

**NUCLEAR REGULATORY
COMMISSION****10 CFR Parts 30, 34, 71 and 150**

RIN 3150-AE07

**Licenses for Industrial Radiography
and Radiation Safety Requirements for
Industrial Radiographic Operations**AGENCY: Nuclear Regulatory
Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations governing industrial radiography. This final rule updates radiation safety requirements in order to enhance the level of protection of radiographers and the public. By a separate action published today in the **Federal Register**, the Commission has issued a modification to the Enforcement Policy that reflects these amendments to 10 CFR Part 34.

EFFECTIVE DATE: June 27, 1997.

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I. Background

Part 34 of Title 10 of the Code of Federal Regulations was first published in 1965 (30 FR 8185; June 26, 1965) during the recodification of existing 10 CFR Parts 30 and 31. Part 34 established a new part devoted specifically to regulating the safe use of sealed sources of byproduct material in industrial radiography. Numerous modifications made by a number of Agreement States to corresponding regulations led to a decision, in 1991, to develop an overall revision to 10 CFR Part 34. Subsequently, the NRC published a proposed rule on February 28, 1994 (59 FR 9429), that incorporated a number of recommendations made at meetings with the Agreement States and industry in 1991 and 1992. The NRC also reviewed the radiography regulations from Texas, Louisiana, Canada, and the

“Suggested State Regulations for Control of Radiation,” developed by the Conference of Radiation Control Program Directors (CRCPD), Inc., in developing the proposed regulation.

The proposed rule also addressed the potential resolution of a petition from the International Union of Operating Engineers (IUOE), Local No. 2, requesting an amendment to the radiography regulations to require the presence of a minimum of two radiographic personnel when performing industrial radiography at temporary jobsites (PRM-34-4). Based on comments received on this petition (35 out of 38 comments) in favor of a two person requirement, the proposed revision to 10 CFR Part 34 included a provision for at least two qualified individuals to be present anytime radiographic operations are undertaken outside a permanent installation.

The other major provisions of the proposed rule were to: (1) Require mandatory certification of radiographers, (2) specify the qualifications and duties for a radiation safety officer, (3) include additional training requirements for radiographers' assistants, and (4) clarify the definition of a permanent radiographic installation. The proposed rule also revised the format of 10 CFR Part 34 to place requirements into categories that more accurately describe the requirements found in the rule.

II. Response to Public Comments on the Proposed Rule and Final Rule Provisions

The comment period on the proposed rule closed May 31, 1994, but the NRC continued to receive comments while developing the final rule. By mid-December 1994, a total of 58 public comment letters were received on the proposed rule. Many commenters expressed opinions and recommendations on several sections of the proposed rule while others commented on only a single section. In developing a final rule, the NRC held a workshop in Houston, Texas, on December 13-15, 1994, to discuss the resolution of public comments received up to that date on the proposed rule. In addition, the NRC discussed its views and sought comments on several of the key provisions of the proposed rule at an industry workshop held in Las Vegas, Nevada, on March 20, 1995, and the April 1995 workshop for Agreement State program managers. The transcripts of these meetings, which are available for inspection and copying in the NRC Public Document Room, 2120 L Street NW. (Lower Level), Washington DC, were reviewed in developing the final

rule. Following these workshops, an additional 31 comment letters were received, bringing the total to 89 public comment letters.

This final rule includes a partial granting of the petition, PRM-34-4, in that it requires, at a minimum, a two-person crew whenever radiographic operations are being conducted outside of a permanent radiographic installation. The NRC has decided not to adopt the term “radiographer trainee,” (which was one of the options proposed in the petition) but is requiring instead that the second person be another qualified radiographer or an individual who has met, at a minimum, the requirements for a radiographer's assistant. The NRC recognizes that, in Agreement States, the training of those individuals designated as trainees would meet and generally exceed the NRC's training requirements for a radiographer's assistant. Trainees are required to successfully complete the 40-hour course on the subjects listed in § 34.43(g), while a radiographer's assistant has to meet only those requirements in § 34.43(c) and is not required to complete the 40-hour course described.

The estimated cost of requiring the two-person crew could be significant for licensees who currently send only one radiographer to a temporary jobsite. However, the current regulation requires direct surveillance of the operation to prevent unauthorized entry into a high radiation area. To comply with this regulation, most licensees already must use more than one qualified individual in many situations.

In summary, the Commission believes that by requiring at least two qualified individuals to always be present when radiographic operations are being conducted, there will be a significant increase in assurance that operational safety measures and emergency procedures will be effectively implemented. The expectation is that violations involving failures to perform adequate radiation surveys of radiographic exposure devices and the surrounding area, failures to adequately post and monitor the restricted area, and failures to lock and secure the camera when not in use will become less frequent. Louisiana and Texas adopted two-person crews several years ago and report a significant reduction in incidents and exposures. Many of the other Agreement States have since adopted the requirement because of the implicit safety benefit implied in having two persons available to cope with emergency situations. Furthermore, if an incapacitating injury to a radiographer should occur at a remote location, the

presence of a second individual could be an important factor in preventing unnecessary radiation exposures. The Commission is amending the Enforcement Policy as a result of this final rulemaking to provide, as an example of a Severity Level III violation, the conduct of radiography operations without the required second radiographer or individual with, at least, the qualifications of a radiographer's assistant as provided in § 34.41.

The remaining issues addressed in the comments received on the proposed rule and the NRC responses to those comments are discussed under the applicable CFR section.

Section 34.1: Purpose and Scope

This section of the final rule is basically unchanged from the existing regulation, with the exception of minor clarifying changes. Other NRC regulations, such as, Parts 19, 20, 21, 30, 71, 150, 170, and 171, that apply to radiography licensees are now referenced by number in this section, and "radiography" is changed to "industrial radiography" to distinguish it from medical uses. No comments were received on this section.

Section 34.3: Definitions

This section provides definitions for terms used in this part. The proposed rule included a number of new definitions, as well as proposed revisions to a number of existing definitions.

The proposed rule contained definitions for the following new terms not previously addressed in 10 CFR Part 34: ALARA, Annual safety review, Associated equipment, Becquerel, Certifying entity, Collimator, Control tube, Exposure head, Field examination, Field station, Gray, Independent certifying organization, Projection sheath, Radiation safety officer, Radiographer certification, Radiographic operations, S-tube, Shielded position, Sievert, Source assembly, and Temporary jobsite.

The term ALARA (as low as is reasonably achievable) was added to describe a key element of the revised standards for protection against radiation in 10 CFR Part 20. The terms Becquerel, Gray, and Sievert were added to define the metric units used in all new or revised regulations. The term Annual safety review was added to clarify what was meant by the term periodic training used previously in § 34.11. The terms Certifying entity, Independent certifying organization, and Radiographer certification were added to describe terms associated with the proposed requirements for

verification of radiographer training. The terms Collimator and S-tube were added to describe pieces of equipment that are used in conducting radiographic operations. The terms Field station and Temporary jobsite were added to clarify the meaning of these commonly used terms. The term Radiation safety officer was added to define the role of this individual in industrial radiography. The terms Associated equipment, Control tube, Exposure head, Practical examination, Projection sheath, and Source assembly were added because, while used in the regulation, they were not previously defined.

The proposed rule presented modifications to the definitions of Permanent radiographic installation, Storage area, and Storage container. The definition of Permanent radiographic installation was modified to remove ambiguities in the existing definition concerning what the phrase, "intended for radiography," meant. The definitions of Storage area and Storage container were modified to remove references to transportation.

Comment

The six comment letters that addressed this section requested several additions, clarifications, and changes to the proposed and existing definitions. One commenter requested adding a section addressing the unique aspects of underwater, offshore platform, and lay-barge radiography. Another commenter requested defining the term "control drive mechanism" because it is used in the definition of control tube. Clarification of the meaning of the terms "annual safety review," "field examination," and "radiographer's assistant" was requested. One Agreement State (Illinois) requested that the definition of permanent radiographic installation not be changed as proposed, that the definition of radiographer certification be broadened to include authorization by an Agreement State, that the Commission adopt the term radiographer trainee, and the term working position be explained. They further requested that definitions of malfunction, defect, transport, and transport container be added and suggested a number of editorial changes to the definitions to make them similar to definitions in the Suggested State Regulations used by many of the Agreement States.

Response

In response to public comments, the NRC has added five new definitions to the final rule: Control cable, Control drive mechanism, Lay-barge radiography, Offshore platform

radiography, and Underwater radiography. Some of the definitions in the proposed rule were changed in response to comments. Annual safety review was changed to Annual refresher safety training to clarify that its purpose is training. Projection sheath was changed to the more commonly used term, Guide tube, and Beam limiter was changed back to its original term, Collimator. The term working position as used in the definition of Exposure head means the location of the equipment during operation. Radiography was changed to Industrial radiography to reduce any confusion with medical uses. Field examination was changed to Practical examination to clarify that it need not occur in the field. In response to a comment raised on § 34.43, Training, a definition for hands-on experience was added to the final rule. The other new definitions in the proposed rule are adopted in the final rule without change.

Definitions for defect and malfunction, which are defined in 10 CFR Part 21 were not added to 10 CFR Part 34 to avoid the potential for confusion should 10 CFR Part 21 be revised without any subsequent revision to 10 CFR Part 34, and as a result these terms were to be defined differently in Parts 34 and 21. The definition of Radiographer certification already includes individuals certified by certifying entities (i.e., Agreement States) and therefore no change was made to the final rule. No definition was added for transport or transport container, although the Agreement States are free to adopt or use definitions for these terms.

Changing the definition of Radiographer's assistant was discussed at the November 1992 workshop in Dallas, Texas. Some Agreement States use the term "trainee" to refer to a radiographer's assistant and also require training in the subjects in § 34.43(g). NRC only requires this training for radiographers. Although the NRC is not adopting the term trainee or requiring radiographers' assistants to have the same training as radiographers, the Agreement States are not prohibited from using the term in their requirements or from requiring the additional training.

Section 34.5: Interpretations

This section, while not in 10 CFR Part 34 previously, was added to the proposed rule because this is standard regulatory language used to state that only the General Counsel of the NRC has the authority to provide interpretations of the regulations which

will be binding on the Commission. No comments were received on this section.

Section 34.8: Information Collection Requirements: OMB Approval

This section was basically unchanged in the proposed rule, except for changing the section numbers to conform to the new format of the proposed rule and to list any new requirements that require OMB approval. No comments were received on this section.

Section 34.13: Specific License for Industrial Radiography

This section (previously § 34.11), provides the basic requirements for submittal of a license application which must be met satisfactorily before NRC will approve the application. A number of changes to this section were proposed, including a reduction in the inspection frequency of job performance for radiographers and assistants, a requirement for submitting procedures for verifying and documenting the certification status of radiographers, a requirement to designate and identify a Radiation Safety Officer (RSO) responsible for the licensee's radiation safety program, provisions for leak testing for depleted uranium leakage on those radiographic exposure devices that use depleted uranium for shielding, and a requirement to provide the location and description of all field stations and permanent radiographic installations.

The requirement for conducting field inspections of job performance of radiographers and assistants was moved to § 34.43 to more accurately reflect its role in the training program. In addition, a requirement for conducting annual refresher safety training was substituted for the previously used term of periodic training. These changes are described more fully under the discussion of § 34.43.

The requirement to conduct tests to identify depleted uranium (DU) contamination was added to detect wear through the "S" tube into the DU shielding. Such a condition could cause binding of the control cable in the groove and possibly prevent the radiographer from retracting the source. A new requirement was proposed to identify procedures for conducting leak tests for sealed sources and radiographic exposure devices containing (DU) shielding if the licensee intends to perform the leak testing.

Comment

Nine comment letters addressed this section. Six opposed changing the frequency of required licensee

inspections of radiographers and radiographers' assistants from quarterly to annually. They stated that there is great benefit in conducting quarterly inspections and recommended keeping the quarterly requirement. Three commented favorably on the requirement to designate and identify an RSO (§ 34.13(g)). One commenter suggested that the RSO should only be responsible for ensuring that a radiation safety program was implemented rather than being the one who must implement it as the proposed rule had suggested.

Response

Although some commenters suggested that the quarterly inspections of radiographers and radiographers' assistants should be maintained, the Commission believes that the increased training required for radiographers' assistants, the requirement for the certification of radiographers, and the appointment of an RSO to oversee training and job performance, will compensate for the reduction in the numbers of inspections performed. However, the Commission agrees with the commenters that the benefits gained by these inspections indicate that a semiannual frequency may be preferable and has modified the final rule to require semiannual inspections. The requirement for conducting the field inspections for radiographers and radiographers' assistants has been moved to § 34.43 to more accurately reflect its role in the training program. Additional information concerning the specifics of these inspections is given in § 34.43(e).

Paragraph (b) specifies that training for industrial radiographers and radiographers' assistants must meet the requirements of § 34.43. The new requirement to establish procedures to verify the certification status of radiographers applies to previously certified radiographers hired by the licensee. However, the licensee will be required to ensure that all radiographers are certified when this requirement becomes effective, (2 years after the final rule is published in the **Federal Register**). Section 34.13(b)(2) permits licensees to use certified radiographers before the mandatory 2-year implementation date in lieu of describing its initial training program in the subjects outlined in § 34.43(g). With the adoption of mandatory certification for industrial radiographers, the final rule has been revised to delete the requirement that licensees include a description of their training program in the radiation safety topics in § 34.43(g) for radiographers in their license application.

The final rule specifies that licensees must designate an RSO and potential RSO designees. No change was made in the final rule as requested in the comment described above, because the rule is clear that the RSO's responsibility is to ensure that the radiation safety program is implemented in accordance with NRC regulations and with the licensee's operating and emergency procedures. Further discussion on the qualifications and duties of this individual are addressed under § 34.42.

In response to comments on § 34.27 that testing of radiographic devices for DU contamination should be incorporated in the section on testing of sealed sources for leakage, § 34.13(h) was added. This paragraph requires that DU shielding, in addition to sealed sources, be tested for leakage. In response to comments received on § 34.89 that provisions in the proposed rule requiring retention of records at specific locations was overly burdensome, a new § 34.13(k) was added to require license applicants to identify the locations where all records will be maintained. This provides the licensees with greater flexibility.

Section 34.20: Performance Requirements for Industrial Radiography Equipment

This section specifies requirements for industrial radiographic equipment performance and use. Only a few changes to this section were presented in the proposed rule. The proposed changes primarily addressed equipment modifications and labelling requirements. The proposed rule would have prohibited modification of radiographic exposure devices, and associated equipment. The term, source assembly, was added to § 34.20(c) to make it clear that it is one of the pieces of equipment that must meet the requirements of § 34.20. Section 34.20(f) was added in the proposed rule to require labeling of all associated equipment acquired after January 10, 1996, to identify that the components have met the requirements of § 34.20.

Comment

Six comment letters addressed this section. Three commenters were concerned that § 34.20(b)(1) specifies that the label required for the device was to be attached by the user when in practice most of the information required is supplied or attached by the supplier.

Two commenters expressed concern that the proposed rule did not seem to allow modifications whether they compromised safety or not, which

differed from the existing § 34.20(b)(3). One commenter requested examples of "reasonably foreseeable abnormal conditions" discussed in § 34.20(c)(1). One commenter expressed concern over the crushing and kinking tests for the guide tube listed in § 34.20(c)(5) and stated that the rule implied that each guide tube had to be tested instead of testing a prototype and then using Quality Assurance/Quality Control (QA/QC) procedures in the design of subsequently manufactured guide tubes.

Finally, one commenter was concerned with § 34.20(f) in the proposed rule that requires labeling of all associated equipment acquired after January 10, 1996. The commenter was concerned that a large amount of associated equipment that meets ANSI N432-1980 and 10 CFR 34.20, and is currently in use is not labelled. Because compliance can be determined only at the time equipment is manufactured, the commenter was concerned that qualified associated equipment may not be authorized for use. The commenter also raised another concern as to what components would have to be labelled. The commenter stated that control gears, guide tube fittings, or outlet nipples are examples of items that it may not be practical to label. The commenter also pointed out that a properly labelled control assembly may not meet the ANSI requirements if one of its components is replaced by a labelled replacement component from a different manufacturer.

Response

Sections 34.20(a) and (b)

Minor changes were made in each of these paragraphs to clarify what is meant by radiographic equipment. The terms "source assembly" and "sealed source" were added to § 34.20(a) and (b) because these items are addressed in the ANSI Standard N432-1980.

