

MEDICAL X-RAY RADIATION SAFETY GUIDELINES AND PROCEDURES

1. THE USER OF THE X-RAY MACHINE SHOULD CHOOSE THE APPROPRIATE TECHNIQUE FACTORS FOR THE EXAMINATION WHICH WILL YIELD THE BEST QUALITY IMAGE AT THE LOWEST POSSIBLE PATIENT EXPOSURE.
2. THE USER SHOULD BE ACQUAINTED WITH QUALITY CONTROL TECHNIQUES SUCH AS DETERMINING THE BEST FILM-SCREEN COMBINATIONS, DEVELOPER TEMPERATURE AND REPLENISHMENT FREQUENCY, IN ORDER TO MINIMIZE RETAKES AND TO PRODUCE THE OPTIMUM X-RAY IMAGE QUALITY.
3. THE X-RAY FIELD SHOULD ALWAYS BE LIMITED TO THE AREA OF CLINICAL INTEREST BY PROPER SELECTION OF CONES OR COLLIMATION OF THE FIELD.
4. EMPLOYEES SHALL NEVER HOLD PATIENTS FOR X-RAYS, EXCEPT IN EMERGENCIES. IF THEY ARE HELD, PROTECTIVE GLOVES AND APRONS MUST BE WORN IN ACCORDANCE WITH WRITTEN PROCEDURES FOR HOLDING PATIENTS. ALTERNATIVE MEASURES, SUCH AS MECHANICAL HOLDING DEVICES, SHOULD BE USED TO PERFORM THIS FUNCTION.
5. PROTECTIVE DEVICES SUCH AS LEAD GLOVES AND APRONS SHOULD BE MADE AVAILABLE TO ALL EMPLOYEES IF THEIR USE IS INDICATED. PERSONNEL SHOULD ALSO UTILIZE PROTECTIVE SHIELDING BARRIERS TO THE FULLEST EXTENT AND SHOULD ALWAYS STAND BEHIND THE BARRIER PROVIDED WHEN MAKING X-RAY EXPOSURES.
6. THE USER SHOULD BE AWARE OF ALL RECENT STATEMENTS OF POSITION IN SAFE X-RAY PROCEDURES, SUCH AS THE USE OF PATIENT GONADAL SHIELDING AND THE X-RAYING OF FERTILE FEMALES.
7. THE LEGAL OCCUPATIONAL RADIATION EXPOSURE LIMITS MUST NOT BE EXCEEDED. ALL PERSONNEL SHOULD MAKE EVERY EFFORT TO KEEP THEIR RADIATION EXPOSURE AS LOW AS REASONABLY ACHIEVABLE.
8. ALL PERSONNEL SHOULD BE AWARE OF THE APPLICABLE PROVISIONS OF THE KENTUCKY RADIATION REGULATIONS, A COPY OF WHICH IS MAINTAINED IN THE X-RAY OFFICE. OTHER USEFUL REFERENCES WHICH SHOULD BE MADE AVAILABLE TO PERSONNEL UPON REQUEST ARE THE NATIONAL COUNCIL ON RADIATION PROTECTION PUBLICATIONS NUMBERS 33, 44, AND 49.

GUIDELINES FOR THE FLUOROSCOPIST

1. PROTECTIVE DEVICES SUCH AS LEAD DRAPES AND LEAD GLOVES AND APRONS SHALL BE USED.
2. THE TECHNIQUE FACTORS WHICH YIELD THE LOWEST POSSIBLE PATIENT EXPOSURE RATE CONSISTENT WITH THE HIGHEST QUALITY IMAGE SHOULD BE EMPLOYED. PERIODIC DETERMINATIONS OF PATIENT EXPOSURE RATE SHOULD BE MADE.

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## CABINET FOR HEALTH SERVICES

COMMONWEALTH OF KENTUCKY  
275 EAST MAIL STREET, HS 2 E-D  
FRANKFORT 40621-0001

DEPARTMENT FOR PUBLIC HEALTH

RADIATION HEALTH AND TOXIC AGENTS BRANCH

### NOTICE TO EMPLOYEES

#### STANDARDS FOR PROTECTION AGAINST RADIATION

The Kentucky Cabinet for Health Services has adopted Radiation Regulations with standards for your protection against radiation health hazards from radioactive materials or machines emitting radiation which are licensed or registered by Radiation Control.

