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NAVENVIRHLTHCEN TECHNICAL MANUAL 6470.03-1 CHANGE TRANSMITTAL 2

From: Commanding Officer, Navy Environmental Health Center

Subj: NAVY RADIOLOGICAL SYSTEMS PERFORMANCE EVALUATION MANUAL

Encl: (1) Revised Cover Page
(2) Revised Table of Contents
(3) Revised Chapter 3: Dental Radiographic Units
(4) Revised Appendix C: Performance Tests for Dental Units

1. Purpose. To update procedural requirements for radiological systems performance evaluations, including acceptance testing and periodic surveys of conventional and digital dental radiographic units.

2. Action. Remove existing cover page, table of contents, Chapter 3 and Appendix C, and replace with enclosures (1) through (4) of this change transmittal, respectively.

3. Retain. For record purposes, keep this change transmittal in front of the basic technical manual. The original technical manual and change transmittals are accessible on the Navy Environmental Health Center website at http://www-nehc.med.navy.mil/occmed/dxrsp.htm.

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NAVENVIRHLTHCEN TECHNICAL MANUAL 6470.03-1 CHANGE TRANSMITTAL 1

From: Commanding Officer, Navy Environmental Health Center

Subj: NAVY RADIOLOGICAL SYSTEMS PERFORMANCE EVALUATION MANUAL

Encl: (1) Cover page
(2) Table of Contents
(3) Chapter 20: Policy for the Use, Care, Evaluation and Disposal of Lead Aprons
(4) Policy for Maintaining Qualifications and/or Re-Qualification of Radiological Systems Surveyors

1. Purpose. To add the guidance for the use, care, evaluation, and disposal of lead aprons used for the shielding of radiation to personnel from diagnostic radiology procedures, and to add the policy and procedures for surveyors of radiological systems to maintain their qualifications and to re-qualify as a radiological systems surveyor.

2. Action. Replace existing cover page and table of contents in the technical manual with enclosures (1) and (2) of this change transmittal, respectively. In addition, insert enclosure (3) after Chapter 19 and add enclosure (4) to the end of Appendix A of the technical manual.

3. Retain. For record purposes, keep this change transmittal in front of the basic technical manual.

D. A. HILAND

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Navy Radiological Systems Performance Evaluation Manual

Version: August 2004

Navy Environmental Health Center

BUREAU OF MEDICINE AND SURGERY

Navy Radiological Systems Performance Evaluation Manual

Prepared by

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August 2004

Reviewed and approved by

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Navy Radiological Systems Performance Evaluation Manual

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Chapter 20

Guidance for the Use, Care, Evaluation and Disposal of Lead Aprons

Ref: (a) Implementation of an X-ray Radiation Protective Equipment Inspection Program, Operational Radiation Safety; 82(2): S51-S53, 2002.
(b) Inspection of Lead Aprons: Criteria for Rejection, Operational Radiation Safety; 80(5): S67-S69, 2001.

Background:

The Environment of Care standards set forth by the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) require performance inspections on medical equipment. Lead aprons are considered medical equipment. In addition, all state radiation control programs require evaluations of lead aprons. In recent years, references (a) and (b) have addressed the topic of the proper care, evaluation and disposal of lead aprons.

Guidance:

The Bureau of Medicine and Surgery (BUMED) guidance for the use, care, evaluation and disposal of lead aprons (including thyroid and gonadal shields) utilized in medical facilities is as follows:

a. **Use of Lead Aprons**: Based on National Council on Radiation Protection and Measurements (NCRP) recommendations, lead aprons of a minimum of 0.5 mm lead-equivalency should be used for fluoroscopic applications and for shielding direct gonadal exposures. Lead aprons of a minimum of 0.25 mm lead-equivalency shall be sufficient for all other radiographic applications.

b. **Care of Lead Aprons**: Properly cared for lead aprons have a life expectancy of approximately 10 years. They should be properly hung on hooks/racks when not in use. They should never be folded, creased or draped across another piece of equipment. They should be kept clean of dirt, grease and other contaminants.

