

**PROPOSED REGULATION OF
THE STATE BOARD OF HEALTH**

LCB File No. R073-25

April 23, 2026

EXPLANATION – Matter in *italics* is new; matter in brackets ~~omitted material~~ is material to be omitted.

AUTHORITY: §§ 1-32, 34-64, 66 and 70-85, NRS 459.201; § 33, NRS 439.150 and 459.201; §§ 65 and 67-69, NRS 459.070 and 459.201.

A REGULATION relating to radiation; adopting by reference federal regulations governing radioactive materials; revising and repealing sections governing the regulation of radioactive materials that are duplicative of federal regulations; revising the definition of “physician” for certain purposes relating to the use of X-rays in the healing arts; and providing other matters properly relating thereto.

Legislative Counsel’s Digest:

Existing federal law authorizes a state to enter into a contract with the federal government authorizing the state to regulate radioactive materials within the state. (42 U.S.C. § 2021) Nevada has entered into such an agreement. (United States Nuclear Regulatory Commission, Nevada: Agreement State Information, <https://www.nrc.gov/agreement-states/nevada>) Consequently, Nevada has adopted laws and regulations that govern radioactive materials within its boundaries. (Chapters 459 of NRS and NAC) Existing law designates the Division of Public and Behavioral Health of the Department of Human Services as the state radiation control agency. (NRS 459.020) Existing law requires the State Board of Health to adopt regulations for the: (1) licensing of persons to receive, possess or transfer radioactive materials; (2) licensing and regulation of by-product materials, source materials, special nuclear materials and other radioactive materials; and (3) control of other sources of ionizing radiation. (NRS 459.201)

Existing regulations establish the licenses that a person is required to obtain in order to perform activities involving radioactive materials. Those regulations mirror the federal regulations concerning general licenses, specific licenses and broad licenses and include requirements to protect people from radiation. (NAC 459.124, 459.180-459.313, 459.316-459.3184, 459.3205, 459.3255-459.3275, 459.3675, 459.373, 459.738) Existing regulations prescribe the requirements to ensure the safe use and disposal of radioactive materials and waste, including requirements governing the transportation and classification of radioactive waste. (NAC 459.336-459.3805, 459.752, 459.800-459.8305) Existing regulations also establish radiation safety requirements for well logging. (NAC 459.756-459.773, 459.7741, 459.7745) **Sections 2-13, 27, 31, 32 and 76** of this regulation adopt by reference federal regulations governing radioactive materials with certain changes made so that the Division is responsible for the enforcement of the regulations and the Nevada Revised Statutes is the governing law, and

section 85 of this regulation repeals sections that are duplicative of those federal regulations. **Sections 14-19, 21-26, 28-30, 33-75 and 77-84** of this regulation make conforming changes to: (1) update or remove certain internal references that are no longer applicable; (2) provide that certain sections of existing regulations no longer apply to licensees because those sections are duplicative of the federal regulations adopted by reference in sections **2-13, 27, 31, 32 and 76** with respect to such licensees; and (3) remove certain other provisions that are duplicative of those federal regulations.

Specifically with regard to the federal regulations adopted by reference, **section 2** adopts by reference federal regulations that prescribe certain rules of general applicability for the licensing of radioactive materials, including provisions relating to exemptions, types of licenses, issuance and renewal of licenses, records, inspections, tests and reports. (10 C.F.R. Part 30) Those regulations establish two different types of license: (1) a specific license, which is issued to a named person who has applied for the license; and (2) a general license, which grants authority to a category of persons without the filing of an application or the issuance of a licensing document to a person. (10 C.F.R. § 30.31) **Section 3** adopts by reference federal regulations that establish procedures governing the issuance of a general license for persons who manufacture, produce, transfer, receive, acquire, own, possess or use certain radioactive material that is produced as a byproduct of other activities. (10 C.F.R. Part 31) **Section 4** adopts by reference federal regulations that establish a specific license for persons who manufacture, prepare or transfer for commercial distribution certain items containing such byproduct material. (10 C.F.R. Part 32) **Section 5** adopts by reference federal regulations that establish a specific license of broad scope, which authorizes the holder to receive, acquire, own, possess, use and transfer certain quantities of such byproduct material. (10 C.F.R. Part 33) **Section 6** adopts by reference federal regulations that establish: (1) a specific license to use sealed sources containing radioactive materials in irradiators; and (2) certain requirements for safely operating irradiators. (10 C.F.R. Part 36) **Section 7** adopts by reference federal regulations that establish: (1) a specific license to engage in well logging; and (2) certain requirements for safely engaging in well logging. (10 C.F.R. Part 39) **Section 8** adopts by reference federal regulations establishing: (1) general and specific licenses authoring a person to receive title to, own, receive, possess, use, transfer, provide long-term care, deliver or dispose of certain material containing uranium or thorium, including certain byproduct material from the mining or concentration of uranium or thorium; and (2) certain requirements governing the transfer of such materials. (10 C.F.R. Part 40) **Section 9** adopts by reference federal regulations establishing: (1) a license for the disposal of radioactive waste at a land disposal facility; and (2) certain technical requirements governing the operation of such facilities. (10 C.F.R. Part 61) **Section 10** adopts by reference federal regulations that establish: (1) a license to receive title to, own, acquire, deliver, receive, possess, use and transfer special nuclear material, which includes plutonium and certain enriched forms of uranium; and (2) certain duties and limitations regarding the holders of such licenses. (10 C.F.R. Part 70) **Section 11** adopts by reference federal regulations governing the recognition of licenses issued by other states. (10 C.F.R. Part 150) **Section 12** adopts by reference federal regulations governing information that the Division is required to provide to licensees, the inspection of licensees, certain rights afforded to licensees and the rights of the employees of a licensee. (10 C.F.R. Part 19) **Section 13** adopts by reference federal regulations establishing safety standards for protecting people from radiation. (10 C.F.R. Part 20) **Sections 27, 31, 32 and 76** make changes concerning federal regulations already adopted by reference that govern the physical protection of certain quantities of radioactive material, the packaging and transportation of

radioactive material, the medical use of certain byproduct material and industrial radiography so that those regulations are enforced by the Division similarly to the regulations adopted by reference in **sections 2-13**. (10 C.F.R. Parts 34, 35, 37 and 71)

Existing regulations also provide for the registration of radiation machines and persons who install or perform service upon radiation machines. (NAC 459.150-459.179) Existing regulations require a registrant for a radiation machine to notify the referring physician of the medical misadministration of radiation to a patient. (NAC 459.551) Existing regulations prohibit the exposure of a person to a useful beam from an X-ray device unless authorized by a physician or certain other licensed practitioners of the healing arts. (NAC 459.554) Existing regulations authorize: (1) a physician to operate a fluoroscopy device; and (2) certain physicians to be an authorized user of a therapeutic X-ray device. (NAC 459.574, 459.5922) **Section 20** of this regulation revises the definition of “physician” for those purposes to refer to the provisions of Nevada law governing allopathic and osteopathic medicine rather than federal regulations. (Chapters 630 and 633 of NRS)

Section 1. Chapter 459 of NAC is hereby amended by adding thereto the provisions set forth as sections 2 to 13, inclusive, of this regulation.

Sec. 2. 1. *Except as otherwise provided in subsections 2 and 7, Part 30 of Title 10 of the Code of Federal Regulations is hereby adopted by reference, subject to the following:*

(a) The substitution of “Division” for references to:

(1) “NRC” in 10 C.F.R. §§ 30.1, 30.10, 30.32, 30.35, 30.36 and 30.50 and Appendices A, C, D and E;

(2) “Commission” in 10 C.F.R. §§ 30.7, 30.9, 30.10, 30.31, 30.32(a), 30.32(b), 30.32(d), 30.32(g)(2), 30.33 to 30.36, inclusive, 30.39, 30.41(b)(7), 30.51 (except in footnote), 30.52, 30.53, 30.62 and Appendices A, C, D and E;

(3) “Administrator of the appropriate Regional Office” in 10 C.F.R. § 30.9;

(4) “NRC operations center” in 10 C.F.R. § 30.32;

(5) “Appropriate NRC Regional Office specified in § 30.6” in 10 C.F.R. § 30.34;

(6) “Appropriate NRC Regional Administrator” in 10 C.F.R. § 30.34;

(7) “Director, Office of Nuclear Material Safety and Safeguards” in 10 C.F.R. § 30.35;

(8) “NRC Headquarters Operations Center at the numbers specified in appendix A to part 73 of this chapter” in 10 C.F.R. § 30.50;

(9) “NRC using an appropriate method listed in § 30.6(a)” in 10 C.F.R. § 30.50; and

(10) “Appropriate NRC Regional Office” in 10 C.F.R. § 30.51;

(b) The substitution of “State of Nevada governing domestic licensing of radioactive material pursuant to chapter 459 of NRS” for reference to “United States governing domestic licensing of byproduct material under the Atomic Energy Act of 1954, as amended (68 Stat. 919), and under title II of the Energy Reorganization Act of 1974 (88 Stat. 1242), and exemptions from the domestic licensing requirements permitted by Section 81 of the Act” in 10 C.F.R. § 30.1;

(c) The substitution of “chapter 459 of NRS” for references to:

(1) “Section 81 of the Act” in 10 C.F.R. §§ 30.13, 30.14, 30.15 and 30.18 to 30.22, inclusive; and

(2) “The Act” in 10 C.F.R. §§ 30.32, 30.33, 30.34(a), 30.34(b), 30.34(e) and 30.41(b)(3);

(d) The substitution of “the Division form, “Radioactive Material License Application.” Information contained in previous applications, statements or reports filed with the Division may be incorporated by reference, provided that the reference is clear and specific” for reference to “NRC Form 313, “Application for Material License,” in accordance with the instructions in § 30.6 of this chapter” in 10 C.F.R. § 30.32(a);

(e) The substitution of “Division, the U.S. Nuclear Regulatory Commission under § 32.210 of this chapter or with an Agreement State” for reference to “Commission under § 32.210 of this chapter, with an Agreement State” in 10 C.F.R. § 30.32(g)(1)(i);

(f) The substitution of “Division, the U.S. Nuclear Regulatory Commission under § 32.210 of this chapter or with an Agreement State” for reference to “Commission under § 32.210 of this chapter or with an Agreement State” in 10 C.F.R. § 30.32(g)(2);

(g) The substitution of “Division, the U.S. Nuclear Regulatory Commission or with an Agreement State” for reference to “Atomic Energy Commission, the Commission, or an Agreement State” in 10 C.F.R. § 30.41(b)(5);

(h) The substitution of “Division, the U.S. Nuclear Regulatory Commission or an Agreement State” for references to “Commission or an Agreement State” and “Commission or with an Agreement State” in 10 C.F.R. § 30.41(c); and

(i) The substitution of “Division, the U.S. Nuclear Regulatory Commission or the licensing agency of an Agreement State” for reference to “Commission or the licensing agency of an Agreement State” in 10 C.F.R. §§ 30.41(d)(4) and 30.41(d)(5).

2. The following provisions of Part 30 of Title 10 of the Code of Federal Regulations are not adopted by reference:

(a) Sections 30.3(b), 30.3(c), 30.3(d), 30.5, 30.6, 30.7(a), 30.7(b), 30.7(c), 30.7(d), 30.7(f), 30.8, 30.11, 30.21(c), 30.32(e), 30.32(f), 30.33(a)(5), 30.34(d), 30.34(e)(1), 30.34(e)(3), 30.34(k), 30.41(b)(6), 30.50(c)(3), 30.55, 30.61, 30.63 and 30.64;

(b) “Common defense and security” in 10 C.F.R. § 30.4 in the definitions of “commencement of construction” and “construction”;

(c) “As provided in paragraphs (b)(2), (b)(3), (c)(2), and (c)(3) of this section and” in 10 C.F.R. § 30.3(a);

(d) “Writing to the Regional Administrator of the appropriate U.S. Nuclear Regulatory Commission Regional Office listed in appendix D to part 20 of this chapter, via email to Forms.Resource@nrc.gov, or by” in 10 C.F.R. § 30.7(e)(3);

(e) “Or the Atomic Energy Commission” in 10 C.F.R. § 30.32;

(f) “Form NRC 374, ‘Byproduct Material License’ ” in 10 C.F.R. § 30.33(b);

(g) “Consistent with the administrative directions in § 30.6” in 10 C.F.R. § 30.36(d); and

(h) “And a copy must be sent to the appropriate NRC Regional office listed in appendix D to part 20 of this chapter” in 10 C.F.R. § 30.50(c)(2).

3. Each reference to NRC Form 313 in 10 C.F.R. § 30.37 shall be deemed a reference to the “Radioactive Materials License Application” prescribed by the Division, made available on its Internet website and filed with the Division.

4. Reference to NRC Form 314 in 10 C.F.R. § 30.36 shall be deemed a reference to the “Certification for Disposal of Radioactive Material and License Termination Request” prescribed by the Division, made available on its Internet website and filed with the Division.

5. In addition to the requirements found in Part 30 of Title 10 of the Code of Federal Regulations, radiation safety officers for a specific license:

(a) Which authorizes the use of radioactive materials in academic research or other research and development shall comply with the requirements in NAC 459.3147;

(b) For radioactive material that involves the use of gas chromatographs shall comply with the requirements in NAC 459.3148;

(c) For radioactive material that involves the use of X-ray fluorescence analysis shall comply with the requirements in NAC 459.3149;

(d) For a type A specific license of broad scope shall comply with the requirements in NAC 459.315;

(e) For a type B specific license of broad scope shall comply with the requirements in NAC 459.3151;

(f) To prepare radioactive drugs in a nuclear pharmacy for commercial distribution and redistribution shall comply with the requirements in NAC 459.3152;

(g) That uses sealed sources, tracers or field flood studies in well logging shall comply with the requirements in NAC 459.3153; and

(h) To possess and produce radiochemicals using an accelerator for transfer or distribution shall comply with the requirements in NAC 459.3154.

6. Any reference to Part 170 within Part 30 of Title 10 of the Code of Federal Regulations shall be deemed a reference to the applicable fee schedule in NAC 459.310.

7. Except as otherwise provided in subsection 8, any future revisions to Part 30 of Title 10 of the Code of Federal Regulations are adopted by reference unless designated with the compatibility category "NRC." NRC rule compatibility can be obtained at the Internet address <https://www.nrc.gov/materials/toolboxes/regulation/summary-sheets-cfr.html> or from the Division.

8. The Division shall review each future revision described in subsection 7 to ensure its suitability for this State. If the Division determines that a revision is not suitable for this State, the Division shall hold a public hearing to review its determination within 90 days after the date of the publication of the revision and give notice of that hearing. If, after the hearing, the Division does not revise its determination, the Division shall give notice within 30 days after

the hearing that the revision is not suitable for this State. If the Division does not give such notice, the revision is adopted by reference as provided in subsection 7.

9. A copy of a publication that contains Part 30 of Title 10 of the Code of Federal Regulations may be obtained, free of charge, at the Internet address <http://www.nrc.gov/reading-rm/doc-collections/cfr/index.html> or, if that Internet website ceases to exist, from the Division.

Sec. 3. 1. *Except as otherwise provided in subsections 2 and 4, Part 31 of Title 10 of the Code of Federal Regulations is hereby adopted by reference, subject to the following:*

(a) The substitution of “Division” for references to:

- (1) “Nuclear Regulatory Commission” in 10 C.F.R. § 31.5;*
- (2) “NRC” in 10 C.F.R. §§ 31.5, 31.12(c) and 31.21;*
- (3) “Commission” in 10 C.F.R. §§ 31.5, 31.11(b) and 31.21;*
- (4) “Director, Office of Nuclear Material Safety and Safeguards, ATTN: GLTS, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001” in 10 C.F.R. § 31.5;*
- (5) “Director, Office of Nuclear Material Safety and Safeguards, ATTN: Document Control Desk/GLTS” in 10 C.F.R. § 31.5;*
- (6) “Director, Office of Nuclear Material Safety and Safeguards” in 10 C.F.R. § 31.11;*
- (7) “Director, Office of Nuclear Material Safety and Safeguards, by an appropriate method listed in § 30.6(a) of this chapter” in 10 C.F.R. § 31.11;*
- (8) “Director of the Office of Nuclear Material Safety and Safeguards by an appropriate method listed in § 30.6(a) of this chapter” in 10 C.F.R. § 31.12; and*
- (9) “Director of the Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington DC 20555-0001” in 10 C.F.R. § 31.12;*

(b) The substitution of “NAC 459.310” for reference to “§ 170.31 of this chapter” in 10 C.F.R. § 31.5(c)(13)(ii);

(c) The substitution of “the U.S. Nuclear Regulatory Commission or an Agreement State authorizing the holder to manufacture, install or service a device described in § 31.5 is hereby granted a general license to install and service such device” for reference to “an Agreement State authorizing the holder to manufacture, install, or service a device described in § 31.5 within such Agreement State is hereby granted a general license to install and service such device in any non-Agreement State and a general license to install and service such device in offshore waters, as defined in § 150.3(f) of this chapter” in 10 C.F.R. § 31.6;

(d) The substitution of “the U.S. Nuclear Regulatory Commission or an Agreement State” for references to “Agreement State” in 10 C.F.R. §§ 31.6, 31.7, and 31.8(b);

(e) The substitution of “who holds a specific license issued by the Division” for reference to “in a non-Agreement State who holds a specific license” in 10 C.F.R. § 31.8; and

(f) The substitution of “Any person who holds a specific license issued by the NRC” for reference to “Any Government agency, as defined in § 30.4 of this chapter, which holds a specific license issued under this chapter” in 10 C.F.R. § 31.8.

2. Sections 31.4, 31.22 and 31.23 of Part 31 of Title 10 of the Code of Federal Regulations are not adopted by reference.

3. References to specific licenses issued by an Agreement State in Part 31 of Title 10 of the Code of Federal Regulations shall be deemed to include specific licenses issued by the United States Nuclear Regulatory Commission.

4. Except as otherwise provided in subsection 5, any future revisions to Part 31 of Title 10 of the Code of Federal Regulations are adopted by reference unless designated with the

compatibility category “NRC.” NRC rule compatibility can be obtained at the Internet address <https://www.nrc.gov/materials/toolboxes/regulation/summary-sheets-cfr.html> or from the Division.

5. The Division shall review each future revision described in subsection 4 to ensure its suitability for this State. If the Division determines that a revision is not suitable for this State, the Division shall hold a public hearing to review its determination within 90 days after the date of the publication of the revision and give notice of that hearing. If, after the hearing, the Division does not revise its determination, the Division shall give notice within 30 days after the hearing that the revision is not suitable for this State. If the Division does not give such notice, the revision is adopted by reference as provided in subsection 4.

6. A copy of a publication that contains Part 31 of Title 10 of the Code of Federal Regulations may be obtained, free of charge, at the Internet address <http://www.nrc.gov/reading-rm/doc-collections/cfr/index.html> or, if that Internet website ceases to exist, from the Division.

Sec. 4. 1. *Except as otherwise provided in subsections 2 and 4, Part 32 of Title 10 of the Code of Federal Regulations is hereby adopted by reference, subject to the following:*

(a) The substitution of “Division” for references to:

(1) “Commission” in 10 C.F.R. §§ 32.3, 32.51, 32.51a, 32.53, 32.54, 32.57, 32.61, 32.72(b)(5), 32.74, 32.210 and 32.211;

(2) “NRC” in 10 C.F.R. §§ 32.51a and 32.210;

(3) “Director, Office of Nuclear Material Safety and Safeguards, ATTN: GLTS, by an appropriate method listed in § 30.6(a) of this chapter” in 10 C.F.R. § 32.52;

(4) “Director, Office of Nuclear Material Safety and Safeguards, ATTN: Document Control Desk/GLTS, by an appropriate method listed in § 30.6(a) of this chapter” in 10 C.F.R. § 32.56;

(5) “U.S. Nuclear Regulatory Commission” in 10 C.F.R. § 32.74(a)(3); and

(6) “NRC’s Office of Nuclear Material Safety and Safeguards, ATTN: SDDR by an appropriate method listed in § 30.6(a) of this chapter” in 10 C.F.R. §§ 32.210 and 32.211;

(b) The substitution of “the U.S. Nuclear Regulatory Commission or an Agreement State” for references to “Agreement State” or “an Agreement State” in 10 C.F.R. §§ 32.51(c), 32.51a except 32.51a(b)(4), 32.59, 32.62 and 32.74;

(c) The substitution of “Division, NRC and to any appropriate Agreement State” for reference to “NRC and to any appropriate Agreement State” in 10 C.F.R. § 32.51a(e);

(d) The substitution of “Division, U.S. NRC or of an Agreement State” for reference to “U.S. NRC or of an Agreement State” in 10 C.F.R. § 32.54(b)(iv);

(e) The revision of 10 C.F.R. § 32.56(b) to read “Each person licensed under §32.53 shall report annually all transfers of devices to persons for use under a general license in the U.S. Nuclear Regulatory Commission’s regulations or the regulations of an Agreement State that are equivalent to § 31.7 of this chapter to the U.S. Nuclear Regulatory Commission or the responsible Agreement State agency, as applicable. The report must state the total quantity of tritium or promethium-147 transferred, identify each general licensee by name, state the kinds and numbers of luminous devices transferred, and specify the quantity of tritium or promethium-147 in each kind of device. If no applicable transfers during the reporting period, this information must be reported to the U.S. Nuclear Regulatory Commission or the

responsible Agreement State agency upon request of the Commission or agency, as applicable.”; and

(f) The substitution of “Division, Commission or an Agreement State” for references to “Commission or an Agreement State” in 10 C.F.R. § 32.72(b)(5)(i) and “Commission or Agreement State” in 10 C.F.R. § 32.72(b)(5)(ii).

2. Sections 32.1(c)(1), 32.8 to 32.16, inclusive, 32.18 to 32.23, inclusive, 32.25 to 32.32, inclusive, 32.74(c), 32.301 and 32.303 of Part 32 of Title 10 of the Code of Federal Regulations are not adopted by reference.

3. A person shall file NRC Form 653, as referenced in 10 C.F.R. § 32.52, with the Division.

4. Except as otherwise provided in subsection 5, any future revisions to Part 32 of Title 10 of the Code of Federal Regulations are adopted by reference unless designated with the compatibility category “NRC.” NRC rule compatibility can be obtained at the Internet address <https://www.nrc.gov/materials/toolboxes/regulation/summary-sheets-cfr.html> or from the Division.

5. The Division shall review each future revision described in subsection 4 to ensure its suitability for this State. If the Division determines that a revision is not suitable for this State, the Division shall hold a public hearing to review its determination within 90 days after the date of the publication of the revision and give notice of that hearing. If, after the hearing, the Division does not revise its determination, the Division shall give notice within 30 days after the hearing that the revision is not suitable for this State. If the Division does not give such notice, the revision is adopted by reference as provided in subsection 4.

6. A copy of a publication that contains Part 32 of Title 10 of the Code of Federal Regulations may be obtained, free of charge, at the Internet address <http://www.nrc.gov/reading-rm/doc-collections/cfr/index.html> or, if that Internet website ceases to exist, from the Division.

Sec. 5. 1. Except as otherwise provided in subsections 2 and 5, Part 33 of Title 10 of the Code of Federal Regulations is hereby adopted by reference, subject to the following:

(a) The substitution of “Division” for references to “Commission” in 10 C.F.R. §§ 33.16 and 33.17; and

(b) The substitution of “chapter 459 of NRS” for reference to “the Act” in 10 C.F.R. § 33.11.

2. Sections 33.8, 33.21 and 33.23 of Part 33 of Title 10 of the Code of Federal Regulations are not adopted by reference.

3. In addition to the requirements found in Part 33 of Title 10 of the Code of Federal Regulations, a radiation safety officer for a Type A or B specific license of broad scope shall comply with the requirements set forth in NAC 459.315 or 459.3151, as applicable.

4. The reference to NRC Form 313 in 10 C.F.R. § 33.12 shall be deemed to be a reference to the “Radioactive Material License Application” prescribed by the Division, made available on its Internet website and filed with the Division.

5. Except as otherwise provided in subsection 6, any future revisions to Part 33 of Title 10 of the Code of Federal Regulations are adopted by reference unless designated with the compatibility category “NRC.” NRC rule compatibility can be obtained at the Internet address <https://www.nrc.gov/materials/toolboxes/regulation/summary-sheets-cfr.html> or from the Division.

6. *The Division shall review each future revision described in subsection 5 to ensure its suitability for this State. If the Division determines that a revision is not suitable for this State, the Division shall hold a public hearing to review its determination within 90 days after the date of the publication of the revision and give notice of that hearing. If, after the hearing, the Division does not revise its determination, the Division shall give notice within 30 days after the hearing that the revision is not suitable for this State. If the Division does not give such notice, the revision is adopted by reference as provided in subsection 5.*

7. *A copy of a publication that contains Part 33 of Title 10 of the Code of Federal Regulations may be obtained, free of charge, at the Internet address <http://www.nrc.gov/reading-rm/doc-collections/cfr/index.html> or, if that Internet website ceases to exist, from the Division.*

Sec. 6. 1. *Except as otherwise provided in subsections 2 and 5, Part 36 of Title 10 of the Code of Federal Regulations is hereby adopted by reference, subject to the following:*

(a) The substitution of “Division” for references to:

(1) “Appropriate NRC Regional Office listed in appendix D to part 20 of this chapter” in 10 C.F.R. § 36.11;

(2) “Commission” in 10 C.F.R. §§ 36.13, 36.19, 36.53, 36.69 and 36.81; and

(3) “NRC” in 10 C.F.R. §§ 36.15, 36.51 and 36.83;

(b) The substitution of “Division, NRC or an Agreement State” for references to “Commission or an Agreement State” in 10 C.F.R. §§ 36.13 and 36.59;

(c) The substitution of “by the Division” for reference to “with respect to the requirements of the Atomic Energy Act of 1954 (Act), as amended, and rules, regulations, and orders issued under the Act” in 10 C.F.R. § 36.15; and

(d) The substitution of “a Division, NRC or Agreement State Licensee” for references to “an NRC or Agreement State licensee” in 10 C.F.R. § 36.59.

2. The following provisions of Part 36 of Title 10 of the Code of Federal Regulations are not adopted by reference:

(a) Sections 36.5, 36.8, 36.17, 36.91 and 36.93; and

(b) “Common defense and security” in 10 C.F.R. § 36.2.

3. Any reference to Parts 170 and 171 of Title 10 of the Code of Federal Regulations shall be deemed a reference to the applicable fee schedule in NAC 459.310.

4. The reference to Form NRC 313 in 10 C.F.R. § 36.11 shall be deemed a reference to the “Radioactive Material License Application” prescribed by the Division, made available on its Internet website and filed with the Division.

