

Federal Deposit Insurance Corporation.  
 Hoyle L. Robinson,  
*Executive Secretary.*  
 [FR Doc. 85-29449 Filed 12-9-85; 11:35 am]  
 BILLING CODE 6714-01-M

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**INTERNATIONAL TRADE COMMISSION**

**TIME AND DATE:** Friday, December 20, 1985 at 2:00 p.m.

**PLACE:** Room 117, 701 E Street, NW., Washington, DC 20436.

**STATUS:** Open to the public.

**MATTERS TO BE CONSIDERED:**

1. Agenda.
2. Minutes.
3. Ratification List.
4. Petitions and Complaints.
5. Investigation 731-TA-292/296 [Preliminary] (Certain welded carbon steel pipes and tubes from the People's Republic of China, the Philippines, and Singapore)—briefing and vote.
6. Any items left over from previous agenda.

**CONTACT PERSON FOR MORE**

**INFORMATION:** Kenneth R. Mason, Secretary, (202) 523-0161.

Dated: December 4, 1985.

Kenneth R. Mason,

*Secretary.*

[FR Doc. 85-29413 Filed 12-6-85; 5:11 pm]

BILLING CODE 7020-02-M

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**OCCUPATIONAL SAFETY AND HEALTH REVIEW COMMISSION**

**TIME AND DATE:** 10:00 a.m., Thursday, December 19, 1985.

**PLACE:** Suite 410, 1825 K Street, NW., Washington, DC.

**STATUS:** Because of the subject matter, it is likely that this meeting will be closed.

**MATTERS TO BE CONSIDERED:** Discussion of specific cases in the Commission adjudicative process.

**CONTACT PERSON FOR MORE**

**INFORMATION:** Mrs. Mary Ann Miller (202) 634-4015.

Dated: December 9, 1985.

Earl R. Ohman, Jr.,

*General Counsel.*

[FR Doc. 85-29479 Filed 12-9-85; 3:16 am]

BILLING CODE 7600-01-M

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**PACIFIC NORTHWEST ELECTRIC POWER AND CONSERVATION PLANNING COUNCIL**

**STATUS:** Open.

**TIME AND DATE:** December 18-19, 1985, 9:00 a.m.

**PLACE:** Council Office, 850 SW. Broadway, Suite 1100, Portland, Oregon.

**MATTERS TO BE CONSIDERED:**

1. Council Deliberation on Draft Power Plan. The Council may complete preliminary action on the draft power plan at its December 11-12 meeting. If so, the Council would cancel the December 18-19 meeting. Please call the central office for a status report on this meeting.

a. Any other issue not resolved at prior meetings.

2. Council Business.

3. Public Comment. The record on the draft plan closed October 25, 1985; therefore, no public comment can be taken on this subject at this meeting.

**FOR FURTHER INFORMATION CONTACT:**

Ms. Ruth Curtis (Power Plan issues only) or Ms. Bess Atkins (all other issues) at (503) 222-5161.

Edward Sheets,

*Executive Director.*

[FR Doc. 85-29437 Filed 12-9-85; 10:39 am]

BILLING CODE 0000-00-M

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**POSTAL RATE COMMISSION**

**TIME AND DATE:** Periodic meetings between December 13 through 20, 1985.

**PLACE:** 1333 H Street, NW., Suite 300, Washington, DC.

**STATUS:** Closed.

**MATTERS TO BE CONSIDERED:** United Parcel Service's Motion that USPS' Request Not be Considered Under Experimental Procedures—(Docket No. MC86-1).

**CONTACT PERSON FOR MORE**

**INFORMATION:** Charles L. Clapp, Secretary, Postal Rate Commission, Room 300, 1333 H Street, NW., Washington, DC 20268-0001, Telephone (202) 789-6840.

Charles L. Clapp,

*Secretary.*

[FR Doc. 85-29434 Filed 12-9-85; 10:39 am]

BILLING CODE 7715-01-M

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**POSTAL RATE COMMISSION**

**TIME AND DATE:** Periodic meetings between December 12 through 24, 1985.

**PLACE:** 1333 H Street, NW., Suite 300, Washington, DC.

**STATUS:** Closed.

**MATTERS TO BE CONSIDERED:** Discussion of issues and recommended decision regarding Advo System, Inc.—Docket No. C85-1.

**CONTACT PERSON FOR MORE**

**INFORMATION:** Charles L. Clapp, Secretary, Postal Rate Commission, Room 300, 1333 H Street, NW., Washington, DC 20268-0001, Telephone (202) 789-6840.

Charles L. Clapp,

*Secretary.*

[FR Doc. 85-29435 Filed 12-9-85; 10:39 am]

BILLING CODE 7715-01-M

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**SECURITIES AND EXCHANGE COMMISSION**

**"FEDERAL REGISTER" CITATION OF PREVIOUS ANNOUNCEMENT:** 50 FR 43323 October 24, 1985.

**STATUS:** Open meeting.

**PLACE:** 450 Fifth Street, NW., Washington, DC.

**DATE PREVIOUSLY ANNOUNCED:** Tuesday, November 26, 1985.

**CHANGE IN THE MEETING:** Deletion.

The following item was not considered at an open meeting scheduled for Tuesday, December 3, 1985, at 10:00 a.m.

Consideration of whether to issue an order granting the application of Maui/Waikiki Hotel Associates, LaSalle/Market Streets Associates, and VMS National Properties for exemption from Sections 12(g), 13(a) and 14 of the Securities Exchange Act of 1934, as amended. For further information, please contact William E. Toomey at (202) 272-2573.

Commissioner Grundfest, as duty officer, determined that Commission business required the above change and that no earlier notice thereof was possible.

At times changes in Commission priorities require alterations in the scheduling of meeting items. For further information and to ascertain what, if any, matters have been added, deleted or postponed, please contact: Douglas Michael at (202) 272-2467.

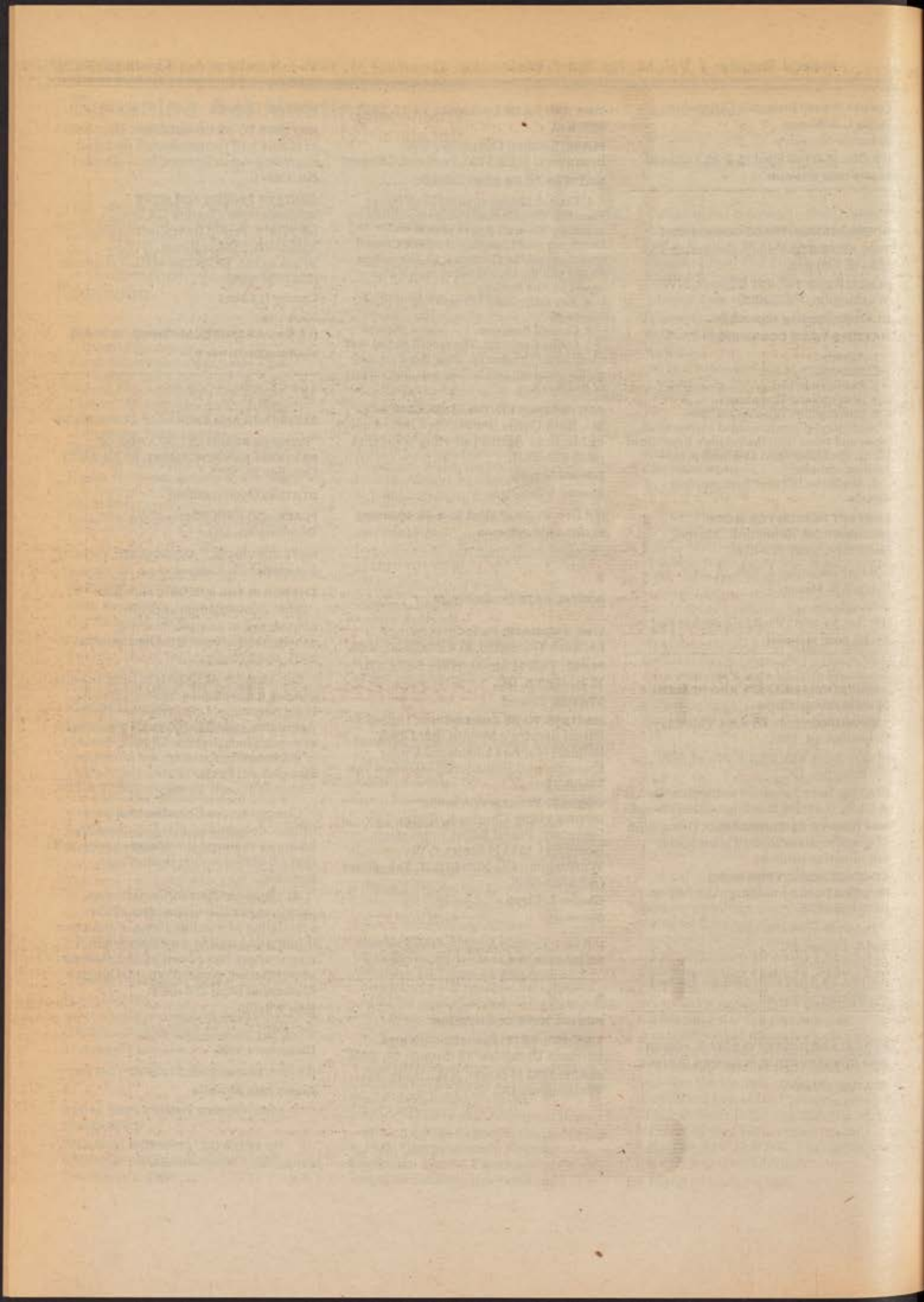
John Wheeler,

*Secretary.*

December 4, 1985.

[FR Doc. 85-29463 Filed 12-9-85; 12:45 pm]

BILLING CODE 8010-01-M





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Wednesday  
December 11, 1985

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**Part II**

**Department of  
Health and Human  
Services**

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**Public Health Service**

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**42 CFR Part 75**

**Standards for the Accreditation of  
Educational Programs for, and the  
Credentialing of Radiologic Personnel;  
Final Rule**



## DEPARTMENT OF HEALTH AND HUMAN SERVICES

## Public Health Service

## 42 CFR Part 75

## Standards for the Accreditation of Educational Programs for and the Credentialing of Radiologic Personnel

AGENCY: Public Health Service, HHS.

ACTION: Final rulemaking.

**SUMMARY:** These regulations establish standards for the accreditation of educational programs for radiologic personnel, and for the credentialing of such persons. These standards are part of the implementation of the Consumer-Patient Radiation Health and Safety Act of 1981 (Title IX of Pub. L. 97-35), which required their promulgation by regulation. The standards are voluntary for States and mandatory for Federal agencies.

**EFFECTIVE DATE:** These regulations are effective January 13, 1986.

**FOR FURTHER INFORMATION CONTACT:**

Dr. William S. Brooks, Health Personnel Standards Branch, Division of Associated and Dental Health Professions, Bureau of Health Professions, Health Resources and Services Administration, 5600 Fishers Lane, Room 8-95, Rockville, Maryland 20857; telephone: 301 443-6757.

**SUPPLEMENTARY INFORMATION:** The Consumer-Patient Radiation Health and Safety Act of 1981 (the Act) is Subtitle I of Title IX of the Omnibus Budget Reconciliation Act of 1981, Pub. L. 97-35. In accordance with section 979 of the Act, the Secretary of Health and Human Services is adding a new Part 75 to Title 42 of the *Code of Federal Regulations*, entitled "Standards for the Accreditation of Educational Programs for and the Credentialing of Radiologic Personnel."

The Department published in the *Federal Register* on July 12, 1983, a Notice of Proposed Rule-Making (NPRM) that provided for a 120-day public comment period.

One of the expressed purposes of the Act is to "insure that . . . radiologic procedures are consistent with rigorous safety precautions and standards." Section 977(2). The comments submitted revealed that attempts to use radiologic personnel standards to improve patient safety are exceedingly complex. In addition, the Act requires that the standards be mandatory for Federal agencies employing radiologic personnel. Comments received from the Federal agencies indicated that current standards for radiologic personnel are

adequate to insure the safety of patients and that the proposed standards would create a number of operational problems in areas other than safety. Thus, those most directly affected by the promulgations of such standards felt them to be unnecessary and costly.

Many of the States already have licensing standards for radiologic personnel. The States are also aware of the recommendations of the organizations representing radiologic personnel concerning minimum standards for training and accreditation of educational programs in this area. Thus, many commentators suggested that one of the primary goals of the Act, which is to encourage the States to adopt educational and accreditation standards (see sections 981 (c) and (d)), was unnecessary.

Other commentators pointed out that since the time that the Act was introduced in the Congress, changes in technology and in the Federal regulation of radiologic devices themselves have reduced the risk of unnecessary exposure substantially.

Most fundamentally, both the comments and the Department's own review raised serious questions about whether such standards have more than a remote connection to patient safety. At best, formal education is far removed from actual practice in a work setting. No studies exist which show even a tenuous connection between accreditation status of an institution and the safety-related performance of its graduates. Moreover, there are demonstrably effective alternatives, such as improved design and operation of radiological equipment, and short-term training in techniques of reducing unnecessary intensive exposure. As the American Hospital Association, in its comments on the NPRM, stated: "The means used to address this goal—standards for the accreditation of educational programs for and credentialing of radiologic personnel—are at best an indirect way to approach the problem. There is no demonstrable link between certification on the one hand, and the quality and safety of patient services on the other. And if the link between credentialing and patient safety is weak, the link between an educational accreditation program and patient safety is weaker still."

Therefore, the Department decided to seek repeal of the Act, and transmitted to the Congress in July 1985, the Health Professions Amendments of 1985 which, among other things, would have repealed the Act. In October, the Congress enacted many of the provisions of these proposed Amendments, but did not act on the

Department's request to repeal the Act. Thus, given the statutory mandate, the Department has decided to issue the final rule now and will consider again requesting repeal of the Act in the near future.

Section 979 of the Act requires the Secretary, after consultation with appropriate Federal agencies, agencies of States, and professional organizations, to promulgate regulations setting forth minimum standards for the accreditation of educational programs to train individuals to perform radiologic procedures, and minimum standards for the certification<sup>1</sup> of persons who administer such procedures. These standards are required to distinguish between the occupations of (1) radiographer,<sup>2</sup> (2) dental auxiliaries (including dental hygienists and dental assistants), (3) radiation therapy technologist, and (4) nuclear medicine technologist. The Secretary is also authorized to promulgate standards for other occupational groups utilizing ionizing and non-ionizing radiation as the Secretary finds appropriate. However, the regulations promulgated herein are limited to the occupational groups listed above, utilizing ionizing radiation. At this time, the biological hazards of non-ionizing radiation have not been established as a threat to patient health and safety.

These regulations establish minimum standards for accreditation of educational programs for selected radiologic personnel and standards for credentialing selected radiologic personnel, as required by the Act. The standards apply to non-Federal personnel only to the extent to which States adopt them. Licensed practitioners (doctors of medicine, osteopathy, dentistry, podiatry, and chiropractic) are specifically excluded from coverage by the Act. In addition, the Department has also chosen to exclude licensed pharmacists.

Compliance by the States with the standards is voluntary. However, the Secretary is required by section 981(d) of the Act to monitor the States' "compliance" and to report to the Congress on January 1 of each year the status of that compliance.

<sup>1</sup> Although the Act uses the term "certification", the term "credentialing" is used in these standards. Because certification generally refers to voluntary regulation of personnel or protection of an occupational title, rather than to state regulation of practice as is the intent of these standards.

<sup>2</sup> The statute uses the language "medical radiologic technologists (including radiographers)." For purposes of this regulation, "radiographer" is used as the more generally accepted designation of this occupation.



The standards are intended to assist those States which desire to regulate the education and practice of radiologic personnel. While the standards were developed by the Department, the Act preserves the traditional prerogatives of States in the approval of educational programs and in regulation of personnel. States remain free to utilize approval processes already established by existing voluntary accrediting agencies and examining boards, or to establish their own processes, or to take no action of any kind. While providing a particular basis for action by States, the Act does not require such action.

The Act requires that each department, agency, and instrumentality of the Executive Branch of the Federal Government must comply with the standards promulgated, except that the Veterans Administration (VA) is required to issue its own regulations that, to the maximum extent feasible, make the standards set forth in this regulation applicable to VA facilities. The Administrator of the VA must report to the appropriate committees of Congress on compliance with the requirement not more than 180 days after final promulgation of these regulations. (See section 983 of the Act.) Neither the Act nor these standards impose upon Federal agencies any specific policies or procedures to follow in the implementation of standards in the Federal work force.

The Act requires that the standards be developed in consultation with appropriate Federal agencies, including the VA and the Environmental Protection Agency. To carry out this requirement, a Federal working group was formed consisting of official representatives of agencies that employ these personnel.

Agencies of States, including licensing agencies, boards that regulate health occupations, health departments, and radiation control agencies, provided information and advice. In addition, appropriate professional organizations, voluntary accrediting and certifying agencies in the affected occupations, and employers thereof were also consulted.