Section 34.20(b)

The Commission recognizes that the manufacturer generally provides much of the information required concerning the equipment initially and generally affixes a label to the device. If a replacement source or source assembly is installed or a licensee's name, telephone number, etc., changes, it is the licensee's responsibility to make appropriate changes to the label. Although the requirement to have the label attached to the radiographic exposure device by the user has been part of the regulation since 1990 and was not a change made in the proposed rule, the paragraph has been rewritten in the final rule to state that the licensee

shall ensure that the information required is attached, whether the information is added by the licensee or by the manufacturer.

In light of the comments received, paragraph (b)(3) of the proposed rule, which prohibited any modification of exposure devices and associated equipment, has been deleted and the existing (b)(3) modification language is retained.

Section 34.20(c)

In response to a comment requesting an example of a "reasonably foreseeable abnormal condition" one example would be where the coupling between the source assembly and the control cable cannot be unintentionally disconnected should the guide tube be severed.

Section 34.20(c)(5)

With respect to the comment received relating to this paragraph, stating that the rule implied that each guide tube had to be tested; this is neither true nor practical. It is the NRC's intent that the tests prescribed involve prototype devices and components. The ANSI Standard N432 covers criteria for the design of new devices and for qualifying *prototypes* to performance standards. This paragraph, § 34.20(c)(5), is included in the rule because ANSI N432-1980 contains crushing and kinking tests that are specific for the control cable and the control cable sheath (tube) only. The existing paragraph (c)(5) was intended to apply the crushing tests specified for the controls to the guide tubes, and to apply a kinking resistance test that approximated the forces encountered during use. However, the NRC received a few requests for the use of guide tubes in special applications where the guide tubes could not comply with the crushing test criteria stipulated in the standard. Comments received from the airline industry on the 1990 equipment rule (55 FR 843), indicated that the special guide tubes used in testing aircraft engines would not pass either the kinking test or crushing test specified in the ANSI standard. The NRC's response, at that time, was to state that persons with special requirements apply for an exemption under § 34.51. However, the Commission has reconsidered its decision, and while concluding that the crushing tests specified in ANSI N432 should be adequate for the majority of guide tubes in use, the NRC also recognizes that the tests specified in ANSI N432 are not sufficient for all cases and that other tests may provide an equal level of safety and may be more

appropriate, provided the tests used closely approximate the crushing forces likely to be encountered in normal use. Rather than continue to review case specific exemptions to achieve this, the rule has been modified to specify the use of both crushing and kinking tests appropriate to the conditions of use.

Section 34.20(f)

Paragraph 34.20(f) in the proposed rule, which specified that all associated equipment acquired after January 10, 1996, had to be labelled to identify that components met the requirements of § 34.20, is deleted in the final rule. The NRC is currently re-evaluating the applicability of the ANSI Standard N432-1980 for associated equipment. In response to comments raised on the proposed rule and subsequent comments from a number of licensees requesting interpretation of Information Notice 96-20, issued on April 4, 1996, the NRC will consider the need for an amendment to § 34.20. In the interim, NRC inspections will focus on safety issues and incidents relating to associated equipment.

Section 34.21: Limits on Levels of Radiation for Storage Containers and Source Changers

This section specifies the limits on radiation exposure levels for various equipment associated with industrial radiography. Metric equivalents to values previously cited were added to the proposed rule. Because radiation exposure instruments currently use units of roentgens to measure radioactivity, the proposed rule specified that measurements taken in roentgens could continue to be recorded in terms of roentgens, provided the limits described in the rule would not be exceeded.

Comment

One comment was received on this section that indicated § 34.21(b) was confusing as written because the language in the proposed rule stated that § 34.21 would only apply to storage containers.

Response

NRC agrees and has rewritten § 34.21 in the final rule to specify the radiation exposure limits for storage containers and source changers and to delete requirements for radiographic exposure devices from this section. Because all radiographic equipment in use after January 10, 1996, will be required to meet ANSI N432-1980, the reference to requirements for equipment manufactured before January 10, 1992,

is no longer needed and has been deleted from the final rule.

Section 34.23: Locking of Radiographic Exposure Devices, Storage Containers and Source Changers

This section requires locking of radiographic equipment to protect the public from inadvertent exposure to radiation. The proposed rule included additional requirements for locking radiographic exposure devices before movement and, if there is a keyed-lock, for removing the key at all times, when not under the direct surveillance of a radiographer or a radiographer's assistant.

Comment

Twelve comments were received on the new proposed § 34.23(b), ten opposed the provision and two suggested word changes. Examples were:

(1) The requirement to disconnect the control cables from the exposure device before moving from one location to another in the same immediate area involves too much wear and tear on the source assembly connection. This could lead to equipment fatigue.

(2) Industrial radiographers work under less than friendly situations in deep and muddy ditches and often under stress. They may also work in situations where one pipeline is tied into another and many radiographs, all within a short distance of each other, are required. Stress is high on the radiographer under these conditions because people are waiting. Requiring the disconnecting and re-connecting of cables before moving the radiographic exposure device for successive exposures only a few feet apart would only add to that stress and result in judgment errors which in turn could result in possible overexposures.

(3) Because many exposure devices now have, and all will soon be required to have, an automatic source securing device, requiring that the control cables be removed before moving the device as little as a few feet is unnecessary and adds no additional measure of radiation safety.

(4) All of this connecting and disconnecting would drastically increase the introduction of contaminants into the control tube or guide tube and cause excessive wear and would also increase radiation exposure to the extremities of the radiographers concerned.

Response

The NRC agrees with the commenters and has deleted the proposed § 34.23(b) from the final rule and modified the

proposed § 34.23(a). The final rule contains requirements that the source be secured after each exposure [§ 34.23(a)]. Paragraph (a) in the final rule requires the radiographic exposure device to have a lock or a locked outer container and specifies that it shall be kept locked with the key removed, when not under the direct surveillance of a radiographer or a radiographer's assistant. In addition, § 34.49(b) requires the licensee to survey the radiographic exposure device and guide tube after each exposure when approaching the device or the guide tube to ensure that the source has been returned to the shielded position. The Commission has determined that this requirement provides for adequate safety without the need for additional requirements to disconnect guide tubes before any movement. The proposed rule included the statement that the source be manually secured in those exposure devices manufactured before January 10, 1992. This statement has been deleted in the final rule because all devices in use after the effective date of this final rule, must meet the requirements of § 34.20 including automatic securing.

Section 34.25: Radiation Survey Instruments

This section (previously § 34.24) specifies requirements for radiation survey instruments. The proposed rule included a requirement to perform an operability check before use. The proposed rule also reduced the frequency of survey meter calibrations from quarterly to semiannually and provided specific calibration protocols for linear, logarithmic, and digital scale instruments, including an accuracy requirement of plus or minus 20 percent. These changes were made to reflect current calibration standards and to address the variety of survey meters currently available. In addition, the proposed rule required that records of the instrument calibrations be maintained.

Comment

Ten comments were received on this section. Three commented on the necessity for performing a daily operability check. One commenter objected to using the projection sheath (guide tube) port of a radiographic exposure device as a suitable radiation field for the operability check, and stated that if the source were not properly locked and shielded within the device, it would be possible for the operator to receive an overexposure if the survey meter being checked for operability were malfunctioning. This commenter suggested that a safer

method was to use an appropriate check source for the radiation field. Two commenters suggested that some of the newer instruments could retain their calibration for up to 6 months as required by § 34.25(b)(1), but five felt that a 3-month calibration period should be maintained, citing the rough treatment and hostile environment in which field radiography was performed. One commenter suggested that the calibrations should be made by persons licensed by the NRC or an Agreement State.

Response

The operability check, originally proposed for § 34.25, has been moved to § 34.31 because this section is a more appropriate location for the requirement. As recommended, the suggested method for performing an operability check has been changed to use a check source or other appropriate means. The suggestion that the regulations specify that persons performing calibrations be licensed by the Commission or an Agreement State is not adopted at this time. The Commission does not believe that the suggested requirement is necessary because licensees must submit operating and emergency procedures with their application under § 34.13. Because these would include a licensee's calibration procedures, an adequacy review of the calibration procedures would be conducted prior to granting a license. These procedures are reviewed in detail as part of the licensing process, thus adopting an additional requirement to license individuals performing these calibrations could be an unnecessary burden.

The time interval for calibration under § 34.25(b)(1) was not changed from the 6-month frequency specified in the proposed rule. However, a requirement to conduct inspection and maintenance of these instruments on a quarterly basis has been included in § 34.31. Equipment malfunctions are generally not due to the instrument being out of calibration, but to some other failure. The Commission believes that more frequent calibrations are not needed because significant changes in instrument response should be detected during the daily operability check.

Section 34.27: Leak Testing and Replacement of Sealed Sources

This section (previously § 34.25) stipulates that licensees leak test sealed sources while in use and radiographic exposure devices that employ DU for shielding. The proposed rule included a requirement that the performance of a source exchange or a leak test must be

made by persons authorized by the Commission or an Agreement State. The proposed rule also included a requirement that radiographic exposure devices using DU shielding be tested for contamination at intervals not to exceed 12 months unless the device was in storage. The presence of DU contamination could be an indication of "S" tube wear that could lead to the binding of the control cable with the resultant inability to retract the source. The proposed rule also specified that leaking radiographic exposure devices be disposed of at a facility licensed to handle low-level waste.

Comment

Six comments were received on this section. One commenter stated that the additional test requiring a check for DU contamination could probably not discriminate between a leaking source and DU contamination. Two commenters suggested that DU testing not be required for devices in storage. Another suggested that the DU testing be integrated into the required 6-month leak test for the sealed source. One commenter stated that disposal should not be limited to a facility licensed under 10 CFR Part 61. The last commenter pointed out that DU testing was important since the drive cable travels through the worn part of the "S" tube, and if the wear is significant, the cable picks up uranium contamination and users are exposed to this contamination during connecting and disconnecting controls etc., and while the contamination level is low, it is poor health physics practice to allow individuals to have unprotected contact with contaminated items.

Response

The NRC recognizes that the detection of DU contamination does not imply that the wear on the "S" tube is sufficient to remove the exposure device from use. However, it is sufficient to require that a borescope or other suitable inspection be made to establish the degree of wear. Most nondestructive evaluation (NDE) firms have the capability to conduct their own inspection. Firms that do not have this capability could send the device to the manufacturer or to some other inspection service company for the inspection and evaluation.

The NRC has determined that leak testing services are available that can discriminate between DU contamination and sealed source contamination. The NRC has no objection to increasing the frequency for the DU contamination tests so that they are performed concurrently with the sealed source leak

tests. However, the interval between the DU tests must not exceed 12 months, unless the device is in storage, with the provision that it be tested before use or transfer. Section 34.27(e) in the final rule has been modified to reflect this change. The requirement for disposal of a DU contaminated device in a facility licensed under 10 CFR Part 61 has been deleted since 10 CFR 40.13(c)(6) exempts natural or depleted uranium metal used as a shielding constituent in a shipping container, provided it is appropriately labeled and the metal is encased in mild steel or equally fire resistant metal of minimum wall thickness of 1/8 inch (3.2 millimeters).

Section 34.29: Quarterly Inventory

This section (previously § 34.26) specifies requirements for conducting a quarterly inventory. The proposed rule was essentially unchanged from the existing regulation, with the exception of moving all recordkeeping requirements to § 34.69.

Comment

One commenter requested an editorial change to this section.

Response

In response to the comment, the final rule clarifies that an inventory of all devices that utilize DU shielding is also required.

Section 34.31: Inspection and Maintenance of Radiographic Exposure Devices, Transport and Storage Containers, Associated Equipment, Source Changers, and Survey Instruments

This section (previously § 34.28) addresses requirements for the various types of inspection and maintenance activities that licensees must perform to ensure that equipment is in good operating condition, sources are properly shielded, required labels are present, and components important to safety are functioning properly. Records of these inspections and maintenance performed are to be kept for 3 years.

The proposed rule extended inspection and maintenance checks to include associated equipment. Associated equipment includes various items used for specific tasks which may not be supplied with the radiographic exposure device. Experience has shown that defects in associated equipment can have an effect on safety. The term routine maintenance was used in the proposed rule to clarify that licensees are not required to perform all maintenance. Many equipment repairs may require returning the device to the manufacturer. A requirement to remove

defective equipment from service until repaired was also included, and that a record of the defect, as well as the corrective actions taken, must be made.

Comment

Three comments were received on this section. Commenters indicated that the daily checks should be more than just visual checks and that they should include operability checks to reveal any equipment problems. The commenters indicated that the components should be maintained in accordance with the manufacturer's specifications and that the recording requirements should include maintenance performed even if this is performed by another, such as the manufacturer.

Response

The NRC agrees that both visual and operability checks of equipment should be made daily and has modified paragraph (a) accordingly. The proposed rule would have only required that survey instrument operability be evaluated daily with a check source or other appropriate means. By requiring a daily operability check, the likelihood of the radiographer relying on a defective instrument should be reduced. Although it may be a good practice to maintain the equipment in accordance with the manufacturer's specifications, requiring this in the final rule is not necessary, provided the licensee has appropriate procedures for conducting routine inspection and maintenance. The final rule will now require the licensee to have written procedures for the inspection and routine maintenance of radiographic equipment.

In response to a comment on § 34.35 regarding moving the transportation requirements in 10 CFR Parts 71 and 34 to reduce the confusion to licensees, the QA requirements for maintenance of transport packages have been included in this section. This, together with a minor conforming change to 10 CFR Part 71, will relieve an existing burden on radiography licensees, who will no longer need to separately submit a transport package QA program description for approval. The prescribed written procedures must include procedures necessary to inspect and maintain Type B packaging used to transport radioactive material.

Section 34.33: Permanent Radiographic Installations

This section (previously § 34.29) specifies the safety requirements that must be in place for any permanent radiographic installation. The proposed rule was basically unchanged from the existing regulation except that daily

checks would be required for both the visible and audible alarms in place of testing the alarm systems at intervals not to exceed three months. Entrance controls of the type described in § 20.1601(a)(1) would be tested monthly under the proposed rule, instead of every 3 months.

Finally, the proposed rule would have required that, if an entrance control device or an alarm is operating improperly, it would be labelled as defective and repaired before operations are resumed.

Comment

Six comments were received on this section. Two of the commenters believed that the monthly testing of entrance controls was redundant if there was also a requirement for a daily test. Two others were concerned that no provision was made for surveillance of high radiation areas around the roof of those installations where the shielding is insufficient to reduce the radiation below the level of a high radiation area. One commenter expressed a concern that there was no provision for use of the facility should the visual and audible alarms become defective and require some time to repair. Two commenters also suggested that the alarm system be tested with a source rather than by turning on the exposure device.

Response

The NRC agrees that the exposure device need not be used to check the alarm system and has changed paragraph (b) in the final rule accordingly. The NRC has added words to help clarify the difference between entrance control devices described in § 20.1601(a)(1) and the alarm systems described in § 34.33(a)(2). Daily testing is required for the audible and visual alarms described in § 34.33(a)(2). Systems whereby the radiation level is automatically reduced upon entry (§ 34.33(a)(1)) require monthly testing. The final rule has been revised to allow licensees to continue to use the facility if the alarm system is found to be defective, for a period of up to 7 calendar days, provided the controls needed for a temporary jobsite are in place. The NRC will review any applications where high radiation areas exist outside the permanent installation on a case-by-case basis to ensure that adequate safety controls are in place for these installations.

Section 34.35: Labeling, Storage, and Transportation

This is a new section that specifies requirements for labeling, storage, and

transportation of radioactive material used in industrial radiography. The proposed rule contained requirements to lock and physically secure transport packages and to store licensed material in a manner that minimizes the danger from explosions or fire. The proposed rule also contained a requirement for a QA program, as described in § 71.105.

Comment

Three comments were received on this section. All requested that the applicable Department of Transportation (DOT) regulations, including the QA requirements on packages, be included in 10 CFR Part 34.

Response

The NRC agrees that certain requirements in 10 CFR Part 71 relating to a QA program should be relocated in 10 CFR Part 34. The Commission has made a determination that inspection programs for industrial radiography containers meeting the requirements of § 34.31(b) will satisfy the requirements in § 71.101. While radiography licensees have always had to comply with the QA requirement for transport packages in 10 CFR Part 71, there have been numerous cases where they were unaware of this requirement and, therefore, failed to comply. The inclusion of this requirement in 10 CFR Part 34 will reduce the burden on radiography licensees to submit a QA program for NRC approval separately. Much of the same information on inspection and maintenance that was required as part of the license application was similar to that information required for a QA program under 10 CFR Part 71. A revision to § 71.101 has been made to state that the inspection and maintenance programs for radiographic exposure devices, source changers, or packages transporting these devices that meet the provision of § 34.31(b) or equivalent Agreement State regulations, need not be submitted separately as a QA program for Commission approval. This change eliminates the potential for duplicate submission of information and reduces the monetary burden on radiography licensees because they will no longer be required to pay the fees associated with the QA program in 10 CFR Part 71. This change, however, does not relieve radiography licensees from complying with the transport requirements in 10 CFR Part 71.

