



## X-ray Analysis Equipment Survey Form

Date....., Contact and No.....

### Registration

Department				Room	
Make				Model	
S/N				Power	
Max KV				Max mA	
Records	registration	monitoring	radiation surveys	accident reports	training
	OH & S				

### Licence and users – use, use and service(restricted), use and service

Licence Number	Names

### Training and Working rules

All users trained	
Records of training	
Safety and Working procedures available	
Read by all users	
Supervision of users	

### Warning signs and Lights

Room warning sign		Room warning light XRAYS ON	
Machine sign		Shutter light for each port	
Machine light XRAYS ON		Shutter lights SHUTTER OPEN	
Fail safe warning lights – switch off machine if light fails			

<b>5.3.1 Interlocks</b>	Permanently attached or interlocked to shutter
(5.3.1.1) Difficult to render ineffective	Dose at 5cm <25 microGy/hr
(5.3.1.2) Reliable	Tube can be operated from outside enclosure
(5.3.1.3) Electric interlocks difficult to bypass	Shielded collimator tube
(5.3.1.4) Dual interlock micro-switches	
	Partly Enclosed Units
<b>5.3.2 Tube Housing</b>	Prevents inadvertent exposure to hands or body
(5.3.2.1) Strength and thickness adequate	Permanently attached or interlocked to shutter
(5.3.2.2) Apertures – shutter or interlocked enclosure	Shielded collimator tube
(a) Dose at 5cm <25 microGy/hr	Dose at 5cm <25 microGy/hr
(b) De-energizes machine on removal of cover	Beam directed away from occupied areas or beam stops
	Separate room or cubicle
<b>5.3.3 Tube shutters</b>	Easy to operate control with interlocks in place
(5.3.3.1) Dose at 5cm <25 microGy/hr	
(5.3.3.2) Fail safe on power failure	Working rules
(5.3.3.3) Need tools to remove	
(5.3.3.4) Interlocked to tube housing	Monitoring
<b>5.3.4 Enclosures – at least one of the following</b>	Personal Monitoring
(a) Need tools to remove from tube housing	Worn by each person in the area
(b) Interlocked to tube housing	Additional – finger etc used
(c) Detachment closes relevant shutter	
	Monitoring equipment

<b>5.3.5 Beam stops</b>	Accuracy +-50%
(a) Dose at 5cm <25 microGy/hr	Response < 20 s at 10 microGy/hr
(b) Fixed part of unit	Calibrated
(i,ii) Interlocked to de-energise tube, closes relevant shutter	Monitored at maximum kVp and current
	Period – Enclosed quarterly
	- Partly enclosed monthly
<b>5.3.6 Warning signs, lights and labels</b>	
(5.3.6.1) Illuminated light/sign	Records kept
(5.3.6.2) Readable from 2m on all accessible sides of machine	
(5.3.6.3) Energised when tube is energised	Service
(5.3.6.4) Shutter lights	Records kept
(5.3.6.1) Warning sign on cubicle/area	
(5.3.6.1) Warning light (if not enclosed unit)	Positive fail safe
(5.3.6.1) Lights and signs red or orange	Perspex enclosure (XRD)
(5.3.6.1) Lights fail-safe	Only register as shut when fully shut
(5.3.6.1) Partially enclosed barrier incomplete warning	Software controlled – failsafe
(5.3.6.1) Partially enclosed warning for hands	Number of ports
(5.3.6.1) Clearly labelled as enclosed or partly closed	Independent shutter operation
	Enclosure for unused ports
Radiation Shields	
Steel etc or supported lead	<b>Enclosures</b>
	X-ray enclosure, lead loaded PVC
Barriers	Enclosure door interlocks
Sufficient strength to prevent access	Controls outside enclosure
	Keyed over ride for alignment
Enclosed Units	Qualified XRA personnel with key
Enclosure covers primary beam area preventing exposure to hands or body	
<b>Radiation monitoring - Personal</b>	<b>Equipment repair/Maintenance</b>
Type of personal monitors	High voltage disable whilst maintaining power to electronics
Finger monitors	Shielding integrity checks after service
<b>Radiation monitoring – Equipment</b>	Service persons name, contact number and Licence number
Leakage <25 µGy/hr at 5 cm	Records of service kept
Leakage at maximum factors	Tag outs available and used
Leakage without filters	
Carried out quarterly (fully enclosed)	
Carried out monthly (partially enclosed)	
Type of monitoring instrument used	

**Comments**
