

## Final Statement of Reasons

The Radiation Control Law (Health & Saf. Code, §§ 114960 – 115273), requires the Department of Health Services (Department) to develop programs for licensing and regulating radioactive materials. (Health & Saf. Code, § 115000, subd. (b).) In 1962, the State of California ratified and approved the State entering into an agreement with the United States Atomic Energy Commission, the predecessor of the United States Nuclear Regulatory Commission (NRC), by which the federal agency discontinued its regulatory authority over certain radioactive materials. (Health & Saf. Code, § 115230.) By such action California became an "Agreement State."

A provision of the agreement between California and the NRC specifies that the State "will use its best efforts to maintain continuing compatibility between its program and the program of the [United States Atomic Energy] Commission for the regulation of like materials." (Health & Saf. Code, § 115235, art. V.) NRC's stated policy is "to evaluate Agreement State programs established pursuant to Section 274 of the Atomic Energy Act of 1954, as amended, to ensure they are adequate to protect public health and safety and compatible with NRC's regulatory program."<sup>1</sup> To determine a state's compatibility, the NRC uses Management Directive 5.9, *Adequacy and Compatibility of Agreement State Programs, Handbook 5.9*.<sup>2</sup> This handbook describes the specific criteria and process that are used to clarify the NRC program elements that should be adopted and implemented by an Agreement State for purposes of compatibility, and those NRC program elements that have a particular health and safety significance. The NRC rates the elements on the degree of compatibility required. Thus, the NRC requires that some be adopted by the states in a form identical to the NRC's while adoption of others need not be identical but are required to meet the essential objective of the program element. (For NRC compatibility definitions, see Attachment 1.) The overall determination of adequacy and compatibility for an Agreement State is made pursuant to Management Directive 5.6, *The Integrated Materials Performance Evaluation Program (IMPEP)*.<sup>3</sup> The NRC evaluates Agreement States every three to four years to determine if a state's radiation safety program meets the adequacy and compatibility criteria. If California fails to meet those criteria the NRC may revoke California's status as an Agreement State.

Radiation is used daily in the health industry to diagnose illnesses and treat cancer. It is also used to detect defects in airplanes, pipelines, storage tanks, engines, and other

---

<sup>1</sup> "Adequacy and Compatibility of Agreement State Programs," Management Directive 5.9, page 1. The document is available at the Nuclear Regulatory Commission, Office of State Programs website: <http://www.hsr.gov/nrc/procfm.htm>. (Reference 1.)

<sup>2</sup> "Adequacy and Compatibility of Agreement State Programs," Management Directive 5.9, Handbook 5.9. The document is available at the Nuclear Regulatory Commission, Office of State Programs website: <http://www.hsr.gov/nrc/procfm.htm>. (Handbook 5.9 is included within Reference 1.)

<sup>3</sup> "Integrated Materials Performance Evaluation Program (IMPEP)," Management Directive 5.6. The document is available at the Nuclear Regulatory Commission, Office of State Programs website: <http://www.hsr.gov/nrc/procfm.htm>. (Reference 2.)

non-human objects in industrial radiography, which means the examination of the physical structure of materials, other than human beings or animals, by non-destructive methods, utilizing radiation. (Cal. Code Regs., tit. 17, §30330(b).) Since objects, such as steel pipes or tanks, irradiated during industrial radiography can be very dense, the energy level of the radiation used must be high enough to penetrate the object. The levels of radiation found in such operations are very high and can result in immediate harm to those exposed. Because of this, these radiographic operations are evaluated annually to ensure the public and workers are protected from unnecessary and harmful radiation and that those authorized to possess radiation sources continue to operate and control those sources safely.

Because industrial radiography is performed throughout the United States, the NRC proposed, in 1994, to require individuals who perform industrial radiography using radioactive materials be certified. (59 Fed.Reg. 9429 (Feb. 28, 1994).) The NRC finalized those regulations (62 Fed.Reg. 28947 (May 28, 1997)) and now requires an individual to be certified and that at least two qualified individuals (two-person rule), one of whom must be a certified radiographer, are present during radiographic operations. Due to the cross-jurisdictional nature of industrial radiography, the NRC determined that Agreement States must have essentially identical requirements for radiographer certification and the two-person rule, both of which are a compatibility category B. (See attachment 1 for definitions of compatibility categories.) The NRC also specified the criteria an organization must meet to be considered as a certification organization recognized by the NRC. Such an organization is called a certifying entity. (10 C.F.R. §34.3.)

Additionally, the NRC made changes addressing dosimetry technology. (65 Fed.Reg. 63749 (Oct. 24, 2000).) Dosimeters are used to determine the amount of radiation an individual receives. Recent developments have produced dosimeters that have higher sensitivities to radiation than either film badges or thermoluminescent devices (TLD), and require processing to determine the radiation dose. For example, optically stimulated luminescent dosimeters use optical lasers for processing, unlike the processing for a film badge that requires photographic development or the TLD that is processed using heat. Thus, it is likely that new dosimeter technologies and other processing techniques are likely to appear in the future. Therefore, the NRC has modified its regulation to allow the use of any type of personnel dosimeter that requires processing to determine radiation dose, provided that the processor of the dosimeter is accredited to process this type of dosimeter under the National Voluntary Laboratory Accreditation Program, operated by the National Institute of Standards and Technology. The NRC further designated this change as a compatibility level C requiring Agreement States to adopt regulations meeting the essential objective.

The Department not only maintains a radiation control program for regulating radioactive material as an Agreement State but also maintains that program for regulating radioactive material not subject to the Atomic Energy Act of 1954 and radiation machines that produce radiation. Therefore, the purpose of this proposal is to specify industrial radiographer certification and address changes in dosimetry

technology required by the NRC and to specify industrial radiographer certification for and apply the two-person rule to certain uses of radiation machines because they present similar radiation hazards as compared to radioactive material. Further, existing regulations are updated.

In developing this proposal, a workshop was held on May 14, 2002 to get input from stakeholders regarding the structure of California's radiographer certification program. Attendees included the regulated community and Department staff. Those from the regulated community represented large and small businesses and Universities using radioactive material or radiation-producing machines. This workshop was conducted in accordance with the Bagley-Keene Open Meetings Act (Gov. Code §§11120-11132). Also, written comments were received from many who could not attend. The following basic concept proposal was presented and discussed:

- Before an individual could become a "trainee," the individual would have to obtain at least 40 hours of training from an approved provider in radiation safety and pass a test given by the provider of the training. Once a trainee, the individual would have one year in which to obtain a certain number of hours of on-the-job training in radiography from an approved provider and apply for certification. The individual could then apply for examination and if they passed the examination a radiographer certificate would be issued, valid for three years.
- To perform industrial radiography, individuals would have to have a Department issued identification card.

Attendees and the written comments suggested alternatives to the concept. One alternative was to require individuals in this state to possess the Industrial Radiography Radiation Safety Personnel certification issued by the American Society of Nondestructive Testing, Inc (ASNT). Another alternative would have required individuals to be certified by any certifying entity as defined by the NRC (10 C.F.R. §34.3). These alternatives were incorporated into the proposal to allow individuals possessing radiographer certificates from certifying entities to operate in this state without obtaining a Department certificate. Other alternatives to the proposal were given and are addressed in the appropriate sections below.

Further, because the NRC specifies criteria that certification programs must meet to be recognized, state radiation control programs were contacted during development of this proposal. The State of Texas implemented a radiographer certification program more than ten years before the NRC began requiring certification. Thus, the Texas program has been the model used by the NRC and other states. Further, the Texas program has developed a bank of examination questions, which is used by nearly every state-operated certification program, and allows such state programs to use that examination through a contract with the Conference of Radiation Control Program Directors, Inc. (CRCPD). The CRCPD is a 501(c)(3) nonprofit professional organization whose primary membership is made up of radiation professionals in state and local government who regulate the use of radiation sources. Thus, the Department is aligning this proposal to be consonant insofar as possible with other state certification programs, which is consistent with Legislative policy. (Health & Saf. Code, § 114965(c).)

The regulations that implement, interpret and make specific the provisions of the Radiation Control Law are in title 17, California Code of Regulations, sections 30100 through 30395. The revision of these regulations improves radiation protection standards for California and achieves compatibility with the NRC regulations.

The statutory authority and reference citation numbers of sections being amended are changed to reflect the numbering system implemented by the 1995 recodification of the Health and Safety Code resulting in a nonsubstantial change pursuant to title 1, California Code of Regulations, § 100.

The following table identifies the state regulation and it's corresponding federal regulation, if applicable, found in Title 10, Code of Federal Regulations, part 34 (10 CFR 34) as amended by the NRC, the required level of compatibility with the NRC and describes and explains any difference between the two and the reasons for the difference.

<b>Proposed Regulation</b> (section)	<b>10 CFR 34</b> (section)	<b>Compatibility Category<sup>4</sup></b>	<b>Description &amp; Rationale</b> NE = No Equivalent, I = Identical, EI = Essentially Identical
<b>30195.3</b>	<b>34.13</b>	Entire section is C	<p>Regarding training of industrial radiographers, this section currently allows a licensee to designate an individual as a radiographer or to have the Department review training documentation of an individual for identifying the individual on the specific license.</p> <p>Implementation of existing subsection (a) (licensee designation) is done by the licensee in that the licensee trains the individual and then issues to the individual a card identifying the individual as meeting the licensee's training program. The Department authorizes such designation after review of the training program. This method removes the need to specify the individual on the</p>

<sup>4</sup> Prior to September 3, 1997, NRC used the term "Division" to designate compatibility categories. The NRC changed the "Division" designation to "compatibility categories" and specified additional criteria to determine an Agreement State's compatibility with NRC regulations. (62 Fed.Reg. 46517 (Sept. 3, 1997).) Because changes made prior to this revision specified compatibility as a "division," NRC revised Procedure SA-200 (Reference 4), using the newly adopted criteria, to specify the new compatibility category and notified all Agreement States by letter (Reference 7) providing a conversion table for the change. See Reference 7 for the conversion table as it relates to 62 Fed.Reg. 28947 (May 28, 1997). See attachment 1 for definitions of compatibility categories and designations. Regulations designated compatibility categories C and H&S (References 5, & 7, & Attachment 1) must meet the essential objective.

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			<p>specific license and allows the licensee to use the individual immediately when training is completed.</p> <p>Implementation of existing subsection (b) (Department designation) is done together by the Department and the licensee in that the licensee submits for approval an individual's training documentation. The Department reviews the documents and, if approved, amends the licensee's specific license by identifying the individual as a radiographer on the specific license. This method requires the licensee, before the individual functions as a radiographer, to obtain the amended license.</p> <p>Because NRC now requires all radiographers to be certified, the existing methods must be modified to address the NRC's radiographer certification requirements.</p> <p>The title of the section is amended to be consistent with terminology used in the industry, which is a nonsubstantial change pursuant to title 1, California Code of Regulations, section 100.</p>
(a)			<p>NE. Existing subsection (a) and part of existing subsection (b) are deleted as explained regarding proposed subsection (b).</p> <p>Proposed subsection (a) is needed to inform the community that if a term is used in this article that is not defined in §30100 then it may be found in §30330. This is necessary because this section uses terms defined in proposed §30330. The reasons for having an additional definition section are addressed in §30330.</p>
(b)	§34.13(a)	C	<p>EI. Proposed subsection (b) addresses the NRC requirements specified in 10 CFR 34.13 and existing requirements found in subsections (a) and (b). Those requirements address a licensee's training program used to ensure individuals safely use radioactive material during radiographic</p>

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			<p>operations.</p> <p>Existing requirements provide little guidance on what information about the training program should be submitted. This proposal states what must be submitted for determining if the applicant can provide an adequate training program for ensuring individuals perform industrial radiography safely. The specified information is based on guidance documents used by NRC. (Reference 5, pp. G-1 - G-3.)</p>
(b)(1)	§34.13(b)	C	<p>EI. Proposed subsection (b)(1) addresses how an applicant will ensure an individual is aware of certain requirements and is competent to use equipment and ensures experienced instructors train individuals. The contents of that training program are based on NRC's guidance documents. (Reference 5, pp. G2 &amp; G-3.) The material the applicant must submit is needed to determine the adequacy of the applicant to ensure the training imparts the required knowledge and develops the required skill to make informed decisions.</p> <p>The qualifications an instructor must meet are based on NRC's guidance, which indicates that the instructor providing instruction in the hands-on use of radiography equipment should be qualified radiographers with at least one year of experience in performing radiography. (Reference 5, pg. 8-13.) The section specifying the qualifications is referenced. See §30333.05 for discussion.</p>
(b)(2)			<p>NE. Because a licensee conducting industrial radiography can have many or a small number of radiographers, some licensees may not be able to accommodate training for the purpose of radiographer certification. By allowing the licensee to tailor their training program it allows them to take advantage of individuals who received training from other licensees.</p>

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			<p>Proposed subsection (b)(2) provides flexibility by allowing the applicant to provide radiation safety training or use only certified individuals. See §§30333 and 30334 for additional discussion.</p> <p>Further, the subsection informs applicants how to be approved as a provider of training for radiographer certification. Though informational in nature, this ensures that applicants are aware of this option. This should reduce the number of phone calls the Department may receive from applicants.</p>
(b)(3)	§34.13(c)	C	<p>EI. The differences are textual in nature and nonsubstantial.</p> <p>Though 10 CFR 34.13(c) is designated as a compatibility category C, the NRC states the essential objective of the rule is that the Agreement State should establish basic requirements for approval of industrial radiography license applications which address procedures for verifying and documenting the certification status of radiographers and ensuring that the certification of individuals acting as radiographers remain valid. This provision requires the user to ensure they only employ certified radiographers.</p> <p>Therefore, the Department proposes to adopt a provision essentially identical to NRC's, which meets the essential objective.</p>
(b)(4)	§34.13(f)	C	<p>EI. The requirements are different in sentence structure only and is also a recodification of existing subsections (a)(3) and (b)(4), which are nonsubstantial changes.</p>
(b)(5)	§34.13(d)	C	<p>EI. The requirements are different in sentence structure only. Current section language fails to specify where operating and emergency procedure requirements are found so applicants can comply with existing subsections (a)(2) and (b)(3). This</p>

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			proposed subsection clarifies what section contains such procedures.
(b)(6)	§34.13(e)	C	EI. The requirements are different in sentence structure only. Existing subsections (c)(1) through (3) specifying what the licensee must do as part of the inspection program are placed into §30333. This recodification places the requirement in a more appropriate section that specifies training requirements. See §30333 for further explanation.
(b)(7)	§34.13(g)	C	EI. The differences are textual and grammatical in nature and nonsubstantial.
(b)(8)	§34.13(j)	C	EI. The differences are textual and grammatical in nature and nonsubstantial. The term “licensed material” is not defined in this section because it is already defined in 10 CFR 20.1003 which is incorporated by reference in §30253.
	§34.13(h), (i) and (k)	C	NE. 10 CFR 34.13(h), (i) and (k) are not addressed in this proposal since they are addressed in §30194.
<b>30295</b>	<b>10 CFR 30.50</b>	C- paragraphs (a), (b), (c), except D-paragraph (c)(3)	EI. This existing section specifies when and how the Department must be notified of an incident. During development of this proposal it was noted that subsection (b)(4)(C) should be recodified to subsection (c). Further review indicated that the subsequent subsection designations were confusing. Thus, this section is amended to delete unnecessary language and correct errors in subsection designations. These changes are nonsubstantial.
<b>30330</b>	<b>34.3</b>	For category, see each term.	This section was originally promulgated in 1965 and has not been substantially amended since. Existing subsection (a) is not needed because it provides information only and, due to the proposed changes, is inconsistent. Sections referenced by subsection

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			<p>(a) are proposed to be modified so that the terms used within each section clearly identifies whether the section applies to use of radioactive materials or radiation machines or both.</p> <p>Existing subsection (b) is recodified into proposed subsection (b)(14) and changed to "industrial radiography" for consistency with the NRC provisions.</p> <p>Definitions of terms applicable to industrial radiography are proposed to be amended or adopted for clarity.</p>
(a)			NE. Proposed subsection (a) provides clarity because it informs the community that if a term is used in this article that is not defined in this section then it may be found in section 30100.
(b)			NE. This is needed to introduce the defined terms and is nonsubstantial.
	ALARA	A	NE. This term is not used within this article but is defined in Title 10, Code of Federal Regulations, §20.1003, which is incorporated by reference in §30253. Thus, it does not need to be defined in this article.
(b)(1)	Annual refresher safety training	C	EI. This term provides uniformity between the NRC requirements and this proposal. The NRC provides topics the training may include within a definition but this proposal moves these topics to the requirement in §30333(d). The Department believes that a definition should be used to fix the meaning of the term only and cross-references the topics for clarity. The topics are more clearly presented in the requirement to provide training and what must be part of the training. (See §30333 for further discussion.)
(b)(2)	Associated equipment	B	I. The term and definition are identical; however, the published NRC regulation fails to close the

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			parentheses around the list of examples. Thus, this proposal places the missing parenthesis at the end of the list because the list of items that come into contact with the sealed source includes the collimator when used as the exposure head.
	Becquerel	A	NE. This term is not used within this article but is defined in Title 10, Code of Federal Regulations, §20.1005, which is incorporated by reference in §30253. Thus, it does not need to be defined in this article.
(b)(3) Cabinet X-ray system			<p>NE. This term refers to radiation machines, which are not subject to the NRC provisions.</p> <p>This term is based on title 21, Code of Federal Regulations §1020.40 (21 CFR 1020.40). That federal regulation specifies the manufacturing criteria for machines used for inspection of carry-on baggage in places such as in airports, railroad stations, etc. The U.S. Food and Drug Administration (FDA) adopted this provision in 1974. California adopted a similar provision, §30337, in 1973 based on the proposed FDA provision.</p> <p>This proposal modifies existing regulations for consistency with the FDA provisions. Thus, this term provides clarity and consistency. See §30337 for additional discussion.</p>
	Certifying Entity	B	NE. This term is used in §30335.3 regarding reciprocal recognition. The Department believes that the term clearly identifies the reference to those entities that are recognized as having certification programs that the Department has determined to meet the NRC's criteria as specified in 10 CFR 34 Appendix A. Thus, the term does not need to be defined in this article.
(b)(4)	Collimator	B	I. The term and definition are identical to provide uniform interpretation between this regulation and