The Department chose to promulgate two separate sets of standards for credentialing, each of which identifies five basic elements and provides for maximum flexibility to States. One set of standards is provided for radiographers, nuclear medicine technologists, and radiation therapy technologists. Another set of standards is provided for dental hygienists and dental assistants, which applies only to their performance of dental radiographic procedures. Each standard addresses

the issuance of licenses, eligibility, the use of criterion-referenced examinations, continuing competency, and policies and procedures. For the professions named in the Act, there are several private-sector certifying organizations and a number of State licensure statutes, which vary considerably.

All of the standards for the accreditation of educational programs contain material only distantly related, if at all, to patient safety. For example, all include generic responsibilities for planning, managing, and evaluating the educational program offered. Such standards do not relate to training in radiologic procedures, *per se*, but may promote the overall quality of the educational experience. Many such generic standards are included, because they have been accepted by voluntary (nongovernmental) agencies with considerable experience in accrediting educational programs in these fields. However, many other standards have been eliminated.

The Department chose to promulgate accreditation standards that follow the requirements of the voluntary accrediting agencies for educational programs in these professions, e.g., the Committee on Allied Health Education and Accreditation (CAHEA) of the American Medical Association and the Commission on Dental Accreditation (the Commission) of the American Dental Association. However, some of these voluntary standards and all explanatory material issued by these agencies have been eliminated to allow maximum discretion to States. The Department made this decision because (1) the Congress intended that the standards be developed in consultation with appropriate professional organizations, (2) the standards already promulgated are arguably appropriate—insofar as any such standards can be—to promote the type of competency in radiologic procedure safety and patient protection intended by the Act, and (3) the development of standards that differed from those already utilized in these professions would cause unnecessary confusion. In developing standards based on those already promulgated by recognized, private-sector accrediting bodies, certain inconsistencies appear in the format and content of the separate standards for radiographers, radiation therapy technologists, nuclear medicine technologists, dental hygienists, and dental assistants. The Department believes that these inconsistencies do not materially affect the separate standards or impose greater burdens on any profession.

The decision to rely on standards developed by the professions themselves as a starting point created another problem. Many academic economists and several Federal agencies, including the Antitrust Division of the Department of Justice and the Federal Trade Commission (FTC), have raised over the years serious questions concerning the possible anticompetitive effects of certain aspects of State licensure laws which rely on such standards.

The anticompetitive effects are partly related to the structure of the State regulatory body. Licensing boards composed solely of, or dominated by, licensed members of the occupation or profession being regulated may provide a vehicle for raising barriers to entry into these professions. When entry barriers are increased, wage costs and prices to the public increase also. Such barriers are often increased by raising the educational requirements for entry on restricting the number of institutions accredited to train future entrants. Thus, control over the accreditation process by licensed members of the profession is also an important element in attempts to limit entry.

To lessen the potential for these problems, the Department recommends that those States which decide there is a need to establish regulatory controls over radiologic personnel avoid establishing licensing boards dominated by practicing members of these occupations. Caution should also be taken by States to review accreditation policies, especially if influenced by members of the radiologic occupations, to insure that they are not unduly restrictive. In reviewing and modifying the standards promulgated by this rule we have attempted to avoid such problems—for example, by eliminating requirements that only not-for-profit institutions can perform training—but States should avoid adding requirements in the future which erect entry barriers or reduce employment opportunities.

#### Comments and the Department's Responses

The Department published in the *Federal Register* on July 12, 1983, a Notice of Proposed Rulemaking (NPRM) that provided for a 120-day public comment period. A total of 286 comments from organizations, governmental agencies, and individuals was received.

The presentation of these comments and of the Department's responses is divided into three sections. The first consists of comments regarding the Supplementary Information section of



the July 12 NPRM. The second consists of comments on the rule—the new 75 Part which will be added to Title 42 of the Code of Federal Regulations. The third consists of comments on the Appendixes to the NPRM, which contained the text of the standards.

#### I. Supplementary Information Section

Two respondents recommended changes in the rationale for not providing standards for users of non-ionizing radiation. The language in the NPRM reads, "at this time, the biological effects of non-ionizing radiation have not been conclusively established as a threat to patient health and safety." These respondents proposed changing the word "effects" to "hazards" and deleting the word "conclusively." The Department agrees.

Twelve respondents recommended that a grandfathering clause be added to the regulation. Grandfathering provisions proposed by these individuals ranged from provision of a grace period in which personnel could obtain the necessary education or credential, to grandfathering on the basis of prior work experience. Traditionally, grandfathering provisions have been included in State statutes for personnel licensure rather than in actual standards adopted under such statutes. Therefore, the model statute being developed by the Department will contain a recommendation on this topic. However, because this regulation is mandatory for Federal agencies, a grandfathering provision for Federal employees has been added as § 75.3(a)(6) of the regulation.

Several respondents questioned the applicability of these standards to active duty military personnel. One of these respondents argued that the standards do not apply because such personnel are not members of the five regulated occupations. Another argued that it would be all but impossible to comply with these standards if they were to apply, since neither military training nor length of service corresponds in any way to the periods of time involved in standards designed for multi-year career training by civilian educational institutions. We agree, and have added a clause to § 75.3(a)(6) under which uniformed personnel trained by the Armed Services will be deemed to have met these standards, provided that equivalent safety protection is otherwise provided. This clause, however, does not apply to civilian employees of the uniformed services.

Other commenters requested that foreign nationals employed by Federal agencies in position outside the United States be exempted from the standards.

In response to those comments, and in the absence of any indication of a Congressional intention to impose an American accreditation and licensure model abroad, we have added a provision to the effect that such foreign nationals will be deemed to have met the requirements of the standards if, in the judgment of the employing agency, they present qualifications that are equally protective of patient health and safety.

Finally, a respondent pointed out that application of the standards would bar from Federal employment applicants who are fully qualified by training and experience but who happen to reside in States which choose—as the law permits them to do—not to adopt the standards. At the very least, it will be some years before the standards are widely established by the States. In order to avoid the consequent severe hampering of Federal civilian recruitment, we have also added to § 75.3(a)(6) a provision under which the Office of Personnel Management or the hiring agency may determine that an applicant who has been trained or has practiced in a profession in a State that has not adopted the standards for the profession shows evidence of training, experience and competence that are equally protective of patient health and safety.

In addition, to afford sufficient flexibility to deal with any other potential problems that Federal agencies might encounter, a provision has been added to allow a Federal agency to develop and use alternative criteria that it determines, after consultation with the Secretary, to offer equivalent protection of patient health and safety.

The preamble to the NPRM asked for comments as to whether the credentialing standards should be revised to identify specific eligibility requirements and examination content. One respondent stated that it would be inappropriate to expand the two licensure standards in this way, since this would severely limit the autonomy of the States in developing licensure programs. The Department agrees.

In the NPRM, the Department encourages comments on its decision to follow the existing, private-sector accreditation standards and on whether the NPRM should be revised to reduce inconsistencies. Many respondents addressed the appendixes to the NPRM. The Department has acknowledged and responded to these comments in Section III below, dealing with the individual appendixes. Many of these comments argued for more detail and others for less detail, mostly with respect to particular occupations. Responses to

these comments reflected the Department's original problem of dealing with standards which had been independently developed and which treated identical topics inconsistently, with no occupation-specific reason for so doing (e.g., on topics such as student record-keeping and general quality and quantity of staff offices and classrooms). Further, if one occupation's standard (or lack thereof) was viewed as minimally necessary, then others which exceeded it must by definition exceed the minimum (the Act allows promulgation only of "minimum" standards). Yet making a change either way to reduce inconsistencies would depart from the voluntary standards. Faced with such dilemmas, the Department has in general chosen to eliminate rather than add details except, of course, for those particular standards which directly relate to safety training.

In the NPRM, comments were solicited regarding the potential costs and effectiveness of implementing the standards. Eight of thirteen respondents stated that costs would increase as a result of these standards, while two commented that there would be no significant increase in costs. One respondent suggested that any costs resulting from these standards could be offset by a testing and/or licensure fee. In addition, two respondents indicated that the implementation of these standards would be cost effective. While the Department agrees that standards might raise costs, the standards and any costs they entail are mandatory only for Federal agencies. States are free to decide whether or not to adopt regulatory controls and at what level. Changes that we have made in this final rule, and the provision for alternative criteria, are intended to permit flexibility and cost-saving alternatives (provided, of course, that patient safety is equally well-protected), and avoid any serious and inadvertent compliance difficulties for Federal agencies. States which follow this model closely, including relevant applicability exemptions, should also avoid difficulties.

One respondent believed that both the accreditation and licensure standards should contain provisions for periodic Federal review and revision in order to ensure that they remain current. The Department recognizes that radiologic personnel must keep up with a rapidly developing scientific and technical knowledge base. However, both employers and employees have a strong incentive to ensure that radiological personnel maintain and increase their knowledge of safety-related matters.



Moreover, we expect that voluntary associations and possibly States will revise standards from time to time, and will find this easy to do given the flexibility of these standards. In the unlikely event that these standards prove incompatible with such changes, we can under the Act elect to propose revisions, with or without an explicit updating procedure. In the model statute separately transmitted to States, we have explicitly incorporated legal authority to change standards over time.

## II. Part 75

### Section 75.1(a)

Thirteen respondents questioned the purpose of the regulations, stating that they are unnecessary or that private-sector initiatives are sufficient to regulate radiologic personnel, particularly since the Department has modeled these standards on those of private organizations. It was also argued that the regulation would make recruitment of qualified personnel unnecessarily difficult. With respect to the first argument, we agree, but as previously discussed have little or no choice under the Act. With respect to the second argument, changes discussed above should eliminate the recruitment problem. Therefore, the Department believes that a wider application of standards, essentially similar to those already utilized in a significant part of the health care system, will not create substantial new difficulties in personnel recruitment.

### Section 75.1(b)

The Department proposed standards for five occupations that utilize ionizing radiation: (1) Radiographer, (2) dental hygienist, (3) dental assistant, (4) nuclear medicine technologist, and (5) radiation therapy technologist. One hundred ninety-four respondents questioned why the standards were limited to these five occupations. The Department continues to affirm its belief that it is not appropriate at this time to recommend radiologic standards for other types of health personnel who administer ionizing radiation. A fuller and more satisfactory base of information is required on existing practice, standards in the private sector, and job-knowledge requirements, particularly for those personnel who have not previously been held to rigorously developed formal standards regarding their qualifications and competency. Moreover, many occupational groups (e.g., registered nurses) predominantly perform non-radiological procedures and are already subject to a wide range of standards. It

would be both extremely difficult and unwise to attempt to create separate standards and duplicative processes limited to radiological competency. More fundamentally, the very concepts of accreditation and licensing only apply to well-defined occupational settings in which both training and job performance are tightly linked to the subject of the standards. For persons who perform radiological procedures in actual job settings rather than on the basis of nominal profession, there are better and more direct approaches such as short-term training and performance testing. Accordingly, coverage has not been extended to other occupations, although individual States have the prerogative to do so.

Nine respondents supported the Department's initial decision to not promulgate standards for personnel in ultrasound and diagnostic medical sonography.

### Section 75.2

One respondent suggested that the definition of accreditation be expanded to include the approval of individual courses. The purpose of this regulation is not to set standards for individual courses, but to set standards for educational programs that will in many cases include a considerable variety of academic and clinical training.

One respondent suggested that the term "certification" be defined in § 75.2. As explained in footnote 1 above, the term "certification" is not used in the regulation. Accordingly, no such definition is necessary.

Two respondents felt that the definition of "continuing competency" was too narrow. The Department agrees and has expanded this definition.

Four respondents suggested that the definition of "energized laboratory" be changed to include laboratories in which the equipment emits non-ionizing radiation. Since this regulation applies only to five occupations that utilize ionizing radiation, this change has not been made.

Two respondents suggested that a more complete definition of "ionizing radiation" would include neutrons and other nuclear particles. The Department agrees and has adopted this definition.

In the NPRM, the Department proposed to apply nuclear medicine technologist standards only to technologists who perform *in vivo* procedures, since *in vitro* procedures do not pose the threat of excess radiation to patients. A second rationale for this decision was based on the Department's concern that standards for the nuclear medicine technologists should not be applied to other laboratory personnel

who can perform *in vitro* procedures. Seventeen respondents objected to a lack of clarity in this definition or to the application of the standards. It was also suggested that a clearer statement on *in vivo* procedures would be necessary. The Department recognizes that *in vivo* and *in vitro* procedures fall within the scope of the nuclear medicine technology profession, but remains concerned about application of technologist standards to other personnel. Accordingly, the original statement on applicability has been retained but clarified by adding the following statement: "For purposes of this Act, any administration of radiopharmaceuticals to human beings is considered an *in vivo* procedure." In addition, to the extent that *in vitro* procedures present a potential hazard to technologists or other laboratory personnel, health and safety rules should be established in the laboratory for their protection. Such provisions, however, are beyond the scope of this regulation. The Department suggests that States examine these issues carefully in proposing licensure standards for these personnel.

Five respondents suggested other changes that would amend the definition of "nuclear medicine technologist." A suggestion to insert the phrase "administers radiopharmaceuticals to human beings" has been adopted. A suggestion to delete the reference to licensed pharmacists has also been adopted. However, the Department has chosen to exempt pharmacists from the regulation because it does not wish to impose requirements on pharmacists or their educational programs beyond those required by State licensure statutes or State-approved program accreditation. The suggestion to insert the phrase "while under the supervision of a licensed practitioner" has merit, but more properly should be contained in the State licensure statute that defines the scope of practice for nuclear medicine technologists. One respondent suggested the insertion of the phrase "represents himself or herself to the public as a nuclear medicine technologist." The Department agrees that nuclear medicine technologists are not the only professionals that perform the procedures in question and that medical technologists, clinical chemists, and others that perform *in vitro* procedures are not covered by these regulations. However, the Department feels that the definition, as written, clearly delineates who is and is not covered by this regulation.

Four respondents stated that the term "radiographer" normally denotes an



industrial radiographer who X-rays materials, and recommended substituting "radiographic technologist," "medical radiologic technologist," or "medical radiographer." The Department disagrees. Since "radiographer" is the accepted occupational title for these personnel in health care settings and is less confusing than "medical radiologic technologist," which can be applied to more than one of these professions, the term "radiographer" has been retained.

One Federal agency expressed concern that under emergency or combat conditions, persons not meeting licensure requirements may have to perform the duties of radiographers. It is recognized that under such conditions the substitution of lesser qualified personnel is preferable to doing without necessary diagnostic information obtainable by radiologic procedures. These standards do not attempt to address the use of personnel in emergency conditions, which are sufficiently rare so as not to affect the medical radiation hazards to which the general population is routinely subjected. However, to clarify this point we have created in § 75.3 a specific exemption to cover this case.

One respondent wrote that the note to the definition of "radiographer" should be deleted or a similar note added for "nuclear medicine" and "radiation therapy technologists." Another respondent requested that the note be incorporated into the definition of "radiographer", stating that this would eliminate the need for the "Description of the Profession" in the accreditation standards. The Department has incorporated the note into the definition, but has retained the Description of the Profession in Appendix A to indicate the competencies for which radiographers should be trained.

One respondent suggested that the definition of "radiologist" be amended to include physicians certified by the American Board of Chiropractic Radiology. Since the term "radiologist" is used only to refer to the qualifications of the medical director of an approved educational program, who may either be a radiologist or possess "suitable equivalent qualifications," the change is unnecessary.

#### Section 75.3

One respondent felt that military X-ray technologists should be included in the Federal requirements. The Act specifically requires all Federal agencies to comply with the standards for all employees, including military personnel, except that the VA must comply "to the

extent feasible" and issue its own regulations.

### III. Comments on Appendixes

#### Appendix A

One respondent stated that the accreditation standards for radiographers are excessively detailed, and one stated they are insufficiently detailed to protect patient health and safety. The Department believes that the accreditation standards are adequate and the level of detail of the standards has been retained.

One respondent stated that the Description of the Profession for radiographers was unclear and suggested using the American College of Radiology's wording concerning imaging techniques. The description of the profession is similar to that presently used by CAHEA, which was adopted by the College. The Department believes that this description is adequate.

One respondent suggested that a course in computer science be added to the curriculum for all radiographers. Although the Department has not made this addition to the minimum curriculum, it acknowledges that accrediting bodies may wish to do so in the future.

Two respondents commented on faculty requirements. One recommended that the criteria for instructors be more specific and detailed. The other requested that specific credentials be stated for faculty. The Department believes that within the standards as published in the NPRM, any more specific qualifications or credentials should be determined by institutions providing the educational program.

One respondent pointed out that recordkeeping requirements for radiographers were much more detailed than for nuclear medicine technologists or radiation therapy technologists. The three have been made consistent.

As was suggested by one respondent, the sponsorship section has been revised to be consistent with the other appendixes.

In other regulations, the Department has consistently eliminated the requirements for full-time program directors. In order to provide maximum flexibility to States, this policy has also been incorporated in Appendix A and E of this regulation.