5. Except as otherwise provided in subsection 6, any future revisions to Part 36 of Title 10 of the Code of Federal Regulations are adopted by reference unless designated with the compatibility category “NRC.” NRC rule compatibility can be obtained at the Internet address <https://www.nrc.gov/materials/toolboxes/regulation/summary-sheets-cfr.html> or from the Division.

6. The Division shall review each future revision described in subsection 5 to ensure its suitability for this State. If the Division determines that a revision is not suitable for this State, the Division shall hold a public hearing to review its determination within 90 days after the date of the publication of the revision and give notice of that hearing. If, after the hearing, the Division does not revise its determination, the Division shall give notice within 30 days after the hearing that the revision is not suitable for this State. If the Division does not give such notice, the revision is adopted by reference as provided in subsection 5.

7. A copy of a publication that contains Part 36 of Title 10 of the Code of Federal Regulations may be obtained, free of charge, at the Internet address <http://www.nrc.gov/reading-rm/doc-collections/cfr/index.html> or, if that Internet website ceases to exist, from the Division.

Sec. 7. 1. Except as otherwise provided in subsections 2 and 6, Part 39 of Title 10 of the Code of Federal Regulations is hereby adopted by reference, subject to the following:

(a) The substitution of “Division” for references to:

(1) “Commission” in 10 C.F.R. §§ 39.2, 39.13, 39.15, 39.17, 39.33, 39.35, 39.37, 39.39, 39.45, 39.65, 39.67 and 39.77;

(2) “NRC” in 10 C.F.R. §§ 39.61, 39.73 and 39.77;

(3) “Appropriate NRC Regional Office listed in appendix D of part 20 of this chapter” in 10 C.F.R. §§ 39.11 and 39.35; and

(4) “NRC Regional Office” in 10 C.F.R. § 39.77.

(b) The substitution of “Division, NRC or an Agreement State” for references to:

(1) “Commission or an Agreement State” in 10 C.F.R. §§ 39.35 and 39.43;

(2) “Commission under § 32.210 of this chapter or with an Agreement State” in 10 C.F.R. § 39.41; and

(3) “Commission pursuant to § 39.13(c) or by an Agreement State” in 10 C.F.R. §§ 39.43 and 39.51.

(c) The substitution of “a Division, NRC or Agreement State licensee” for reference to “an NRC or Agreement State licensee” in 10 C.F.R. § 39.35.

2. Sections 39.5, 39.8, 39.91, 39.101 and 39.103 of Part 39 of Title 10 of the Code of Federal Regulations are not adopted by reference.

3. *Any reference to Part 170 of Title 10 of the Code of Federal Regulations shall be deemed a reference to the applicable fee schedule in NAC 459.310.*
4. *In addition to the requirements found in Part 39 of Title 10 of the Code of Federal Regulations, radiation safety officers shall comply with the requirements set forth in NAC 459.3153.*
5. *Each reference to Form NRC 313 in 10 C.F.R. § 39.11 shall be deemed a reference to the “Radioactive Material License Application” prescribed by the Division, made available on its Internet website and filed with the Division.*
6. *Except as otherwise provided in subsection 7, any future revisions to Part 39 of Title 10 of the Code of Federal Regulations are adopted by reference unless designated with the compatibility category “NRC.” NRC rule compatibility can be obtained at the Internet address <https://www.nrc.gov/materials/toolboxes/regulation/summary-sheets-cfr.html> or from the Division.*
7. *The Division shall review each future revision described in subsection 6 to ensure its suitability for this State. If the Division determines that a revision is not suitable for this State, the Division shall hold a public hearing to review its determination within 90 days after the date of the publication of the revision and give notice of that hearing. If, after the hearing, the Division does not revise its determination, the Division shall give notice within 30 days after the hearing that the revision is not suitable for this State. If the Division does not give such notice, the revision is adopted by reference as provided in subsection 6.*
8. *A copy of a publication that contains Part 39 of Title 10 of the Code of Federal Regulations may be obtained, free of charge, at the Internet address*

<http://www.nrc.gov/reading-rm/doc-collections/cfr/index.html> or, if that Internet website ceases to exist, from the Division.

Sec. 8. 1. *Except as otherwise provided in subsections 2 and 6, Part 40 of Title 10 of the Code of Federal Regulations is hereby adopted by reference, subject to the following:*

(a) The substitution of “chapter 459 of NRS” for reference to:

(1) “The Atomic Energy Act of 1954, as amended (68 Stat. 919), title II of the Energy Reorganization Act of 1974, as amended (88 Stat. 1242), and titles I and II of the Uranium Mill Tailings Radiation Control Act of 1978, as amended (42 U.S.C. 7901)” in 10 C.F.R. § 40.1;

(2) “Section 62 of the Act” in 10 C.F.R. §§ 40.12 and 40.13; and

(3) “The Act,” “the act” and “this act” in 10 C.F.R. §§ 40.31, 40.32, 40.41(a), 40.41(b), 40.41(e)(4) and 40.51(b)(3);

(b) The substitution of “Division” for references to:

(1) “Commission” in 10 C.F.R. §§ 40.1, 40.3, 40.9, 40.10, 40.14, 40.20, 40.26, 40.31, 40.34, 40.35, 40.36, 40.41, 40.42, 40.46, 40.51(b)(7), 40.54, 40.55, 40.61, 40.62, 40.63, 40.65 and Appendix A;

(2) “Administrator of the appropriate Regional Office” in 10 C.F.R. § 40.9;

(3) “NRC” in 10 C.F.R. 40.10, 40.22, 40.32, 40.36, 40.42, 40.60 and Appendix A, Criteria 4 and 6;

(4) “Director of the Office of Nuclear Material Safety and Safeguards by an appropriate method listed in § 40.5(a)” in 10 C.F.R. § 40.22;

(5) “Director, Office of Nuclear Material Safety and Safeguards, by an appropriate method listed in § 40.5, with a copy to the appropriate NRC Regional Administrator” in 10 C.F.R. § 40.25;

(6) “Director, Office of Nuclear Material Safety and Safeguards, with a copy to the Regional Administrator of the appropriate U.S. Nuclear Regulatory Commission Regional Office listed in appendix D of part 20 of this chapter” in 10 C.F.R. § 40.25;

(7) “Appropriate NRC regional office as indicated in appendix D to part 20 of this chapter, or the Director, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555” in 10 C.F.R. § 40.26;

(8) “Director, Office of Nuclear Material Safety and Safeguards, by an appropriate method listed in § 40.5” in 10 C.F.R. § 40.35;

(9) “Director, Office of Nuclear Material Safety and Safeguards” in 10 C.F.R. § 40.36;

(10) “Appropriate NRC Regional Administrator” in 10 C.F.R. § 40.41;

(11) “Director, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555” in 10 C.F.R. § 40.55;

(12) “NRC Headquarters Operations Center at the numbers specified in appendix A to part 73 of this chapter” in 10 C.F.R. § 40.60;

(13) “NRC’s Document Control Desk by an appropriate method listed in § 40.5, with a copy to the appropriate NRC regional office listed in appendix D to part 20 of this chapter” in 10 C.F.R. § 40.60;

(14) “Appropriate NRC Regional Office” in 10 C.F.R. § 40.61 and appendix A, Criterion 8;

(15) “Director, Office of Nuclear Material Safety and Safeguards, using an appropriate method listed in § 40.5, with a copy to the appropriate NRC Regional Office shown in appendix D to part 20 of this chapter” in 10 C.F.R. § 40.65; and

(16) “Appropriate NRC regional office as indicated in appendix D to 10 CFR part 20 of this chapter, or the Director, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001” in Appendix A, Criterion 8A;

(c) The substitution of “In the case of an application for a license to possess and use source and byproduct material for uranium milling or for the conduct of any other activity which the Division determines will significantly affect the quality of the environment, the Division, before commencement of construction has concluded, after weighing the environmental, economic, technical and other benefits against environmental costs and considering available alternatives, that the action called for is the issuance of the proposed license, with any appropriate conditions to protect environmental values” for reference to “In the case of an application for a license for a uranium enrichment facility, or for a license to possess and use source and byproduct material for uranium milling, production of uranium hexafluoride, or for the conduct of any other activity which the NRC determines will significantly affect the quality of the environment, the Director, Office of Nuclear Material Safety and Safeguards or his/her designee, before commencement of construction, on the basis of information filed and evaluations made pursuant to subpart A of part 51 of this chapter, has concluded, after weighing the environmental, economic, technical and other benefits against environmental costs and considering available alternatives, that the action called for is the issuance of the proposed license, with any appropriate conditions to protect environmental values” in 10 C.F.R. § 40.32(e);

(d) The substitution of “Division, NRC or an Agreement State” for references to:

(1) “Agreement State” and “particular Agreement State” in 10 C.F.R. § 40.35;

(2) “Agreement State Agency” in 10 C.F.R. § 40.35;

(3) “Commission or an Agreement State” in 10 C.F.R. § 40.51;

(4) “Commission or with an Agreement State” in 10 C.F.R. § 40.51; and

(5) “Commission or the licensing agency of an Agreement State” in 10 C.F.R. § 40.51;

(e) The substitution of “Division, NRC or of an Agreement State” for reference to “U.S. NRC or of an Agreement State” in 10 C.F.R. § 40.35;

(f) The substitution of “the Division, the NRC or an Agreement State” for “an Agreement State” in 10 C.F.R. § 40.35;

(g) The substitution of “Agreement State or NRC” for references to “Agreement State” and “Agreement State agency” in 10 C.F.R. §§ 40.55(c) and 40.55(d);

(h) The substitution of “in an Agreement State or of the NRC” for references to “in a particular Agreement State” in 10 C.F.R. § 40.55; and

(i) The substitution of “the responsible Agreement State agency or NRC upon request of the agency or NRC, as applicable” for references to “the responsible Agreement State agency upon request of the agency” in 10 C.F.R. § 40.55.

2. The following provisions of Part 40 of Title 10 of the Code of Federal Regulations are not adopted by reference:

(a) Sections 40.2, 40.2a, 40.5 to 40.8, inclusive, 40.10(b), 40.12(b), 40.13(c)(5)(iv), 40.20(b), 40.20(c), 40.23, 40.27, 40.28, 40.31(c), 40.31(e), 40.31(f), 40.31(g), 40.31(j) to 40.31(m), inclusive, 40.32(d), 40.32(g), 40.33, 40.38, 40.41(d), 40.41(e)(1), 40.41(e)(3), 40.41(g),

40.41(h), 40.45, 40.51(b)(6), 40.52, 40.53, 40.56, 40.64, 40.66 to 40.82, inclusive, and Appendix A, Criteria 11 and 12;

(b) “Common defense and security” in 10 C.F.R. § 40.4;

(c) “In the case of renewal applications submitted before July 27, 1990, this submittal may follow the renewal application but must be submitted on or before July 27, 1990.” in 10 C.F.R. § 40.31(i); and

(d) “Consistent with the administrative directions in § 40.5” in 10 C.F.R. § 40.42.

3. Each reference to NRC Form 313 in 10 C.F.R. §§ 40.31, 40.43 and 40.44 shall be deemed a reference to the “Radioactive Material License Application” prescribed by the Division, made available on its Internet website and filed with the Division.

4. The reference to NRC Form 314 in 10 C.F.R. § 40.42 shall be deemed a reference to the “Certification for Disposal of Radioactive Material and License Termination Request” prescribed by the Division, made available on its Internet website and filed with the Division.

5. Any time a person is required to furnish a copy of Form NRC 244 under the provisions of 10 C.F.R. § 40.35, that person shall also transfer a copy of Form NRC 244 to the Division.

6. Except as otherwise provided in subsection 7, any future revisions to Part 40 of Title 10 of the Code of Federal Regulations are adopted by reference unless designated with the compatibility category “NRC.” NRC rule compatibility can be obtained at the Internet address <https://www.nrc.gov/materials/toolboxes/regulation/summary-sheets-cfr.html> or from the Division.

7. The Division shall review each future revision described in subsection 6 to ensure its suitability for this State. If the Division determines that a revision is not suitable for this State, the Division shall hold a public hearing to review its determination within 90 days after the

date of the publication of the revision and give notice of that hearing. If, after the hearing, the Division does not revise its determination, the Division shall give notice within 30 days after the hearing that the revision is not suitable for this State. If the Division does not give such notice, the revision is adopted by reference as provided in subsection 6.

8. A copy of a publication that contains Part 40 of Title 10 of the Code of Federal Regulations may be obtained, free of charge, at the Internet address <http://www.nrc.gov/reading-rm/doc-collections/cfr/index.html> or, if that Internet website ceases to exist, from the Division.

Sec. 9. 1. Except as otherwise provided in subsections 2 and 3, Part 61 of Title 10 of the Code of Federal Regulations is hereby adopted by reference, subject to the following:

(a) The substitution of “Division” for references to:

(1) “Commission” in 10 C.F.R. §§ 61.1, 61.3, 61.6, 61.7, 61.9a, 61.9b, 61.14, 61.21 to 61.31, inclusive, 61.50, 61.54, 61.55, 61.58, 61.59, 61.62, 61.63, 61.80, 61.81 and 61.82;

(2) “Administrator of the appropriate Regional Office” in 10 C.F.R. § 61.9a;

(3) “NRC” in 10 C.F.R. § 61.9b;

(4) “NRC Regional Administrator” in 10 C.F.R. § 61.24; and

(5) “Director, Office of Nuclear Material Safety and Safeguards, by an appropriate method listed in § 60.4 of this chapter, with a copy to the appropriate NRC Regional Office shown in appendix D to part 20 of this chapter” in 10 C.F.R. § 61.80;

(b) The substitution of “chapter 459 of NRS” for references to:

(1) “The procedures in 10 CFR part 2, subpart B” in 10 C.F.R. § 61.9b;

(2) “The Atomic Energy Act” in 10 C.F.R. § 61.24;

(3) “Section 182 of the Act” in 10 C.F.R. § 61.24; and

(4) “The Act” in 10 C.F.R. § 61.24;

(c) The substitution of “§§ 61.11 through 61.15” for reference to “§§ 61.11 through 61.16. An environmental report prepared in accordance with subpart A of part 51 of this chapter must accompany the application” in 10 C.F.R. § 61.10; and

(d) The substitution of “61.15” for reference to “61.16 and § 61.20” in 10 C.F.R. § 61.27.

2. The following provisions of Part 61 of Title 10 of the Code of Federal Regulations are not adopted by reference:

(a) Sections 61.1(c), 61.4, 61.5, 61.8, 61.9, 61.16, 61.20, 61.23(i), 61.23(j), 61.25(c), 61.32, 61.70 to 61.73, inclusive, 61.83 and 61.84;

(b) The definitions of “Director,” “Indian Tribe” and “Tribal Governing Body” in 10 C.F.R. § 61.2; and

(c) “The Commission’s review of the application is in accordance with administrative procedures established by rule and may involve participation by affected State governments or Indian Tribes.” in 10 C.F.R. § 61.7(c)(1).

3. Except as otherwise provided in subsection 4, any future revisions to Part 61 of Title 10 of the Code of Federal Regulations are adopted by reference unless designated with the compatibility category “NRC.” NRC rule compatibility can be obtained at the Internet address <https://www.nrc.gov/materials/toolboxes/regulation/summary-sheets-cfr.html> or from the Division.

4. The Division shall review each future revision described in subsection 3 to ensure its suitability for this State. If the Division determines that a revision is not suitable for this State, the Division shall hold a public hearing to review its determination within 90 days after the date of the publication of the revision and give notice of that hearing. If, after the hearing, the

Division does not revise its determination, the Division shall give notice within 30 days after the hearing that the revision is not suitable for this State. If the Division does not give such notice, the revision is adopted by reference as provided in subsection 3.

5. A copy of a publication that contains Part 61 of Title 10 of the Code of Federal Regulations may be obtained, free of charge, at the Internet address <http://www.nrc.gov/reading-rm/doc-collections/cfr/index.html> or, if that Internet website ceases to exist, from the Division.

Sec. 10. 1. *Except as otherwise provided in subsections 2 and 4, Part 70 of Title 10 of the Code of Federal Regulations is hereby adopted by reference, subject to the following:*

(a) The substitution of “Division” for references to:

(1) “Commission” in 10 C.F.R. §§ 70.1, 70.3, 70.9, 70.10, 70.17, 70.18, 70.21, 70.23, 70.25, 70.31, 70.32, 70.36, 70.38, 70.39, 70.42(b)(7), 70.51, 70.55 and 70.56;

(2) “Administrator of the appropriate Regional Office” in 10 C.F.R. § 70.9;

(3) “NRC” in 10 C.F.R. §§ 70.10, 70.25, 70.38 and 70.50;

(4) “Director, Office of Nuclear Material Safety and Safeguards” in 10 C.F.R. § 70.25;

(5) “Appropriate NRC Regional Administrator” in 10 C.F.R. § 70.32;

(6) “NRC Headquarters Operations Center at the numbers specified in appendix A to part 73 of this chapter” in 10 C.F.R. § 70.50;

(7) “NRC’s Document Control Desk, using an appropriate method listed in § 70.5(a), with a copy to the appropriate NRC regional office listed in appendix D to part 20 of this chapter” in 10 C.F.R. § 70.50; and

(8) “Appropriate NRC Regional Office” in 10 C.F.R. § 70.51;

(b) The substitution of “chapter 459 of NRS” for references to:

(1) “The Atomic Energy Act of 1954, as amended (68 Stat. 919) and Title II of the Energy Reorganization Act of 1974 (88 Stat. 1242)” in 10 C.F.R. § 70.1; and

(2) “The Act” or “the act” in 10 C.F.R. §§ 70.21, 70.31, 70.32 and 70.36;

(c) The substitution of “who holds a specific license issued by the Division” for reference to “in a non-agreement State who holds a specific license issued by the Commission or the Atomic Energy Commission” in 10 C.F.R. § 70.19;

(d) The substitution of “Any person who holds a specific license” for reference to “Any Government agency as defined in § 70.4 that holds a specific license” in 10 C.F.R. § 70.19;

(e) The substitution of “instructions from the Division” for reference to “instructions in § 70.5(a). If the application is on paper, only one copy need be provided. If the application is to be submitted electronically, see guidance for electronic submissions to the Commission” in 10 C.F.R. § 70.21;

(f) The substitution of “paragraph (2)” for reference to “paragraphs (a)(1) and (2)” in 10 C.F.R. § 70.25; and

(g) The substitution of “Division, the U.S. Nuclear Regulatory Commission” for references to “Commission” in 10 C.F.R. §§ 70.42(b)(5), 70.42(c) and 70.42(d).

2. The following provisions of Part 70 of Title 10 of the Code of Federal Regulations are not adopted by reference:

(a) Sections 70.1(c), 70.1(d), 70.1(e), 70.2, 70.5 to 70.8, inclusive, 70.10(b), 70.13, 70.14, 70.17(c), 70.17(d), 70.20a, 70.20b, 70.21(a)(1), 70.21(c) to 70.21(h), inclusive, 70.22, 70.23(a)(1), 70.23(a)(5) to 70.23(a)(12), inclusive, 70.23(b), 70.23a, 70.24, 70.25(a)(1), 70.31(c), 70.31(d), 70.31(e), 70.32(a)(1), 70.32(a)(4) to 70.32(a)(7), inclusive, 70.32(b)(1), 70.32(b)(3), 70.32(b)(4), 70.32(c) to 70.32(k), inclusive, 70.33, 70.34, 70.35, 70.37, 70.40,

70.42(b)(6), 70.44, 70.50(c)(2)(iv), 70.50(d), 70.52, 70.55(c), 70.59 to 70.92, inclusive, and Appendix A;

(b) The definitions of “available and reliable to perform their function when needed,” “contiguous sites,” “corporation,” “critical mass of special nuclear material,” “integrated safety analysis,” “integrated safety analysis summary,” “items relied on for safety,” “plutonium processing and fuel fabrication plant,” “produce,” “research and development,” “restricted data,” “unacceptable performance deficiencies” and “uranium enrichment facility” in 10 C.F.R. § 70.4;

(c) “Common defense and security” in 10 C.F.R. § 70.4;

(d) “Under § 70.33” in 10 C.F.R. § 70.38;

(e) “Consistent with the administrative directions in § 70.5” in 10 C.F.R. § 70.38; and

(f) “And by § 70.74 and appendix A of this part, if applicable” in 10 C.F.R. § 70.50.

3. The reference to NRC Form 314 in 10 C.F.R. § 70.38 shall be deemed a reference to the “Certification for Disposal of Radioactive Material and License Termination Request” prescribed by the Division, made available on its Internet website and filed with the Division.

4. Except as otherwise provided in subsection 5, any future revisions to Part 70 of Title 10 of the Code of Federal Regulations are adopted by reference unless designated with the compatibility category “NRC.” NRC rule compatibility can be obtained at the Internet address <https://www.nrc.gov/materials/toolboxes/regulation/summary-sheets-cfr.html> or from the Division.

5. The Division shall review each future revision described in subsection 4 to ensure its suitability for this State. If the Division determines that a revision is not suitable for this State, the Division shall hold a public hearing to review its determination within 90 days after the

date of the publication of the revision and give notice of that hearing. If, after the hearing, the Division does not revise its determination, the Division shall give notice within 30 days after the hearing that the revision is not suitable for this State. If the Division does not give such notice, the revision is adopted by reference as provided in subsection 4.

6. A copy of a publication that contains Part 70 of Title 10 of the Code of Federal Regulations may be obtained, free of charge, at the Internet address <http://www.nrc.gov/reading-rm/doc-collections/cfr/index.html> or, if that Internet website ceases to exist, from the Division.

Sec. 11. 1. *Except as otherwise provided in subsections 2 and 4, Part 150 of Title 10 of the Code of Federal Regulations is hereby adopted by reference, subject to the following:*

(a) The substitution of “the U.S. Nuclear Regulatory Commission or an Agreement State” for references to “an Agreement State” in 10 C.F.R. § 150.20;

(b) The substitution of “is granted a general license to conduct the same activity in Nevada” for references to “is granted a general license to conduct the same activity in- (i) Non-Agreement States; (ii) Areas of Exclusive Federal jurisdiction within Agreement States; and (iii) Offshore waters” in 10 C.F.R. § 150.20(a)(1);

(c) The substitution of “U.S. Nuclear Regulatory Commission or Agreement State license” for reference to “Agreement State license” in 10 C.F.R. § 150.20(a)(2);

(d) The substitution of “chapter 459 of NRS” for reference to “the Act” in 10 C.F.R. § 150.20;

(e) The substitution of “Division” for references to:

(1) “Commission” in 10 C.F.R. § 150.20;

(2) “Region” in 10 C.F.R. § 150.20; and

(3) “Regional Administrator” in 10 C.F.R. § 150.20;

(f) The substitution of “in Nevada” for “in a non-Agreement State, in an area of exclusive Federal jurisdiction within an Agreement State, or in offshore waters” in 10 C.F.R. § 150.20(b);

(g) The substitution of “10 CFR §§ 30.9, 30.10, 30.34, 30.41, 30.51 to 30.62, inclusive, 40.9, 40.10(a), 40.41, 40.51, 40.61 to 40.63, inclusive, 70.9, 70.10(a), 70.32, 70.42, 70.55, 70.56, 74.11, 74.15, 74.19, 10 CFR parts 19, 20, 71 and 10 CFR part 34, subpart C to F, inclusive. In addition, any person engaging in activities in Nevada under the general licenses provided in this section” for the reference to “§§ 30.7(a) through (f), 30.9, 30.10, 30.34, 30.41, and 30.51 through 30.63 of this chapter; §§ 40.7(a) through (f), 40.9, 40.10, 40.41, 40.51, 40.61 through 40.63, 40.71, and 40.81 of this chapter; §§ 70.7(a) through (f), 70.9, 70.10, 70.32, 70.42, 70.52, 70.55, 70.56, 70.60 through 70.62 of this chapter; §§ 74.11, 74.15 and 74.19 of this chapter; and to the provisions of 10 CFR parts 19, 20 and 71 and subparts C through H of part 34, §§ 39.15 and 39.31 through 39.77 of this chapter. In addition, any person engaging in activities in non-Agreement States, in areas of exclusive Federal jurisdiction within Agreement States, or in offshore waters under the general licenses provided in this section” in 10 C.F.R. § 150.20(b);

(h) The substitution of “copy of its U.S. Nuclear Regulatory Commission or Agreement State specific license with the Division” for reference to “submittal containing an NRC Form 241, “Report of Proposed Activities in Non-Agreement States,” a copy of its Agreement State specific license, and the appropriate fee as prescribed in § 170.31 of this chapter with the Regional Administrator of the U.S. Nuclear Regulatory Commission Regional Office listed on

the NRC Form 241 and in appendix D to part 20 of this chapter for the Region in which the Agreement State that issued the license is located” in 10 C.F.R. § 150.20(b)(1); and

(i) The substitution of “Nevada, possess or use radioactive materials, or engage in the activities authorized in paragraph (a) of this section, for more than 180 days in any calendar year.” for reference to “non-Agreement States or in areas of exclusive Federal jurisdiction within Agreement States, possess or use radioactive materials, or engage in the activities authorized in paragraph (a) of this section, for more than 180 days in any calendar year, except that the general license in paragraph (a) of this section concerning activities in offshore waters authorizes that person to possess or use radioactive materials, or engage in the activities authorized, for an unlimited period of time.” in 10 C.F.R. § 150.20(b)(4).

2. The following provisions of Part 150 of Title 10 of the Code of Federal Regulations are not adopted by reference:

(a) The definition of “foreign obligations” in 10 C.F.R. § 150.3; and

(b) Sections 150.4 to 150.10, inclusive, 150.14 to 150.19, inclusive, 150.21, 150.30 and 150.33.

3. The references to NRC Form 241 in 10 C.F.R. § 150.20 shall be deemed to be references to the “State of Nevada Radiation Control Program Reciprocity Authorization Request Form” prescribed by the Division, made available on its Internet website and filed with the Division.

4. Except as otherwise provided in subsection 5, any future revisions to Part 150 of Title 10 of the Code of Federal Regulations are adopted by reference unless designated with the compatibility category “NRC.” NRC rule compatibility can be obtained at the Internet address

<https://www.nrc.gov/materials/toolboxes/regulation/summary-sheets-cfr.html> or from the Division.