Section 34.41: Conducting Industrial Radiographic Operations

This new section specifies certain conditions that must be met before performing radiographic operations in

order to ensure that adequate safety measures are in place before conducting radiographic operations. The proposed rule specified that all radiographic operations conducted at locations of use listed on the license must be conducted in a permanent radiographic installation. The NRC has always believed that radiography performed in a fixed facility, meeting the requirements of § 34.33, would provide a safer environment for workers and the public. If licensees need to perform radiography at their place of business outside of a permanent facility due to some unique circumstances, i.e., item to be radiographed is too large for the facility, Commission authorization would be required. The proposed rule included a requirement for two individuals to be present whenever radiographic operations occur outside of a permanent installation. One of these individuals is required to be a fully qualified radiographer and the other individual is required to be a radiographer's assistant meeting the requirements specified in § 34.43(c).

Comment

More than 50 comments were received on this section, 42 in favor and 11 opposed. Those not in favor of adopting the two-person requirement cited the additional cost for the second individual as the major reason. Some suggested modifying the requirement to allow use of less qualified people such as security guards for the second individual. Another suggestion was to allow the RSO to determine when a second individual was required. One comment addressed radiography performed within a factory environment where access could be controlled by one radiographer who could lock access to the site to prevent persons from entering during radiography operations. Those in favor of the requirement cited the increased safety provided by having two individuals present at all times. Several commenters pointed out that the additional cost of this provision would be borne by the users with little impact on the licensees. One commenter was concerned that unless explicitly stated, unqualified individuals could be asked to perform duties that should be performed by qualified individuals, for example, rather than using a 2-person crew comprised of a radiographer and a radiographer's assistant, the customer may propose the use of one of its employees as a method to reduce the nondestructive testing company's fees.

Response

The Commission has decided to adopt the requirement for at least two

qualified individuals to be present whenever radiographic operations are performed outside of a permanent radiographic installation. The Commission believes that the safety issues involved mandate the adoption of this requirement, particularly when radiography is performed in high places or in trenches, where problems can most often occur, and where the radiographer alone is not able to control access. It should also be evident that in case of accident or injury, the second person needed at the site must be more than an observer. The person should have sufficient radiography and safety training to allow him/her to take charge and secure the radioactive material, provide aid where necessary, and prevent access to radiation areas by unauthorized persons, whereas an untrained person, such as a security guard or contractor's employee as suggested by one commenter, would be unable to perform these functions in a safe manner. The text of this section has been modified to emphasize that the purpose of the second individual is to provide immediate assistance when required and to prevent unauthorized entry into the restricted area.

Section 34.41(d) was added to include a requirement to have approved procedures before conducting specific types of radiographic operations such as lay-barge, underwater, and off-shore platform radiography to make NRC regulations more compatible with Agreement State requirements.

Section 34.42: Radiation Safety Officer for Industrial Radiography

This new section identifies the qualifications and duties of the RSO for industrial radiography. Previously, these requirements were referenced in regulatory guides and included as license conditions on a case-by-case basis, but not spelled out in the regulations. The NRC believes the RSO is the key individual for oversight of the licensee's radiography program and the person responsible for ensuring safe operation of the program.

The proposed rule specified that to be considered eligible for the RSO position, an individual must have a minimum of 2000 hours of documented experience as a qualified radiographer in industrial radiographic operations. Among the responsibilities of the RSO specified in the proposed rule, were the establishment and oversight of all operating, emergency, and ALARA procedures and conduct of the annual review of the radiation protection program required by § 20.1101(c).

Comment

Twenty comment letters were received on this section in the proposed rule. More than half opposed the provision, primarily on the grounds that mandatory certification and the required 2000 hours of experience in radiographic operations would cause many well trained persons to be disqualified. Several commenters stated that they used RSOs with broad radiation protection experience and academic training for oversight of the radiography and other programs but not for active supervision of radiographic operations. Other commenters stated that NRC should modify its requirement of 2000 hours documented experience in radiographic operations partly because the documented experience could be difficult to verify. One commenter pointed out that there is no existing 40-hour course to prepare someone to be an RSO for a radiography license. This commenter also pointed out that there was a 2-day course available entitled Administrators Seminar that covered the specific regulations pertaining to radiography and how to implement an effective program. One Agreement State requested that the experience required for the RSO be broad enough to encompass X-ray radiography. Another commenter suggested that the NRC should consider modifying its requirements to permit fulfillment of the qualifications by more than one individual.

Response

The requirement for 2000 hours of documented experience in radiographic operations has been changed to read 2000 hours of hands-on experience in industrial radiographic operations as a qualified radiographer, which is essentially 1 year full-time of field experience after reaching the level of a qualified radiographer, and formal training in the establishment and maintenance of a radiation protection program. What is meant by "hands-on experience" is experience in all those areas considered to be directly involved in the radiography process. These include taking radiographs, surveying devices and radiation areas, calibration of survey instruments, operational and performance testing of survey instruments and devices, film development, posting of radiation areas, transportation of radiography equipment and travel to temporary jobsites, posting of records and radiation area surveillance etc. Excessive time spent in only one or two of these operations (such as film development or

radiation area surveillance) should not be counted toward the 2000 hours under consideration. Limited experience with radiography utilizing X-rays can be included. However, because there are greater safety concerns associated with the use of exposure devices utilizing gamma radiation than there is with use of an X-ray device where the radiation field can be shut off, the majority of this experience should be in isotope radiography. The 2000 hours time period was selected to ensure that the RSO has sufficient radiographic experience to be able to clearly oversee the safety aspects associated with industrial radiography. Because utilization logs are already kept for 3 years, no additional documentation of a radiographer's experience would need to be maintained. This change is based in part on the comments received at the December 1994, workshop held in Houston, Texas. A number of licensees attending the workshop maintained that requiring documentation of 2000 hours would be overly burdensome.

A provision for the NRC to consider alternatives, based upon the licensee's submittal of the proposed RSO's credentials, has also been added to provide flexibility for licensees that engage in other activities involving NRC licensed material where the RSO would not likely be a radiographer but would be a radiation protection professional. The qualifications, training, and experience required of the RSO will vary depending upon the complexity of the licensee's operations and the number of individuals potentially involved.

In response to comments at the December 1994, workshop in Houston, Texas, the requirement for the RSO to have formal classroom training related to the radiation protection program, has been modified to delete the requirement that it be a 40-hour course. The primary requirement is that the training properly addresses the appropriate subjects without regard to specification of the hours spent. Other minor word changes have been made for clarification. In response to a comment, paragraph (c)(5) has been changed to clarify that the RSOs must have the authority to assume control for instituting corrective actions, including stopping operations when necessary in emergency situations or unsafe conditions.

Section 34.43: Training

This section addresses training requirements for industrial radiographers and radiographers' assistants. Section 34.43(a) in the proposed rule was revised to require radiographers to be certified by a

certifying entity meeting the criteria specified in Appendix A to 10 CFR Part 34.

In addition, the proposed rule incorporated some additional training in NRC regulations for radiographers' assistants, required written tests for radiographers' assistants, required annual refresher safety training for radiographers and assistants, and reduced the frequency of inspection of radiographers and assistants from quarterly to annually.

Training subjects previously listed in Appendix A were moved to § 34.43 (g) in the proposed rule. Several additional topics were also included: pictures or models of source assemblies; training in storage, control, and disposal of licensed materials; and other pertinent Federal regulations (i.e., DOT). The requirement for annual refresher safety training was included in the proposed rule to clarify what was meant by the term "periodic training" in the existing regulation. Licensees are expected to address new information since the employee's last training, such as new equipment or revised operating and emergency procedures, and safety issues.

Comment

Sixty-one comment letters were received on this section, most commenting on the certification provision. Four of the comment letters were directed against § 34.43(d), which reduced the inspection of the job performance of radiographers and radiographers' assistants to an annual inspection in place of the current quarterly inspections. The remainder of the comments addressed mandatory certification. Forty-three were in favor and 14 opposed to certification. Some of the larger licensees stated that their training programs were superior to what was being proposed and that adopting this requirement would force them into having to participate in a duplicate program without any corresponding safety benefit. Other commenters were opposed because of the cost involved in implementing the program. Also, some licensees believed that they should be granted exemptions because their in-house certification programs were somewhat site specific and specialized and would not qualify their radiographers to compete in the commercial industrial radiography market without further, more generalized training.

Response

After consideration of the comments received, the Commission has decided

to adopt mandatory certification requirements for industrial radiographers to provide a consistent standard by which training of all radiographers can be measured. Individual licensees will have less of a burden in confirming the training status of a newly hired radiographer through a national certification system. While the final rule reduces the burden on licensees by no longer requiring them to submit descriptions of their training programs for the subjects listed in § 34.43(g), licensees still must ensure that newly hired individuals have completed, or are provided, the appropriate training in the subjects listed in § 34.43(g) and a period of on-the-job training. Licensees still must provide instruction in emergency and operating procedures, as well as any specific requirements in their NRC license. The final rule includes additional flexibility, in that, either written or oral tests may be used to test a radiographer's knowledge of this information but that in either case, the records required by § 34.79 must be maintained as specified.

To be recognized as a certifying entity, an independent organization meeting the criteria specified in Part I of Appendix A will have to apply as specified in § 34.43(a)(1). A list of certifying entities will be made available to licensees on request by contacting the appropriate regional office listed in Appendix D to 10 CFR Part 20 and will be published annually in the **Federal Register**. Licensees will have 2 years to implement this certification requirement. During this time, the licensee may allow an individual who has not met the certification requirements to act as a radiographer if the individual has received training in the subjects outlined in paragraph (g) of this section and has successfully completed a written test approved by the NRC.

The Commission recognizes that some of the larger licensees may believe they have a superior program to that currently being offered by the existing certifying organizations. These licensees will still be able to provide training as they currently do. Any additional burden from having their radiographers tested by an independent certifying organization should be minimal.

In response to comments, § 34.43(e) is modified in the final rule to require inspections of radiographers and radiographers' assistants on at least a semiannual basis. With the required certification of radiographers and the additional training required of radiographers' assistants, the Commission believes that reducing

these inspections from a quarterly to a semiannual basis is justified. Nothing in the regulations prevents a licensee from conducting these inspections more frequently. Radiographers or radiographers' assistants who have not participated in industrial radiographic operations for more than 6 months will be required to demonstrate their knowledge of the training requirements of § 34.43(b)(3) and § 34.43(c)(3), respectively, by a practical examination before their next participation in radiographic operations. Flexibility has been provided in § 34.43(e) of the final rule for situations where the RSO also serves as a radiographer. In such cases, licensees must include information in their application as to how they will ensure that the proficiency of the radiographer is maintained.

Section 34.45: Operating and Emergency Procedures

This section (previously § 34.32) identifies the procedures that licensees must develop and submit to the NRC in their application. The proposed rule included only minor changes to this section to assure that all activities (e.g. source recovery) carried out by the licensee involving radioactive material were covered by appropriate procedures.

Comment

Four commenters addressed this section. One commenter was opposed to allowing an organization to retrieve a source unless they had submitted extensive emergency and training procedures to the NRC. Another commenter stated that, although there are basic principles that apply to any source recovery, each specific source recovery exhibits unique characteristics and/or peculiarities and that specifics for source recovery would be better addressed in a separate procedure that is referenced in the regulation. The third commenter requested adding a requirement for inspection, maintenance, and operability checks on survey instruments, clarification of procedures for identifying and reporting defects and malfunctions under 10 CFR Part 21 and § 34.101, and recommended that source recovery procedures should include the topics: advance preparations, initial response, retrieval planning guidelines, retrieval operation guidelines, and post-retrieval tasks. The fourth commenter noted that each source recovery is unique so the procedures need to be kept generic and flexible. Comments on another section suggested that the Commission should address procedures for lay-barge, offshore platform, and underwater

radiography because licensees may elect to perform these activities.

Response

Because the Commission believes that licensees should have the flexibility to recover sources, no change has been made in the final rule concerning source recovery procedures. In response to other comments, survey instruments and transport containers have been included in the paragraph requiring inspection, maintenance, and operability checks. With regard to clarification of procedures for identifying and reporting defects and malfunctions, § 34.101 requires notification of the NRC only when a defect or malfunction is observed that corresponds to any of the incidents described under § 34.101(a). Additional reporting may be required for incidents that meet the definition of a "defect" under 10 CFR Part 21, and do not fall into any of the three categories in § 34.101.

In response to comments made at the December 1994 workshop in Houston, Texas, paragraph (a)(8) was revised to clarify that corrective action is not required if the alarm ratemeter alarms at an expected time, such as when the source is being cranked in or out of the device.

The NRC did not adopt a provision for submitting procedures for lay-barge, offshore platform, or underwater radiography for licensees who intend to perform these activities. Licensees who elect to perform these activities must address the applicable procedures with license submission.

Section 34.46: Supervision of Radiographers' Assistants

This section (previously § 34.44) specifies requirements for radiographers' assistants to handle equipment associated with radiographic operations. The proposed rule included no changes to this section.

Comment

No comments were received on this section.

Section 34.47: Personnel Monitoring

This section (previously § 34.33) addresses requirements for monitoring radiation exposures to radiographic personnel. The proposed rule specified that pocket dosimeters must have a range of 0–200 millirems, and included a requirement to read pocket dosimeters at the beginning and end of each shift to ensure that the dose is correctly estimated. This requirement was included because it is nearly impossible to recharge a pocket dosimeter to zero.

Therefore, licensees must take a reading before and after use and determine the difference. The proposed rule provided criteria for allowing a worker to return to work when a pocket dosimeter is found to be off-scale. Paragraph (a) of the final rule requires workers to wear their dosimeters on the trunk of the body in order to measure whole body dose as defined in 10 CFR 20.1003. The dose to the extremities (again as defined in 10 CFR 20.1003) is to be measured only with appropriate extremity dosimeters. Paragraph (e) in the proposed rule specified that a worker must cease work whenever a film badge or a thermoluminescent dosimeter (TLD) is lost until a replacement is provided to ensure that there is an accurate means to determine the worker's dose. The proposed rule included a provision that, after replacement, each film badge and TLD must be promptly processed and that alarming ratemeters be capable of alerting the wearer regardless of the environmental conditions.

Comment

The NRC received twenty-eight comment letters on this section. Several commenters wanted to be able to use additional dosimeters with higher ranges to supplement those specified in § 34.47(a)(1). One commenter asked whether digital dosimeters (electronic personal dosimeters) could be used in place of pocket dosimeters since their range was considerably greater than the range specified for pocket dosimeters and also asked whether they could be used in place of an alarm ratemeter. Two commenters opposed replacing TLDs on a monthly basis because of the additional cost with no discernable increase in safety. A commenter wanted pocket dosimeters to be calibrated every 6 months in place of the specified 12 months and requested that the acceptable range for dosimeter readings be set within plus or minus 20 percent. Nine commenters opposed § 34.47(g)(3) because it required alarm ratemeters to alert the wearer regardless of environmental conditions. A number of comments were received at the December 1994 workshop in Houston, Texas relating to proposed requirements for TLD exchanges, alarming ratemeters, and the use of electronic personnel dosimeters. Suggestions were made to lower the preset dose rate specified in the rule below 5 mSv/hr to allow licensees the flexibility of using a lower dose rate if they choose. Other comments indicated that radiographers often rely on alarming ratemeters to alert them that the source has not been retracted into the camera rather than

performing a survey to verify that the source is properly stored. Because of this, these commenters believed that the requirement to always wear an alarming ratemeter should be removed from the regulations. A number of licensees at the workshop stated that it would be extremely difficult and costly to obtain ratemeters that are capable of alerting the wearer in the wide variety of environmental conditions under which they work. A number of commenters at the workshop did not agree with lengthening the replacement frequency for TLDs to quarterly on the basis that frequent checks of workers' doses were needed due to the potential for high doses. Several commenters requested flexibility to use electronic personnel dosimeters in place of pocket dosimeters and stated that pocket dosimeters were increasingly difficult to obtain. One commenter recommended continued use of pocket dosimeters rather than electronic personal dosimeters and reported that supplies of pocket dosimeters were still available.

Response

The final rule allows replacement of TLDs on a 3-month basis. The comments of the Agreement States requesting continuation of the monthly frequency were not adopted. The RSO is responsible for ensuring that worker doses are maintained ALARA. The purpose for requiring pocket dosimeter readings to be recorded daily is to ensure that worker doses are maintained ALARA. The requirement to replace film badges monthly was not changed because film badges are not rugged enough to withstand environmental conditions for 3 months without the film housing developing light leaks or absorbing moisture.