#### YOUR EMPLOYER'S RESPONSIBILITY

1. Apply these regulations and the conditions of his license or registration to all work under the license or registration form.
2. Post or otherwise make available to you a copy of the Radiation Regulations, licenses, registration forms, and operating procedures which apply to Work you are engaged in and explain their provisions to you.

#### YOUR RESPONSIBILITY AS A WORKER

Always familiarize yourself with those provisions of the Kentucky Cabinet for Health Services Regulations and The operating procedures which apply to the work in Which you are engaged. You should observe their Provisions for your own protection and the protection Of your coworkers.

#### WHAT IS COVERED BY THESE REGULATIONS

1. Limits on exposures to radiation and radioactive materials in controlled (restricted) and uncontrolled (uncontrolled) areas:
2. Measures to be taken after accidental exposure:
3. Personnel monitoring, surveys, and equipment:
4. Caution signs, labels, and safety interlock equipment:
5. Exposure records and reports; and
6. Related matters:

#### RADIATION EXPOSURE REPORTS

1. The Radiation Control Regulations require that your employer give you a written report. If you receive an exposure in excess of any applicable limit as set forth in Radiation Control Regulations. These regulations specify the limits on exposure to radiation and exposure to concentrations of radioactive material in air and water.
2. If you work where personnel monitoring is required, and if you request information on your radiation exposures:
  - (a) Your employer must give a written report
  - (b) You employer must advise you annually of your exposure to radiation.

#### INSPECTIONS

All activities under the license or registration form are subject to inspection by representatives of Radiation Control. Kentucky Cabinet for Health Services.

#### INQUIRIES

Inquiries may be referred to:

Radiation Control  
Cabinet for Health Services  
275 East Main Street  
Frankfort Ky 40621  
Phone: (502) 564-3700  
<http://publichealth.state.ky.us/radiation.htm>

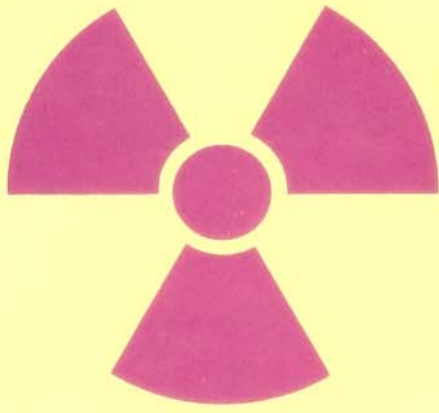
#### EMERGENCY PHONE NUMBER

(AFTER HOURS)  
(502)564-7815

#### POSTING REQUIREMENTS

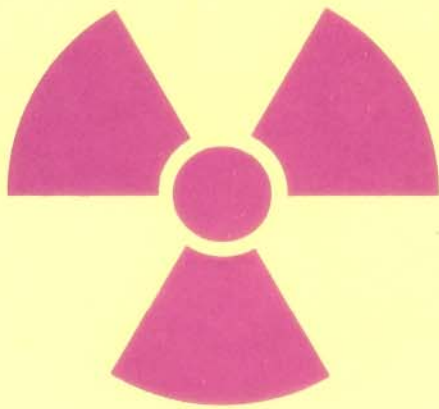
COPIES OF THIS NOTICE MUST BE POSTED IN A SUFFICIENT NUMBER OF PLACES IN EVERY ESTABLISHMENT WHERE EMPLOYEES ARE ENGAGED IN ACTIVITIES LICENSED OR REGISTERED BY RADIATION CONTROL. CABINET FOR HEALTH SERVICES. TO PERMIT EMPLOYEES WORKING IN OR FREQUENTING ANY PORTION OF A CONTROLLED (RESTRICTED) AREA TO OBSERVE A COPY ON THE WAY TO OR FROM THEIR PLACES OF EMPLOYMENT.