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			the NRC requirements.
(b)(5) Control cable	Control (drive) cable	B	<p>EI. The NRC does not use the phrase “control (drive) cable” in its regulations but instead uses the term “drive cable” or “control cable” interchangeably. Current regulation uses the term “drive cable” but does not define it nor does it use the phrase “control cable.”</p> <p>Because it is a cable that controls the movement of the sealed source, the term “control cable” is used in lieu of “drive cable” in this regulation. This is consistent with the incorporated equipment standard found in §30332(c)(1) (recodified to §30332(a)), which defines “control” as a mechanism attached to an exposure device that, upon actuation, causes the source to be exposed or retracted.</p>
(b)(6) Control mechanism	Control drive mechanism	B	<p>EI. The NRC uses the phrase “control drive mechanism” in the definition of the term “control tube” in an informational sense. The term “drive mechanism” is used in 10 CFR §34.20(e), which is referring to incorporated equipment standards. Those standards do not use the word “drive” to describe movement of the source.</p> <p>The incorporated equipment standard found in §30332(c)(1) (recodified to §30332(a)) is the same standard adopted by the NRC as specified in 10 CFR 34.20(a)(1). Thus, to maintain consistency with that standard and to provide clarity this proposal uses the term “control mechanism.”</p>
(b)(7)	Control tube	B	EI. The term and definition are identical except for grammatical differences.
(b)(8)	Exposure head	B	EI. The term and definition are identical except for grammatical differences. The phrase “gamma radiography” as used by NRC is in common usage to distinguish it from radiography using X-ray machines. The Department has chosen to only use

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			"sealed source" to define what the exposure head is locating because it is consistent with terminology used in the incorporated equipment standard found in §30332(a) as recodified.
(b)(9) Field radiography			NE. This term refers to radiation machines, which are not subject to the NRC and Agreement State provisions. This term is currently found in §30336(c) but is placed into this section so all definitions can be found in one section.  The definition, as found in §30336(c), is modified for consistency with this proposal. See §30336.1 for additional information.
(b)(10)	Field Station	C	I. The term and definition are identical to provide uniform interpretation between this regulation and the NRC requirements.
	Gray	A	NE. This term is not used within this article but is defined in Title 10, Code of Federal Regulations, §20.1004, which is incorporated by reference in §30253. Thus, it does not need to be defined in this article.
(b)(11) Guide tube	Guide tube (projection sheath)	B	EI. The term and definition are identical except for grammatical differences. The NRC includes the parenthetical phrase "projection sheath" that is sometimes used to refer to the guide tube. This regulation excludes that phrase because it is not as commonly used as is "guide tube."  The second sentence of the NRC's definition is not included in this regulation because it is not needed to fix the meaning of the term. Also, the incorporated equipment standard found in §30332(a), as recodified, addresses connections for ensuring the guide tube is attached to the radiographic exposure device and the exposure head.
	Hands-on	C	NE. Because the term is not used in this proposal,

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
	experience		the term is not needed.
(b)(12) Identification card			<p>NE. Because this term is used to implement state laws and regulation, there is no equivalent term in the NRC regulations.</p> <p>This term is needed to ensure individuals performing radiographic operations understand that the identification card that must be carried during such operations is one that indicates the individual has met certain training.</p>
	Independent certifying organization	B	NE. This term is not used within this article. Thus, it does not need to be defined in this article.
(b)(13) Industrial Radiography	Industrial radiography (radiography)	B	<p>EI. This term was recodified from subsection (b) to subsection (b)(13). No specific comments were received but the Department determined that the Initial Statement of Reasons incorrectly stated the term was recodified to subsection (b)(14). The citation in this final document is changed to correctly identify subsection (b)(13) as containing the particular term and is a nonsubstantial change. The existing term "radiography" is changed to "industrial radiography" for consistency with the NRC provisions.</p> <p>The term and definition are essentially identical to the NRC's except that the proposal clarifies that human beings and animals are not included and that only one term has the stated definition. This clarification is needed because the Department regulates and certifies individuals who perform medical radiography. Further, use of multiple phrases meaning the same thing is not followed so that the proposal maintains clarity.</p> <p>Due to comments received asking whether use of radiation for analytical purposes was included in the proposed definition, the proposed term was amended to clarify that the term, and thus the proposal, does not apply to the examination of the</p>

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			<p>microscopic structure, or elemental or chemical composition of materials utilizing radiation.</p> <p>Additionally, the Department determined that the proposed definition change would have reduced radiation protection in some operations. Therefore, the phrase “to make radiographic images” is deleted and the word “physical” inserted between the words “the” and “structure” to make the term’s definition more consistent with the existing requirement. The Department determined that the deleted phrase would have narrowed the proposal’s applicability to the extent that very hazardous operations would be excluded from the proposal. This change was made available to the public for review and comment for at least 15 days pursuant to Government Code 11346.8, subdivision (c).</p>
	Lay-barge radiography	B	NE. This term is not used within this article. Thus, it does not need to be defined in this article.
	Offshore platform radiography	B	NE. This term is not used within this article. Thus, it does not need to be defined in this article.
(b)(14)	Permanent radiographic installation	C	<p>I. This term was recodified from §30331(a)(1) to §30330(b)(14), which is a nonsubstantial change. No specific comments were received but the Department determined that the Initial Statement of Reasons incorrectly stated the term was recodified to subsection (b)(13). The citation in this final document is changed to correctly identify subsection (b)(14) as containing the particular term and is a nonsubstantial change.</p> <p>The definition is identical to the NRC regulation to ensure uniform interpretation of the term’s meaning.</p>
(b)(15)	Practical examination	C	I. The term and definition are identical to provide uniform interpretation between this regulation and the NRC requirements.
(b)(16)	Radiation	C	EI. The term and definition are nearly identical to

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
Radiation Safety Officer	safety officer for industrial radiography		<p>NRC's provision, except that the definition includes references to California's authority over radiation-producing machines. The Department believes that inclusion of the phrase "for industrial radiography" found in NRC's term is not necessary because the proposal is placed in a distinct article that clearly indicates that the term applies only to industrial radiography.</p> <p>No specific comments were received but a punctuation error was found. The semi-colon (";") found between the introductory phrase in subsection (b)(16) and paragraphs (A) and (B) within subsection (b)(16) is deleted and replaced with a colon (":") for consistency.</p>
(b)(17)	Radiographer	C	<p>EI. This term is recodified from §30331(a)(2) to §30330(b)(17) and modified to be consistent with this proposal, which are nonsubstantial changes. No specific comments were received but the Department determined that the Initial Statement of Reasons incorrectly stated the term was recodified to subsection (b)(16). The citation in this final document is changed to correctly identify subsection (b)(17) as containing the particular term and is a nonsubstantial change.</p> <p>The term and definition are identical to the NRC's except for grammatical and structural differences.</p>
(b)(18)	Radiographer certification	B	<p>EI. The term and definition are based on NRC's but is modified for clarity because the NRC uses "radiation safety," "testing" and "experience criteria," which are vague and undefined. The proposed definition provides clarity because it uses a defined term that specifies that criteria. Further, the term "certifying entity" is not needed because the Department is that entity and the proposed regulations apply only to individuals subject to the Department's jurisdiction.</p> <p>The Department believes these differences are not</p>

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			substantial and meet NRC's compatibility category.
(b)(19) Radiographer trainer			<p>NE. The term, definition and the concept of a trainer are based on the regulations of the State of Texas (25 Tex. Admin. Code §289.255(m)(3)). Texas has had a radiographer certification program for more than 10 years. That program includes a radiographer trainer to ensure individuals are fully trained and competent to perform radiographic operations. Without that assurance, an individual may receive radiation overexposures, radiation injuries, and may obtain poor quality radiographs, which could jeopardize public safety (i.e. failure to detect cracks in steel bridges or airplane wings).</p> <p>Under that program the trainer is a certified radiographer with at least one year of experience in using sources of radiation, performance of radiation surveys and radiation safety related activities. The Department believes that untrained individuals being trained by experienced individuals provide greater assurance that untrained individuals will acquire the necessary skills, abilities and knowledge to safely use radiation sources.</p>
(b)(20)	Radiographer's assistant	<p>B – For states that authorize radiographer's assistants</p> <p>D – For other states.</p>	<p>EI. This term was recodified from §30331(a)(3) to §30330(b)(20), which is a nonsubstantial change. No specific comments were received but the Department determined that the Initial Statement of Reasons incorrectly stated the term was recodified to subsection (b)(19). The citation in this final document is changed to correctly identify subsection (b)(20) as containing the particular term and is a nonsubstantial change.</p> <p>The definition is modified for clarity and is different than NRC's definition. The Department believes it meets the NRC's compatibility category for essentially identical regulations and is clearer. As indicated in Attachment 1, the definition of essentially identical means that the interpretation of the text is the same regardless of the version (NRC</p>

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			<p>or State) that is read.</p> <p>The NRC definition indicates what the radiographer assistant (RA) does, what type of supervision they are under when they do it, and that it is any individual. 10 CFR 34.41(a) requires the radiographer to be accompanied by another radiographer or an individual meeting 10 CFR 34.43(c). If there are two radiographer's during the radiographic operation, the NRC's definition of an RA can be interpreted to include a radiographer because the second radiographer may be under "direct" supervision, which is undefined, and using the specified equipment for the specified purpose. Most likely, NRC did not intend such an interpretation.</p> <p>The word "direct" found in the NRC definition is not used in conjunction with the word "supervision" in the NRC requirements. In review of NRC's proposed rule (59 Fed.Reg. 9429 (Feb. 28, 1994)) for this definition, no changes were proposed and the word "personal" remained. In a review of the final rule (62 Fed.Reg. 28957 (May 28, 1997)), the word "personal" was changed to "direct." However, the final rule contains no explanation of the change. Additionally, the type of supervision that a radiographer's assistant must be under is specified in 10 CFR §34.46 as "personal supervision" and "direct" supervision is not defined. NRC clarifies this by including the phrase "under the direct supervision (in the physical presence) of the radiographer" in its guidance documents (Reference 5, pg. 8-13).</p> <p>In reviewing 10 CFR 34.41(a), 34.43(c), and 34.46 and NRC guidance it is clear that an RA is an individual who must meet certain training requirements and must be under a certain type of supervision when using certain equipment for industrial radiography.</p>

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			<p>Therefore, the proposed definition specifies the criteria they must meet and the type of supervision they must be under when using certain equipment by referencing appropriate provisions.</p> <p>Further, to ensure a consistent and clear understanding of the type of supervision the radiographer's assistant is under the word "personal" is maintained.</p> <p>Due to comments received and acceptance of recommendations regarding section 30336, the reference to section 30336(j) is deleted.</p>
(b)(21)	Radiographic exposure device	B	<p>EI. This term is recodified from §30331(a)(4) to §30330(b)(21) and clarified. These changes are nonsubstantial. No specific comments were received but the Department determined that the Initial Statement of Reasons incorrectly stated the term was recodified to subsection (b)(20). The citation in this final document is changed to correctly identify subsection (b)(21) as containing the particular term and is a nonsubstantial change.</p> <p>Though the NRC definition is more detailed, the Department believes that the regulated community fully understands the term as defined by this subsection.</p>
(b)(22)	Radiographic operations	C	<p>EI. The terms are essentially identical with NRC's. The differences are grammatical in nature. Further, because these regulations apply to radiation machines, the scope of the definition is expanded to address those areas not regulated by the NRC.</p>
(b)(23) Radiographic personnel			<p>NE. This term reduces the physical volume of the regulations. It is needed because these regulations address a larger group of individuals than do the NRC's regulations.</p>
	S-tube	B	<p>See subsection (b)(29) for discussion.</p>

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
	Sealed source	A	EI. This term is already defined in §30100(v) and is essentially identical to the NRC's definition.
(b)(24)	Shielded position	C	I. The definition is identical to the NRC regulation to ensure uniform interpretation of the term's meaning.
(b)(25) Shielded-room radiography			<p>NE. This term refers to radiation machines, which are not subject to the NRC and Agreement State provisions. This term is currently found in §30336(b) but is placed into this section so all definitions can be found in one place.</p> <p>The definition is modified to more clearly state that shielded-room radiography is conducted in a room designed to allow admittance of individuals to distinguish it from radiation machines that meet the definition of cabinet X-ray system.</p> <p>Comments were received recommending an alternative compliance method for use of small mobile X-ray machines with low kilovoltage (kV) capabilities in secured rooms that do not fall within a definition in Section 30330. Under existing Section 30336(c) use of such machines falls within the definition of "field radiography" because the room in which those machines are used does not meet the definition of "shielded-room radiography" in existing Section 30336(b). However, the proposed definition of "shielded-room radiography" failed to maintain the existing "room" requirements that clarify its difference from the definition of "field radiography." Without these "room" requirements, the definition for "shielded-room radiography" can be more broadly interpreted and overlap the definition of "field radiography" causing unintended confusion. Therefore, to maintain the existing regulatory requirements that clarify the definition of "shielded-room radiography" Section 30330(b)(25) was amended by inserting the phrase "and the room meets the requirements of subsections (d), (e) and (h) of section 30336" after the word</p>

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			"individuals." This correction also addressed comments received regarding Section 30336(e)(1). See section 30336(e)(1) for discussion.
	Sievert	A	NE. This term is not used within this article but is defined in Title 10, Code of Federal Regulations, §20.1004, which is incorporated by reference in §30253. Thus, it does not need to be defined in this article.
(b)(26)	Source Assembly	B	EI. The term and definition are essentially identical except that the second sentence found in the NRC definition is not placed into this proposal. That sentence is not needed to fix the meaning of the term. Also, the meaning is consistent with the equipment standard incorporated by §30332(a)(1) as recodified.
(b)(27)	Source changer	B	I. This term was recodified from §30331(a)(7) to §30330(b)(27), which is a nonsubstantial change. No specific comments were received but the Department determined that the Initial Statement of Reasons incorrectly stated the term was recodified to subsection (b)(26). The citation in this final document is changed to correctly identify subsection (b)(27) as containing the particular term and is a nonsubstantial change.  The definition is identical to the NRC regulation to ensure uniform interpretation of the term's meaning.
(b)(28)	Storage area	D	I. This term was recodified from §30331(a)(5) to §30330(b)(28), which is a nonsubstantial change. No specific comments were received but the Department determined that the Initial Statement of Reasons incorrectly stated the term was recodified to subsection (b)(27). The citation in this final document is changed to correctly identify subsection (b)(28) as containing the particular term and is a nonsubstantial change.  The definition is identical to the NRC regulation to

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			ensure uniform interpretation of the term's meaning.
(b)(29)	Storage container	B	<p>I. This term was recodified from §30331(a)(6) to §30330(b)(29), which is a nonsubstantial change. No specific comments were received but the Department determined that the Initial Statement of Reasons incorrectly stated the term was recodified to subsection (b)(28). The citation in this final document is changed to correctly identify subsection (b)(29) as containing the particular term and is a nonsubstantial change.</p> <p>The definition is identical to the NRC regulation to ensure uniform interpretation of the term's meaning.</p>
(b)(30)	S-tube	B	<p>I. The definition is identical to the NRC definition of "S-tube" to ensure uniform interpretation of the term's meaning. The alphabetical placement of this term follows the practice of common dictionaries.</p> <p>No specific comments were received but a punctuation error was found. The period (".") at the end of the subsection is deleted and replaced with a semi-colon (";") for consistency.</p>
(b)(31)	Temporary jobsite	B	<p>I. The term and definition are identical to provide uniform interpretation between this regulation and the NRC requirements.</p>
	Underwater radiography	B	<p>NE. This term is not used within this article and does not need to be defined in this article.</p>
<b>30331</b>			<p>NE. This section is amended to specify the requirements an applicant must meet to be an approved radiation safety training (RST) provider. It also specifies other provisions the RST provider must meet. Existing definitions are recodified to §30330 to maintain a regulatory structure that presents definitions of terms before requirements are specified.</p>

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			<p>The federal regulatory structure regarding RST providers is unclear. The NRC prohibits a licensee from permitting an individual to act as a radiographer, in part, until the individual has received training in the subjects specified in 10 CFR 34.43(g). However, NRC indicates within guidance documents that the licensee can have someone outside the organization provide the training. (Reference 5, pg. C-4.) The following States clarify this by requiring the RST provider to be approved:</p> <ul style="list-style-type: none"> <li>• Texas (25 Tex. Admin. Code, §289.226(b)(7)(B) &amp; (g).)</li> <li>• Louisiana (33 LAC Part XV, §575.A.1.)</li> <li>• Illinois (32 Ill. Adm. Code, §405.70.)</li> </ul> <p>This proposal specifies the Department's process for approval of RST providers so that a licensee can either provide the training themselves or use consultants outside their organization, which provides flexibility for the licensee. To provide that flexibility it is necessary to specify how other organizations not applying for a radioactive material license can be recognized and used by a licensee for training purposes.</p>
(a)			<p>NE. Proposed subsection (a) specifies the content of a complete application. Subsections (a)(1) and (2) are needed to identify and communicate with the applicant and to comply with Family Code §17520. The applicant's employer identification number or California taxpayer identification number is needed to assist the Department if disciplinary action, such as suspension or revocation of approval, is taken against a provider. The citation to Health and Safety Code Section 100275 found in subsection (a)(2) is amended to Section 131200 to reflect the authority specific to the California Department of Public Health and is a nonsubstantial change. This change was made available to the public for review and comment for at least 15 days pursuant to Government Code 11346.8, subdivision (c).</p>

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			<p>Proposed subsection (a)(3) is needed to ensure the applicant will provide the required training for the required number of hours. This is based on NRC guidance. (Reference 5, pp. G-1 – G-2.)</p> <p>Proposed subsection (a)(4) is needed to ensure the instructor is experienced in use of radioactive materials and radiation machines in industrial radiography. Structurally, radiation safety training is applicable to use of radioactive material and radiation machines. This requires the applicant to have instructors that meet the qualifications in both areas. An unqualified instructor may fail to impart necessary skills to workers so that the workers can prevent excessive and unnecessary radiation exposure to others. Therefore, instructors must have knowledge, experience and skills they can pass on to the student. Once this universal understanding is gained, the student then is prepared to obtain on-the-job experience where specific training in use of materials or machines is performed.</p> <p>Proposed subsection (a)(5) is needed so the Department can ensure the applicant will evaluate the student using examinations that are based on the topics listed in §30335.10 and has written procedures for evaluating examinations.</p> <p>Proposed subsection (a)(6) requires the applicant to pay a fee, which is needed to cover the cost associated with application review and administration of radiographer certification.</p>
(b)			<p>NE. Proposed subsection (b) specifies how long approval is valid. During contact with other state certification programs, it was noted that all of them issue radiographer certificates valid for five years, as does this proposal. Thus, the five-year period was chosen for consistency with the proposed issuance of radiographer certification and to reduce efforts and costs of more frequent renewal for both the provider and the Department.</p>