5. *The Division shall review each future revision described in subsection 4 to ensure its suitability for this State. If the Division determines that a revision is not suitable for this State, the Division shall hold a public hearing to review its determination within 90 days after the date of the publication of the revision and give notice of that hearing. If, after the hearing, the Division does not revise its determination, the Division shall give notice within 30 days after the hearing that the revision is not suitable for this State. If the Division does not give such notice, the revision is adopted by reference as provided in subsection 4.*

6. *A copy of a publication that contains Part 150 of Title 10 of the Code of Federal Regulations may be obtained, free of charge, at the Internet address <http://www.nrc.gov/reading-rm/doc-collections/cfr/index.html> or, if that Internet website ceases to exist, from the Division.*

Sec. 12. 1. *Except as otherwise provided in subsections 2 and 3, Part 19 of Title 10 of the Code of Federal Regulations is hereby adopted by reference, subject to the following:*

(a) The substitution of “Division” for references to:

- (1) “NRC” in 10 C.F.R. §§ 19.1, 19.2, 19.3, 19.11 and 19.14;*
- (2) “Commission” in 10 C.F.R. § 19.1, 10 C.F.R. § 19.3 in the definition of “worker” and 10 C.F.R. §§ 19.11, to 19.16, inclusive;*
- (3) “Regional Administrator of the appropriate U.S. Nuclear Regulatory Commission Regional Office listed in Appendix D of part 20 of this chapter” in 10 C.F.R. § 19.5;*
- (4) “Nuclear Regulatory Commission” in 10 C.F.R. § 19.13;*

(5) “Administrator of the appropriate Commission Regional Office” in 10 C.F.R. § 19.16; and

(6) “Regional Office Administrator” in 10 C.F.R. § 19.16;

(b) The substitution of “chapter 459 of NRS” for references to:

(1) “Atomic Energy Act of 1954, as amended, titles II and IV of the Energy Reorganization Act of 1974” in 10 C.F.R. § 19.1;

(2) “The Atomic Energy Act of 1954, as amended, or any title of the Energy Reorganization Act of 1972, as amended” in 10 C.F.R. § 19.3; and

(3) “The Act” in 10 C.F.R. § 19.16;

(c) The substitution of “under chapter 459 of NRS” for “including (but not limited to) an applicant for or holder of a standard design approval under subpart E of part 52 of this chapter or a standard design certification under subpart B of part 52 of this chapter” in 10 C.F.R. § 19.3;

(d) The substitution of “parts 30 through 36, 39, 40, 61 or 70” for reference to “parts 30 through 36, 39, 40, 60, 61, 63, 70, or 72” in 10 C.F.R. § 19.2; and

(e) The substitution of “by the Division” for reference to “pursuant to subpart B of part 2 of this chapter” in 10 C.F.R. § 19.11.

2. The following provisions of Part 19 of Title 10 of the Code of Federal Regulations are not adopted by reference:

(a) Sections 19.2(a)(2), 19.2(a)(3), 19.2(a)(4), 19.2(b), 19.4, 19.8, 19.11(b), 19.11(e), 19.14(a), 19.17, 19.18, 19.20, 19.30, 19.31, 19.32 and 19.40;

(b) “The regulations in this part also establish the rights and responsibilities of the Commission and individuals during interviews compelled by subpoena as part of agency

inspections or investigations under Section 161c of the Atomic Energy Act of 1954, as amended, on any matter within the Commission’s jurisdiction.” in 10 C.F.R. § 19.1;

(c) “Including persons licensed to operate a production or utilization facility under parts 50 or 52 of this chapter, persons licensed to possess power reactor spent fuel in an independent spent fuel storage installation (ISFSI) under part 72 of this chapter, and in accordance with 10 CFR 76.60 to persons required to obtain a certificate of compliance or an approved compliance plan under part 76 of this chapter” in 10 C.F.R. § 19.2(a)(1);

(d) “Communications, reports, and applications may be delivered in person at the Commission’s offices at One White Flint North, 11555 Rockville Pike (first floor), Rockville, Maryland.” in 10 C.F.R. § 19.5; and

(e) “(Except for a holder of an early site permit under subpart A of part 52 of this chapter, or a holder of a manufacturing license under subpart F of part 52 of this chapter)” in 10 C.F.R. § 19.11(a).

3. Except as otherwise provided in subsection 4, any future revisions to Part 19 of Title 10 of the Code of Federal Regulations are adopted by reference unless designated with the compatibility category “NRC.” NRC rule compatibility can be obtained at the Internet address <https://www.nrc.gov/materials/toolboxes/regulation/summary-sheets-cfr.html> or from the Division.

4. The Division shall review each future revision described in subsection 3 to ensure its suitability for this State. If the Division determines that a revision is not suitable for this State, the Division shall hold a public hearing to review its determination within 90 days after the date of the publication of the revision and give notice of that hearing. If, after the hearing, the Division does not revise its determination, the Division shall give notice within 30 days after

the hearing that the revision is not suitable for this State. If the Division does not give such notice, the revision is adopted by reference as provided in subsection 3.

5. A copy of a publication that contains Part 19 of Title 10 of the Code of Federal Regulations may be obtained, free of charge, at the Internet address <http://www.nrc.gov/reading-rm/doc-collections/cfr/index.html> or, if that Internet website ceases to exist, from the Division.

Sec. 13. *1. Except as otherwise provided in subsections 2 and 5, Part 20 of Title 10 of the Code of Federal Regulations is hereby adopted by reference, subject to the following:*

(a) The substitution of “Division” for references to:

- (1) “Nuclear Regulatory Commission” in 10 C.F.R. § 20.1001;*
- (2) “Commission” in 10 C.F.R. § 20.1002, 10 C.F.R. § 20.1003 except for in the definitions of “background radiation” and “licensed material,” 10 C.F.R. §§ 20.1204, 20.1301, 20.1302, 20.1401, 20.1403, 20.1404, 20.1405, 20.1601, 20.1704, 20.1705, 20.1901, 20.2002, 20.2004, 20.2102 to 20.2108, inclusive, 20.2201, 20.2202, 20.2204, 20.2205 and 20.2302, Appendix A and Sections II and III of Appendix G;*
- (3) “NRC” in 10 C.F.R. §§ 20.1201, 20.1301, 20.1404, 20.1703 and the last sentence of the first paragraph of Appendix G;*
- (4) “NRC Headquarters Operations Center by telephone at the numbers specified in appendix A to part 73 of this chapter” in 10 C.F.R. § 20.1906;*
- (5) “NRC Operations Center in accordance with § 50.72 of this chapter” in 10 C.F.R. § 20.2201;*
- (6) “NRC Headquarters Operations Center at the numbers specified in appendix A to part 73 of this chapter” in 10 C.F.R. § 20.2201;*

(7) “Administrator of the appropriate NRC Regional Office listed in appendix D to part 20” in 10 C.F.R. §§ 20.2201 and 20.2204;

(8) “Administrator of the nearest Commission Regional Office listed in appendix D of this part” in Appendix G;

(9) “Nearest Commission Regional Office listed in appendix D to this part” in Appendix G; and

(10) “Appropriate NRC Regional Office” in Appendix G;

(b) The substitution of “chapter 459 of NRS” for references to “the Atomic Energy Act of 1954, as amended, and the Energy Reorganization Act of 1974, as amended” in 10 C.F.R. §§ 20.1001 and 20.1401;

(c) The substitution of “parts 30 through 36, 39, 40, 61 or 70 of this chapter” for reference to “parts 30 through 36, 39, 40, 50, 52, 60, 61, 63, 70, or 72 of this chapter, and in accordance with 10 CFR 76.60 to persons required to obtain a certificate of compliance or an approved compliance plan under part 76 of this chapter” in 10 C.F.R. § 20.1002;

(d) The removal of “or to operate a production or utilization facility” from 10 C.F.R. § 20.1002;

(e) The substitution of “Division or the Nuclear Regulatory Commission” for references to “Commission” in 10 C.F.R. § 20.1003 in the definitions of “background radiation” and “licensed material”;

(f) The substitution of “parts 30, 40, 61 and 70 of this chapter” for reference to “parts 30, 40, 50, 52, 60, 61, 63, 70, and 72 of this chapter, and release of part of a facility or site for unrestricted use in accordance with § 50.83 of this chapter” in 10 C.F.R. § 20.1401;

(g) The substitution of “part 61” for reference to “parts 60, 61, and 63” in 10 C.F.R. § 20.1401;

(h) The substitution of “§§ 30.36(d), 40.42(d) and 70.38(d)” for references to “§§ 30.36(d), 40.42(d), 50.82(a) and (b), 70.38(d), or 72.54” in 10 C.F.R. §§ 20.1403 and 20.1404;

(i) The substitution of “§§ 30.35(g), 40.36(f) or 70.25(g)” for reference to “§§ 30.35(g), 40.36(f), 50.75(g), 70.25(g), or 72.30(d)” in 10 C.F.R. § 20.1501;

(j) The substitution of “to the Division” for reference to “in accordance with the procedures described in § 50.73(b), (c), (d), (e), and (g) of this chapter” in 10 C.F.R. § 20.2201; and

(k) The substitution of “Division, United States Nuclear Regulatory Commission or Agreement State license” for reference to “Commission or Agreement State license” in Appendix G.

2. The following provisions of Part 20 of Title 10 of the Code of Federal Regulations are not adopted by reference:

(a) Sections 20.1006 to 20.1009, inclusive, 20.1401(b), 20.1406(b), 20.1905(g), 20.2004(b)(1), 20.2202(d), 20.2203(c), 20.2203(d), 20.2206, 20.2301, 20.2401, 20.2402 and Appendix D;

(b) “Or after part of a facility or site has been released for unrestricted use in accordance with § 50.83 of this chapter and in accordance with the criteria in this subpart,” in 10 C.F.R. § 20.1401; and

(c) “These records are protected by most State privacy laws and, when transferred to the NRC, are protected by the Privacy Act of 1974, Public Law 93-579, 5 U.S.C. 552a, and the Commission’s regulations in 10 CFR part 9.” in 10 C.F.R. § 20.2106.

3. *NRC Form 4 in 10 C.F.R. § 20.2104 shall be deemed to be a reference to the “Lifetime or Current Year Occupational Dose Form” prescribed by the Division, made available on its Internet website and filed with the Division.*

4. *NRC Form 5 in 10 C.F.R. § 20.2106 shall be deemed to be a reference to the “Occupational Dose - Annual Report” prescribed by the Division, made available on its Internet website and filed with the Division.*

5. *Except as otherwise provided in subsection 6, any future revisions to Part 20 of Title 10 of the Code of Federal Regulations are adopted by reference unless designated with the compatibility category “NRC.” NRC rule compatibility can be obtained at the Internet address <https://www.nrc.gov/materials/toolboxes/regulation/summary-sheets-cfr.html> or from the Division.*

6. *The Division shall review each future revision described in subsection 5 to ensure its suitability for this State. If the Division determines that a revision is not suitable for this State, the Division shall hold a public hearing to review its determination within 90 days after the date of the publication of the revision and give notice of that hearing. If, after the hearing, the Division does not revise its determination, the Division shall give notice within 30 days after the hearing that the revision is not suitable for this State. If the Division does not give such notice, the revision is adopted by reference as provided in subsection 5.*

7. *A copy of a publication that contains Part 20 of Title 10 of the Code of Federal Regulations may be obtained, free of charge, at the Internet address <http://www.nrc.gov/reading-rm/doc-collections/cfr/index.html> or, if that Internet website ceases to exist, from the Division.*

Sec. 14. NAC 459.022 is hereby amended to read as follows:

459.022 “By-product material” ~~means:~~

- ~~—1.— Any radioactive material, except special nuclear material, yielded in or made radioactive by exposure to the radiation incident to the process of producing or making use of special nuclear material;~~
- ~~—2.— The tailings or wastes produced by the extraction or concentration of uranium or thorium from any ore which is processed primarily for its source material content, including, without limitation, discrete surface wastes resulting from uranium solution extraction processes, except for underground ore bodies which are depleted by operations to extract such solutions;~~
- ~~—3.— Any discrete source of radium-226 that is produced, extracted or converted after extraction for use in a commercial, medical or research activity before, on or after August 8, 2005;~~
- ~~—4.— Any material which:
 - ~~—(a) Is an accelerator produced radioactive material; and~~
 - ~~—(b) Is produced, extracted or converted after extraction for use in a commercial, medical or research activity before, on or after August 8, 2005; or~~~~
- ~~—5.— Except for source material, any discrete source of naturally occurring radioactive material which:
 - ~~—(a) The Nuclear Regulatory Commission, in consultation with the Administrator of the United States Environmental Protection Agency, the Secretary of Energy, the Secretary of Homeland Security and the head of any other appropriate federal agency, determines would pose a threat similar to the threat posed by a discrete source of radium-226 to the public health and safety or the common defense and security; and~~~~

~~—(b) Is extracted or converted after extraction for use in a commercial, medical or research activity before, on or after August 8, 2005.~~ *has the meaning ascribed to it in 10 C.F.R. § 30.4, adopted by reference pursuant to section 2 of this regulation.*

Sec. 15. NAC 459.0356 is hereby amended to read as follows:

459.0356 “Entrance” means any location through which a person may gain access to radiation areas. ~~{or to radioactive materials.}~~

Sec. 16. NAC 459.0445 is hereby amended to read as follows:

459.0445 “Industrial radiography” has the meaning attributed to it in 10 C.F.R. § 34.3 ~~{}~~, *as adopted by reference pursuant to NAC 459.737.*

Sec. 17. NAC 459.0508 is hereby amended to read as follows:

459.0508 “Medical use of radioactive material” or “medical use” means the intentional ~~{internal or external}~~ administration of ~~{~~

~~—1. Licensed radioactive material or radiation therefrom, as described in 10 C.F.R. Part 35; or~~

~~—2. Radiation}~~ *radiation* from a machine that produces radiation ~~{~~

~~→}~~ to patients or human research subjects under the supervision of an authorized user.

Sec. 18. NAC 459.0516 is hereby amended to read as follows:

459.0516 “Monitoring” means the measurement of levels of radiation ~~{ concentrations of radioactive materials, or surface area activities or quantities of radioactive material,}~~ and the use of the results of these measurements to evaluate potential exposures and doses.

Sec. 19. NAC 459.055 is hereby amended to read as follows:

459.055 “Occupational exposure” means exposure of a person:

1. In a restricted area; or

2. In the course of employment in which the person's duties involve exposure from sources of radiation, whether in the possession of the ~~{licensee,}~~ registrant or any other person.

Sec. 20. NAC 459.064 is hereby amended to read as follows:

459.064 "Physician" ~~{has the meaning ascribed to it in 10 C.F.R. § 35.2, as adopted by reference pursuant to NAC 459.3062.}~~ *means a person who is licensed to practice medicine pursuant to chapter 630 of NRS or osteopathic medicine pursuant to chapter 633 of NRS.*

Sec. 21. NAC 459.074 is hereby amended to read as follows:

459.074 "Radiation safety officer" means a person who has been appointed ~~{pursuant to NAC 459.197 or 459.5924, as applicable,}~~ to:

1. Implement and oversee a radiation safety program for the use of radiation specified in an application for the issuance or renewal of a ~~{specific license or}~~ registration; and

2. Be the primary contact person for the Division concerning the radiation safety program.

Sec. 22. NAC 459.1045 is hereby amended to read as follows:

459.1045 "Temporary job site" means a physical location where a source of radiation is stored or used other than the physical location indicated on a ~~{license or}~~ registration as the location at which the source of radiation covered by that ~~{license or}~~ registration is used or stored.

Sec. 23. NAC 459.106 is hereby amended to read as follows:

459.106 "Termination" means the end of employment with the ~~{license or}~~ registrant or, in the case of persons not employed by the ~~{licensee or}~~ registrant, the end of a work assignment in the ~~{licensee's or}~~ registrant's restricted areas in a given calendar quarter, without expectation or specific scheduling of reentry into the restricted areas during the remainder of that calendar quarter.

Sec. 24. NAC 459.114 is hereby amended to read as follows:

459.114 “Unrestricted area” means any area where access is not controlled or limited by the ~~licensee or~~ registrant.

Sec. 25. NAC 459.116 is hereby amended to read as follows:

459.116 “Worker” means a person engaged in work under a ~~license or~~ registration issued by the agency and controlled by a ~~licensee or~~ registrant.

Sec. 26. NAC 459.118 is hereby amended to read as follows:

459.118 The provisions of NAC 459.010 to 459.950, inclusive, *and sections 2 to 13, inclusive, of this regulation*, including the provisions of the federal regulations adopted by reference in NAC 459.1232, 459.1997, 459.3062 ~~459.3205~~ and 459.737 *and sections 2 to 13, inclusive, of this regulation*, apply to all persons who receive, possess, use, transfer, own or acquire any source of radiation except as otherwise specifically provided in NAC 459.010 to 459.950, inclusive ~~459.3205~~, *and sections 2 to 13, inclusive, of this regulation*. Nothing in NAC 459.010 to 459.950, inclusive, *and sections 2 to 13, inclusive, of this regulation*, applies to any person to the extent he or she is subject to regulation by the Nuclear Regulatory Commission.

Sec. 27. NAC 459.1232 is hereby amended to read as follows:

459.1232 1. ~~The~~ *Except as otherwise provided in subsections 2 and 3, the* provisions of ~~10 C.F.R.~~ Part 37 *of Title 10 of the Code of Federal Regulations* are hereby adopted by reference, subject to the following:

(a) ~~The exclusion of the following definitions from 10 C.F.R. § 37.5:~~

~~(1) “Act”;~~

~~(2) “Commission”;~~

~~(3) “Government agency”; and~~

~~— (4) “License.”~~

~~— (b) Any reference in 10 C.F.R. Part 37 to:~~

~~— (1) “Byproduct material” shall be deemed a reference to “radioactive material.”~~

~~— (2) “Commission” or “NRC” shall be deemed a reference to “Division” except for the use of those terms in:~~

~~— (I) 10 C.F.R. § 37.25(b), 10 C.F.R. § 37.27(a), 10 C.F.R. § 37.27(e) and 10 C.F.R. § 37.29(a); and~~

~~— (II) The definition of “person” as set forth in 10 C.F.R. § 37.5.~~

~~— (3) “Commission or an Agreement State” shall be deemed a reference to “Division, Nuclear Regulatory Commission or an agreement state.”~~

~~— (4) “Commission’s regulations,” “federal regulations” or “NRC regulations” shall be deemed a reference to “NAC 459.010 to 459.950, inclusive.”~~

~~— (5) “NRC license” shall be deemed a reference to “license issued by the Division pursuant to NAC 459.010 to 459.950, inclusive.”~~

~~— (6) “NRC Operations Center,” “NRC Regional Office listed in § 30.6(a)(2)” or “Director, Division of Security Policy, Office of Nuclear Security and Incident Response” shall be deemed a reference to “the Radiation Control Program and the contact information described in NAC 459.134.”~~

~~— (7) “NRC’s license verification system” shall be deemed a reference to “Division, NRC’s license verification system or the license issuing authority.”~~

~~— (e)† The *substitution of “Division” for references to:*~~

~~(1) “Commission” in 10 C.F.R. §§ 37.11, 37.43, 37.101, 37.103 and 37.105 and the definition of “person” in 10 C.F.R. § 37.5;~~

(2) “Director, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, ATTN: Source Management and Protection Branch” in 10 C.F.R. § 37.23;

(3) “NRC” in 10 C.F.R. §§ 37.31, 37.43, 37.57 and 37.77, except in “NRC’s Web site” in 10 C.F.R. § 37.77(a)(1);

(4) “NRC regional office” in 10 C.F.R. § 37.41;

(5) “Appropriate NRC regional office listed in § 30.6(b)(2) of this chapter” in 10 C.F.R. § 37.45;

(6) “NRC’s Director, Office of Nuclear Security and Incident Response, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001. The notification to the NRC may be made by email to RAMQC_SHIPMENTS@nrc.gov or by fax to 301-816-5151” in 10 C.F.R. § 37.77;

(7) “NRC’s Director, Office of Nuclear Security and Incident Response, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001” in 10 C.F.R. § 37.77;

(8) “NRC’s Operations Center” in 10 C.F.R. § 37.81; and

(9) “NRC by an appropriate method listed in § 37.7” in 10 C.F.R. §§ 37.57 and 37.81;

(b) The substitution of “Division (1-877-438-7231)” for references to “NRC’s Operations Center (301-816-5100)” in 10 C.F.R. §§ 37.57 and 37.81; and

(c) The substitution of “Division, NRC or an Agreement State” for references to “Commission or an Agreement State” in 10 C.F.R. §§ 37.71 and 37.77.

2. The following ~~sections~~ provisions of ~~10 C.F.R. Part 37~~ Title 10 of the Code of Federal Regulations are not adopted by reference:

~~(1) Section 37.1;~~

~~—(2) Section 37.3;~~

~~—(3) (a) Section 37.7;~~

~~{(4)} (b) Section 37.9;~~

~~{(5)} (c) Section 37.11(b);~~

~~{(6)} (d) Section 37.13;~~

~~{(7)} (e) Section 37.107; and~~

~~{(8)} (f) Section 37.109.~~

~~{2} 3. Except as otherwise provided in subsection 4, any future revisions to Part 37 of Title 10 of the Code of Federal Regulations are adopted by reference unless designated with the compatibility category “NRC.” NRC rule compatibility can be obtained at the Internet address <https://www.nrc.gov/materials/toolboxes/regulation/summary-sheets-cfr.html> or from the Division.~~

~~4. The Division shall review each future revision described in subsection 3 to ensure its suitability for this State. If the Division determines that a revision is not suitable for this State, the Division shall hold a public hearing to review its determination within 90 days after the date of the publication of the revision and give notice of that hearing. If, after the hearing, the Division does not revise its determination, the Division shall give notice within 30 days after the hearing that the revision is not suitable for this State. If the Division does not give such notice, the revision is adopted by reference as provided in subsection 3.~~

~~5. A copy of ~~{the}~~ a publication that contains ~~{10 C.F.R.}~~ Part 37 of Title 10 of the Code of Federal Regulations may be obtained ~~{by mail from the Superintendent of Documents, United States Government Publishing Office, P.O. Box 979050, St. Louis, Missouri 63197-9000, or by toll-free telephone at (866) 512-1800, at the price of \$67, or free of charge at the Internet address~~~~

~~<https://www.ecfr.gov/>~~, free of charge, at the Internet address <http://www.nrc.gov/reading-rm/doc-collections/cfr/index.html> or, if that Internet website ceases to exist, from the Division.

Sec. 28. NAC 459.126 is hereby amended to read as follows:

459.126 1. Each ~~licensee and~~ registrant shall, at any reasonable time, permit the Division to inspect sources of radiation and the premises or facilities where sources of radiation are used or stored.

2. Each ~~licensee and~~ registrant shall make available to the Division for inspection, upon reasonable notice, his or her records maintained pursuant to these regulations.

Sec. 29. NAC 459.128 is hereby amended to read as follows:

459.128 On instruction from the Division, each ~~licensee and~~ registrant shall perform or permit the Division to perform such reasonable tests as the Division deems appropriate or necessary, including, but not limited to, tests of:

1. Sources of radiation;
2. Facilities in which sources of radiation are used or stored;
3. Instruments for detection and monitoring of radiation; and
4. Other equipment and devices used in connection with the use or storage of ~~licensed or~~ registered sources of radiation.

Sec. 30. NAC 459.184 is hereby amended to read as follows:

459.184 ~~1. Except as otherwise provided in subsection 3, any person is exempt from NAC 459.180 to 459.3154, inclusive, to the extent that he or she receives, possesses, uses, transfers, owns or acquires products or materials containing:~~
~~—(a) Radioactive material in concentrations not in excess of those listed in NAC 459.186; or~~

~~—(b) Naturally occurring radioactive material that contains less than 5 picocuries (0.185 becquerels) of radium-226 per gram of material.~~

~~—2. Any person who possesses by-product material received or acquired before September 25, 1971, under the general license then provided pursuant to 10 C.F.R. § 31.4, or a similar general license of a state, is exempt from the requirements of NAC 459.180 to 459.3184, inclusive, 459.737 and 459.738 to the extent that the person possesses, uses, transfers or owns such by-product material.~~

~~—3. A person shall not introduce radioactive material into a product or material knowing or having reason to believe that it will be transferred to persons exempt under subsection 1 or the equivalent regulations of the Nuclear Regulatory Commission or any agreement state, except in accordance with a specific license issued by the Nuclear Regulatory Commission pursuant to 10 C.F.R. § 32.11 or the general licenses provided in NAC 459.210.~~

~~—4. A manufacturer, processor or producer of a product or material is exempt from the requirements for a license set forth in 10 C.F.R. Part 81 and from NAC 459.180 to 459.3154, inclusive, to the extent that the person transfers by-product material contained in a product or material:~~

~~—(a) In concentrations not in excess of those specified in NAC 459.186; and~~

~~—(b) Introduced into the product or material by a licensee holding a specific license issued by the Division expressly authorizing such introduction.~~

~~→ This exemption does not apply to the transfer of by-product material contained in any food, beverage, cosmetic, drug or other product designed for ingestion or inhalation by, or application to, a human being.~~

~~—5.— Except as otherwise provided in subsections 6 and 7, any person is exempt from the provisions of NAC 459.010 to 459.950, inclusive, to the extent that he or she receives, possesses, uses, transfers, owns or acquires radioactive material in individual quantities each of which does not exceed the applicable quantity set forth in NAC 459.188.~~

~~—6.]~~ The provisions of NAC ~~[459.180]~~ **459.184** to 459.3154, inclusive, *and sections 2 to 11, inclusive, of this regulation* do not authorize the production, packaging or repackaging of radioactive material for purposes of commercial distribution or the incorporation of radioactive material into products intended for commercial distribution.