KR-441 (REV. 3/03)



**CAUTION:**

**RADIATION AREA**



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**RADIATION AREA**



## CABINET FOR HEALTH SERVICES

COMMONWEALTH OF KENTUCKY  
275 EAST MAIN STREET HS 2 E-D  
FRANKFORT, KY 40621-0001

DEPARTMENT FOR PUBLIC HEALTH

RADIATION HEALTH & TOXIC AGENTS BRANCH

### M E M O R A N D U M

TO: All Radiation Consultants

From: Robert L. Johnson, Manager  
Radiation Control Branch

SUBJECT: Radiation Consultants Listing ( Qualified Experts )

Date: Updated list March 21, 2003

Attached is an updated list of the health physics consultants that have been recognized by the Radiation Health & Toxic Agents Branch as meeting the training, experience, and/or licensing requirements for the following areas of service:

- A. Shielding design for diagnostic x-ray (D) and radiation therapy (T) facilities.
- B. Leak testing of sealed radiation sources and evaluation of radioactive material.
- C. Calibration of therapeutic x-ray units.
- D. Calibration of teletherapy units.
- E. Calibration of health physics instrumentation, primarily portable instrumentation.
- F. General radiation safety surveys and broad health physics services.
- G. Conducting Mammography Facility Surveys and provide oversight of the quality assurance program.

The letter in parentheses next to the attached list corresponds to the service area listed above.

Please direct all questions or concerns to Dewey Crawford at 502-564-7818 ext. 3695 or e-mail, [Dewey.Crawford@mail.state.ky.us](mailto:Dewey.Crawford@mail.state.ky.us)

**CABINET FOR HEALTH SERVICES  
COMMONWEALTH OF KENTUCKY  
275 EAST MAIN STREET HS 2 E-D  
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Updated March 21, 2003

Radiation Health and Toxic Agents Branch Web Site;  
<http://publichealth.state.ky.us/radiation.htm>

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| M. Douglas Allan, M.S.<br>4 Mohawk Trail<br>Huntington, WV. 25705<br>Ph. 304-526-1143   | (A(D) (T), C, D, F, G)       |
| John R. Ashburn, Ph.D.<br>Department of Radiation Medicine<br>Chandler Medical Center<br>800 Rose St.<br>Lexington, KY 40536-0084               | (A(D) (T), B, C, D, E, F)    |
| Lloyd W. Asp, M.S.<br>8295 Morgantown Rd.<br>Bowling Green, KY 42101  | (A(D) (T), B, C, D, E, F)    |
| Associates In Medical Physics, LLC<br>5284 Transport Blvd.<br>Cleveland, Ohio 44125<br>Ph. 216-663-7000<br>Email - HARRINGTONAMP@aol.com        |                              |
| Jeffrey L Brock, M.S.   | (A(D), B, E, F)              |
| Kathleen M. O'Brien, M.S.   | (A(D)), F)                   |
| William H. Payette Jr., B.S.  | (A(D), F)                    |
| Jeff Harrington, M.S.   | (A(D), B, E, F)              |
| Barbara A. Jarab, B.A., R.T. (M)  | (A(D), E,)                   |
| Paul G. Johnson, M.S., DABHP  | (A(D), B, E, F, G)           |
| Frank Daffin, Ph.D.   | (F, G )                      |
| Atomic Energy Industrial<br>Laboratories of The Southwest<br>9261 Kirby Drive<br>Houston, TX 77054-2514<br>Ph. 713-790-9719<br>Stephen H. Allen | (B, E)                       |
| Thomas E. Banks, M.S.<br>Consultant, Radiological Physics<br>1274 Cherokee Road<br>Louisville, KY 40204 - 2205<br>Ph. 502-452-6946              | (A(D) (T), B, C, D, E, F, G) |

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Robert F. Turco, Ph.D.  
The Medical Physics Group LPD  
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35888 Center Ridge Road  
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Ph. 216-327-9432

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**Chemical Disposal:**

( Dispose of coolant oil from x-ray equipment generators and tube heads ).



Environmental Solutions  
Wayne Mosley  
Lexington, KY  
Ph. 859-252-0321

Envirodata Group  
Ann Gladwell  
2520 Regency Rd.  
Lexington, KY 40503  
Ph. 859-276-3506

**Lead Shielding Suppliers:**

Patson Lead Inc.  
114 Center St.  
Wilder, KY 41071  
Ph. 800-618-5323 Ext. 13

Preston & Associates Inc.  
32 Red Cross Court  
Florence, KY 41042  
Ph.: 859-384-1292  
Fax: 859-384-9118  
Email: PrestonAssocInc@aol.com

Consultants-Radiation.doc



## CABINET FOR HEALTH SERVICES

COMMONWEALTH OF KENTUCKY  
275 EAST MAIL STREET, HS 2 E-D  
FRANKFORT 40621-0001

DEPARTMENT FOR PUBLIC HEALTH

RADIATION HEALTH AND TOXIC AGENTS BRANCH  
<http://publichealth.state.ky.us/radiation.htm>

Dear Pre registrant:

Attached is a registration application showing the pre registration number assigned to your facility. Always reference the last four digits when writing or calling the Radiation Control Branch. This number will become your registration number after your equipment is installed and activated.