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			<p>Additionally, proposed subsection (b) provides an alternative expiration date based on the expiration date of the provider's specific license, if the provider has such a license. This allows the Department to indicate on the specific license that the licensee is an approved provider and removes the need for issuance of additional documents and places related approvals on one document; namely, the specific license. However, the exception places a limit on the validity period to account for those providers whose specific license expires in less than five years. This is provided because approval does not require the applicant to have a specific license since possession of radiation sources is not needed. Thus, this allows a licensee to continue to provide the training even though their license expires or is terminated. The Department recognizes that license termination can occur for many reasons. If the license termination were due to cause, the Department would also take action against the approval as a radiation safety training provider pursuant to §30338. Therefore, for licensees, the validity period will not be less than five years but can extend for the license validity period since licenses are valid for up to ten years. A similar exception for registrants (users of radiation machines) is not provided because registration remains valid only for two years. For registrants, the validity period would be five years.</p>
(c)			<p>NE. Proposed subsection (c)(1) requires a provider of radiation safety training to issue a certificate of training to the trained individual. This document is needed so the individual has a record of the training that can be used by the Department to verify the individual's training when they apply for radiographer certification. Further, the individual can use this document if they apply for certification in another state. The information the provider must specify on the certificate is the minimum needed by the Department to verify that the individual obtained training from an approved provider.</p>

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			<p>Proposed subsection (c)(2) is needed so the Department, when needed, can verify training of individuals. The five-year period was chosen for consistency with and for the same reasons as stated regarding subsection (b).</p> <p>Proposed subsection (c)(3) is needed so the Department has the most up-to-date information on the approved provider.</p> <p>Proposed subsection (c)(4) is needed to inform the provider that they must continue to maintain the training program as approved in the application. This prevents inconsistent interpretation that an applicant must meet the requirements whereas an approved provider does not.</p> <p>Proposed subsection (c)(5) is needed to inform the provider that they are subject to audit to ensure the training program is maintained as approved.</p>
<b>30332</b>	<b>34.20</b>	Entire section is B, except D for paragraph (a)(2)	EI. This section is amended for consistency with NRC requirements and for clarity.
(a)	(d)	B	<p>EI. Subsections (a) and (b) are deleted since all equipment used after January 10, 1996 must meet the equipment requirements of existing subsection (c) (recodified to subsection (a)). As recodified, subsection (a) makes nonsubstantial changes for consistency with NRC requirements.</p> <p>Punctuation errors are corrected throughout the section, which are nonsubstantial changes.</p>
(a)(1)	(a)(1)	B	EI. Subsection (a)(1) is amended to be essentially identical to NRC's requirements found in 10 CFR §34.20(a) & (e). Informational language in the NRC's requirement is not placed in subsection (a)(1) because it is not necessary.

<b>Proposed Regulation (section)</b>	<b>10 CFR 34 (section)</b>	<b>Compatibility Category<sup>4</sup></b>	<b>Description &amp; Rationale</b> NE = No Equivalent, I = Identical, EI = Essentially Identical
(a)(2)	(b)(1)	B	I. No changes.
(a)(3)	(b)(2)	B	I. Capitalization and punctuation errors are corrected, which are nonsubstantial changes.
(a)(4)	(b)(3)	B	I. The existing language is modified to be consistent with NRC's requirement. Punctuation is corrected, which is a nonsubstantial change.
(a)(5)	(c)	B	I. Grammar and punctuation errors are corrected only, which are nonsubstantial changes.
(b)	(e)	B	EI. The requirements are textually different but the differences are not substantial.
(c)	<b>34.21</b>	Entire section is B	EI. The requirements are different in sentence structure only. This subsection is recodified from subsection (b) and modified for consistency with the NRC requirement.
Note (2)			NE. The note is amended to correctly identify from whom and where the adopted material can be obtained.
<b>30332.1</b>	<b>34.23</b>	Entire section is B	EI. This section is amended for consistency with NRC requirements and for clarity. Minor terminology changes are made for consistency in the regulations.
<b>30332.2</b>	<b>34.33</b>	D/H&S	EI. This section is amended for consistency with NRC requirements and for clarity.  The NRC, under compatibility category H&S, requires an agreement state to adopt a regulation that meets the essential objective of the requirement. Current language is essentially identical to NRC's prior rule (10 C.F.R. §34.29 (1996)) and is now amended for consistency with current NRC requirements (62 Fed.Reg. 28947

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			<p>(May 28, 1997)). Even though the Department is not required to adopt this provision as written, the Department agrees that the security of radiographic installations is essential to protect individuals from radiation exposure. Thus, this section is adopted essentially identical to NRC's.</p> <p>Section 30279 was deleted by rulemaking in 1994. The reference to §30279 in the current language is modified to specify the entrance control requirements (proposed subsection (a)(1)) found in 10 CFR 20.1601(a)(1) incorporated by reference in §30253, which was the equivalent to the incorporated provision. Thus, this is a nonsubstantial change.</p> <p>Proposed subsection (b) is equivalent to 10 CFR 34.33(b) but presents the requirements in the same order as to what they apply to; namely subsections (a)(1) and (a)(2), respectively. Regardless of the order in this proposal and NRC's provisions, the requirements are essentially identical.</p> <p>NRC places a seven-day limit on the use of the installation when the control device or alarm has been labeled defective. The Department believes that the limit is very restrictive and unreasonable. There can be many instances where the device or alarm cannot be repaired in the allotted time. Therefore, this proposal allows use of the installation for up to 30 days if certain conditions are met. These conditions are more restrictive than those of the NRC in that two radiographic personnel must be involved in the operation instead of one as allowed in 10 CFR 34.41(a). This is because, once the device or alarm becomes non-functional, the operation in the installation is basically the same as an operation in an open setting or in the field. This proposal provides a more reasonable time period of installation use and continues to ensure operators and the public will be protected from radiation exposure. The proposed 30 days is based on Department experience of the time needed to find a</p>

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			<p>qualified repairer, ship and get the device repaired, return shipment, reinstallation, and testing of the device to ensure it operates properly. That time also allows for days when the installation is not used. Therefore, the Department believes that the essential objective (category H&amp;S) of the NRC provision is met.</p> <p>Proposed subsection (c) is needed to evaluate the user's efforts to operate safely.</p>
30332.3	34.25	Entire section is C	<p>EI. This section is amended to be consistent with NRC requirements and for clarity. Current language is essentially identical to prior NRC requirements (10 C.F.R. 34.24 (1996)) but is now modified to be consistent with NRC's current requirements (62 Fed.Reg. 28947 (May 28, 1997)).</p> <p>Sentence structure in subsection (a) is amended for clarity, which is a nonsubstantial change. The unit value a survey instrument is calibrated in is changed to be consistent with NRC requirements.</p> <p>Existing subsection (b) is replaced with proposed subsection (b) for clarity as to how types of instruments must be calibrated. This change is consistent with the NRC's requirements. The interval for calibration is changed from three to six months. This "lessening" of the current standard is justified because a licensee is required by §30332.7 to have inspection and maintenance procedures to ensure survey instruments are working. Thus, more frequent calibrations are not needed because significant changes in instrument response should be detected during the daily operability checks.</p> <p>Subsection (c) is needed to allow Department inspectors to evaluate survey instruments. Calibration documents provide information on how accurate and reproducible an instrument is in measuring radiation levels. With such information a</p>

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			licensee can plan for replacement of poorly working instruments. Further, this subsection is consistent with NRC's requirement found in 10 CFR §34.65.
<b>30332.4</b>	<b>34.27</b>	Entire section is C	<p>EI. Current language is essentially identical to prior NRC requirements (10 C.F.R. §34.25(e) (1996)) but is now modified to be consistent with NRC's current requirements (62 Fed.Reg. 28947 (May 28, 1997)).</p> <p>Subsection (b) is amended to be consistent with the NRC's requirement in 10 CFR §34.27(e) for radiographic exposure devices using depleted uranium (DU) shielding and an S-tube configuration. Because DU is very dense, it is an effective shielding material for radiation sources. The S-tube within the radiographic exposure device is usually made of steel in an "S" shape situated within the depleted uranium. The sealed source, when in the shielded position, sits within the crook of the "S." When the source is moved out of the S-tube and back again, normal wear of the steel tube occurs. Thus, as the S-tube is worn down there is a greater chance of exposing the DU and causing contamination. Therefore, to detect DU contamination leak tests must be performed. The requirement to perform the test at intervals not to exceed 12 months is a recognized industry standard that is easy to remember and is consistent with other contamination tests.</p> <p>Subsection (c) is deleted because it applies only to manufacturers.</p>
<b>30332.5</b>	<b>34.29 &amp; 34.69</b>	Entire section is C	EI. Nonsubstantial formatting changes are made and proposed subsection (b)(4) is added for consistency with NRC's provision.
<b>30332.6</b>	<b>34.71</b>	Entire section is B	EI. The section is amended to be consistent with the NRC requirements and to correct capitalization

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			errors.
<b>30332.7</b>	<b>34.31</b>	Entire section is C	<p>EI. The section is amended to be consistent with the NRC requirements and to correct capitalization errors.</p> <p>Current language is essentially identical to prior NRC requirements (10 C.F.R. §34.28 (1996)) but is now modified to be consistent with NRC's current requirements (62 Fed.Reg. 28947 (May 28, 1997)).</p> <p>Subsection (a)(2) requires the licensee to ensure Type B packages meet the requirements of §30373, which includes provisions of title 10, Code of Federal Regulations, Part 71. That federal regulation includes the rules of the U.S. Department of Transportation, which address Type B packages. The regulated community is familiar with Type B package requirements.</p> <p>Subsection (c) addresses the recordkeeping requirement found in 10 CFR §34.73.</p> <p>Subsection (d) is needed to evaluate the user's effort to operate safely.</p>
<b>30332.8</b>	<b>34.101</b>	C	<p>EI. Grammatical errors are corrected in subsections (a) and (b), which are nonsubstantial. The phrase "exposure devices and associated" added in subsection (a) is needed to clarify what type of equipment is referred to: those with radioactive materials in them or radiation machines.</p> <p>Subsection (c) is amended to be consistent with NRC requirements. The required notification is needed so the Department can evaluate the location because the location is likely used for storage or as a permanent radiographic installation, which must meet §30332.2. Deleted requirements are duplicative and not needed.</p>

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
30333	34.43	B except (a)(2) is D and paragraph (c) is B for States that authorize the use of radiographer's assistants and D for other states.	<p>EI. The section is amended to be consistent with the NRC requirements. Current language is essentially identical to prior NRC requirements (10 C.F.R. §34.31 &amp; §34.44 (1996)) but is now modified to be consistent with NRC's current requirements (62 Fed.Reg. 28947 (May 28, 1997)).</p> <p>Existing subsections are deleted and replaced with language that is consistent with NRC's current requirements.</p>
(a)	(a) & (b)	B except (a)(2) is D.	<p>EI. Proposed subsection (a) specifies what training a licensee must ensure the radiographer receives before the licensee can allow the radiographer to perform radiographic operations under the license. The proposal incorporates the certification requirements, corrects grammar and restructures the subsection for clarity.</p> <p>Proposed subsection (a)(1) requires the licensee to use written or oral examinations to determine if an individual understands certain requirements. A practical examination (subsection (a)(2)) is required to ensure an individual is competent to use radiographic exposure devices. The proposed eight hours of instruction time is based on NRC guidance (Reference 5, pg. G-2). These requirements are essentially identical to the NRC requirements. Thus, this amendment maintains the required compatibility level required by the NRC.</p> <p>Existing subsection (a)(2) (recodified to subsection (a)(1)) requires the user to ensure the radiographer is instructed in and shows understanding of the "applicable provisions of Group 2 of this subchapter." Provisions in Group 2 address licensing of radioactive material whereas Group 3 addresses standards for protection against radiation. 10 CFR 34.43(b)(1) references 10 CFR 30.7, 30.9, 30.10, Parts 19, 20 and 71 regarding</p>

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			<p>U.S. Department of Transportation regulations. Group 3 of the Department's regulations contain the equivalent NRC provisions cited in 10 CFR 34.43(b)(1). This proposal (subsection (a)(1)) changes this reference to "Group 3" to align the proposal with NRC's provision.</p> <p>Section 34.43(a)(2) of the NRC requirement, which addresses NRC's implementation of radiographer certification, is addressed in §30335.4. See §30335.4 for further explanation.</p> <p>Proposed subsection (a)(3) is needed to ensure the individual is trained by those already familiar with the material and equipment.</p>
(b)	(c)	B for States that authorize the use of radiographer's assistants and D for other states.	<p>EI. Proposed subsection (b) specifies what training a licensee must ensure the radiographer's assistant receives before the licensee can allow the individual to perform radiographic operations under the license. This subsection parallels subsection (a) to ensure training is consistent. Proposed subsection (b)(1) is needed for the same reason stated regarding subsection (a).</p> <p>Proposed subsection (b)(2) requires a licensee to issue an identification card to individuals who meet proposed subsection (b)(1). This is needed so that when Department inspectors review radiographic operations in the field the inspector can quickly verify that the individual has received some amount of training to perform safely under supervision in the field. An equivalent ID card is not required to be issued to the radiographer under subsection (a) because the ID card issued to the radiographer is issued by the Department and demonstrates that the individual is certified and therefore is assumed to have the required knowledge to function safely in the field.</p> <p>Radiographic operations are often conducted in remote locations, buildings, and other structures. Thus, the amount of equipment and documentation</p>

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			is kept to a minimum in order to reduce costs and loss of documents. This proposal assists licensees in this effort. The identification (ID) card issued by the licensee contains minimal information necessary to identify the individual and the licensee under whose license the operations are authorized. Because radiographic operations are sometimes conducted in incimate weather, the ID card must be durable and resistant to water.
(c)	34.46	B for States that authorize radiographer's assistants, D for others.	EI. Existing subsection (c) is proposed to be amended to clarify grammar and to require the individual providing the personal supervision to be a radioactive materials radiographer trainer. This requirement is based on §30333.05 and the practice of the State of Texas. The radiographer trainer is an individual with at least 2,000 hours of experience performing radiographic operations. This reduces the possibility of failing to identify a radiation safety hazard by a less experienced radiographer. Further, a more experienced radiographer can provide practical advice based on that experience to the radiographer's assistant increasing the skills and abilities of the assistant. Though this is more stringent than NRC, NRC has found this acceptable for compatibility purposes.  Proposed amended subsection (c) is essentially identical to the NRC's requirement.
(d)	34.43(d)	B	EI. Proposed subsection (d) requires licensees to provide annual refresher safety training. The proposal is essentially identical to the NRC requirement except that the minimum topics covered during the training is specifically required. However, even though the NRC specifies that these topics may be included in the training (see the definition of "annual refresher safety training" found in 10 CFR §34.3) they clearly expect the user to address these topics (Reference 5, pp. G-3 & G-4).
(e)	34.43(e)	B	EI. Proposed subsection (e) is recodified from

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			existing §30195.3(c). The requirement is essentially identical to the NRC requirement and ensures operations are monitored for safety.
(f)	34.79	C	EI. Proposed subsection (f) requires the licensee to maintain documentation showing compliance with training requirements. This subsection maintains consistency with NRC requirements and provides evidence that the licensee has verified that personnel meet the training requirements.
<b>30333.05</b>			<p>NE. As discussed regarding §30330(b)(18), the concept of a radiographer trainer is based on the radiographer certification program of the State of Texas. The radiographer trainer acts as the principal trainer to ensure individuals are fully trained and competent to perform radiographic operations.</p> <p>Proposed subsection (a) specifies the criteria that must be met before a licensee can use an individual as a radiographer trainer. Subsection (a)(1) is needed to ensure a certified individual trains a non-certified individual. It is necessary for the licensee to ensure the individual understands the specific licensee's license conditions and operating and emergency procedures and is competent to use the licensee's type of equipment since such items are specific to the licensee and variable. Without this verification an individual could receive very high doses of radiation due to unfamiliarity with equipment and safety procedures. Thus, subsection (a)(1)(B) is necessary so the licensee knows the requirement of §30333(a)(1) and (2) must be met.</p> <p>Subsection (a)(1)(C) is needed to ensure the individual is experienced in radiographic operations. The experience an individual gains while on the job increases the individual's ability to work safely with radiation, competently use radiographic exposure</p>

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			<p>devices and survey instruments and protect others. This experience is not well established when one is just certified. Thus, this proposal requires a trainer to have at least 2,000 hours of experience, which is based on the State of Texas' radiographer certification program. (25 Tex. Admin. Code, §289.255(m)(3)(A)(i)(II).) The number of hours is converted from one year to 2,000 hours using 10 CFR 34.42(a)(2). It is intended that the experience be based on the amount of hours conducting radiographic operations not on a period of time while on the job because it is possible that a radiographer could conduct a small number of operations within a year and obtain little experience. The activities that cannot be counted toward meeting the experience requirement are activities that do not contribute to actual performance of using radiographic exposure devices, associated equipment and survey instruments.</p> <p>Subsection (a)(2) is needed for inspection purposes. Prior to performing an inspection, the inspector reviews the license and documents supporting that license. Having the trainer named on the license reduces the review time and makes the inspection more efficient by reducing additional documentation review during the inspection.</p> <p>Subsection (b) is needed to inform the licensee how to amend the license and what information is needed for ensuring the individual is qualified. The required information is the minimum necessary to make that determination.</p>
30333.07	34.42	D, except D/H&S for the first sentence only of this section and paragraph (a) is C.	<p>EI. This section specifies the minimum qualifications needed for an individual to be considered a radiation safety officer (RSO) under a specific license and that the RSO ensures operations are conducted safely and in accordance with the license and regulations.</p> <p>Subsection (a) is needed to specify minimum</p>

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			<p>qualifications for the RSO. Subsection (a)(1) references §30333.05(a)(1) for brevity and is based on:</p> <ul style="list-style-type: none"> <li>• For §30333.05(a)(1)(A), 10 CFR 34.42(a)(1);</li> <li>• For §30333.05(a)(1)(B), the States of Texas and Illinois (25 Tex. Adm. Code §289.255(m)(4) &amp; 32 Ill. Adm. Code 350.4020(b)(2), (3), &amp; (4), respectively.); and</li> <li>• For §30333.05(a)(1)(C), 10 CFR 34.42(a)(2).</li> </ul> <p>Subsection (a)(1) also specifies that only 900 hours of experience using radiation machines in industrial radiography can be counted towards meeting the 2,000-hour requirement. This limitation accounts for the differences related to protection of individuals and the environment when using different sources of radiation (i.e., radioactive material vs. radiation machines). This limitation is based on NRC guidance indicating that a majority of experience should be in industrial radiography using radioactive material. (Reference 5, pg. 8-10.) Though a majority of the required hours could be 999 hours, the Department proposes 900 hours because there are more radiation safety issues an individual must be aware of in relation to radiation machine use.</p> <p>Subsection (a)(1) further prohibits individuals possessing provisional radiographer certificates from qualifying as an RSO. This is needed to ensure the individual's knowledge and understanding of industrial radiography and radiation protection has been verified through an examination.</p> <p>Subsection (a)(2) is needed to address NRC's provision in 10 CFR 34.42(a)(3), which does not provide the necessary clarity.</p> <p>Subsection (a)(2) is needed to ensure the individual has experience using radioactive material and has experience in activities the RSO will perform under the specific license. The listed activities are based on those specified in NRC's guidance documents</p>

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			<p>(Reference 5, pg. 8-11), 10 CFR 34.42(c), and existing and these proposed regulations.</p> <p>The total number of hours required by subsection (a)(2) (i.e. 4,000) is based on the States of Texas and Illinois (25 Tex. Admin. Code, §289.255(m)(4)(B)(iii) &amp; 32 Ill. Adm. Code 350.4020(b)(3), respectively) and is specified in hours using the conversion of one-years' experience as 2,000 hours found in 10 CFR 34.42(a)(2).</p> <p>Subsection (b) is needed to address NRC's provision, to clarify the relationship between the licensee and the RSO, and that the licensee is responsible for compliance.</p>
30333.1	34.45	C for (a), D for (a)(9) & (b)	<p>EI. This section is amended to be consistent with the NRC requirements.</p> <p>Language is added to ensure the licensee implements the specified procedures.</p>
30333.2	34.47	Entire section is C	EI. This section is amended to be consistent with the NRC requirements and for clarity.
(a)	(a) & (a)(2)	C	EI. Subsection (a) is amended for clarity. Some requirements are recodified in other subsections. The defined term "radiographic personnel" is used to refer to all individuals that may perform or assist in radiographic operations. This reduces the length of the requirement while maintaining clarity.
(b)	(a)(3) & (4)	C	EI. The first sentence of proposed subsection (b) is identical to NRC's requirement. The second sentence specifies by whom the dosimeter must be processed and when it must be sent to the processor. The reference to the incorporated federal requirements for the dosimetry processor is specified for clarity.

