yrs.	x			x
	Nucl. Mtls. & Eqpt. Cor.	1 yr.	x			x
	Ⓢ Atomic Power Div.	3 yrs.	x			x
d. Biological effects of radiation	Bettis Atom. Pwr. Lab.	6 yrs.	x			x
	Nucl. Mtls. & Eqpt. Cor.	1 yr.	x			x
	Ⓢ Atomic Power Div.	3 yrs.	x			x

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EXPERIENCE WITH RADIATION

<u>Isotope</u>	<u>Maximum Amount</u>	<u>Where Experience Was Gained</u>	<u>Duration of Experience</u>	<u>Type of Use</u>
All fission products	Multicurie	Bettis Atom. Pwr. Lab.	6 yrs.	Research & Devel. Work
		Nucl. Mtls. & Eqpt. Corp.	1 yr.	Monitoring & Variety of Operations
		Ⓢ Atomic Power Div.	3 yrs.	" "
Cobalt 60 Isotopes 3 ≤ A ≤ 83	20 Curies Multicurie	Pa. Dept. of Health	3 yrs.	Surveying Med. Therapy Eqpt.
		Bettis Atom. Pwr. Lab.	6 yrs.	Radiation Survey
		Ⓢ Atomic Power Div.	3 yrs.	" "
Thorium 228 Po. Pu & Am Source, SNM, Byproducts	100 grams Multicurie Multicurie	Nucl. Mtls. & Eqpt. Corp.	1 yr.	Monitoring
		Nucl. Mtls. & Eqpt. Corp.	1 yr.	"
		Ⓢ Atomic Power Div.	3 yrs.	Research, Development & Fabrication

NAME: M. R. Beebe*, Chairman, Isotopes Committee

<u>Type of Training</u>	<u>Where Trained</u>	<u>Duration of Training</u>	<u>On Job</u>		<u>Formal Courses</u>	
			Yes	No	Yes	No
a. Principles and practices of radiation protection	Univ. of Rochester Brookhaven Nat. Lab	1 yr. 3 yrs.		x	x	
b. Radioactivity measurements standardization and monitoring techniques and instruments	Univ. of Rochester Brookhaven Nat. Lab	1 yr. 3 yrs.	x		x	
c. Mathematics and calculations basic to the use and measurement of radioactivity	Univ. of Rochester Brookhaven Nat. Lab	1 yr. 3 yrs.		x	x	
d. Biological effects of radiation	Univ. of Rochester Brookhaven Nat. Lab	1 yr. 3 yrs.		x	x	

*Certified in Health Physics by the American Board of Health Physics

EXPERIENCE WITH RADIATION

<u>Isotope</u>	<u>Maximum Amount</u>	<u>Where Experience Was Gained</u>	<u>Duration of* Experience</u>	<u>Type of Use*</u>
Fission Products	Multicuries	Univ. of Rochester	Total of about 12 years	R & D Calibration Radiochemistry Isotope Production (reactor-accelerator) Monitoring Fuel Manufacturing
Co ⁶⁰	"	Brookhaven Nat. Lab		
Cs ¹³⁷	"	Republic Aviation Corp.	diversified experience	
Isotopes 3-83	"	Allis-Chalmers Mfg. Co.		
Po, Pu, U, Th	"	Westinghouse Astronuclear		

*Above not delineated as to specific experience location.

ATTACHMENT #2

This attachment furnishes the information requested in item 10 of the application form:

RADIATION DETECTION INSTRUMENTS

<u>Type of Instrument</u>	<u>Number Available</u>	<u>Radiation Detected</u>	<u>Sensitivity Range</u>	<u>Use</u>
Survey Meter	>1	β - γ	0-0.2, 2, 20 mr/hr or 0-0.1, 1, 10 mr/hr	Surveying & Monitoring
High Range Survey Meter	>1	α - β - γ	0-50, 500, 5000 mr/hr	Surveying & Monitoring
Survey Meter	>1	α	0-6500 cpm	Surveying & Monitoring
Neutron Survey Meter	>1	$N_f + N_{th}$	0-10 ⁴ n/cm ² -sec	Surveying & Monitoring
Continuous Air Monitor	1	β - γ	0-20,000 cpm	Radioactive Dust Samp- ling

NOTE: These instruments will normally be the minimum number of instruments available at the Astronuclear Experimental Facility. Additional instrumentation including tritium monitoring instruments are available on Site. A fully equipped counting room is also available. High and low volume air sampling instruments are available on Site or from nearby Westinghouse locations.