#### Appendix B

Three respondents stated that Appendixes B and C could, in most instances, be combined, and two supported the Appendixes as proposed. Curriculum standards for dental radiography training are virtually the same for dental hygienists (Appendix B)

and dental assistants (Appendix C). However, the Act requires the Department's standards to distinguish between these occupations.

One respondent suggested that the words "course and program" be added to the term "dental radiography training" wherever used in Appendixes B and C. Because dental radiography training encompasses both courses and programs, as described in the sponsorship sections of Appendixes B and C, no change has been made.

Relating to sponsorship, one respondent suggested that A. use the language of the Commission on Dental Accreditation. The Commission's Standard 1, regarding educational settings, is directed toward the accreditation of a total dental hygiene education program, while the Department's standard is directed only toward dental radiography training. Since the Department intends only to propose accreditation standards for training in dental radiography, it has retained the NPRM language.

Another respondent suggested that A.1.(b) (currently A.2.) specify the Commission as the accrediting organization recognized by the U.S. Department of Education. The Department does not believe that identification of accrediting bodies will materially affect the standards and has retained the original language.

One respondent suggested that A.1.(c) (currently A.3.) specify State dental boards as the State entity responsible for approving sponsors of and training in dental radiography. States have the authority to designate the entity that sets requirements for personnel who expose and process dental radiographs. This is often, but not always, the dental board. Therefore, the original language of the standard has been retained.

Three respondents expressed concern over curriculum content, learning experiences, and institutional time, and suggested that these may pose enforcement problems for accrediting agencies. After reviewing the relevant Commission requirements and guidelines, the Department continues to believe that the provisions of this rule are consistent with voluntary sector standards, which do not appear to pose enforcement problems.

Two respondents questioned the use of the term "direct supervision" in B.1.(c) (currently B.3.). It is the intent of this standard to assure appropriate faculty supervision during a student's radiographic technique and practice assignments, but not to impose a direct and constant supervision requirement after a student has demonstrated



competence in making radiographs. Therefore, the standard has been modified.

Another respondent suggested amending B.1.(c) (currently B.3.) to state, "experiences should include primary, mixed, and permanent dentitions, as well as edentulous and partially edentulous patients." This language more completely describes possible radiographic opportunities, and the Department has adopted this suggestion. This would create a problem for the Armed Forces, as discussed by another respondent, since some uniformed personnel are not allowed to practice on children and such training would therefore be redundant. The exemption previously discussed would solve this problem.

Two respondents recommended deleting "Certified Dental Assistant" as a qualifying credential for dental radiography faculty. Another respondent suggested that dental hygiene faculty be licensed to teach these procedures, and one proposed that dental radiography faculty be required to demonstrate special training and experience. D.1.(a) (currently D.1.) is a list of minimum qualifications for individuals who teach dental radiography. The language of this section is similar to the faculty standard of the Commission's standards for dental hygiene education programs. The Department believes in maintaining flexibility for educational institutions regarding faculty requirements and has chosen to retain the original language of the NPRM.

#### Appendix C

One respondent objected that section A excludes high school dental assisting programs that otherwise meet these standards. The Department agrees and has modified this standard to include secondary educational programs.

Two respondents suggested that only programs accredited by the Commission on Dental Accreditation should be approved sponsors. The Commission accredits dental assisting education programs but does not accredit individual courses. To limit radiography training to courses conducted by Commission-accredited programs would eliminate many sponsors who are providing recognized and acceptable courses in dental radiography. Accordingly, the original language has been retained.

One respondent suggested that reference to Federal agencies be deleted from A.1.(c) (currently A.3.). The Department has deleted this language, since it is unnecessary and is inconsistent with the standards for other occupations.

Four respondents expressed concern about the level of detail in the curriculum content standards and a need to specify instructional time. In developing this standard, the Department has followed voluntary-sector standards concerning curriculum content, learning experiences, and instructional time, and believes these standards adequate. As with Appendix B, respondents also objected to use of the term "direct supervision." The Department agrees and has modified this provision.

One respondent recommended that dental assistants should in all cases be required to demonstrate competence on manikins before making radiographs on patients. The Department acknowledges the advantages of practice on manikins, but recognizes that such a requirement would greatly restrict learning opportunities in dental radiography for on-the-job-trained dental assistants, whose training needs are greatest. Appropriate instruction and supervision, as set forth in these standards, can make a radiographic exposure for diagnostic purposes into a safe learning and practice experience.

One respondent indicated that not all training facilities have children in their patient pools. The Department agrees but notes that the standard recommends that clinical experience "should" provide such opportunities. Accordingly, training facilities should make an effort to meet the intent of the standards, but may not be able to do so in all cases. As in Appendix B, this standard was also modified to include primary, mixed, and permanent dentitions, as well as edentulous and partially edentulous patients.

Three respondents stated that dental radiography faculty should be required to demonstrate special training and experience, that the Certified Dental Assistant credential is not a sufficient qualification, and that the provision for recognition of equivalent qualifications in D.1.(a) (currently D.1.) is ambiguous. D.1.(a) (currently D.1.) is a list of minimum qualifications for individuals who teach dental radiography. This standard is similar to the faculty standard found in the Commission's standards for dental assisting education programs. The Department believes in maintaining flexibility for educational institutions regarding faculty requirements and has chosen to retain this language.

One respondent requested that the note at the end of the standard specify the Commission as the accrediting body recognized by the U.S. Department of Education. As described previously, the

Department has chosen not to name such organizations in these standards.

#### Appendix D

Two respondents addressed in general terms the standards for accreditation of educational programs for nuclear medicine technologists. One concurred with the effort made to follow the CAHEA's *Essentials and Guidelines*. Another found the wording, although drawn from the *Essentials*, to be vague, incomplete, and imprecise. A third respondent suggested numerous changes in the standards for accreditation of educational programs for nuclear medicine technologists, which would essentially duplicate the proposed new draft voluntary-sector essentials. While the Department supports voluntary-sector standards, it believes that Federal requirements can be less detailed without compromising the quality of educational programs. Therefore, the standards have not been amended.

Two respondents felt that the qualifications for program director were excessively detailed, while another felt they were insufficiently detailed. The Department believes that the qualifications for program director are adequate and the original language has been retained.

One respondent recommended adding a list of recognized educational programs to the note. Since States have the responsibility to approve educational programs, the Department suggests that the States or accrediting bodies recognized by States be consulted for such a list.

#### Appendix E

Two respondents suggested that the sponsorship standard be less specific, arguing that the critical factor is that programs have good clinical affiliations and strong didactic programs regardless of institutional sponsors. In keeping with the Department's preference to follow private sector standards where appropriate, the current language has been retained.

Two respondents suggested that the curriculum be expanded to include management organization and function, statistics, and computer applications. Although the Department has not added these topics to the minimum curriculum, it recognizes that accrediting bodies may wish to make some such changes in the future.

Another respondent felt that the one-year program option should be eliminated. Since one-year programs currently exist, are accredited, and graduate personnel fully cognizant of patient health and safety considerations,



the Department does not believe that Federal regulations should be more restrictive.

One respondent suggested that in C.4., the standard should require laboratories to meet applicable Federal and State standards. The Department agrees and has made the appropriate change.

To maintain consistency with minimum, voluntary-sector standards, the Department felt that it was necessary to add, "or possess suitable equivalent qualifications" to the program director qualifications.

#### *Appendixes F and G*

One State agency opposed the creation of standards that would lead to a licensure law and questioned the need for separate licenses for the five professions covered by this regulation. The Department has recommended minimum standards for each of these distinct occupations, as required by Pub. L. 97-35. As written, the standards for "nuclear medicine technologist", "radiation therapy technologist", and "radiographer" can be incorporated into a State licensure program. "Dental hygienist" is already licensed in all States. For "dental assistant", a permit to engage in dental radiography may be preferable. However, States that elect to implement such standards may choose among a variety of implementation strategies.

Five respondents dealt with the continuing competency requirement in Appendixes F and G. They questioned its specificity, cost-effectiveness, and feasibility of enforcement. The Department believes that licensure without a requirement for maintaining competency does not serve to protect the public. However, the state of the art in assuring continued competency is such that specific guidelines cannot be presented at this time. States that choose to set a continuing competency requirement should develop an oversight or enforcement mechanism.

The NPRM mentioned the National Commission for Health Certifying Agencies (NCHCA) as having published suitable criteria for certifying organizations. Three respondents objected to mention of the NCHCA. One suggested that a list of criteria would be acceptable. Twelve respondents supported the reference to the NCHCA's criteria and in most cases requested additional information. The Department believes that States can look to NCHCA for an acceptable method of evaluating certifying practices, but does not see the need to incorporate lengthy additional material that is readily available.

One respondent suggested that the adoption of criteria such as those of NCHCA is less significant than adherence to such criteria. The Department agrees. This respondent also suggests that States be required to develop processes that will ensure that accrediting organizations adhere to such criteria. The Department considers this overly prescriptive in a Federal standard and believes that the present wording of this section provides sufficient guidance to States on matters of validity, objectivity, and fairness in establishing standards.

Two respondents requested that language be added to require that examinations be currently reliable and valid. The Department believes that reliability and validity issues are adequately covered in the section on policies and procedures.

Two respondents requested addition of the following statement, "a State agency may, in lieu of its own examination, recognize successful completion of a national credentialing examination." It is not the intent of the Department to specify, within these regulations, the procedures by which States may or may not implement these standards. The standards allow either approach. Therefore, the statement has not been adopted.

Three respondents objected to the special eligibility clause in Appendixes F and G (B.2.), feeling that the standard should require all applicants to be graduates of accredited programs. The Department believes that States should develop procedures to permit applicants who have training and/or experience equal to or greater than graduates of accredited programs to take the licensure examination. Only dental hygiene has no special eligibility clause, since all States license hygienists and require graduation from an accredited program. Therefore, the original language has been retained.

Two respondents endorsed the use of the term "competency-based examination" rather than "criterion-referenced examination" in Appendix F, believing it to be more comprehensive. Another respondent suggested expanding the wording to include "and functional capability." However, the term "criterion-referenced examination" is widely accepted, understood, and used in the credentialing community, and the Department feels that the proposed change would not serve to clarify the standard.

#### *Appendix G*

One respondent suggested that Federal entities could also issue licenses or permits. Currently, some Federal

agencies that train dental personnel provide a certificate of completion of the program, but none take the next step of credentialing the individual. Although this step may be considered by Federal agencies in the future, credentialing is basically a State function (licensing) or private sector function (certification). The Department, therefore, has retained the original language.

One respondent suggested combining B.1. and B.2., which specify eligibility requirements. The Department believes that the present organization of the standard more clearly shows the requirements of each pathway to eligibility, i.e., formal education and combination of training and/or experience.

Two respondents suggested an eligibility requirement of high school graduation or the equivalent for dental assistants. Since the standards specify in some detail the education and training required to be eligible for a permit, an additional requirement does not appear necessary. States may establish such a requirement as they determine necessary.

Four respondents made recommendations relative to examinations. One respondent encouraged the use of the Dental Assisting National Board examination; two stated that a clinical examination is necessary to assure competence; and the other suggested that examination content areas be specified. The standard, as revised, allows States maximum flexibility in selecting the type of examination necessary to determine competence, including a clinical examination.

#### **Regulatory Flexibility Act and Executive Order 12291**

The Department certifies that these regulations will not have a significant economic impact on a substantial number of small entities, including small businesses, small organizational units, and small governmental jurisdictions and, therefore, does not require a regulatory flexibility analysis under the Regulatory Flexibility Act of 1980.

The Department has also determined that this is not a major rule under the Executive Order 12291, because it will not result in:

- (1) An annual effect on the economy of \$100 million or more;
- (2) A major increase in costs or prices for consumers, individual industries, Federal, State, or local government agencies, or geographic regions; or
- (3) Significant adverse effects on competition, employment, investment, productivity, innovation, or the ability of



United States-based enterprises to compete with foreign-based enterprises in domestic or export markets.

While the costs of implementation of these regulations by Federal agencies cannot be calculated in the absence of specific implementation plans, no significant costs are anticipated, and we have sought to minimize or eliminate anticompetitive effects.

Promulgation of these standards will affect private-sector health costs only to the extent that States elect to regulate these personnel when otherwise they would not do so. This effect is probably minimal since State regulation of these personnel has been increasing without a Federal model regulation. Regardless, this regulation does not "result in" such impacts, and we do not believe that significant costs are involved.

#### List of Subjects in CFR Part 75

Credentialing of radiologic personnel, Federal radiologic personnel, Health personnel standards, Medical radiation, Radiation protection, Radiologic personnel standards, Standards for radiologic personnel.

Dated: November 25, 1985.

James O. Mason,

Assistant Secretary for Health.

Approved: November 26, 1985.

Margaret M. Heckler,

Secretary.

Therefore, Part 75 will be added to Subchapter F of Title 42 of the Code of Federal Regulations as set forth below.

#### PART 75—STANDARDS FOR THE ACCREDITATION OF EDUCATIONAL PROGRAMS FOR AND THE CREDENTIALING OF RADIOLOGIC PERSONNEL

Sec.

75.1 Background and purpose.

75.2 Definitions.

75.3 Applicability.

Appendix A—Standards for Accreditation of Education Programs for Radiographers

Appendix B—Standards for Accreditation of Dental Radiography Training for Dental Hygienists

Appendix C—Standards for Accreditation of Dental Radiography Training for Dental Assistants

Appendix D—Standards for Accreditation of Educational Programs for Nuclear Medicine Technologists

Appendix E—Standards for Accreditation of Education Programs for Radiation Therapy Technologists

Appendix F—Standards for Licensing Radiographers, Nuclear Medicine Technologists, and Radiation Therapy Technologists

Sec.

Appendix G—Standards for Licensing Dental Hygienists and Dental Assistants in Dental Radiography

Authority: Sec. 979 of the Consumer-Patient Radiation Health and Safety Act of 1981, Pub. L. 97-35, 95 Stat. 599-600 (42 U.S.C. 10004).

#### § 75.1 Background and purpose.

(a) The purpose of these regulations is to implement the provisions of section 979 of the Consumer-Patient Radiation Health and Safety Act of 1981, 42 U.S.C. 10004, which requires the establishment by the Secretary of Health and Human Services of standards for the accreditation of programs for the education of certain persons who administer radiologic procedures and for the credentialing of such persons.

(b) Section 979 requires the Secretary, after consultation with specified Federal agencies, appropriate agencies of States, and appropriate professional organizations, to promulgate by regulation the minimum standards described above. These standards distinguish between the occupations of (1) radiographer, (2) dental hygienist, (3) dental assistant, (4) nuclear medicine technologist, and (5) radiation therapy technologist. In the interest of public safety and to prevent the hazards of improper use of medical radiation identified by Congress in its determination of the need for standards, the Secretary is also authorized to prepare standards for other occupational groups utilizing ionizing and non-ionizing radiation as he/she finds appropriate. However, the standards set out below are limited to the five occupational groups listed above, utilizing ionizing radiation. Nothing in these accreditation standards is intended to discriminate against proprietary schools.

#### § 75.2 Definitions.

All terms not defined herein shall have the meaning given them in the Act. As used in this part:

"Accreditation," as applied to an educational program, means recognition, by a State government or by a nongovernmental agency or association, of a specialized program of study as meeting or exceeding certain established qualifications and educational standards. As applied to a health care or educational institution, "accreditation" means recognition, by a State government or by a nongovernmental agency or association, of the institution as meeting or exceeding certain established standards or criteria for that type of institution.

"Act" means the Consumer-Patient Radiation Health and Safety Act of 1981, 42 U.S.C. 10001-10008.

"Continuing competency" means the maintenance of knowledge and skills and/or demonstrated performance that are adequate and relevant to professional practice needs.

"Credentialing" means any process whereby a State Government or nongovernmental agency or association grants recognition to an individual who meets certain predetermined qualifications.

"Dental hygienist" means a person licensed by the State as a dental hygienist.

"Dental assistant" means a person other than a dental hygienist who assists a dentist in the care of patients.

"Educational program" means a set of formally structured activities designed to provide students with the knowledge and skills necessary to enter an occupation, with evaluation of student performance according to predetermined objectives.

"Energized laboratory" means any facility which contains equipment that generates ionizing radiation. This does not include facilities for training students when the equipment is not powered to emit ionizing radiation, e.g., practice in setting controls and positioning of patients.

"Formal training" means training or education, including either didactic or clinical practicum or both, which has a specified objective, planned activities for students, and suitable methods for measuring student attainment, and which is offered, sponsored, or approved by an organization or institution which is able to meet or enforce these criteria.

"Ionizing radiation" means any electromagnetic or particulate radiation (X-rays, gamma rays, alpha and beta particles, high speed electrons, neutrons, and other nuclear particles) which interacts with atoms to produce ion pairs in matter.

"Licensed practitioner" means a licensed doctor of medicine, osteopathy, dentistry, podiatry, or chiropractic.