The NRC did not change the final rule to permit use of pocket dosimeters with ranges greater than 0–200 millirems. This ensures that emergency procedures are implemented when doses exceed 200 mrem. Licensees are free to use additional pocket dosimeters with higher ranges for informational purposes. The NRC has agreed to change the accuracy requirement for pocket dosimeters to ± 20 percent to more closely match the recommendations in ANSI N322 and ANSI N13.5. The calibration period of pocket dosimeters was not changed because this is the maximum period recommended in ANSI N323.

The requirement that alarming ratemeters be sufficient to alert the wearer regardless of environmental conditions has been dropped from the final rule. Licensees are expected to make a reasonable attempt to select

alarming ratemeters that will function properly for the conditions under which they will be used.

Although a number of individuals at the December 1994 workshop in Houston, Texas, believed that the use of alarming ratemeters results in radiographers failing to make the proper surveys, the evidence the Commission has seen demonstrates that overexposures have decreased since this requirement went into effect. Therefore, the NRC continues to believe that the proper use of alarming ratemeters may be an effective means for preventing overexposures. The NRC has decided not to make any changes in the alarm point requirement. The use of a lower limit would likely result in frequent alarms that could have a negative impact because the wearer would be more likely to turn off the ratemeter to avoid an alarm. The purpose of alarming ratemeter is to alert the wearer of an abnormal condition requiring prompt action to reduce the likelihood of an inadvertent overexposure.

Finally, in response to comments from licensees at the Houston, Texas, workshop, the final rule has been revised to allow the use of electronic personnel dosimeters in lieu of pocket dosimeters as a direct reading dosimeter. Those electronic personal dosimeters that also have alarm ratemeter capabilities are not to be used as a substitute for alarm ratemeters at the present time. Individuals acting as a radiographer or radiographer's assistant must wear direct reading dosimeters, an operating alarm ratemeter, and either a film badge or a TLD during radiographic operations.

Section 34.49: Radiation Surveys

This section (previously § 34.43) addresses requirements for surveys that must be made during and after radiographic operations to ensure that the radioactive source is safely secured when radiographic operations are not being performed and that public dose limits in 10 CFR Part 20 are met. The proposed rule included a number of revisions to this section. The first of these was to replace the 360° survey of the exposure device with a requirement to conduct a survey when approaching the exposure device and the guide tube prior to exchanging film, repositioning the collimator, or dismantling equipment. The proposed rule also required conducting an adequate survey any time the source is exchanged and whenever a radiographic exposure device is placed in storage.

Comment

Eight comment letters were received on this section. One commenter noted that a number of NRC licensees have been fined in the past for failing to do the 360° survey of the radiographic exposure device and the guide tube exactly as designated and now the NRC is deleting the requirement. One commenter pointed out that it is unnecessary to survey the storage area at the time of quarterly inventory because there is already a requirement for surveying whenever storage conditions change, i.e., whenever radioactive material is added to or removed from the storage area. The last commenter noted that § 34.49(f) would require the maintenance of records per § 34.85, which in turn states that survey records to be maintained are those of the last survey performed in the work day as specified in § 34.49(d). The commenter was concerned that records would be interpreted as measurements of all of the 12 to 18 measurements specified in § 34.21, and suggested a single measurement made at the outlet port of the radiography device each day would provide an adequate record and also any significant change in the reading obtained at this position would be an indication that the source was not in its fully shielded position.

Response

In response to these comments and additional comments from the workshop in Houston, Texas, the final rule has been changed to clarify that the intent of the requirements in §§ 34.49(b) and (c) is to conduct a survey to ensure that the source is in the shielded position. This can be accomplished by surveying the radiographic exposure device and comparing the reading obtained to the reading expected when the source is known to be in the device.

The requirement in the proposed rule to survey the storage area initially and at the time of the quarterly inventory has been removed. Because § 34.49(c) requires a survey whenever a radiographic exposure device is placed in storage, and § 20.1302 already requires licensees to demonstrate compliance with the public dose limits, licensees are expected to establish a program to ensure that storage areas meet these requirements. Section 34.49(d) requires that a record of the last survey be maintained for each device prior to placing the device in storage for the day.

Section 34.51: Surveillance

This section (previously § 34.41) specifies requirements for radiographers

to maintain surveillance of a high radiation area during industrial radiographic operations to protect against unauthorized entry. The proposed rule was basically unchanged from the existing rule except the requirement specified "continuous" direct surveillance. References to 10 CFR Part 20 were updated to reflect the changes made to § 34.33, Permanent Radiographic Installations. In response to comments at the December 1994, workshop in Houston, Texas, the final rule has been amended to clarify that, for radiographic operations that employ 2-person crews, surveillance may be performed by the radiographer's assistant.

Comment

No comments were received on this section.

Section 34.53: Posting

This section addresses requirements for identifying areas where radioactive material is being used to comply with radiation protection requirements discussed in 10 CFR Part 20. The proposed rule made only minor changes to this section.

Comment

One comment letter was received on this section. The commenter suggested that areas where radiography was being performed should be posted with signs bearing the words "KEEP OUT" because the usual "CAUTION" and "DANGER" signs are inadequate at temporary job sites. The commenter also suggested that the rope or tape used to post restricted areas for radiography be colored magenta and yellow. The commenter believed that it was important to clarify that "Very High Radiation Areas" need not be posted during industrial radiography because radiographic operations may create areas which meet the posting requirements of § 20.1903(c).

Response

No change was made to the final rule to exempt posting of very high radiation areas. Most industrial radiography programs are limited to the use of sources that do not create very high radiation areas as defined in § 20.1003. For licensees who intend to use radiation devices capable of creating very high radiation areas, considerations of posting and restricting these areas will be dealt with on a case-by-case basis during the licensing process.

Subpart E-Recordkeeping Requirements

This new subpart places all recordkeeping and notification

requirements for 10 CFR Part 34 in one location.

Section 34.61: Records of Specific Licenses for Industrial Radiography

This new section in the proposed rule requires licensees to maintain a copy of their licenses until their licenses are terminated by the Commission.

Comment

No comments were received on this section.

Section 34.63: Records of Receipt and Transfer of Sealed Sources

This new section in the proposed rule requires licensees to maintain records of receipt and disposition of radioactive sources used under their license. The requirement includes any devices containing shielding material using DU. In the case of such devices, the mass of DU designated by the manufacturer would be included in place of the activity.

Comment

Only minor editorial comments were received on this section.

Section 34.65: Records of Radiation Survey Instruments

This new section of the proposed rule contains the recordkeeping requirements for radiation instruments required under § 34.25. The recordkeeping requirements were previously included in existing § 34.24. This section would require licensees to maintain calibration records for radiation survey instruments for 3 years after the record is made.

Comment

One comment letter was received on this section. The commenter requested that the operability check required under § 34.25 be included in the records maintained under this section.

Response

The financial burden involved in recording daily operability checks under this section is felt to be prohibitive. Section 34.73 has been modified in the final rule to only require records of any problems encountered during operability checks.

Section 34.67: Records of Leak Testing and Replacement of Sealed Sources

This new section contains recordkeeping requirements previously included in § 34.25(c) and requires licensees to maintain records of leak tests for 3 years after the record is made.

Comment

No comments were received on this section.

Section 34.69: Records of Quarterly Inventory

This new section contains recordkeeping requirements previously contained in § 34.26 and requires licensees to maintain records of quarterly inventories for 3 years after the record is made. The proposed rule required some additional information be kept, such as model number, serial number, and manufacturer of the sealed source.

Comment

One comment letter was received stating that the record should include all licensed devices whether or not they contain a sealed source at the time of inventory.

Response

Section 34.29 was revised in the final rule to include devices containing depleted uranium.

Section 34.71: Utilization Logs

This new section contains recordkeeping requirements previously included in § 34.27. The proposed rule would have required additional pieces of information including the serial number of the device in which the sealed source is located, the radiographer's signature, and the dates the device is removed from and returned to storage. This information is needed to assist in verifying the location of sources.

Comment

Three comment letters were received on this section. One commenter pointed out that the RSO may control the utilization log at the main office and, because the device could be at a field station many miles from the main office, signatures of the radiographers on the utilization log was not practical. The second commenter stated that the utilization log should include all devices removed from storage, not only those containing a sealed source at the time of removal. The third commenter requested removal of the requirement to include the radiographer's signature.

Response

Licensees at the December 1994 workshop in Houston, Texas, stated that their radiographers were signing the log as required and either mailing or faxing a copy of the document to the RSO after all signatures for the day were collected. The radiographer's signature is needed to ensure that only a qualified

individual has checked out a radiographic exposure device. This provision was retained in the final rule.

An exposure device not containing a sealed source will not be utilized within the context intended in § 34.71. If the radiographer intends to load a sealed source into the empty exposure device, then a storage container which contains a sealed source must be checked out as specified in § 34.71(a)(1) and an entry made in the utilization log. This provision was retained in the final rule.

Section 34.73: Records of Inspection and Maintenance of Radiographic Exposure Devices, Storage Containers, Associated Equipment, Source Changers, and Survey Instruments

This new section contains recordkeeping requirements previously contained in § 34.28(b). The proposed rule specified that inspection and maintenance records must be maintained by the licensee for 3 years. Licensees must maintain records of equipment problems and of any maintenance performed under § 34.21 (a) and (b). The records must include information, such as dates of checks, name of inspector, equipment inspected, any defects found, and repairs made.

Comment

Two comment letters were received addressing this section. The first letter requested that the highest radiation level measured at the beginning of each day from devices or source changers removed from storage should be recorded and used as a reference to provide a baseline for comparison with measurements taken from later surveys to ensure no change in the shielding was occurring. The second letter requested that the records compiled under § 34.73 should include inspection records of survey instruments, equipment problems, and records of maintenance performed.

Response

The first comment was not adopted because sufficient requirements are already in place under § 34.49 and § 20.1302 to ensure that licensees are in compliance with the public dose limits. Licensees may choose to include additional information in their records to assist them in assuring that there are no changes occurring in the shielding integrity. The requests of the second commenter have been incorporated in § 34.31 in the final rule.

Section 34.79: Records of Training and Certification

This new section includes recordkeeping requirements previously included in § 34.31(c). The proposed rule also specified that records verifying radiographer certification and annual safety reviews are to be retained for 3 years after the record is made. For annual safety reviews, the records include copies of tests, dates administered, names of instructors and attendees, and the topics covered. The proposed rule also specified that records of inspections of radiographers and radiographers' assistants must include a list of items checked and any non-compliances observed by the RSO.

Comment

Two comment letters were received on this section. One requested that the wording be changed to eliminate "copies of written tests" and replace it with "licensee administered written tests." The other requested minor editorial changes.

Response

The wording has not been changed because in many cases the training and testing may be given by outside consultants or companies that specialize in such training and testing. The term "annual safety review" was changed in the final rule to "annual refresher safety training" to clarify its role in the licensees' training program.

Section 34.81: Copies of Operating and Emergency Procedures

This new section includes requirements previously included in § 34.32 and would have required licensees to maintain copies of emergency and operating procedures until the Commission terminates the license.

Comment

No comments were received on this section.

Section 34.83: Records of Personnel Monitoring

This new section includes recordkeeping requirements previously included in § 34.33(b) and would have required licensees to maintain records of alarm ratemeter calibrations, pocket dosimeter readings, and operability checks for 3 years from the date the record was made, and maintain records of film badge or TLD reports until the Commission terminates the license(s).

Comment

One commenter requested that records of daily operability checks and

quarterly inspections of survey instruments should be included in this section.

Response

These records are already required under § 34.65. Therefore, no change was made to this section.

Section 34.85: Records of Radiation Surveys

This section (previously § 34.43(d)) was essentially unchanged in the proposed rule. The proposed rule would require the licensee to maintain records of exposure device surveys conducted before the radiographic exposure device is placed in storage for 3 years from the date the record was made.

Comment

No comments were received on this section.

Section 34.87: Form of Records

This section (previously § 34.4) of the proposed rule was unchanged from the current regulations. This section of the proposed rule specified how records must be maintained, including storage by electronic media.

Comment

No comments were received on this section.

Section 34.89: Location of Documents and Records

This new section addresses requirements for licensees to maintain certain records at locations where radiographic operations occur, such as at a permanent installation, temporary jobsite, or field station, where radioactive material is stored and from which it is dispatched for use at a temporary jobsite. Two sections were included in the proposed rule to ensure that licensees have records available at the appropriate locations to maintain safe operations. The records include a copy of the license, copies of pertinent NRC regulations, utilization records for the devices in use at the temporary jobsite, records of equipment problems, records of alarm system checks for permanent installations located at a temporary jobsite or field station, personnel monitoring records, operating and emergency procedures, evidence of latest calibrations and operability checks of personnel monitoring devices, latest survey records, and shipping papers.

Comment

Three comment letters addressed this section. One commenter believed that the licensee should have more

discretion regarding which records to keep at each particular site, while all three commenters stated that the requirements were confusing and would lead to voluminous record keeping.

Response

In the final rule, § 34.89 specifies requirements for the minimum set of records to be maintained at field stations and temporary jobsites. This set of records is the minimum needed to ensure that the licensee can conduct radiographic operations safely and to demonstrate that they are in compliance with NRC regulations. The licensee has the discretion to determine the location for all other records required to be kept under 10 CFR Part 34 and other applicable parts of NRC regulations.

Section 34.101: Notifications

This section of the proposed rule addressed requirements previously in § 34.30, for licensees to notify the NRC of incidents having safety significance. The proposed rule contained a new requirement to inform the appropriate NRC regional office (generally, where the license was issued) in writing before using or storing radioactive material in any location for more than 180 days.

Comment

One comment was received requesting clarification between malfunctions that are to be reported under this section and defects that require reporting under 10 CFR Part 21.

Response

The final rule was changed to acknowledge the reporting requirements in 10 CFR Parts 21 and 30. However, as noted in the response to § 34.45, § 34.101 requires NRC notification when a defect or malfunction is observed that corresponds to any of the incidents described under that § 34.101(a), regardless of whether additional reporting is required by other parts of this chapter, such as 10 CFR Parts 21 and 30.

Section 34.111: Applications for Exemptions

This section of the proposed rule addressed exemptions and was basically the same as § 34.51 in the existing 10 CFR Part 34, with the exception of minor wording changes to make it consistent with current language used in other parts of the rule.

Comment

No comments were received on this section.

Section 34.121: Violations

This section in the proposed rule addressed violations and was basically the same as § 34.61 in the current 10 CFR Part 34.

Comment

No comments were received on this section.

Section 34.123: Criminal Penalties

This section of the proposed rule addressed criminal penalties and was basically the same as § 34.63 in the current 10 CFR Part 34.

Comment

No comments were received on this section.

Appendix A

This appendix was new in the proposed rule. The requirements in Appendix A in the current 10 CFR Part 34 were relocated to § 34.43(g). Part I of Appendix A in the proposed rule provided the requirements for an independent certifying organization and only applied to organizations other than the Agreement States. Parts II and III of Appendix A in the proposed rule provided the requirements for certification programs and written examinations for a certifying entity, and included the Agreement States.

The proposed rule specified that to be recognized as an independent certifying organization, the applicant should be a national society or association involved in setting national standards of practice for industrial radiography.

An acceptable certification program would include training in the subjects listed in § 34.43(g), completion of a written and practical examination, and a minimum period of on-the-job experience.

Comment

Four comment letters addressing this section were received. One commenter questioned how the technical content of the examination could be at a ninth-grade reading level and expressed a view that the requirement for a scientifically analyzed question base in III.4. was vague and should be clarified. Another commenter felt that III.4., 5., and 6. should be deleted and combined into a new section that should specify analysis using nationally-recognized psychometric examination methods. Several of the commenters asked why such a large population of questions was required. The G-34 Committee of the Conference of Radiation Control Program Directors (CRCPD) on Industrial Radiography provided

numerous comments of a clarifying nature, including that:

An independent certifying organization should be open to nonmembers as well as members;

A full-time staff may not be needed if the program is small;

References to applicable 10 CFR Part 34 sections should also include "applicable Agreement State regulations";

Provisions in II.4, 6, and 8 (revocation, sanctions, and renewals) be incorporated into one section;

Written procedures should be required for all aspects of the program, including safeguards for ensuring adequate proctoring of examinations.

