

State Inspections of Dental Facilities in Connecticut

State inspections of dental facilities in Connecticut are conducted by the **Department of Energy and Environmental Protection**, Bureau of Air Management, Division of Radiation.

The following inspection information has been provided by the Department of Energy and Environmental Protection. Its purpose is to familiarize the dental community with Connecticut's existing inspection process and help individual dental practices comply with state regulations insuring safe, quality dental x-ray examinations with exposures to patients, operators and non-occupationally exposed individuals that are as low as reasonably achievable.

General Information Dental Facility Inspections

Inspectors typically provide advanced notifications of facility visits. If your facility is to be visited, the state inspector will contact you or the person who is held most accountable for your dental x-ray program to schedule the inspection. State inspectors make every effort to accommodate a facilities patient schedule. Inspectors are instructed to work with facility staff when on site and to avoid disruption of patient care. It should be noted that current state statutes require that facilities provide reasonable access to inspectors.

Inspection Duration

The length of an inspection varies and is contingent upon the number of tubes at your facility, your patient schedule and the number of questions you may have regarding the inspection or other related matters. Generally, administrative record review takes approximately 30 minutes. Dental unit inspections take approximately 20 minutes per tube. Exit interview 10-20 minutes. The approximate average inspector stay time for a facility with three tubes is approximately 2.5 to 3.0 hours allowing for patient accommodation and facility staff availability.

It should be noted that inspectors travel to all areas of our state and on occasion weather, traffic and delays at other facility inspections may cause an inspector to deviate from a scheduled inspection time. Inspectors are instructed to inform facilities of significant delays in their arrival.

Records Needed for Inspection

To facilitate the inspection process and avoid confusion and delays, each facility should have the following records available for review at the time of inspection.

1. Written radiation safety practices that your facility has in place for:
 - a. Managing pregnant operators
 - b. Prevention of holding patients for dental x-ray examinations
 - c. Managing pregnant patients.
2. Your current registration form.
3. Maintenance, preventive maintenance, calibration records and owner operator manuals for:
 - a. All of your dental x-ray units

- b. Film processing system(s)
- 4. Dosimetry badge reports (if utilized)
- 5. The approximate numbers of exposures made in each dental operatory per week.
- 6. The frequency of your processing system(s) chemical changes.
- 7. **Shielding design/shielding survey**

Dental X-ray Unit Inspection

All dental x-ray units may be inspected for the following:

1. *Radiation safety:*

- a. The physical layout that will allow an operator to stand at least six feet from the source of ionizing radiation or behind a protective barrier during x-ray exposures
- b. Testing to insure that the exposure control terminates the x-ray exposure when pressure is released from exposure control button.
- c. Availability of technique charts indicating machine settings for various projections and patient sizes.
- d. Availability of patient protective shielding and proper storage of same.
- e. Stability of the dental tube head: Does the dental x-ray tube remain in position without human assistance?
- f. Visual evaluation of the tube head to insure that it is not damaged or leaking oil
- g. Measurement of beam size to insure that it does not exceed regulatory requirements.
- h. Visual evaluation to insure that the cone/collimator is intact and in place.
- i. Measurement of stray radiation levels at the operators position and at all adjacent areas surrounding the dental x-ray area/operatory
- j. **“Caution Radiation Area” signs, on all public entrances to x-ray rooms(conventional 3 blade sign)**



2. *Dental x-ray unit operating characteristics:* (four exposures are used in determining compliance with the following).

- a. Measurement to insure that kVp accuracy is within plus or minus 10% of the selected kVp.
- b. Measurement of timer accuracy within plus or minus 10% of a pre-selected time.

- c. **Reproducibility:** Measurement to insure that the radiation output is consistent, to within plus or minus 10%, when all machine settings remain the same.

3. *Half Value Layer:*

Is the x-ray beam properly filtered? Is there appropriate aluminum in the useful beam to filter out x-rays that provide no diagnostic purpose and are readily absorbed by the patient?

Film and Processing Systems:

One of the most important aspects of insuring low dose, standardization of technique and good quality images is directly related to film handling and film developing procedures. It is essential that film developing solutions are not allowed to lose their effectiveness either by oxidation or improper temperature. It is also essential that processors and developer solution tanks be regularly cleaned and that chemicals are frequently changed. Without proper film developing procedures, the entrance skin exposure administered (ESE) to patients increases and image quality decreases.

The Department of Energy and Environmental Protection stresses, that without proper maintenance of dental x-ray equipment and constant vigilance of film developing methods, a facility usually exposes their patients to more radiation than necessary and experiences a significant loss of image quality.

The following items are evaluated during inspection of film handling and film processing systems.

1. **Film speed:** Is the film utilized by the facility the fastest speed consistent with the diagnostic objective of the examinations?
2. **Logs:** Are logs or other means available, which indicate dates of solution changes, and processing system cleanings?
3. **Visual inspection of developer solutions for oxidation.**
4. **Environmentally safe chemical disposal.** It is illegal for film fixer solutions to be dumped into sewer systems.
5. **Dark room and developer system cleanliness**
6. **If applicable, dark room light leaks**
7. **Manual processing system for thermometer and timer to standardize development of films**
8. **Posting of suggested development times and temperatures**

Exit Interview

The most responsible individual available is verbally informed regarding the following. The scope of the inspection, findings if any and required corrective actions.

Written Reports

Inspection verification email with results will be provided following the inspection. The reports are usually received by a facility within ten working days of an inspection. Inspection verifications describe the focus of the inspection and lists areas that require

corrective actions. Facilities are responsible for providing written documentation of their corrective actions within 30 calendar days from receipt of the inspection report to their department. Each facility is provided with a statement of compliance when all corrective actions are completed and documented.

The Department of Energy and Environmental Protection, Bureau of Air Management, Division of Radiation wishes to extend its thanks to the Connecticut State Dental Association for allowing the opportunity to convey this information to its members.