~~{7.— A person shall not, for purposes of commercial distribution, transfer radioactive material in the individual quantities in NAC 459.188, knowing or having reason to believe that such quantities of radioactive material will be transferred to persons exempt under subsections 5 and 6 or the equivalent regulations of the Nuclear Regulatory Commission or any agreement state, except in accordance with a specific license issued by the Nuclear Regulatory Commission pursuant to 10 C.F.R. § 32.18. The license must state that the radioactive material may be transferred by the licensee to persons exempt under subsections 5 and 6 or the equivalent regulations of the Nuclear Regulatory Commission or any agreement state.~~

~~—8.— Except for by-product material combined within a device placed in use before May 3, 1999, or as otherwise authorized by this chapter, no person may combine quantities of by-product material covered by this exemption in such a manner that the aggregate quantity exceeds the limits set forth in NAC 459.188 for purposes of producing an increased radiation level.]~~

Sec. 31. NAC 459.1997 is hereby amended to read as follows:

459.1997 1. ~~{The provisions of 10 C.F.R. §§ 71.0(e), 71.1(a), 71.3, 71.4, 71.14(a), 71.15, 71.17, 71.21, 71.22, 71.23, 71.47, 71.83 to 71.89, inclusive, 71.91(e), 71.91(d), 71.97, 71.101(a),~~

~~71.101(b), 71.101(c), 71.101(g), 71.103(a), 71.103(b), 71.105, 71.106, 71.127 to 71.137, inclusive, and Appendix A to Part 71 are]~~ *Except as otherwise provided in subsections 2 and 3, Part 71 of Title 10 of the Code of Federal Regulations is* hereby adopted by reference, subject to the following:

(a) ~~[The exclusion of the following definitions from 10 C.F.R. § 71.4:~~

~~— (1) “Close reflection by water”;~~

~~— (2) “Licensed material”;~~

~~— (3) “Optimum interspersed hydrogenous moderation”;~~

~~— (4) “Spent nuclear fuel or spent fuel”;~~ and

~~— (5) “State.”~~

~~— (b) The substitution of the following rule referenees:~~

~~— (1) “NAC 459.737” for “§ 34.31(b) of this chapter” as found in 10 C.F.R. § 71.101(g);~~

~~— (2) “Subsection 1 of NAC 459.339” for “10 C.F.R § 20.1502”;~~

~~— (3) “NAC 459.3062” for “10 C.F.R. Part 35”;~~

~~— (4) “Subsection 6 of NAC 459.3585” for “10 C.F.R. § 20.1906(e)”;~~

~~— (5) “NAC 459.181” for “10 C.F.R. § 71.5”;~~

~~— (6) “10 C.F.R. §§ 71.101(a), 71.101(b), 71.101(c)(1), 71.101(g), 71.105 and 71.127 to 71.137, inclusive,” for “subpart H of this part” or “subpart H,” except in 10 C.F.R. §§ 71.17(b), 71.21(b), 71.22(b) and 71.23(b);~~

~~— (7) “10 C.F.R. §§ 71.0(c), 71.1(a), 71.3, 71.4, 71.17(e)(2), 71.21(d)(2), 71.83 to 71.89, inclusive, 71.97, 71.101(a), 71.101(b), 71.101(c)(1), 71.101(g), 71.105 and 71.127 to 71.137, inclusive,” for “subparts A, G and H of this part”;~~

~~— (8) “10 C.F.R. § 71.47” for “subparts E and F of this part”; and~~

~~—— (9) “10 C.F.R. §§ 71.101(a), 71.101(b), 71.101(e)(1), 71.101(g), 71.105 and 71.127 to 71.137, inclusive,” for “§§ 71.101 through 71.137.”~~

~~—— (c) The substitution of the following terms:~~

~~—— (1) “Division” for:~~

~~—— (I) “Commission” in 10 C.F.R. §§ 71.0(e), 71.17(a), 71.21(a), 71.22(a), 71.23(a) and 71.101(e)(1);~~

~~—— (II) “Director, Division of Security Policy, Office of Nuclear Security and Incident Response” in 10 C.F.R. §§ 71.97(c)(1) and 71.97(f)(1);~~

~~—— (III) “Director, Division of Materials Safety, Security, State, and Tribal Programs, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001” in 10 C.F.R. § 71.97(e)(3)(iii); and~~

~~—— (IV) “NRC” in 10 C.F.R. § 71.101(f);~~

~~—— (2) “The Nuclear Regulatory Commission or an agreement state” for “Commission” in 10 C.F.R. § 71.3;~~

~~—— (3) “The Governor of Nevada” for:~~

~~—— (I) “The governor of a State” in 10 C.F.R. § 71.97(a);~~

~~—— (II) “Each appropriate governor” in 10 C.F.R. § 71.97(e)(1);~~

~~—— (III) “The governor” in 10 C.F.R. § 71.97(e)(3);~~

~~—— (IV) “The governor of the State” in 10 C.F.R. § 71.97(e);~~

~~—— (V) “The governor of each State” in 10 C.F.R. § 71.97(f)(1); and~~

~~—— (VI) “A governor” in 10 C.F.R. § 71.97(e);~~

~~—— (4) “State of Nevada” for “State” in 10 C.F.R. §§ 71.97(a), 71.97(b)(2) and 71.97(d)(4);~~

~~—— (5) “The Governor of Nevada’s” for:~~

- ~~(I) “The governor’s” in 10 C.F.R. §§ 71.97(a), 71.97(e)(3), 71.97(e) and 71.97(f)(1);~~
- ~~(II) “Governor’s” in 10 C.F.R. §§ 71.97(e)(1) and 71.97(e); and~~
- ~~(III) “Governors” in 10 C.F.R. § 71.97(e)(3)(iii);~~
- ~~(6) “Specific or general” for “NRC” in 10 C.F.R. § 71.0(e);~~
- ~~(7) “The Division” for “ATTN: Document Control Desk, Director, Division of Spent Fuel Management, Office of Nuclear Material Safety and Safeguards” in 10 C.F.R. § 71.101(e)(1);~~
- ~~(8) “Each” for “Using an appropriate method listed in § 71.1(a), each” in 10 C.F.R. § 71.101(e)(1);~~
- ~~(9) “The material must be contained in a Type A package meeting the requirements of 49 C.F.R. § 173.417(a)” for “The fissile material need not be contained in a package which meets the standards of subparts E and F of this part; however, the material must be contained in a Type A package. The Type A package must also meet the DOT requirements of 49 C.F.R. 173.417(a)” as found in 10 C.F.R. §§ 71.22(a) and 71.23(a);~~
- ~~(10) “Licensee” for “licensee, certificate holder, and applicant for a CoC”; and~~
- ~~(11) “Licensee is” for “licensee, certificate holder, and applicant for a CoC are.”~~
- ~~2.1 The substitution of “Division” for references to:~~

- (1) “NRC” in 10 C.F.R. §§ 71.0, 71.5, 71.8 and 71.106;*
- (2) “Commission” in 10 C.F.R. §§ 71.0, 71.3, 71.7, 71.8, 71.12, 71.17, 71.21, 71.22, 71.23, 71.91 and 71.101;*
- (3) “Director, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001” in 10 C.F.R. § 71.5;*
- (4) “Administrator of the appropriate Regional Office” in 10 C.F.R. § 71.7;*
- (5) “NRC, in accordance with § 71.1” in 10 C.F.R. § 71.93; and*

(6) “Commission, in accordance with § 71.1 of this part” in Appendix A(II)(c);

(b) The substitution of “Division, U.S. Nuclear Regulatory Commission or an Agreement State pursuant to the regulations in this chapter or equivalent Agreement State regulations” for reference to “Commission pursuant to the regulations in this chapter” in 10 C.F.R. § 71.4; and

(c) The substitution of “with the Division” for reference to “by submitting the description to: ATTN: Document Control Desk, Director, Division of Fuel Management, Office of Nuclear Material Safety and Safeguards” in 10 C.F.R. § 71.101.

2. The following provisions of Part 71 of Title 10 of the Code of Federal Regulations are not adopted by reference:

(a) Sections 71.0(a), 71.0(b), 71.0(d) to 71.0(g), inclusive, 71.1, 71.2, 71.6, 71.8(c), 71.9, 71.10, 71.11, 71.14(b), 71.17(e), 71.19, 71.31 to 71.45, inclusive, 71.51, 71.55, 71.59 to 71.77, inclusive, 71.85, 71.87(k), 71.91(b), 71.95, 71.99, 71.100, 71.101(c)(2), (d), (e) and (f) and 71.107 to 71.125, inclusive; and

(b) “Using an appropriate method listed in § 71.1(a),” in 10 C.F.R. § 71.101.

3. Except as otherwise provided in subsection 4, any future revisions to Part 71 of Title 10 of the Code of Federal Regulations are adopted by reference unless designated with the compatibility category “NRC.” NRC rule compatibility can be obtained at the Internet address <https://www.nrc.gov/materials/toolboxes/regulation/summary-sheets-cfr.html> or from the Division.

4. The Division shall review each future revision described in subsection 3 to ensure its suitability for this State. If the Division determines that a revision is not suitable for this State, the Division shall hold a public hearing to review its determination within 90 days after the

date of the publication of the revision and give notice of that hearing. If, after the hearing, the Division does not revise its determination, the Division shall give notice within 30 days after the hearing that the revision is not suitable for this State. If the Division does not give such notice, the revision is adopted by reference as provided in subsection 3.

5. A copy of ~~the~~ a publication that contains ~~10 C.F.R.~~ Part 71 *of Title 10 of the Code of Federal Regulations* may be obtained ~~by mail from the Superintendent of Documents, United States Government Publishing Office, P.O. Box 979050, St. Louis, Missouri 63197-9000, or by toll-free telephone at (866) 512-1800, at the price of \$64, or free of charge at the Internet address <https://www.ecfr.gov/>, free of charge, at the Internet address <http://www.nrc.gov/reading-rm/doc-collections/cfr/index.html> or, if that Internet website ceases to exist, from the Division.~~

Sec. 32. NAC 459.3062 is hereby amended to read as follows:

459.3062 1. ~~The~~ *Except as otherwise provided in subsections 2 and 5, the* provisions of ~~10 C.F.R.~~ Part 35 *of Title 10 of the Code of Federal Regulations* are hereby adopted by reference, subject to the following:

~~(a) 10 C.F.R. §§ 35.8, 35.10(a), 35.11(e), 35.13(a)(1), 35.13(a)(2), 35.13(b)(5), 35.14(a), 35.15(f), 35.57(b)(3), 35.4001 and 35.4002 are not adopted by reference.~~

~~—(b) Except as otherwise provided in this chapter, the implementation date specified in 10 C.F.R. §§ 35.10(a) and 35.10(d) is November 13, 2006.~~

~~—(c) Except as otherwise provided in this chapter, the October 24, 2002, date specified in 10 C.F.R. § 35.57(a)(1) shall be deemed to mean November 13, 2006.~~

~~—(d) Except as otherwise provided in this chapter, the April 29, 2005, date specified in 10 C.F.R. § 35.57(a)(2) shall be deemed to mean April 29, 2008.~~

~~—(e) Except as otherwise provided in this section, any reference in 10 C.F.R. Part 35 to:~~

- ~~—— (1) “10 CFR Part 19” or “10 CFR 19” shall be deemed to mean “NAC 459.780 to 459.794, inclusive.”~~
- ~~—— (2) “10 CFR 19.12” or “§ 19.12” shall be deemed to mean “NAC 459.784.”~~
- ~~—— (3) “10 CFR Part 20” or “10 CFR 20” shall be deemed to mean “NAC 459.320 to 459.374, inclusive.”~~
- ~~—— (4) “10 CFR 20.1101” or “§ 20.1101” shall be deemed to mean “paragraph (a) of subsection 1 of NAC 459.321.”~~
- ~~—— (5) “10 CFR 20.1301(a)(1)” or “§ 20.1301(a)(1)” shall be deemed to mean “paragraph (a) of subsection 1 of NAC 459.335.”~~
- ~~—— (6) “10 CFR 20.1301(e)” or “§ 20.1301(e)” shall be deemed to mean “subsection 2 of NAC 459.335.”~~
- ~~—— (7) “10 CFR 20.1501” or “§ 20.1501” shall be deemed to mean “NAC 459.337.”~~
- ~~—— (8) “10 CFR Part 30” or “10 CFR 30” shall be deemed to mean “NAC 459.180 to 459.3154, inclusive.”~~
- ~~—— (9) “10 CFR 30.34(b)” or “§ 30.34(b)” shall be deemed to mean “subsection 2 of NAC 459.198.”~~
- ~~—— (10) “10 CFR 30.6” or “§ 30.6” shall be deemed to mean “NAC 459.134.”~~
- ~~—— (11) “10 CFR 32.72(b)(4)” or “§ 32.72(b)(4)” shall be deemed to mean “paragraph (c) of subsection 2 of NAC 459.300.”~~
- ~~—— (12) “10 CFR Part 33” or “10 CFR 33” shall be deemed to mean “NAC 459.262 to 459.274, inclusive.”~~
- ~~—— (13) “10 CFR 33.13” or “§ 33.13” shall be deemed to mean “NAC 459.268.”~~

~~—— (14) “10 CFR Part 170,” “10 CFR 170,” “10 CFR Part 171” or “10 CFR 171” shall be deemed to mean “NAC 459.310.”~~

~~—— (15) “Byproduct material” shall be deemed a reference to “radioactive material.”~~

~~—— (16) “Commission” or “NRC” shall be deemed a reference to “Division.”~~

~~—— (17) “Commission’s regulations,” “federal regulations” or “NRC regulations” shall be deemed a reference to “NAC 459.010 to 459.950, inclusive.”~~

~~—— (18) “NRC Form 313” shall be deemed a reference to the application form for a license for “Medical Use of Radioactive Materials” prescribed by the Division and made available on its website.~~

~~—— (19) “NRC license” shall be deemed a reference to “license issued by the Division pursuant to NAC 459.010 to 459.950, inclusive.”~~

~~—— (20) “NRC Operations Center,” “NRC Regional Office listed in § 30.6” or “Director, Office of Nuclear Safety and Safeguards” shall be deemed a reference to “the provisions of NAC 459.134 and the contact information described in the State of Nevada Radiological Emergency Response Plan.”~~

~~—— (21) “NRC or an Agreement State,” “Commission or an Agreement State” or “Commission or by an Agreement State” shall be deemed a reference to “Division, Nuclear Regulatory Commission or an agreement state.”~~

~~—— (f) The text of 10 C.F.R. § 35.491(b)(3) shall be deemed to read “Has obtained written attestation, signed by a preceptor authorized user who meets the requirements in § 35.57, § 35.490 or § 35.491 or equivalent requirements of an Agreement State, that the individual has satisfactorily completed the requirements in paragraph (b)(1) and (b)(2) of this section and has~~

~~achieved a level of competency sufficient to function independently as an authorized user of strontium-90 for ophthalmic use.”~~

~~—(g) The full text of any sentence that contains a reference to “10 CFR Part 21,” “10 CFR 21,” “10 CFR 30.7,” “§ 30.7,” “10 CFR 30.9,” “§ 30.9,” “10 CFR 30.10” or “§ 30.10” shall be deemed omitted.~~

~~—2.† The substitution of “Division, NRC or an Agreement State” for references to “Commission or an Agreement State” and “Commission or Agreement State” in 10 C.F.R. §§ 35.2, 35.11, 35.13, 35.14, 35.50, 35.51, 35.55, 35.57, 35.67, 35.190, 35.290, 35.390, 35.392, 35.394, 35.396, 35.433, 35.490, 35.590, 35.605, 35.655 and 35.690;~~

~~(b) The substitution of “Division” for references to:~~

- ~~(1) “Commission” in 10 C.F.R. §§ 35.12, 35.14, 35.18, 35.19, 35.24, 35.26 and 35.1000;~~
- ~~(2) “NRC” in 10 C.F.R. §§ 35.6, 35.13, 35.3204, 35.57(c), 35.3045 and 35.3407;~~
- ~~(3) “Appropriate address identified in § 30.6 of this chapter” in 10 C.F.R. § 35.14;~~
- ~~(4) “NRC Operations Center” in 10 C.F.R. §§ 35.3204, 35.3045 and 35.3407; and~~
- ~~(5) “Appropriate NRC Regional Office listed in § 30.6 of this chapter” in 10 C.F.R. §§ 35.3045, 35.3047, 35.3067 and 35.3204; and~~

~~(c) The substitution of “The 24-hour emergency phone number of the Division is 1-877-438-7231” for reference to “The commercial telephone number of the NRC Operations Center is (301) 816-5100” in footnote 3 of 10 C.F.R. § 35.3045.~~

~~2. The following provisions of Part 35 of Title 10 of the Code of Federal Regulations are not adopted by reference:~~

~~(a) Sections 35.8, 35.10, 35.11(c), 35.13(a), 35.4001 and 35.4002; and~~

(b) “With a copy to the Director, Office of Nuclear Material Safety and Safeguards” in 10 C.F.R. § 35.3067.

3. Any reference to Parts 170 and 171 within Part 35 of Title 10 of the Code of Federal Regulations shall be deemed a reference to the applicable fee schedule in NAC 459.310.

4. The references to NRC Form 313 in 10 C.F.R. §§ 35.12 and 35.18 shall be deemed references to the “Radioactive Material License Application” prescribed by the Division, made available on its Internet website and filed with the Division.

5. Except as otherwise provided in subsection 6, any future revisions to Part 35 of Title 10 of the Code of Federal Regulations are adopted by reference unless designated with the compatibility category “NRC.” NRC rule compatibility can be obtained at the Internet address <https://www.nrc.gov/materials/toolboxes/regulation/summary-sheets-cfr.html> or from the Division.

6. The Division shall review each future revision described in subsection 5 to ensure its suitability for this State. If the Division determines that a revision is not suitable for this State, the Division shall hold a public hearing to review its determination within 90 days after the date of the publication of the revision and give notice of that hearing. If, after the hearing, the Division does not revise its determination, the Division shall give notice within 30 days after the hearing that the revision is not suitable for this State. If the Division does not give such notice, the revision is adopted by reference as provided in subsection 5.

7. A copy of ~~the volume containing 10 C.F.R. Part 35 may be obtained by mail from the Superintendent of Documents, U.S. Government Printing Office, P.O. Box 979050, St. Louis, Missouri 63197-9000, or by toll free telephone at (866) 512-1800, at a cost of \$67, or free of charge at the Internet address <http://www.gpoaccess.gov/cfr/index.html>.~~ a publication that

contains Part 35 of Title 10 of the Code of Federal Regulations may be obtained, free of charge, at the Internet address <http://www.nrc.gov/reading-rm/doc-collections/cfr/index.html> or, if that Internet website ceases to exist, from the Division.

Sec. 33. NAC 459.310 is hereby amended to read as follows:

459.310 ~~[Except as otherwise provided in NAC 459.203, the]~~ *The* Division will not issue a new specific license or a renewed specific license to a person until the appropriate nonrefundable fee has been paid to the Division, as prescribed in the following table:

Material and use	Fee
1. Special nuclear material:	
(a) As sealed source	\$2,000
(b) In unsealed form	2,000
2. Source materials for other than milling operations	\$2,200
3. Naturally occurring radioactive material, discrete or diffuse.....	\$1,000
4. By-product material, artificially produced radioactive material and radium:	
(a) Manufacturing or distribution, or both	\$2,200
(b) Nuclear pharmacy.....	6,600
(c) Industrial radiography.....	5,500
(d) Category 1 (self-shielded) irradiator	1,650
(e) Irradiator, other than a category 1 irradiator.....	1,650
(f) Academic, broad scope	8,800
(g) Academic, other research and development.....	1,320

Material and use	Fee
(h) Service or laboratory	1,760
(i) Fixed gauge	1,100
(j) Gas chromatograph.....	496
(k) In vitro	105
(l) Portable gauge or X-ray fluorescence analyzer.....	1,320
(m) Therapeutic or diagnostic veterinary use.....	1,760
(n) Linear accelerators (with operational energies capable of exceeding 9 MeV) possession license for incidentally activated products.....	1,000
(o) Cyclotron used to manufacture PET radiochemicals	2,200
(p) All other uses of radioactive material except those set forth in subsections 5 to 9.1 8, inclusive	1,000
5. Well logging.....	\$3,300
6. Medical use of radioactive material:	
(a) Medical use.....	\$4,400
(b) General license for in vitro use.....	125
7. Civil defense	\$276
8. Registration of devices generally licensed pursuant to paragraph (a) of subsection 13 of NAC 459.218	\$250
9.1 Any use of radioactive material by a person who holds a specific license issued by the Nuclear Regulatory Commission or any agreement state.....	See

Material and use

Fee

appropriate fee

category above

Sec. 34. NAC 459.315 is hereby amended to read as follows:

459.315 A radiation safety officer for a type A specific license of broad scope must have received training and experience that includes, without limitation, training and experience with:

1. The types and quantities of radioactive material specified on the application for the specific license; and
2. The performance of the duties required for the position, including, without limitation:
 - (a) Being a member of the radiation safety committee established pursuant to ~~NAC 459.268~~ *10 C.F.R. § 33.13, adopted by reference pursuant to section 5 of this regulation*, and working closely with the radiation safety committee and the management of the applicant for the license or the licensee, as applicable, in implementing the radiation safety program;
 - (b) Ensuring that radiation safety activities are being performed safely according to policies and procedures and that all regulatory requirements are met; and
 - (c) Performing safety evaluations of proposed uses of radioactive material ~~as described in subparagraph (2) of paragraph (e) of subsection 3 of NAC 459.268~~ *pursuant to 10 C.F.R. § 33.13, adopted by reference pursuant to 5 of this regulation*, before such proposed uses are reviewed by the radiation safety committee.

Sec. 35. NAC 459.3151 is hereby amended to read as follows:

459.3151 A radiation safety officer for a type B specific license of broad scope must have received training and experience that includes, without limitation, training and experience with:

1. The types and quantities of radioactive material specified on the application for the specific license; and
2. The performance of the duties required for the position, including, without limitation:
 - (a) Working closely with the management of the applicant for the license or the licensee, as applicable, in implementing the radiation safety program;
 - (b) Ensuring that radiation safety activities are being performed safely according to policies and procedures and that all regulatory requirements are met; and
 - (c) Performing safety evaluations of proposed uses of radioactive material ~~as described in subparagraph (2) of paragraph (b) of subsection 2 of NAC 459.270~~ *pursuant to 10 C.F.R. § 33.14, adopted by reference pursuant to section 5 of this regulation*, and reviewing and approving such proposed uses.

Sec. 36. NAC 459.3152 is hereby amended to read as follows:

459.3152 1. A radiation safety officer for a specific license issued pursuant to ~~NAC 459.300~~ *10 C.F.R. § 32.72, adopted by reference pursuant to section 4 of this regulation*, to prepare radioactive drugs in a nuclear pharmacy for commercial distribution and redistribution must be qualified by training and experience to perform the duties required for the position. Such training and experience may be met by:

- (a) Being named as an authorized nuclear pharmacist;
- (b) Being identified as an authorized user on the license and having experience in the use of the types and quantities of licensed material for which the radiation safety officer has responsibilities; or
- (c) The classroom and laboratory training and work experience described in subsection 2.

2. The required classroom and laboratory training and work experience must be demonstrated by, without limitation:

(a) A college degree at the bachelor level or equivalent training and experience in the physical, chemical or biological sciences or in engineering; and

(b) Training and experience in:

(1) Radiation protection principles;

(2) The characteristics of ionizing radiation, units of radiation dose and quantities;

(3) Radiation detection instrumentation and biological hazards of exposure to radiation appropriate to the type and forms of radioactive material to be used;

(4) Applicable state and federal regulations; and

(5) Hands-on use of radioactive materials.

3. As determined by the Division, the length of training and experience required by subsection 2:

(a) Will depend on the type, form, quantity and proposed use of the radioactive material specified in the application for the specific license; and

(b) Must be sufficient to enable the radiation safety officer to identify and control the anticipated radiation hazards.

4. The training required by subsection 2 must be obtained from formal training courses designed for radiation safety officers and consist of classroom and laboratory training. Such courses may be obtained from academic institutions, commercial radiation safety consulting companies or other appropriate professional organizations. Each hour of training may be counted only once and must be allocated to the most representative topic.

5. On-the-job training must not be counted toward the hours documenting the length of training unless the training is part of a formal training course. In addition to meeting the requirements of subsection 4, for a course to be considered formal training, the course must be a course in which:

(a) A detailed description of the content of the course is maintained on file at the sponsoring institution and is available, upon request, to the Division;

(b) A permanent record indicating that the proposed radiation safety officer successfully completed the course is kept at the sponsoring institution; and

(c) Evidence that the sponsoring institution has examined the proposed radiation safety officer's knowledge of the content of the course is maintained on file at the sponsoring institution and is available, upon request, to the Division. This evidence of the proposed radiation safety officer's overall competency in the course material must include a final grade or percentile.

6. As used in this section, "authorized nuclear pharmacist" has the meaning ascribed to it in 10 C.F.R. § 35.2, as adopted by reference pursuant to NAC 459.3062.

Sec. 37. NAC 459.3153 is hereby amended to read as follows:

459.3153 1. Except as otherwise provided in subsection 2, a radiation safety officer for a specific license that uses sealed sources, tracers or field flood studies, or any combination thereof, in well logging must have:

(a) At least 1 year of full-time experience as a logging supervisor; and

(b) A thorough knowledge of management policies, company administrative and operating procedures and safety procedures related to protection against radiation exposures.

2. In lieu of the requirements set forth in subsection 1, a person may serve as a radiation safety officer if he or she:

(a) Is certified by the American Board of Health Physics; or

(b) Holds a bachelor's degree, master's degree or more advanced degree in the physical or biological sciences and:

(1) Has at least 1 year of full-time experience conducting a radiation safety program of comparable size and scope as the radiation safety program associated with the license sought by the applicant or held by the licensee, as applicable; or

(2) Is listed as an authorized user or the radiation safety officer on a license issued by the Nuclear Regulatory Commission or an agreement state that requires a radiation safety program of comparable size and scope as the radiation safety program associated with the license sought by the applicant or held by the licensee, as applicable.

3. ~~In addition to implementing and overseeing a radiation safety program as required pursuant to NAC 459.197, a~~ **A** radiation safety officer for a specific license that uses sealed sources, tracers or field flood studies, or any combination thereof, in well logging shall:

(a) Coordinate the safe use of the radioactive material specified in the application for the license; and

(b) Ensure compliance with the applicable requirements of NAC 459.010 to 459.950, inclusive, **and sections 2 to 13, inclusive, of this regulation** and chapter 459 of NRS and federal laws and regulations.

4. As used in this section, "field flood study" means a tracer study involving multiple wells where unsealed radioactive material is injected and multiple oil or gas samples

containing radioactive material are collected from each of the wells to determine the direction and rate of flow through the adjacent formation.

Sec. 38. NAC 459.3154 is hereby amended to read as follows:

459.3154 1. A radiation safety officer for a specific license issued pursuant to ~~NAC 459.300~~ *10 C.F.R. § 32.72, adopted by reference pursuant to section 4 of this regulation*, to possess and produce radiochemicals ~~H~~ using an accelerator for transfer or distribution to persons authorized under a license issued by the Nuclear Regulatory Commission or an agreement state must be qualified by training and experience to perform the duties required for the position. Such training and experience may be met by:

- (a) A college degree at the bachelor level or equivalent training and experience in the physical, chemical or biological sciences or in engineering;
- (b) Training and experience in:
 - (1) Radiation protection principles;
 - (2) The characteristics of ionizing radiation, units of radiation dose and quantities;
 - (3) Radiation detection instrumentation and biological hazards of exposure to radiation appropriate to the type and forms of radioactive material to be used;
 - (4) Applicable state and federal regulations; and
 - (5) The handling of radioactive material in relation to production activities, including, without limitation, maintenance and repair of the accelerator; and
- (c) Experience in planning and conducting evaluations, surveys and measurements similar to those required by the radiation safety program of the applicant for the specific license or the licensee, as applicable.