Enclosed is a copy of the Radiation Safety Regulations and other information pertinent to your x-ray facility. It is suggested that you begin a file at this time where information relating to your registration, equipment, and the regulations can be easily located for your use or reference by the Radiological Health Inspector who will make periodic visits to your facility. This file is a requirement of 902 KAR 100:105 Section 2 (h).

Finally, retain this application until your equipment is installed. Then provide any incomplete machine or vendor information, sign, date and return to the address indicated on the reverse side of the form. Keep a copy for your file. If you do not have a means to copy, simply request a copy and one will be provided.

Of course, if you ever have questions regarding your x-ray equipment or registration do not hesitate to contact this office at (502) 564-3700.

Sincerely,

A handwritten signature in cursive script, appearing to read "Dewey F. Crawford".

Dewey Crawford, B.S. R.T., R (N)  
Supervisor Radiation Control Branch  
Division of Environmental Health  
Community Safety

Enclosures



KENTUCKY CABINET FOR HEALTH SERVICES

Radiation Health & Toxic Agents Branch

County \_\_\_ Dis \_\_\_ Insp \_\_\_

REGISTRATION APPLICATION FOR RADIATION PRODUCING MACHINES

For Department use only
Registration Number

DEPARTMENT FOR PUBLIC HEALTH

- 1. Facility Name:
2. Name of owner and/or user:
3. Address of Installation:
4. Mailing Address:
5. Contact Person:
Fax Number: ( ) E-mail:

6. Radiation producing machines: Fill in applicable blanks (see codes listed below):

Table with columns: Select No. From list below (TYPE, PURPOSE), Maximum (KVP, MA), Check appropriate box (Fixed, Mobile, Portable), Manufacturer, Model & Serial No., Room No./ Location. Includes sub-labels Control Panel and Tube Housing.

- TYPE: 1. Radiographic, 2. Fluoroscopic, 3. Combination (1&2), 4. Dental, 5. Therapy, 6. Photofluorographic, 7. Diffraction, 8. Other: Specify
PURPOSE: A. Human use: Diagnostic, B. Human use: Therapeutic, C. Animal use, D. Research, E. Industrial, F. No longer in use, in storage, G. Other: Specify

Equipment Vendor:
Vendor Registration No.:
Vendor's Address:
Signature (owner):
Application Date:
Date of Initial Operation:
Vendor's Telephone Number: ( )

## INSTRUCTIONS

Kentucky Cabinet for Health Services Radiation Control Regulations require the owner of radiation producing machines to register such items with the Kentucky Cabinet for Health Services within ten (10) days following the acquisition of the registrable item(s).

### Facility Name

The common name used daily. In most cases, this will be the same as item 2, e.g. John J. Jones, DMD or Centerville Hospital, Inc. The facility name may be Family Dental Clinic or Radiology Associates while item 2 will be a corporate (PSC) or individual's name. The best guide is the name used when answering the telephone.

### Owner

For the purposes of this regulation, the name of the owner must be the person, lessee, or bailee having legal title to, or legal possession of the registrable item. "Person" means any individual, corporation, partnership, firm, association, trust, estate, public or private institution, group, agency, political subdivision of this Commonwealth, any other state or political subdivision thereof, and any legal successor, representative, agent, or agency of the foregoing, other than Federal Government agencies.

### Address

The address shall mean the physical location where the registrable item(s) will be used and/or stored.

### Radiation Safety Officer

The owner or person in custody of the registrable item shall perform or provide for the services of a Radiation Safety Officer and with his advice shall establish operating rules and procedures which will provide reasonable assurances that the provisions of the Kentucky Radiation Regulations are being carried out. No person shall assume or be designated a Radiation Safety Officer unless he is qualified by training and experience to assume the responsibilities of informing himself of all the hazards and precautions involved in the activity for which he is designated as Radiation Safety Officer.

