



REGULATORY GUIDE 21.0

GUIDE FOR DENTAL FACILITIES USING DENTAL RADIOGRAPHIC EQUIPMENT

I. Introduction

Operating and safety procedures are required by 180 NAC 21. The model procedures in this regulatory guide are generic. You must write procedures that are specific for your facility. By using the sections of this guide that apply, you may create your unique set of operating and safety procedures. This guide may also be used to develop operating and safety procedures for facilities with mobile services. Although other operating and safety procedure formats are acceptable, at least the information contained in 180 NAC 21-007.03 must be included in your operating and safety procedures. Individuals who are sole practitioners and sole operators and who are the only occupationally exposed individuals are exempt from 180 NAC 21-007.03 and do not have to maintain operating and safety procedures.

II. Sample Operating and Safety Procedures

OPERATING AND SAFETY PROCEDURES
FOR

 (name of facility)

These are procedures that will minimize radiation exposure to patients and employees. They are provided to comply with rules enforced by the Nebraska Department of Health and Human Services (DHHS), Office of Radiological Health. The rules require that each dental x-ray facility be registered with DHHS, Office of Radiological Health. The certificate of registration contains conditions and restrictions that apply to the use of the x-ray machines in this facility. These rules are available for your review in/at (specify location) [See 180 NAC 21-007.05B.

NEBRASKA DEPARTMENT OF HEALTH & HUMAN SERVICES (DHHS), REGULATORY GUIDES

Regulatory Guides are issued to describe and make available to the public acceptable methods of implementing specific parts of Title 180 NAC Nebraska regulations, "Control of Radiation," to delineate techniques used by the staff in evaluating specific problems or postulated accidents, or to provide guidance to applicants, licensees, or registrants. Regulatory Guides are not substitutes for regulations, and compliance with them is not required. Methods and solutions different from those set out in the guides will be acceptable if they provide a basis for the DHHS, Division of Public Health, Office of Radiological Health, to make necessary determination to issue or continue a license or certificate of registration.

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Comments and suggestions for improvements in these Regulatory Guides are encouraged at all times and they will be revised, as appropriate, to accommodate comments and to reflect new information or experience. Comments should be sent to the DHHS, Division of Public Health, Office of Radiological Health, 301 Centennial Mall South, P.O. Box 95026, Lincoln, NE 68509-5026. OR radiation.programs@dhhs.ne.gov

Requests for single copies of issued guides (which may be reproduced) should be made in writing to the address above.

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The rules require that a Radiation Safety Officer (RSO) be designated. The RSO has the responsibility and authority for assuring safe radiation practices and serves as the contact person between this facility and DSHS, Radiation Control. Direct all your questions or concerns on radiation safety to the RSO for this facility, (specify name) [See 180 NAC 21-007.01B].

A. Operator and Patient Safety

1. Credentialing Requirements for Operators of Dental X-ray Machines

All operators of x-ray machines must meet the requirements of the 172 NAC 53-004.

2. Individual Monitoring Requirements

Individuals who operate only dental x-ray machines are exempt from individual monitoring requirements [See 180 NAC 21-003.06].

3. Holding of Patients and/or Film

a. Film holding devices must be used when techniques permit. [See 180 NAC 21-007.09E:

b. Do not hold the tube housing and the support housing during an exposure [See 180 NAC 21-007.7.06C].

c. If it becomes necessary for an individual to hold a patient or film, the holder should not be pregnant. They should wear protective devices (e.g., lead aprons) and keep out of the direct beam.

4. Posting Notices and Instructions to Workers; and Posting a Radiation Area

a. Read the "Notice to Employees" sign posted in/at (specify location) .

b. The certificate of registration, operating and safety procedures, and any notices of violations involving radiological working conditions are located in/at (specify location(s)) [See 180 NAC 21-007.05B].

c. Your rights and obligations as a radiation worker are found in 21-007.04C and 21-009.

B. Dose to Operators

1. Occupational dose limits are found in 180 NAC 21-007.04A.

2. If any employee is pregnant or becomes pregnant, she may voluntarily inform the RSO in writing of the pregnancy [See 180 NAC 21-007.04A2]. If the RSO is informed of the pregnancy, the facility must ensure that the dose to the embryo/fetus does not exceed 0.5 rem (5 mSv) during the entire pregnancy [See 180 NAC 21-007.04A2].

3. Radiation Incident or Overexposure

If you suspect there has been an excessive exposure or a radiation incident, immediately notify the RSO [See 180 NAC 21-007.04C, item 3].

C. Operation of the X-ray Machine and Film Processing

1. Ordering of X-ray Exams

No x-ray exams shall be taken unless ordered by name of dentist(s) [See 180 NAC 21-001.02, item 4.