2. As determined by the Division, the length of training and experience required by subsection 1:

- (a) Will depend on the type, form, quantity, beam energies and proposed use of the radioactive material specified in the application for the specific license; and
- (b) Must be sufficient to enable the radiation safety officer to identify and control the anticipated radiation hazards.

3. The training required by subsection 1 must be obtained from training courses designed for radiation safety officers and consist of classroom and laboratory training. Such courses may be obtained from academic institutions, commercial radiation safety consulting companies or other appropriate professional organizations. Each hour of training may be counted only once and must be allocated to the most representative topic.

4. If curie quantities of radioactive material are handled at the accelerator facility in which the radiation safety officer is appointed, the length of training and experience required by paragraph (b) of subsection 1 is satisfied by at least:

- (a) Forty hours of training in the safe handling of radioactive material which is specific to the job duties of the radiation safety officer; and
- (b) One year of full-time experience as a radiation safety officer with similar types, forms, quantities and uses of radioactive material.

Sec. 39. NAC 459.320 is hereby amended to read as follows:

459.320 1. The provisions of NAC 459.320 to 459.374, inclusive, establish standards for protection against radiation hazards. It is the purpose of those sections to control the receipt, possession, use, disposal and transfer of ~~licensed or~~ registered sources of radiation by any ~~licensee or~~ registrant in such a manner that the total dose to a natural person, including

exposures to ~~licensed or unlicensed or~~ registered or unregistered sources of radiation, whether in the possession of the ~~licensee,~~ registrant or any other person, but not including exposure to radiation from natural background sources, medical diagnosis and therapy, natural persons who have been administered radioactive drugs or have received permanent implants containing radioactive material and have been released from the control of a licensee pursuant to 10 C.F.R. § 35.75, or voluntary participation in medical research does not exceed the standards of radiation protection set forth in NAC 459.320 to 459.374, inclusive. Those sections will not be construed as limiting actions that may be necessary to protect the health and safety of the public.

2. Except as otherwise specifically provided, NAC 459.320 to 459.374, inclusive, apply to all ~~licensees or~~ registrants. Those sections do not limit the intentional exposure of natural persons to radiation for the purpose of medical use or the intentional exposure of natural persons to radiation who are voluntarily participating in programs for medical research.

3. In addition to complying with the requirements set forth in NAC 459.320 to 459.374, inclusive, a ~~licensee or~~ registrant shall make every reasonable effort to maintain exposures and releases of radioactive materials in effluents to unrestricted areas, as low as is reasonably achievable.

Sec. 40. NAC 459.321 is hereby amended to read as follows:

459.321 ~~1.~~ Each ~~licensee and~~ registrant shall:

~~(a)~~ *1.* Develop, document and carry out a program for protection against radiation commensurate with the scope of its ~~licensed or~~ registered activities and sufficient to ensure compliance with the provisions of NAC 459.010 to 459.950, inclusive ~~1.~~

~~(b)~~ *, and sections 2 to 13, inclusive, of this regulation.*

2. Use, to the extent practicable, procedures and engineering controls, based upon sound principles of protection against radiation, to achieve occupational doses and doses to members of the public that are as low as is reasonably achievable.

~~{(e)}~~ 3. Review, at intervals not to exceed 12 months, the content and implementation of the program for protection against radiation.

~~{2.— A licensee or registrant shall, to achieve doses to members of the public that are as low as is reasonably achievable pursuant to paragraph (b) of subsection 1, establish a constraint on air emissions to the environment of radioactive material, excluding radon 222 and its decay products, such that the individual member of the public likely to receive the highest dose from such emissions will not be expected to receive a total effective dose equivalent in excess of 10 millirems (0.1 millisievert).~~

~~—3.— A licensee or registrant that causes, permits or is otherwise responsible for air emissions of radioactive material to the environment that exceed the constraint established pursuant to subsection 2 shall:~~

~~—(a) Submit to the Division the report required by NAC 459.371; and~~

~~—(b) Promptly take appropriate corrective action to prevent any recurrence.}~~

Sec. 41. NAC 459.325 is hereby amended to read as follows:

459.325 1. ~~{Except as otherwise provided in subsection 5, a licensee or}~~ A registrant shall control occupational doses, except for planned special exposures, to ensure that no adult receives annually occupational doses in excess of the following limits:

(a) The lesser of:

(1) A total effective dose equivalent of 5 rems (50 millisieverts); or

(2) The sum of the deep-dose equivalent and the committed dose equivalent to any individual organ or tissue, other than the lens of the eye, of 50 rems (500 millisieverts);

(b) A lens dose equivalent of 15 rems (150 millisieverts); and

(c) A shallow-dose equivalent to the skin of the whole body or the skin of any extremity of 50 rems (500 millisieverts).

2. Occupational doses received in excess of the annual limits specified in subsection 1, including doses received during accidents, emergencies and planned special exposures, must be subtracted from the limits for planned special exposures that a person may receive during a current year and during his or her lifetime.

3. When the external exposure is determined by a measurement with an external personal monitoring device, the deep-dose equivalent must be used in lieu of the effective dose equivalent, unless the effective dose equivalent is determined by a dosimetry method approved by the Division. The assigned deep-dose equivalent must be for the portion of the body receiving the highest exposure. The assigned shallow-dose equivalent must be the dose averaged over the contiguous 10 square centimeters of skin receiving the highest exposure. The deep-dose equivalent, lens dose equivalent and shallow-dose equivalent may be assessed from surveys or other radiation measurements for the purpose of demonstrating compliance with the limits for occupational doses, if the personnel monitoring equipment was not in the region of highest potential exposure, or the results of personnel monitoring are unavailable.

4. ~~The derived air concentration and annual limit on intake values that are set forth in table I of appendix B may be used to determine the occupational dose of a person and to demonstrate compliance with the limits for occupational doses.~~

~~—5.— Notwithstanding the annual limits, a licensee shall limit a person’s intake of soluble uranium to 10 milligrams in 1 week.~~

~~—6.—~~ The ~~{licensee or}~~ registrant shall reduce the occupational dose that a person is allowed to receive in a current year by the amount of the occupational dose that person received during the year while employed by another person.

Sec. 42. NAC 459.329 is hereby amended to read as follows:

459.329 A ~~{licensee or}~~ registrant may permit a worker who is an adult to receive a planned special exposure, in addition to and accounted for separately from the doses received under the limits specified in NAC 459.325, if each of the following conditions is satisfied:

1. The ~~{licensee or}~~ registrant notifies the Division of the planned special exposure in writing at least 10 working days before the planned special exposure is scheduled to occur, and verifies that the Division has received the letter of notification.
2. The planned special exposure is to occur in an exceptional situation when alternatives that might avoid the higher exposure are unavailable or impractical.
3. The ~~{licensee or}~~ registrant, and employer if the employer is not the licensee or registrant, specifically authorizes the planned special exposure, in writing, before the exposure occurs.
4. Before the planned special exposure, the ~~{licensee or}~~ registrant ensures that each person involved is:
 - (a) Informed of the purpose of the planned special exposure;
 - (b) Informed of the estimated doses and associated potential risks, and the specific radiation levels or other conditions that might be involved in performing the task; and
 - (c) Instructed in the measures to be taken to keep the dose as low as is reasonably achievable considering other risks that may be present.

5. Before permitting a person to participate in a planned special exposure, the ~~licensee or~~ registrant ascertains previous doses received by the person during his or her lifetime as required pursuant to NAC 459.365.

6. The planned special exposure would not cause a person to receive a dose from all planned special exposures and all doses in excess of:

(a) The numerical values of any of the limits specified in subsection 1 of NAC 459.325 in any year; and

(b) Five times the annual limits specified in subsection 1 of NAC 459.325 during the lifetime of the person.

7. The ~~licensee or~~ registrant maintains records of the conduct of the planned special exposure in accordance with NAC 459.3655 and submits a written report in accordance with NAC 459.3715.

8. The ~~licensee or~~ registrant records the best estimate of the dose resulting from the planned special exposure in the record of the person receiving the dose and informs that person, in writing, of the dose within 30 days after the date of the planned special exposure. The dose from planned special exposures must not be considered in controlling the future occupational dose of the person pursuant to subsection 1 of NAC 459.325, but must be included in the determinations required to be made pursuant to subsections 5 and 6.

Sec. 43. NAC 459.333 is hereby amended to read as follows:

459.333 1. Except as otherwise provided in subsection 4, a ~~licensee or~~ registrant shall ensure that the dose equivalent to an embryo during the entire pregnancy, resulting from occupational exposure of a woman who has declared her pregnancy, does not exceed 0.5 rem (5 millisieverts).

2. The ~~licensee or~~ registrant shall make efforts to avoid any substantial variation from a uniform monthly exposure rate to a woman who has declared her pregnancy so as to satisfy the limits specified in subsection 1.

3. The dose equivalent to an embryo is the sum of:

(a) The deep-dose equivalent to the woman who has declared her pregnancy; and

(b) The dose equivalent to the embryo resulting from radionuclides in the embryo and radionuclides in the woman who has declared her pregnancy.

4. If, by the time a woman declares her pregnancy to the ~~licensee or~~ registrant, the dose equivalent to the embryo has exceeded 0.5 rem (5 millisieverts), or is within 0.05 rem (0.5 millisievert) of that dose, the ~~licensee or~~ registrant shall be deemed to be in compliance with subsection 1 if the additional dose equivalent to the embryo does not exceed 0.05 rem (0.5 millisievert) during the remainder of the pregnancy.

Sec. 44. NAC 459.335 is hereby amended to read as follows:

459.335 1. Except as otherwise provided in this section, ~~and subsection 2 of NAC 459.321,~~ each ~~licensee and~~ registrant shall conduct operations to ensure that:

(a) The total effective dose equivalent to any member of the public from its ~~licensed or~~ registered operation does not exceed 0.1 rem (1 millisievert) per year, not including the dose contribution from background radiation, any medical administration the member of the public has received, exposure to natural persons who have been administered radioactive material and have been released from the control of a licensee pursuant to 10 C.F.R. § 35.75, *as adopted by reference in NAC 459.3062*, voluntary participation in medical research, and the disposal by the licensee of radioactive material into sanitary sewerage; ~~in accordance with NAC 459.3605;~~ and

(b) The dose in any unrestricted area from external sources, not including the dose contributions from natural persons who have been administered radioactive material and have been released from the control of a licensee pursuant to 10 C.F.R. § 35.75, *as adopted by reference in NAC 459.3062*, does not exceed 0.002 rem (0.02 millisievert) in any 1 hour.

2. ~~Notwithstanding the provisions of paragraph (a) of subsection 1, a licensee may allow a visitor to a person who cannot be released pursuant to 10 C.F.R. § 35.75 to receive a radiation dose greater than 0.1 rem (1 millisievert) if:~~

~~—(a) The radiation dose does not exceed 0.5 rem (5 millisieverts); and~~

~~—(b) Before the visit, an authorized user has determined that the visit is appropriate.~~

~~3.]~~ A ~~licensee, a~~ registrant or an applicant for a ~~license or~~ registration may apply to the Division for authorization to operate up to an annual dose limit for a member of the public of 0.5 rem (5 millisieverts) per year. The application must include:

(a) A demonstration of the need for and the expected duration of operations in excess of the limit specified in paragraph (a) of subsection 1;

(b) A description of the program of the ~~licensee or~~ registrant to assess and control the dose within the annual limit of 0.5 rem (5 millisieverts); and

(c) The procedures to be followed to maintain the dose as low as is reasonably achievable.

~~4.]~~ 3. The Division may impose additional restrictions on radiation levels in unrestricted areas. ~~and on the total quantity of radionuclides that a licensee may release in effluents in order to restrict the collective dose.~~

~~5.—~~ In addition to the requirements of this section, a licensee who is subject to the provisions of 40 C.F.R. Part 190 shall comply with the standards set forth therein.]

4. As used in this section, “sanitary sewerage” means a system of public sewers for carrying off wastewater and refuse. The term does not include sewage treatment facilities, septic tanks or leach fields owned or operated by a licensee.

Sec. 45. NAC 459.3355 is hereby amended to read as follows:

459.3355 1. A ~~licensee or~~ registrant shall make or cause to be made surveys of radiation levels in unrestricted areas and radioactive materials in effluents released to unrestricted areas in order to demonstrate compliance with the limits specified in NAC 459.335 for members of the public.

2. A ~~licensee or~~ registrant shall demonstrate compliance with the annual limits specified in NAC 459.335 by:

(a) Demonstrating by measurement or calculation that the total effective dose equivalent to the member of the public likely to receive the highest dose from the ~~licensed or~~ registered operation does not exceed the annual limits; or

(b) Demonstrating that ~~†~~:

~~—(1) The annual average concentrations of radioactive material released in gaseous and liquid effluents at the boundary of the unrestricted area do not exceed the values specified in Table II of Appendix B; and~~

~~—(2) If, if a person were continually present in an unrestricted area, the dose from external sources would not exceed 0.002 rem in 1 hour and 0.05 rem in 1 year.~~

~~†3. Upon approval from the Division, the licensee may adjust the concentration values for effluents in Table II of Appendix B for members of the public to take into account the actual physical and chemical characteristics of the effluents.†~~

Sec. 46. NAC 459.337 is hereby amended to read as follows:

459.337 1. Each ~~licensee and~~ registrant shall make, or cause to be made, surveys of areas, including the subsurface, that:

(a) Are necessary for the ~~licensee or~~ registrant to comply with NAC 459.010 to 459.950, inclusive ~~1~~, *and sections 2 to 13, inclusive, of this regulation*; and

(b) Are necessary under the circumstances to evaluate:

(1) The magnitude and extent of radiation levels; *and*

(2) ~~Concentrations or quantities of residual radioactivity; and~~

~~—(3)~~ The potential radiological hazards of the radiation levels and residual radioactivity detected.

2. The Division shall evaluate surveys of areas made by a ~~licensee or~~ registrant pursuant to subsection 1 to determine if a significant risk to public health and safety exists. The Division may require the ~~licensee or~~ registrant to make an additional survey of areas if:

(a) The conditions under which the previous survey was made have changed; and

(b) The Division determines that the change in conditions described in paragraph (a) may result in a significant risk to public health and safety.

3. ~~Records from surveys describing the location and amount of subsurface residual radioactivity identified at a site must be:~~

~~—(a) Kept with records important to the decommissioning of a facility; and~~

~~—(b) Retained in accordance with the provisions of subsection 13 of NAC 459.1955.~~

~~—4.~~ The ~~licensee or~~ registrant shall ensure that instruments and equipment used for quantitative radiation measurements are calibrated for the radiation measured at intervals not to exceed 12 months.

~~4.~~ 4. All personnel dosimeters, except for direct and indirect reading pocket ionization chambers and those dosimeters used to measure the dose to any extremity, that require processing to determine the dose of radiation and that are used by ~~licensees and~~ registrants to comply with NAC 459.325, with other applicable provisions of NAC 459.010 to 459.950, inclusive, *and sections 2 to 13, inclusive, of this regulation*, or with conditions specified in a ~~license or~~ registration, must be processed and evaluated by a dosimetry processor who is accredited by the National Voluntary Laboratory Accreditation Program of the National Institute of Standards and Technology for the type of radiation or radiations included in the program that most closely approximate the type of radiation for which the person wearing the dosimeter is monitored.

~~5.~~ 5. The ~~licensee or~~ registrant shall ensure that adequate precautions are taken to prevent a deceptive exposure of personnel monitoring equipment.

Sec. 47. NAC 459.339 is hereby amended to read as follows:

459.339 Each ~~licensee and~~ registrant shall monitor exposures from sources of radiation at levels sufficient to demonstrate compliance with the limits for occupational doses specified in NAC 459.010 to 459.950, inclusive ~~1~~, *and sections 2 to 13, inclusive, of this regulation*. As a minimum ~~1~~:

~~1. Each licensee and~~, *each* registrant shall monitor occupational exposure to radiation from licensed and unlicensed sources under the control of the ~~licensee or~~ registrant and shall supply and require the use of personnel monitoring equipment by:

~~(a)~~ 1. Adults who are likely to receive in 1 year, from sources of radiation external to the body, a dose in excess of 10 percent of the limits specified in NAC 459.325;

~~[(b)]~~ 2. Minors who are likely to receive in 1 year, from sources of radiation external to the body, a deep-dose equivalent in excess of 0.1 rem (1 millisievert), a lens dose equivalent in excess of 0.15 rem (1.5 millisieverts), or a shallow-dose equivalent to the skin or extremities in excess of 0.5 rem (5 millisieverts);

~~[(e)]~~ 3. Women who have declared their pregnancy and are likely to receive, during the entire pregnancy, from sources of radiation external to the body, a deep-dose equivalent in excess of 0.1 rem (1 millisievert); and

~~[(d)]~~ 4. Any person entering a high or very high radiation area.

~~[(2.) Each licensee shall monitor, to determine compliance with NAC 459.3275, the occupational intake of radioactive material by and assess the committed effective dose equivalent to:~~

~~—(a) Adults who are likely to receive, in 1 year, an intake in excess of 10 percent of the applicable annual limit on intake in columns 1 and 2 of table I of appendix B;~~

~~—(b) Minors who are likely to receive, in 1 year, a committed effective dose equivalent in excess of 0.1 rem (1 millisievert); and~~

~~—(c) Women who have declared their pregnancy and are likely to receive, during the entire pregnancy, a committed effective dose equivalent in excess of 0.1 rem (1 millisievert).]~~

Sec. 48. NAC 459.341 is hereby amended to read as follows:

459.341 1. Except as otherwise provided in this section, a ~~[(licensee or)]~~ registrant shall ensure that each entrance to a high radiation area has one or more of the following features:

(a) A control device that, upon entry into the radiation area, causes the level of radiation to be reduced below the level at which a person could receive a deep-dose equivalent of 0.1 rem in 1

hour at 30 centimeters from the source of radiation or from any surface that the radiation penetrates.

(b) A control device that energizes a conspicuous visible or audible alarm so that a person entering the high radiation area and the supervisor of the activity in the area are made aware of the entry.

(c) Entrances that are locked, except during periods when access to the area is required with positive control over each individual entrance.

2. In place of the controls required pursuant to subsection 1, the ~~licensee or~~ registrant may substitute continuous direct or electronic surveillance that is capable of preventing unauthorized entry into the radiation area.

3. The ~~licensee or~~ registrant may apply to the Division for authorization to use alternative methods for controlling access to high radiation areas.

4. The ~~licensee or~~ registrant shall establish the controls required pursuant to subsections 1 and 3 in a manner that does not prevent a person from leaving a high radiation area.

~~5. The licensee is not required to control each entrance to a high radiation area that contains only radioactive materials prepared for transport and packaged and labeled in accordance with the regulations of the United States Department of Transportation if:~~

~~—(a) The packages do not remain in the area for more than 3 days; and~~

~~—(b) The dose at 1 meter from the external surface of any package does not exceed 0.01 rem per hour.~~

~~6. The licensee is not required to control each entrance to a room or other area in a hospital solely because of the presence of a patient whose treatment requires the use of radioactive material if there are persons in attendance who will take the necessary precautions to:~~

~~—(a) Prevent the exposure of a person to radiation or radioactive material in excess of the limits specified in NAC 459.325, 459.331, 459.333 and 459.335; and~~

~~—(b) Ensure that any doses are as low as are reasonably achievable.}~~

Sec. 49. NAC 459.343 is hereby amended to read as follows:

459.343 In addition to the requirements specified in NAC 459.341, a ~~{licensee or}~~ registrant shall institute measures to ensure that a person is not able to gain unauthorized or inadvertent access to areas in which radiation levels could be encountered at 500 rads or more in 1 hour at 1 meter from a source of radiation or any surface through which the radiation penetrates.

Sec. 50. NAC 459.3525 is hereby amended to read as follows:

459.3525 ~~{1.—A licensee shall control and maintain constant surveillance of licensed radioactive material that is in an unrestricted area and that is not in storage or related to the care of a patient.~~

~~—2.}~~ A registrant shall maintain control of radiation machines that are in an unrestricted area and that are not in storage.

Sec. 51. NAC 459.353 is hereby amended to read as follows:

459.353 A ~~{licensee or}~~ registrant shall secure from unauthorized removal or access ~~{licensed or}~~ registered sources of radiation that are stored in controlled areas as specified in the ~~{licensee or}~~ registration or in unrestricted areas.

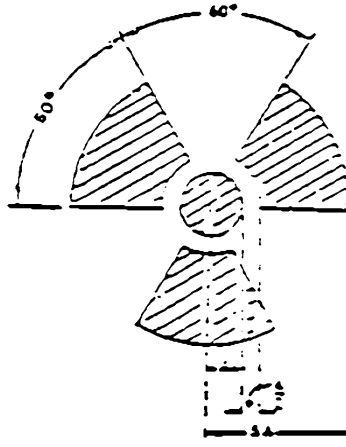
Sec. 52. NAC 459.355 is hereby amended to read as follows:

459.355 1. Except ~~{as otherwise provided in this section or}~~ as otherwise authorized by the Division, a ~~{licensee or}~~ registrant shall use a radiation symbol with a three-bladed design as follows:

(a) Each cross-hatched area must be magenta, purple or black; and

(b) The background must be yellow.

Radiation symbol



2. ~~{A licensee may label sources of radiation, holders for sources of radiation or device components containing sources of radiation that are subjected to high temperatures with conspicuously etched or stamped radiation symbols that do not comply with the requirements for color set forth in subsection 1.~~

~~—3.†~~ In addition to the contents of signs and labels required by NAC 459.010 to 459.950, inclusive, *and sections 2 to 13, inclusive, of this regulation*, a licensee or registrant shall provide, on or near the required signs and labels, additional information, as appropriate, to make persons aware of potential exposures and to minimize those exposures.

~~{4.}~~ 3. A radiation symbol or the labels described in NAC 459.010 to 459.950, inclusive, *and sections 2 to 13, inclusive, of this regulation*, must only be used when conditions exist that warrant their use.

Sec. 53. NAC 459.3555 is hereby amended to read as follows:

459.3555 Except as otherwise provided in NAC 459.3565:

1. A ~~{licensee-or}~~ registrant shall post in each radiation area a conspicuous sign or signs bearing the radiation symbol and the words “CAUTION, RADIATION AREA.”
2. A ~~{licensee-or}~~ registrant shall post in each high radiation area a conspicuous sign or signs bearing the radiation symbol and the words “CAUTION, HIGH RADIATION AREA” or “DANGER, HIGH RADIATION AREA.”
3. A ~~{licensee-or}~~ registrant shall post in each very high radiation area a conspicuous sign or signs bearing the radiation symbol and the words “GRAVE DANGER, VERY HIGH RADIATION AREA.”

~~{4.—A licensee shall post in each area of airborne radioactivity a conspicuous sign or signs bearing the radiation symbol and the words “CAUTION, AIRBORNE RADIOACTIVITY AREA” or “DANGER, AIRBORNE RADIOACTIVITY AREA.”}~~

~~{5.—A licensee shall post in each area or room in which there is used or stored an amount of licensed radioactive material exceeding 10 times the quantity of such material specified in Appendix C a conspicuous sign or signs bearing the radiation symbol and the words “CAUTION, RADIOACTIVE MATERIAL(S)” or “DANGER, RADIOACTIVE MATERIAL(S).”}~~

Sec. 54. NAC 459.3565 is hereby amended to read as follows:

459.3565 1. A ~~{licensee-or}~~ registrant is not required to post signs pursuant to NAC 459.3555 in an area or room containing sources of radiation for periods of less than 8 hours if:

(a) The sources of radiation are constantly attended during these periods by a person who takes the precautions necessary to prevent the exposure of persons to sources of radiation in excess of the limits established in NAC 459.325, 459.331, 459.333 and 459.335; and

(b) The area or room is subject to the control of the ~~licensee or~~ registrant.

2. A room or other area in a hospital that is occupied by a patient is not required to be posted with signs pursuant to NAC 459.3555 if ~~†~~:

~~—(a) The patient is being treated with sealed sources of radiation or has been treated with unsealed radioactive material in quantities of less than 30 millicuries (1.11 gigabecquerels), or the measured dose rate at 1 meter from the patient is less than 0.005 rem (0.05 millisievert) per hour;~~

~~—(b) The licensee is authorized to release the patient from confinement pursuant to 10 C.F.R. § 35.75; and~~

~~—(c) There~~ *there* are personnel in attendance who will take the necessary precautions to prevent the exposure of persons to radiation ~~for radioactive materials~~ in excess of the limits specified in NAC 459.325, 459.331, 459.333 and 459.335, and to maintain the level of radiation at a level which is as low as is reasonably achievable.

~~†3.—A room or area is not required to be posted with signs pursuant to NAC 459.3555 because of the presence of a sealed source of radiation if the level of radiation at 30 centimeters from the surface of the container or housing for the sealed source does not exceed 0.005 rem (0.05 millisievert) per hour.~~

~~—4.—A room in a hospital or clinic that is used for teletherapy is not required to be posted with signs pursuant to NAC 459.3555 if there are personnel in attendance who will take the necessary precautions to prevent the exposure of any person to radiation or radioactive materials in excess~~

~~of the limits established in NAC 459.325, 459.331, 459.333 and 459.335, and to maintain the level of radiation at a level that is as low as is reasonably achievable.]~~

Sec. 55. NAC 459.357 is hereby amended to read as follows:

459.357 ~~[Except as otherwise provided in NAC 459.3575:~~

~~—1.— Each licensee shall ensure that each container of licensed radioactive material bears a durable, clearly visible label bearing the radiation symbol and the words “CAUTION, RADIOACTIVE MATERIAL” or “DANGER, RADIOACTIVE MATERIAL.” The label must provide information to permit persons handling or using the container, or working in the vicinity of the container, to take precautions to avoid or minimize exposures. The information on the label may include, but is not limited to:~~

- ~~—(a) The radionuclides present;~~
- ~~—(b) An estimate of the quantity of radioactivity;~~
- ~~—(c) The date for which the activity is estimated;~~
- ~~—(d) The levels of radiation;~~
- ~~—(e) The kinds of radioactive materials present; and~~
- ~~—(f) The mass enrichment.~~

~~—2.— Each licensee shall, before the removal or disposal of empty uncontaminated containers in unrestricted areas, remove or deface the label required pursuant to subsection 1, or otherwise clearly indicate that the container no longer contains radioactive material.~~

~~—3.]~~ Each registrant shall ensure that each radiation machine is labeled in a conspicuous manner which cautions persons that radiation is produced when the machine is energized.