"Licensure" means the process by which an agency of State government grants permission to persons meeting predetermined qualifications to engage in an occupation.

"Nuclear medicine technologist" means a person other than a licensed practitioner who prepares and administers radio-pharmaceuticals to human beings and conducts *in vivo* or *in vitro* detection and measurement of radioactivity for medical purposes.

"Permit" means an authorization issued by a State for specific tasks or



practices rather than the entire scope of practice in an occupation.

"Radiation therapy technologist" means a person other than a licensed practitioner who utilizes ionizing radiation-generating equipment for therapeutic purposes on human subjects.

"Radiographer" means an individual other than a licensed practitioner who (1) performs, may be called upon to perform, or who is licensed to perform a comprehensive scope of diagnostic radiologic procedures employing equipment which emits ionizing radiation, and (2) is delegated or exercises responsibility for the operation of radiation-generating equipment, the shielding of patient and staff from unnecessary radiation, the appropriate exposure of radiographs, or other procedures which contribute to any significant extent to the site or dosage of ionizing radiation to which a patient is exposed. Radiographers are distinguished from personnel whose use of diagnostic procedures is limited to a few specific body sites and/or standard procedures, from those personnel in other clinical specialties who may occasionally be called upon to assist in diagnostic radiology, and from those technicians or assistants whose activities do not, to any significant degree, determine the site or dosage of radiation to which a patient is exposed.

"Radiologist" means a physician certified in radiology by the American Board of Radiology or the American Osteopathic Board of Radiology.

### § 75.3 Applicability.

(a) *Federal Government.* Except as provided in section 983 of the Act, the credentialing standards set out in the Appendixes to this part apply to those individuals who administer or propose to administer radiologic procedures, in each department, agency and instrumentality of the Federal Government as follows:

(1) "Radiographer Standards" apply to all individuals who are radiographers as defined in § 75.2 and who are not practitioners excepted by the Act.

(2) "Nuclear Medicine Technologist Standards" apply to all individuals who are nuclear medicine technologists as defined in § 75.2, who perform *in vivo* nuclear medicine procedures, and who are not practitioners excepted by the Act. For purposes of this Act, any administration of radiopharmaceuticals to human beings is considered an *in vivo* procedure.

(3) "Radiation Therapy Technologist Standards" apply to all individuals who perform radiation therapy and who are not practitioners excepted by the Act.

(4) "Dental Hygienist Standards" apply to all dental hygienists who perform dental radiography.

(5) "Dental Assistant Standards" apply to all dental assistants who perform dental radiography.

(6) The following persons are deemed to have met the requirements of these standards:

(i) Persons employed by the Federal government as radiologic personnel prior to the effective date of this regulation and who show evidence of current or fully satisfactory performance or certification of such from a licensed practitioner.

(ii) Uniformed military personnel who receive radiologic training from or through the Armed Forces of the United States and who meet standards established by the Department of Defense or components thereof, provided that those standards are determined by such Department or component to offer equivalent protection of patient health and safety;

(iii) Foreign national employed by the Federal government in positions outside of the United States who show evidence of training, experience, and competence determined by the employing agency to be equally protective of patients health and safety; and

(iv) Persons first employed by the Federal government as radiologic personnel after the effective date of this regulation who (a) received training from institutions in a State or foreign jurisdiction which did not accredit training in that particular field at the time of graduation, or (b) practiced in a State or foreign jurisdiction which did not license that particular field or which did not allow special eligibility to take a licensure examination for those who did not graduate from an accredited educational program; provided that such persons show evidence of training, experience, and competence determined by the Office of Personnel Management or the employing agency to be equally protective of patient health and safety.

(7) The following persons are exempted from these standards:

(i) Persons who are trained to perform, or perform, covered radiologic procedures in emergency situations which preclude use of fully qualified personnel; and

(ii) Students in approved training programs.

(8) A department, agency, or instrumentality of the Federal government may, after consultation with the Secretary, use alternative criteria which it determines would offer equivalent protection of patient health and safety.

(b) *States.* The States may, but are not required to, adopt standards for accreditation and credentialing that are consistent with the standards set out in the Appendixes to this part.

## Appendix A.—Standards for Accreditation of Educational Programs for Radiographers

### A. Description of the Profession

The radiographer shall perform effectively by:

1. Applying knowledge of the principles of radiation protection for the patient, self, and others.
2. Applying knowledge of anatomy, positioning, and radiographic techniques to accurately demonstrate anatomical structures on a radiograph.
3. Determining exposure factors to achieve optimum radiographic technique with a minimum of radiation exposure to the patient.
4. Examining radiographs for the purpose of evaluating technique, positioning, and other pertinent technical qualities.
5. Exercising discretion and judgment in the performance of medical imaging procedures.
6. Providing patient care essential to radiologic procedures.
7. Recognizing emergency patient conditions and initiating lifesaving first aid.

### B. Sponsorship

1. Accreditation will be granted to the institution that assumes primary responsibility for curriculum planning and selection of course content; coordinates classroom teaching and supervised clinical education; appoints faculty to the program; receives and processes applications for admission; and grants the degree or certificate documenting completion of the program.

2. Educational programs may be established in:

- (a) Community and junior colleges, senior colleges, and universities;
- (b) Hospitals;
- (c) Medical schools;
- (d) Postsecondary vocational/technical schools and institutions; and
- (e) Other acceptable institutions which meet comparable standards.

3. The sponsoring institutions and affiliate(s) must be accredited by a recognized agency. When the sponsoring institution and affiliate(s) are not so recognized, they may be considered as meeting the requirements of accreditation if the institution meets or exceeds established equivalent standards.

### C. Instructional Facilities

1. *General.* Appropriate classroom and clinical space, modern equipment, and supplies for supervised education shall be provided.

2. *Laboratory.* Energized laboratories utilized for teaching purposes shall be certified as required for compliance with Federal and/or State radiation safety regulations. The use of laboratories shall be governed by established educational objectives.



3. *Reference Materials.* Adequate up-to-date scientific books, periodicals, and other reference materials related to the curriculum and profession shall be readily accessible to students.

#### D. Clinical Education

1. The clinical phase of the educational program shall provide an environment for supervised competency-based clinical education and experience and offer a sufficient and well-balanced variety of radiographic examinations and equipment.

2. An acceptable ratio of students to registered technologists shall be maintained in the clinical teaching environment.

3. A clinical instructor(s), who shall be responsible for supervising students according to objectives, shall be identified for each primary clinical education center.

4. The maximum student enrollment shall not exceed the capacity recommended on the basis of volume and variety of radiographic procedures, resources, and personnel available for teaching purposes.

5. In programs where didactic and clinical experience are not provided in the same institution, accreditation shall be given only to the institution responsible for admissions, curriculum, and academic credit. The accredited institution shall be responsible for coordinating the program and assuring that the activities assigned to the students in the clinical setting are educational. There shall be a uniform contract between the accredited institution and each of its affiliate hospitals, clearly defining the responsibilities and obligations of each.

#### E. Curriculum

1. The structure of the curriculum shall be based on not less than two calendar years of full-time study or its equivalent.

2. Instruction shall follow a planned outline that includes:

- (a) The assignment of appropriate instructional materials;
- (b) Classroom presentations, discussions and demonstrations; and
- (c) Examinations in the didactic and clinical aspects of the program.

3. All professional courses, including clinical education, must include specific curriculum content that shall include, but shall not be limited to:

- (a) Introduction to radiologic technology;
- (b) Medical ethics;
- (c) Imaging;
- (d) Radiographic processing technique;
- (e) Human structure and function;
- (f) Medical terminology;
- (g) Principles of radiographic exposure;
- (h) Radiographic procedures;
- (i) Principles of radiation protection;
- (j) Radiographic film evaluation;
- (k) Methods of patient care;
- (l) Pathology;
- (m) Radiologic physics; and
- (n) Radiation biology.

Related subjects added to the professional curriculum shall meet the requirements of the degree-granting institution.

#### F. Finances

Financial resources for operation for the educational program shall be assured through

regular budgets, gifts, grants, endowments, or fees.

#### G. Faculty

1. *Program Director.* A program director shall be designated who is credentialed in radiography. The program director's responsibilities in teaching, administration, and coordination of the educational program in radiography shall not be adversely affected by educationally unrelated functions.

(a) *Minimum qualifications.* A minimum of two years of professional experience and proficiency in instructing, curriculum design, program planning, and counseling.

(b) *Responsibilities.* (1) The program director, in consultation with the medical director/advisor (G. 2.) shall be responsible for the organization, administration, periodic review, records, continued development, and general policy and effectiveness of the program.

(2) Opportunities for continuing education shall be provided for all faculty members.

2. *Medical Director/Medical Advisor—(a) minimum qualifications.* The medical director/medical advisor shall be a qualified radiologist, certified by the American Board of Radiology, or shall possess suitable equivalent qualifications.

(b) *Responsibilities.* The medical director/medical advisor shall work in consultation with the program director in developing the goals and objectives of the program and implementing the standards for their achievement.

3. *Instructors.* All instructors shall be qualified through academic preparation and experience to teach the assigned subjects.

#### H. Students

##### Admission

(a) Candidates for admission shall satisfy the following minimum requirements: Completion of four years of high school; successful completion of a standard equivalency test; or certification of equivalent education by an organization recognized by the United States Department of Education. Courses in physics, chemistry, biology, algebra, and geometry are strongly recommended.

(b) The number of students enrolled in each class shall be commensurate with the most effective learning and teaching practices and should also be consistent with acceptable student-teacher ratios.

##### I. Records

Records shall be maintained as dictated by good educational practices.

**Note.**—Educational programs accredited by an organization recommended by the United States Department of Education are considered to have met these standards.

#### Appendix B—Standards for Accreditation of Dental Radiography Training for Dental Hygienists

##### A. Sponsorship

Sponsorship must be by an entity that assumes primary responsibility for the planning and conduct of competency-based didactic and clinical training in dental radiography.

1. This responsibility must include: defining the curriculum in terms of program goals, instructional objectives, learning experiences designed to achieve goals and objectives, and evaluation procedures to assess attainment of goals and objectives; coordinating classroom teaching and supervised clinical experiences; appointing faculty; receiving and processing applications for admission; and granting documents of successful completion of the program.

2. The formal training in dental radiography may be a part of a total program of dental hygiene education accredited by an organization recognized by the United States Department of Education.

3. The sponsoring entity and the dental radiography training must be approved by the State entity responsible for approving dental hygiene education programs or the State entity responsible for credentialing dental personnel in radiography.

##### B. Curriculum

Dental radiography training for dental hygienists must provide sufficient content and instructional time to assure competent performance.

1. The dental radiography curriculum content and learning experiences must include the theoretical aspects of the subject as well as practical application of techniques. The theoretical aspects should provide content necessary for dental hygienists to understand the critical nature of the radiological procedures they perform and of the judgments they make as related to patient and operator radiation safety.

2. The dental radiography curriculum must include content in seven areas: radiation physics; radiation biology; radiation health, safety, and protection; X-ray films and radiographic film quality; radiographic techniques; darkroom and processing techniques; and film mounting.

—*Radiation Physics.* Curriculum content should include: historical background; role of radiology in modern dentistry; types of radiation; X-ray production principles; operation of X-ray equipment; properties of X-radiation; and X-radiation units, detection and monitoring devices.

—*Radiation Biology.* Curriculum content should include: Interaction of ionizing radiation with cells, tissues, and matter; factors influencing biological response of cells and tissues to ionizing radiation; somatic and genetic effects of radiation exposure; and cumulative effects of X-radiation and latent period.

—*Radiation Health, Safety, and Protection.* Curriculum content should include: Sources and types of radiation exposure; public health implications and public concerns; principles of radiological health including collimation and filtration; radiation protection methods in the dental office; necessity for high diagnostic yield with a reduction of X-radiation exposure; and monitoring devices.

—*X-ray Films and Radiographic Film Quality.* Curriculum content should include: X-radiation production and scatter; X-ray beam quality and quantity; factors influencing radiographic density, contrast,



definition, and distortion; film characteristics; dosage related to film speed; types of films, cassettes, and screens; and film identification systems.

- Radiographic Techniques.** Curriculum content should include: imagery geometry; patient positioning; film/film holder positioning; cone positioning and exposure settings for the intraoral paralleling technique, bisecting the angle technique, and techniques for occlusal radiographs; extraoral panoramic techniques; and patient variations that affect the above techniques.

- Darkroom and Processing Techniques.** Curriculum content should include: solution chemistry and quality maintenance; darkroom equipment and safe lighting; film processing techniques; automatic film processing; and processing errors.

- Film Mounting.** Curriculum content should include: anatomical landmarks essential to mounting films; film mounting procedures; and diagnostic quality of radiographs.

3. The curriculum must also include clinical practice assignments.

- Clinical practice assignments must be an integral part of the curriculum so that Dental Hygienists have the opportunity to develop competence in making radiographs. Faculty supervision must be provided during a student's radiographic technique experience. Students must demonstrate competence in making diagnostically acceptable radiographs prior to their clinical practice where there is not direct supervision by faculty.
- Dental hygienists must demonstrate knowledge of radiation safety measures before making radiographs and, where possible, should demonstrate competence on manikins before making radiographs on patients. Radiographs must be exposed for diagnostic purposes and not solely to demonstrate techniques or obtain experience.
- The clinical experience should provide opportunity to make a variety of radiographs and radiographic surveys including primary, mixed, and permanent dentitions, as well as edentulous and partially edentulous patients.

#### C. Student Evaluation

Evaluation procedures must be developed to assess performance and achievement of dental radiography program objectives.

#### D. Faculty

The dental radiography training must be conducted by faculty who are qualified in the curriculum subject matter.

1. This may include a D.D.S./D.M.D. degree; graduation from an accredited dental assisting or dental hygiene education program with a certificate or an associate or baccalaureate degree; status as a Certified Dental Assistant certified by the Dental Assisting National Board; or recognition as equivalently qualified by the State entity which approved the training program in dental radiography.

2. The faculty-to-student ratio must be adequate to achieve the stated objectives of the curriculum.

#### E. Facilities

Adequate radiographic facilities must be available to permit achievement of the dental radiography training objectives. The design, location, and construction of radiographic facilities must provide optimum protection from X-radiation for patients and operators. Equipment shall meet State and Federal laws related to radiation. Monitoring devices shall be worn by dental personnel. Lead aprons must be placed to protect patients. Safe storage for films must be provided. Darkroom facilities and equipment must be available and of a quality that assures that films will not be damaged or lost.

#### F. Learning Resources

A wide range of printed materials, instructional aids, and equipment must be available to support instruction. Current specialized reference texts should be provided; and models, replicas, slides, and films which depict current techniques should be available for use in instruction. As appropriate self-instructional materials become available, they should be provided for the student's use.

**Note.**—Educational programs accredited by an organization recognized by the United States Department of Education are considered to have met these standards. Under existing licensure provisions in all States, becoming a dental hygienist requires graduation from a dental hygiene education program accredited by an organization recognized by the United States Department of Education. In lieu of this requirement, Alabama accepts graduation from a State-approved preceptorship program.

### Appendix C—Standards for Accreditation of Dental Radiography Training for Dental Assistants

#### A. Sponsorship

Sponsorship must be an entity that assumes primary responsibility for the planning and conduct of competency-based didactic and clinical training in dental radiography.

1. This responsibility must include: Defining the curriculum in terms of program goals, instructional objectives, learning experiences designed to achieve goals and objectives, and evaluation procedures to assess attainment of goals and objectives; coordinating classroom teaching and supervised clinical experiences; appointing faculty; receiving and processing applications for admission; and granting documents of successful completion of the program.

2. Dental radiography training may be freestanding (as a continuing education course offered by State dental/dental auxiliary societies, or by dental/dental auxiliary education programs); or be a part of an educational program in dental assisting. Such dental assisting education programs may be accredited by an organization recognized by the United States Department of Education; or located in a school accredited by an institutional accrediting agency recognized by the United States Department of Education or approved by the State agency responsible for secondary and postsecondary education, or approved by a

Federal agency conducting dental assistant education in that Agency.

3. The sponsoring entity and the dental radiography training must be approved by the State entity responsible for approving dental assisting education programs, or the State entity responsible for credentialing dental personnel in radiography.

#### B. Curriculum

Dental radiography training for dental assistants must provide sufficient content and instructional time to assure competent performance.

1. The dental radiography curriculum content and learning experiences must include the theoretical aspects of the subject as well as practical application of techniques. The theoretical aspects should provide content necessary for dental assistants to understand the critical nature of the radiological procedures they perform and of the judgments they make as related to patient and operator radiation safety.

2. The dental radiography curriculum must include content in seven areas: radiation physics; radiation biology; radiation health, safety, and protection; X-ray films and radiographic film quality; radiographic techniques; darkroom and processing techniques; and film mounting.

- Radiation Physics.** Curriculum content should include: Historical background; role of radiology in modern dentistry; types of radiation; X-ray production principles; operation of X-ray equipment; properties of X-radiation; and X-radiation units, detection and monitoring devices.