2. Operator Position During Exposure [See 180 NAC 21-007.09C]
 - a. The operator must be able to continuously see, hear, and communicate with the patient.
 - b. During the exposure, the operator must stand at least six feet from the useful beam or behind a protective barrier.
3. Use of a Technique Chart

Use of a technique chart aids in reducing the exposure to the operator and patient and it must be used for all exposures. Our technique charts are displayed in the vicinity of the control panel of each x-ray machine and may be (choose one, two, or all of the following: written [See Appendix C]; electronically displayed; or graphically displayed) [See 180 NAC 21-007.01A, item 3].
4. Restriction and Alignment of the Beam

Use the beam limiting devices provided on the x-ray machine [See 180 NAC 21-007.07B1].
5. Use of Portable Machines
 - Portable x-ray equipment is mounted on a permanent base with wheels and/or casters for moving while completely assembled.
 - a. During the exposure the operator:
 - (i) must be positioned so that his/her exposure is as low as reasonably achievable (ALARA) (e.g. 6 feet or more away) [See 180 NAC 21-007.02]; and
 - (ii) should never be in line with the direct beam.
 - b. Do not hold the tube housing and the support housing during an exposure [See 180 NAC 21-007.09D].
6. Film Processing [See Appendix B]
 - a. Unexposed film is stored _____ (describe location and procedures for storage) _____.
 - b. Films shall be developed by the time and temperature recommended by the x-ray film manufacturer. These specifications are posted in/at (specify location) [See 180 NAC 21-007.12A].
 - (i) Check the temperature at the beginning of the work day. Do not process films unless the developer temperature is _____ (specify temperature) _____. Manual processing temperature should be checked throughout the work day.
 - (ii) For automatic processors, run blank films through the processor at the beginning of the work day.
 - c. Expiration dates on film and chemicals should be checked periodically. New film or chemicals should be rotated so the oldest are used first. Do not use films or chemicals after the expiration date.

d. Chemicals will be replaced by _____ (specify name) _____ according to the manufacturer's or chemical supplier's recommended interval, which is (indicate frequency), or no longer than every three months [See 180 NAC 21-007.12B].

e. Lighting in the film processing/loading area is provided under these conditions and should not be changed without authorization from the RSO

Filter type _____
Bulb wattage _____
Distance from work surfaces _____

f. If you see light leaks around doors, ceilings, or other openings in the darkroom, notify the RSO.

7. Alternative Processing Systems

Our facility uses _____ (choose from the following: _____ daylight processing systems, laser processors, self-processing (Polaroid) film units, or other alternative processing systems). Processing will be done according to the manufacturer's recommendations, which are located in _____ (specify location) _____ [See 180 NAC 21-007.12D].

D. Inventory List [See Appendix D and 21-006.04F]

An annual inventory of all radiation machines is maintained by (name of individual)_____.

APPENDIX A

**SAMPLE RECORD FOR INSTRUCTION OF INDIVIDUALS
IN OPERATING AND SAFETY PROCEDURES FOR**

_____ (name of facility) _____

These procedures have been made available to each individual who operates the x-ray equipment on the date(s) indicated [See 180 NAC 21-007.03].

(Signature of RSO) (Date)

Equipment Operator Statement:

I have read these procedures and agree to follow them.

(Signature of Equipment Operator) (Date)

(Signature of Equipment Operator) (Date)

(Signature of Equipment Operator) (Date)

(Signature of Equipment Operator) (Date)

(Signature of Equipment Operator) (Date)

(Signature of Equipment Operator) (Date)

APPENDIX B

SAMPLE DARKROOM REQUIREMENTS LOG
FOR CALENDER YEAR _____

Automatic processor (Model #, Serial #) _____

OR

Manual processing _____

Developer temperature _____

Chemicals replaced

(manufacturer's or chemical
supplier's recommendations
or every 3 months)

(initials)(date)

(initials)(date)

(initials)(date)

(initials)(date)

Darkroom light leak tests performed _____
(every 6 months) (initials)(date) (initials)(date)

Lighting checked in film processing/loading area:

filter type _____
bulb wattage _____
distance from work surfaces _____

(initials)(date) (initials)(date)

Light leaks or related deficiencies noted _____ (initials)(date)

(initials)(date)

Corrections of light leaks or related deficiencies (or attach service/work orders)

(initials)(date)

(initials)(date)

Appendix C

SAMPLE DENTAL TECHNIQUE CHART

CEPHALOMETRIC

| PATIENT SIZE | kVp | mA | TIME | SID | FILM/SCREEN |
|---------------------|------------|-----------|-------------|------------|--------------------|
| Small | | | | | |
| Medium | | | | | |
| Large | | | | | |

PANORAMIC

| PATIENT SIZE | kVp | mA | TIME | SID | FILM/SCREEN |
|---------------------|------------|-----------|-------------|------------|--------------------|
| Small | | | | | |
| Medium | | | | | |
| Large | | | | | |

INTRAORAL

| ADULT | kVp | mA | TIME | SSD | FILM/SCREEN |
|-------------------------|------------|-----------|-------------|------------|--------------------|
| Anterior Region | | | | | |
| Posterior Region | | | | | |
| Bite Wing | | | | | |
| CHILDREN | | | | | |
| Anterior Region | | | | | |
| Posterior Region | | | | | |
| Bite Wing | | | | | |

APPENDIX D

SAMPLE EQUIPMENT INVENTORY LIST

ANNUAL INVENTORY DATE: _____

PAGE ___ OF ___

FACILITY NAME: _____ (name of facility)

REGISTRATION NO.: R00XXX

| MANUFACTURER | MODEL NUMBER | SERIAL NUMBER | LOCATION (EX. : ROOM NO.) |
|--------------|--------------|---------------|------------------------------|
| BENNETT | HFQ-450 | ABC-123 | 123 |
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