c. **Evaluation of Lead Aprons**: Pursuant to references (a) and (b), lead aprons shall be evaluated at least annually. This evaluation shall consist of a visual inspection, with x-ray evaluation of suspicious areas. The visual inspection will consist of looking for obvious tears. The x-ray evaluation may be done with either fluoroscopy or standard x-rays (depending on availability). The x-ray images are not required to be retained. In lieu of keeping the x-ray images, a tracking system must be utilized. The tracking system must document the dates of testing, aprons tested and the specific results. It is expected that an inspector will be able to verify that x-ray evaluations have been done by either looking at the aprons and/or the aprons and the documentation system. In addition, lead aprons shall be rejected and replaced if the sum of the areas of the defects exceeds a 1 ⅛-inch diameter hole size. If the defect(s) occur in an area that would cover the reproductive organs, and the area exceeds a

3/16-inch diameter hole size, the apron shall be replaced. If the defect(s) occurs on a thyroid shield, and the area exceeds a 5/16-inch diameter hole size, the lead thyroid shield shall be replaced.

d. **Disposal of Lead Aprons**: Lead aprons contain hazardous materials, and it is illegal to dispose of lead aprons in a landfill. For the disposal of lead aprons that remain in a condition to warrant their re-use, it is recommend that commands contact their nearest Defense Reutilization & Marketing Office (DRMO) through their host or activity Environmental Department. For lead aprons damaged beyond their safe use as defined in the paragraphs above, it is recommended that commands process the aprons for disposal through either their hazardous materials (HAZMAT) office or through Navy Public Works Center (PWC). Alternately, some manufacturers of lead aprons may take them back for recycling or disposal.

Policy for Maintaining Qualifications and/or Re-Qualification of Radiological Systems Surveyors

Background:

It should be noted that qualifications for individuals initially qualified as Level I, Level II, Level IIM, Level III or Level IIIM radiological systems surveyors are valid for a period of only 5 years, and that their qualifications will be required to be renewed at that time. Each surveyor will be required to initiate the renewal of his/her own qualifications. Note that a current listing of qualified surveyors can be found at: http://radhealth.usuhs.mil/responsibilities.xls

Policy:

Regarding the issue of surveyor re-qualification, the Medical Physics Advisory Board (MPAB) has determined that individuals shall be required to submit to NEHC, a list of the radiographic units surveyed in the past 5 years after initial qualification (starting with the most current units surveyed) utilizing the forms in this Appendix for experience and continuing education. Each individual should maintain additional documentation, such as copies of survey reports, CME certificates, etc. with their personal records. These additional records need not be forward to NEHC.

a. **General Radiological Surveyors**:

To re-qualify, each surveyor should have surveyed in the 5 years since the previous qualification, at least:

(1) One general radiographic unit and one fluoroscopic unit to re-qualify as Level I; and
(2) One CT scanner to re-qualify as Level II; and
(3) One acceptance test for either a CT, MR, Angiography, Cardiac Cath, or Nuclear Medicine Camera, to re-qualify as Level III.

In addition, each individual should also submit a listing of his or her most recent CMEs (last 5 years) using the forms in this Appendix.

For individuals that have not performed surveys in quite some time, recommend the following options:

(1) Try going to a site and performing surveys in each category in which qualifications are being requested; or
(2) Decline re-qualification at this time, and re-qualify at a later date with a more specific number of surveys.

b. **Mammography Surveyors**:

Individuals qualified as surveyors of mammography systems must meet the experience and training requirements of the American College of Radiology (ACR) for initial and re-qualifications. The MPAB has determined that NEHC will not be required to maintain individual's qualifications for mammography, and that each surveyor will be required to maintain his/her own qualifications in accordance with ACR and applicable State certification requirements. NEHC will issue qualification certificates only at the surveyor's request.

c. **Additional Comments**:

Those surveyors certified by the American Board of Radiology (ABR) in Diagnostic Radiologic Physics are by virtue of certification, Level III qualified. However, these individuals must comply with the requirements for re-qualification.

The MPAB will have final approval authority for surveyor initial qualifications and re-qualifications, especially in cases where qualification documentation may be questionable or incomplete.