Response

The final rule was changed to clarify that the certification program for any independent organization should be open to nonmembers as well as members. The provision in I.5 of the proposed rule that specified a full-time staff has been changed to specify an "adequate staff" to reduce any possible burden on organizations operating a small program. The organization would still have to demonstrate that the staff was adequate to administer the program. Section I.11 was expanded to specify that independent certifying organizations must have procedures for proctoring examinations, including proctor qualifications, which clarify that there are other qualifications beside the proctor not being employed by the same corporation as the examinees. Sections II. 4, 8, and 9 were removed and replaced with a revised requirement that the certifying entity must have procedures for denying an application, revoking, suspending, and reinstating a certification, because a number of Agreement States expressed concern at the December 1994 workshop in Houston, Texas, that they would be prohibited from revoking a certificate without providing an opportunity for due process.

In regard to the questions relating to the scientific analysis of tests and to the number of questions required in the question bank, the NRC consulted experts in the testing field and has revised the final rule to specify that test items must be drawn from a question bank containing psychometrically valid questions. Additional guidance on the creation and analysis of tests will be provided in Regulatory Guide 10.6.

10 CFR Part 150: Exemptions and Continued Regulatory Authority in Agreement States and in Offshore Waters Under Section 274

Section 150.15b of the proposed rule was added to clarify that the Commission reserves the authority to establish minimum standards regarding radiographer certification and independent certifying organizations, and to identify acceptable certifying entities.

Comment

Two comments were received regarding this section from Agreement States objecting to the language that reserves the authority over certification to the NRC. Part of the objection was based on the fact that the first testing for radiographer certification began in Texas and that the current state of the national certification program is the result of cooperative development by a working partnership of Agreement States, the NRC, ASNT, CRCPD, and others. The commenters believe that the current wording of this section is contrary to the working partnership that led to the current state of certification development. The commenters also believe that the restriction imposed by this section would prevent current certifying entities from making improvements in their programs as the process for certifying radiographers continues to evolve. They also expressed concern that the language could result in automatic noncompliance for many and suggests that the Commission consider grandfathering those entities already operating and established at the effective date of the revision to 10 CFR Part 34.

Response

The use of the language in § 150.15b was chosen in the proposed rule because the requirements identified in Appendix A only apply to independent certifying organizations and certifying entities. The Commission agrees that certain States may wish to identify an independent certifying organization and has deleted this section from the final rule. The Commission does not intend to retain sole authority for establishing standards for independent certifying organizations or certifying entities. However, in order to maintain a national certification program, whereby radiographers would be able to work in several States without needing to be recertified in each State, uniformity of these programs is essential. Any State choosing to identify an independent certifying organization or choosing to be

a certifying entity would be expected to follow criteria compatible with those in Appendix A. NRC will continue to work cooperatively with the Agreement States to coordinate activities associated with the implementation of the radiographer certification program.

III. Conforming Rule Changes

As a result of the overall revision to 10 CFR Part 34, conforming changes to 10 CFR 30.4 and 10 CFR 150.20 are required. These changes include removal of definitions in 10 CFR Part 30 for Radiographer, Radiographer's assistant, Radiography. These definitions are different from those in the final 10 CFR Part 34, and because they are not used in 10 CFR Part 30, they are being deleted from this part. Section 150.20 (b) is being revised to include the new subparts that were added to the final 10 CFR Part 34.

IV. Agreement State Compatibility

Sections of the rule will be a matter of compatibility between the NRC and the Agreement States, providing consistency between Federal and State safety requirements. Under current NRC procedures, radiographic equipment safety standards, training standards, operational safety standards, and technical definitions, are identified as Division 2 matters of compatibility. The final rule is retaining the existing Division 2 designations for most requirements.

The definitions and sections that will not be compatibility Division 2 are as follows:

A. The definitions for ALARA, becquerel, gray, sealed source, and sievert are compatibility division 1 in this rule. These definitions, however, duplicate definitions contained in other parts of this Chapter. The States will only need to adopt them once.

B. The definitions for lay-barge radiography, radiographer's assistant, and underwater radiography are considered to be special cases of Division 2. If a State does not authorize licensees to perform lay-barge, or underwater radiography, or does not permit the use of radiographer's assistants, then it will not be required to adopt these definitions.

C. The following sections are compatibility Division 3: §§ 34.1, 34.5, 34.11, 34.111, 34.121, and 34.123.

D. The following definitions and sections are compatibility Division 4: The definition of offshore platform radiography in §§ 34.3, 34.8, and 34.41(d) as it relates to offshore platform radiography. An Agreement State will need to adopt a definition of platform radiography if it authorizes such activity

on inland waters or tidal waters subject to the State's jurisdiction.

E. Although Appendix A is designated as compatibility Division 2, the Agreement States are not required to implement a program unless they choose to become a certifying entity and then would only need to adopt Sections II and III of Appendix A. If an Agreement State chooses to identify an independent certifying organization, then it would need to also adopt Section I of Appendix A.

V. Implementation

The new requirements become effective 30 days after publication of the final rule in the **Federal Register**, although the Commission intends to have different implementation dates for particular requirements of this final rule.

For use/storage locations not previously identified on the license (e.g., field stations, permanent radiographic installations, and temporary jobsites exceeding 180 days), licensees must request amendments or notify the NRC, as appropriate, within 60 days of the effective date of the rule. Few amendment requests are anticipated.

Licensees will have 1 year from the effective date of the rule to comply with the additional training requirements specified in § 34.43 (a) and (b). Licensees should consider combining this training with the annual refresher safety training.

Licensees will have 1 year from the effective date of the rule to hire and train individuals to meet the requirements of § 34.41(a).

All current RSOs will have two years to implement the additional RSO training requirements specified in § 34.42(a), and to comply with the mandatory certification requirements in § 34.43(a)(2).

Licensees will have 2 years from the effective date of the rule to affirm that all radiographers have met the certification requirements of § 34.43(a)(1). This will allow industrial radiography licensees operating in NRC jurisdiction 2 years to obtain certification for their employees who act as radiographers.

Licensees are required within 60 days of the effective date of the rule to develop and implement revised procedures needed to implement the final rule. Procedures requiring submittal to the NRC will not need to be submitted until the next license renewal.

Regarding changes to § 71.101, *Quality assurance requirements*, providing that 10 CFR Part 34 licensees

are no longer required to apply for separate approval of their QA program for transport packages provided they meet the requirements of § 34.31(b), or equivalent Agreement State requirements, those licensees who already have NRC approval of their QA program are deemed to have acceptable procedures. Those licensees without a prior QA program approval must develop these procedures before using applicable transport packages. Licensees are expected to implement any necessary procedural changes into their programs within 60 days of the effective date of the rule, but will not need to amend their licenses until the next renewal. Expiration dates of any existing QA program approvals will no longer be valid.

VI. Finding of No Significant Environmental Impact: Availability

The Commission has determined under the National Environmental Policy Act of 1969, as amended, and the Commission's regulations in Subpart A of 10 CFR Part 51, that the rule is not a major Federal action significantly affecting the quality of the human environment and therefore, an environmental impact statement is not required.

The revision of 10 CFR Part 34 involves some revisions to regulations authorizing the use of sealed sources in the field of industrial radiography. In particular, the revisions include: upgrades in the testing of radiographers, qualifications and duties for radiation safety officers, reductions in inspection frequencies for radiographers and assistants, requirements for periodic testing of the shielding integrity of the radiography device and operability checks of radiation survey equipment, and new recordkeeping and labeling requirements. No requirements for significant quantities of materials, water, electricity or other forms of energy have been identified, and no environmental or radiation impacts will be involved.

The environmental assessment and finding of no significant impact on which this determination is based are available for inspection at the NRC Public Document Room at 2120 L Street, NW. (Lower Level), Washington DC. Single copies of the environmental assessment and finding of no significant impact are available from Dr. Donald O. Nellis, Radiation Protection and Health Effects Branch, Division of Regulatory Applications, Office of Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, telephone (301) 415-6257.

VII. Paperwork Reduction Act Statement

This final rule amends information collection requirements that are subject to the Paperwork Reduction Act of 1996 (44 U.S.C. 3501 *et seq.*). These requirements were approved by Office of Management and Budget; approval number 3150-0007.

The public reporting burden for this collection of information is estimated to average 83 hours per licensee, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments on any aspect of this collection of information, including suggestions for reducing this burden, to the Information and Records Management Branch (T-6F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0007), Office of Management and Budget, Washington, DC 20503.

Public Protection Notification

The NRC may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

VIII. Regulatory Analysis

The Commission prepared a regulatory analysis on this final rule. The analysis examines the costs and benefits of the alternatives considered by the Commission. See the discussion in the Regulatory Flexibility Certification concerning the final regulatory analysis. This analysis is available for inspection in the NRC Public Document Room at 2120 L Street NW. (Lower Level), Washington, DC.

IX. Regulatory Flexibility Certification

As required by the Regulatory Flexibility Act (5 U.S.C. 605(b)), the Commission certifies that this rule does not have a significant adverse economic impact on a substantial number of small entities. The NRC has prepared a final regulatory analysis of the impact of this rule on small entities. A copy of the final regulatory analysis is available for inspection or copying in the NRC Public Document Room, 2120 L Street, NW. (Lower Level) Washington, DC. The regulation affects about 170 industrial radiography licensees, of which most are small entities. The regulatory analysis for the final rule shows that there will be an average net savings of \$18,000 per licensee per year for most licensees. For those licensees who will

need to hire additional assistants to meet the two-person requirement, the cost used in the regulatory analysis was between \$5,000 and \$53,000 per year.

X. Small Business Regulatory Enforcement Fairness Act

In accordance with the Small Business Regulatory Enforcement Fairness Act of 1996, the NRC has determined that this action is not a "major rule", and has submitted this determination to the General Accounting Office and the Congress, as required.

XI. Backfit Analysis

The NRC has determined that the backfit rule, 10 CFR 50.109, does not apply to this rule and, therefore, that a backfit analysis is not required for this rule. The final rule does not involve any provisions that impose backfits as defined in 10 CFR 50.109(a)(1).

List of Subjects

10 CFR Part 30

Byproduct material, Criminal penalties, Government contracts, Intergovernmental relations, Isotopes, Nuclear materials, Radiation protection, Reporting and recordkeeping requirements.

10 CFR Part 34

Byproduct material, Criminal penalties, Nuclear material, Packaging and containers, Radiography, Reporting and recordkeeping requirements, Scientific equipment, Security measures.

10 CFR Part 71

Criminal penalties, Hazardous materials transportation, Nuclear materials, Packaging and containers, Reporting and recordkeeping requirements.

10 CFR Part 150

Hazardous materials transportation, Intergovernmental relations, Nuclear materials, Penalties, Reporting and recordkeeping requirements, Security measures, Source material, Special nuclear material.

For reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 552 and 553, the NRC is adopting the following amendments to 10 CFR Parts 30, 34, 71, and 150.

PART 30—RULES OF GENERAL APPLICABILITY TO DOMESTIC LICENSING OF BYPRODUCT MATERIAL

1. The authority citation for Part 30 continues to read as follows:

Authority: Secs. 81, 82, 161, 182, 183, 186, 68 Stat. 935, 948, 953, 954, 955, as amended, sec. 234, 83, Stat. 444, as amended (42 U.S.C. 2111, 2112, 2201, 2232, 2233, 2236, 2282); secs. 201 as amended, 202, 206, 88 Stat. 1242, as amended, 1244, 1246 (42 U.S.C. 5841, 5842, 5846).

Section 30.7 also issued under Pub. L. 95-601, sec. 10, 92 Stat. 2951 as amended by Pub. L. 102-486, sec. 2902, 106 Stat. 3123, (42 U.S.C. 5851). Section 30.34(b) also issued under sec. 184, 68 Stat. 954, as amended (42 U.S.C. 2234). Section 30.61 also issued under sec. 187, 68 Stat. 955 (42 U.S.C. 2237).

§ 30.4 [Amended]

2. In § 30.4, the definitions of *Radiographer*, *Radiographer's assistant*, and *Radiography* are removed.

3. Part 34 is revised to read as follows:

PART 34—LICENSES FOR INDUSTRIAL RADIOGRAPHY AND RADIATION SAFETY REQUIREMENTS FOR INDUSTRIAL RADIOGRAPHIC OPERATIONS

Subpart A—General Provisions

Sec.

- 34.1 Purpose and scope.
- 34.3 Definitions.
- 34.5 Interpretations.
- 34.8 Information collection requirements: OMB approval.

Subpart B—Specific Licensing Provisions

- 34.11 Application for a specific license.
- 34.13 Specific license for industrial radiography.

Subpart C—Equipment

- 34.20 Performance requirements for industrial radiography equipment.
- 34.21 Limits on external radiation levels from storage containers and source changers.
- 34.23 Locking of radiographic exposure devices, storage containers, and source changers.
- 34.25 Radiation survey instruments.
- 34.27 Leak testing and replacement of sealed sources.
- 34.29 Quarterly inventory.
- 34.31 Inspection and maintenance of radiographic exposure devices, transport and storage containers, associated equipment, source changers, and survey instruments.
- 34.33 Permanent radiographic installations.
- 34.35 Labeling, storage, and transportation.

Subpart D—Radiation Safety Requirements

- 34.41 Conducting industrial radiographic operations.

- 34.42 Radiation Safety Officer for industrial radiography.
- 34.43 Training.
- 34.45 Operating and emergency procedures.
- 34.46 Supervision of radiographers' assistants.
- 34.47 Personnel monitoring.
- 34.49 Radiation surveys.
- 34.51 Surveillance.
- 34.53 Posting.

Subpart E—Recordkeeping Requirements

- 34.61 Records of the specific license for industrial radiography.
- 34.63 Records of the receipt and transfer of sealed sources.
- 34.65 Records of radiation survey instruments.
- 34.67 Records of leak testing of sealed sources and devices containing depleted uranium.
- 34.69 Records of quarterly inventory.
- 34.71 Utilization logs.
- 34.73 Records of inspection and maintenance of radiographic exposure devices, transport and storage containers, associated equipment, source changers, and survey instruments.
- 34.75 Records of alarm system and entrance control checks at permanent radiographic installations.
- 34.79 Records of training and certification.
- 34.81 Copies of operating and emergency procedures.
- 34.83 Records of personnel monitoring procedures.
- 34.85 Records of radiation surveys.
- 34.87 Form of records.
- 34.89 Location of documents and records.

Subpart F—Notifications

- 34.101 Notifications.

Subpart G—Exemptions

- 34.111 Applications for exemptions.

Subpart H—Violations

- 34.121 Violations.
- 34.123 Criminal penalties.

Appendix A to 10 CFR Part 34—Radiographer Certification.

Authority: Secs. 81, 161, 182, 183, 68 Stat. 935, 948, 953, 954, as amended (42 U.S.C. 2111, 2201, 2232, 2233); sec. 201, 88 Stat. 1242, as amended (42 U.S.C. 5841).

Section 34.45 also issued under sec. 206, 88 Stat. 1246 (42 U.S.C. 5846).

Subpart A—General Provisions

§ 34.1 Purpose and scope.

This part prescribes requirements for the issuance of licenses for the use of sealed sources containing byproduct material and radiation safety requirements for persons using these sealed sources in industrial radiography. The provisions and requirements of this part are in addition to, and not in substitution for, other requirements of this chapter. In particular, the requirements and provisions of 10 Parts 19, 20, 21, 30, 71,

150, 170, and 171 of this chapter apply to applications and licenses subject to this part. This rule does not apply to medical uses of byproduct material.

§ 34.3 Definitions.

ALARA (acronym for “as low as is reasonably achievable”) means making every reasonable effort to maintain exposures to radiation as far below the dose limits specified in 10 CFR Part 20 as is practical consistent with the purpose for which the licensed activity is undertaken, taking into account the state of technology, the economics of improvements in relation to state of technology, the economics of improvements in relation to benefits to the public health and safety, and other societal and socioeconomic considerations, and in relation to utilization of nuclear energy and licensed materials in the public interest.

Annual refresher safety training means a review conducted or provided by the licensee for its employees on radiation safety aspects of industrial radiography. The review may include, as appropriate, the results of internal inspections, new procedures or equipment, new or revised regulations, accidents or errors that have been observed, and should also provide opportunities for employees to ask safety questions.

Associated equipment means equipment that is used in conjunction with a radiographic exposure device to make radiographic exposures that drives, guides, or comes in contact with the source, (e.g., guide tube, control tube, control (drive) cable, removable source stop, “J” tube and collimator when it is used as an exposure head.

Becquerel (Bq) means one disintegration per second.

Certifying Entity means an independent certifying organization meeting the requirements in appendix A of this part or an Agreement State meeting the requirements in appendix A, Parts II and III of this part.

Collimator means a radiation shield that is placed on the end of the guide tube or directly onto a radiographic exposure device to restrict the size of the radiation beam when the sealed source is cranked into position to make a radiographic exposure.

Control (drive) cable means the cable that is connected to the source assembly and used to drive the source to and from the exposure location.