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			<p>The NRC's requirement in 10 CFR 34.47(a)(4) requires the licensee to process the dosimeter as soon as possible. The Department believes that NRC's intent was to require the licensee to send the dosimeters for processing as soon as possible. Therefore, subsection (b) clarifies this by requiring the licensee to send the exposed dosimeters for processing as soon as possible but no later than as recommended by the dosimetry processor. It is necessary to be unspecific as to when dosimeters must be sent for processing because of the variable conditions surrounding replacement and submittal of dosimeters for processing. Regardless, the maximum allowable time is that recommended by the processor.</p>
(c)	(a)(1)	C	<p>EI. Proposed subsection (c) is recodified from the second sentence of subsection (a) and modified to be consistent with the NRC's requirements as explained in NRC's proposed rule. (59 Fed.Reg. 9429 (Feb. 28, 1994).) The change is consistent with NRC's final rule (62 Fed.Reg. 28947 (May 28, 1997)).</p>
(d)	(b)	C	<p>EI. Subsection (b) is recodified to subsection (d) for clarity and amended to be consistent with NRC's final rule (62 Fed.Reg. 28947 (May 28, 1997)).</p>
(e)	(c)	C	<p>EI. Subsection (c) is recodified to subsection (e) for clarity and amended to be consistent with NRC's final rule (62 Fed.Reg. 28947 (May 28, 1997)). The percentage error allowed on these dosimeters was changed from 30 to 20 to be consistent with nationally accepted standards. (62 Fed.Reg. 28957 (May 28, 1997).)</p>
(f)	(d)	C	<p>EI. Subsection (d) is recodified to subsection (f) for clarity and amended to be consistent with NRC's final rule (62 Fed.Reg. 28947 (May 28, 1997)).</p> <p>The only difference between the proposal and the</p>

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			<p>NRC's requirement is found in the second sentence, which prohibits an individual from resuming work associated with licensed material use until an exposure determination is made. This prohibition is necessary to protect the individual because radiation exposures in industrial radiography can be very high and approach the occupational limits specified in Title 10, Code of Federal Regulations §20.1201 incorporated by reference in §30253. The proposal expands that use to include any source of radiation because the Department regulates radioactive material AND X-ray machines. (The NRC only regulates radioactive material subject to the Atomic Energy Act of 1954 as amended.) Thus, this proposal prohibits the exposed individual from using an X-ray machine in addition to radioactive material until their exposure is determined. The occupational dose limit is a limit on the radiation dose an occupational worker can legally receive. The limit is not an amount one can receive at every facility at which one works or from other types of radiation sources. Further, the goal of radiation protection is to reduce exposure and to take actions that keep the dose as low as reasonably achievable.</p>
(g)	(f) & 34.83	Both are C	<p>EI. Subsection (e) is recodified to subsection (g) for clarity and amended to be consistent with NRC's final rule (62 Fed.Reg. 28947 (May 28, 1997)).</p>
(h)	(g)	C	<p>EI. Subsection (f) is recodified to subsection (h) for clarity and amended to be consistent with NRC's final rule (62 Fed.Reg. 28947 (May 28, 1997)).</p> <p>Existing subsection (g) is recodified to subsection (h)(5) and amended for clarity with the new subsection (h).</p>
(i)	(g)(4) & 34.83(b)	Both are C	<p>EI. Proposed subsection (i) is added to be consistent with NRC's final rule (62 Fed.Reg. 28947 (May 28, 1997)).</p>

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
(j)	(e) & 34.83	Both are C	EI. Proposed subsection (i) is added to be consistent with NRC's final rule (62 Fed.Reg. 28947 (May 28, 1997)).
<b>30333.3</b>	<b>34.89</b>	C	<p>EI. This section is added to be consistent with NRC requirements because industrial radiography licensees operate throughout California and other jurisdictions. Adopting requirements equivalent to other jurisdictions reduces the licensee's need to remember differing requirements increases ease of compliance. Further, because radioactive material can be used or stored at field stations, these sites are inspected to evaluate the user's operations. Inspections of field stations are focused on the activities conducted only at that site. Thus, the identified records provide the minimum needed to determine if operations are conducted safely.</p> <p>Proposed subsections are essentially identical to NRC's provisions except that references to requirements are modified to refer to equivalent provisions in this proposal to provide clarity.</p>
<b>30334</b>	<b>34.41, 34.49, 34.51 &amp; 34.53</b>	<p>§34.41: B for (a)-(c), D for (d).</p> <p>§34.49: C for (a)-(c), D for (d).</p> <p>§34.51 &amp; §34.53 are C</p>	<p>EI. This section is amended to require at least two qualified individuals to be present during radiographic operations, to require such individuals to possess identification cards during radiographic operations, and to specify radiation survey documentation requirements. The amendments of this section are consistent with the NRC requirements.</p> <p>Existing subsections are recodified to maintain a coherent structure.</p>
(a)			NE. Proposed subsection (a) is needed to clearly prohibit performance of radiographic operations by unqualified individuals.
(b)	34.41(a) &	B	Partially EI. Proposed subsection (b) is added to

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
	(b)		address NRC's final rule (62 Fed.Reg. 28947 (May 28, 1997)) as specified in the first sentence of 10 CFR 34.41(a). NRC specifies, in the second sentence of 10 CFR 34.41(a), what the second person is doing. This subsection only addresses the general rule that two qualified individuals be present during industrial radiography. The observation requirement in the second sentence of 10 CFR 34.41(a) is excluded from this proposal because the Department and other Agreement States disagree that this is needed. The State of Texas was the first state to adopt the two-person rule and has implemented it to allow the licensee flexibility to determine when radiographic operations can be conducted safely where the first radiographer could observe operations and prevent intrusion into the restricted area while the second radiographer is nearby engaged in other job-related activities. Other Agreement States have implemented the two-person rule similar to Texas. Thus, the NRC is putting into abeyance Agreement State compatibility determination while this issue is reviewed and a final decision is made. (Reference 8.)
(c)			NE. Proposed subsection (c) is added to provide an easy method for inspectors to verify training and certification. This is consistent with the state programs identified in §30335.3(b).
(d)	§34.51	C	EI. Subsection (a) is recodified to subsection (d) and grammatical changes are made for clarity and consistency with NRC's requirements.
(e)	§34.53	C	EI. Subsection (b) is recodified to subsection (e) and grammatical changes are made for clarity and consistency with NRC's requirements.
(f)	§34.49(a)	C	EI. Subsection (c) is recodified to subsection (f) and modified for consistency with NRC's requirements.

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			Existing subsection (f) is deleted because it duplicates the internal inspection program required by §30333(e).
(g)	34.49(b)	C	EI. Subsection (d) is recodified to subsection (g) and modified for consistency with NRC's requirements.
(h)	§34.49(c)	C	EI. Subsection (e) is recodified to subsection (h) and modified for consistency with NRC's requirements.
<b>30335</b>			NE. Section 30335 is proposed to be repealed and readopted as section 30335.10. See section 30335.10 for discussion.
<b>30335.1</b>			<p>NE. This proposed section specifies the categories of radiographer certification and what it authorizes an individual to do. Though this section is informative in nature, it is necessary to clarify that certification is not limited to one source of radiation. The categories are needed because the Department regulates radioactive material and radiation machines, which the NRC does not.</p> <p>This section also clarifies the scope of certification because operations using radioactive materials and radiation machines are not always the same and present different risks, and requires individuals to have differing knowledge, skills and abilities.</p>
<b>30335.2</b>			NE. This proposed section addresses the eligibility requirements for those applying for certification by the Department. Because such a process is dependant on a state's requirements, there are no equivalent NRC regulations.
(a)			Proposed subsection (a) refers to §30335.3 for an exception for those individuals who are certified by

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			<p>other state certification programs or entities recognized by the NRC. See §30335.3 for further discussion.</p> <p>Subsection (a) provides a reference to §30335.4 for another exception to the proposed application for a certificate. This exception is needed to implement the proposed radiography certification program. Currently, no such program exists. Licensees, under existing §30195.3, can train individuals and name the individual as a radiographer or submit names and qualifications to the Department for review. If the Department approves the individual, the licensee receives an amended license naming the individual as a radiographer on the license. This process is time consuming for the Department and burdensome for the licensee. Thus, the radiographer certification program in this proposal is designed to reduce those burdens but, at the same time, to ensure individuals are fully trained to perform radiographic operations.</p> <p>See §30335.4 for further explanation.</p>
(a)(1)			<p>NE. Proposed subsection (a)(1) references §30335.5 for clarity. By referencing the section containing the application requirements, subsection (a)(1) maintains a clear presentation of those items the applicant must complete. See §30335.5 for explanation of the application requirements.</p>
(a)(2)			<p>NE. Proposed subsection (a)(2) requires an individual to pass an examination in industrial radiography and radiation protection. The NRC requires certification programs to require an individual to pass a written examination in topics found in 10 CFR §34.43(g). (10 C.F.R. pt. 34, appen. A, § II, ¶ 1(b).) This is a level B compatibility requirement. Section 30335 (recodified to §30335.10) contains the Department's equivalent topics.</p> <p>The NRC requires certification programs to have</p>

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			<p>procedures for renewing certification and, if the procedures allow renewal without examination, require evidence of recent full-time employment and annual refresher training. (10 C.F.R. pt. 34, appen. A, § II, ¶ 6.) This is a level B compatibility requirement. The Department proposes to require renewing individuals to retake the examination. This is consistent with those certifying entities listed in §30335.3(b) in that those specified entities only renew radiographer certification by passage of a written examination. Further, NRC's goal regarding radiographer certification is to establish a national standard of training and certification. Thus, the Department is maintaining consistency with other states and NRC to accomplish that goal. This is consistent with the Legislative polices specified in §§114965(c) and 114970(b) of the Health and Safety Code.</p> <p>Because of the Department's experience with administering examinations for human use radiography, this proposed subsection provides for failure of individuals to pass the examination. Due to the high levels of radiation exposure found in industrial radiography, it is very important that an individual have adequate knowledge and fully comprehend the risk involved. Therefore, limits are set to prevent inadequately trained individuals from obtaining certification by taking the exam so many times that the exam is passed by chance. Thus, the first limit is set at three. This limit, again, is based on experience obtained in administering other examinations.</p> <p>A third failure on the examination disqualifies the individual from reapplying and taking the exam again, unless they get additional training. Because it cannot be anticipated what areas an individual may fail in, the amount of additional training is not specified so that the individual can obtain training in those areas in which they failed. If they fail the fourth time, it is evident that the individual does not fully understand or comprehend radiation protection</p>

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			<p>concepts or has not been adequately trained. This is necessary because a qualified individual can perform independently during radiographic operations. However, these examination limitations do not prohibit an applicant from performing as a radiographer's assistant, during which they can increase their knowledge and gain a better understanding of radiation safety. This should increase their chance of passing the examination. To allow such individuals to reapply for certification the Department proposes that the individuals reeducate themselves and gain additional experience by retaking all training requirements. However, that training must occur within the year preceding application and is needed to strengthen and reinforce the individual's education, training, and experience for reexamination. This will increase the individual's likelihood of passing the examination.</p>
(b)			<p>NE. This proposed subsection specifies how long the certification is valid. The NRC specifies that certifying entities must provide for a certification period of no less than three years and no greater than five years.(10 C.F.R. pt. 34, appen. A, § II, ¶ 5.) This is a level B compatibility requirement. The five-year period was chosen to be consistent with the certifying entities listed in §30335.3(b).</p>
(c)			<p>NE. This proposed subsection specifies how to renew an expired certificate. Because many industrial radiographers travel throughout the United States conducting radiography, some may fail to renew the Department's certificate. Thus, this informs the applicant how to revalidate their certificate.</p> <p>Because renewal of a certificate requires an individual to pass a test, renewal of an expired certificate is no different than renewal of an unexpired certificate. Thus, subsection (c) is needed for clarity.</p>

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
30335.3			<p>NE. This proposed section provides reciprocal recognition to individuals who are certified by one of the listed entities. It also informs such individuals that this recognition can be revoked, suspended, amended or restricted.</p> <p>Subsection (a) is needed to inform individuals that if they are certified by one of the listed entities that they must be in good standing with the issuing entity. Further, it allows Department inspectors to easily verify the individual's certification status. This is the practice of the listed entities and provides some assurance that individuals can safely use radiation sources.</p> <p>Subsection (b) specifies the categories and entities accepted for recognition. A review of the entities' regulations or requirements determined that they are essentially identical to this proposal and that the entity issues an identification card. The NRC's goal for radiographer certification was to have a national program. This proposal assists in that goal and reduces the burden on the regulated community in that individuals don't have to have numerous identification cards or take numerous examinations.</p> <p>Subsection (c) is necessary to inform individuals that recognition does not excuse them from skirting their responsibility to operate safely.</p>
30335.4			<p>NE. This section addresses implementation of the proposed certification of industrial radiographers. The NRC requirements for radiographer certification became effective June 27, 1997. The NRC's implementation process is specified in 10 CFR §34.13(b)(2).</p> <p>The proposed implementation provides two paths for an individual to obtain radiographer certification.</p>

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			<p>This proposed section specifies the first path and allows individuals to provide certain evidence that they have met the required training and to obtain a one-time certificate without passing an examination. The second path, proposed §30335.2, allows an individual to obtain a renewable certificate by providing certain evidence of training and passing an examination or by being certified by one of the entities specified in §30335.3(b). See that section for additional explanation.</p> <p>Individuals are not required to obtain a provisional certificate if they choose to obtain a renewable certificate under §30335.2 or qualify pursuant to §30335.3.</p>
(a) & (a)(1)			<p>NE. Proposed subsection (a)(1) specifies how to obtain a provisional certificate in the radioactive materials category. Subsection (a) specifies that the provisional certificate can only be obtained until December 31, 2009. This date allows individuals enough time to gather the required documentation or to receive training they can use to apply under §30335.2. The Department believes this is enough time because industrial radiographers throughout the United States are aware of the NRC's requirements and that Agreement States must be compatible with the NRC.</p> <p>Proposed subsection (a)(1) references items found in §30335.5(b)(1) and (2). This reference reduces duplication and the physical volume of regulations. The fee is needed to cover the cost of reviewing the application and maintenance of the file.</p> <p>Proposed subsection (a)(1)(A) is needed to specify what information must be submitted as proof of training. Currently, an individual who is named on a specific license as a radiographer meets the proposed requirements because the Department has reviewed the individual's qualifications.</p>

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			<p>Proposed subsection (a)(1)(B) is needed to specify what information is needed from those individuals who are designated as a radiographer by a licensee. Currently, licensees requesting authorization to designate individuals as radiographers can receive authorization from the Department to do so. Because the training program of these types of licensees have been reviewed by the Department, individuals who have completed that training are considered to have met the requirements and need only submit minimal documents signed by the licensee verifying the individual's training. This reduces processing times and the number of training documents submitted. The number of hours in proposed subsection (a)(1)(B) is based on 10 CFR 34.43(a)(1), which requires at least two months of on-the-job training (OJT). NRC's guidance documents regarding OJT (Reference 5, pp. G-1 – G-4) specify the OJT criteria as "under the supervision of a qualified radiographer." Thus, the two-month period or 320 hours includes all activities performed while under supervision. The States of Texas, Oklahoma, Louisiana, and Illinois require a minimum of 200 hours but exclude certain activities. This proposal follows those state programs by excluding the same activities. Therefore, though the number of hours in this proposal and NRC provisions are different, they are considered acceptable due to the more limiting nature of OJT activities.</p>
(a)(2)			<p>NE. Proposed subsection (a)(2) is needed to specify how an individual can obtain a provisional certificate in the radiation machine category. This subsection is patterned after subsection (a)(1) for consistency. The Department believes the timeframe is reasonable because radiation machine users were notified and included in the May 14, 2002 workshop regarding these proposed regulations.</p> <p>Currently, the Department only reviews training of</p>

