

## Radiation Safety Program for (name of facility)

### I. Introduction

Operation and safety procedures for **(name of facility)** x-ray equipment and facility will be created, as required by the North Carolina Regulations for Protection Against Radiation (NCRFPAR) Section .0600 "X-rays in the Healing Arts" and .1603 "Radiation Protection Programs". These procedures must be posted at the location where employees may view them on their way to and from any particular work location to which the document applies. They may be posted by reference with a notice indicating where they are kept. [Rule .1002 (a) & (b)]

The current NC Regulations are found **(location)** for any reference needed

- II. **Radiation Safety Officer - (name of doctor)** is the Radiation Safety Officer (RSO)
  - a. The RSO has the responsibility and authority for overseeing matters relating to radiation protection.
  - b. The RSO also confirms all training and serves as the contact person with the state.
  - c. QA Procedures shall be performed at the specified intervals (deemed appropriate by the RSO) and by the RSO, **(name of doctor)**. Records of QA Tests and services are kept by **(Dr. Name)** and stored in the **(location)**.
  
- III. **Required Documents** - These instructions are provided to you so that we can comply with the state rules for radiation control. The North Carolina Division of Radiation Protection enforces the radiation rules in North Carolina. These rules require that our radiation machines meet specific requirements. The rules also require that certain procedures be followed and that certain records be kept. A copy of these rules is always available for you to read and review. It is entitled the North Carolina Regulations for Protection Against Radiation (NCRFPAR) and is **(location)** with the regulatory guide.
  - a. All required documents such as plan of review, letter of acknowledgement, current registration and post installation survey, FDA 2579 Form etc. are in **(location)**.
  - b. The intent of this manual is to establish procedures to minimize radiation exposure of x-ray personnel and patients without sacrificing diagnostic quality. You (the employee) are required to know the procedures and requirements in this manual and be able to demonstrate that you can use them properly. All operators of the x-ray machine shall read and sign the written Radiation Safety Program for **(name of facility)** each year.
  - c. The rules also require that each x-ray facility be registered with the State. The Notification of Registration is located in **(location)**. [Rule .1002]

### IV. Personnel Training Policy

- a. All personnel taking x-rays shall become x-ray certified with the NC Board of Chiropractic Examiners X-ray Certification Program. He or she will read this manual and demonstrate that you can use the machine safely and correctly, then you must sign and date the “Record for Instruction of Individuals in Operating and Safety Procedure” provided in this manual (see Appendix A).

**V. Technique Chart**

- a. **(information concerning your technique chart, pre-programmed units, aec units, etc.)**

**VI. Operation and Safety Procedures - Operating and Safety Procedures for (name of doctor), (name of facility)**

- a. We have established a restricted area in the room in which the x-ray equipment is located when the machine is in operation. The restricted area is **(location)**. The area is designated by a **(“Caution Radiation Area” Sign or whatever you have designating radiation area)**.
- b. Do not allow anyone in the room with the patient during an x-ray examination other than the x-ray technician (who shall remain behind the lead wall). Our staff will be behind the protection barrier and not in a position of exposure at any time. If other persons are needed for the examination, they must have protective shield devices and shall keep out of the direct beam. (Extremely rare event if ever in our office.)
- c. Always use gonadal shielding unless they obstruct the image. [Rule .0603 (a)(1)(F)]
- d. All operators of x-ray machines are responsible for following the radiation safety procedures. Employees should submit all radiation questions or concerns about radiation safety to the RSO.
- e. Make sure that all x-ray examinations and “retakes” have been ordered by the doctor in charge for the day. [Rule .0603 (G)]

**VII. Ancillary support of patient during an exposure**

- a. Remove any unnecessary staff or other persons from the room during x-ray examinations [Rule .0603 (a)(1)(E)]
- b. If you must be in the room during x-ray examinations, keep your body out of the beam and wear the protective lead shield. The protective equipment is located in the x-ray room.
- c. When other people can't be removed from the area, such as in restraining or positioning needs, place lead shielding between the beam and the other person.
- d. Use mechanical holding devices when a patient or the cassette must be held. [Rule .0603 (a)(1)(H)(i)] If a mechanical holding device cannot be used, such as for the elderly or a child, select someone that came with the patient to assist, making sure they are not pregnant by verbally asking if pregnant or potentially pregnant, over the age of 18, and is rarely exposed to x-ray examinations, and then keep them out of the primary beam and

use lead shielding. If no one described above is available, a staff member may be used as a last resort providing they are not pregnant by verbally asking (or potentially pregnant, over the age of 18 and seldom holds a person during x-ray examinations). Last resort for emergency only, otherwise, refer patient to hospital or radiology center.