- Radiation Biology.** Curriculum content should include: interaction of ionizing radiation with cells, tissues, and matter; factors influencing biological response of cells and tissues to ionizing radiation; somatic and genetic effects of radiation exposure; and cumulative effects of X-radiation and latent period.

- Radiation Health, Safety, and Protection.** Curriculum content should include: sources and types of radiation exposure; public health implications and public concerns; principles of radiological health including collimation and filtration; radiation protection methods in the dental office; necessity for high diagnostic yield with a reduction of X-radiation exposure; and monitoring devices.

- X-ray Films and Radiographic Film Quality.** Curriculum content should include: X-radiation production and scatter; X-ray beam quality and quantity; factors influencing radiographic density, contrast, definition, and distortion; film characteristics; dosage related to film speed; types of films, cassettes, and screens; and film identification systems.

- Radiographic Techniques.** Curriculum content should include: imagery geometry; patient positioning; film/film holder positioning; cone positioning and exposure settings for the intraoral paralleling technique, bisecting the angle technique, and techniques for occlusal radiographs; extraoral panoramic techniques; and patient variations that affect the above techniques.



**Darkroom and Processing Techniques.** Curriculum content should include: Solution chemistry and quality maintenance; darkroom equipment and safe lighting; film processing techniques; automatic film processing; and processing errors.

**Film Mounting.** Curriculum content should include: anatomical landmarks essential to mounting films; film mounting procedures; and diagnostic quality of radiographs.

3. The curriculum must also include clinical practice assignments.

**Clinical practice assignments** must be an integral part of the curriculum so that Dental Assistants have the opportunity to develop competence in making radiographs. The clinical experience may be conducted in the dental office in which the Dental Assistant is employed or is serving an externship. Faculty and/or employing dentist supervision must be provided during a student's radiographic technique experience. Students must demonstrate competence in making diagnostically acceptable radiographs prior to their clinical practice when there is not direct supervision by faculty and/or the employing dentist.

**Dental Assistants** must demonstrate knowledge of radiation safety measures before making radiographs, and where possible should demonstrate competence on manikins before making radiographs on patients. Radiographs must be exposed for diagnostic purposes and not solely to demonstrate techniques or obtain experience.

**The clinical experience** should provide opportunity to make a variety of radiographs and radiographic surveys, including primary, mixed, and permanent dentitions, as well as edentulous and partially edentulous patients.

#### C. Student Evaluation

Evaluation procedures must be developed to assess performance and achievement of dental radiography program objectives.

#### D. Faculty

The dental radiography training must be conducted by faculty who are qualified in the curriculum subject matter.

1. This may include a D.D.S./D.M.D. degree; graduation from an accredited dental assisting or dental hygiene education program with a certificate or an associate or baccalaureate degree; status as a Certified Dental Assistant certified by the Dental Assisting National Board; or recognition as equivalently qualified by the State entity (or Federal agency where appropriate) which approves the educational program in dental radiography.

2. The faculty-to-student ratio must be adequate to achieve the stated objectives of the curriculum.

#### E. Facilities

Adequate radiographic facilities must be available to permit achievement of the dental radiography training objectives. The design, location, and construction of radiographic facilities must provide optimum protection from X-radiation for patients and operators.

Equipment shall meet State and Federal laws related to radiation. Monitoring devices shall be worn by dental personnel. Lead aprons must be placed to protect patients. Safe storage for films must be provided. Darkroom facilities and equipment must be available and of a quality that assures that films will not be damaged or lost.

#### F. Learning Resources

A wide range of printed materials, instructional aids, and equipment must be available to support instruction. Current specialized reference texts should be provided; and models, replicas, slides, and films which depict current techniques should be available for use in instruction. As appropriate self-instructional materials become available, they should be provided for the student's use.

**Note.**—Educational programs accredited by an organization recognized by the United States Department of Education are considered to have met these standards.

### Appendix D—Standards for Accreditation of Educational Programs for Nuclear Medicine Technologists

#### A. Sponsorship

1. Accreditation will be granted to the institution that assumes primary responsibility for curriculum planning and selection of course content; coordinates classroom teaching and supervised clinical education; appoints faculty to the program; receives and processes applications for admission; and grants the degree or certificate documenting completion of the program.

2. Educational programs may be established in:

- (a) Community and junior colleges, senior colleges, and universities;
- (b) Hospitals and clinics;
- (c) Laboratories;
- (d) Medical schools;
- (e) Postsecondary vocational/technical schools and institutions; and
- (f) Other acceptable institutions which meet comparable standards.

3. The sponsoring institution and affiliate(s) must be accredited by a recognized agency. When the sponsoring institution and affiliate(s) are not so recognized, they may be considered as meeting the requirements of accreditation if the institution meets or exceeds established equivalent standards.

4. Responsibilities of the sponsor and each affiliate for program administration, instruction, supervision, etc., must be carefully described in written affiliation agreements.

#### B. Curriculum

Instruction must follow a plan which documents:

1. A structured curriculum including clinical education with clearly written syllabi which describe learning objectives and competencies to be achieved. The curriculum shall be based on not less than one calendar year of full-time study or its equivalent.

2. The minimum professional curriculum that includes the following:

- (a) Methods of patient care;

- (b) Radiation safety and protection;
  - (c) Nuclear medicine physics;
  - (d) Radiation physics;
  - (e) Nuclear instrumentation;
  - (f) Statistics;
  - (g) Radionuclide chemistry;
  - (h) Radiopharmacology;
  - (i) Departmental organization and function;
  - (j) Radiation biology;
  - (k) Nuclear medicine *in vivo* and *in vitro* procedures;
  - (l) Radionuclide therapy;
  - (m) Computer applications; and
  - (n) Clinical practicum.
3. Assignment of appropriate instructional materials.

4. Classroom presentations, discussions, and demonstrations.

5. Supervised practice, experience, and discussions. This shall include the following:

- (a) Patient care and patient recordkeeping;
- (b) Participation in the quality assurance program;
- (c) The preparation, calculation, identification, administration, and disposal of radiopharmaceuticals;
- (d) Radiation safety techniques that will minimize radiation exposure to the patient, public, fellow workers, and self;
- (e) The performance of an adequate number and variety of imaging and non-imaging procedures; and
- (f) Clinical correlation of nuclear medicine procedures.

6. Evaluation of student's knowledge, problem-solving skills, and motor and clinical competencies.

7. The competencies necessary for graduation.

#### C. Resources

1. The program must have qualified program officials. Primary responsibilities shall include program development, organization, administration, evaluation, and revision. The following program officials must be identified:

(a) **Program Director.**—(1) *Responsibilities.* The program director of the educational program shall have overall responsibility for the organization, administration, periodic review, continued development, and general effectiveness of the program. The director shall provide supervision and coordination to the instructional staff in the academic and clinical phases of the program. Regular visits to the affiliates by the program director must be scheduled.

(2) *Qualifications.* The program director must be a physician or nuclear medicine technologist. The program director must demonstrate proficiency in instruction, curriculum design, program planning, and counseling.

(b) **Medical Director.**—(1) *Responsibilities.* The medical director of the program shall provide competent medical direction and shall participate in the clinical instruction. In multiaffiliate programs each clinical affiliate must have a medical director.

(2) *Qualifications.* The medical director must be a physician qualified in the use of radionuclides and a diplomate of the American Board(s) of Nuclear Medicine, or



Pathology, or Radiology, or possess suitable equivalent qualifications.

(c) *Clinical Supervisor.* Each clinical affiliate must appoint a clinical supervisor.

(1) *Responsibilities.* The clinical supervisor shall be responsible for the clinical education and evaluation of students assigned to that clinical affiliate.

(2) *Qualifications.* The clinical supervisor must be a technologist credentialed in nuclear medicine technology.

2. *Instructional Staff—(a) Responsibilities.* The instructional staff shall be responsible for instruction in the didactic and/or clinical phases of the program. They shall submit course outlines for each course assigned by the program director; evaluate students and report progress as required by the sponsoring institution; and cooperate with the program director in the periodic review and upgrading of course material.

(b) *Qualifications.* The instructors must be qualified, knowledgeable, and effective in teaching the subjects assigned.

(c) *Instructor-to-student ratio.* The instructor-to-student ratio shall be adequate to achieve the stated objectives of the curriculum.

(d) *Professional development.* Accredited programs shall assure continuing education in the health profession or occupation and ongoing instruction for the faculty in curriculum design and teaching techniques.

3. Financial resources for continued operation of the educational program must be assured.

4. *Physical Resources.* (a) *General.* Adequate classrooms, laboratories, and other facilities shall be provided.

(b) *Equipment and Supplies.* Modern nuclear medicine equipment, accurately calibrated, in working order, and meeting applicable Federal and State standards, if any, must be available for the full range of diagnostic and therapeutic procedures as outlined in the curriculum.

(c) *Reference Materials.* Reference materials appropriate to the curriculum shall be readily accessible to students.

(d) *Records.* Records shall be maintained as dictated by good educational practices.

5. *Instructional Resources.* Instructional aids such as clinical materials, reference materials, demonstration and other multimedia materials must be provided.

#### D. Students

##### Admission Requirements

Persons admitted into nuclear medicine technology programs shall have completed high school or its equivalent. They shall have completed postsecondary courses in the following areas:

- (1) Human anatomy and physiology;
- (2) Physics;
- (3) Mathematics;
- (4) Medical terminology;
- (5) Oral and written communications;
- (6) General chemistry; and
- (7) Medical ethics.

Prerequisites may be completed during nuclear medicine training. Educational institutions such as junior colleges, universities, and technical vocational institutes may provide these prerequisite courses as part of an integrated program in

nuclear medicine technology (i.e., two to four years).

#### E. Operational Policies

Students may not take the responsibility nor the place of qualified staff. However, students may be permitted to perform procedures after demonstrating proficiency, with careful supervision.

#### F. Continuing Program Evaluation

1. Periodic and systematic review of the program's effectiveness must be documented.

2. One element of program evaluation shall be the initial employment of graduates of the program.

**Note.**—Educational programs accredited by an organization recognized by the United States Department of Education are considered to have met these standards.

### Appendix E—Standards for Accreditation of Educational Programs for Radiation Therapy Technologists

#### A. Sponsorship

1. Educational programs may be established in:

- (a) Community and junior colleges, senior colleges, and universities;
- (b) Hospitals, clinics, or autonomous radiation oncology centers meeting the criteria for major cancer management centers or meeting demonstrably equivalent standards;
- (c) Medical schools; and
- (d) Postsecondary vocational/technical schools and institutions.

2. The sponsoring institution and affiliates, if any, must be accredited by recognized agencies or meet equivalent standards. When more than one clinical education center is used, each must meet the standards of a major cancer management center.

3. When didactic preparation and supervised clinical education are not provided in the same institution, accreditation must be obtained by the sponsoring institution for the total program. This institution will be the one responsible for admission, curriculum, and academic credit. The accredited institution shall be responsible for coordinating the program and assuring that the activities assigned to the student in the clinical setting are educational. There shall be a uniform, written, affiliation agreement between the accredited institution and each clinical education center, clearly defining the responsibilities and obligations of each.

#### B. Curriculum

Educational programs of 24 months and 12 months or their equivalents may be developed. A 24-month program shall admit those candidates with a high school diploma (or equivalent) as outlined in D.1. The 12-month program shall be designed for those students admitted with backgrounds as outlined in D.2.

Instruction must follow a plan which documents:

1. A structured curriculum with clearly written course syllabi which describe competencies and learning objectives to be achieved. The curriculum shall include but not necessarily be limited to the following:

- (a) Orientation to radiation therapy technology;
- (b) Medical ethics and law;
- (c) Methods of patient care;
- (d) Medical terminology;
- (e) Human structure and function;
- (f) Oncologic pathology;
- (g) Radiation oncology;
- (h) Radiobiology;
- (i) Mathematics;
- (j) Radiation physics;
- (k) Radiation protection;
- (l) Radiation oncology technique;
- (m) Radiographic imaging; and
- (n) Clinical dosimetry.

The curriculum must include a plan for well-structured competency-based clinical education.

2. Assignment of appropriate instructional materials.

3. Classroom presentations, discussions, and demonstrations.

4. Supervised clinical education and laboratory practicum.

5. Evaluation of students to assess knowledge, problem-solving skills, and motor and clinical competencies.

6. Program graduates must demonstrate competencies including, but not limited to, the following:

- (a) Practice oral and written communications;
- (b) Maintain records of treatment administered;
- (c) Perform basic mathematical functions;
- (d) Demonstrate knowledge of human structure, function, and pathology;
- (e) Demonstrate knowledge of radiation physics in radiation interactions and radiation protection techniques;
- (f) Provide basic patient care and cardiopulmonary resuscitation;
- (g) Deliver a planned course of radiation therapy;
- (h) Verify physician's prescribed course of radiation therapy and recognize errors in computation;
- (i) Demonstrate awareness of patterns of physical and emotional stress exhibited by patients;
- (j) Produce and utilize immobilization and beam directional devices;
- (k) Prepare commonly used brachytherapy sources;
- (l) Demonstrate knowledge of methods of calibration of equipment, and quality assurance;
- (m) Prepare isodose summations;
- (n) Detect malfunctioning equipment;
- (o) Apply rules and regulations for radiation safety, and detect defects which might pose a radiation hazard;
- (p) Understand the function of equipment and accessories;
- (q) Demonstrate knowledge of methods of continuing patient evaluation (follow up);
- (r) Apply wedge and compensating filters;
- (s) Recognize patients' clinical progress, complications, and demonstrate knowledge of when to withhold treatment until consultation with the physician; and
- (t) Interact with patients and families concerning the physical and psychological needs of patients.



**C. Resources**

1. **Program Officials.** The program must have a qualified program official or officials. Primary responsibilities shall include program development, organization, administration, evaluation, and revision. A program director is necessary; other program officials may be required.

(a) **Program Director.**—(1) **Responsibilities.**—The director of the educational program shall be responsible for the organization, administration, periodic review, continued development, and general effectiveness of the program. The program director's responsibilities in teaching, administration, and coordination of the educational program in radiation therapy technology shall not be adversely affected by educationally unrelated functions.

—In a college-sponsored program, or a hospital-sponsored multiple affiliate program, the program director shall be an employee of the sponsoring institution. A schedule of regular affiliate visits must be maintained.

(2) **Qualifications.**

—Must be a technologist qualified in radiation therapy technology and educational methodologies.

—Must be credentialed in radiation therapy technology or possess suitable equivalent qualifications.

—Must have at least two years' experience as an instructor in an accredited educational program.

(b) **Clinical Supervisor.** Each clinical education center shall appoint a clinical supervisor.

(1) **Responsibilities.** The clinical supervisor shall be responsible for the clinical education and evaluation of students assigned to that clinical education center.

(2) **Qualifications.** Must be a technologist, with suitable experience, qualified in radiation therapy technology and educational methodologies and must be credentialed in radiation therapy technology.

(c) **Medical Director/Medical Advisor.**

(1) **Responsibilities.** The medical director/medical advisor shall work in consultation with the program director in developing the goals and objectives of the program and implementing the standards for achievement.

(2) **Qualifications.** The medical director/medical advisor shall be a qualified radiation oncologist certified by the American Board of Radiology, or shall possess suitable equivalent qualifications.

2. **Instructional Staff.**—(a) **Responsibilities.** The instructional staff shall be responsible for submitting course outlines for each course assigned by the program director; evaluating students and reporting progress as required by the sponsoring institution; and cooperating with the program director in the periodic review and upgrading of course material.

(b) **Qualifications.** The instructors must be individually qualified, must be effective in teaching the subjects assigned, and must meet the standards required by the sponsoring institution.

(c) **Instructor-to-Student Ratio.** The instructor-to-student ratio shall be adequate to achieve the stated objectives of the curriculum.

(d) **Professional Development.** Programs shall have a policy that encourages continuing education in radiation therapy technology and assures ongoing instruction for the faculty in curriculum design and teaching strategies.

3. **Financial Resources.** Financial resources for continued operation of the educational program must be assured.

4. **Physical Resources.**—(a) **General.**

Adequate classrooms, laboratories, and other facilities shall be provided. All affiliated institutions shall provide space required for these facilities.

(b) **Equipment and Supplies.** Appropriate modern equipment and supplies in sufficient quantities shall be provided.

(c) **Laboratory.** Energized laboratories must meet Federal and/or State radiation and safety regulations.

(d) **Reference Materials.** An adequate supply of up-to-date books, periodicals, and other reference materials related to the curriculum and the profession shall be readily available to students.

(e) **Records.** Records shall be maintained as dictated by good educational practices.

5. **Instructional Resources.** Instructional aids such as clinical materials, reference materials, and demonstration and other multimedia materials must be provided.

**D. Students****Admission**

1. Applicants must be high school graduates (or equivalent) with an educational background in basic science and mathematics.

2. For admission to a 12-month program, the candidate must satisfy one of the following requirements:

(a) Graduation from an accredited or equivalent program in radiography.