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			<p>individuals using radiation machines during inspections. Further, that training is limited to that specified in existing §30336(b) and (c). Also, there is no review of the registrant's ability or curriculum used to train individuals. This proposal addresses the lack of that review.</p> <p>Existing requirements in §30336(c)(1) are essentially identical to those specified in existing §30335 (proposed to be recodified to §30335.10). Thus, radiation safety training received by individuals using radiation machines during field radiography, as defined in proposed §30330(b)(9), is not new.</p> <p>The on-the-job experience requirement for such individuals is new and needed to ensure these individuals have obtained some experience using radiation machines.</p> <p>Proposed subsection (a)(2)(A) and (B) specifies what information must be submitted so that the Department can issue the provisional certificate. The training requirements are similar to those required for the radioactive materials category and are equivalent to the requirements of those entities specified in §30335.3(b).</p> <p>Subsections (a)(1)(B) and (a)(2)(B) require a certain number of hours of training. Under the radioactive material category 200 hours is required and under the radiation machine category 120 hours is required. This is because there are greater risks and controls for radioactive material (RAM) than for radiation-producing machines. RAM emits radiation continuously, the actual source is often very small, additional surveys must be performed, and tests must be done to determine if a source is leaking such that it could contaminate individuals, equipment and the environment. Whereas a machine is easily turned off or disconnected from the power source both of which stop production of</p>

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			<p>radiation. Further, there are federal and state requirements for transporting RAM, which do not apply to radiation-producing machines. Thus, the training hours for using radiation-producing machines are less.</p> <p>The number of hours of participation in the use of radiation machines is based on those certifying entities identified in §30335.3(b)(2). However, the American Society for Nondestructive Testing (ASNT) requires 160 hours of participation in its X-ray program and this proposal requires 120. This discrepancy is due to exclusion of the indicated activities, which is the practice of the states of Texas, Oklahoma, Louisiana, and Illinois, and is considered acceptable since the proposal is more stringent. This provides uniform requirements, consonant insofar as possible, with other states and private organizations, which meets the Legislative policy in §114965(c) of the Health and Safety Code.</p>
(a)(3)			<p>NE. Proposed subsection (a)(3) is needed to specify how to obtain a provisional certification in the combination category. This subsection only combines the requirements of subsections (a)(1) and (2) for clarity.</p>
(b)			<p>NE. Proposed subsection (b) is needed to address training obtained by applicants from providers approved by one of the entities listed in §30335.3(b). This is needed so that the individual does not duplicate training already completed.</p>
(c)			<p>NE. Proposed subsection (c) is needed to inform applicants that the provisional certificate is valid only for two years and cannot be renewed. The two-year period follows the NRC implementation period as specified in 10 CFR §34.13(b)(2). Because the NRC requires certification programs to require applicants to pass a written examination (10 C.F.R. part 20, appen. A, §II, ¶ 1(b)), these provisional certificates, which are obtained without</p>

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			passing an examination, cannot be renewed.
30335.5			<p>NE. This proposed section specifies the content of a complete application for radiographer certification. Because application content is dependant on a state's requirements, there are no equivalent NRC regulations.</p> <p>Proposed subsection (a) applies only to those applicants possessing provisional radiographer certification. This provides clarity within the application process by reducing the amount of information that must be submitted by these individuals. If an individual possesses such a document, the Department has already evaluated the individual's qualifications. The individual need only pass the required test. Thus, this subsection requires only minimal information and the exam fee to cover the cost of the examination and reduces the amount of paper work an individual must complete.</p> <p>Proposed subsection (b) applies to those who do not possess the provisional certificate since the Department has not reviewed the individual's qualifications. Exceptions to the requirements are explained in subsection (c).</p> <p>Subsection (b)(1) is necessary to identify the individual, allow contact with the individual and identify where to mail any documents.</p> <p>Subsection (b)(2) is needed to uniquely identify the individual and to comply with Family Code §17520, which addresses child support enforcement. The citation to Health and Safety Code Section 100275 found in this subsection is amended to Section 131200 to reflect the authority specific to the California Department of Public Health and is a nonsubstantial change. This change was made available to the public for review and comment for</p>

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			<p>at least 15 days pursuant to Government Code 11346.8, subdivision (c).</p> <p>Subsection (b)(3) applies only to those applying for the radioactive materials category and is necessary to ensure the individual has received the required training, or if renewing, to match the individual to current Department records. The number of hours in proposed subsection (b)(3)(B) is based on 10 CFR 34.43(a)(1), which requires at least two months of on-the-job training (OJT). NRC's guidance documents regarding OJT (Reference 5, pp. G-1 – G-4) specify the OJT criteria as "under the supervision of a qualified radiographer." Thus, the two-month period or 320 hours includes all activities performed while under supervision. The States of Texas, Oklahoma, Louisiana, and Illinois require a minimum of 200 hours but exclude certain activities. This proposal follows those state programs by excluding the same activities. Therefore, though the number of hours in this proposal and NRC provisions are different, they are considered acceptable due to the more limiting nature of OJT activities.</p> <p>Additionally, the NRC requires that certification programs require an individual to provide certain training documentation. (10 C.F.R. pt. 34, appen. A, § II, ¶ 2.) This is a level B compatibility requirement.</p> <p>Subsection (b)(4) applies only to those applying for the radiation machine category and is necessary to insure the individual has met the required training, or if renewing, to match the individual to current Department records. The number of hours of participation in the use of radiation machines is based on those certifying entities identified in §30335.3(b)(2). However, the American Society for Nondestructive Testing (ASNT) requires 160 hours of participation in its X-ray program and this proposal requires 120. This discrepancy is due to exclusion of the indicated activities, which is the</p>

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			<p>practice of the states of Texas, Oklahoma, Louisiana, and Illinois, and is considered acceptable since the proposal is more stringent. This provides uniform requirements, consonant insofar as possible, with other states and private organizations, which meets the Legislative policy in §114965(c) of the Health and Safety Code.</p> <p>Subsection (b)(5) applies to those applying for the combination category and is necessary to insure the individual has met the required training, or if renewing, to match the individual to current Department records. The provision provides clarity by combining proposed subsections (b)(3) and (b)(4).</p> <p>Subsection (b)(6) is necessary to cover the costs of application review, scheduling and administering the examination.</p> <p>Proposed subsection (c) is needed to address training obtained by applicants from providers approved by one of the entities listed in §30335.3(b). This is needed so that the individual does not duplicate training already completed.</p>
30335.6			<p>NE. This proposed section is needed to inform certified individuals that they must inform the Department of any name or address change so records are current and the Department can contact the individual when needed. The 30-day period is based on other similar Department regulations found in §§30115, 30118, 30406 and 30537.</p>
30335.10	34.43(g)	B	<p>EI. This section was recodified from §30335 to §30335.10 and amended for clarity, which are nonsubstantial changes. The section is formatted to follow sentence structure instead of an outline format.</p>

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			<p>The NRC specifies that the number of hours for this training must be at least 40 hours (Reference 5, pg. G-1.) The State of Texas also requires the radiation safety training to be at least 40 hours in length. (25 Tex. Admin. Code, §289.255(m)(1)(A)). The ASNT requires the same training for its Industrial Radiography Radiation Safety Personnel certification for radioactive materials and X-ray technologies. (Reference 6.)</p> <p>Thus, the training curriculum is essentially identical to the NRC, the State of Texas and the ASNT.</p> <p>Proposed subsections (d) and (e) are needed to ensure trainees are aware of Department regulations and those of the NRC and have a better understanding of procedures typically used during radiographic operations. The regulations or requirements of those entities listed in §30335.5(b) address the same topic. This further implements NRC's efforts at setting national standards for radiographer certification.</p>
30336			<p>NE. Because NRC does not regulate radiation machines, there is no equivalent NRC requirement.</p> <p>As this provision, related to radiation machines (machines), currently exists, there are numerous similarities with those related to radioactive material (RAM). This is due to the original adoption of these regulations in the mid-1960's, which combined the provisions, related to both RAM and machines. In the late 1960's, these provisions were separated, providing some additional clarity, resulting in the existing similarities.</p> <p>This proposal continues to separate the provisions based on radiation source (RAM or machine) for clarity. This results in some duplication, which is minimized by cross-referencing provisions applicable to the particular source. The duplication</p>

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			<p>is needed to address the additional risks and controls related to RAM and to provide a clear distinction between RAM and X-ray machine related provisions.</p> <p>Existing language is deleted and recodified or deleted for clarity. Definitions found in the opening sentences of subsections (b) and (c) are recodified into §30330. This places all definitions of terms used within the article in one place that can be easily found. Subsection (a) is deleted and addressed in §30337; see that section for discussion. For an explanation of the terms “shielded-room radiography,” and “field radiography” see §30330 subsections (a)(24) and (a)(9), respectively.</p> <p>The title of the section is amended to indicate the content of the section as proposed.</p>
(a)			<p>NE. Proposed subsection (a) is needed to ensure the registrant designates a radiation safety officer (RSO). Currently, regulations do not require the user to designate an RSO. This results in inefficient inspections in that no single individual can respond to questions and obtain required records for review. Further, inspectors continue to find unsafe practices because of disorganized safety programs. Further, other states such as Texas and Illinois require machine users to designate RSO’s to manage the radiation safety programs of the users. Thus, designation of an RSO is needed to ensure all operators are adequately trained and use radiation machines safely, are appropriately monitored for radiation exposure, and that radiation surveys are performed and records maintained. This also meets the legislative intent to be consistent with other states. (Health &amp; Saf. Code, § 114970(b).)</p> <p>See §30336.7 for RSO criteria and discussion.</p>
(b) – (l)			<p>NE. Proposed subsection (b) is the same as existing subsection (b)(1) except that paragraph (1)</p>

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			<p>is added to require operators of shielded-room radiography equipment to be certified. This requirement parallels the requirement in §30332.2 regarding permanent radiographic installations wherein radioactive sources are used in the performance of industrial radiography. Also, attendees at the Department’s workshop held on May 14, 2002 recommended this requirement. The basic radiation protection issues are the same regardless of the source of radiation. Thus, the Department proposes that individuals who perform shielded-room radiography be certified. This also maintains uniformity with other state programs such as Texas (25 Tex. Admin. Code §289.255(j) &amp; (u)), Illinois (32 Ill. Admin. Code §350.2010), and Louisiana (LAC 33:XV.575) as is the Legislative policy. (Health &amp; Saf. Code, §114965.)</p> <p>Comments were received recommending that, for shielded-room radiography operations, the Department follow the example set by the State of Texas in their regulations found in Title 25, Texas Administrative Code (25 TAC) section 289.255(d)(4). Based on those comments and supporting information, subsections (b), (j) and (k) as originally proposed are deleted, subsections (c) through (l) are redesignated for clarity, and subsection (c) as redesignated is amended to be equivalent to Texas’ regulations as follows:</p> <ul style="list-style-type: none"> <li>• Subsection (b)(1) amended for consistency with 25 TAC section 289.255(d)(4) and section 289.255(m)(1)(A).</li> <li>• Subsection (b)(4) deleted for clarity and necessity due to proposed change in subsection (b)(1). Training is obtained, pursuant to proposed section 30331, from a qualified provider using qualified instructors.</li> </ul> <p>Proposed subsection (c) is the same as existing subsection (b)(2) and amended to clearly specify “appropriate” personnel monitoring equipment. The</p>

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			<p>additional requirements for processing, recordkeeping and replacement of lost equipment are based on §3033.2. See that section for additional explanation. The term “set-ups” is maintained from the existing provision but is not defined. The Department believes a definition is not necessary in that the term has been used for many decades within the regulated community. Set-up means to place the X-ray machine’s radiation beam, object to be irradiated, and image receptor or detector in alignment so that an image or measurement of the object can be obtained.</p> <p>Proposed subsection (d) is recodified from existing subsection (b) and amended for clarity. Further, the second sentence is proposed so that if an individual is accidentally still in the room when radiation is generated, the individual is not prevented from leaving the room, minimizing their radiation exposure.</p> <p>Proposed subsection (e) is needed to require operators to ensure no one is in the room during exposures. Current regulations do not prohibit an individual from remaining in the room during exposures. The basic goal of radiation protection is to prevent exposure to radiation or if an individual must perform an operation such that they are exposed, the exposure level is kept as low as is reasonably achievable (ALARA). This concept is defined in 10 CFR §20.1003 incorporated by reference in §30253. Proposed subsections (d) and (e) are needed to implement this concept.</p> <p>Proposed subsection (f) is needed to ensure that a mechanism that stops radiation production is available for protection of individual's and to further implement the ALARA concept.</p> <p>Proposed subsection (g) is needed to specify the standard radiation machines must meet. The incorporated standard provides basic safety design features for radiation machines that implement the</p>

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			<p>ALARA concept. There are no existing Department standards addressing these machines. Currently, Department inspectors make recommendations that address the referenced standards but they cannot enforce those standards. This proposal provides registrants with a uniform standard by which to evaluate their equipment and facilities and to ensure operators and the public are not exposed to unnecessary, excessive or harmful radiation. This particular standard was chosen because it is commonly used within the industry. The State of Texas has also adopted this standard. (25 Tex. Admin. Code §289.255(u)(3)(A).)</p> <p>Proposed subsection (h) is recodified from existing subsection (b).</p> <p>Proposed subsection (i) is needed to evaluate the registrant's ability to protect workers and the public during radiographic operations.</p> <p>A new note is added to indicate from whom the incorporated document can be obtained.</p>
30336.1			<p>NE. Because NRC does not regulate radiation machines, there is no equivalent NRC requirement.</p> <p>Field radiography is very similar to radiographic operations using radioactive materials. Currently, typical operations occur such that only one individual is present during radiographic operations. During those operations large areas may have significant radiation levels. The NRC, because of such potential levels when dealing with radioactive materials, implemented the two-person rule that requires the presence of at least one certified radiographer or radiographer's assistant with another certified radiographer during radiographic operations. (62 Fed.Reg. 28947 (May 28, 1997).) This rule provides better control of access into the radiation area.</p>

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			<p>Proposed subsection (a) is needed to ensure the registrant designates a radiation safety officer (RSO). Currently, regulations do not require the user to designate an RSO. This results in inefficient inspections in that no single individual can respond to questions and obtain required records for review. Inspectors continue to find unsafe practices because of disorganized safety programs. Further, other states such as Texas and Illinois require machine users to designate RSO's to manage the radiation safety programs of the users. Thus, designation of an RSO is needed to ensure all operators are adequately trained and use radiation machines safely, are appropriately monitored for radiation exposure, and that radiation surveys are performed and records maintained. This also meets the legislative intent to be consistent with other states. (Health &amp; Saf. Code, § 114970(b).) See §30336.7 for RSO criteria and discussion.</p> <p>Proposed subsection (b) is needed to clearly prohibit the performance of field radiography by unqualified individuals. An exception to this provision is provided and explained regarding subsection (e) below. Proposed subsections (b)(2) and (c) specify the requirement to have at least two qualified individuals during radiographic operations and the radiographer certification requirement. The Department believes that, because control of access to radiation areas using radiation machines includes the same inherent risks of exposure as using radioactive material, the two-person rule should be applied during field radiography. Thus, these provisions are needed to protect the public and workers and parallels §30333(a) for consistency. No specific comments were received regarding subsection (c)(1) but the Department determined that the option for individuals to operate equipment under proposed section 30335.3 was not included. The proposal was amended to identify this option for clarity in that it informs individuals</p>

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			<p>that the option is available. This further provides consistency with proposed section 30333.05. This change was made available to the public for review and comment for at least 15 days pursuant to Government Code 11346.8, subdivision (c).</p> <p>Proposed subsection (b)(3) is needed to ensure qualified personnel control the area while radiation is present. Failure to control the area could result in exposing the public or workers to excessive and unnecessary radiation exposure. In some radiographic operations, the radiation levels could result in loss of body parts or even death. This is consistent with §30334(d).</p> <p>Proposed subsection (d) is recodified from existing §30336(c)(3) and clarifies how the registrant ensures the individual demonstrates understanding in the specified training. This method is based on and is consistent with §30333 for reasons stated regarding that section.</p> <p>Proposed subsection (e) provides an exemption to subsections (b), (c) and (d) for certain users of X-ray machines. This exemption is specifically intended for users such as bomb squads since determining something to be an explosive presents a high degree of risk of injury or death. However, the exemption is broad to include other usages that present similar hazards or that present a lesser radiation hazard. The criterion in subsection (e)(1) is based on title 10, Code of Federal Regulations, Part 20 (10 CFR 20), section 20.1502 incorporated by reference in §30253. That provision requires personnel monitoring if an individual is likely to exceed 10 percent of the occupational limits in 10 CFR 20, subpart C. Also, the criterion uses a scenario that represents a maximum credible accident condition. Thus, this criterion provides flexibility to the user, which reduces the impact of radiographer certification and having two qualified individuals present during the operation.</p>

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			<p>The Department determined that the radiation dose criteria in subsection (e)(1) needed to establish whether the provided exception applied was vague because it does not state the distance between the individual and the radiation source. This makes the criteria unclear in that any machine could meet the criteria if the individual stood far enough away from the X-ray source.</p> <p>As comments indicated, mobile X-ray machines are used by museums. Often, these machines were originally designed for use in the medical industry such as hospitals and for the dental industry but are easily used for industrial radiography purposes not limited to museums (i.e. morgues). To clarify the exception criteria and to address comments regarding alternatives Section 30336.1(e)(1) was amended by deleting all words after “machine” and replacing those words with the phrase “that is not capable of exceeding an operating potential of 150 kVp<sup>5</sup>.” Using the X-ray machine’s maximum operating potential to establish, in part, the provided exception provides clarity and is easy to determine since manufacturers must affix a label to the machine that specifies the machine’s maximum operating potential. The operating potential of 150 kVp was selected by reviewing X-ray equipment commonly used for industrial radiography and for typical medical X-ray equipment also used for industrial purposes. In the medical industry generally, equipment operating above 150 kVp is used for radiation therapy (e.g. cancer treatment) whereas equipment operating below 150 kVp is used for diagnostic X-ray procedures. Further, as the X-ray’s energy level increases, the potential for harm also increases. Thus, use of machines operating above 150 kVp requires the user to meet a higher safety standard since this equipment has a higher potential to cause harm than equipment</p>

<sup>5</sup> kVp means peak kilovoltage. kVp determines the maximum energy of the X-rays produced.