Control drive mechanism means a device that enables the source assembly to be moved to and from the exposure device.

Control tube means a protective sheath for guiding the control cable. The

control tube connects the control drive mechanism to the radiographic exposure device.

Exposure head means a device that locates the gamma radiography sealed source in the selected working position. (An exposure head is also known as a source stop.)

Field station means a facility where licensed material may be stored or used and from which equipment is dispatched.

Gray means the SI unit of absorbed dose. One gray is equal to an absorbed dose of 1 Joule/kilogram. It is also equal to 100 rads.

Guide tube (Projection sheath) means a flexible or rigid tube (i.e., “J” tube) for guiding the source assembly and the attached control cable from the exposure device to the exposure head. The guide tube may also include the connections necessary for attachment to the exposure device and to the exposure head.

Hands-on experience means experience in all of those areas considered to be directly involved in the radiography process.

Independent certifying organization means an independent organization that meets all of the criteria of Appendix A to this part.

Industrial radiography (radiography) means an examination of the structure of materials by nondestructive methods, utilizing ionizing radiation to make radiographic images.

Lay-barge radiography means industrial radiography performed on any water vessel used for laying pipe.

Offshore platform radiography means industrial radiography conducted from a platform over a body of water.

Permanent radiographic installation means an enclosed shielded room, cell, or vault, not located at a temporary jobsite, in which radiography is performed.

Practical Examination means a demonstration through practical application of the safety rules and principles in industrial radiography including use of all appropriate equipment and procedures.

Radiation Safety Officer for industrial radiography means an individual with the responsibility for the overall radiation safety program on behalf of the licensee and who meets the requirements of § 34.42.

Radiographer means any individual who performs or who, in attendance at the site where the sealed source or sources are being used, personally supervises industrial radiographic operations and who is responsible to the licensee for assuring compliance with the requirements of the Commission's

regulations and the conditions of the license.

Radiographer certification means written approval received from a certifying entity stating that an individual has satisfactorily met certain established radiation safety, testing, and experience criteria.

Radiographer's assistant means any individual who under the direct supervision of a radiographer, uses radiographic exposure devices, sealed sources or related handling tools, or radiation survey instruments in industrial radiography.

Radiographic exposure device (also called a camera, or a projector) means any instrument containing a sealed source fastened or contained therein, in which the sealed source or shielding thereof may be moved, or otherwise changed, from a shielded to unshielded position for purposes of making a radiographic exposure.

Radiographic operations means all activities associated with the presence of radioactive sources in a radiographic exposure device during use of the device or transport (except when being transported by a common or contract transport), to include surveys to confirm the adequacy of boundaries, setting up equipment and any activity inside restricted area boundaries.

S-tube means a tube through which the radioactive source travels when inside a radiographic exposure device.

Sealed source means any byproduct material that is encased in a capsule designed to prevent leakage or escape of the byproduct material.

Shielded position means the location within the radiographic exposure device or source changer where the sealed source is secured and restricted from movement.

Sievert means the SI unit of any of the quantities expressed as dose equivalent. The dose equivalent in sieverts is equal to the absorbed dose in grays multiplied by the quality factor (1 Sv = 100 rems).

Source assembly means an assembly that consists of the sealed source and a connector that attaches the source to the control cable. The source assembly may also include a stop ball used to secure the source in the shielded position.

Source changer means a device designed and used for replacement of sealed sources in radiographic exposure devices, including those also used for transporting and storage of sealed sources.

Storage area means any location, facility, or vehicle which is used to store or to secure a radiographic exposure device, a storage container, or a sealed source when it is not in use and which is locked or has a physical barrier to

prevent accidental exposure, tampering with, or unauthorized removal of the device, container, or source.

Storage container means a container in which sealed sources are secured and stored.

Temporary jobsite means a location where radiographic operations are conducted and where licensed material may be stored other than those location(s) of use authorized on the license.

Underwater radiography means industrial radiography performed when the radiographic exposure device and/or related equipment are beneath the surface of the water.

§ 34.5 Interpretations.

Except as specifically authorized by the Commission in writing, no interpretation of the meaning of the regulations in this part by any officer or employee of the Commission, other than a written interpretation by the General Counsel, will be recognized to be binding upon the Commission.

§ 34.8 Information collection requirements: OMB approval.

(a) The Nuclear Regulatory Commission has submitted the information collection requirements contained in this part to the Office of Management and Budget (OMB) for approval as required by the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 *et seq.*). OMB has approved the information collection requirements contained in this part under control number 3150-0007.

(b) The approved information collection requirements contained in this part appear in §§ 34.13, 34.20, 34.25, 34.27, 34.29, 34.31, 34.33, 34.35, 34.43, 34.45, 34.47, 34.49, 34.61, 34.63, 34.65, 34.67, 34.69, 34.71, 34.73, 34.75, 34.79, 34.81, 34.83, 34.85, 34.87, 34.89, 34.91, and 34.101.

(c) This part contains information collection requirements in addition to those approved under the control number specified in paragraph (a) of this section. The information collection requirement and the control number under which it is approved are as follows:

(1) In § 34.11, NRC Form 313 is approved under control number 3150-0120.

(2) [Reserved]

Subpart B—Specific Licensing Provisions

§ 34.11 Application for a specific license.

A person may file an application for specific license for use of sealed sources in industrial radiography, in duplicate, on NRC Form 313, "Application for

Material License," in accordance with the provisions of § 30.32 of this chapter.

§ 34.13 Specific license for industrial radiography.

An application for a specific license for the use of licensed material in industrial radiography will be approved if the applicant meets the following requirements:

(a) The applicant satisfies the general requirements specified in § 30.33 of this chapter for byproduct material, as appropriate, and any special requirements contained in this part.

(b) The applicant submits an adequate program for training radiographers and radiographers' assistants that meets the requirements of § 34.43.

(1) After May 28, 1999, a license applicant need not describe its initial training and examination program for radiographers in the subjects outlined in § 34.43(g).

(2) From June 27, 1997 to May 28, 1999 a license applicant may affirm that all individuals acting as industrial radiographers will be certified in radiation safety by a certifying entity before commencing duty as radiographers. This affirmation substitutes for a description of its initial training and examination program for radiographers in the subjects outlined in § 34.43(g).

(c) The applicant submits procedures for verifying and documenting the certification status of radiographers and for ensuring that the certification of individuals acting as radiographers remains valid.

(d) The applicant submits written operating and emergency procedures as described in § 34.45.

(e) The applicant submits a description of a program for inspections of the job performance of each radiographer and radiographers' assistant at intervals not to exceed 6 months as described in § 34.43(e).

(f) The applicant submits a description of the applicant's overall organizational structure as it applies to the radiation safety responsibilities in industrial radiography, including specified delegation of authority and responsibility.

(g) The applicant identifies and lists the qualifications of the individual(s) designated as the RSO (§ 34.42) and potential designees responsible for ensuring that the licensee's radiation safety program is implemented in accordance with approved procedures.

(h) If an applicant intends to perform leak testing of sealed sources or exposure devices containing depleted uranium (DU) shielding, the applicant must describe the procedures for

performing and the qualifications of the person(s) authorized to do the leak testing. If the applicant intends to analyze its own wipe samples, the application must include a description of the procedures to be followed. The description must include the—

- (1) Instruments to be used;
- (2) Methods of performing the analysis; and
- (3) Pertinent experience of the person who will analyze the wipe samples.

(i) If the applicant intends to perform "in-house" calibrations of survey instruments the applicant must describe methods to be used and the relevant experience of the person(s) who will perform the calibrations. All calibrations must be performed according to the procedures described and at the intervals prescribed in § 34.25.

(j) The applicant identifies and describes the location(s) of all field stations and permanent radiographic installations.

(k) The applicant identifies the locations where all records required by this part and other parts of this chapter will be maintained.

Subpart C—Equipment

§ 34.20 Performance requirements for industrial radiography equipment.

Equipment used in industrial radiographic operations must meet the following minimum criteria:

(a)(1) Each radiographic exposure device, source assembly or sealed source, and all associated equipment must meet the requirements specified in American National Standards Institute, N432-1980 "Radiological Safety for the Design and Construction of Apparatus for Gamma Radiography," (published as NBS Handbook 136, issued January 1981). This publication has been approved for incorporation by reference by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. This publication may be purchased from the American National Standards Institute, Inc., 1430 Broadway, New York, New York 10018 Telephone (212) 642-4900. Copies of the document are available for inspection at the Nuclear Regulatory Commission Library, 11545 Rockville Pike, Rockville, Maryland 20852. A copy of the document is also on file at the Office of the Federal Register, 800 North Capitol Street NW., suite 700, Washington, DC.

(2) Engineering analysis may be submitted by an applicant or licensee to demonstrate the applicability of previously performed testing on similar individual radiography equipment

components. Upon review, the Commission may find this an acceptable alternative to actual testing of the component pursuant to the above referenced standard.

(b) In addition to the requirements specified in paragraph (a) of this section, the following requirements apply to radiographic exposure devices, source changers, source assemblies and sealed sources.

(1) The licensee shall ensure that each radiographic exposure device has attached to it a durable, legible, clearly visible label bearing the—

- (i) Chemical symbol and mass number of the radionuclide in the device;
- (ii) Activity and the date on which this activity was last measured;
- (iii) Model (or product code) and serial number of the sealed source;
- (iv) Manufacturer's identity of the sealed source; and
- (v) Licensee's name, address, and telephone number.

(2) Radiographic exposure devices intended for use as Type B transport containers must meet the applicable requirements of 10 CFR part 71.

(3) Modification of radiographic exposure devices, source changers, and source assemblies and associated equipment is prohibited, unless the design of any replacement component, including source holder, source assembly, controls or guide tubes would not compromise the design safety features of the system.

(c) In addition to the requirements specified in paragraphs (a) and (b) of this section, the following requirements apply to radiographic exposure devices, source assemblies, and associated equipment that allow the source to be moved out of the device for radiographic operations or to source changers.

(1) The coupling between the source assembly and the control cable must be designed in such a manner that the source assembly will not become disconnected if cranked outside the guide tube. The coupling must be such that it cannot be unintentionally disconnected under normal and reasonably foreseeable abnormal conditions.

(2) The device must automatically secure the source assembly when it is cranked back into the fully shielded position within the device. This securing system may only be released by means of a deliberate operation on the exposure device.

(3) The outlet fittings, lock box, and drive cable fittings on each radiographic exposure device must be equipped with safety plugs or covers which must be installed during storage and

transportation to protect the source assembly from water, mud, sand or other foreign matter.

(4)(i) Each sealed source or source assembly must have attached to it or engraved on it, a durable, legible, visible label with the words: "DANGER—RADIOACTIVE."

(ii) The label may not interfere with the safe operation of the exposure device or associated equipment.

(5) The guide tube must be able to withstand a crushing test that closely approximates the crushing forces that are likely to be encountered during use, and be able to withstand a kinking resistance test that closely approximates the kinking forces that are likely to be encountered during use.

(6) Guide tubes must be used when moving the source out of the device.

(7) An exposure head or similar device designed to prevent the source assembly from passing out of the end of the guide tube must be attached to the outermost end of the guide tube during industrial radiography operations.

(8) The guide tube exposure head connection must be able to withstand the tensile test for control units specified in ANSI N432-1980.

(9) Source changers must provide a system for ensuring that the source will not be accidentally withdrawn from the changer when connecting or disconnecting the drive cable to or from a source assembly.

(d) All radiographic exposure devices and associated equipment in use after January 10, 1996, must comply with the requirements of this section.

(e) Notwithstanding paragraph (a)(1) of this section, equipment used in industrial radiographic operations need not comply with § 8.9.2(c) of the Endurance Test in American National Standards Institute N432-1980, if the prototype equipment has been tested using a torque value representative of the torque that an individual using the radiography equipment can realistically exert on the lever or crankshaft of the drive mechanism.

§ 34.21 Limits on external radiation levels from storage containers and source changers.

The maximum exposure rate limits for storage containers and source changers are 2 millisieverts (200 millirem) per hour at any exterior surface, and 0.1 millisieverts (10 millirem) per hour at 1 meter from any exterior surface with the sealed source in the shielded position.

§ 34.23 Locking of radiographic exposure devices, storage containers and source changers.

(a) Each radiographic exposure device must have a lock or outer locked

container designed to prevent unauthorized or accidental removal of the sealed source from its shielded position. The exposure device and/or its container must be kept locked (and if a keyed-lock, with the key removed at all times) when not under the direct surveillance of a radiographer or a radiographer's assistant except at permanent radiographic installations as stated in § 34.51. In addition, during radiographic operations the sealed source assembly must be secured in the shielded position each time the source is returned to that position.

(b) Each sealed source storage container and source changer must have a lock or outer locked container designed to prevent unauthorized or accidental removal of the sealed source from its shielded position. Storage containers and source changers must be kept locked (and if a keyed-lock, with the key removed at all times) when containing sealed sources except when under the direct surveillance of a radiographer or a radiographer's assistant.

§ 34.25 Radiation survey instruments.

(a) The licensee shall keep sufficient calibrated and operable radiation survey instruments at each location where radioactive material is present to make the radiation surveys required by this part and by 10 CFR part 20 of this chapter. Instrumentation required by this section must be capable of measuring a range from 0.02 millisieverts (2 millirems) per hour through 0.01 sievert (1 rem) per hour.

(b) The licensee shall have each radiation survey instrument required under paragraph (a) of this section calibrated—

(1) At intervals not to exceed 6 months and after instrument servicing, except for battery changes;

(2) For linear scale instruments, at two points located approximately one-third and two-thirds of full-scale on each scale; for logarithmic scale instruments, at mid-range of each decade, and at two points of at least one decade; and for digital instruments, at 3 points between 0.02 and 10 millisieverts (2 and 1000 millirems) per hour; and

(3) So that an accuracy within plus or minus 20 percent of the calibration source can be demonstrated at each point checked.

(c) The licensee shall maintain records of the results of the instrument calibrations in accordance with § 34.65.

§ 34.27 Leak testing and replacement of sealed sources.

(a) The replacement of any sealed source fastened to or contained in a

radiographic exposure device and leak testing of any sealed source must be performed by persons authorized to do so by the NRC or an Agreement State.

(b) The opening, repair, or modification of any sealed source must be performed by persons specifically authorized to do so by the Commission or an Agreement State.

(c) Testing and recordkeeping requirements.

(1) Each licensee who uses a sealed source shall have the source tested for leakage at intervals not to exceed 6 months. The leak testing of the source must be performed using a method approved by the Commission or by an Agreement State. The wipe sample should be taken from the nearest accessible point to the sealed source where contamination might accumulate. The wipe sample must be analyzed for radioactive contamination. The analysis must be capable of detecting the presence of 185 Bq (0.005 microcurie) of radioactive material on the test sample and must be performed by a person specifically authorized by the Commission or an Agreement State to perform the analysis.

(2) The licensee shall maintain records of the leak tests in accordance with § 34.67.

(3) Unless a sealed source is accompanied by a certificate from the transferor that shows that it has been leak tested within 6 months before the transfer, it may not be used by the licensee until tested for leakage. Sealed sources that are in storage and not in use do not require leak testing, but must be tested before use or transfer to another person if the interval of storage exceeds 6 months.

(d) Any test conducted pursuant to paragraphs (b) and (c) of this section which reveals the presence of 185 Bq (0.005 microcurie) or more of removable radioactive material must be considered evidence that the sealed source is leaking. The licensee shall immediately withdraw the equipment involved from use and shall have it decontaminated and repaired or disposed of in accordance with Commission regulations. A report must be filed with the Director of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, within 5 days of any test with results that exceed the threshold in this subsection, describing the equipment involved, the test results, and the corrective action taken. A copy of the report must be sent to the Administrator of the appropriate Nuclear Regulatory Commission's Regional Office listed in appendix D of 10 CFR part 20 of this

chapter "Standards for Protection Against Radiation."

(e) Each exposure device using depleted uranium (DU) shielding and an "S" tube configuration must be tested for DU contamination at intervals not to exceed 12 months. The analysis must be capable of detecting the presence of 185 Bq (0.005 microcuries) of radioactive material on the test sample and must be performed by a person specifically authorized by the Commission or an Agreement State to perform the analysis. Should such testing reveal the presence of DU contamination, the exposure device must be removed from use until an evaluation of the wear of the S-tube has been made. Should the evaluation reveal that the S-tube is worn through, the device may not be used again. DU shielded devices do not have to be tested for DU contamination while in storage and not in use. Before using or transferring such a device however the device must be tested for DU contamination, if the interval of storage exceeds 12 months. A record of the DU leak-test must be made in accordance with § 34.67.

§ 34.29 Quarterly inventory.