(b) Successful completion or challenge of courses in the following prerequisite content areas:

- Radiation physics;
- Human structure and function;
- Radiation protection;
- Medical ethics and law;
- Methods of patient care;
- Medical terminology; and
- Mathematics.

(c) Successful demonstration of the following competencies:

- Practice oral and written communications;
- Perform basic mathematical functions;
- Demonstrate knowledge of human structure and function;
- Demonstrate knowledge of radiation physics in radiation interactions and radiation protection techniques;
- Provide basic patient care and cardiopulmonary resuscitation;
- Demonstrate awareness of patterns of physical and emotional stress exhibited by patients;
- Apply rules and regulations for radiation safety, detect defects which might pose a radiation hazard, and maintain control, if a radiation accident occurs; and
- Interact with patients and families concerning patients physical and psychological needs.

**E. Continuing Program Evaluation**

1. A process for periodic and systematic review of the program's effectiveness must be documented and reflected in policies.

2. Program evaluation shall include the employment performance of recent graduates.

**Note.**—Educational programs accredited by an organization recognized by the United States Department of Education are considered to have met these standards.

**Appendix F—Standards for Licensing Radiographers, Nuclear Medicine Technologists, and Radiation Therapy Technologists**

The following section describes basic elements to be incorporated in credentialing programs of States that choose to regulate personnel who perform radiologic procedures.

**A. Licensure**

1. Only eligible applicants who have passed the licensure examination shall be licensed as Radiographers, Nuclear Medicine Technologists, or Radiation Therapy Technologists.

2. Licenses shall be renewed at periodic intervals.

**B. Eligibility**

1. For regular eligibility to take the licensure examination, applicants shall have successfully completed an accredited program of formal education in radiography, nuclear medicine technology, or radiation therapy technology.

2. Special eligibility to take the licensure examination shall be provided for applicants whose training and/or experience are equal to, or in excess of, those of a graduate of an accredited educational program.

**C. Examination**

A criterion-referenced examination in radiography, nuclear medicine technology, or radiation therapy technology shall be utilized to test the knowledge and competencies of applicants.

**D. Continuing Competency**

The licensed Radiographer, Nuclear Medicine Technologist, or Radiation Therapy Technologist shall maintain continuing competency in the area in which he/she is practicing.

**E. Policies and Procedures**

An organization that seeks to be recognized for the certifying of personnel shall adopt definite policies to ensure validity, objectivity, and fairness in the certifying process. The National Commission for Health Certifying Agencies (NCHCA) has published suitable criteria for a certifying organization to adopt with respect to policies for: (1) Determination of appropriate examination content (but not the actual content for any specific occupation); (2) construction of examinations; (3) administration of examinations; and (4) fulfilling responsibilities to applicants. An organization (whether an NCHCA member or not) that adopts these or equivalent criteria



will meet all of the requirements of this section of these standards.

#### **Appendix G.—Standards for Licensing Dental Hygienists and Dental Assistants in Dental Radiography**

The following section describes basic elements to be incorporated in credentialing programs of States that choose to regulate personnel who perform radiologic procedures.

Currently, Dental Hygienists are credentialed through individual State licensure processes, all of which include assessment of competence in dental radiography. In all States, Dental Hygienists are required to be licensed prior to practicing. The existing State dental hygiene licensure processes meet the intent and purpose of the Consumer-Patient Radiation Health and Safety Act of 1981 and the standards for licensing Dental Hygienists in dental radiography set forth below.

##### **A. Licensure/Permit**

1. To those who have passed a licensure or designated dental radiography examination,

a license or permit shall be issued by the State entity responsible for credentialing dental personnel.

2. Licenses or permits shall be renewed at periodic intervals.

##### **B. Eligibility**

1. An individual shall provide proof of graduating student status or graduation from an accredited or approved dental hygiene or dental assisting education program.

2. For dental assistants, special eligibility to take the examination shall be provided to applicants with appropriate combinations of training and/or experience.

##### **C. Examination**

A criterion-referenced examination in dental radiography shall be utilized to test the knowledge and competencies of applicants.

##### **D. Continuing Competency**

The Dental Hygienist or Dental Assistant shall be required to maintain continuing competency in the area in which he/she is practicing.

##### **E. Policies and Procedures**

An organization that seeks to be recognized for the certifying of personnel shall adopt definite policies to ensure validity, objectivity, and fairness in the certifying process. The National Commission for Health Certifying Agencies (NCHCA) has published suitable criteria for a certifying organization to adopt with respect to policies for: (1) Determination of appropriate examination content (but not the actual content for any specific occupation); (2) construction of examinations; (3) administration of examinations; and (4) fulfilling responsibilities to applicants. An organization (whether an NCHCA member or not) that adopts these or equivalent criteria will meet all of the requirements of this section of these standards.

[FR Doc. 85-29363 Filed 12-10-85; 8:45 am]

BILLING CODE 4160-16-M



# Registered Federal Report

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Wednesday  
December 11, 1985

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## Part III

### Department of the Interior

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Fish and Wildlife Service

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#### 50 CFR Part 17

Endangered and Threatened Wildlife and  
Plants; Determination of Endangered and  
Threatened Status for the Piping Plover;  
Final Rule



## DEPARTMENT OF THE INTERIOR

## Fish and Wildlife Service

## 50 CFR Part 17

## Endangered and Threatened Wildlife and Plants; Determination of Endangered and Threatened Status for the Piping Plover

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

**SUMMARY:** The Service determines endangered and threatened status for the piping plover (*Charadrius melodus*) under the authority contained in the Endangered Species Act of 1973, as amended. The shorebird breeds on the northern Great Plains, in the Great Lakes, and along the Atlantic coast (Newfoundland to North Carolina); and winters on the Atlantic and Gulf of Mexico coasts from North Carolina southward and in the Bahamas and West Indies. Endangered status is determined for the plover in the watershed of the Great Lakes (Illinois, Indiana, Michigan, Minnesota, New York, Ohio, Pennsylvania, Wisconsin, and Ontario). Threatened status is determined for the plover in the remainder of its range: northern Great Plains (Iowa, northwestern Minnesota, Montana, Nebraska, North Dakota, South Dakota, Alberta, Manitoba, and Saskatchewan); Atlantic coast (Quebec, Newfoundland, Maritime Provinces and States from Maine to Florida); Gulf coast (Florida to Mexico); Bahamas and West Indies; and anywhere else found in the wild except where listed as endangered. The primary threats to the piping plover are habitat disturbance and destruction, and disturbance of nesting adults and chicks. This rule implements the protection of the Endangered Species Act of 1973, as amended, for the piping plover.

**DATES:** The effective date of this rule is January 10, 1986.

**ADDRESSES:** The complete file for this rule is available for inspection during normal business hours, by appointment, at the Endangered Species Division, U.S. Fish and Wildlife Service, Federal Building, Fort Snelling, Twin Cities, Minnesota 55111.

**FOR FURTHER INFORMATION CONTACT:** James M. Engel, Endangered Species Coordinator at the above address (612/725-3276 or FTS 725-3276).

## SUPPLEMENTARY INFORMATION:

## Background

The piping plover is a small, stocky shorebird first described in 1824. Adults

weigh from 42 to 64 grams (1.5 to 2 ounces) with a length about 17 centimeters (7 inches) and a wingspread about 35 centimeters (15 inches) (Palmer, 1967). Both sexes are similar in size and color. The upper parts are pale brownish, and the underparts are white. A dark band encircling the body below the collar and a dark stripe across the forehead and distinguishing marks in summer adults, but obscure in winter. Palmer (1967) further details the plumage and other characteristics of the piping plover.

The most recent edition of *Checklist of North American Birds* (American Ornithologists Union, 1983) refers the reader to the 1957 edition for the treatment of avian subspecies. That edition recognizes two subspecies of the piping plover: *Charadrius melodus melodus* (Atlantic coast of North America) and *Charadrius melodus circumcinctus* (northern Great Plains of U.S. and Canada). The birds found nesting in the Great Lakes are intermediate, but referred to as *circumcinctus* by the 1957 *Checklist*. The references in this rule to Atlantic coast, northern Great Plains, and Great Lakes breeding populations are a breakdown of the species' breeding range.

Piping plovers occupy their breeding grounds from late March to August. Nest sites are sandy beaches along the ocean (Cairns, 1982) and inland lakes; bare areas on dredge and natural, alluvial islands in rivers (Faanes, 1983; Niemi and Davis, 1979); gravel pits along rivers (Ducey, 1982); and salt-encrusted bare areas of sand, gravel, or pebbly mud on interior alkali lakes and ponds (Whyte, 1985). Nests are shallow, scraped depressions, sometimes lined with small pebbles, shells, or other debris, and usually contain four eggs (Bent, 1929). Least terns (*Sterna antillarum*) are common breeding associates of piping plovers on the northern Great Plains and Atlantic coast. The piping plover winters along the coast from North Carolina to Florida and Mexico, and in the Bahamas and West Indies.

Historical references of population trends of the piping plover are largely qualitative or lacking altogether. Consequently, it is not possible to give a detailed and precise tabulation of plover populations for each State or Province since 1900, for example. However, there is enough available information to indicate a substantial decline in the species and its habitat, shrinkage of its breeding range, and continued threats to the species, its habitat, and range.

By 1900, the piping plover, described by nineteenth century naturalists, such as Audubon and Wilson, as a common resident on the beaches of the Atlantic

coast, had been greatly reduced by year-round shooting. In some areas on the Atlantic coast, the plover was close to extirpation. With Federal protection (Migratory Bird Treaty Act) the bird had recovered by the 1920's along the Atlantic coast and was considered common (Bent, 1929).

Since that time, there has been a decrease in the population over most of its range, and it has vanished as a nesting species from many areas. Since 1972, the National Audubon Society's "Blue List," a list designed to serve as an early warning system on the deteriorating status of North American breeding birds, has continued to include the piping plover each year as a bird in potential danger. In his treatise on the shorebirds of the world, Johnsgard (1981) viewed the piping plover as "... declining throughout its range and in rather serious trouble." The Canadian Committee on the Status of Endangered Wildlife in Canada (COSEWIC), an organization of specialists from Federal agencies, all Provincial and Territorial governments, and from nationally based private conservation organizations, assigned the status "Threatened" to the piping plover on May 2, 1978 (Bell, 1978). In April 1985 COSEWIC assigned endangered status to the plover in Canada.

Cairns and McLaren (1980) estimated 900 breeding pairs of piping plovers from Newfoundland to North Carolina. They encouraged further field work to confirm their estimates. Such work has been carried out and has revealed an estimated 722 breeding pairs (Table 1). Surveys and research have added substantially to the scientific data on the species and its habitat. Most current breeding locations are well documented.

TABLE 1.—ESTIMATED PAIRS ON ATLANTIC COAST (1985)

	Pairs*
Province:	
Newfoundland.....	1
Quebec.....	20
New Brunswick.....	95
Prince Edward Island.....	60
Nova Scotia.....	70
Subtotal (Canada).....	246
State:	
Maine.....	12
New Hampshire.....	0
Massachusetts.....	112
Rhode Island.....	10
Connecticut.....	18
New York.....	100
New Jersey.....	80
Delaware.....	6
Maryland.....	10
Virginia.....	100
North Carolina.....	30
Subtotal (U.S.).....	476
Total (United States and Canada).....	722

\* Source: references cited in this document and comments received in response to the proposal.



The plover is absent from many former nesting beaches on the Atlantic coast. Several recent status surveys have indicated low numbers and declines of plovers and continued threats to the species' habitat (Galli, 1980, 1983, 1984; Raithel, 1984; Seatuck Research Program, 1984, 1985). In light of the bird's 1920 status as a common resident (Bent, 1929), it is evident from today's low numbers that a substantial decline has occurred. For example, the number of breeding pairs of plovers on Long Island, New York, declined from over 500 in the 1930's (Wilcox, 1939, 1959) to the present 100 (Seatuck Research Program, 1984, 1985).

In the Great Lakes watershed the plover numbers 17 pairs (Table 2). Russell (1983) estimated the historical numbers at over 500 pairs. The species has been extirpated as a breeding bird throughout most of the Great Lakes. Barrows (1912) cited the bird as a very common summer resident along the Lake Michigan shoreline in Illinois. In Michigan, the range of the plover has been greatly reduced in recent years and the 77 adult birds in 1979 (Lambert and Ratcliff, 1981) declined to 13 pairs by 1984. At Long Point, Ontario, a population of over 100 pairs in the 1920's had declined to zero by the late 1970's (Lambert and Nol, 1978).

TABLE 2.—ESTIMATED PAIRS IN GREAT LAKES (1985)

	Pairs *
Province:	
Subtotal (Canada)	0
State:	
Minnesota	2
Wisconsin	1
Illinois	0
Michigan	13
Indiana	0
Ohio	0
Pennsylvania	0
New York	1
Subtotal (U.S.)	17
Total (United States and Canada)	17

\* Source: references cited in this document and comments received in response to the proposal.

The northern Great Plains harbor the largest number of piping plovers in North America (Table 3). The bird occurs sparingly in northeastern Montana and on the Missouri River and its tributaries in the Dakotas and Nebraska. It is nearly extirpated from Iowa. In North Dakota, extensive surveys have indicated far fewer breeding pairs than the 500-1,400 pairs conjectured by Kantrud (in Faanes, 1982). The species is most numerous in Saskatchewan (Harris et al., 1985) but is declining throughout the prairie Provinces (Haig, 1985). For example, in

Manitoba only 20 percent of historical nesting sites remain occupied by plovers. At the eastern edge of the Great Plains is the Lake of the Woods. Twenty-four pairs of plovers are found in this area: 22 in Minnesota, 2 in Ontario. In addition to a shrinking breeding range, reproductive success has been poor at several remaining sites because of human disturbance and artificially controlled lake levels (Haig, 1985).

TABLE 3.—ESTIMATED PAIRS IN NORTHERN GREAT PLAINS (1985)

	Pairs *
Province:	
Alberta	110
Saskatchewan	712
Manitoba	44
Ontario	* 2
Subtotal (Canada)	868
State:	
Minnesota	* 22
Montana	10
North Dakota	132
South Dakota	50
Nebraska	* 355
Iowa	2
Subtotal (United States)	571
Total (United States and Canada)	1,439

\* Source: references cited in this document and comments received in response to the proposal.

\* Lake of the Woods

\* Includes 160 pairs on Missouri River between South Dakota and Nebraska.

Numbers of piping plovers on Gulf coast wintering grounds may be declining as indicated by a preliminary analysis of Christmas Bird Count data published in *American Birds* (Raithel, 1985). Recognizing the limitations in analyzing such data (Raynor, 1973), Raithel's analysis may indicate that the plover population is partially cyclical but has been trending downward. Independent counts of plovers on the Alabama coast indicate a decline in numbers since the 1950's (Dr. Guy A. Baldassarre, pers. Comm., 1985). In Texas, there has been an estimated 30 percent loss of wintering habitat over the past 20 years (Texas Parks and Wildlife Department, unpubl. data, 1985).

On December 30, 1982, the Service published a notice of review in the *Federal Register* (47 FR 58454) identifying vertebrate taxa, native to the U.S., being considered for addition to the List of Endangered and Threatened Wildlife. The notice included the piping plover as a category 2 species (i.e., a species still needing some data before a proposed listing could be made). Since then, the Service has reviewed further data on the status and biology of the plover in the northern Great Plains, Great Lakes, and Atlantic coast States, and Canada.

On November 8, 1984, the Service published a proposed rule in the *Federal Register* (49 FR 44712) advising that sufficient information was now on file to support a determination that the piping plover is an endangered and threatened species pursuant to the Endangered Species Act of 1973, as amended. The proposal solicited comments on the proposed listing from any interested parties, especially concerning threats to this species, its distribution and range, whether or not critical habitat should be designated, and activities that might impact the species.

#### Summary of Comments and Recommendations

In the proposed rule and associated notifications, all interested parties were requested to submit factual reports or information that might contribute to the development of a final rule. Appropriate State agencies, county governments, Federal agencies, foreign countries, scientific organizations, and other interested parties were contacted and requested to comment. Newspaper notices inviting general public comment were published in 41 newspapers throughout the breeding and wintering ranges of the plover.

Within 45 days of the publication of the proposed rule, the Service received requests for public hearings from Tom Pitts and Associates, Consulting Engineers, Loveland, Colorado (on behalf of the Colorado-Nebraska-Wyoming Interstate Task Force on Endangered Species [comprised of the Colorado Water Congress, Nebraska Water Resources Association, and the Wyoming Water Development Association]); Warren G. White, natural resource advisor at the Office of the Governor of Wyoming; Colorado Water Congress; Davis, Graham and Stubbs (on behalf of the Northern Colorado Water Conservancy District); Colorado Water Conservation Board; Board of Water Commissioners of the City and County of Denver; and the Nebraska Water Resources Association. They requested public hearings in Colorado, Nebraska, and Wyoming and a 60-day extension of the comment period.