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			<p>under 150 kVp. This change was made available to the public for review and comment for at least 15 days pursuant to Government Code 11346.8, subdivision (c).</p> <p>The effect of the changes to Section 30330(b)(25) and Section 30336.1(e)(1) provide an alternative to users of low-risk X-ray machines as such use would invoke the provisions of “field radiography” thereby allowing users of X-ray machines not exceeding 150 kVp to fall within the exception of Section 30336.1(e). This would remove the need for operators to be certified, to have a trainer in some operations, reduce the training needs, remove certain supervision requirements, remove the need for issuing identification cards to radiographer’s assistants, and remove the need for at least two persons to be present for all operations. (See Section 30336.1(b), (c), (d), (n), &amp; (o).)</p> <p>Proposed subsection (e)(2) is based on existing §30336(c)(1) to ensure the individual has a basic understanding of radiation and radiation protection. This is needed so the individual can protect themselves and the public when operating X-ray machines. The specified hours, examination and demonstration requirements are based on those specified in §30333 for the reasons stated regarding that section and for consistency.</p> <p>Proposed subsection (e)(3) is needed to ensure the operator can safely use the equipment for their own protection and that of the public and other workers. The specified demonstration requirements are based on those specified in §30333 for the reasons stated regarding that section and for consistency.</p> <p>Proposed subsection (f) is recodified from existing §30336(c)(2) without change.</p> <p>Proposed subsection (g) requires the availability and usage of radiation survey instruments. Existing</p>

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			<p>§30336(c)(4) requires surveys to be performed with measuring instruments that meet certain criteria. However, the criteria are somewhat vague. Thus, to fully clarify the criteria, §30332.3 is referenced. That section provides detailed criteria such instruments must meet. This also reduces duplication of instrument criteria. Further, the proposed subsection parallels those requirements found in §30332.3(a) but are duplicated here specific to surveying radiation machines for clarity.</p> <p>The requirement to survey in §30336(c)(4) is moved into proposed subsection (i) and amended for clarity.</p> <p>Proposed subsection (h) is recodified from existing §30336(c)(5) without substantial change.</p> <p>Proposed subsection (i) is recodified from existing §30336(c)(4) and amended to place survey instrument criteria into subsection (g), which specifies instrument criteria.</p> <p>Proposed subsection (j) is recodified from existing §30336(c)(6) and amended to more clearly specify the methods of controlling access to high radiation areas.</p> <p>Proposed subsection (k) is recodified from existing §30336(c)(7) with nonsubstantial changes for clarity.</p> <p>Proposed subsection (l) is needed to reduce the duplication of criteria specified in existing §30336(c)(8). The same criteria are specified in existing §30333.2 and are referenced here for clarity. See that section for additional explanation of personnel monitoring equipment criteria.</p> <p>Proposed subsection (m) incorporates by reference a national standard for the same reasons as stated regarding proposed §30336(h).</p>

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			<p>Proposed subsection (n) is needed for the same reasons as stated regarding proposed §30336(j).</p> <p>The Department believes that, because the inherent risks involved in field radiography are similar to those involved in using radioactive materials in radiography, similar controls and communication requirements should be placed on the conduct of field radiography. Therefore, proposed subsections (n) through (q) are added to ensure the protection of individuals who are not certified. The proposed inspection program in subsection (p) is only needed if the user possesses radiation machines with high energies since those machines present great hazards. The basis for the criterion is as stated regarding subsection (d)(1). This also reduces impacts for users that meet the criterion.</p> <p>NE. Proposed subsection (q) is needed to ensure the registrant provides safety training. Such training ensures all workers are familiar with any changes and to help them be safer during operations.</p> <p>NE. Proposed subsection (r) is needed to inform registrants that they must retain records that demonstrate compliance. This allows the Department to evaluate the registrant's radiation protection program to ensure the public and workers are not exposed to radiation levels above current standards.</p> <p>No specific comments were received but punctuation errors were found. Semi-colons (“;”) found at the end of subsections (f) through (n) are deleted and replaced with periods (“.”) for consistency.</p>
Footnote (*)			<p>A footnote informs individuals how to obtain a copy of the incorporated material. This is necessary for clarity.</p>

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
30336.5			NE. This proposed section specifies the criteria an individual must meet to be a radiation machine radiographer's assistant. The concept of a radiation machine radiographer's assistant is based on that concept addressed under radioactive material radiography.
(a)			NE. Proposed subsection (a)(1) requires the individual to complete certain training requirements. These requirements are equivalent to the requirements of radioactive material radiographer's assistants as specified in §30333(b). This is needed to ensure the individual is fully aware of provisions designed to protect them during radiographic operations and that they can safely use the registrant's equipment.  Proposed subsection (a) is needed for the same reasons stated regarding §30333(b).
(b)			NE. Proposed subsection (b), though only informational, is needed for clarity to inform registrants that they can apply for approval as a training provider. The Department believes that without this subsection, staff would receive numerous phone calls or emails on how to be an approved provider. Further, this should reduce noncompliance since the registrant will be reminded again on how to be a provider.
(c)			NE. This proposed subsection is needed to inform registrants that they must retain records that demonstrate compliance. This allows the Department to evaluate the registrant's training program to ensure the trainee is capable of operating equipment and protecting others from radiation exposure.
30336.6			
(a)			NE. This proposed section is parallel to the

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			<p>requirements of a radioactive material radiographer trainer as specified in §30333.05 and proposed to be adopted for the same reasons stated regarding §30333.05.</p> <p>Proposed subsection (a)(1) is needed for clarity and informs the registrant of other requirements that must be met.</p> <p>Proposed subsection (a)(2) is needed for the same reasons stated regarding §30333.05(a)(3).</p> <p>No specific comments were received but the Department determined that proposed text in subsection (a) and its discussion in the Initial Statement of Reasons (ISOR) were inconsistent. The ISOR indicated that section 30336.6(a) was parallel to the requirements of a radioactive material radiographer trainer as specified in section 30333.05 and that it was proposed to be adopted for the same reasons stated regarding Section 30333.05. In reviewing the discussion of section 30333.05, it was noted that the proposed text of section 30336.6(a) was not parallel to and consistent with the proposed text of section 30333.05 and its discussion. Thus, the proposed text is amended for consistency. This change was made publically available during both 15-day public proceedings.</p>
(b)			<p>NE. This proposed subsection is needed to inform registrants that they must retain records that demonstrate compliance. This allows the Department to evaluate the registrant's ability to ensure designated trainers are qualified.</p>
<b>30336.7</b>			<p>NE. This section specifies the minimum qualifications needed for an individual to be considered a radiation safety officer (RSO) for a registrant, an exemption, and that the RSO ensures operations are conducted safely and in accordance</p>

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			<p>with the registration and regulations. Because this section addresses use of radiation-producing machines, there is no NRC equivalent regulation. Further, this section is based on §30333.07, which addresses RSO criteria for use of radioactive material.</p> <p>Subsection (a) is needed to specify minimum qualifications for the RSO. Subsection (a)(1) references §30336.6(a) for brevity and is needed for the same reasons stated regarding §30333.07(a)(1). See subsection (c) below regarding the exception.</p> <p>Subsection (a)(1) also specifies that only 900 hours of experience using radioactive material in industrial radiography can be counted towards meeting the 2,000-hour requirement. This limitation is needed to ensure the individual is familiar with use of radiation machines. Though a majority of the required hours could be 999 hours, the Department proposes 900 hours to maintain consistency with §30333.07.</p> <p>Subsection (a)(1) further prohibits individuals possessing provisional radiographer certificates from qualifying as an RSO. This is needed to ensure the individual's knowledge and understanding of industrial radiography and radiation protection has been verified through an examination.</p> <p>Due to acceptance of public comments regarding section 30336.6(a) resulting in subsection redesignation, the reference to section 30336.6(a)(2) found in subsection (a)(1) is changed to "section 30336.6(a)(3)" for clarity and is a nonsubstantial change.</p> <p>Subsection (a)(2) is needed to ensure the individual has experience using radiation machines and has experience in activities the RSO will perform. The listed activities are based on those specified in §30333.07(a)(2), in existing and these proposed regulations.</p>

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			<p>The total number of hours required by subsection (a)(2) (i.e. 4,000) is based on §30333.07(a)(2) for the reasons stated regarding §30333.07.</p> <p>Subsection (b) clarifies that the RSO oversees operations and that the registrant continues to be responsible regardless of designating an RSO. As discussed in §30336.1(a), the registrant is required to designate an RSO. The RSO oversees the registrant's radiation safety program and operations to ensure those operations are safe and in compliance with laws and regulations. Subsection (b) is needed to clarify that the registrant remains responsible for compliance with the law and regulations. This is also needed for consistency with §30333.07(b).</p> <p>Subsection (c) is needed to clarify that registrants only using cabinet X-ray systems are not required to have an RSO meeting the criteria in subsection (a). These systems present minimal hazards due to the machine's design or modified features. These systems and their operators must comply with §30337. See §30337 for discussion.</p>
30336.8			<p>NE. This proposed section specifies the fees for the applications submitted and the examinations administered under the proposed radiographer certification requirements.</p> <p>The NRC requires the certification program to meet certain criteria. (10 C.F.R. pt. 34, appen. A, § II &amp; III.) This includes ensuring applicants have received required training, completed on-the-job experience and verification by a licensee that the applicant is capable of independently working as a radiographer. Further, the applicant must pass a written examination administered by the program.</p> <p>It is estimated that about 840 individuals must</p>

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			<p>obtain the proposed certification based on the following:</p> <ul style="list-style-type: none"> <li>• 350 radioactive material (RM) radiographers: based on 41 active radiography RM licensees.</li> <li>• 700 radiation machine (X-ray) radiographers: based on current machine registration data for the type of machines that would require operators to be certified.</li> <li>• 20% reduction of the above total (1050) using the reciprocity pathway proposed in §30335.3. This percentage cannot be accurately estimated and may be greater, reducing the overall total number of persons required to obtain a Department ID card.</li> </ul>
(a)			<p>This proposed subsection is needed to cover the costs of the following administrative functions:</p> <ol style="list-style-type: none"> <li>1. Processing applications,</li> <li>2. Evaluating training documentation,</li> <li>3. Scheduling examinations,</li> <li>4. Notifying applicants of exam dates, locations and times,</li> <li>5. Reporting scores to applicants,</li> <li>6. Issuing identification cards,</li> <li>7. Maintaining records.</li> <li>8. Purchase and maintenance of equipment.</li> </ol> <p>The proposed application fee of \$75 covers the cost of the above functions as follows:</p> <ul style="list-style-type: none"> <li>• Program support staff performs items 1 and 3 through 7. Total annual program cost for these staff are about \$72,000 resulting in an hourly rate, accounting for staff-leave time, of about \$40. Estimated time to complete those specific items is 18 minutes (0.3 hour) resulting in a cost of \$12 per application (\$40 per hour X 0.3 hour = \$12).</li> <li>• Program Health Physicist (HP) staff perform item 2. Total annual program cost for HP staff is about \$130,159 resulting in an hourly rate,</li> </ul>

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			<p>accounting for staff-leave time, of about \$73. Estimated time to complete that specific item is 40 minutes (0.7 hour) resulting in a cost of \$51 per application (\$73 per hour X 0.7 hour = \$51).</p> <ul style="list-style-type: none"> <li>Item 8, to cover equipment, is estimated at \$12 per application based on an Internet search of equipment and software indicating retail costs.</li> </ul>
(b)			<p>This proposed subsection is needed to cover the costs of obtaining and administering the certification examination.</p> <p>Examinations must be developed that address the knowledge and skills of the examinee. Such exams can either be developed by Department staff or obtained through an agreement with the Conference of Radiation Control Program Directors, Inc. (CRCPD), which brokers the examinations developed by the State of Texas. The CRCPD is a 501(c)(3) nonprofit professional organization whose primary membership is made up of radiation professionals in state and local government who regulate the use of radiation sources. Discussions with the Texas program indicate that they will only allow their examinations to be used through an agreement with the CRCPD. Under such an agreement, CRCPD charges a 60-dollar fee.</p> <p>The Department has experience in developing examinations for radiologic technology (medical use of X-ray machines). Development requires job analysis for defining exam content, writing questions, reviewing and rewriting questions for readability and to ensure lack of bias, field testing to collect and analyze data on performance characteristics of questions, question analysis and revision, test production according to content and percentage requirements, post-exam review of question analysis statistics and overall statistics and review of question bank for necessary changes. Further, that development must be done for both proposed radioactive material and radiation</p>

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			<p>machine certification. Development costs for one examination in radiologic technology resulted in a cost of more than \$150,000 to ensure the scope of the test was adequate, the questions were psychometrically valid and adequately evaluated the individual's knowledge, skills and abilities in the subject matter. Further, such development can take many years to reach an adequate exam. Therefore, to reduce development costs and time needed to develop examinations the Department will work on securing an agreement with the CRCPD.</p> <p>Thus, the proposed examination fee is \$75 to cover administrative costs related to the agreement with CRCPD, shipping and handling of the examination package, and cost of test facilities and proctors. The repeat examination fee is the same since the costs are the same as for the initial examination.</p>
(c)			<p>This proposed subsection is needed to cover the costs of reviewing applications for approval as a radiation safety training provider.</p> <p>Applications submitted for approval as a radiation safety training provider are reviewed by expert staff to ensure the applicant can provide an adequate training program. The current annual total cost to employ one expert staff is about \$130,159 and includes salary and benefits, operating expenses, distributed overhead costs, and travel costs. The fee is based on an average hourly rate times the average amount of time needed to evaluate the application and ensure the applicant is qualified. Thus, the \$768.00 fee is determined as follows:</p> <ul style="list-style-type: none"> <li>• Average hourly rate is \$73.00 per hour (rounded) (\$130,159 divided by 1,780 hours/year accounting for staff leave-time);</li> <li>• Estimated average review time is 10.5 hours.</li> </ul>
(d)			<p>Proposed subsection (d) is needed to cover the cost of replacing lost or damaged identification (ID)</p>

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			<p>cards or when a radiographer's name changes.</p> <p>The fee is based on the estimated market cost of laminating material, security paper, maintenance of the radiographer's file including photo, equipment maintenance and staff time needed to review, process and complete the request and postage for mailing the new card. The actual cost cannot be determined until radiographer certification has been implemented and, thus, the fee may change at a later time.</p>
(e)			<p>This proposed subsection informs applicants that submitted fees are nonrefundable. This is necessary because the cost of processing the application is still incurred regardless of them passing the review process.</p>
30337			<p>NE. The proposed amendment of this section is needed to provide clarity. This section was adopted in 1973 and was based on regulations of the U.S. Food and Drug Administration (FDA) (21 C.F.R. §1020.40). Currently, this section applies to radiation machines used in an occupied area for the purpose of detecting contraband in airline passenger carry-on baggage. However, since 1973 the use of these machines has expanded into other areas including courthouses, the State Capitol, legislative and other governmental offices, jails, and prisons. Also, the types of items X-rayed by these machines have expanded to include packages, boxes, and items received through the U.S. mail.</p> <p>As mentioned regarding existing §30336(a), that subsection is being deleted and addressed in this section. Cabinet radiography, addressed by §30336(a), essentially falls within the scope of FDA's cabinet X-ray system definition. Therefore, §30336(a) is being deleted to remove duplicative requirements found within this section.</p>

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			<p>Proposed subsection (a) is added to clarify terms used in this section. Because these terms are very specific to these systems, the terms are placed directly into this section for clarity. The terms and definitions of proposed subsection (a) are based on those found in 21 C.F.R. §1020.40(b). No specific comments were received but a punctuation error was found. The semi-colon (“;”) found at the end of subsection (a)(10) is deleted and replaced with a period (“.”) for consistency.</p> <p>Existing subsections (a) through (e) are recodified to maintain a coherent structure.</p> <p>The existing opening sentence of this section is proposed to be recodified to subsection (b) for clarity. It is amended to apply to any radiation machine that meets the definition of cabinet X-ray system. This change is needed because of the broader applicability to other locations of radiation machine use and to ensure interpretation of the provision is maintained.</p> <p>Subsection (a) is recodified to proposed subsection (b)(1) and amended to specify how the existing exposure value is determined. This method is based on 21 C.F.R. §1020.40(c)(1)(ii).</p> <p>Subsection (b) is recodified to proposed subsection (b)(2) and modified to be consistent with the FDA provision.</p> <p>Subsection (c) is recodified to proposed subsection (b)(3) and amended to clearly inform the user that if the machine is not in use, the key must be removed and controlled. This is needed to ensure protection of individuals when the machine is not in use. Department inspectors continue to hear from operators that the key is left in the machine even when members of the general public are around the machine. It is a poor practice to allow anyone who</p>

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			<p>is not authorized to be able to turn a radiation machine on and possibly expose themselves and others.</p> <p>Proposed subsection (b)(4) is added to ensure the operator has control of when radiation is generated or terminated. This is based on 21 C.F.R. §1020.40(c)(6)(ii).</p> <p>Subsection (d) is recodified to proposed subsection (b)(5) and punctuation is corrected, which are nonsubstantial changes. If an individual does not know a radiation hazard exists, the individual may be unnecessarily exposed or harmed. Thus, the specified indicators are important for radiation protection. The amendment is based on 21 C.F.R. §1020.40(c)(6)(iii) and (iv).</p> <p>Subsection (e) is recodified to proposed subsection (b)(6) and modified to be consistent with 21 CFR 1020.40(c)(10).</p> <p>Proposed subsections (b)(7) through (b)(12) are based on 21 C.F.R. §1020.40(c)(8), (c)(4)(i), (c)(4)(ii), (c)(4)(iii), (c)(4)(iv) and (c)(5), respectively. These subsections are necessary to protect the public and the workers from radiation exposure.</p> <p>Proposed subsection (c) is needed to ensure the registrant only allows trained individuals to operate the radiation machine. Current regulations do not address training of the operator. Radiographer certification is not needed because the design specifications provide more inherent radiation protection. The required written and practical examinations including the number of questions and passing score are needed for the same reasons stated regarding §30336.5(a) and maintains consistency. However, the length of instruction is left to the discretion of the registrant because these types of X-ray machines are designed to be operated with minimal training. The Department believes that instruction in the stated</p>