ATTACHMENT #3

This attachment furnishes the information requested in Item 11 of the Application Form:

INSTRUMENT CALIBRATION

The following instrument calibration methods and frequency have been established by the Manager of Industrial Hygiene and Safety:

Portable Survey Meters - Beta-gamma meters are calibrated once per quarter and/or following repairs by exposure to a standard source on a response/distance relationship. Meter response is verified before use by exposure to laboratory check sources. Alpha meters are calibrated once per quarter and/or following repairs by exposure to a standard alpha source in a fixture commercially fabricated for meter calibrations. Neutron meters are calibrated once per quarter by exposure to a Pu-Be neutron source on a response/distance relationship.

Continuous Air Monitors - Electronic checks are made daily; monthly checks are made by exposing counting tube to a standard isotopic source.

ATTACHMENT #4

This attachment furnishes the information requested in Item 12 of the Application Form:

FILM BADGES

The film badge service, provided by a commercial vender, and the use of film badges by employes is supervised by the Radiation Protection Officer. The personnel exposures recorded on the film badges (Hanford type) are used as the basic whole body exposure record. In the event badges are damaged or erroneously exposed, data from dosimeters or surveys will be evaluated by the Radiation Protection Officer to establish and record the exposure. Wrist badges are provided for measuring hand exposures, if the type of work is such that hand exposures might be significantly greater than the whole body exposure.

Both self-reading and indirect-reading pocket dosimeters (0-200mr) are available for use in personnel monitoring as determined by the Radiation Protection Officer. They are used on operations where exposure rates are such that exposures of ~ 100 mr may occur in a day or less or in cases where a check on film badge data is desired.

The pocket dosimeters are leak tested by measuring drift and are calibrated against a standard gamma source semi-annually or whenever there is indication of possible malfunction.

BIOASSAY PROCEDURES

Certain bioassay services are furnished by the Headquarters Industrial Hygiene Laboratory and others are obtained from selected Vendors. Urine samples are obtained from personnel if

ATTACHMENT #4 (Cont.)

BIOASSAY PROCEDURES (Cont.)

there is any indication of a possible exposure to high concentrations of radioactive materials in the air, if there should be a contaminated wound and on a routine basis for certain jobs as determined by Industrial Hygiene and Medical. This will generally consist of a base line determination for personnel routinely handling significant quantities of unclad radioactive materials followed by periodic re-sampling on a frequency determined by operating conditions, generally 6-12 months.

If quantities of tritium exceeding 100 mc are used in a form available to the body, bioassay monitoring of the tritium body burden of personnel subject to potential exposure will be provided. Intervals between collection of specimens from an individual will not exceed seven days. This bioassay service will be obtained from a qualified vendor.

ATTACHMENT #5

This attachment furnishes the information requested in Item 13 of the Application Form.

FACILITIES AND EQUIPMENT

The byproduct material will be used in the Westinghouse Astro-nuclear Laboratory Experimental Facility (WANEF) which is located on the Westinghouse Waltz Mill Site. The experimental facility is devoted to the operation of critical assemblies, for the NERVA program, which are exempt from licensing.

The WANEF facility consists of an office section, laboratory section, and a test cell. The office and laboratory section are of standard factory type construction; a part of the laboratory and office section is located in a building that is wood frame construction. The test cell is a shielded enclosure. The thickness of all walls of the test cell are at least 1 foot of reinforced concrete, except the walls which are adjacent to areas normally occupied by personnel, and they are at least 4 feet 6 inches thick with a height of ~ 20 feet. All of the WANEF locations are within the Waltz Mill Site Restricted Area (designated in the letter to Lyall E. Johnson, dated Aug. 17, 1964). Only authorized personnel are admitted.

Sealed sources which produce radiation levels that may constitute an extreme exposure hazard to personnel will be used in the test cell or in the basement below the test cell. Access to the basement is by stairway from the test cell. The test cell floor (between the cell and the basement) is a 3/4 inch and 1 inch steel deck plate supported by steel I Beams.

ATTACHMENT #5 (Cont.)
FACILITIES AND EQUIPMENT (Cont.)

When not in use, all sealed sources will be kept in storage containers within the facility. Lead bricks and/or other shielding (eg. paraffin for neutron sources) are available to provide additional shielding where necessary to keep radiation exposures within the limits of regulatory requirements. Additionally, handling tools such as tongs or rotating shield plugs, etc. will be used as necessary.

An exhaust hood is available for use where the possibility of airborne radioactive dust, fumes or gaseous material may occur. The exhaust system contains an "absolute filter" with a positive exhaust blower. The face velocity of the hood is 100 ft./min. or greater.

Crane facilities, forklift trucks or other devices are provided for movement of heavy shielding.