### Contact Person

Please designate an individual who can be contacted to schedule inspections and answer related questions. Also indicate telephone number.

FORWARD THE COMPLETED REGISTRATION APPLICATION TO:

CABINET FOR HEALTH SERVICES  
RADIATION HEALTH AND TOXIC AGENTS BRANCH  
275 EAST MAIN STREET, HS2E-D  
FRANKFORT, KY 40621  
TELEPHONE NO. (502) 564-3700

**Registration Does Not Imply Approval Or Disapproval And Is Not A License**



## CABINET FOR HEALTH SERVICES

COMMONWEALTH OF KENTUCKY  
275 EAST MAIL STREET, HS 2 E-D  
FRANKFORT 40621-0001

7/16/2003

DEPARTMENT FOR PUBLIC HEALTH

RADIATION HEALTH AND TOXIC AGENTS BRANCH  
<http://publichealth.state.ky.us/radiation.htm>

### **BEFORE OPENING AN X-RAY FACILITY IN KENTUCKY, PLEASE READ THIS INFORMATION FROM THE RADIATION CONTROL BRANCH.**

- The first step in establishing an x-ray facility is to call Radiation Control and pre-register with the program. At that time you will be informed of the steps, which must be taken.  
The telephone number is (502) 564-3700.
- It is a violation of the radiation safety regulations to obtain an x-ray device before pre-registering with the program.
- It is a violation to obtain an x-ray device from an x-ray vendor (company) that is not registered with Radiation Control. This includes out of state firms or mail order purchases.
- All x-ray installations must have a letter approving the radiation protection (shielding) aspects of the installation before it is used. Dental facilities equipped with intraoral and/or panoramic equipment only need to submit a scale floor plan showing position of the tube(s) and identifying adjoining spaces and exterior walls, if any. Cephalometric units (and adaptable mounts) and all medical use equipment require a shielding evaluation by a state listed qualified expert plus an accompanying floor plan.
- If an individual other than a licensed practitioner of the healing arts will take x-rays at a **medical, chiropractic or podiatry** facility, the Radiation Control program must certify that individual before taking x-rays. An uncertified person may not position a patient, set technique factors or actuate the exposure switch even in the presence of a practitioner.
- Remember that Radiation Control is your best source of information regarding the safe use of x-ray equipment and the protection of personnel from unnecessary radiation.



## CABINET FOR HEALTH SERVICES

COMMONWEALTH OF KENTUCKY  
275 EAST MAIL STREET, HS 2 E-D  
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<http://publichealth.state.ky.us/radiation.htm>

### GUIDE FOR ADDITION OR REPLACEMENT OF X-RAY MACHINE

This brief guide is meant to assist in understanding the basic requirements and steps to address or replace x-ray equipment.

Shielding plan requirements are found in Kentucky Administrative Regulation 902 KAR 100:160.

1. Prior to modification of a facility or replacement of radiation producing equipment contact the Kentucky Radiation Control Branch to review the steps and verify your registration number.
2. Contact a "qualified expert" (physicist) from the enclosed list to develop the radiation-shielding plan.

**NOTE:** (Dental X-Ray Equipment) Due to the collimation and energy of dental x-ray equipment a variance has been issued and is applies as follows;

- a. Dental offices are required to submit a floor plan denoting the location of all dental equipment. The plan may be formal blue print or a plan, neatly drawn to  $\frac{1}{4}'' = 1'$  scale.
  - b. A shielding plan is not required for neither panoramic nor inter-oral dental x-ray equipment.
  - c. Shielding plans must be developed for cephalometric dental x-ray equipment and approved by the Cabinet for Health Services, Radiation Control Branch prior to installation and use.
3. A copy of the shielding plan, floor plan identifying position of x-ray equipment, use of adjoining rooms and the appropriate processing fee must be submitted to the RBC for approval. In many instances, the x-ray equipment vendor will include shielding arrangements as part of the service. According to Kentucky Administrative Regulation, ultimately the responsibility lies with the registered facility.
  4. Please allow 30 days for the Radiation Control Branch to review and process the shielding plan.