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			<p>material with an examination requirement is adequate to ensure operators can safely use the X-ray machines. This is based on inspection experiences of these types of equipment and the training received by operators.</p> <p>Proposed subsection (d) is needed to ensure the machine interlocks continue to work. Failure of such interlocks could result in the machine remaining on when the primary beam is accessed and exposing the individual to radiation. An annual test frequency was chosen because the test takes only a few minutes to perform and is more easily remembered. This is based on equivalent regulations of the State of Texas. (25 Tex. Admin. Code, §289.255(u)(6)(C)(ii) &amp; (iii).)</p> <p>Even though each user is provided, pursuant to 21 CFR 1020.40(c)(9)(i), a schedule of maintenance necessary to keep the system in compliance with federal regulations (21 CFR 1020.40) the Department continually finds users not maintaining the machines in accordance with the provided schedule. Failure to follow that schedule can result in radiation exposure due to failure of the interlocks.</p> <p>Proposed subsection (e) is needed to ensure the machine does not create radiation levels around the machine such that the operator and a member of the public would receive unnecessary radiation exposure. An annual test frequency is specified for the same reason stated in subsection (d).</p> <p>Proposed subsection (f) is needed to clearly prohibit exposure of individuals to the primary beam since the radiation exposure could be very high. The Department has investigated such occurrences.</p> <p>Proposed subsection (g) is needed to evaluate the user's effort in protecting the public and worker health and safety from unnecessary and harmful radiation exposure.</p>

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			<p>The citations given in the reference note contain references to §§25875 and 25876, which were recodified by the Legislature in 1995 to §§115230 and 115235, respectively. Because these sections refer to California's agreement with the federal government regarding radioactive material regulated under the Atomic Energy Act of 1954, as amended, and the section addresses radiation machines, those sections are deleted in the reference citations.</p>
<b>30338</b>			<p>NE. This proposed section specifies reasons for taking certain actions and is needed to inform holders of certificates and approvals that such authorizations are subject to revocation, suspension, amendment or restricting. The procedures used to initiate those actions are specified in §115145(b) of the Health and Safety Code.</p>
(a)			<p>This proposed subsection is needed because the specified authorizations are based on the ability of the individual to competently perform the authorized activities and to comply with Department standards. Further, violation of an order, which is issued when an emergency is identified, is included because such violation can put the public health and safety at great risk.</p>
(b)			<p>This proposed subsection is needed because collected fees are used to ensure facilities and individuals are able to safely use sources of radiation. Failure to support those tasks could result in unsafe practices and exposure of the public to unnecessary and harmful radiation.</p>
(c)			<p>This proposed subsection is needed to ensure the licensee, registrant, provider, or individual keeps the Department informed of the specified changes. Failing to perform that duty could allow use of</p>

Proposed Regulation (section)	10 CFR 34 (section)	Compatibility Category <sup>4</sup>	Description & Rationale NE = No Equivalent, I = Identical, EI = Essentially Identical
			radiation without being inspected to ensure public and worker health and safety is protected.
(d), (e) & (g)			Proposed subsections (d), (e) and (g) are needed to ensure that only those users and individuals willing to make needed corrections maintain the Department's authorization. Those who obtain an authorization through fraud, misrepresentation or mistake place the public health at great risk because there is no objective review to ensure they can use radiation safely.
(f)			Proposed subsection (f) is needed to prohibit an individual who does not protect others from radiation exposure when able from continuing to place others at great risk.
(h)			Proposed subsection (h) is needed to warn individuals that willful misuse of radiation will result in action to prohibit the individual from operating. The Department takes radiation protection seriously and expects those authorized by the Department to take it just as seriously.
(i)			Proposed subsection (i) is needed to provide additional warnings that such failure subjects an individual's approval to legal action. Decisions based on inaccurate and incomplete information could result in placing the public health and safety in danger.
(j)			Proposed subsection (j) is needed to inform the regulated community that the specified standard must be continually met.
(k)			Proposed subsection (k) is needed to inform the regulated community that the specified standard must be continually met.

## STATEMENTS OF DETERMINATIONS

The Department of Public Health (Department) has determined that the proposed regulatory action would have no significant adverse economic impact on California business enterprises and individuals, including the ability of California businesses to compete with businesses in other states. Thus, there will be no significant adverse economic impact on California businesses.

The Department has determined that the regulation would not impose a mandate on local agencies or school districts, nor are there any costs for which reimbursement is required by part 7 (commencing with Section 17500) of division 4 of the Government Code.

The Department has determined that the regulation would not significantly affect the following:

1. The creation or elimination of jobs within the State of California. It is likely that current providers will need to hire to meet demands for educators in radiation safety; however, the number of new jobs cannot be estimated. Jobs will be created in that licensees and registrants will have to ensure that there are two qualified individuals at all operations when required. The number of new jobs cannot be estimated.

2. The creation of new businesses or the elimination of existing businesses within the State of California. It is likely that new businesses will increase to provide required training. However, the number of new jobs cannot be estimated. Some businesses may see a reduction in the number of operations due to the need to have two qualified individuals at all operations when required. The actual reduction cannot be estimated.

3. The expansion of businesses currently doing business within the State of California. It is likely that existing businesses will expand to provide training and to ensure two qualified individuals are at all operations when required.

The Department has determined that there would be an effect on small business because they will be legally required to comply with the regulation and may incur a detriment from the enforcement of the regulation.

Alternatives have been considered in those areas not subject to or specifically limited by the adequacy and compatibility criteria under the State of California agreement with the United States Atomic Energy Commission, the predecessor to the United States Nuclear Regulatory Commission (NRC) (Health & Saf. Code, § 115230). According to the agreement, the state is to use its "best efforts to maintain continuing compatibility between its program and the program of the [United States Atomic Energy] Commission for the regulation of like materials..." (Health & Saf. Code, § 115235, art. V). The adequacy and compatibility criteria specified by NRC, for radiographer certification and having two qualified individuals at all operations when required, is a compatibility category B, which requires the Agreement State to adopt essentially identical regulations.

## Reference and Attachment list Industrial Radiography Certification

### References

1. *Adequacy and Compatibility of Agreement State Programs*, Management Directive 5.9 as published in Volume 5: Governmental Relations and Public Affairs. Available at <http://www.hsr.d.o.gov/nrc/procfm.htm>.
2. *Integrated Materials Performance Evaluation Program (IMPEP)*, Management Directive 5.6 as published in Volume 5: Governmental Relations and Public Affairs. Available at <http://www.hsr.d.o.gov/nrc/procfm.htm>.
3. American National Standard N537-1976; *Radiological Safety Standard for the Design of Radiographic and Fluoroscopic Industrial X-ray Equipment*. (Issued August 1977 as NBS Handbook 123.) This document available by contacting: American National Standards Institute, Inc., Global Engineering Documents, 1819 L Street, NW, Suite 600, Washington DC 20036 or at "<http://global.ihs.com>" document number "NBS HDBK 123."
4. NRC Procedure SA-200, *Compatibility Categories and Health and Safety Identification for NRC Regulations and Other Program Elements*, pp. 40-51, available at: <http://www.hsr.d.o.gov/nrc/procedures/sa200.pdf>.
5. NRC Guidance: NUREG-1556, Vol. 2., pp. 8-10, 8-11, 8-13, C-4, & G-1–G-4, *Program-Specific Guidance about Industrial Radiography Licenses*, available at: <http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1556/v2/>.
6. IRRSP Initial Qualification Requirements for the American Society for Nondestructive Testing available at: <http://www.asnt.org/certification/irrsp/qualifications.htm>
7. "Transmittal of State Agreements Program Information (SP-97-067)" available at: <http://www.hsr.d.o.gov/nrc/agstates/program/sp97067.pdf>. Applicable pages are pages 8 through 17 related only to compatibility categories of final rules adopted since May 16, 1996.
8. STP-05-025. "Results of the Management Review Board's Consideration of the Working Group's Report on the Re-Evaluation of 10 CFR 34.41(a) Commonly Known as the "Two-Person Rule." March 25, 2005. Pages 1-2, available at: <http://www.hsr.d.o.gov/nrc/agstates/other/sp05025.pdf>

### Attachments

1. NRC Compatibility Categories & Definitions

## **Attachment 1**

### **NRC Compatibility Categories & Definitions**

#### **Categorization Criteria**<sup>6</sup>

**Category A:** Basic radiation protection standard or related definitions, signs, labels or terms necessary for a common understanding of radiation protection principles. The State program element should be essentially identical to that of NRC.

**Category B:** Program element with significant direct transboundary implications. The State program element should be essentially identical to that of NRC.

**Category C:** Program element, the essential objectives of which should be adopted by the State to avoid conflicts, duplications or gaps. The manner in which the essential objectives are addressed need not be the same as NRC provided the essential objectives are met.

**Category D:** Not required for purposes of compatibility.

**Category NRC:** Not required for purposes of compatibility. These are NRC program elements that address areas of regulation that cannot be relinquished to Agreement States pursuant to the AEA or provisions of Title 10 of the Code of Federal Regulations. The State should not adopt these program elements.

**Category H&S:** Program elements identified as H&S are not required for purposes of compatibility; however, they do have particular health and safety significance. The State should adopt the essential objectives of such program elements in order to maintain an adequate program.

#### **Definitions**<sup>7</sup>

***Essentially Identical*** means the interpretation of the text must be the same regardless of the version (NRC or Agreement State) that is read.

***Essential objective*** of a regulation or program element means the action that is to be achieved, modified or prevented by implementing and following the regulation or program element. In some instances, the essential objective may be a numerical value (e.g., restriction of exposures to a maximum value) or it may be a more general goal (e.g., access control to a restricted area).

***Conflict*** means the essential objectives of regulations or program elements are different and an undesirable consequence is likely to result in another jurisdiction or in the regulation of agreement material on a nationwide basis.

---

<sup>6</sup> Reference 1, pp. 4-7.

<sup>7</sup> Ibid, pg. 17.

**Duplication** means identical regulations or program elements apply to the same material at the same time. Note: this definition applies primarily to review of Agreement State regulations.

**Gaps** means that the essential objectives of NRC regulations or program elements are absent from the Agreement state program and an undesirable consequence is likely to result in another jurisdiction or in the regulation of agreement materials on a nationwide basis.

**Program element** means any component or function of a radiation control regulatory program, including regulations and/or other legally binding requirements imposed on regulated persons, that contributes to implementation of that program.

**Transboundary** means across jurisdictional boundaries within the United States. It does not mean between the United States and other nations.

### **Addendum to Final Statement of Reasons**

This regulation (R-25-03) was made available to the public for a 45-day written public proceeding (PC) that ended at 5:00 p.m. on April 20, 2007. A 15-day written PC was conducted that ended at 5:00 p.m. on September 10, 2007. A second 15-day written PC was conducted that ended at 5:00 p.m. on January 31, 2008. A request for a public hearing was not received and, thus, no public hearing was held. The written proceeding produced comments from those noted below.

#### **List of Commenters during 45-day Proceeding**

(Written testimony)

1. Mark Fenn, Associate Head of Conservation, Asian Art Museum, San Francisco, CA.
2. Joel I. Cehn, Certified Health Physicist, Oakland, CA.
3. Mark Gilberg, Conservation Center Director, Los Angeles County Museum of Art.
4. Scott Fife, Sr. Safety Officer, J. Paul Getty Trust.
5. Michael J. Bolton, NDT manager, Consolidated Engineering Laboratories, Oakland, CA.
6. Larry S. Wong, CIH, UCOP Safety Officer, Environment, Health & Safety, Office of Risk Services, University of California Office of the President, Oakland, CA.
7. Tom W. Cuthbertson, Radiation Safety Consultant, Cupertino, CA.

#### **List of Commenters during first 15-day PC**

(Written testimony)

8. Mark Fenn, Associate Head of Conservation, Asian Art Museum, San Francisco, CA.
9. Mark Gilberg, Conservation Center Director, Los Angeles County Museum of Art.
- 9a. Mark Gilberg, Conservation Center Director, Los Angeles County Museum of Art.
10. Scott Fife, Sr. Safety Officer, J. Paul Getty Trust.

#### **List of Commenters during second 15-day PC**

(Written testimony)

11. Lawrence S. Wong, CIH, UCOP Safety Officer, Environment, Health & Safety, Office of Risk Services, University of California Office of the President, Oakland, CA.
12. Mark McLoughlin, Interim Executive Director, Chief Operating Officer, Asian Art Museum of San Francisco, CA.
13. Scott Fife, Sr. Safety Officer, J. Paul Getty Trust.
14. Terry T. Schaeffer, Chemical Hygiene Officer, Conservation Center, Los Angeles County Museum of Art.
15. Mark Fenn, Associate Head of Conservation, Asian Art Museum, San Francisco, CA.

## Summary of comments and responses

Note: The first digit of the number designation identifies the Commenter as listed on page one. The digit(s) after the decimal point indicate the identified comment from that commenter.

- 1.1. Requests exemption for museum conservation departments from the extensive training and supervision requirements, as is done by the State of Texas. Believes the requirements constitute an unreasonable, in many cases prohibitive, burden and would produce no significant improvement in safety.**

Response: Regarding the exemption request, see response to comment 3.3. The Department believes that the requirements are not unreasonable, prohibitive, or burdensome. Many received recommendations were accepted that reduced the more stringent requirements to allow museums and others meeting the proposed criteria more flexibility by not requiring certification in some instances. It is noted that this comment was initially received during the 45-day written public proceeding and that the commenter provided additional comments (commenter 1, 8 & 15 are the same) during the additional written public proceedings. Please see responses to commenters 3, 4, 6, 8, 9, and 10. However, the Department will closely monitor the implementation of this proposal to determine the need for future changes.

- 2.1. Recommends recognition of certification by the American Board of Health Physics (ABHP) and the National Registry of Radiation Protection Technologists (NRRPT), requests crediting these certified individuals for some or all of the proposed experience requirements in §§30333 and 30336. To support this recommendation, commenter indicates that the federal Nuclear Regulatory Commission (NRC) recognizes ABHP for purposes of title 10, Code of Federal Regulations, §§35.900 and 35.961.**

Response: Individuals using those credentials to meet the proposed requirement would be evaluated on a case-by-case basis.

- 3.1. Believes the proposal would effectively shut down museum conservation X-ray operations and that this effect is unintended.**

Response: The Department believes the proposal would not shut down such operations. Please see responses to commenters 3, 4, 6, 8, 9, and 10.

- 3.2. Believes the proposed radiographer trainer requirements in §30336.6 and radiation safety officer requirements in §30336.7 are too stringent since**

**conservation staff who have been performing X-ray operations in their professional careers would never accumulate enough hours to qualify.**

Response: See response to comment 3.3

**3.3. Recommends an exemption similar to the State of Texas as specified in their regulation §289.255(d)(4) for certain operations.**

Response: In evaluating comments similar to this one, the Department reviewed §289.255 and also contacted the radiation control program of the State of Texas. Section 289.255 exempts facilities that utilize radiation machines for industrial radiography at permanent radiographic installations from §289.255 except for the requirements of §289.255(b)(3) and (5), (j), (m)(1)(A) and (u)(6)(A), (B), and (E). Reviewing how Texas' regulations are structured, it is noted that nearly all subsections of §289.255 apply to those using X-ray machines and radioactive material. Thus, all such provisions apply; however, they then provide an exemption from all requirements except for certain ones. Those provisions that are required then require an exempted person to comply with provisions that appear, by only reading §289.255(d)(4), not to apply. An example of this is discussed below regarding radiation safety officers. Such a method fails to meet California's criteria for rulemaking. The Department believes the commenter's main concern focuses on the initially proposed certification requirement for operators of X-ray machines meeting the definition of "shielded-room radiography," which was amended as discussed below. Overall, the Department's and Texas' regulations, including this proposal, provide similar exemptions.

In response to comments relating to the number of hours needed to qualify for certification and to be a radiographer trainer, the Department amended section 30336 by removing the need for certification in subsection (b). However, in following the practice of Texas (§289.255(m)(1)(A)) the proposal maintained the 40-hour training requirement and that it be obtained by an approved radiation safety provider. This change then removed the need for the training to be received by a registrant's radiographer trainer or radiation safety officer (RSO). Proposed §30336(j) and (k), relating to trainer requirements, were also deleted in response to acceptance of the recommendation. These changes were made available to the public for review and comment for at least 15 days pursuant to Government Code 11346.8, subdivision (c)..

In response to comments relating to radiation safety officers (RSO), a facility in Texas meeting §289.255(d)(4) must have an RSO who meets the requirements in §289.255(m)(4)(B). (25 Tex. Admin. Code §289.226(e) & (t)(1)(B)(iii).) Thus, Texas' regulations do not exempt an RSO from meeting requirements equivalent to those proposed. This was confirmed with staff from the State of Texas radiation control program. It further appears that the commenter believes that all proposed hours must be obtained while performing actual radiographic operations. However, proposed section 30336.7(a)(2) (including section 30336.6(a)(3) as it relates to comment 3.2)

clearly indicates that the number of hours of experience can be in the actual use of radiation machines and other radiation protection activities.

Further, comments stating that certain types of users would no longer be able to continue were received. However, current requirements fail to address any criterion an individual serving as an RSO or trainer must meet and do not require such an officer or trainer. Therefore, because this experience is very broad, the Department believes that users will be able to meet the proposal. The Department will closely monitor the implementation of this proposal to determine the need for future changes.

**3.4. Recommends an exemption for Fine Arts Conservation X-radiography using X-ray sources with safety interlocks and located in rooms with controlled access.**

Response: In review of the comment and supporting discussion it was noted that a clarity issue existed due to proposed changes in definitions and separation of existing subsections (a), (b) and (c) of existing section 30336 into other sections (i.e. §§30336, 30336.1, & 30337). An alternative compliance method was recommended (comment 10.3) for use of small mobile X-ray machines with low kilovoltage (kV) capabilities in secured rooms that do not fall within a definition in Section 30330. Under existing Section 30336(c) use of such machines falls within the definition of “field radiography” because the room in which those machines are used does not meet the definition of “shielded-room radiography” in existing Section 30336(b). However, the proposed definition of “shielded-room radiography” failed to maintain the existing “room” requirements that clarify its difference from the definition of “field radiography.” Without these “room” requirements, the definition for “shielded-room radiography” can be more broadly interpreted and overlap the definition of “field radiography” causing unintended confusion. Therefore, to maintain the existing regulatory requirements that clarify the definition of “shielded-room radiography” Section 30330(b)(25) was amended by inserting the phrase “and the room meets the requirements of subsections (d), (e) and (h) of section 30336” after the word “individuals.” This change was made available to the public for review and comment for at least 15 days pursuant to Government Code 11346.8, subdivision (c).

**4.1. Recommends an exemption similar to the State of Texas as specified in their regulation §289.255(d)(4) for certain operations. Commenter provided a copy of those regulations.**

Response: See response to comment 3.3.

**4.2. Believes the regulations, pertaining to the number of hours needed to apply for certification, to be a radiation safety officer (RSO), or a**

**radiographer trainer, would greatly impact their operations. Indicates that the State of Texas does not require an RSO.**

Response: See response to comment 3.3.