ATTACHMENT #6

This attachment furnishes the information requested in Item 14 of the Application Form:

RADIATION PROTECTION PROGRAM

Responsibility for all phases of operations, including safety and health protection, follows the usual lines of organizational authority. Advisory and service groups are provided to assist line management in the analysis of operations within their control, and to provide measurements, determinations and information which aid in the analysis of specific operations and situations. Such a service and staff function in no way relieves the individual line manager from responsibility for the safe operation of his function and facility and for ascertaining and assuring, through appropriate management channels, that adequate service is provided. Basic policies and procedures are established by line management with the approval of cognizant staff groups. The manager has a basic responsibility to operate his facility in a safe and orderly manner. This responsibility includes compliance with appropriate federal, state and local regulations.

The manager of the Astronuclear Industrial Hygiene and Safety group serves on each of the advisory groups dealing with radiation protection and safety; conducts independent audits of radiation protection practices; and serves in a staff advisory capacity to other management and technical personnel. While he normally provides radiation protection services for the organization, arrangements have been made for such personnel and service to be provided to the Astronuclear Experimental Facility

ATTACHMENT #6 (Cont.)

RADIATION PROTECTION PROGRAM (Cont.)

by the Atomic Power Division Industrial Hygiene Group which furnishes these services for all activities at the Waltz Mill Site. Trained technicians, under the supervision of the Manager of Industrial Hygiene and Safety, are assigned to the Experimental Facility on a full-time basis as required. In addition, all use of radioisotopes must be approved by the Isotopes Committee. Special nuclear materials are used extensively in this facility and the radiation protection program for use of isotopes is integrated with the overall radiation protection program.

1. Personnel Monitoring

A film badge personnel monitoring program is provided by the Manager of Industrial Hygiene and his personnel. There is a pickup location where individuals receive film badges upon entering an operating area and return them when they leave.

The need for film badge use is determined by the Manager of Industrial Hygiene and this need will comply with regulatory requirements. Film badge readings are recorded and are part of Industrial Hygiene records.

There is a personnel monitoring instrument located at the entrance to the work areas where byproduct material is used, so personnel can check themselves for contamination before leaving. Personnel check themselves for contamination daily or whenever they leave the facilities.

ATTACHMENT #6 (Cont.)
RADIATION PROTECTION PROGRAM (Cont.)

2. Radiation Surveys

Radiation surveys are made by Industrial Hygiene personnel to determine radiation levels prior to start of a new operation. If required, continuous monitoring will be provided by Industrial Hygiene personnel. Radiation surveys are made on buildings and equipment periodically (~ weekly if necessary). Where byproduct material is used, contamination surveys will be made by Industrial Hygiene personnel, ~ weekly, if necessary, or more frequently as required by the Manager of Industrial Hygiene and Safety. Contamination surveys will be made on any equipment prepared for shipment if necessary. Records of contamination surveys will be kept. These surveys are performed to detect any release of radioactive materials and to aid in preventing any spread of contamination.

Air samples are taken as required throughout the facility to determine whether concentrations of airborne contamination are being maintained at levels required by the regulations. These samples are processed and counted for alpha and beta-gamma activity. These samples are taken utilizing high or low volume air samplers as required. In addition, a continuous air monitor is operated at locations where it may be needed. The continuous monitor provides an instant audible and visual alarm in the event that airborne radioactivity exceeds a preset value.

Reports of all surveys are made to the responsible supervisor who initiates any corrective action that may be necessary.

ATTACHMENT #6 (Cont.)
RADIATION PROTECTION PROGRAM (Cont.)

3. Protective Equipment

All personnel and visitors to the test cell or basement (including areas where byproduct materials are handled) wear protective clothing as necessary. Protective clothing may be worn in other areas where byproduct materials are handled, if necessary. Additionally, respirators and self-contained breathing apparatus are available for emergency uses.

Protective clothing is laundered commercially. The clothing is monitored for contamination before being sent to the laundry. Highly contaminated clothing is disposed of as radioactive waste.

4. Clothing Change Room and Shower Facilities

A clothing change room, shower and washing facilities are available for individuals entering or leaving the work areas to reduce the likelihood of contamination being transferred outside the facility.

5. Spills

If a spill of radioactive material occurs, the area is roped off and personnel are excluded. Industrial Hygiene personnel ascertain the extent of the problem, viz. exposures, and extent of contamination. The contamination will be contained in the smallest area possible. Industrial Hygiene will direct cleanup of the area or of personnel as necessary.

6. Fires

We maintain a Site fire brigade that has received training in extinguishing fires where radioactive material is located.

ATTACHMENT #6 (Cont.)
RADIATION PROTECTION PROGRAM (Cont.)

6. Fires (Cont.)

The type, location, and size of the fire will determine the appropriate action to be taken. Industrial Hygiene participates and advises in any fire fighting or fire practice drills at the Site.

Fire extinguishers, suitable for fires involving the materials being handled, are available in the facility.