- e. If a patient must be held, the holder must be wearing protective lead shielding that have been properly positioned. [Rule .0603 (a)(1)(H)(ii)(iii)(iv)]
- f. If the patient is pregnant or potentially pregnant, no x-rays shall be taken at that time. Patient will be instructed to take a pregnancy test and/or confirm menstrual cycle started before x-rays shall be taken. **(This is our office policy, you may insert your own facility policy here.)**

**VIII. Mobile / Portable Exams – (use of mobile units outlined as well as shielding a patient or moving a patient unable to leave room during exposure.)**

**IX. Visual Contact of Patient / operator location**

- a. Stay in the control booth (station, behind the lead wall barrier, etc) during each exposure.[Rule.0606 (b)(2)(B)(i)]
- b. While in the control booth, observe all indicator lights/signals. [Rule.medical.0606(b)(2)(B)(ii)]
- c. Always maintain visual and aural contact with the patient by using your eyes and ears and the observation window at the barrier wall. [Rule .0604 (b)(1)(C)]

**X. ALARA: Procedures & Engineering controls used to achieve occupational doses & dose to the members of the public**

- a. At no time shall the x-ray machine be in operation without the lead door to the x-ray room closed. The door has a sign clearly labeling it radiation area when closed.
- b. Employees shall be aware of the Occupational Dose limits of 5 rems: total effective dose to the whole body, 15 rems: eye dose equivalent to the lens of the eye, 50 rems shallow dose equivalent to the skin and/or any extremity. **(You may insert your facility policy here regarding who is allowed / not allowed in radiation area during exposures.)**

**XI. Pregnancy policy – employee**

- a. No employee shall take x-rays or be in the x-ray room if the employee is pregnant. This shall be determine by (your office policy).

**XII. Occupational dose monitoring**

- a. Personnel Monitoring – **(Monitoring badges used / or if no badges use you must provide documentation of how your facility met compliance. For example: N/A A testing period with badges found zero exposure and by office policy, no staff are allowed to be exposed. (A parent shall hold a child for positioning, if necessary,**

**with proper shielding.) With our procedures, we have been tested and found no exposure to employees with dosimetry badge testing. See attached badge report history. )**

[Regulatory Guide, "Appropriate Personnel Monitoring" may be helpful in interpreting and applying the personnel monitoring requirements in the workplace.]

**XIII. Exposure limits/ exceeding**

- a. If you suspect there has been an excessive exposure, or a radiation incident, immediately notify **(Dr. Name)**, the RSO. The RSO will then notify the Division of Radiation Protection. The address is: Division of Radiation Protection, 1645 Mail Service Center, Raleigh, NC 27699-1645. The telephone number during working hours is 919-571-4141(current as of 5-27-09). Patient information (name, date of birth, etc) shall be obtained through patient records and estimated dose, cause of elevated exposure, corrective action taken.
- b. Try to keep your personal radiation exposure as low as you can. Be aware of where you are standing and how long you stay in the radiation area. Do not enter or remain in a radiation area unless it is necessary. **(We state our office policy of no additional personnel exposure again here.)**

**XIV. Additional safety measures**

- a. The general requirements for radiation safety and your rights and obligations as a radiation worker are found in NCRFPAR, Section .1600, .0604, .0605, .0606, .0608, .0609. You need to read these parts. These are sections of the NCRFPAR that describe requirements for radiography, fluoroscopy, and therapy.
- b. The x-ray equipment in this facility was installed following the manufacturer's specifications. Do not alter, tamper with, or remove any of the filters or collimators, or in any way cause needless radiation exposure. During operation of X-Ray Equipment:
- c. Restrict the x-ray beam to the area of clinical interest. The beam size must not be larger than the image receptor. The method you use for restricting the beam is by collimating to film size or body part size.
- d. Align the x-ray beam with the cassette by using the light localizer and the centering device. [Rule .0606 (a)(1)(B)]

**XV. Protective Equipment**

- a. Check the lead shield by looking for holes, cracks or tears. If a defect is found, notify the RSO.

**XVI. Cassette Digital Processing and Quality Assurance**

- a. The Agency does not specifically require quality assurances, but allows the facility to have a wide range of tests, checks, and procedures in its quality assurance (QA) program. The Agency has compiled this section to describe the minimum standards that are necessary for QA and to offer

samples of additional checks and tests run by many facilities. The commitment of practitioners and staff to quality radiographs and quality diagnostic imaging will determine the scope of the QA program. Care in selecting the QA tests, routine intervals, and acceptability limits will enhance the resulting images (the facility's goal) and reduce the number of retakes and additional exposure (the Agency's goal). We will monitor changes in the Q-value and collimator congruency tests based on observational need.

**XVII. Basic Procedures**

- a. Unexposed cassettes are stored **(location)**. Cassettes are erased per manufacturer specifications. **(If digital, your what ever other method you process cassettes.)**
- b. Process radiographic images according to (whatever image system your facility has) in dark room.
  - i. Quality Assurance
  - ii. Collimator Congruency Test

QA Procedures shall be performed at the specified intervals (deemed appropriate by the RSO or manufacturer recommendations) and performed by the RSO, **(name of doctor)**. Records of QA tests and services are kept by **(Dr. Name)** and stored **(location)**.

The patient exposure log book also contains records of routine checks as is test file in computer record of images.

**XVIII. Certifying Statement**

These procedures have been developed to ensure safe radiological working conditions. Everyone must adhere to these procedures. Prior approval must be obtained for any deviation from these procedures.

In accordance with Rule .1603 (c), the registrant shall annually review the radiation protection program content and implementation and make changes as needed.

_____ Signature of doctor	_____ Date
_____	_____
_____	_____
_____	_____

**Appendix A**