(a) Each licensee shall conduct a quarterly physical inventory to account for all sealed sources and for devices containing depleted uranium received and possessed under this license.

(b) The licensee shall maintain records of the quarterly inventory in accordance with § 34.69.

§ 34.31 Inspection and maintenance of radiographic exposure devices, transport and storage containers, associated equipment, source changers, and survey instruments.

(a) The licensee shall perform visual and operability checks on survey meters, radiographic exposure devices, transport and storage containers, associated equipment and source changers before use on each day the equipment is to be used to ensure that the equipment is in good working condition, that the sources are adequately shielded, and that required labeling is present. Survey instrument operability must be performed using check sources or other appropriate means. If equipment problems are found, the equipment must be removed from service until repaired.

(b) Each licensee shall have written procedures for:

(1) Inspection and routine maintenance of radiographic exposure devices, source changers, associated equipment, transport and storage containers, and survey instruments at intervals not to exceed 3 months or

before the first use thereafter to ensure the proper functioning of components important to safety. Replacement components shall meet design specifications. If equipment problems are found, the equipment must be removed from service until repaired.

(2) Inspection and maintenance necessary to maintain the Type B packaging used to transport radioactive materials. The inspection and maintenance program must include procedures to assure that Type B packages are shipped and maintained in accordance with the certificate of compliance or other approval.

(c) Records of equipment problems and of any maintenance performed under paragraphs (a) and (b) of this section must be made in accordance with § 34.73.

§ 34.33 Permanent radiographic installations.

(a) Each entrance that is used for personnel access to the high radiation area in a permanent radiographic installation must have either:

(1) An entrance control of the type described in § 20.1601(a)(1) of this chapter that reduces the radiation level upon entry into the area, or

(2) Both conspicuous visible and audible warning signals to warn of the presence of radiation. The visible signal must be actuated by radiation whenever the source is exposed. The audible signal must be actuated when an attempt is made to enter the installation while the source is exposed.

(b) The alarm system must be tested for proper operation with a radiation source each day before the installation is used for radiographic operations. The test must include a check of both the visible and audible signals. Entrance control devices that reduce the radiation level upon entry (designated in paragraph (a)(1) of this section) must be tested monthly. If an entrance control device or an alarm is operating improperly, it must be immediately labeled as defective and repaired within 7 calendar days. The facility may continue to be used during this 7-day period, provided the licensee implements the continuous surveillance requirements of § 34.51 and uses an alarming ratemeter. Test records for entrance controls and audible and visual alarm must be maintained in accordance with § 34.75.

§ 34.35 Labeling, storage, and transportation.

(a) The licensee may not use a source changer or a container to store licensed material unless the source changer or the storage container has securely

attached to it a durable, legible, and clearly visible label bearing the standard trefoil radiation caution symbol conventional colors, i.e., magenta, purple or black on a yellow background, having a minimum diameter of 25 mm, and the wording

CAUTION*
RADIOACTIVE MATERIAL
NOTIFY CIVIL AUTHORITIES (or
"NAME OF COMPANY")

* _____ or "DANGER"

(b) The licensee may not transport licensed material unless the material is packaged, and the package is labeled, marked, and accompanied with appropriate shipping papers in accordance with regulations set out in 10 CFR part 71.

(c) Locked radiographic exposure devices and storage containers must be physically secured to prevent tampering or removal by unauthorized personnel. The licensee shall store licensed material in a manner which will minimize danger from explosion or fire.

(d) The licensee shall lock and physically secure the transport package containing licensed material in the transporting vehicle to prevent accidental loss, tampering, or unauthorized removal of the licensed material from the vehicle.

Subpart D—Radiation Safety Requirements

§ 34.41 Conducting industrial radiographic operations.

(a) Whenever radiography is performed at a location other than a permanent radiographic installation, the radiographer must be accompanied by at least one other qualified radiographer or an individual who has at a minimum met the requirements of § 34.43(c). The additional qualified individual shall observe the operations and be capable of providing immediate assistance to prevent unauthorized entry. Radiography may not be performed if only one qualified individual is present.

(b) All radiographic operations conducted at locations of use authorized on the license must be conducted in a permanent radiographic installation, unless specifically authorized by the Commission.

(c) A licensee may conduct lay-barge, offshore platform, or underwater radiography only if procedures have been approved by the Commission or by an Agreement State.

§ 34.42 Radiation Safety Officer for industrial radiography.

The RSO shall ensure that radiation safety activities are being performed in accordance with approved procedures

and regulatory requirements in the daily operation of the licensee's program.

(a) The minimum qualifications, training, and experience for RSOs for industrial radiography are as follows:

(1) Completion of the training and testing requirements of § 34.43(a);

(2) 2000 hours of hands-on experience as a qualified radiographer in industrial radiographic operations; and

(3) Formal training in the establishment and maintenance of a radiation protection program.

(b) The Commission will consider alternatives when the RSO has appropriate training and/or experience in the field of ionizing radiation, and in addition, has adequate formal training with respect to the establishment and maintenance of a radiation safety protection program.

(c) The specific duties and authorities of the RSO include, but are not limited to:

(1) Establishing and overseeing all operating, emergency, and ALARA procedures as required by 10 CFR part 20 of this chapter, and reviewing them regularly to ensure that the procedures in use conform to current 10 CFR part 20 procedures, conform to other NRC regulations and to the license conditions.

(2) Overseeing and approving all phases of the training program for radiographic personnel, ensuring that appropriate and effective radiation protection practices are taught;

(3) Ensuring that required radiation surveys and leak tests are performed and documented in accordance with the regulations, including any corrective measures when levels of radiation exceed established limits;

(4) Ensuring that personnel monitoring devices are calibrated and used properly by occupationally-exposed personnel, that records are kept of the monitoring results, and that timely notifications are made as required by § 20.2203 of this chapter; and

(5) Ensuring that operations are conducted safely and to assume control for instituting corrective actions including stopping of operations when necessary.

(d) Licensees will have until May 28, 1999 to meet the requirements of paragraph (a) or (b) of this section.

§ 34.43 Training.

(a) The licensee may not permit any individual to act as a radiographer until the individual—

(1) Has received training in the subjects in paragraph (g) of this section, in addition to a minimum of 2 months of on-the-job training, and is certified

through a radiographer certification program by a certifying entity in accordance with the criteria specified in appendix A of this part. (An independent organization that would like to be recognized as a certifying entity shall submit its request to the Director, Office of Nuclear Materials Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC. 20555-0001.) or

(2) The licensee may, until May 28, 1999, allow an individual who has not met the requirement of paragraph (a)(1) of this section, to act as a radiographer after the individual has received training in the subjects outlined in paragraph (g) of this section and demonstrated an understanding of these subjects by successful completion of a written examination that was previously submitted to and approved by the Commission.

(b) In addition, the licensee may not permit any individual to act as a radiographer until the individual—

(1) Has received copies of and instruction in the requirements described in NRC regulations contained in this part; in §§ 30.7, 30.9, and 30.10 of this chapter; in the applicable sections of 10 CFR parts 19 and 20, of this chapter, in applicable DOT regulations as referenced in 10 CFR part 71, in the NRC license(s) under which the radiographer will perform industrial radiography, and the licensee's operating and emergency procedures;

(2) Has demonstrated understanding of the licensee's license and operating and emergency procedures by successful completion of a written or oral examination covering this material.

(3) Has received training in the use of the licensee's radiographic exposure devices, sealed sources, in the daily inspection of devices and associated equipment, and in the use of radiation survey instruments.

(4) Has demonstrated understanding of the use of radiographic exposure devices, sources, survey instruments and associated equipment described in paragraphs (b)(1) and (b)(3) of this section by successful completion of a practical examination covering this material.

(c) The licensee may not permit any individual to act as a radiographer's assistant until the individual—

(1) Has received copies of and instruction in the requirements described in NRC regulations contained in this part, in §§ 30.7, 30.9, and 30.10 of this chapter, in the applicable sections of 10 CFR parts 19 and 20 of this chapter, in applicable DOT regulations as referenced in 10 CFR part 71, in the NRC license(s) under which

the radiographer's assistant will perform industrial radiography, and the licensee's operating and emergency procedures;

(2) Has developed competence to use, under the personal supervision of the radiographer, the radiographic exposure devices, sealed sources, associated equipment, and radiation survey instruments that the assistant will use; and

(3) Has demonstrated understanding of the instructions provided under (c)(1) of this section by successfully completing a written test on the subjects covered and has demonstrated competence in the use of hardware described in (c)(2) of this section by successful completion of a practical examination on the use of such hardware.

(d) The licensee shall provide annual refresher safety training for each radiographer and radiographer's assistant at intervals not to exceed 12 months.

(e) Except as provided in paragraph (e)(4), the RSO or designee shall conduct an inspection program of the job performance of each radiographer and radiographer's assistant to ensure that the Commission's regulations, license requirements, and the applicant's operating and emergency procedures are followed. The inspection program must:

(1) Include observation of the performance of each radiographer and radiographer's assistant during an actual industrial radiographic operation, at intervals not to exceed 6 months; and

(2) Provide that, if a radiographer or a radiographer's assistant has not participated in an industrial radiographic operation for more than 6 months since the last inspection, the radiographer must demonstrate knowledge of the training requirements of § 34.43(b)(3) and the radiographer's assistant must re-demonstrate knowledge of the training requirements of § 34.43(c)(2) by a practical examination before these individuals can next participate in a radiographic operation.

(3) The Commission may consider alternatives in those situations where the individual serves as both radiographer and RSO.

(4) In those operations where a single individual serves as both radiographer and RSO, and performs all radiography operations, an inspection program is not required.

(f) The licensee shall maintain records of the above training to include certification documents, written and practical examinations, refresher safety

training and inspections of job performance in accordance with § 34.79.

(g) The licensee shall include the following subjects required in paragraph (a) of this section:

(1) Fundamentals of radiation safety including—

- (i) Characteristics of gamma radiation;
- (ii) Units of radiation dose and quantity of radioactivity;
- (iii) Hazards of exposure to radiation;
- (iv) Levels of radiation from licensed material; and
- (v) Methods of controlling radiation dose (time, distance, and shielding);

(2) Radiation detection instruments including—

- (i) Use, operation, calibration, and limitations of radiation survey instruments;
- (ii) Survey techniques; and
- (iii) Use of personnel monitoring equipment;

(3) Equipment to be used including—

- (i) Operation and control of radiographic exposure equipment, remote handling equipment, and storage containers, including pictures or models of source assemblies (pigtailed).
- (ii) Storage, control, and disposal of licensed material; and
- (iii) Inspection and maintenance of equipment.

(4) The requirements of pertinent Federal regulations; and

(5) Case histories of accidents in radiography.

(h) Licensees will have until May 28, 1998 to comply with the additional training requirements specified in paragraphs (b)(1) and (c)(1) of this section.

§ 34.45 Operating and emergency procedures.

(a) Operating and emergency procedures must include, as a minimum, instructions in the following:

(1) Appropriate handling and use of licensed sealed sources and radiographic exposure devices so that no person is likely to be exposed to radiation doses in excess of the limits established in 10 CFR part 20 of this chapter "Standards for Protection Against Radiation";

(2) Methods and occasions for conducting radiation surveys;

(3) Methods for controlling access to radiographic areas;

(4) Methods and occasions for locking and securing radiographic exposure devices, transport and storage containers and sealed sources;

(5) Personnel monitoring and the use of personnel monitoring equipment;

(6) Transporting sealed sources to field locations, including packing of radiographic exposure devices and

storage containers in the vehicles, placarding of vehicles when needed, and control of the sealed sources during transportation (refer to 49 CFR parts 171-173);

(7) The inspection, maintenance, and operability checks of radiographic exposure devices, survey instruments, transport containers, and storage containers;

(8) Steps that must be taken immediately by radiography personnel in the event a pocket dosimeter is found to be off-scale or an alarm ratemeter alarms unexpectedly.

(9) The procedure(s) for identifying and reporting defects and noncompliance, as required by 10 CFR part 21 of this chapter;

(10) The procedure for notifying proper persons in the event of an accident;

(11) Minimizing exposure of persons in the event of an accident;

(12) Source recovery procedure if licensee will perform source recovery;

(13) Maintenance of records.

(b) The licensee shall maintain copies of current operating and emergency procedures in accordance with §§ 34.81 and 34.89.

§ 34.46 Supervision of radiographers' assistants.

Whenever a radiographer's assistant uses radiographic exposure devices, associated equipment or sealed sources or conducts radiation surveys required by § 34.49(b) to determine that the sealed source has returned to the shielded position after an exposure, the assistant shall be under the personal supervision of a radiographer. The personal supervision must include:

(a) The radiographer's physical presence at the site where the sealed sources are being used;

(b) The availability of the radiographer to give immediate assistance if required; and

(c) The radiographer's direct observation of the assistant's performance of the operations referred to in this section.

§ 34.47 Personnel monitoring.

(a) The licensee may not permit any individual to act as a radiographer or a radiographer's assistant unless, at all times during radiographic operations, each individual wears, on the trunk of the body, a combination of direct reading dosimeter, an operating alarm ratemeter, and either a film badge or a TLD. At permanent radiography installations where other appropriate alarming or warning devices are in routine use, the wearing of an alarming ratemeter is not required.

(1) Pocket dosimeters must have a range from zero to 2 millisieverts (200 millirems) and must be recharged at the start of each shift. Electronic personal dosimeters may only be used in place of ion-chamber pocket dosimeters.

(2) Each film badge and TLD must be assigned to and worn by only one individual.

(3) Film badges must be replaced at periods not to exceed one month and TLDs must be replaced at periods not to exceed three months.

(4) After replacement, each film badge or TLD must be processed as soon as possible.

(b) Direct reading dosimeters such as pocket dosimeters or electronic personal dosimeters, must be read and the exposures recorded at the beginning and end of each shift, and records must be maintained in accordance with § 34.83.

(c) Pocket dosimeters, or electronic personal dosimeters, must be checked at periods not to exceed 12 months for correct response to radiation, and records must be maintained in accordance with § 34.83. Acceptable dosimeters must read within plus or minus 20 percent of the true radiation exposure.

(d) If an individual's pocket dosimeter is found to be off-scale, or if his or her electronic personal dosimeter reads greater than 2 millisieverts (200 millirems), and the possibility of radiation exposure cannot be ruled out as the cause, the individual's film badge or TLD must be sent for processing within 24 hours. In addition, the individual may not resume work associated with licensed material use until a determination of the individual's radiation exposure has been made. This determination must be made by the RSO or the RSO's designee. The results of this determination must be included in the records maintained in accordance with § 34.83.

(e) If a film badge or TLD is lost or damaged, the worker shall cease work immediately until a replacement film badge or TLD is provided and the exposure is calculated for the time period from issuance to loss or damage of the film badge or TLD. The results of the calculated exposure and the time period for which the film badge or TLD was lost or damaged must be included in the records maintained in accordance with § 34.83.

(f) Reports received from the film badge or TLD processor must be retained in accordance with § 34.83.

(g) Each alarm ratemeter must—

(1) Be checked to ensure that the alarm functions properly (sounds) before using at the start of each shift;

(2) Be set to give an alarm signal at a preset dose rate of 5 mSv/hr (500 mrem/hr); with an accuracy of plus or minus 20 percent of the true radiation dose rate;

(3) Require special means to change the preset alarm function; and

(4) Be calibrated at periods not to exceed 12 months for correct response to radiation. The licensee shall maintain records of alarm ratemeter calibrations in accordance with § 34.83.

§ 34.49 Radiation surveys.

The licensee shall:

(a) Conduct surveys with a calibrated and operable radiation survey instrument that meets the requirements of § 34.25.

(b) Using a survey instrument meeting the requirements of paragraph (a) of this section, conduct a survey of the radiographic exposure device and the guide tube after each exposure when approaching the device or the guide tube. The survey must determine that the sealed source has returned to its shielded position before exchanging films, repositioning the exposure head, or dismantling equipment.

(c) Conduct a survey of the radiographic exposure device with a calibrated radiation survey instrument any time the source is exchanged and whenever a radiographic exposure device is placed in a storage area (as defined in § 34.3), to ensure that the sealed source is in its shielded position.

(d) Maintain records in accordance with § 34.85.

§ 34.51 Surveillance.

During each radiographic operation the radiographer, or the other individual present, as required by § 34.41, shall maintain continuous direct visual surveillance of the operation to protect against unauthorized entry into a high radiation area, as defined in 10 CFR part 20 of this chapter, except at permanent radiographic installations where all entryways are locked and the requirements of § 34.33 are met.

§ 34.53 Posting.

All areas in which industrial radiography is being performed must be conspicuously posted as required by § 20.1902 of this chapter. Exceptions listed in § 20.1903 of this chapter do not apply to industrial radiographic operations.