7. Injuries

Individuals with injuries involving radioactive materials are treated in the Medical Department. Industrial Hygiene personnel are called to survey any wounds that occur in facilities where contamination of the wound could occur. First aid service is available at all times and an industrial nurse is available during day shift at the Site. A physician is available on call and arrangements have been made with local hospitals to handle patients, if necessary, from this facility.

8. Isotopes Committee

Check

The Isotopes Committee exists for review, approval, and consultation on the receipt, use, and handling of byproduct materials. The Committee will review and approve equipment and facilities that will utilize licensed material, protective measures, and control procedures. New projects, which involve significant deviations from previously approved procedures, facilities or materials will be submitted by the cognizant Manager for review and approval by the Isotopes

ATTACHMENT #6 (Cont.)
RADIATION PROTECTION PROGRAM (Cont.)

8. Isotopes Committee (Cont.)

Committee. New sealed source designs will be reviewed and approved by the Committee. These reviews will include consideration of the applicable federal and state regulations and license conditions. The Committee will meet when necessary or at three-month intervals and will maintain a permanent record of the minutes of each meeting.

The Isotopes Committee will have a minimum of five members including personnel with pertinent experience in matters dealing with radiation protection, facility design and operation, administrative control and general plant safety. Each committee member will have at least three years experience in nuclear activities and be competent in one or more of the specified activities.

The present committee consists of the following individuals:

Chairman: M. R. Beebe, Manager, Health Physics, Industrial Hygiene and Accident Prevention,
Astronuclear Laboratory

Secretary: D. A. Brown, Supervisor, S. S. Accountability,
Astronuclear Laboratory

A. T. Sabo, Manager, Industrial Hygiene and Safety,
Atomic Power Division

W. S. Geiger, Health Physicist,
Astronuclear Laboratory

J. A. Roll, Supervisor, Physical Sciences,
Astronuclear Laboratory

W. P. Kovacik, Manager, Astronuclear Experimental Facility

ATTACHMENT #6 (Cont.)
RADIATION PROTECTION PROGRAM (Cont.)

9. Receipt and Shipping of Materials

All packages of radioactive materials received at the facility are checked for contamination and radiation level by the Industrial Hygiene personnel.

All shipments of radioactive materials are surveyed by Industrial Hygiene before they are released, to assure compliance with AEC and ICC regulations or those of other regulating agencies. Shipments will be made according to ICC Regulations using carriers as designated in 10CFR30.7 or by Westinghouse trucks.

10. Leak Testing

Sealed sources will be leak-tested by Industrial Hygiene personnel. Each sealed source acquired from another person and containing byproduct material, other than Hydrogen 3, with a half-life greater than thirty days and in any form other than gas will be tested for contamination and/or leakage upon receipt and prior to use.

Each sealed source containing byproduct material, other than Hydrogen 3, with a half-life greater than thirty days and in any form other than gas will be tested for leakage and/or contamination at intervals not to exceed six months except that each source designed for the purpose of emitting alpha particles will be tested at intervals not to exceed three months.

The test will be capable of detecting the presence of 0.005 microcurie of radioactive material on the test sample.

ATTACHMENT #6 (Cont.)
RADIATION PROTECTION PROGRAM (Cont.)

10. Leak Testing (Cont.)

The test sample will be taken from the sealed source or from the surfaces of the device in which the sealed source is permanently or semipermanently mounted or stored on which one might expect contamination to accumulate. Records of leak test results will be maintained in units of microcuries. If the leak test of any sealed source, upon receipt or during use in any equipment, reveals the presence of 0.005 microcurie or more of removable contamination, the sealed source will be withdrawn from use, and it will be returned to the supplier, disposed of as waste, or will be repaired under the direction of the Radiation Protection Officer. A report will be filed within five days of the test with the Director, Division of Materials Licensing, U. S. Atomic Energy Commission, Washington, D. C. 20545, describing the equipment involved, the test results, and the corrective action taken. A copy of such report will also be sent to the Director, Region I, Division of Compliance, USAEC, 276 Hudson Street, New York, New York 10014.

ATTACHMENT #7

This attachment furnishes the information requested in Item 15 of the Application Form:

WASTE DISPOSAL

This facility is provided with a system of monitor drains which receive all radioactive contaminated liquids. These drains carry the liquids to a hold-up system where the liquids are held in tanks for sampling and analysis prior to release if this is necessary. Evaporation of high activity waste can be performed if necessary.

This waste treatment facility operates under Permit No. 2031IW issued by the Pennsylvania Sanitary Water Board. The permissible concentration of radioactive materials in the effluent are in accordance with the requirements of 10CFR20 as well as the Pennsylvania Permit.

Shipments of waste will be made according to ICC Regulations using carriers as designated in 10CFR30.7 or by Westinghouse trucks.