The Audubon Society of Omaha, Nebraska; the Central Nebraska Public Power and Irrigation District; and Cook and Kopf, P.C., Lexington, Nebraska (on behalf of the Central Platte Natural Resources District) requested a public hearing be held in Nebraska. The Central Nebraska Public Power and Irrigation District also requested a 60-day extension of the comment period. The Wyoming Water Development Association requested a public hearing



be held in Wyoming. Notice of public hearing and reopening of the comment period was published in the *Federal Register* on December 31, 1984 (49 FR 50748). A public hearing was held on January 18, 1985, at the Peter Kiewit Conference Center, Omaha, Nebraska. The comment period was extended until January 28, 1985.

After the 45-day public hearing request period had ended on December 24, 1984, the Service received additional requests for public hearings in Colorado, Nebraska, and Wyoming, and requests for a 60-day extension of the comment period from the Central Colorado Water Conservancy District; Nebraska Rural Electric Association; Niobrara River Basin Development Association, Ainsworth, Nebraska; The Republican Valley Conservation Association, McCook, Nebraska; Board of Public Utilities, Casper, Wyoming; James W. Sanderson of Saunders, Snyder, Ross & Dickson, P.C., Denver, Colorado (on behalf of the legal committee of the Colorado Water Congress' Special Project on Endangered Species); and U.S. Representative Virginia Smith, 3rd District, Nebraska. Notice of a second public hearing and reopening of the comment period was published in the *Federal Register* on January 29, 1985 (50 FR 3940). The second public hearing was held on February 27, 1985, at the Denver City Council Chambers, Denver, Colorado. The comment period was extended until March 29, 1985.

On April 15, 1985, the Service received a request for an additional 60-day comment period from James W. Sanderson of Saunders, Snyder, Ross & Dickson, P.C., Denver, Colorado (on behalf of the legal committee of the Colorado Water Congress' Special Project on Threatened and Endangered Species). Notice of reopening of the comment period for 30 days was published in the *Federal Register* on May 16, 1985 (50 FR 20461). The comment period closed on June 17, 1985.

Thirty-three people attended the public hearing in Omaha, Nebraska. Twelve of them presented oral comments. Six of the 12 commenters also submitted written comments. Twenty-nine people attended the public hearing in Denver, Colorado. Thirteen of them presented oral comments. Four of the 13 commenters also submitted written comments. Both hearings centered largely on the adequacy of the scientific data used to support the proposed listing of the piping plover in the northern Great Plains, especially in the Platte River system of Nebraska. The 25 public hearing comments and

over 200 comments received by mail are summarized below.

Over 170 Federal, State, and Provincial agencies, biologists, conservation organizations, and other interested parties supported the proposed listing, and provided substantial comments on the plover's status and recommendations for management. The Service will incorporate appropriate management recommendations from these comments in future recovery activities for the piping plover. In addition to substantive comments, numerous written comments and oral statements at the public hearings either supported or opposed listing the piping plover, but provided no substantive data.

Opposition to the proposed rule was received from 25 water management organizations, attorneys representing the organizations, and consultants retained by those organizations in the Platte River Basin of Colorado, Nebraska, and Wyoming. The principal concern of the Colorado and Wyoming water groups was the potential impacts this listing might have on water development projects on the South Platte River, Colorado, and the North Platte River, Wyoming. Nebraska water groups expressed similar concerns for the two rivers, as well as the Platte River itself. The water groups contend that proposed reservoirs and other river-related projects may be curtailed because the piping plover nests on sandbars in the Platte River and its tributaries.

The concern of the water groups stems from previous Service actions on behalf of the whooping crane (*Grus americana*) and its critical habitat, a 53-mile reach of the Platte River between Lexington and Shelton, Nebraska (50 CFR 17.95). Breeding piping plovers and interior least terns (the latter listed as endangered on May 28, 1985; 50 FR 21784) require the same open sandbar habitat on the Platte River as the whooping crane requires for roosting. Critical habitat for the tern and plover has not been proposed.

Three of the water groups, Denver Water Department (DWD), Central Platte Natural Resources District (CPNRD), and Tom Pitts & Associates (TPA) (on behalf of the Colorado Water Congress, Nebraska Water Resources Association, and the Wyoming Water Development Association) best summarized the comments of all the water groups:

*Comment 1.* The cause and effect relationship with respect to altered water flows and reduction in scouring of sandbars and increased vegetation is

unsupported and not applicable to the Platte River Basin. Rather, the causative factor behind the development of the woody floodplain vegetation is the presence of water in the river on a year-round basis. A report by Ecological Analysts (1983) was submitted in support of this comment. In addition, another submitted report by Pitts (1985) maintained that there has been an upward trend in the flows of the Platte River from 1940 to 1982 and that Williams (1978) erred in his analysis of historical Platte River flows.

*Service response:* While the precise cause(s) may be of consequence to future Section 7 consultations, the facts of reduced open sandbar habitat and lowered numbers of plovers remain and are of direct relevance to this rule. CPNRD, TPA (Ecological Analysts, 1983) and the Service (U.S. Fish and Wildlife Service, 1981) recognize that water development projects on the Platte River system have resulted in vegetational changes. In the course of various public hearings and comment periods on matters dealing with the Platte River (i.e., Little Blue-Catherland Water Right Application), the Nebraska Game and Parks Commission (NGPC) also has received information that it is not lack of scouring that has caused vegetation encroachment. However, NGPC (1984, 1985a) found, as did the Service and U.S. Geological Survey (1983), that a lack of scouring is a principal cause of the loss and modification of the open sandbar habitat.

In the present judgment of the Service, the dewatering of the Platte River over the past 50 years has been a causative agent in the reduction of available wetlands and sandbars for the piping plover and over species of wildlife, including the least tern and whooping crane.

The Service conducted a 3-year investigation (1978-1980) of the Platte River (U.S. Fish and Wildlife Service, 1981) "to define habitat-use patterns and habitat requirements of migratory bird populations utilizing the North Platte and Platte River valleys and to assess factors influencing woody vegetation establishment along these rivers." The report stated:

With approximately 70 percent of the Platte's annual flows diverted for various consumptive uses upstream in Colorado, Wyoming and western Nebraska, channel width in many areas has been reduced to 10-20 percent of former size. Habitat conditions within the existing channel have also changed as a result of reduced scouring of sandbars and shifting of alluvial sediments. A broad band of mature deciduous woodland now occupies tens of thousands of acres that formerly were part of the river and numerous



islands overgrown with woody vegetation exist within the channel.

A study by the U.S. Geological Survey (1983) supported the results of the Service's conclusion on vegetation encroachment. The study also affirmed the downward trend in Platte River flows discussed by Williams (1978). The Service's report concluded that "species that nest on the open sandbars of the Platte River have been affected adversely by the encroachment of woody vegetation. The most profound impact has been on the distribution and abundance of the least tern and piping plover. Both species require broad expanses of unvegetated river channel and sparsely vegetated sandbars." Faanes (1983) further detailed the nesting ecology of the piping plover and least tern and the present modification and curtailment of the bare sandbar habitat on the Platte River.

**Comment 2.** The habitat needs of four endangered or threatened species, the whooping crane, bald eagle (*Haliaeetus leucocephalus*), interior least tern, and piping plover are contradictory, and these species cannot co-exist in the same habitat or areas on the Platte River. Ecological Analysts (1983) discussed the incompatible river flow and habitat conditions required by the least tern, bald eagle, and whooping crane.

**Service response:** Bald eagles primarily use mature trees of riparian woodlands for communal roosts during the winter. Whooping cranes roost on unvegetated sandbars during their migration in spring and fall (Lingle *et al.* 1984). Critical habitat has been designated for the whooping crane along the Platte River (50 CFR 17.95). The interior least tern and piping plover breed on sparsely vegetated sandbars during the spring and summer. The maintenance of sandbar habitat will aid the recovery of the whooping crane, interior least tern, and piping plover. The well-established and extensive floodplain forest will continue to serve as a wintering area for bald eagles. The recovery plan for the bald eagle does not call for increasing the acreage of forest along the Platte River, and the whooping crane recovery plan does not call for mature forest removal (U.S. Fish and Wildlife Service, 1980, 1983a). The maintenance of open sandbars by removal or curtailment of early successional woody vegetation, however, may be needed for the benefit of the whooping crane, interior least tern, and piping plover (U.S. Fish and Wildlife Service, 1981).

The Service sees no biological conflict between the listed avian species.

Currently, the bald eagle roosts within the whooping crane's critical habitat reach of the Platte River. There is no incompatibility in tern and plover nesting habitat, which is also found in the whooping crane's critical habitat. The Platte River Whooping Crane Habitat Maintenance Trust currently manages for the least tern, bald eagle, piping plover, and whooping crane and has no biological conflict in protecting these species (Currier *et al.*, 1985).

**Comment 3.** Habitat utilization of the central Platte River reach by the piping plover is due to the stable river flows, associated with the construction of the Kingsley Dam and the Tri-County Canal System in the early 1940's.

**Service response:** Prior to the European settlement of Nebraska, the Platte River was extremely wide and shallow, possessing far more numerous open sandbars (Williams, 1978) and habitat that could support a much larger population of piping plovers than exists today. Lewis and Clark observed the plover on sandbars in the Missouri River between Iowa and Missouri in 1804 (Swenk, 1935). In 1856 the Lieutenant G. K. Warren Expedition collected three piping plovers at the fork of the Platte River (Coues, 1874). At the turn of the century, the plover was described as common in Nebraska, with breeding along the Platte River, on the Loop River at Dannebrog (northwest of Grand Island), and on any of the rivers of the State where sandbars occurred (citations in Moser, 1942). This is further evidence of the presence of the species on the upper Missouri River system prior to extensive European settlement and regulation of these rivers.

The plover and least tern no longer breed on the Missouri River between Iowa and Nebraska. The river has been channelized and sandbars no longer exist in early summer. The plover no longer breeds on the Platte River between North Platte and Overton. This stretch of the river is narrow, bordered by a riparian forest, and is no longer suitable for plover nesting. Although a few pairs of plovers breed on the northeastern shore of Lake McConaughy and on Keystone Lake, the breeding population of the plover in Nebraska has decreased.

**Comment 4.** There is insufficient data to indicate that the piping plover or its habitat is declining in the northern Great Plains.

**Service response:** In evaluating the status of the piping plover in the northern Great Plains, the Service examined the number of birds as well as habitat trends. Among the breeding avifauna of the northern Great Plains, the piping plover, like the least tern, has

one of the most restricted breeding habitats.

In addition to the loss of sandbar habitat by Missouri River channelization, previously discussed, the remainder of the Missouri River in the Dakotas is largely a lake or reservoir where sandbars no longer occur. Habitat changes on the Platte River have already been discussed. In North Dakota two major plover nesting areas, Lakes Brecken and Holmes in the chain-of-lakes area of McClean County, have been modified and are no longer utilized by plovers. Major breeding areas in Saskatchewan and Manitoba have been modified or are threatened with alteration.

The Service points out that the overall range of the piping plover has decreased. The bird is nearly extirpated from the Great Lakes region which formerly represented nearly one-third of the breeding range. In addition, on the Atlantic coast the breeding range of the species has shrunk considerably within most States and Provinces. The modification, curtailment, and destruction of the piping plover's habitat and range continues. This trend persuades the Service to list the species throughout its range.

**Comment 5.** Censuses of plovers on the Platte River have only been conducted in conjunction with least tern censuses. Additionally, because plovers are more tolerant of vegetation at nest sites (Faanes, 1983), an increase in vegetation in the Platte River valley is not necessarily an encroachment or curtailment of the plover's usable habitat.

**Service response:** The Service's evaluation of least terns and piping plovers on the Platte River was directed at both species. Censuses took place on the river itself and in the entirety of the central Platte Valley. Although the piping plover may be slightly more tolerant of vegetation at the nest site than the least tern, nearly 80 percent of the area around a nest consists of bare ground (Faanes, 1983). Ducey (1984) reported no obvious difference in the nest sites of piping plovers and least terns on the Missouri River. Nesting in barren to sparsely vegetated habitats is characteristic of plovers of the genus *Charadrius* (Page *et al.*, 1985). Such vegetation must remain sparse in order to continue to be attractive to nesting plovers. Otherwise, suitable nesting areas will continue to decline.

**Comment 6.** A moratorium should be placed on any new or proposed listings of species in the Platte River Basin. Information regarding habitat needs should be referred to the Federal/State



Coordinating Committee on the Platte River Basin.

**Service response:** The Service has the responsibility to list species. Listing is required under the Endangered Species Act to be based solely on biological considerations. Listing is the process of identifying those species that are unlikely to survive or may become endangered without the protection of the Act. The Service has indicated at various times that cooperation is important.

A Federal/State Coordinating Committee on the Platte River Basin was recently formed in response to a request by the Colorado Water Congress, Nebraska Water Resources Association, and the Wyoming Water Development Association. The Service appreciates the considerable input from the Committee on the Platte River problems and looks forward to continued cooperation in the management of this system.

**Comment 7.** Impacts to the piping plover on the wintering range need to be thoroughly examined before the Service can conclude that impacts on the breeding range are primarily responsible for the alleged endangered and threatened status of the species.

**Service response:** The Service agrees that some reductions in numbers may have been caused by losses of habitat outside the breeding areas. In addition to extensive breeding area problems, the loss and modification of wintering habitat is a significant threat to the piping plover. Wintering beaches become unsuitable to the plovers when altered or destroyed. The most concentrated wintering area, the extensive Laguna Madre de Mexico, south of Brownsville, Texas, was lost when its water level was stabilized for a fisheries lagoon. Plovers typically winter on mud flats, and the greatest concentration of wintering plovers today occurs on the mainland side of South Padre Island, north of Brownsville, Texas. Continued development in the area will lead to stabilization of water levels, eliminating more wintering habitat. The Service views the listing of the species on the wintering range as a prudent course of action. Listing can aid in the preservation of wintering habitat. The Service's recovery plan for the piping plover will investigate the plover's wintering ecology.

The New York Department of Environmental Protection and the Minnesota Department of Natural Resources recommended that the piping plover have only one designation in each State. The Service had proposed that the plover be designated as endangered in the Great Lakes

watershed, including those portions of New York and Minnesota in the watershed, and threatened everywhere else. Both Departments desired the change largely for administrative reasons.

**Service response:** Only biological factors may be considered in changing the classification of a species, as provided under the Act. The plovers in Lake Ontario are now reduced to a single pair on the eastern end of the lake in New York. Sixteen other pairs are all that remain of this species in the entire Great Lakes watershed. The plovers at Lake of the Woods (24 pairs: 22 in Minnesota, 2 in Ontario) are closer geographically to the plovers at Lakes Winnipeg and Manitoba. The Great Lakes watershed forms a natural boundary around this most endangered segment of the plover's populations. It is considered separate from the Atlantic Coast and Great Plains populations.

Stephen Flemming, Acadia University, Nova Scotia, commented that his research (Flemming 1984) in Nova Scotia presents sufficient data to warrant endangered status for the plover in Nova Scotia. Susan Haig, University of North Dakota, recommended endangered status for the plover throughout its Canadian range.

**Service response:** The Service recognizes that in certain Canadian Provinces and Atlantic States, taken in isolation, the piping plover might warrant endangered status. Classification under the Act is not being made on a Province-by-Province (or States-by-State) basis. Nova Scotia is on the northern edge of the plover's Atlantic coast range. Changes in status of any species on the periphery of its range is expected to be more dramatic than in the core areas. Ms. Haig provided no data that all Canadian birds are in danger of extinction in the immediate future. The species on the entire Atlantic coast and in the Great Plains is being classified as threatened because these birds are not in immediate danger of extinction.

The Montana Department of Fish, Wildlife and Parks (MDFWP) recommended that the piping plover not be designated as threatened in Montana because the State lies on the periphery of the species range. MDFWP noted that there are few records of regular occurrence and the status of the species is marginal, both historically and presently.

**Service response:** The Service includes Montana because the species nests at the Ft. Peck Reservoir, where there is high human disturbance, and breeds on alkali wetlands such as those on the Medicine Lake NWR in

northeastern Montana, only a few miles from breeding sites in North Dakota.

Dr. Lewis W. Oring, University of North Dakota, commented that there are no data available to support the Service's statement in the proposed rule that the piping plover's breeding population consists of three distinct subpopulations. He stated that this is precisely the question that is being addressed by Susan Haig's doctoral research. Two other comments stated that some taxonomists no longer regard *Charadrius melodus circumcinctus* as valid. The completeness of the breast band is merely variable among individuals (Wilcox, 1959).

**Service response:** In the proposed rule the Service references the American Ornithologists' Union's (AOU) 1957 treatment of avian subspecies, which has not been addressed since by the AOU. The 1983 edition of AOU's *Checklist of North American Birds* does not address subspecies but refers the reader to the 1957 edition for recognized subspecies. However, the Service is persuaded by the comments and discussions with Susan Haig that further research is necessary to determine the validity of the subspecies, often defined as geographical subpopulations that are distinguishable from others by morphological characteristics. Both the proposed and final regulations promulgation treat the piping plover at the species level, *Charadrius melodus*. The Service simply classifies the species as endangered in the Great Lakes watershed and threatened everywhere else found in the wild. The Service's breakdown of the plover's breeding range into the Atlantic coast breeding range, Great Lakes region, and northern Great Plains is not intended to convey the occurrence of subspecies or totally separate genetic populations, but rather to take note of the discontinuous distribution of the species.