Revised 08/22/03



## CABINET FOR HEALTH SERVICES

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275 EAST MAIN STREET, HS 2 E-D  
FRANKFORT 40621-0001

DEPARTMENT FOR PUBLIC HEALTH

RADIATION HEALTH & TOXIC AGENTS BRANCH

### DOSIMETRY PROVIDERS

In accordance with Kentucky Administrative Regulation 902 KAR 100:019, Section 12 (3) (a) and (b) registrants shall use dosimetry processors holding current personnel dosimetry accreditation from the National Voluntary Laboratory Accreditation Program (NAVLAP) of the National Institute of Standards and Technology.

Companies not listed but desiring to provide dosimetry services in the State of Kentucky should submit a letter of request along with a copy of their NAVLAP certificate to the above address.

Atomic Energy Industrial Laboratories  
Of The South West INC.  
9261 Kirby Dr.  
9262 Houston, TX 77054-2514  
Ph. 713-790-9719  
<http://www.aeil.com>

Radiation Detection Company  
162 Wolf Road  
P.O. Box 3414  
Sunnyvale, CA 94088  
Ph. 408-735-8700  
<http://www.radetco.com>

Landauer, INC.  
2 Science Road  
Glenwood, IL 60425-1586  
Ph. 800-323-8830  
<http://www.landauerinc.com>  
Radiation Detection Company

U.S. Dosimetry Technology, INC.  
660-A George Washington Way  
Richland, WA 99352  
Ph. 800-448-8738  
No WWW

<http://www.troxlerlabs.com>

ICN Dosimetry Services  
P.O. Box 20889  
Fountain Valley, CA 92728  
Ph. 800-251-3331  
<http://www.dosimetry.com>

Proxtronic, Inc.  
5795 – B Burke Center Parkway  
Burke, VA 22015  
Ph. 800-435-4811  
<http://www.proxtronic.com>

Quantum Products  
P.O. Box 1003  
Teaneck, NJ 07666  
Ph. 800-359-9686  
No WWW

Troxler Radiation Monitoring  
P.O. Box 12057  
Research Triangle Park, NC 27709  
Ph. 919-549-8661

dosimetry providers. Doc  
Updated January 11,2001



# **PREGNANT?**

or think you might be . . .

tell your doctor  
before getting  
an x ray or  
prescription

Distributed by the Food and Drug Administration and the American College of Obstetricians and Gynecologists

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE • PUBLIC HEALTH SERVICE • FOOD AND DRUG ADMINISTRATION ROCKVILLE, MD, 20867

HEW Publication No. (FDA) 78-1045



# RADIATION OPERATOR CERTIFICATION

## GENERAL INFORMATION

### A. Who must be certified?

All diagnostic x-ray machine operators employed by or working for (in) the Professions of medicine, chiropractic and podiatry.

### B. Methods to obtain certification.

1. General Certification-Those individuals that have graduated from a two (2) year Radiography Program approved by the state and hold a valid certificate from the American Registry of Radiologic Technologists (ARRT).
  - a) General Certificate-Issued to those individuals who have completed the above course and hold a valid certificate from the American Registry of Radiologic Technologists (ARRT).
  - b) Temporary Certificate-Issued to those who have completed the above course and are awaiting examination with the ARRT.
2. Limited Certification-Those individuals holding a Limited Certificate cannot be employed as radiation operator at a facility which utilizes contrast media (i.e. gall bladder, GI series, IVP, etc.).
  - a) Institutional Program-A limited radiography program approved by the state at a Kentucky Technical College.
  - b) Independent Study Course-A limited radiography correspondence course is available from the Radiation Health & Toxic Agents Branch. This course is designed for an individual who is working in a doctor's office or medical clinic where limited radiography (non-contrast) procedures are performed. This course cannot exceed one (1) year.

### C. Fees

1. General and Limited Certificates-\$60.00. This includes a twenty-five (\$25.00) dollar registration fee and a thirty-five (\$35.00) dollar certificate fee. These certificates are valid for 2 years.
2. Temporary Certificate-\$50.00. This includes a twenty-five (\$25.00) dollar registration fee and a twenty-five (\$25.00) dollar certificate fee. This certificate is valid for one (1) year only.

Should you need additional information, please call (502) 564-3700 or write to the address listed below.

Radiation Health & Toxic Agents Branch  
275 East Main Street  
Frankfort KY 40621