

RPR 2C-1. RADIATION MACHINE USE APPLICATION
(X-RAY MACHINES, PARTICLE ACCELERATORS AND SEALED-SOURCE IRRADIATIONS NOT TO BE USED ON HUMANS)

In addition to the RESPONSIBLE USER'S TRAINING & EXPERIENCE (RPR 2A), the PERSONAL DATA form (RPR 1A), submit the following:

___ "RADIATION USER TRAINING & PERSONAL DATA" forms (RPR 1A) for all other individuals who will work in the same location (faculty, staff, students).

___ Detailed description of irradiators or radiation machines including safety devices, e.g. open beam, closed beam, interlocks, warning lights, shutter indicators (open-closed) x-ray tube status (on-off).

___ Description of facilities where radiation machines or irradiators will be used, including building, rooms, shielding, security arrangements, etc.; include diagram of layout as appropriate.

___ Description of any available instruments for radiation surveys or monitoring.

___ Step by step operating procedures to be used by all personnel while operating equipment.

___ Outline of instruction to be given to all users addressing items such as possible hazards, significance of safety devices, operating procedures, symptoms of acute localized exposure, and procedures to be followed in reporting suspected or actual exposure. (No person will be permitted to use equipment without this instruction).

I have read the University's Radiation Safety Manual and understand the conditions and regulations contained in it. With respect to the requested radiation sources and proposed uses, I acknowledge and accept the responsibility for:

- a) radiation protection instruction for all involved personnel;
- b) acquisition of the equipment, supplies and/or services necessary for radiation protection;
- c) notification of the RSO of any accident or abnormal incident;
- d) arranging for authorization of another individual to assume the preceding responsibilities, or to suspend or terminate all radiation uses, prior to any extended absence.

Signature of Responsible User: _____ **Date:** _____

RPR 2C-2. ANALYTICAL X-RAY MACHINE APPLICATION CHECKLIST

Responsible user: _____

Phone: _____

Location (Bldg. & Room) _____

Installation date: _____

Type and use

Manufacturer Model Serial No.

- Open beam
- Fully enclosed [CX]
- Diffraction [XD]
- Fluorescence [XF]

Control unit: _____

Number of ports available: _____ In use: _____

Target material _____ Max. kVp _____ Max. mA _____

Accessory equipment (powder cameras, goniometers, etc.) _____

Application date _____

FACILITY REQUIREMENTS

- | | | |
|---|-----|----|
| “CAUTION – X-RAY EQUIPMENT” (or equivalent) sign at entrance? | Yes | No |
| “NOTICE TO WORKERS” (NRC form 3) posted conspicuously? | Yes | No |

X-RAY EQUIPMENT REQUIREMENTS

Safety Devices

Required on open beam units – a device that prevents any portion of the body from entering the primary beam, or a device that terminates the beam if obstructed. Yes No

IF “NO”, has exemption been filed? Yes No

Signs and Labels

“CAUTION: HIGH INTENSITY X-RAY BEAM: - on source housing? Yes No

“CAUTION – RADIATION. THIS EQUIPMENT PRODUCES RADIATION WHEN ENERGIZED”
- near switch used to turn on unit? Yes No

Warning lights or Devices – All Units

“X-RAY ON” light – near any switch that energizes and near any x-ray port. Yes No

The warning light(s) **shall** be fail-safe. Yes No

Additional warning devices required for open beam units

X-RAY TUBE STATUS, “ON/OFF” – located near the radiation source housing, and at or near the port, if the primary beam is controlled in this manner. Yes No

Shutter Status “OPEN/CLOSED” – located near each port on the radiation source housing, if the primary beam is controlled in this manner. Yes No

All warning devices must be fail safe. Yes No

Ports and Shutters

Unused ports on radiation source housing **shall** be secured in the “closed” position in a manner that will prevent casual opening, i.e. without the use of tools. Yes No

On equipment installed after November 1983, open beam units **shall** have ports equipped with a shutter that cannot be opened unless a local component has been connected. Yes No

OPERATING REQUIREMENTS

Are written operating procedures available to all users of x-ray equipment? Yes No

RPR 2C-2. ANALYTICAL X-RAY MACHINE APPLICATION CHECKLIST (cont'd)

PERSONNEL REQUIREMENTS

Have all persons operating x-ray equipment received both Institutional Analytical X-Ray and on-the-job instruction and demonstrate adequate knowledge of:

radiation hazards associated with use of equipment;	Yes	No
significance of radiation warning and safety devices;	Yes	No
operating procedures;	Yes	No
symptoms of acute localized exposure;	Yes	No
procedure for reporting actual or suspected exposure?	Yes	No

Personal Monitoring

For open-beam systems, have personal monitoring devices (ring badges) been issued? Yes No

If "Yes", are they used in compliance with University requirements? Yes No

RADIATION SURVEY EQUIPMENT

Radiation survey meter(s) available at facility:

Make/Model: _____ Ser. No. : _____ Calibration Date: _____

Make/Model: _____ Ser. No. : _____ Calibration Date: _____

Upon completion, send this application checklist to:

Technical Safety Office
Box 8106