The Missouri River Division (MRD) of the U.S. Army Corps of Engineers commented that both the least tern and piping plover utilize similar habitat for nesting and nest during the same period. MRD stated its intention of protecting selected sandbars from Gavins Point Dam, South Dakota, to Ponca State Park, Nebraska. MRD added that balancing the various project purposes such as navigation and hydropower production may make it impossible to consistently operate in a manner that would maximize piping plover reproduction. MRD commented that there are ongoing studies of alternative ways to increase the hydropower production of dams. One alternative would require raising the level of Lewis and Clark Lake, which



would inundate headwater sandbars. If the plover is listed, MRD believed that any action or project would be subject to the section 7 consultation requirement.

**Service response:** High flows on the Missouri River caused by discharges from Gavins Point Dam have significantly restricted or eliminated annual production of plovers on habitat between Gavins Point and Ponca, Nebraska. The Service will reserve judgment on the projects until any section 7 consultation is completed. The Nebraska Game and Parks Commission (1985b) has developed a plan that it views is compatible with river operational schemes while providing some protection and recovery of the piping plover and least tern.

Seventeen comments disagreed with the Service's reasons for not designating critical habitat. The Service had stated in the proposed rule that critical habitat designation for the piping plover would not be prudent because of the often ephemeral nature of the plover's nesting habitat. For example, beaches and interior wetlands may or may not be used by plovers each year because of varying water levels or natural changes in beach characteristics. Alluvial islands in rivers appear, disappear, and reappear depending upon water conditions.

Julie Zickefoose, Director of the Nature Conservancy's least tern/piping plover recovery program in Connecticut, commented that of all the nesting migratory birds in the State, the piping plover is among the most predictable in its choice of nest site. Certain sites have been used consistently for many years. If such areas receive continued protection, plovers are likely to use them consistently.

The New Jersey Department of Environmental Protection commented that an effort should be made to define critical habitat which allows for its ephemeral nature. Several areas of critical habitat in the State would advance the plover's conservation. The non-designation of critical habitat and the section 7 consultation on Federal actions on a case-by-case basis may result in unacceptable continued loss of potential habitat. That is, it may be difficult to protect areas not occupied at the time of a section 7 consultation, but historically used or with a potential for future use.

The North Dakota Game and Fish Department recommended critical habitat designation for the chain-of-lakes area in McClean County and the Missouri River from Garrison Dam to

Hazleton, North Dakota. These two areas support over 50 percent of the North Dakota breeding population. Dr. Mark R. Ryan and Eleanor M. Prindiville stated that there are two specific regions in North Dakota where piping plovers occur predictably. These two glacial outwash plains (one in McClean County and another area in Kidder and Stutsman Counties) are critical centers of distribution for breeding plovers in North Dakota even though numbers of breeding pairs fluctuate at specific lakes.

The Nebraska Ornithologists' Union commented that specific nest sites of piping plovers may be ephemeral; however, general localities have extremely high fidelity by nesting piping plovers as evidenced by the plover's annual nesting effort at several sites in Nebraska and as documented elsewhere in North America.

Dr. Erica Nol, University of British Columbia, commented that piping plovers are site tenacious from year to year and hence habitats could be set aside for their nesting. Female plovers will return to previous nest sites, if successful in raising young in that site.

**Service response:** The Service will review the determinability of these and other potential critical habitat areas. In particular, habitats for the Great Lakes population determined to be endangered in this rule will be most closely examined, although all areas under United States jurisdiction that have plovers regularly nesting may be considered. The prudence of such a determination will be reviewed within one year, as allowed under section 4(b)(6)(C) of the Act.

#### Summary of Factors Affecting the Species

After a thorough review and consideration of all information available, including the comments received, the Service has determined that the piping plover should be classified as endangered in certain parts of its range and threatened in the remainder of its range. Procedures found at section 4(a)(1) of the Endangered Species Act (16 U.S.C. 1531 *et seq.*) and regulations promulgated to implement the listing provisions of the Act (codified at 50 CFR Part 424) were followed. A species may be determined to be endangered or threatened due to one or more of the five factors described in section 4(a)(1). These factors and their application to the piping plover (*Charadrius melodus*) are summarized below.

**A. The present or threatened destruction, modification, or curtailment of its habitat or range.** The enormous

loss of appropriate sandy beaches and other littoral habitats due to recreational and commercial developments, and dune stabilization in the Great Lakes region and on the Atlantic coast is evident and responsible for some decline of the species. The breeding range of the plover has declined most drastically in the Great Lakes watershed. In those States and Provinces where the plover has not been extirpated, the species now has fewer available breeding sites. Historic habitat has been destroyed or modified. Such destruction and modification continues. Where breeding does occur, breeding success is curtailed primarily because of human disturbance (The Nature Conservancy, 1985), especially on the Atlantic coast and in the Great Lakes region. Foot and vehicular traffic (including raking of beaches for trash) destroys nests and young.

Damming and channelization of rivers have eliminated nesting sandbar habitat along hundreds of miles of rivers in the Dakotas, Iowa, and Nebraska. For example, along the three short stretches of the Missouri River not inundated by reservoirs, untimely water releases from dams subject remaining sandbar habitat to alteration and flooding during the breeding season. The damming and withdrawal of water for irrigation and other purposes have altered water flows in rivers such as the Platte River. This has led to the establishment of dense vegetation less suitable for nesting plovers (Faanes, 1983; U.S. Fish and Wildlife Service, 1981). The listed interior least tern occupies habitat very similar to that of the plover on the Platte and Missouri Rivers.

Although some saline wetlands in the northern Great Plains have been privately drained or adversely altered, the drainage and modification of these wetlands has been less common than the drainage of other types of wetlands. Several major plover breeding areas are, however, threatened with developments.

**B. Overutilization for commercial, recreational, scientific or educational purposes.** Not currently applicable for the piping plover.

**C. Disease or predation.** Disease has not been a problem known to occur in this species. Along with increasing urbanization and use of beaches on the Great Lakes and Atlantic coast there has been an increasing number of unleashed pets, as well as feral dogs and cats. The result has been predation of plover chicks and eggs and abandonment of nesting areas. Human developments near beaches have attracted an increased number of predators such as skunks and raccoons.



On the northern plains, the raccoon (*Procyon lotor*) has greatly expanded its range since the 1940's and is a common predator of the American avocet (*Recurvirostra americana*), which nests in habitat similar to that of the plover (Sidle and Arnold, 1982). Gulls (*Larus* sp.), which have increased rapidly in portions of the Great Lakes and Atlantic coast over the past 30 years, may be a significant factor in reducing plover numbers by predation of eggs and young. Trampling by large confined herds of cattle on nesting grounds in the northern plains may be adverse to breeding success.

**D. The inadequacy of existing regulatory mechanisms.** Several States (Iowa, Illinois, Michigan, Minnesota, New Jersey, New York, Virginia, and Wisconsin) list the piping plover as threatened or endangered. At a few nesting sites, human intrusion is prohibited by local conservation efforts during the breeding season. The Migratory Bird Treaty Act (16 U.S.C. 703 *et seq.*) protects the bird from taking, and bans trade in piping plovers and their parts. However, that Act does not protect habitat and, by itself, will not be adequate to prevent the further loss of the species' habitat. The Endangered Species Act would offer additional protection for the species, largely through the recovery and consultation processes.

**E. Other natural or manmade factors affecting its continued existence.** Over the past forty years the number of vehicles and people on beaches of the Great Lakes and Atlantic coast has greatly increased. Plovers are attracted to unvegetated beach areas in early spring only to be disrupted after human recreational and vehicular activities have intensified in late spring and summer. Foot traffic, dune buggies, and other vehicles can crush eggs and chicks. Human presence can disrupt incubation or interfere with fledging success by separating chicks from parents (Flemming, 1984). A lack of undisturbed habitat has been cited as a reason for the decline of other sand nesting birds, such as black skimmer (*Rynchops niger*) and least tern. On the northern plains, recreational use of rivers is increasing, and remaining bare alluvial islands are subjected to growing human intrusion. Human disturbance in the remote, sparsely populated alkali wetland country of the Dakotas, Montana, and Saskatchewan is small, although even here chicks have been crushed by off-road vehicles.

The Service has carefully assessed the best scientific and commercial information available regarding the past,

present, and future threats faced by this species in determining to make this rule final. Based on this evaluation, the preferred action is to list the piping plover as endangered and threatened. Endangered status seems appropriate for the Great Lakes because of the species' near extirpation from there. Threatened status is warranted for the remainder of the species' range because of continued threats and the bird's low numbers. Although some States already list the plover, their laws do not provide the same degree of protection afforded by the Endangered Species Act. Not to list this bird would be contrary to the evidence gathered to date.

#### Critical Habitat

Section 4(a)(3) of the Endangered Species Act, as amended, requires that, to the maximum extent prudent and determinable, the Secretary shall specify any habitat of a species which is considered to be critical habitat at the same time the species is determined to be endangered or threatened. The Service received extensive comments on possible areas for critical habitat designation for the piping plover. Under section 4(b)(6)(C) of the Act, the Service extends for a period of one year the determination of critical habitat for the plover. A proposed regulation may be published, based upon such data as then available, designating, to the maximum extent prudent, such habitat. A final rule must be published within one year, unless the determination is not prudent.

#### Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened under the Endangered Species Act include recognition, recovery actions, requirements for Federal protection, and prohibitions against certain practices. Recognition through listing encourages and results in conservation actions by Federal, State, and private agencies, groups, and individuals. The Endangered Species Act provides for possible land acquisition and cooperation with the States and requires that recovery actions be carried out for all listed species. Such actions are initiated by the Service following listing. The protection required of Federal agencies and the prohibitions against taking and harm are discussed, in part, below.

The Migratory Bird Treaty Act makes it illegal to take, possess, sell, deliver, carry, transport, or ship piping plovers or their parts, eggs, nests, and young. However, it affords no protection to their habitat. Section 7(a) of the Endangered Species Act, as amended, requires Federal agencies to evaluate

their actions with respect to any species that is proposed or listed as endangered or threatened, and with respect to its critical habitat, if any is being designated. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR Part 402 and are now under revision (see proposal at 48 FR 29990; June 29, 1983). Section 7(a)(2) requires Federal agencies to insure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of a listed species or to destroy or adversely modify its critical habitat. If a Federal action may affect a listed species, or its critical habitat, the responsible Federal agency must enter into formal consultation with the Service.

As indicated elsewhere in this proposal, the plover is a widely distributed species that has suffered from habitat losses and disturbances throughout most of that range. Those losses and disturbances have been largely caused by the development of coastal beaches, the damming and channelization of rivers, the drainage or altering of wetlands, and human disturbance during the nesting season.

It is not possible now to state with certainty all projects or areas of activity which would require consultation and possible modification. Water development projects (e.g., Two Forks, Prairie Bend, Narrows, Catherland, Enders, Twin Valley, Wildcat Reservoirs) and activities (e.g., relicensing of Kingsley Hydropower Project) in the Platte River Basin may require consultation. The Service has already entered into consultation with Federal agencies in regard to the effects of some of these projects on the whooping crane and its critical along the Platte River. Beach development projects on the Great Lakes, Atlantic, and Gulf coasts that involve Federal funding, permits, or licensing might require consultation.

This does not indicate that all such actions will, in fact, be found to require the termination of any such project. Modification of Federal actions rather than termination has been the experience of the Service. Reasonable and prudent alternatives may be implemented to avoid causing jeopardy to the piping plover. The U.S. Army Corps of Engineers and the Bureau of Reclamation are the two principal Federal agencies that are expected to be impacted by the listing of the piping plover. Private developers, who are working without any Federal permits, and other parties not requiring such authorizations or monies, will be



unaffected under this rule with regard to section 7(a).

This listing will bring sections 5 and 6 of the Endangered Species Act into effect with respect to the piping plover. Section 5 authorizes the possible acquisition of lands for the purpose of conserving endangered and threatened species. Pursuant to Section 6, the Service can grant matching funds to affected States for management actions aiding the protection and recovery of the piping plover.

The Service will develop a recovery plan for the plover. Such a plan will bring together both State and Federal efforts for conservation of the plover. The plan will establish an administrative framework, sanctioned by section 4(f) of the Act, for agencies to coordinate activities and cooperate with each other in conservation efforts. The plan will set recovery priorities and estimate the cost of the various tasks necessary to accomplish them. It will assign appropriate functions to each agency and a time frame within which to complete them. The plan will also identify specific areas needed to be monitored and possibly managed for plovers. Guidelines on protective measures for nesting pairs of plovers would also be established.

The Act and implementing regulations found at 50 CFR 17.21 for endangered species and §§ 17.21 and 17.31 for threatened species, set forth a series of general prohibitions and exceptions that apply to all endangered or threatened wildlife. These prohibitions, in part, make it illegal for any person subject to the jurisdiction of the United States to take, import or export, ship in interstate commerce in the course of a commercial activity, or sell or offer for sale in interstate or foreign commerce listed species. It also is illegal to possess, sell, deliver, carry, transport, or ship any such wildlife that had been taken illegally. Certain exceptions apply to agents of the Service and State conservation agencies.

Permits may be issued to carry out otherwise prohibited activities involving endangered and threatened animal species under certain circumstances. Regulations governing permits are at §§ 17.22, 17.23, and 17.32. For endangered piping plovers (Great Lakes watershed), permits are available for scientific purposes or to enhance the propagation or survival of the species. In some instances, permits may be issued during a specified period of time to relieve undue economic hardship that would be suffered if such relief were not available. Since the plover is not allowed in trade by the United States, Canada, or Mexico, no economic hardship cases are expected. A broader category of permits are available at 50 CFR 17.32 for those birds with threatened status. Permits for educational purposes or public exhibition may be issued for threatened species, in addition to the purposes above.

The Service will review the piping plover to determine whether it should be considered for placement upon the Annex of the Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere, and whether it should be considered for other appropriate international agreements. Because the plover is not in international trade, the Service does not plan to propose the species for inclusion in the appendices of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

#### National Environmental Policy Act

The Fish and Wildlife Service has determined that an Environmental Assessment, as defined under the authority of the National Environmental Policy Act of 1969, need not be prepared in connection with regulations adopted pursuant to section 4(a) of the Endangered Species Act of 1973, as amended. A notice outlining the

Service's reasons for this determination was published in the *Federal Register* on October 25, 1983 (48 FR 49244).

#### Literature Cited

In addition to the references cited in this document, there exist other references on the piping plover and its habitat, which the Service also has consulted. A bibliography, including all 51 cited references, on the piping plover is available from the Service's Twin Cities office (see ADDRESSES section) upon request.

#### Author

The author of this final rule is Mr. John G. Sidle, Endangered Species Division, U.S. Fish and Wildlife Service, Federal Building, Fort Snelling, Twin Cities, Minnesota 55111 (612/725-3276 or FTS 725-3276).

#### List of Subjects in 50 CFR Part 17

Endangered and threatened wildlife, Fish, Marine mammals, Plants (agriculture).

#### Regulation Promulgation

#### PART 17—[AMENDED]

Accordingly, Part 17, Subpart B of Chapter I, Title 50 of the Code of Federal Regulations, is amended as set forth below:

1. The authority citation for Part 17 continues to read as follows:

**Authority:** Pub. L. 93-205, 87 Stat. 884; Pub. L. 94-359, 90 Stat. 911; Pub. L. 95-632, 92 Stat. 3751; Pub. L. 96-159, 93 Stat. 1225; Pub. L. 97-304, 96 Stat. 1411 (16 U.S.C. 1531 *et seq.*)

2. Amend § 17.11(h) by adding the following, in alphabetical order under "BIRDS," to the List of Endangered and Threatened Wildlife:

#### § 17.11 Endangered and threatened wildlife.

(h) \* \* \*

Species		Historic range	Vertebrate population where endangered or threatened	Status	When listed	Critical habitat	Special rules
Common name	Scientific name						
BIRDS							
Plover, piping	<i>Charadrius melodus</i>	U.S.A. (Great Lakes, northern Great Plains, Atlantic and Gulf coasts, PR, VI), Canada, Mexico, Bahamas, West Indies.	Great Lakes watershed in States of IL, IN, MI, MN, NY, OH, PA, and WI and Province of Ontario.	E	211	NA	NA



Species		Historic range	Vertebrate population where endangered or threatened	Status	When listed	Critical habitat	Special rules
Common name	Scientific name						
Do	do	do	Entire, except those areas where listed as endangered above.	T	211	NA	NA
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Dated: December 4, 1985.

P. Daniel Smith,

Acting Assistant Secretary for Fish and  
Wildlife and Parks.

[FR Doc. 85-29414 Filed 12-10-85; 8:45 am]

BILLING CODE 4310-55-M