Sec. 56. NAC 459.3625 is hereby amended to read as follows:

459.3625 1. ~~Except as otherwise provided in subsection 5, each licensee and~~ *Each* registrant shall use the units curie, rad, rem and roentgen, including multiples and subdivisions thereof, to prepare the records required by NAC 459.010 to 459.950, inclusive, *and sections 2 to 13, inclusive, of this regulation*, and shall clearly indicate the units of all quantities entered on those records.

2. The ~~licensee or~~ registrant shall make a clear distinction among the quantities entered on the records required by NAC 459.010 to 459.950, inclusive, *and sections 2 to 13, inclusive, of this regulation*, including, without limitation:

- (a) Committed effective dose equivalent;
- (b) Deep-dose equivalent;
- (c) Lens dose equivalent;
- (d) Shallow-dose equivalent; and
- (e) Total effective dose equivalent.

3. The ~~licensee~~ *registrant* may record, in parentheses following the unit measurements required pursuant to subsection 1, the equivalent quantities expressed as unit measurements pursuant to the International System of Units (SI).

4. A discontinuance or curtailment of the activities of a ~~licensee or~~ registrant does not relieve that ~~licensee or~~ registrant of the responsibility for retaining all records required by NAC 459.010 to 459.950, inclusive ~~[- A licensee or registrant may request the Division to retain such records. An acceptance of the records by the Division relieves the licensee or registrant of subsequent responsibility only in respect to their retention as required by this section.~~

~~—5.— Each licensee or registrant shall use to prepare shipment manifests required pursuant to NAC 459.8231:~~

~~—(a) The International System of Units (SI); or~~

~~—(b) The International System of Units (SI) and the units set forth in subsection 1.], and~~

sections 2 to 13, inclusive, of this regulation.

Sec. 57. NAC 459.363 is hereby amended to read as follows:

459.363 1. Each record required by NAC 459.010 to 459.950, inclusive, *and sections 2 to 13, inclusive, of this regulation*, must be legible throughout the specified period of retention.

The record must:

(a) Be:

(1) The original;

(2) A reproduced copy or a microform, if the copy or microform is authenticated by authorized personnel and, if microform is used, the microform is capable of producing a clear copy throughout the specified period of retention; or

(3) Stored in electronic media with the capability for producing legible, accurate and complete records during the specified period of retention; and

(b) Include all pertinent information, including, without limitation, stamps, initials and signatures with regard to letters, drawings or specifications.

2. A ~~licensee or~~ registrant shall maintain adequate safeguards to prevent tampering with and the loss of records.

Sec. 58. NAC 459.3635 is hereby amended to read as follows:

459.3635 1. Each ~~licensee and~~ registrant shall maintain records of its program for protection against radiation required pursuant to NAC 459.321, including:

(a) The provisions of the program; and

(b) The results of audits and other reviews of the content and implementation of the program.

2. The ~~licensee or~~ registrant shall retain the records required by paragraph (a) of subsection 1 until the Division terminates each ~~licensee or~~ registration requiring the record. The ~~licensee or~~ registrant shall retain each record required by paragraph (b) of subsection 1 for at least 3 years after the record is made.

Sec. 59. NAC 459.3645 is hereby amended to read as follows:

459.3645 1. Each ~~licensee and~~ registrant shall maintain records showing the results of surveys and calibrations required pursuant to NAC 459.337 . ~~and 459.3585. Except as otherwise provided in subsection 3 of NAC 459.337, the licensee or~~ **The** registrant shall retain each such record for at least 3 years after the record is made.

2. A ~~licensee or~~ registrant shall retain ~~each of the following records~~ until the Division authorizes their disposal ~~†~~

~~—(a) Records† records~~ of the results of surveys used to determine the dose from external sources of radiation and, in the absence of or in combination with individual monitoring data, in the assessment of individual dose equivalents . ~~†~~

~~—(b) Records of the results of measurements and calculations used to determine individual intakes of radioactive material and used in the assessment of internal doses;~~

~~—(c) Records showing the results of sampling air and surveys and bioassays required pursuant to subparagraphs (1) and (2) of paragraph (c) of subsection 1 of NAC 459.349; and~~

~~—(d) Records of the results of measurements and calculations used to evaluate the release of radioactive effluents into the environment.†~~

Sec. 60. NAC 459.365 is hereby amended to read as follows:

459.365 1. For each person who is likely to receive, in 1 year, an occupational dose requiring monitoring pursuant to NAC 459.339, the ~~licensee or~~ registrant shall:

(a) Determine the occupational dose received by that person during the current year; and

(b) Attempt to obtain the records of the lifetime cumulative occupational dose received by that person.

2. Before permitting a person to participate in a planned special exposure, the ~~licensee or~~ registrant shall determine:

(a) The internal and external doses received by that person from all previous planned special exposures;

(b) All doses in excess of the limits, including, without limitation, doses received during accidents and emergencies, received during the lifetime of the person; and

(c) All lifetime cumulative occupational doses.

3. To comply with the requirements of subsection 1, a ~~licensee or~~ registrant may:

(a) Accept, as a record of the occupational dose that the person received during the current year, a signed written statement from the person, or from his or her most recent employer for work involving exposure to radiation, that discloses the nature and the amount of any occupational dose that the person received during the current year.

(b) Accept, as the record of the lifetime cumulative dose received by a person, a current form regarding history of cumulative occupational exposure, signed by the person and countersigned by:

(1) An appropriate official of the most recent employer of the person for work involving exposure to radiation; or

(2) The current employer of the person, if the person is not employed by the ~~licensee or~~ registrant.

(c) Obtain reports regarding the dose equivalent of a person from his or her most recent employer for work involving exposure to radiation, or the current employer of the person if he or she is not employed by the ~~licensee or~~ registrant, by telephone, telegram, facsimile, electronic media or letter. The ~~licensee or~~ registrant shall request a written verification of the data if the authenticity of the transmitted report cannot be established.

4. A ~~licensee or~~ registrant shall record the history of exposure of each person, as required by subsection 1, on a form regarding history of cumulative occupational exposure, and shall include all the information required by that form. The form must show each period in which the person received occupational exposure to radiation or radioactive material and must be signed by that person. For each period for which the ~~licensee or~~ registrant obtains a report, the ~~licensee or~~ registrant shall use the dose shown in the report in preparing the form regarding history of cumulative occupational exposure. For any period in which the ~~licensee or~~ registrant does not obtain a report, the ~~licensee or~~ registrant shall place a notation on the form regarding history of cumulative occupational exposure indicating the periods for which data is not available.

5. ~~Licenseses and registrants~~ **Registrants** are not required to reevaluate the separate dose equivalents received from sources of radiation outside the body and committed dose equivalents or intakes of radionuclides received from radioactive material taken into the body that are assessed before January 18, 1994. Histories of occupational exposure obtained and recorded on the form regarding history of cumulative occupational exposure before January 18, 1994, may be used in the absence of specific information regarding the intake of radionuclides by the person.

6. If the ~~licensee or~~ registrant is unable to obtain a complete record of the current and previously accumulated occupational dose of a person, the ~~licensee or~~ registrant shall:

(a) In establishing administrative controls pursuant to subsection ~~6~~ 4 of NAC 459.325 for the current year, assume that the allowable limits for the person are reduced by 1.25 rems for each quarter for which records were unavailable and the person was engaged in activities that could have resulted in occupational exposure; and

(b) Assume that the person is not available for planned special exposures.

7. The ~~licensee or~~ registrant shall retain the records on the form regarding history of cumulative occupational exposure until the Division terminates each ~~licensee or~~ registration requiring the records. The ~~licensee or~~ registrant shall retain each record used in preparing the form regarding history of cumulative occupational exposure for at least 3 years after that record is made.

Sec. 61. NAC 459.3655 is hereby amended to read as follows:

459.3655 1. For each planned special exposure authorized by a ~~licensee or~~ registrant pursuant to NAC 459.329, that ~~licensee or~~ registrant shall maintain records that describe:

- (a) The exceptional circumstances requiring the use of a planned special exposure;
- (b) The name of the management official who authorized the planned special exposure and a copy of the signed authorization;
- (c) What actions were necessary;
- (d) Why those actions were necessary;
- (e) What precautions were taken to ensure that doses were maintained at a level which was as low as was reasonably achievable;
- (f) What individual and collective doses were expected to result; and
- (g) The doses actually received in the planned special exposure.

2. The ~~licensee or~~ registrant shall retain the records required pursuant to subsection 1 until the Division authorizes their disposal.

Sec. 62. NAC 459.3665 is hereby amended to read as follows:

459.3665 1. Each ~~licensee and~~ registrant shall maintain records of doses received by all persons for whom monitoring is required pursuant to NAC 459.339, and records of doses received by persons during planned special exposures, accidents and emergency conditions.

These records must include, when applicable:

(a) The deep-dose equivalent to the whole body, lens dose equivalent, shallow-dose equivalent to the skin and shallow-dose equivalent to the extremities;

(b) The estimated intake of radionuclides;

(c) The committed effective dose equivalent assigned to the intake of radionuclides; *and*

(d) ~~The specific information used to calculate the committed effective dose equivalent pursuant to NAC 459.3275 and, when required, pursuant to NAC 459.339;~~

~~—(e) The total effective dose equivalent, when required pursuant to NAC 459.3255; and~~

~~—(f) The total of the deep-dose equivalent and the committed dose to the organ receiving the highest total dose.~~

2. The ~~licensee or~~ registrant shall make entries of the records specified in this section at intervals not to exceed 1 year.

3. The ~~licensee or~~ registrant shall maintain the records required pursuant to this section on a record of occupational exposure for a monitoring period, in accordance with the instructions for that form provided by the Division.

4. The ~~licensee or~~ registrant shall maintain the records of doses to an embryo with the records of doses to the woman carrying the embryo who has declared her pregnancy. The records

of the declaration of pregnancy, including the estimated date of conception, must also be maintained, but may be maintained separately from the records regarding doses.

5. The ~~licensee or~~ registrant shall retain each form or record required by this section until the Division authorizes its disposal.

Sec. 63. NAC 459.367 is hereby amended to read as follows:

459.367 1. Each ~~licensee and~~ registrant shall maintain records sufficient to demonstrate compliance with the limits specified in NAC 459.335 for members of the public.

2. The ~~licensee or~~ registrant shall retain the records required by this section until the Division authorizes their disposal.

Sec. 64. NAC 459.3675 is hereby amended to read as follows:

459.3675 1. Each ~~licensee and~~ registrant shall maintain records of tests made ~~pursuant to NAC 459.345~~ on entry control devices for very high radiation areas. These records must include the date, time and results of each such test of function.

2. The ~~licensee or~~ registrant shall retain each record required by this section for at least 3 years after the record is made.

Sec. 65. NAC 459.368 is hereby amended to read as follows:

459.368 1. Requirements for notification and reports to persons of exposure to radiation ~~for radioactive material~~ are specified in NAC 459.786.

2. When a ~~licensee or~~ registrant is required by NAC 459.371 or 459.3715 to report to the Division any exposure of an identified occupationally exposed person or an identified member of the public to radiation, ~~for radioactive material,~~ the ~~licensee or~~ registrant shall also notify the person or member of the public who was exposed. The notice must be transmitted at a time not

later than the transmittal to the Division, and the notice must comply with the provisions of subsection 1 of NAC 459.786.

Sec. 66. NAC 459.369 is hereby amended to read as follows:

459.369 1. Each ~~licensee and~~ registrant shall report to the Division by telephone ~~;~~

~~—(a) Any lost, stolen or missing licensed radioactive material in an aggregate quantity which is equal to or greater than 1,000 times the quantity specified in Appendix C, if it appears to the licensee that an exposure could result to persons in unrestricted areas. The report must be made immediately after the occurrence becomes known to the licensee.~~

~~—(b) Any lost, stolen or missing licensed radioactive material in an aggregate quantity which is greater than 10 times the quantity specified in Appendix C within 30 days after the occurrence becomes known to the licensee. The report is not required if the material is located or otherwise recovered by the licensee or registrant within the specified 30-day period.~~

~~—(c) A~~ *a* lost, stolen or missing radiation machine. The report must be made immediately after the occurrence becomes known to the registrant.

2. Each ~~licensee and~~ registrant required to make a report pursuant to subsection 1 shall, within 30 days after making the report by telephone, file a written report with the Division setting forth the following information:

(a) A description of the ~~licensed or~~ registered ~~source of~~ radiation *machine* that is lost, stolen or missing, including ~~;~~

~~—(1) For licensed radioactive material, the kind, quantity, and chemical and physical form of the material; and~~

~~—(2) For a radiation machine,;~~ the manufacturer and model and serial number of the machine and the type and maximum energy of radiation emitted from the machine.

(b) A description of the circumstances under which the loss or theft occurred.

(c) A statement of disposition, or probable disposition, of the ~~licensed or~~ registered ~~source of~~ radiation ~~machine~~.

(d) Exposures of persons to radiation emitted from the ~~licensed or~~ registered ~~source of~~ radiation ~~machine~~, the circumstances under which the exposures occurred and the possible total effective dose equivalent to persons in unrestricted areas.

(e) Actions that have been taken, or will be taken, to recover the ~~source of~~ radiation ~~machine~~.

(f) Procedures or measures that have been, or will be, adopted to ensure against a recurrence of the loss or theft of ~~licensed or~~ registered ~~sources of~~ radiation ~~machines~~.

3. After filing the report required pursuant to subsection 2, the ~~licensee or~~ registrant shall, within 30 days after learning of any additional substantive information regarding the loss or theft, file an additional written report with the Division.

4. The ~~licensee or~~ registrant shall prepare any report filed with the Division pursuant to this section so that the names of persons who may have received exposure to radiation are stated in a separate and detachable portion of the report.

Sec. 67. NAC 459.3695 is hereby amended to read as follows:

459.3695 1. Each ~~licensee and~~ registrant shall immediately report to the Division each event involving a source of radiation possessed by the ~~licensee or~~ registrant that may have caused, or threatens to cause ~~to~~

~~(a) A~~ a person to receive:

~~(1)~~ (a) A total effective dose equivalent of 25 rems (250 millisieverts) or more;

~~(2)~~ (b) A lens dose equivalent of 75 rems (750 millisieverts) or more; or

~~{(3)}~~ (c) A shallow-dose equivalent to the skin or extremities or a total organ dose equivalent of 250 rads (2.5 grays) or more.

~~{(b)} The release of radioactive material, inside or outside a restricted area, in a manner in which, had a person been present for 24 hours, the person could have received an intake of radiation that is five times the annual limit on intake for occupational exposure. The provisions of this paragraph do not apply to an area where personnel are not normally stationed during routine operations.~~

2. Except as otherwise provided in NAC 459.369, each ~~{licensee and}~~ registrant shall, within 24 hours after discovery, report to the Division each event involving the loss of control of a ~~{licensed or}~~ registered source of radiation possessed by the ~~{licensee or}~~ registrant that may have caused, or threatens to cause ~~{:~~

~~—(a) A}~~ a person to receive, in a period of 24 hours:

~~{(1)}~~ (a) A total effective dose equivalent exceeding 5 rems (50 millisieverts);

~~{(2)}~~ (b) A lens dose equivalent exceeding 15 rems (150 millisieverts); or

~~{(3)}~~ (c) A shallow-dose equivalent to the skin or extremities or a total organ dose equivalent exceeding 50 rems (500 millisieverts).

~~{(b)} The release of radioactive material, inside or outside a restricted area, in a manner in which, had a person been present for 24 hours, the person could have received an intake of radiation that is more than the annual limit on intake for occupational exposure. The provisions of this paragraph do not apply to an area where personnel are not normally stationed during routine operations.~~

3. The ~~Licensee or~~ registrant shall prepare each report filed with the Division pursuant to this section so that the names of persons who have received exposure are stated in a separate and detachable portion of the report.

4. ~~Licensees or registrants~~ **Registrants** shall make the reports required by subsections 1 and 2 to the Division by telephone, telegram, mailgram or facsimile.

5. The provisions of this section do not apply to doses that result from planned special exposures, if such doses are within the limits for planned special exposures and are reported pursuant to NAC 459.371.

Sec. 68. NAC 459.371 is hereby amended to read as follows:

459.371 1. In addition to the notification required by NAC 459.3695, each ~~Licensee and~~ registrant shall submit a written report to the Division within 30 days after learning of any of the following occurrences:

(a) Incidents for which notification is required pursuant to NAC 459.3695.

(b) Doses in excess of:

(1) The limits for an occupational dose for an adult specified in NAC 459.325;

(2) The limits for an occupational dose for a minor specified in NAC 459.331;

(3) The limits for an embryo of a woman who has declared her pregnancy specified in NAC 459.333;

(4) The limits for a member of the public specified in NAC 459.335; *or*

(5) Any applicable limits set forth in the ~~Licensee or~~ registration. ~~;~~ *or*

~~— (6) The constraints on air emissions of radioactive material, excluding radon 222 and its decay products, specified in subsection 2 of NAC 459.321.]~~

(c) Levels of radiation ~~for concentrations of radioactive material~~ in:

(1) A restricted area in excess of any applicable limits set forth in the ~~license or~~ registration; or

(2) An unrestricted area in excess of 10 times the applicable limits set forth in NAC 459.010 to 459.950, inclusive, *and sections 2 to 13, inclusive, of this regulation*, or in the ~~license or~~ registration.

~~{(d) For licensees subject to the provisions of the generally applicable environmental standards for radiation of the United States Environmental Protection Agency set forth in 40 C.F.R. Part 190, levels of radiation or releases of radioactive material in excess of those standards, or of conditions set forth in the license related to those standards.}~~

2. Each report required pursuant to subsection 1 must describe the extent of exposure of persons to radiation , ~~and radioactive material,~~ including, as appropriate:

(a) Estimates of the dose of each person;

(b) The levels of radiation ~~and concentrations of radioactive material~~ involved;

(c) The cause of the elevated exposures ~~and~~ *or* dose rates ; ~~or concentrations;~~ and

(d) Corrective steps taken or planned to ensure against a recurrence, including, without limitation, the schedule for achieving conformance with applicable limits ~~and constraints on air emissions of radioactive material, excluding radon 222 and its decay products, specified in subsection 2 of NAC 459.321, generally applicable environmental standards for radiation of the United States Environmental Protection Agency~~ and associated conditions set forth in the ~~license or~~ registration.

3. Each report filed pursuant to this section must include, for each person exposed, his or her name, social security number and date of birth. With respect to reports of exposure to an embryo, the information must relate to the woman carrying the embryo. The report must be

prepared so that the information required by this subsection is stated in a separate and detachable portion of the report.

Sec. 69. NAC 459.3715 is hereby amended to read as follows:

459.3715 Each ~~licensee and~~ registrant shall submit a written report to the Division within 30 days following any planned special exposure conducted in accordance with NAC 459.329 informing the Division that a planned special exposure was conducted, and including the date the planned special exposure occurred and the information required by NAC 459.3655.

Sec. 70. NAC 459.594 is hereby amended to read as follows:

459.594 All of the provisions of NAC 459.740 to ~~459.752,~~ 459.750, inclusive, except subsections 3 and 4 of NAC 459.750, apply to medical facilities using medical therapy equipment with energies 1 MeV and above.

Sec. 71. NAC 459.658 is hereby amended to read as follows:

459.658 1. A safety device which prevents the entry of any portion of a person's body into the primary X-ray beam path or which causes the beam to be shut off upon entry into its path must be provided on all open-beam configurations. A registrant ~~for licensee~~ may apply to the Division for an exemption from the requirements of a safety device. Such an application must include:

(a) A description of the various safety devices that have been evaluated;

(b) The reason each of these devices cannot be used; and

(c) A description of the alternative methods that will be employed to minimize the possibility of an accidental exposure, including procedures to ensure that operators and others in the area will be informed of the absence of safety devices.

2. Open-beam configuration must be provided with a readily discernible indication of:

(a) X-ray tube status whether on or off, located near the radiation source housing if the primary beam is controlled in this matter; or

(b) Shutter status whether open or closed, located near each port on the radiation source housing if the primary beam is controlled in this manner.

3. Warning devices must be so labeled that their purpose is easily identified. On equipment installed after February 28, 1980, warning devices must have fail-safe characteristics.

4. Unused ports on radiation source housings must be secured in the closed position in a manner which will prevent casual openings.

5. All analytical X-ray equipment must be labeled with a readily discernible sign bearing the radiation caution symbol and the words:

(a) “CAUTION - HIGH INTENSITY X-RAY BEAM,” or words having a similar intent, on the X-ray source housing ~~(b)~~ and

~~(b)~~ “CAUTION RADIATION - THIS EQUIPMENT PRODUCES RADIATION WHEN ENERGIZED,” or words having a similar intent, near any switch that energizes an X-ray tube if the radiation source is an X-ray tube; or

~~(e)~~ (b) “CAUTION - RADIOACTIVE MATERIAL,” or words having a similar intent, on the source housing if the radiation source is a radionuclide.

6. On open-beam configurations installed after February 28, 1980, each port on the radiation source housing must be equipped with a shutter that cannot be opened unless a collimator or a coupling has been connected to the port.

7. An easily visible warning light labeled with the words “X-RAY ON,” or words having a similar intent, must be located:

(a) Near any switch that energizes an X-ray tube and be illuminated only when the tube is energized; or

(b) In the case of a radioactive source, near any switch that opens a housing shutter and be illuminated only when the shutter is open.

8. On equipment installed after February 28, 1980, warning lights must have fail-safe characteristics.

9. Each X-ray tube housing must be constructed so that with all shutters closed the leakage radiation measured at a distance of 5 cm from its surface is not capable of producing a dose in excess of 2.5 mrem in 1 hour at any specified tube rating. If radioactive sources are used, corresponding dose limits must not exceed 2 mrem per hour.

10. Each X-ray generator must be supplied with a protective cabinet which limits leakage radiation measured at a distance of 5 cm from its surface so that it is not capable of producing a dose in excess of 0.25 mrem in 1 hour.

Sec. 72. NAC 459.660 is hereby amended to read as follows:

459.660 1. The local components of an analytical X-ray system must be so located and arranged to include sufficient shielding or access control so that no radiation levels exist in any area surrounding the local component group which could result in a dose to a person present therein in excess of the dose limits given in NAC 459.335. For systems utilizing X-ray tubes, these levels must be met at any specified tube rating.

2. Radiation surveys, as required by NAC 459.337, of all analytical X-ray systems sufficient to show compliance with subsection 1 must be performed:

(a) Upon installation of the equipment and at least every 12 months thereafter;

(b) Following any change in the initial arrangement, number or type of local components in the system;

(c) Following any maintenance requiring the disassembly or removal of a local component in the system;

(d) During the performance of maintenance and alignment procedures if the procedures require the presence of a primary X-ray beam when any local component in the system is disassembled or removed;

(e) Any time a visual inspection of the local components in the system reveals an abnormal condition; and

(f) Whenever personnel monitoring devices show a significant increase over the previous monitoring period or when the readings are approaching the radiation dose limits specified in NAC 459.320 to 459.374, inclusive.

3. Radiation survey measurements are not required if a registrant ~~for licensee~~ can demonstrate compliance with subsection 1 to the satisfaction of the Division in some other manner.

4. Each area or room containing analytical X-ray equipment must be conspicuously posted with a sign or signs bearing the radiation caution symbol and the words “CAUTION - X-RAY EQUIPMENT,” or words having a similar intent.

Sec. 73. NAC 459.664 is hereby amended to read as follows:

459.664 1. No person may operate or maintain analytical X-ray equipment unless he or she has received instruction in and demonstrated competence with regard to:

(a) Identification of radiation hazards associated with the use of the equipment;

(b) Significance of the various radiation warning and safety devices incorporated into the equipment, or the reasons they have not been installed on certain pieces of equipment and the extra precautions required in such cases;

(c) Proper operating procedures for the equipment;

(d) Symptoms of an acute localized exposure; and

(e) Proper procedures for reporting an actual or suspected exposure.

2. Each ~~licensee or~~ registrant shall maintain, for inspection by the Division, records of training which demonstrate that the requirements of subsection 1 have been met.

3. Finger or wrist dosimetric devices must be provided to and used by:

(a) Workers on analytical X-ray equipment having an open-beam configuration and not equipped with a safety device; and

(b) Personnel maintaining analytical X-ray equipment if the maintenance procedures require the presence of a primary X-ray beam when any local component in the analytical X-ray system is disassembled or removed.

4. Reported dose values may not be used for the purpose of determining compliance with NAC 459.325 unless evaluated by a qualified expert.

Sec. 74. NAC 459.716 is hereby amended to read as follows:

459.716 1. The registrant shall perform visual and operability checks of the indication lights and warning lights of an X-ray system before use each day the X-ray system is used to ensure that the X-ray system is in good working order. If this check reveals damage to or other problems with the X-ray system or any component thereof, the ~~licensee or~~ registrant shall make a record of the problem.

2. Each ~~licensee~~ *registrant* shall conduct a program of at least semiannual inspection and routine maintenance of X-ray systems and the components thereof, including, without limitation, interlocks, indication lights, exposure switches, warning lights and cables.

3. Records of inspection and maintenance, and records of defects or problems created pursuant to subsection 1, must be kept for inspection by the Division for not less than 3 years.

4. If any check or inspection conducted pursuant to this section reveals damage to or other problems with an X-ray system or any component thereof, the X-ray system must be removed from service until repairs have been made.

Sec. 75. NAC 459.733 is hereby amended to read as follows:

459.733 A ~~licensee or~~ registrant who is responsible for providing X-ray industrial radiography at a temporary job site or in a room or building that does not meet the requirements of NAC 459.335 shall ensure that the temporary job site, room or building is under constant surveillance and immediate action is taken by the person conducting the surveillance to prevent unauthorized entry into an area with high radiation.

