

Radiology Compliance Branch
RADIATION PROTECTION SECTION



Division of Health Service Regulation • N.C. Department of Health and Human Services

ANALYTICAL INSPECTION CHECKLIST

**X-ray diffraction (XRD), X-ray fluorescence (XRF), spectroscopy,
particle size analysis and components utilizing X-rays to determine the elemental composition or
to examine the microstructure of materials**

North Carolina Regulations For Protection Against Radiation [10A NCAC 15](#) rule references shown in brackets below.

General Documents:

- Waivers on file (if applicable) [.0108(a)]
- Report of Sale / Installation Report [.0115]
- Current Notice of Registration [.0209] [.1002(a)(2)]
- Current State Regulations [.1002(a)(1)]
- Notice to Employees [.1002(c)] (posted in restricted area)

Operating Requirements / Radiation Protection Program

- Operating requirements [.0805]; [.1002(a)(3)]
- Current copy of the radiation protection program [.1603(a)]

Open Beam Indicators

- X-ray Tube Status:** (ON-OFF) Located near the radiation source housing [.0803(d)(1)]
Or
- Shutter Status:** (OPEN-CLOSED) Located near each port on the radiation source housing [.0803(d)(2)]
Or
- Beam Status:** (ON-OFF) Located near each port on the radiation source housing [.0803(d)(2)]

Labels

- "CAUTION HIGH INTENSITY X-RAY BEAM" near exit port to identify location of beam [.0803(j)(1)]
- "CAUTION - RADIATION - THIS EQUIPMENT PRODUCES RADIATION WHEN ENERGIZED"
(located near any switch that energizes an x-ray tube) [.0803(j)(2)]

Warning Lights [.0803(k)(l)]

- Labeled: "X-Ray On"
- Located: Near any switch, that energizes tube **or** conspicuously located near source / beam(s)
- Visible: From all instrument access areas
- Activates: When energized

Area Requirements [.0804(c)]

- "CAUTION- X-RAY EQUIPMENT" posted at each area of use or room

Unit Security [.1622]

- Security of equipment

Records:

- Training documentation of person responsible for radiation protection [.0203(b)(3)]
- Survey reports: [.0804(b)]; [.1613]; [.1637]
 - Within 30 days of initial operation
 - Prior to use following any change in initial arrangement
 - Prior to use following maintenance
- Annual testing for proper operation of safety devices (interlocks/shutters/warning lights) [.0805] (*eff.10/1/15*)
- Operating and emergency procedures training documentation records [.0806 (a)(2)]
- Annual radiation protection program review by registrant [.1603(c)]; [.1636]

Personnel Requirements:

- Ring or Wrist personnel monitoring equipment [.0806(b)] (**OPEN BEAM REQUIREMENT**)
- Personnel monitoring and exposure records [.1614]; [.1640]

