Title: OPERATION OF X-RAY GENERATING EQUIPMENT

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Approved by:

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1.0 OBJECTIVE: To describe methods for operation of the x-ray generating equipment. This will include the stationary table top (TXR) and Mobile plus x-ray unit.

2.0 PERSONNEL/TRAINING/RESPONSIBILITIES

Only persons that have documented training on the use of this equipment will be allowed to operate the equipment.

3.0 POLICIES

1. No one under 18 years of age will be allowed in the room during exposures.
2. No one that is pregnant or thinks they might be pregnant will be allowed in the room during an exposure.
3. All radiographers must have documented training that meets DHEC requirements.
4. Technique charts are available in the room for each generator.
5. Operators must stand behind the lead shield while taking exposures in the radiology room.
6. Lead aprons, gloves, and thyroid shields are provided for all persons that must be present during an exposure. Lead aprons, gloves and shields are radiographed annually to check for compromises in the integrity of the lead shielding. These records are maintained for at least 2 years.
7. Personnel must not allow any unprotected body part to be in the primary beam during an exposure.
8. All persons involved in the x-ray exposure must wear a dosimetry badge.
9. All exposures will be limited to the area of interest and will be collimated as close as allowed by the digital processing equipment.
10. Positioning aids and sedation will be used whenever possible to position animals.

4.0 PERSONAL MONITORING:

1. A dosimetry badge will be provided to all radiographers and persons required to restrain animals. If you do not have a badge, you are not approved to be present in the room during an exposure.
2. Only those persons necessary for restraint, positioning or operating the x-ray generator are allowed in the room during exposure.
3. The dosimetry badges are stored in the nursing station (138B) along with the control badge. Badges will not be left in the x-ray room or worn outside the facility except during off-site x-ray procedures.
4. The dosimetry badge will be worn on the collar outside the lead apron.
5. In the event of any radiation dosage exceeding DHEC recommended limits, the employee will be notified verbally immediately and in writing by the CU Environmental Health and Safety (EHS) radiation safety officer within five (5) working days. Supervisors of such employees will also be notified.

6. Employees with over exposure will be restricted from the x-ray area until the cause for overexposure can be determined.

7. Any person intentionally exposing any control or personnel badge; or any person intentionally exposing themselves or others to x-ray radiation may be dismissed without recourse.

8. S.C. DHEC will be notified in writing within 10 days if an infraction occurs.

9. Copies of dosimetry reports are maintained by the CU Radiation Safety Officer, Environmental Health and Safety.

5.0 OPERATION PROCEDURES

1. Turn wall circuit breaker on.
2. Turn on the x-ray unit at the operator panel.
3. Place digital sensor panel in the protective cover and place subject on the panel. When possible, subject should be anesthetized or sedated to facilitate restraint with minimal personnel exposure. Sensor panel should be placed in hard protective case for patients exceeding 30 lbs, equine hooves or other exposures that may result in panel damage.
4. Determine exposure technique by using the technique chart for the machine being used.
5. Set mA, time and kVp according to the technique chart.
6. Record data in log book or using PACs database (Date, Patient ID, body part, exposure technique).
7. If using the Mobile Plus unit, set focal distance at 40". TXR unit has a fixed focal point.
8. Adjust collimator to cover only the area of interest.
9. Personnel providing positioning or restraint must wear lead aprons, thyroid shield and gloves. Dosimetry badges must be worn outside the lead apron. No personnel will have unshielded areas exposed to the collimated area of the radiograph. All personnel not required for the exposure must leave the room and close door. During off-site use, all non-essential persons must leave the area prior to x-ray exposure.
10. X-ray equipment operators must wear dosimetry badges and lead aprons or stand behind the lead shield during the exposure.
11. X-ray operator will activate the TXR exposure by a two stage foot pedal switch. The Mobile plus unit is activated by a 2-stage hand switch. The hand and foot switch should be held at first stage for 5 seconds before taking exposure. **Do not use push buttons on the TXR generator panel to activate exposure.**
12. After completion of exposure, operator will view digital image to determine if the exposure was acceptable. If necessary, the exposure technique can be adjusted and exposure re-taken.
13. X-ray units, tables, lead aprons, and gloves should be cleaned and disinfected after each use.
14. Lead aprons, gloves and shields should be properly stored on hangers designed for that purpose. Lead items should never be folded.
15. Lead aprons, gloves and shields must be visually inspected after each use and x-rayed annually to document the integrity of the lead shielding. X-ray examinations must be documented in records maintained in the radiology room (GSRC#140).
16. Turn off x-ray generators and wall breaker when finished.

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**Emergency Contacts:**

Environmental Health and Safety

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