Subpart E—Recordkeeping Requirements

§ 34.61 Records of the specific license for industrial radiography.

Each licensee shall maintain a copy of its license, license conditions,

documents incorporated by reference, and amendments to each of these items until superseded by new documents approved by the Commission, or until the Commission terminates the license.

§ 34.63 Records of receipt and transfer of sealed sources.

(a) Each licensee shall maintain records showing the receipts and transfers of sealed sources and devices using DU for shielding and retain each record for 3 years after it is made.

(b) These records must include the date, the name of the individual making the record, radionuclide, number of becquerels (curies) or mass (for DU), and manufacturer, model, and serial number of each sealed source and/or device, as appropriate.

§ 34.65 Records of radiation survey instruments.

Each licensee shall maintain records of the calibrations of its radiation survey instruments that are required under § 34.25 and retain each record for 3 years after it is made.

§ 34.67 Records of leak testing of sealed sources and devices containing depleted uranium.

Each licensee shall maintain records of leak test results for sealed sources and for devices containing DU. The results must be stated in units of becquerels (microcuries). The licensee shall retain each record for 3 years after it is made or until the source in storage is removed.

§ 34.69 Records of quarterly inventory.

(a) Each licensee shall maintain records of the quarterly inventory of sealed sources and of devices containing depleted uranium as required by § 34.29 and retain each record for 3 years after it is made.

(b) The record must include the date of the inventory, name of the individual conducting the inventory, radionuclide, number of becquerels (curies) or mass (for DU) in each device, location of sealed source and/or devices, and manufacturer, model, and serial number of each sealed source and/or device, as appropriate.

§ 34.71 Utilization logs.

(a) Each licensee shall maintain utilization logs showing for each sealed source the following information:

(1) A description, including the make, model, and serial number of the radiographic exposure device or transport or storage container in which the sealed source is located;

(2) The identity and signature of the radiographer to whom assigned; and

(3) The plant or site where used and dates of use, including the dates removed and returned to storage.

(b) The licensee shall retain the logs required by paragraph (a) of this section for 3 years after the log is made.

§ 34.73 Records of inspection and maintenance of radiographic exposure devices, transport and storage containers, associated equipment, source changers, and survey instruments.

(a) Each licensee shall maintain records specified in § 34.31 of equipment problems found in daily checks and quarterly inspections of radiographic exposure devices, transport and storage containers, associated equipment, source changers, and survey instruments; and retain each record for 3 years after it is made.

(b) The record must include the date of check or inspection, name of inspector, equipment involved, any problems found, and what repair and/or maintenance, if any, was done.

§ 34.75 Records of alarm system and entrance control checks at permanent radiographic installations.

Each licensee shall maintain records of alarm system and entrance control device tests required under § 34.33 and retain each record for 3 years after it is made.

§ 34.79 Records of training and certification.

Each licensee shall maintain the following records (of training and certification) for 3 years after the record is made:

(a) Records of training of each radiographer and each radiographer's assistant. The record must include radiographer certification documents and verification of certification status, copies of written tests, dates of oral and practical examinations, and names of individuals conducting and receiving the oral and practical examinations;

(b) Records of annual refresher safety training and semi-annual inspections of job performance for each radiographer and each radiographer's assistant. The records must list the topics discussed during the refresher safety training, the dates the annual refresher safety training was conducted, and names of the instructors and attendees. For inspections of job performance, the records must also include a list showing the items checked and any non-compliances observed by the RSO.

§ 34.81 Copies of operating and emergency procedures.

Each licensee shall maintain a copy of current operating and emergency procedures until the Commission

terminates the license. Superseded material must be retained for 3 years after the change is made.

§ 34.83 Records of personnel monitoring Procedures.

Each licensee shall maintain the following exposure records specified in § 34.47:

(a) Direct reading dosimeter readings and yearly operability checks required by § 34.47(b) and (c) for 3 years after the record is made.

(b) Records of alarm ratemeter calibrations for 3 years after the record is made.

(c) Reports received from the film badge or TLD processor until the Commission terminates the license.

(d) Records of estimates of exposures as a result of: off-scale personal direct reading dosimeters, or lost or damaged film badges or TLDs, until the Commission terminates the license.

§ 34.85 Records of radiation surveys.

Each licensee shall maintain a record of each exposure device survey conducted before the device is placed in storage as specified in § 34.49(c), if that survey is the last one performed in the workday. Each record must be maintained for 3 years after it is made.

§ 34.87 Form of records.

Each record required by this part must be legible throughout the specified retention period. The record may be the original or a reproduced copy or a microform provided that the copy or microform is authenticated by authorized personnel and that the microform is capable of reproducing a clear copy throughout the required retention period. The record may also be stored in electronic media with the capability for producing legible, accurate, and complete records during the required retention period. Records, such as letters, drawings, and specifications, must include all pertinent information, such as stamps, initials, and signatures. The licensee shall maintain adequate safeguards against tampering with and loss of records.

§ 34.89 Location of documents and records.

(a) Each licensee shall maintain copies of records required by this part and other applicable parts of this chapter at the location specified in § 34.13(k).

(b) Each licensee shall also maintain copies of the following documents and records sufficient to demonstrate compliance at each applicable field station and each temporary jobsite;

(1) The license authorizing the use of licensed material;

(2) A copy of 10 CFR parts 19, 20, and 34 of NRC regulations;

(3) Utilization records for each radiographic exposure device dispatched from that location as required by § 34.71.

(4) Records of equipment problems identified in daily checks of equipment as required by § 34.73(a);

(5) Records of alarm system and entrance control checks required by § 34.75, if applicable;

(6) Records of direct reading dosimeters such as pocket dosimeter and/or electronic personal dosimeters readings as required by § 34.83;

(7) Operating and emergency procedures required by § 34.81;

(8) Evidence of the latest calibration of the radiation survey instruments in use at the site, as required by § 34.65;

(9) Evidence of the latest calibrations of alarm ratemeters and operability checks of pocket dosimeters and/or electronic personal dosimeters as required by § 34.83;

(10) Latest survey records required by § 34.85;

(11) The shipping papers for the transportation of radioactive materials required by § 71.5 of this chapter; and

(12) When operating under reciprocity pursuant to § 150.20 of this chapter, a copy of the Agreement State license authorizing the use of licensed materials.

Subpart F—Notifications

§ 34.101 Notifications.

(a) In addition to the reporting requirements specified in § 30.50 and under other sections of this chapter, such as § 21.21, each licensee shall provide a written report to the U.S. Nuclear Regulatory Commission, Division of Industrial and Medical Nuclear Safety, Washington, DC 20555-0001, with a copy to the Director, Office for Analysis and Evaluation of Operational Data, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, within 30 days of the occurrence of any of the following incidents involving radiographic equipment:

(1) Unintentional disconnection of the source assembly from the control cable;

(2) Inability to retract the source assembly to its fully shielded position and secure it in this position; or

(3) Failure of any component (critical to safe operation of the device) to properly perform its intended function;

(b) The licensee shall include the following information in each report submitted under paragraph (a) of this

section, and in each report of overexposure submitted under 10 CFR 20.2203 which involves failure of safety components of radiography equipment:

(1) A description of the equipment problem;

(2) Cause of each incident, if known;

(3) Name of the manufacturer and model number of equipment involved in the incident;

(4) Place, date, and time of the incident;

(5) Actions taken to establish normal operations;

(6) Corrective actions taken or planned to prevent recurrence; and

(7) Qualifications of personnel involved in the incident.

(c) Any licensee conducting radiographic operations or storing radioactive material at any location not listed on the license for a period in excess of 180 days in a calendar year, shall notify the appropriate NRC regional office listed in § 30.6(a)(2) of this chapter prior to exceeding the 180 days.

Subpart G—Exemptions

§ 34.111 Applications for exemptions.

The Commission may, upon application of any interested person or upon its own initiative, grant an exemption from the requirements of the regulations in this part if it determines the exemption is authorized by law and would not endanger life or property or the common defense and security and is otherwise in the public interest.

Subpart H—Violations

§ 34.121 Violations.

(a) The Commission may obtain an injunction or other court order to prevent a violation of the provisions of—

(1) The Atomic Energy Act of 1954, as amended;

(2) Title II of the Energy Reorganization Act of 1974, as amended; or

(3) A regulation or order issued pursuant to these Acts.

(b) The Commission may obtain a court order for the payment of a civil penalty imposed under Section 234 of the Atomic Energy Act;

(1) For violations of—

(i) Sections 53, 57, 62, 63, 81, 82, 101, 103, 104, 107, or 109 of the Atomic Energy Act of 1954, as amended;

(ii) Section 206 of the Energy Reorganization Act;

(iii) Any rule, regulation, or order issued pursuant to the sections specified in paragraph (b)(1)(i) of this section.

(iv) Any term, condition, or limitation of any license issued under the sections

specified in paragraph (b)(1)(i) of this section.

(2) For any violation for which a license may be revoked under section 186 of the Atomic Energy Act of 1954, as amended.

§ 34.123 Criminal penalties.

(a) Section 223 of the Atomic Energy Act of 1952, as amended, provides for criminal sanctions for willful violation of, attempted violation of, or conspiracy to violate, any regulation issued under one or more of §§ 161b, 161i, or 161o of the Act. For purposes of Section 223, all the regulations in 10 CFR part 34 are issued under one or more of §§ 161b, 161i, or 161o, except for the sections listed in paragraph (b) of this section.

(b) The regulations in 10 CFR part 34 that are not issued under sections 161b, 161i, or 161o for the purposes of Section 223 are as follows: §§ 34.1, 34.3, 34.5, 34.8, 34.11, 34.13, 34.111, 34.121, 34.123.

Appendix A to 10 CFR Part 34— Radiographer Certification

I. Requirements for an Independent Certifying Organization

An independent certifying organization shall:

1. Be an organization such as a society or association, whose members participate in, or have an interest in, the fields of industrial radiography;

2. Make its membership available to the general public nationwide that is not restricted because of race, color, religion, sex, age, national origin or disability;

3. Have a certification program open to nonmembers, as well as members;

4. Be an incorporated, nationally recognized organization, that is involved in setting national standards of practice within its fields of expertise;

5. Have an adequate staff, a viable system for financing its operations, and a policy-and decision-making review board;

6. Have a set of written organizational by-laws and policies that provide adequate assurance of lack of conflict of interest and a system for monitoring and enforcing those by-laws and policies;

7. Have a committee, whose members can carry out their responsibilities impartially, to review and approve the certification guidelines and procedures, and to advise the organization's staff in implementing the certification program;

8. Have a committee, whose members can carry out their responsibilities impartially, to review complaints against certified individuals and to determine appropriate sanctions;

9. Have written procedures describing all aspects of its certification program, maintain records of the current status of each individual's certification and the administration of its certification program;

10. Have procedures to ensure that certified individuals are provided due process with respect to the administration of

its certification program, including the process of becoming certified and any sanctions imposed against certified individuals;

11. Have procedures for proctoring examinations, including qualifications for proctors. These procedures must ensure that the individuals proctoring each examination are not employed by the same company or corporation (or a wholly-owned subsidiary of such company or corporation) as any of the examinees;

12. Exchange information about certified individuals with the Commission and other independent certifying organizations and/or Agreement States and allow periodic review of its certification program and related records; and

13. Provide a description to the Commission of its procedures for choosing examination sites and for providing an appropriate examination environment.

II. Requirements for Certification Programs

All certification programs must:

1. Require applicants for certification to (a) receive training in the topics set forth in § 34.43(g) or equivalent Agreement State regulations, and (b) satisfactorily complete a written examination covering these topics;

2. Require applicants for certification to provide documentation that demonstrates that the applicant has: (a) received training in the topics set forth in § 34.43(g) or equivalent Agreement State regulations; (b) satisfactorily completed a minimum period of on-the-job training; and (c) has received verification by an Agreement State or a NRC licensee that the applicant has demonstrated the capability of independently working as a radiographer;

3. Include procedures to ensure that all examination questions are protected from disclosure;

4. Include procedures for denying an application, revoking, suspending, and reinstating a certificate;

5. Provide a certification period of not less than 3 years nor more than 5 years;

6. Include procedures for renewing certifications and, if the procedures allow renewals without examination, require evidence of recent full-time employment and annual refresher training.

7. Provide a timely response to inquiries, by telephone or letter, from members of the public, about an individual's certification status.

III. Requirements for Written Examinations

All examinations must be:

1. Designed to test an individual's knowledge and understanding of the topics

listed in § 34.43(g) or equivalent Agreement State requirements;

2. Written in a multiple-choice format;

3. Have test items drawn from a question bank containing psychometrically valid questions based on the material in § 34.43(g).

PART 71—PACKAGING AND TRANSPORTATION OF RADIOACTIVE MATERIAL

4. The authority citation for Part 71 continues to read as follows:

Authority: Secs. 53, 57, 62, 63, 81, 161, 182, 183, 68 Stat. 930, 932, 933, 935, 948, 953, 954, as amended, secs. 1701, 106 stat. 2951, 2952, 2953 (42 U.S.C. 2073, 2077, 2092, 2093, 2111, 2201, 2232, 2233, 2297f); secs. 201, as amended, 202, 206, 88 Stat. 1242, as amended, 1244, 1246 (42 U.S.C. 5841, 5842, 5846).

Section 71.97 also issued under sec. 301, Pub. L. 96–295, 14 stat. 789–790.

5. In § 71.101 a new paragraph (g) is added to read as follows:

§ 71.101 Quality assurance requirements.

* * * * *

(g) *Radiography containers.* A program for transport container inspection and maintenance limited to radiographic exposure devices, source changers, or packages transporting these devices and meeting the requirements of § 34.31(b) or equivalent Agreement State requirement, is deemed to satisfy the requirements of §§ 71.12(b) and 71.101(b) of this chapter.

PART 150—EXEMPTIONS AND CONTINUED REGULATORY AUTHORITY IN AGREEMENT STATES AND IN OFFSHORE WATERS UNDER SECTION 274

6. The authority citation for Part 150 continues to read as follows:

Authority: Sec. 161.68 Stat. 948, as amended, sec. 274.73 Stat. 688 (42 U.S.C. 2201, 2021); sec. 201.88 Stat. 1242, as amended (42 U.S.C. 5841).

Sections 150.3, 150.15, 150.15a, 150.31, 150.32 also issued under secs. 11e(2), 81, 68 Stat. 923, 935, as amended, secs. 83, 84, 92 Stat. 3033, 3039 (42 U.S.C. 201.4(e), 2111, 2113, 2114). Section 150.14 also issued under sec. 53, 68 Stat. 930 as amended (42 U.S.C. 2073). Section 150.15 also issued under secs.

135, 141, Pub. L. 97–425, 96 Stat. 2232, 2241, (42 U.S.C. 10155, 10161). Section 150.17a also issued under sec. 122.66 Stat. 939 (42 U.S.C. 2152). Section 150.30 also issued under sec. 234.83 Stat. 444 (42 U.S.C. 2282).

7. In § 150.20, paragraph (b) introductory text is revised to read as follows:

* * * * *

§ 150.20 Recognition of agreement State licenses.

* * * * *

(b) Notwithstanding any provision to the contrary in any specific license issued by an Agreement State to a person engaging in activities in a non-Agreement State, in an area of exclusive Federal jurisdiction within an Agreement State, or in offshore waters under the general licenses provided in this section, the general licenses provided in this section are subject to all the provisions of the Act, now or hereafter in effect, and to all applicable rules, regulations, and orders of the Commission including the provisions of §§ 30.7 (a) through (f), 30.9, 30.10, 30.14(d), 30.34, 30.41, and 30.51 to 30.63, inclusive, of part 30 of this chapter; §§ 40.7 (a) through (f), 40.9, 40.10, 40.41, 40.51, 40.61, 40.63 inclusive, 40.71 and 40.81 of part 40 of this chapter; §§ 70.7 (a) through (f), 70.9, 70.10, 70.32, 70.42, 70.51 to 70.56, inclusive, 70.60 to 70.62, inclusive, and to the provisions of 10 CFR parts 19, 20 and 71 and subparts C through H of part 34, §§ 39.15 and 39.31 through 39.77, inclusive, of part 39 of this chapter. In addition, any person engaging in activities in non-Agreement States, in areas of exclusive Federal jurisdiction within Agreement States, or in offshore waters under the general licenses provided in this section:

* * * * *

Dated at Rockville, Maryland, this 19th day of May, 1997.

For the Nuclear Regulatory Commission.

John C. Hoyle,

Secretary of the Commission.

[FR Doc. 97–13786 Filed 5–27–97; 8:45 am]

BILLING CODE 7590-01-P