Sec. 76. NAC 459.737 is hereby amended to read as follows:

459.737 1. ~~In addition to any applicable requirement of NAC 459.010 to 459.794, inclusive, a person licensed by the Division to use a sealed source to engage in industrial radiography shall comply with all applicable requirements of, and may rely on all applicable exclusions or exemptions included in, the provisions of Part 34 of Title 10 of the Code of Federal Regulations, as adopted by reference in this section. The provisions of this subsection do not apply to a person using an electronic source of radiation to conduct industrial radiography.~~
~~—2.—Part~~ *Except as otherwise provided in subsections 2 and 5, Part 34 of Title 10 of the Code of Federal Regulations is hereby adopted by reference, subject to the following:*

- ~~(a) [The exclusion of references within 10 C.F.R. Part 34 to Part “21” and to 10 C.F.R. §§ “21.21,” “30.7,” “30.9” and “30.10”;~~
- ~~—(b) The exclusion of “offshore” specified in the definition of “offshore platform radiography” set forth in 10 C.F.R. § 34.3;~~
- ~~—(c) The substitution of the following wording:~~
- ~~——(1) “Chapter 459 of the Nevada Administrative Code” for a reference to:~~
- ~~——(I) “Commission’s regulations,” except as stated in subparagraph 6;~~
- ~~——(II) “Federal regulations”;~~
- ~~——(III) “NRC regulations”;~~ and
- ~~——(IV) “This chapter” as stated in 10 C.F.R. § 34.101(a);~~
- ~~——(2) “Division” for the reference to “Commission,” except as stated in 10 C.F.R. § 34.20 and sub-subparagraph (IV) of subparagraph 3;~~
- ~~——(3) “Division, Nuclear Regulatory Commission or an agreement state” for references to:~~
- ~~——(I) “NRC or an Agreement State”;~~
- ~~——(II) “Commission or by an Agreement State”;~~
- ~~——(III) “Commission or an Agreement State”;~~ and
- ~~——(IV) “Commission” in 10 C.F.R. § 34.43(a)(2);~~
- ~~——(4) “License” for reference to “NRC license(s)”;~~
- ~~——(5) In 10 C.F.R. § 34.27(d), “reports of test results for leaking or contaminated sealed sources shall be made pursuant to NAC 459.307” for a reference to the following statement, “A report must be filed with the Director, Office of Federal and State Materials and Environmental Management Programs, by an appropriate method listed in § 30.6(a) of this chapter, the report to be filed within 5 days after any test with results that exceed the threshold in this paragraph (d),~~

~~and to describe the equipment involved, the test results, and the corrective action taken. A copy of the report must be sent to the Administrator of the appropriate Nuclear Regulatory Commission's Regional Office listed in appendix D of 10 C.F.R. part 20 of this chapter 'Standards for Protection Against Radiation.'";~~

~~—— (6) In 10 C.F.R. § 34.27(d), “subsection 3 of NAC 459.307” for the reference to “Commission regulations”;~~

~~—— (7) In 10 C.F.R. § 34.43(a)(1), “10 C.F.R. § 30.6” for the reference to “§ 30.6(a) of this chapter”;~~

~~—— (8) In 10 C.F.R. § 34.89, “a Nuclear Regulatory Commission or an agreement state” for the reference to “the Agreement State”;~~

~~—— (9) In 10 C.F.R. § 34.101(a), “Division” for the reference to “NRC’s Office of Federal and State Materials and Environmental Management Programs, by an appropriate method listed in § 30.6(a) of this chapter”;~~

~~—— (10) In 10 C.F.R. § 34.101(c), “Division” for the reference to “appropriate NRC regional office listed in § 30.6(a)(2) of this chapter”;~~

~~—— (11) In Item 12, Section I of Appendix A to 10 C.F.R. Part 34, “Division, the United States Nuclear Regulatory Commission and other independent certifying organizations or agreement states” for the reference to “Commission and other independent certifying organizations and/or Agreement States”;~~

~~—— (12) In Item 1, Section II of Appendix A to 10 C.F.R. Part 34, “equivalent Nuclear Regulatory Commission or agreement state regulations” for the reference to “equivalent Agreement State regulations”; and~~

~~— (13) In Item 2(c), Section II of Appendix A to 10 C.F.R. Part 34, “a Nevada, Nuclear Regulatory Commission or an agreement state licensee” for the reference to “an Agreement State or a NRC licensee”; and~~

~~— (d) The substitution of the following:~~

~~— (1) “Subsection 1 of NAC 459.120” for the reference to “10 CFR 34.111”;~~

~~— (2) “NAC 459.320 to 459.374, inclusive,” for the reference to “10 CFR 20”;~~

~~— (3) “Paragraph (a) of subsection 1 of NAC 459.341” for the reference to “10 CFR 20.1601(a)(1)”;~~

~~— (4) “Subsections 1 and 2 of NAC 459.3555” for the reference to “10 CFR 20.1902(a) and (b)”;~~

~~— (5) “NAC 459.3565” for the reference to “10 CFR 20.1903”;~~

~~— (6) “NAC 459.371” for the reference to “10 CFR 20.2203”;~~

~~— (7) “NAC 459.780 to 459.794, inclusive,” for the reference to “10 CFR 19”;~~

~~— (8) “NAC 459.210” for the reference to “10 CFR 150.20”;~~

~~— (9) “NAC 459.373” for the reference to “§ 30.50”;~~

~~— (10) “NAC 459.238” for the reference to “10 CFR 30.33”;~~ and

~~— (11) “NAC 459.737” for the reference to “10 CFR 34.”~~

~~— 3.} *The substitution of “Division” for references to:*~~

~~(1) “Commission” in 10 C.F.R. §§ 34.3, 34.20, 34.27(d), 34.41(b), 34.42, 34.43, 34.61, 34.81, 34.83 and Appendix A;~~

~~(2) “Director, Office of Nuclear Material Safety and Safeguards, by an appropriate method listed in § 30.6(a) of this chapter” in 10 C.F.R. §§ 34.27 and 34.43;~~

~~(3) “NRC” in 10 C.F.R. §§ 34.42, 34.43 and 34.89;~~

(4) “NRC’s Office of Nuclear Material Safety and Safeguards, by an appropriate method listed in § 30.6(a) of this chapter” in 10 C.F.R. § 34.101; and

(5) “Appropriate NRC regional office listed in § 30.6(b)(2) of this chapter” in 10 C.F.R. § 34.101;

(b) The substitution of “Division, NRC or an Agreement State” for references to:

(1) “NRC or an Agreement State” in 10 C.F.R. § 34.27;

(2) “Commission or an Agreement State” in 10 C.F.R. § 34.27; and

(3) “Commission or by an Agreement State” in 10 C.F.R. §§ 34.27 and 34.41;

(c) The substitution of “a Division, an Agreement State or a NAC” for “an Agreement State or a NRC” in Appendix A, section II.2; and

(d) The substitution of “NRC or Agreement State license” for reference to “Agreement State license” in 10 C.F.R. § 34.89.

2. The following ~~sections~~ provisions of Part 34 of Title 10 of the Code of Federal Regulations are not adopted by reference:

(a) ~~Section 34.1;~~

~~(b) Section Sections 34.5 ;~~

~~(c) Section, 34.8 ;~~

~~(d) Section 34.11;~~

~~(e) Section 34.45(a)(9);~~

~~(f) Section, 34.111, 34.121 ; and~~

~~(g) Section and 34.123 ;~~

~~4. ; and~~

(b) “A copy of the report must be sent to the Administrator of the appropriate Nuclear Regulatory Commission’s Regional Office listed in appendix D of 10 CFR part 20 of this chapter ‘Standards for Protection Against Radiation’ ” in 10 C.F.R. § 34.27.

3. The reference to NRC Form 313 in 10 C.F.R. § 34.11 shall be deemed a reference to the “Radioactive Material License Application” prescribed by the Division, made available on its Internet website and filed with the Division.

4. Any reference to Parts 170 and 171 within Part 34 of Title 10 of the Code of Federal Regulations shall be deemed a reference to the applicable fee schedule in NAC 459.310.

5. Except as otherwise provided in subsection 6, any future revisions to Part 34 of Title 10 of the Code of Federal Regulations are adopted by reference unless designated with the compatibility category “NRC.” NRC rule compatibility can be obtained at the Internet address <https://www.nrc.gov/materials/toolboxes/regulation/summary-sheets-cfr.html> or from the Division.

6. The Division shall review each future revision described in subsection 5 to ensure its suitability for this State. If the Division determines that a revision is not suitable for this State, the Division shall hold a public hearing to review its determination within 90 days after the date of the publication of the revision and give notice of that hearing. If, after the hearing, the Division does not revise its determination, the Division shall give notice within 30 days after the hearing that the revision is not suitable for this State. If the Division does not give such notice, the revision is adopted by reference as provided in subsection 5.

7. A copy of a publication that contains Part 34 of Title 10 of the Code of Federal Regulations may be obtained ~~by mail from the Superintendent of Documents, United States Government Printing Office, P.O. Box 979050, St. Louis, Missouri 63197-9000, or by toll-free~~

telephone at (866) 512-1800, at the price of \$67, or free of charge at the Internet address <http://www.gpoaccess.gov/cfr/index.html>], *free of charge, at the Internet address <http://www.nrc.gov/reading-rm/doc-collections/cfr/index.html> or, if that Internet website ceases to exist, from the Division.*

Sec. 77. NAC 459.740 is hereby amended to read as follows:

459.740 1. The provisions of NAC 459.740 to ~~459.752,~~ **459.750**, inclusive, establish procedures for the registration and the use of particle accelerators.

2. In addition to the requirements of NAC 459.740 to ~~459.752,~~ **459.750**, inclusive, all registrants are subject to the requirements of NAC 459.010 to 459.166, inclusive, 459.320 to 459.374, inclusive, and 459.780 to 459.794, inclusive. Registrants engaged in X-ray industrial radiographic operations are subject to the requirements of NAC 459.680 to 459.733, inclusive, and registrants engaged in the healing arts are subject to the requirements of NAC 459.400 to 459.624, inclusive. Registrants engaged in the production of radioactive material are subject to the requirements of NAC ~~459.180 to 459.313,~~ **459.184 to 459.310**, inclusive ~~+~~, *and sections 2 to 11, inclusive, of this regulation.*

Sec. 78. NAC 459.742 is hereby amended to read as follows:

459.742 1. No person may receive, possess, use, transfer, own or acquire a particle accelerator except as authorized in a registration issued pursuant to NAC 459.010 to 459.950, inclusive, *and sections 2 to 13, inclusive, of this regulation*, or as otherwise provided for in those sections. The general procedures for registration of particle accelerator facilities are included in NAC 459.150 to 459.166, inclusive. Notwithstanding the provisions of this subsection, a person must apply for a license to possess radioactive materials before receiving,

possessing, using, transferring, owning or acquiring a particle accelerator whose particle beam energies have the potential for exceeding 9 MeV.

2. In addition to the requirements of NAC 459.150 to 459.166, inclusive, a registration application for use of a particle accelerator may be approved only if the Division determines that:

(a) The applicant is qualified by reason of training and experience to use the accelerator in question for the purpose requested in accordance with NAC 459.320 to 459.374, inclusive, 459.740 to ~~459.752,~~ **459.750**, inclusive, and 459.780 to 459.794, inclusive, in such a manner as to minimize danger to public health and safety or property;

(b) The applicant's proposed or existing equipment, facilities, operating and emergency procedures are adequate to protect health and minimize danger to public health and safety or property;

(c) The issuance of the registration will not be inimical to the health and safety of the public and the applicant satisfies any applicable special requirement in subsection 3;

(d) The applicant or the applicant's staff has substantial experience in the use of particle accelerators and training sufficient for application to its intended uses;

(e) The applicant has established a radiation safety committee to approve, in advance, proposals for uses of the particle accelerator, whenever deemed necessary by the Division; and

(f) The applicant has an adequate training program for operators of the particle accelerator.

3. In addition to the requirements in NAC 459.150 to 459.166, inclusive, a registration for use of a particle accelerator in the healing arts will be issued only if the following requirements are met:

(a) The applicant has appointed a medical committee of at least three members to evaluate all proposals for research, diagnostic and therapeutic use of the particle accelerator whenever

deemed necessary by the Division. Membership of the committee should include physicians expert in internal medicine, hematology, therapeutic radiology and a person experienced in depth dose calculations and protection against radiation.

(b) The persons designated on the application as the users have substantial training and experience in deep therapy techniques or in the use of particle accelerators to treat humans.

(c) Any person designated on the application as the user is a physician.

4. In addition to the requirements set forth in this section, if, as required pursuant to subsection 1, the application is for a license for the use of a particle accelerator whose particle beam energies have the potential for exceeding 9 MeV, the applicant must appoint a radiation safety officer who satisfies the training and experience requirements set forth in NAC 459.3154 to implement and oversee a radiation safety program for the use of the particle accelerator.

Sec. 79. NAC 459.744 is hereby amended to read as follows:

459.744 1. NAC 459.740 to ~~459.752,~~ **459.750**, inclusive, establish radiation safety requirements for the use of particle accelerators. These provisions are in addition to, and not in substitution for, other applicable provisions of NAC 459.010 to 459.794, inclusive ~~H~~, **and sections 2 to 13, inclusive, of this regulation.**

2. The registrant is responsible for ensuring that all requirements of NAC 459.740 to ~~459.752,~~ **459.750**, inclusive, are met.

3. No registrant may permit any person to act as an operator of a particle accelerator until the person:

(a) Has been instructed in radiation safety and has demonstrated an understanding of it;

(b) Has received a copy of, and instruction in the requirements of, NAC 459.740 to ~~459.752,~~ **459.750**, inclusive, and the applicable provisions of NAC 459.320 to 459.374,

inclusive, and 459.780 to 459.794, inclusive, pertinent registration conditions and the registrant's operating and emergency procedures and has demonstrated an understanding of that material; and

(c) Has demonstrated competence to use the particle accelerator, related equipment and survey instruments which will be employed in his or her assignment.

4. Members of the radiation safety committee or the radiation safety officer must have the authority to terminate the operations at a particle accelerator facility if such action is deemed necessary to protect health and minimize danger to public health and safety or property.

Sec. 80. NAC 459.7735 is hereby amended to read as follows:

459.7735 ~~{1.—A licensee shall not use sealed sources in a well that penetrates a fresh water aquifer if the well does not have a surface casing, or if the well has a surface casing that does not isolate the fresh water aquifer from the well.~~

~~—2.}~~ A licensee shall not use sealed sources in any well that is producing water for human or animal consumption, or for irrigation purposes.

~~{3.—A licensee shall not release any tracer radioactive materials in a well unless a written authorization has been obtained from the Division for each specific operation.~~

~~—4.—A registrant shall not activate a radiation machine used in a well logging operation so that it emits radiation, unless the radiation machine is in the well and at least 10 feet below the surface of the ground.}~~

Sec. 81. NAC 459.780 is hereby amended to read as follows:

459.780 NAC 459.780 to 459.794, inclusive:

1. Establish requirements for notices, instructions and reports by licensees or registrants to persons engaged in work under a license or registration and options available to those persons in

connection with the Division's inspections of licensees or registrants to ascertain compliance with the provisions of chapter 459 of NRS and regulations, orders and licenses issued thereunder regarding radiological working conditions.

2. Apply to all persons who receive, possess, use or transfer sources of radiation licensed by or registered with the Division pursuant to NAC 459.150 to ~~459.313,~~ **459.310**, inclusive ~~†~~, ***and sections 2 to 11, inclusive, of this regulation.***

Sec. 82. NAC 459.786 is hereby amended to read as follows:

459.786 1. Data concerning a person's exposure to radiation and the results of any measurements, analyses and calculations of radioactive material deposited or retained in the body of a person must be reported to him or her, as specified in this section. The information reported must include data and results obtained pursuant to NAC 459.010 to 459.794, inclusive, ***and sections 2 to 13, inclusive, of this regulation,*** orders or conditions set forth in the license or registration, as shown in records maintained by the licensee or registrant pursuant to those sections. Each notification and report must:

- (a) Be in writing;
- (b) Include the name of the registrant or licensee, the name of the person and his or her social security number;
- (c) Include the information relating to the person's exposure; and
- (d) Contain the following statement:

This report is furnished to you pursuant to NAC 459.780 to 459.794, inclusive, adopted by the State Board of Health. You should preserve this report for further reference.

2. Each licensee and registrant shall advise each of its workers annually of their exposure to radiation or radioactive material as shown in records maintained by the licensee or *the records maintained by the* registrant pursuant to NAC 459.3665. An annual report of the exposure in that monitoring year must be provided to each person monitored pursuant to NAC 459.339 if:

(a) The person's occupational dose exceeds 1 mSv (100 mrem) total effective dose equivalent or 1 mSv (100 mrem) to any individual organ or tissue; or

(b) The person requests his or her annual dose report.

3. At the request of a worker formerly engaged in work controlled by the licensee or the registrant, the licensee or registrant shall furnish to the worker a report of his or her exposure to radiation or radioactive material. The report must be furnished within 30 days after the time the request is made or within 30 days after his or her exposure has been determined, whichever is later. The report must cover, within the period specified in the request, each calendar quarter in which the worker's activities involved exposure to radiation from radioactive material licensed by or radiation machines registered with the Division and must include the dates and locations of work under the license or registration in which the worker participated during this period.

4. When a ~~licensee or~~ registrant is required pursuant to NAC 459.3695, 459.371 or 459.3715 to report to the Division any exposure of a person to radiation or radioactive material, the ~~licensee or~~ registrant shall also provide the person with a report on his or her exposure data. The report to the person must be transmitted to the person before transmittal of the report to the Division.

5. At the request of a worker who is terminating employment with a licensee or registrant in work involving exposure to radiation in a calendar quarter or of a worker who, while employed by another person, is terminating an assignment to work involving exposure to radiation in the

licensee's or registrant's facility in a calendar quarter, the licensee or registrant shall provide the worker at the time of the termination a written report specifying the dose of radiation which he or she received from the operations of the licensee or registrant during the calendar quarter or fraction thereof or shall provide him or her a written estimate of that dose if the results of personnel monitoring have not been finally determined and are not available at that time. An estimated dose must be clearly indicated as such.

Sec. 83. NAC 459.790 is hereby amended to read as follows:

459.790 1. The inspectors of the Division may consult privately with workers on matters related to their protection from occupational radiation and matters related to applicable provisions of NAC 459.010 to 459.794, inclusive, *and sections 2 to 13, inclusive, of this regulation* to the extent that the inspectors deem necessary for the conduct of an effective and thorough inspection.

2. During the course of an inspection, any worker may bring privately to the attention of the inspectors, either orally or in writing, any past or present condition which the worker has reason to believe may have contributed to or caused any violation of chapter 459 of NRS, NAC 459.010 to 459.794, inclusive, *and sections 2 to 13, inclusive, of this regulation* or license condition, or any unnecessary exposure of a person to radiation from licensed radioactive material or a registered radiation machine under the licensee's or registrant's control. Any such notice in writing must comply with the requirements of subsection 1 of NAC 459.792.

3. Subsection 2 is not an authorization to disregard instructions in NAC 459.784.

4. *As used in this section, "licensed radioactive material" means any radioactive material that is possessed under a specific or general license issued by the Division pursuant to this chapter.*

Sec. 84. NAC 459.949 is hereby amended to read as follows:

459.949 1. If an inspection, evaluation or investigation reveals that a person is in violation of NAC 459.010 to 459.950, inclusive, *and sections 2 to 13, inclusive, of this regulation*, or any provision of chapter 459 of NRS, the Division may issue a notice of violation.

2. Except as otherwise provided in subsection 4, the Division may impose an administrative fine as provided in subsection 3 after sending the notice of violation to the violator by certified mail or personal service. The notice of violation must include a reference to the section of the statute, regulation, order or condition of a license violated, a concise statement of the facts alleged to constitute the violation, a statement of the amount of the administrative fine to be imposed and a statement of the violator's right to a hearing. The violator has 10 business days after receipt of the notice within which to deliver to the Division a written request for a hearing. After the hearing, if requested, and upon a finding that a violation has occurred, the Administrator of the Division may issue a final order and assess the amount of the fine. If no hearing is requested, the notice becomes a final order upon the expiration of the 10-day period. Payment of the penalty is due when a final order is issued or when the notice becomes a final order. The authority to levy an administrative fine is in addition to all other provisions for enforcement of NRS 459.010 to 459.290, inclusive, or NAC 459.010 to 459.950, inclusive, *and sections 2 to 13, inclusive, of this regulation*, and the payment of the administrative fine does not affect the availability of any other provision for enforcement in connection with the violation for which the penalty is levied.

3. The Division may, after providing a notice of violation as described in subsection 2, impose an administrative fine:

(a) Except as otherwise provided in ~~paragraphs~~ *paragraph* (b), ~~[(c) and (d)]~~ of not more than \$2,000 per day for each violation of NAC 459.010 to 459.950, inclusive, *and sections 2 to 13, inclusive, of this regulation*, or any provision of chapter 459 of NRS, or for a violation of any regulation or order, or any term, condition, or limitation of any license issued pursuant to those provisions.

(b) Of not more than \$5,000 per day for each violation of a provision described in paragraph (a) that the Division determines is necessary to protect health and minimize danger to life or property.

~~[(c) In the amount of \$500 for the failure to satisfy the requirement of notifying the Division within the period specified in paragraph (b) of subsection 1 of NAC 459.210.~~

~~—(d) In an amount equal to the fee required for the proposed activity if the person fails to receive written permission from the Division, as required pursuant to paragraph (b) of subsection 1 of NAC 459.210, to proceed with the proposed activity before engaging in the proposed activity.]~~

4. Except in cases of willfulness or those in which the public health, interest or safety requires otherwise, the Division may not impose an administrative fine against a licensee or registrant pursuant to this section unless prior to the institution of proceedings pursuant to this section:

(a) The Division provides written notice to the licensee or registrant of the facts or conduct which may warrant the imposition of the administrative fine;

(b) The licensee or registrant has been given an opportunity to demonstrate or achieve compliance with all lawful requirements; and

(c) The licensee or registrant failed to achieve compliance within 30 days after receipt of the written notice or a time period prescribed by the Division as necessary to protect the public health, interest or safety.

5. The Division may recover actual damages which result from a violation, in addition to the administrative fine provided in this section. The damages may include, without limitation, expenses incurred by the Division in removing, correcting or terminating any adverse effects which resulted from the violation and compensation for any damages incurred as a result of the violation.

6. The Division may reduce the administrative fine if there is evidence that the person has initiated, in good faith, comprehensive corrective measures or training relating to radiation safety and preparedness, over and above that required as a response to the violation, valued at least 1.5 times the amount of the administrative fine imposed.

Sec. 85. NAC 459.013, 459.0147, 459.018, 459.0182, 459.0185, 459.019, 459.0192, 459.0194, 459.0195, 459.0196, 459.020, 459.0203, 459.02055, 459.02065, 459.0207, 459.0216, 459.0218, 459.0243, 459.0245, 459.0258, 459.02585, 459.0259, 459.027, 459.0278, 459.0285, 459.029, 459.0294, 459.0295, 459.0296, 459.0357, 459.03845, 459.0385, 459.0387, 459.0388, 459.0395, 459.041, 459.043, 459.0475, 459.049, 459.0505, 459.0506, 459.0517, 459.0518, 459.0519, 459.052, 459.0525, 459.0527, 459.053, 459.0555, 459.062, 459.063, 459.0646, 459.06485, 459.06495, 459.065, 459.0653, 459.0657, 459.079, 459.084, 459.085, 459.0885, 459.089, 459.093, 459.0945, 459.0955, 459.0957, 459.096, 459.102, 459.1035, 459.1092, 459.1115, 459.112, 459.1142, 459.11455, 459.1146, 459.1147, 459.1148, 459.1149, 459.124, 459.180, 459.181, 459.182, 459.186, 459.188, 459.190, 459.192, 459.194, 459.195, 459.1951, 459.1955, 459.196, 459.197, 459.198, 459.1985, 459.199, 459.200, 459.202, 459.203, 459.204,

459.206, 459.210, 459.212, 459.216, 459.217, 459.2175, 459.218, 459.2185, 459.219, 459.220, 459.222, 459.224, 459.228, 459.230, 459.232, 459.234, 459.236, 459.238, 459.241, 459.261, 459.262, 459.264, 459.266, 459.268, 459.270, 459.272, 459.274, 459.280, 459.282, 459.286, 459.287, 459.288, 459.289, 459.2895, 459.290, 459.292, 459.2923, 459.2927, 459.296, 459.298, 459.300, 459.302, 459.304, 459.306, 459.307, 459.3075, 459.312, 459.3125, 459.313, 459.316, 459.3164, 459.3166, 459.3168, 459.317, 459.3172, 459.3174, 459.3176, 459.3178, 459.318, 459.3182, 459.3184, 459.3205, 459.3255, 459.327, 459.3275, 459.336, 459.345, 459.347, 459.349, 459.3575, 459.3585, 459.359, 459.3595, 459.3605, 459.361, 459.3615, 459.362, 459.3673, 459.373, 459.3801, 459.3805, 459.738, 459.752, 459.756, 459.757, 459.7575, 459.758, 459.7585, 459.759, 459.7595, 459.7598, 459.7605, 459.761, 459.7615, 459.7621, 459.7625, 459.763, 459.7635, 459.7641, 459.7645, 459.765, 459.7655, 459.7661, 459.7665, 459.767, 459.7675, 459.7681, 459.7685, 459.769, 459.7695, 459.7701, 459.7705, 459.771, 459.7715, 459.7721, 459.7725, 459.773, 459.7741, 459.7745, 459.800, 459.8005, 459.801, 459.8015, 459.802, 459.8025, 459.803, 459.8035, 459.804, 459.8045, 459.805, 459.8055, 459.806, 459.8065, 459.807, 459.8075, 459.808, 459.8085, 459.809, 459.8095, 459.810, 459.8105, 459.811, 459.8115, 459.812, 459.8125, 459.813, 459.8135, 459.814, 459.8145, 459.815, 459.8155, 459.816, 459.8165, 459.817, 459.8175, 459.818, 459.8185, 459.819, 459.8195, 459.820, 459.8205, 459.821, 459.8215, 459.822, 459.8225, 459.8231, 459.8235, 459.824, 459.8245, 459.825, 459.8255, 459.826, 459.8265, 459.827, 459.8275, 459.828, 459.8285, 459.829, 459.8295, 459.830 and 459.8305 are hereby repealed.

TEXT OF REPEALED SECTIONS

459.013 “Accelerator-produced radioactive material” defined. (NRS 459.201)

“Accelerator-produced radioactive material” means, except as otherwise provided in NAC 459.0525, any material made radioactive by a particle accelerator.

459.0147 “Address of use” defined. (NRS 459.201) “Address of use” means the building or buildings that are identified on the license and where radioactive materials may be received, used or stored.

459.018 “Airborne radioactive material” defined. (NRS 459.201) “Airborne radioactive material” means any radioactive material dispersed in the air in the form of dust, fumes, mists, particulates, vapors or gases.

459.0182 “Air-purifying respirator” defined. (NRS 459.201) “Air-purifying respirator” means a respirator with an air-purifying filter, cartridge or canister that removes specific air contaminants by passing ambient air through the air-purifying element.