**4.3. Recommends development of an alternative method of compliance for use of small mobile X-ray machines with low kilovoltage (kV) capabilities.**

Response: See response to comment 10.3.

**5.1. Regarding §30331, must a user meet §30331 if they submit their in-house training program with their license renewal or modification? If so, must they also pay the specified fee?**

Response: As indicated in §30195.3(b)(2), submittal would have to be clearly identified as being submitted for compliance with section 30331. The specified fee would apply.

**5.2. Asks for the implementation effective date it relates to the: (a) 6-month survey meter calibration proposal in §30332.3, (b) establishment and implementation of written procedures for maintenance in §30332.7, and (c) issuance of the identification card in §30333(b)(2).**

Response: The actual implementation date of this proposal cannot be specifically determined due to processing variables within the rulemaking process. Once the Department submits the rulemaking file to the Office of Administrative Law (OAL) for review, OAL has up to 30 working days to render a decision. If OAL approves the regulatory proposal, the regulations are filed with the Secretary of State and typically become effective 30 days later. Based on this information, if the regulatory proposal is approved by OAL, the earliest these regulations would go into effect would be sometime in May 2008.

Once the Department has more specific information, the regulated community will be informed by mail when these proposed regulations become effective. The Department encourages the regulated community to be proactive in following, to the extent possible, the proposal. Information regarding this regulatory proposal is posted on the Department's website at

<http://www.cdph.ca.gov/services/DPOPP/regs/Pages/ProposedRegulations.aspx>.

**5.3. Regarding §30332.6, asks if utilization logs are required for the use of radiation equipment used only in a lockable, shielded room with audible and visual warning lights.**

Response: Under current regulation and this proposal, utilization logs are required when the sealed source is used including its use in a lockable shielded room. If the source is never used outside the room, then the use location would state that particular location. The dates of removal and return to storage need to be identified as it allows tracking of sources and usage and provides information for investigation of personnel exposure events.

**5.4. Regarding §30333(a)(1) & (b)(1), asks if existing radiographers and assistant radiographers who have pass a 40-question written exam will be grandfathered, or must they retake an exam with 50 questions.**

Response: No, existing personnel need not retake a 50-question exam. However, when the regulations become effective, personnel who are not already performing as a radiographer or assistant radiographer would be subject to the adopted regulations.

**5.5. Regarding §30335.2, asks when a list of training and testing location for Department radiographer certification will be available.**

Response: The Department's implementation of this proposal is still being developed so the information is not yet available. The regulated community will be informed by mail of full implementation and when more information is available.

**5.6. Regarding §30335.4, asks when application forms will be available. Also, believes that a "third party" certification will be required by December 31, 2009; asks if the radiographer must have a certification card at that time.**

Response: Regarding forms see response to comment 5.5. Regarding third-party certification, the proposal allows an individual to be certified by the Department or an entity specified in proposed §30335.3. The date of December 31, 2009 applies to the Department's provisional certification process in proposed §30335.4 to allow the regulated community time to ensure their personnel meet the certification requirements. December 31, 2009 would be the last day an application for a provisional radiographer certificate would be accepted. After that date, individuals could only apply for a certificate. As indicated in the Initial Statement of Reasons a provisional certificate is a one-time certificate obtainable without passing an examination.

Third-party certification is not required by December 31, 2009. Upon adoption of this proposal, an individual would have to be certified by: (1) the Department through the provisional pathway which ends 12-31-09, as specified in §30335.4 or the renewable certificate pathway as specified in §30335.3; or (2) one of the entities specified in §30335.3.

**5.7. Regarding §30335.6, asks for a definition of the term “mailing address.”**

Response: Mailing address is any address the applicant provides to the Department so as to receive correspondence from the Department.

**5.8. Regarding §30335.10, asks if an individual must go to an approved radiation safety provider (RST) or can the user provide the same training in-house and not be an RST.**

Response: The proposal requires the individual to obtain the training from an RST approved pursuant to section 30331. The in-house provider would have to be an approved RST for the individual's training to be acceptable.

**6.1. Believes the subject line of the proposal mislead many to disregard the proposal assuming it did not apply to their situation. To support this belief, commenter indicates that most of the discussion addresses the need to be compatible with the NRC as it pertains to radioactive material and does not discuss radiation machines until the second page.**

Response: The Department disagrees that the subject is misleading since comments were received by both radioactive material users and X-ray machine users. Further, the Department cannot anticipate how individuals will interpret any given title. As to the order of discussion in the Initial Statement of Reasons, it could as easily be charged that the discussion of radiation machines should be first. Thus, order of discussion is superfluous as each area was discussed.

**6.2. Questions the clarity as to what a cabinet X-ray system is in that it appears that all X-ray machines not used in the healing arts now fall under “industrial radiography.” As support, provides an example indicating that §30333.2 could require monitoring devices for low risk cabinet X-ray units such as a “faxitron.” That section should be revised to clearly indicate where it is to apply.**

Response: The existing title of Article 6 is “Special Requirements for Radiographic Operations other than in the healing arts. Existing §30330(a) indicates the article applies to use of sources of radiation for radiography as defined in §30330(b). Thus, cabinet radiography units have always fallen under “industrial radiography.” Existing §30336(a) applies to cabinet radiography of which a “faxitron” is an example. As it relates to the comment on clarity, proposed §30333.2 states that the section applies to “Radiographic operations using sealed sources.” Sealed source is defined in §30100(v) to mean “any radioactive material that is permanently encapsulated in such manner that the radioactive material will not be released under the most severe conditions likely to be

encountered by the source.” Thus, §30333.2 clearly applies only to operations using radioactive material. A faxitron’s source of radiation is electronically produced; the source is not a sealed source. Therefore, §30333.2 clearly does not apply to a faxitron and no revision is necessary

**6.3. Believes that X-ray diffraction/fluorescence machines are covered in the proposal. Recommends clarifying language indicating that such machines are not covered.**

Response: The Department agrees with the commenter and amended section 30330(b)(13) to clarify that the term, and thus the proposal, does not apply to the examination of the microscopic structure, or elemental or chemical composition of materials utilizing radiation. Additionally, the Department determined that the proposed definition change would have reduced radiation protection in some operations. Therefore, the phrase “to make radiographic images” is deleted and the word “physical” inserted between the words “the” and “structure” to make the term’s definition more consistent with the existing requirement. The Department determined that the deleted phrase would have narrowed the proposal’s applicability to the extent that very hazardous operations would be excluded from the proposal. This change was made available to the public for review and comment for at least 15 days pursuant to Government Code 11346.8, subdivision (c).

**7.1. Regarding §§30331(a)(4), 30333.07 and 30336.7, recommends including language equivalent to NRC’s 10 CFR 34.42(b) as to the consideration of alternatives.**

Response: Users may apply for exemption or variance from regulation pursuant to title 17, California Code of Regulations, §30104. Thus, equivalent language already exists.

**8.1. Requests that the training in proposed §30336(b) be the same as that specified in proposed §30337(c).**

Response: See response to comment 10.3.

**8.2. Requests that proposed §30336(f) be eliminated as it is duplicative of §30336(d).**

Response: The interlock discussed in subsection (d) is not equivalent to the installed device in subsection (f). Subsection (d) assumes that an individual in the room when the radiation exposure begins is physically able to reach the access point quickly to minimize exposure. The installed device required in subsection (f) assumes that the

same person is not, physically or otherwise, able to reach the access point without receiving unintended exposure. Overall, regulations do not limit the size of the radiation room since it depends on the specific operation of the user. If a large room is used and has only one access point, the device required in subsection (f) would allow an individual who is at the furthest point from the access point to terminate radiation production quickly. If the commenter's request is granted, such an individual would most likely have to traverse the radiation field resulting in unintended radiation exposure. Therefore, the request is denied.

**9.1./9a.1 Requests that facilities only performing radiography in shielded rooms be exempted from having an Radiation Safety Officer (RSO) and (9a.1 clarifies preposition as "or") reducing the level of training and eliminating the requirement for state testing and certification.**

Response: The Department contacted the commenter for clarification regarding comment 9.1 because the request was confusing due to the preposition "and" between the phrase "Radiation Safety Officer" and "reducing the level..." The commenter provided an amended comment that replaced the "and" with "or." Please see response to comment 3.3.

**9.2./9a.2 Recommends omitting the additional training for users of Shielded Room radiography described in §30336(b)(2) & (3).**

Response: See response to comments 3.3 and 10.2.

**9.3. Recommends development of an alternative method of compliance for use of small mobile X-ray machines with low kilovoltage (kV) capabilities.**

Response: See response to comment 10.3.

**10.1. Requests that a facility only performing radiography in shielded rooms be exempted from having a Radiation Safety Officer (RSO) or reducing the level of required training.**

Response: See response to comment 3.3.

**10.2. Recommends omitting the additional training for users of Shielded Room radiography described in §30336(b)(2) & (3) or remove the specific requirements for the length of time required for the training classes as was done for cabinet X-ray systems in §30337(c).**

Response: In considering the comment, the Department believes that the comment assumes that cabinet X-ray systems and shielded room radiography equipment are comparable. Though there may be times when similarities exist, to accommodate the comment would require numerous staggered criteria (based on some value such as surrounding radiation levels, machine operating levels, radiation output) resulting in very complex rules. Further, removal of the specific training hours would not provide a measure of assurance that the user provides adequate staff training. Thus, the Department has chosen to maintain a doable (from a user perspective) and enforceable (from the Department's perspective) rule that provides reasonable assurance that the user will provide adequate training. The recommendation is rejected.

### **10.3 Recommends development of an alternative method of compliance for use of small mobile X-ray machines with low kilovoltage (kV) capabilities.**

Response: The Department determined that the radiation dose criteria in subsection section 30336.1(e)(1) needed to establish whether the provided exception applied was vague because it does not state the distance between the individual and the radiation source. This makes the criteria unclear in that any machine could meet the criteria if the individual stood far enough away from the X-ray source.

As comments indicated, mobile X-ray machines are used by museums. Often, these machines were originally designed for use in the medical industry such as hospitals and for the dental industry but are easily used for industrial radiography purposes not limited to museums (i.e. morgues). To clarify the exception criteria and to address comments regarding alternatives Section 30336.1(e)(1) was amended by deleting all words after "machine" and replacing those words with the phrase "that is not capable of exceeding an operating potential of 150 kVp<sup>8</sup>." Using the X-ray machine's maximum operating potential to establish, in part, the provided exception provides clarity and is easy to determine since manufacturers must affix a label to the machine that specifies the machine's maximum operating potential. The operating potential of 150 kVp was selected by reviewing X-ray equipment commonly used for industrial radiography and for typical medical X-ray equipment also used for industrial purposes. In the medical industry generally, equipment operating above 150 kVp is used for radiation therapy (e.g. cancer treatment) whereas equipment operating below 150 kVp is used for diagnostic X-ray procedures. Further, as the X-ray's energy level increases, the potential for harm also increases. Thus, use of machines operating above 150 kVp requires the user to meet a higher safety standard since this equipment has a higher potential to cause harm than equipment under 150 kVp. These changes were made publically available during the second 15-day public proceeding.

The effect of the changes to Section 30330(b)(25) (discussed in Response 3.4) and Section 30336.1(e)(1) provide an alternative to users of low-risk X-ray machines as such use would invoke the provisions of "field radiography" thereby allowing users of X-

---

<sup>8</sup> kVp means peak kilovoltage. kVp determines the maximum energy of the X-rays produced.

ray machines not exceeding 150 kVp to fall within the exception of Section 30336.1(e). This would remove the need for operators to be certified, to have a trainer in some operations, reduce the training needs, remove certain supervision requirements, remove the need for issuing identification cards to radiographer's assistants, and remove the need for at least two persons to be present for all operations. (See Section 30336.1(b), (c), (d), (n), & (o).)

**11.1 States that the inclusion of section 30337 within Article 6 is mismatched unless that section is meant to apply only to systems used for inspecting for voids and flaws in the irradiated items.**

Response: See response to comment 11.2.

**11.2 Indicates that the definition of "cabinet X-ray system" in section 30330(b)(3) applies to electron microscopes as well as X-ray diffraction units. Asks if this is the intent and recommends that if this is not so, the definition should be clarified to exclude those types of units. States that if the definition is intended to include those units then this supports the [comment 11.1] above.**

Response: The Department thanks the commenter for these recommendations. Section 30337 was initially adopted and placed into Article 6 in 1973. The proposal maintains this structure but broadens the application. The intent was not to include such units in that application. Unfortunately, including this recommended change in this rulemaking would require the Department to conduct an additional 15-day comment period pursuant to Government Code 11346.8, subdivision (c). There is much interest by the U.S. Nuclear Regulatory Commission (as a portion of the proposal relates to radioactive material) in implementing these regulations as quickly as possible. Making the recommended change at this time will not substantially improve or impair the goal of this proposal; namely, to ensure users of radiation sources are adequately trained and that where radiation sources are used safety devices or other methods of control are in place for the safety and health of workers and the public. Thus, because the recommendation addresses a very small number of X-ray systems and that including it at this point would prolong the safety aspects of this proposal, the recommendation will be evaluated for inclusion in a future rulemaking proposal.

**11.3 States that section 30337(c) is too prescriptive and does not allow for training to be developed to match the hazards users actually face. Further, specifying number of questions and passing scores does not insure the training is effective and is inappropriate for inclusion in the regulations.**

Response: The Department disagrees that the provision will hamper the development of training focusing on the hazards users face. Also, the commenter provides no

support for why they feel the provision on the number of questions and passing score is inappropriate for inclusion. This provision ensures to the Department that the user has a documented training program that is applied to all operators of equipment and that the program is fairly and consistently applied. Its effectiveness can only be evaluated upon inspection and interview of the user's operators. A public health and safety goal is to ensure a person who operates hazardous equipment is adequately aware of the hazards of its use, trained on how to protect themselves and others, and is competent to use the equipment. An underlying assumption of this goal is that the individual, throughout their employment history, may change employers, and use other types of X-ray equipment. Therefore, the implied recommended changes underlying the comments are rejected.

**12.1 Requests consideration of stated facts and radiation safety record and modify the proposal so their conservators can continue to use X-radiography in the service of art.**

Response: The Department believes the proposal would not shut down such operations. Please see responses to commenters 3, 4, 6, 8, 9, and 10.

**13.1 Believes the proposed requirements for training are disproportionate to the level of risk for our employees and an undue burden as a result.**

Response: See response to comment 13.4.

**13.2 Believes the requirements of section 30336(b)(1) is disproportionate to the risk as it relates to fine arts conservation.**

Response: See response to comment 13.4.

**13.3 Recommends adding the following language to section 30336.7:  
"Registrants using shielded room radiography for the conservation of fine arts only shall be exempt from section 30336.7(a)(1)."**

Response: See response to comment 3.3.

**13.4 Recommends adding the following language to section 30336(b):  
"Registrants using shielded room radiography for the conservation of fine arts only shall be exempt from section 30336(b)(1)."**

Response: Section 30336(b)(1) would require the operator to obtain 40 hours of basic radiation safety training. As originally proposed, such operators would have had to also

be certified. However, as indicated in the response to comment 3.3, the certification requirement was removed while maintaining the 40-hour training requirement. This reduced the regulatory burden while maintaining for the Department some assurance that operators will have obtained a standard understanding of the use of X-ray equipment and radiation protection. Further, current regulations do not specify nor require specific safety training requirements for operators.

Comments were received recommending training in section 30336(b) to be equivalent to those in section 30337(c). The training component of cabinet X-ray systems (section 30337) is less because those units are designed with more inherent safety features such as precluding access to the primary X-ray beam, thus, allowing it to be used safely by operators with less training. Section 30336 addresses machines that have fewer safety features and individuals can access the primary X-ray beam.

Therefore, because the recommended language merely returns to the status quo of no radiation safety training standard or a very limited amount of training, the comment is rejected.

**14.1 Recommends reduction of the number of hours in experience for trainers (section 30336.6) and RSOs (section 30336.7) for fine arts conservation x-radiography. As support, indicates that [the commenter] is RSO on a CDPH radioactive material license for a low level sealed beta-emitter used for calibration in the analytical procedure of thermo-luminescence dating.**

Response: See response to comment 3.3. Regarding the commenter's use and oversight of radioactive material, the proposal allows such use to be included, up to a limit as discussed in the Initial Statement of Reasons, in training requirements. However, use of the indicated device compared to the use of the X-ray equipment in shielded-room radiography is not equivalent. The radioactive material indicated is contained within the device specifically designed to limit access to the source. Further, as the source is a beta-emitter, the radiation levels on the outside of the device fail to reach the radiation levels produced by the X-ray equipment used at the commenter's facility. Therefore, the comment is rejected; however, the Department will closely monitor the implementation of this proposal to determine the need for future changes.

**14.2 Recommends inclusion of language in sections 30336.6 and 30336.7 that specify a few hundred hours of relevant experience for trainers and RSOs of fine arts conservation x-radiography programs.**

Response: Though the commenter provides examples of why they would be unable to meet the proposal, experience deemed by the commenter to be relevant to fine arts conservation is not provided. Therefore, the comment is rejected. However, the Department will closely monitor the implementation of this proposal to determine the need for future changes.

- 14.3 Recommends adding to §30336(b) language that states that users of low energy and/or shielded room X-ray sources for Fine Arts Conservation X-radiography in cultural institutions must have *an 8 hour safety training course*, and that the length of the practical exam on the User's written procedures is at the discretion of the RSO.**

Response: See response to comment 13.4.

- 14.4 Recommends exempting from the definition of Industrial Radiography the procedure of Fine Arts Conservation X-radiography performed in accredited cultural institutions because it is appropriately described as a research or analytical technique.**

Response: Based on the commenter's description of some of the procedures, some usage would be exempt since the definition of "industrial radiography" was amended as discussed regarding the response to comment 6.3. However, because use of an X-ray machine can be for any number of purposes and that specifying all possible purposes would result in extreme complexity, the recommendation is rejected. It is also noted that inspections will allow determination of whether the purpose is or is not exempt. Furthermore, a variance could be issued on a case by case basis resulting in a beneficial and safety outcome. The Department will closely monitor the implementation of this proposal to determine the need for future changes.

- 15.1 States that the regulations would effectively prohibit the use of higher energy radiography in [the Asian Art Museum of San Francisco] because of the RSO training requirements.**

Response: See response to comment 3.3.

- 15.2 Recommends that the use of shielded-room radiography in art museums be subject to conditions and training requirements similar to those in section 30337(c) instead of those found in section 30336(b).**

Response: See response to comment 13.4.