459.0185 “Annual limit on intake” defined. (NRS 459.201) “Annual limit on intake” means the limit for the amount of radioactive material taken into the body of an adult worker during the course of his or her employment, by inhalation or ingestion, in 1 year. The annual limit on intake is equal to the lesser of:

1. The intake of a given radionuclide in a year by the reference man that would result in a committed effective dose equivalent of 5 rems; or

2. A committed dose equivalent of 50 rems to any individual organ or tissue.

459.019 “Appendix A” defined. (NRS 459.201) “Appendix A” means Appendix A to 10 C.F.R. §§ 20.1001 to 20.2402, inclusive.

459.0192 “Appendix B” defined. (NRS 459.201) “Appendix B” means Appendix B to 10 C.F.R. §§ 20.1001 to 20.2402, inclusive.

459.0194 “Appendix C” defined. (NRS 459.201) “Appendix C” means Appendix C to 10 C.F.R. §§ 20.1001 to 20.2402, inclusive.

459.0195 “Appendix E” defined. (NRS 459.201) “Appendix E” means Appendix E to 10 C.F.R. §§ 20.1001 to 20.2402, inclusive.

459.0196 “Appendix G” defined. (NRS 459.201) “Appendix G” means Appendix G to 10 C.F.R. §§ 20.1001 to 20.2402, inclusive.

459.020 “Area of airborne radioactivity” defined. (NRS 459.201) “Area of airborne radioactivity” means any room, enclosure or area in which airborne radioactive material exists in concentrations:

1. In excess of the derived air concentrations specified in Appendix B; or
2. To such a degree that a person present in the area without a respiratory protective device could receive in the hours he or she works in 1 week, an intake of radiation that is greater than 0.6 percent of the annual limit on intake or 12 derived air concentration hours.

459.0203 “Area of use” defined. (NRS 459.201) “Area of use” means a portion of an address of use that has been set aside for the purpose of receiving, using and storing radioactive materials.

459.02055 “Assigned protection factor” defined. (NRS 459.201) “Assigned protection factor” means the expected level of respiratory protection in a workplace that would be provided

by a properly functioning respirator or class of respirators to properly fitted and trained users. Operationally, the inhaled concentration can be estimated by dividing the ambient airborne concentration by the assigned protection factor.

459.02065 “Atmosphere-supplying respirator” defined. (NRS 459.201) “Atmosphere-supplying respirator” means a respirator that supplies the user with breathing air from a source independent of the ambient atmosphere, and includes, without limitation, a supplied-air respirator and a self-contained breathing apparatus unit.

459.0207 “Authorized nuclear pharmacist” defined. (NRS 459.201) “Authorized nuclear pharmacist” has the meaning ascribed to it in 10 C.F.R. § 35.2, as adopted by reference pursuant to NAC 459.3062.

459.0216 “Boundary of a site” defined. (NRS 459.201) “Boundary of a site” means the boundary beyond which the land or property is not owned, leased or otherwise controlled by a licensee.

459.0218 “Brachytherapy source” defined. (NRS 459.201) “Brachytherapy source” has the meaning ascribed to it in 10 C.F.R. § 35.2, as adopted by reference pursuant to NAC 459.3062.

459.0243 “Chemical description” defined. (NRS 459.201) “Chemical description” means a description of the principal chemical characteristics of low-level radioactive waste.

459.0245 “Class” defined. (NRS 459.201) “Class” means a system of classification for inhaled radioactive material based on its rate of clearance from the pulmonary region of the lung, whereby radioactive materials are classified as either D, W or Y according to the following ranges of clearance half-times:

1. Class D, less than 10 days;

2. Class W, from 10 to 100 days; and
3. Class Y, more than 100 days.

459.0258 “Consignee” defined. (NRS 459.201) “Consignee” means the designated receiver of a shipment of low-level radioactive waste.

459.02585 “Consortium” defined. (NRS 459.201) “Consortium” means an association of medical use licensees and a production facility for positron emission tomography radionuclides, located at an educational institution or medical facility, which:

1. Are in the same geographical area; and
2. Jointly own or share in the operation and maintenance costs of the production facility which produces positron emission tomography radionuclides for use in producing radioactive drugs within the consortium for noncommercial distribution among the associated members of the consortium for medical use.

459.0259 “Constraint” defined. (NRS 459.201) “Constraint” means a value above which specified licensee actions are required.

459.027 “Decommission” defined. (NRS 459.030, 459.201) “Decommission” means to remove a facility or site safely from service and reduce residual radioactivity to a level that permits:

1. Release of the property for unrestricted use and termination of the license of the licensee;
- or
2. Release of the property under restricted conditions and termination of the license of the licensee.

459.0278 “Demand respirator” defined. (NRS 459.201) “Demand respirator” means an atmosphere-supplying respirator that admits breathing air to the facepiece only when a negative pressure is created inside the facepiece by inhalation.

459.0285 “Depleted uranium” defined. (NRS 459.201) “Depleted uranium” means source material consisting of uranium in which the isotope uranium-235 is less than 0.711 weight percent of the total uranium present. The term does not include special nuclear material as defined in 10 C.F.R. § 40.4.

459.029 “Derived air concentration” defined. (NRS 459.201) “Derived air concentration” means the concentration of a given radionuclide in air which, if breathed by the reference man for 2,000 hours under conditions in which the inhalation rate is 1.2 cubic meters of air per hour, results in an intake of one annual limit on intake.

459.0294 “Discrete source” defined. (NRS 459.201) “Discrete source” means a radionuclide that is processed so that its concentration within a material is purposely increased for use in commercial, medical or research activities.

459.0295 “Disposable respirator” defined. (NRS 459.201) “Disposable respirator” means a respirator for which maintenance is not intended and which is designed to be discarded after excessive breathing resistance, sorbent exhaustion, physical damage or its end-of-service-life renders it unsuitable for use.

459.0296 “Disposal container” defined. (NRS 459.201) “Disposal container”:

1. Means a container that is used to confine low-level radioactive waste for disposal at a land disposal facility.
2. May include the container used to transport the low-level radioactive waste to the land disposal facility.

459.0357 “Exempt radiation machine” defined. (NRS 459.201) “Exempt radiation machine” means a radiation machine that is:

1. Exempt, pursuant to the provisions of 21 C.F.R. § 900.2(aa)(1), from the Mammography Quality Standards Act of 1992 (MQSA), Public Law 102-539, as amended; and
2. Used to perform any procedure not governed by chapter 457 of NRS or NAC, including, without limitation, performing federally exempt radiography.

459.03845 “Field flood study” defined. (NRS 459.201) “Field flood study” means a tracer study involving multiple wells where unsealed radioactive material is injected and multiple oil or gas samples containing radioactive material are collected from each of the wells to determine the direction and rate of flow through the adjacent formation.

459.0385 “Filtering facepiece” or “dust mask” defined. (NRS 459.201) “Filtering facepiece” or “dust mask” means a negative pressure particulate respirator with a filter as an integral part of the facepiece or with the entire facepiece composed of the filtering medium, which is not equipped with elastomeric sealing surfaces and adjustable straps.

459.0387 “Fit factor” defined. (NRS 459.201) “Fit factor” means a quantitative estimate of the fit of a particular respirator to a specific person, and typically includes an estimate of the ratio of the concentration of a substance in ambient air to its concentration inside the respirator when worn.

459.0388 “Fit test” defined. (NRS 459.201) “Fit test” means the use of a protocol which involves a qualitative fit test or quantitative fit test to evaluate the fit of a respirator on a person.

459.0395 “Generator” defined. (NRS 459.030) “Generator” means:

1. A waste generator; or

2. An entity that operates pursuant to a license issued by the Nuclear Regulatory Commission or an agreement state and to which waste is attributed pursuant to the Low-Level Radioactive Waste Policy Amendments Act of 1985, 42 U.S.C. §§ 2021b et seq.

459.041 “Helmet” defined. (NRS 459.201) “Helmet” means a rigid respiratory inlet covering that also provides head protection against impact and penetration.

459.043 “Hood” defined. (NRS 459.201) “Hood” means a respiratory inlet covering that completely covers the head and neck and may also cover portions of the shoulders and torso.

459.0475 “Land disposal facility” defined. (NRS 459.201) “Land disposal facility” means the land, buildings, structures and equipment that are intended to be used for the disposal of radioactive waste.

459.049 “Licensed radioactive material” defined. (NRS 459.201) “Licensed radioactive material” means any radioactive material that is possessed under a specific or general license issued by the Division pursuant to this chapter.

459.0505 “Loose-fitting facepiece” defined. (NRS 459.201) “Loose-fitting facepiece” means a respiratory inlet covering that is designed to form a partial seal with the face.

459.0506 “Lost or missing sources of radiation” defined. (NRS 459.201) “Lost or missing sources of radiation” means radioactive material or a radiation machine whose location is unknown. The term includes a source of radiation that has been shipped but has not reached its destination, and whose location cannot be readily traced.

459.0517 “National Source Tracking System” defined. (NRS 459.201) “National Source Tracking System” means the mandatory tracking system for radiation sources in the United States established and administered by the Nuclear Regulatory Commission pursuant to 42 U.S.C. § 2210h.

459.0518 “National Source Tracking Transaction Report” defined. (NRS 459.201)

“National Source Tracking Transaction Report” means a report submitted to the National Source Tracking System.

459.0519 “Nationally tracked source” defined. (NRS 459.201) “Nationally tracked source” has the meaning ascribed to it in 10 C.F.R. § 20.1003.

459.052 “Natural radioactivity” defined. (NRS 459.201) “Natural radioactivity” means radioactivity of naturally occurring nuclides.

459.0525 “Naturally occurring or accelerator-produced radioactive material” defined. (NRS 459.030) “Naturally occurring or accelerator-produced radioactive material” includes naturally occurring radioactive material, including materials generated by accelerators used in subatomic particle physics research, and accelerator-produced radioactive material. The term does not include by-product, source or special nuclear material.

459.0527 “Negative pressure respirator” defined. (NRS 459.201) “Negative pressure respirator” means a respirator in which the air pressure inside the facepiece is negative during inhalation with respect to the ambient air pressure outside the respirator.

459.053 “Nonstochastic effect” defined. (NRS 459.201) “Nonstochastic effect” means the effects on health from exposure to radiation, the severity of which varies with the dose of radiation and for which it is believed that a threshold exists.

459.0555 “Package” defined. (NRS 459.201) “Package” means the assembly of the components necessary to comply with the regulations of the United States Department of Transportation relating to packaging and the radioactive contents of the package, as presented for transport.

459.062 “Pharmacist” defined. (NRS 459.201) “Pharmacist” has the meaning ascribed to it in 10 C.F.R. § 35.2, as adopted by reference pursuant to NAC 459.3062.

459.063 “Physical description” defined. (NRS 459.201) “Physical description” means the items required to be indicated on NRC Form 541 to describe low-level radioactive waste.

459.0646 “Positive pressure respirator” defined. (NRS 459.201) “Positive pressure respirator” means a respirator in which the pressure inside the respiratory inlet covering exceeds the ambient air pressure outside the respirator.

459.06485 “Pressure demand respirator” defined. (NRS 459.201) “Pressure demand respirator” means a positive pressure atmosphere-supplying respirator that admits breathing air to the facepiece when the positive pressure is reduced inside the facepiece by inhalation.

459.06495 “Principal activities” defined. (NRS 459.201) “Principal activities” means the activities authorized by a license which are essential to achieving the purpose for which the license was issued or amended. The term does not include:

1. Storage during which no licensed material is accessed for use; or
2. Disposal and activities incidental to decontamination or decommissioning.

459.065 “Public dose” defined. (NRS 459.030, 459.201) “Public dose” means the dose received by a member of the public from exposure to radiation or radioactive material that is released by a licensee, or from another source of radiation under the control of a licensee or registrant. The term does not include a dose received by a natural person from:

1. Background radiation;
2. Any medical administration of radiation to the person;
3. Exposure to other natural persons who have been administered radioactive material and have been released pursuant to 10 C.F.R. § 35.75;

4. An occupational dose; or
5. Voluntary participation in medical research.

459.0653 “Qualitative fit test” defined. (NRS 459.201) “Qualitative fit test” means a fit test that relies on the response of a person to the test agent to assess on a pass or fail basis the adequacy of the fit of a respirator.

459.0657 “Quantitative fit test” defined. (NRS 459.201) “Quantitative fit test” means a fit test that relies on numerically measuring the amount of leakage into a respirator to assess the adequacy of the fit of the respirator.

459.079 “Reference man” defined. (NRS 459.201) “Reference man” means a hypothetical aggregation of human physical and physiological characteristics established by international standards approved by the Board and used by researchers and public health workers to standardize the results of experiments and to relate biological effects to a common base.

459.084 “Regulations of the Department of Transportation” defined. (NRS 459.201) “Regulations of the Department of Transportation” means the regulations in 49 C.F.R. Parts 171 to 177, inclusive.

459.085 “Released for unrestricted use” defined. (NRS 459.201) “Released for unrestricted use” means:

1. When applied to restricted areas on land or in facilities such as buildings, that all radioactive materials have been removed until the only radiation remaining is background radiation, and that after the Division has given its approval, the area is no longer restricted; or
2. When applied to equipment such as tools or vehicles in a restricted area, that all radioactive material has been removed from the equipment, so that the equipment may be released from the restricted area.

459.0885 “Residual waste” defined. (NRS 459.030, 459.201) “Residual waste” means low-level radioactive waste resulting from processing or decontamination that, because it cannot be easily separated into distinct batches attributable to individual waste generators, is attributed to the processor or decontamination facility, as applicable.

459.089 “Respiratory protective device” defined. (NRS 459.201) “Respiratory protective device” means an apparatus used to reduce the intake of airborne radioactive material by a person.

459.093 “Sanitary sewerage” defined. (NRS 459.201) “Sanitary sewerage” means a system of public sewers for carrying off wastewater and refuse. The term does not include sewage treatment facilities, septic tanks or leach fields owned or operated by a licensee.

459.0945 “Self-contained breathing apparatus” defined. (NRS 459.201) “Self-contained breathing apparatus” means an atmosphere-supplying respirator for which the breathing air source is designed to be carried by the user.

459.0955 “Shipper” defined. (NRS 459.201) “Shipper” means an entity, including, without limitation, a waste collector, waste generator or waste processor, that offers low-level radioactive waste for transportation by consigning the waste to a different waste collector or waste processor, or to a land disposal facility.

459.0957 “Shipping papers” defined. (NRS 459.030) “Shipping papers” means Form 540 and, if necessary, Form 540A, published by the Nuclear Regulatory Commission.

459.096 “Source material” defined. (NRS 459.201) “Source material” means:

1. Uranium or thorium, or any combination thereof, in any physical or chemical form; or

2. Ores which contain by weight one-twentieth of one percent (0.05 percent) or more of uranium or thorium, or any combination thereof. Source material does not include special nuclear material.

459.102 “Special nuclear material in quantities not sufficient to form a critical mass” defined. (NRS 459.201) “Special nuclear material in quantities not sufficient to form a critical mass” means uranium enriched in the isotope uranium 235 in quantities not exceeding 350 grams of contained uranium 235; uranium 233 in quantities not exceeding 200 grams; plutonium in quantities not exceeding 200 grams; or any combination of them in accordance with the following formula:

1. For each kind of special nuclear material, determine the ration between the quantity of that special nuclear material and the quantity specified above for the same kind of special nuclear material.

2. The sum of such ratios for all of the kinds of special nuclear material in combination must not exceed “1” for example, unity. For example, the following quantities in combination would not exceed the limitation and are within the formula:

$$\frac{175 \text{ (grams contained U 235)}}{350} + \frac{50 \text{ (grams U 233)}}{200} + \frac{50 \text{ (grams Pu)}}{200} = 1$$

459.1035 “Supplied-air respirator” defined. (NRS 459.201) “Supplied-air respirator” means an atmosphere-supplying respirator for which the source of breathing air is not designed to be carried by the user, and includes, without limitation, an airline respirator.

459.1092 “Tight-fitting facepiece” defined. (NRS 459.201) “Tight-fitting facepiece” means a respiratory inlet covering that forms a complete seal with the face.

459.1115 “Uniform manifest” defined. (NRS 459.201) “Uniform manifest” means the combination of NRC Forms 540, 541 and 542, and continuation sheets, as applicable.

459.112 “Unrefined and unprocessed ore” defined. (NRS 459.201)

1. “Unrefined and unprocessed ore” means ore in its natural form before any processing, such as grinding, roasting, beneficiating or refining.

2. As used in this section, “processing” does not include the sieving or encapsulation of ore or the preparation of samples of ore for laboratory analysis.

459.1142 “User-performed seal check” defined. (NRS 459.201) “User-performed seal check” means an action conducted by the user of a respirator to determine if the respirator is properly seated to the face. The term includes, without limitation, a negative pressure check, a positive pressure check, an irritant smoke check and an isoamyl acetate check.

459.11455 “Waste” defined. (NRS 459.201) “Waste” means any low-level radioactive waste containing source material, special nuclear material or by-product material specified in NAC 459.022 that is acceptable for disposal in a land disposal facility. The term does not include any high-level radioactive waste, transuranic waste, spent nuclear fuel or by-product material specified in subsections 3 and 4 of NAC 459.022.

459.1146 “Waste collector” defined. (NRS 459.201) “Waste collector” means an entity that operates pursuant to a license issued by the Nuclear Regulatory Commission or an agreement state whose principal purpose is to:

1. Collect and consolidate waste generated by others; and

2. Transfer this waste without processing or repackaging the waste to another waste collector, waste processor or land disposal facility.

459.1147 “Waste generator” defined. (NRS 459.201) “Waste generator” means:

1. An entity that operates pursuant to a license issued by the Nuclear Regulatory Commission or an agreement state that:
 - (a) Possesses any material or component that contains radioactivity or is radioactively contaminated for which the licensee foresees no further use; and
 - (b) Transfers this material or component to a land disposal facility, waste collector or waste processor for handling or treatment before disposal; or
2. An entity that operates pursuant to a license issued by the Nuclear Regulatory Commission or an agreement state that transfers residual waste from its facility to a land disposal facility, waste collector or waste processor for handling or treatment before disposal.

459.1148 “Waste processor” defined. (NRS 459.201) “Waste processor” means an entity that operates pursuant to a license issued by the Nuclear Regulatory Commission or an agreement state whose principal purpose is to process, repackage or otherwise treat low-level radioactive material or waste generated by others before the waste is transferred to a licensed land disposal facility.

459.1149 “Waste type” defined. (NRS 459.030) “Waste type” means a waste, within a disposal container, that has a unique physical description. The term includes, without limitation, a waste that has a specific descriptor code and a waste that is sorbed on or solidified in a specifically defined medium.

459.124 Records. (NRS 459.030, 459.060, 459.201)

1. In addition to other records required by NAC 459.010 to 459.950, inclusive, each licensee and registrant shall maintain records showing his or her receipt, transfer and disposal of all sources of radiation as follows:

(a) A licensee or registrant shall retain a record showing his or her receipt of radioactive material during the period in which the licensee or registrant possesses the radioactive material and for at least 3 years following the transfer or disposal of the radioactive material.

(b) Except as otherwise provided in NAC 459.010 to 459.950, inclusive, a licensee or registrant who transfers radioactive material shall retain a record showing his or her transfer of the radioactive material for at least 3 years after the transfer occurs.

(c) Except as otherwise provided in NAC 459.010 to 459.950, inclusive, a licensee or registrant who transfers source material shall retain a record showing his or her transfer of the source material until the Division terminates the license that authorizes the activity for which the source material that is subject to the recordkeeping requirement is being used.

(d) A licensee or registrant who disposes of radioactive material shall retain a record showing his or her disposal of the radioactive material until the Division terminates the license that authorizes the disposal of the radioactive material.

(e) While a licensee is maintaining records in accordance with this section, if source or by-product material is combined or mixed with other licensed material and subsequently treated in a manner that makes direct correlation of a receipt record with a transfer, export or disposition record impossible, the licensee may use evaluative techniques, including, without limitation, the first-in, first-out method, to make the records that are required pursuant to this section account for 100 percent of the material received.

(f) If a retention period is not otherwise specified in this section or as a condition of the license, a licensee or registrant shall retain a record until the Division terminates the license that authorizes the activity for which the radioactive material that is subject to the recordkeeping requirement is being used.

(g) If there is a conflict between a retention period set forth in NAC 459.010 to 459.950, inclusive, and a retention period set forth as a condition of a license, the retention period set forth in NAC 459.010 to 459.950, inclusive, applies unless the Division has granted an exemption from the retention period pursuant to NAC 459.120.

2. A licensee authorized to possess, in an unsealed form, radioactive material with a half-life greater than 120 days shall:

(a) Before his or her license terminates, forward to the Division:

(1) All records of licensed radioactive material disposed of by the licensee pursuant to NAC 459.3595 to 459.3615, inclusive, including burials authorized before January 28, 1981; and

(2) All records required by paragraph (d) of subsection 2 of NAC 459.3645; and

(b) If the licensee transfers or assigns any licensed activities to another licensee in accordance with subsection 2 of NAC 459.198, transfer to the other licensee:

(1) All records of licensed material disposed of by the licensee pursuant to NAC 459.3595 to 459.3615, inclusive, including burials authorized before January 28, 1981; and

(2) All records required by paragraph (d) of subsection 2 of NAC 459.3645.

3. A licensee to whom records are transferred pursuant to paragraph (b) of subsection 2 shall maintain the records until the termination of his or her license.

4. A licensee whose license is being terminated shall, before his or her license terminates, forward to the Division the records required by subsection 13 of NAC 459.1955.

459.180 Applicable provisions; exceptions. (NRS 459.030, 459.201)

1. The provisions of NAC 459.180 to 459.3154, inclusive, provide for the licensing of radioactive materials. No person may receive, possess, use, transfer, own, acquire, manufacture or produce radioactive material except as authorized in a specific or general license issued pursuant to NAC 459.180 to 459.3154, inclusive, or as otherwise provided in those sections with the following exceptions:

(a) A licensee who possesses and uses accelerator-produced radioactive material or discrete sources of radium-226 for which a license amendment is required to authorize the activities in this section may continue to use such materials for uses allowed pursuant to this section until the date of the Nuclear Regulatory Commission's final licensing determination, so long as the licensee submitted an amendment application within 6 months after the waiver expiration date of August 7, 2009, or within 6 months after the date of an earlier termination of the waiver as noticed by the Nuclear Regulatory Commission, whichever is earlier.

(b) A person who possesses and uses accelerator-produced radioactive material or discrete sources of radium-226 for which a specific license is required by this section may continue to use such material for uses allowed pursuant to this section until the date of the Nuclear Regulatory Commission's final licensing determination, so long as the person submits a license application within 12 months after the waiver expiration date of August 7, 2009, or within 12 months after the date of an earlier termination of the waiver as noticed by the Nuclear Regulatory Commission, whichever is earlier.

(c) Persons exempt as provided in this section.

(d) Persons exempt pursuant to the applicable sections of 10 C.F.R. Part 150.

2. In addition to the requirements of NAC 459.180 to 459.3154, inclusive, all licensees are subject to the requirements of NAC 459.010 to 459.142, inclusive, 459.320 to 459.374, inclusive, and 459.780 to 459.794, inclusive. Licensees engaged in industrial radiography are subject to the requirements of NAC 459.737, and licensees using radioactive materials in the healing arts are subject to the requirements of NAC 459.3801 and 459.3805.

459.181 Compliance with federal regulations in transport of licensed material. (NRS 459.201)

1. Each licensee who transports licensed material outside the site of usage, as specified in the license issued by the Executive Secretary, the United States Nuclear Regulatory Commission or an agreement state, or where transport is on public highways, or who delivers licensed material to a carrier for transport, shall comply with the applicable requirements of the regulations of the United States Department of Transportation set forth in 49 C.F.R. Parts 107, 171 to 180, inclusive, and 390 to 397, inclusive, appropriate to the mode of transport.

2. The licensee shall particularly note those regulations specified in the following areas:

(a) Accident reporting—49 C.F.R. §§ 171.15 and 171.16.

(b) Hazardous material employee training—49 C.F.R. §§ 172.700 to 172.704, inclusive.

(c) Hazardous material shipper or carrier registration—49 C.F.R. §§ 107.601 to 107.606, inclusive (Subpart G).

(d) Marking and labeling—49 C.F.R. §§ 172.300 to 172.338, inclusive, 172.400 to 172.407, inclusive, and 172.436 to 172.441, inclusive, of Subpart E.

(e) Packaging—49 C.F.R. §§ 173.1 to 173.13, inclusive, 173.21 to 173.40, inclusive, and 173.401 to 173.477, inclusive.

(f) Placarding—49 C.F.R. §§ 172.500 to 172.560, inclusive, and Appendices B and C.

(g) Security plans—49 C.F.R. §§ 172.800 to 172.804, inclusive.

(h) Shipping papers and emergency information—49 C.F.R. §§ 172.200 to 172.205, inclusive, and 172.600 to 172.606, inclusive.

3. The licensee shall also note the regulations of the United States Department of Transportation relating to the following modes of transportation:

(a) Air—49 C.F.R. Part 175;

(b) Public Highway—49 C.F.R. Parts 177 and 390 to 397, inclusive;

(c) Rail—49 C.F.R. §§ 174.1 to 174.86, inclusive, and 174.700 to 174.750, inclusive; and

(d) Vessel—49 C.F.R. §§ 176.1 to 176.99, inclusive, and 176.700 to 176.720, inclusive.

4. If the regulations of the United States Department of Transportation are not applicable to a shipment of licensed material, the licensee shall conform to the standards and requirements of the United States Department of Transportation specified in subsection 1 to the same extent as if the shipment or transportation were subject to those regulations. A request for a modification, waiver or exemption from those requirements, and any notification referred to in those requirements, must be filed with, or made to, the Division.

459.182 Exemptions for source materials. (NRS 459.201)

1. Any person is exempt from NAC 459.180 to 459.3154, inclusive, to the extent that he or she receives, possesses, uses, owns or transfers source material in any chemical mixture, compound, solution or alloy in which the source material is by weight less than 0.05 percent of the mixture, compound, solution or alloy.

2. Any person is exempt from NAC 459.180 to 459.3154, inclusive, to the extent that he or she receives, possesses, uses or transfers unrefined and unprocessed ore containing source

material. Except as authorized in a specific license, such a person may not refine or process such ore.

3. Any person is exempt from the requirements for a license set forth in NAC 459.180 to 459.374, inclusive, and NAC 459.780 to 459.794, inclusive, to the extent that he or she receives, possesses, uses or transfers any of the following:

(a) Any quantities of thorium contained in:

- (1) Incandescent gas mantles;
- (2) Vacuum tubes;
- (3) Welding rods;
- (4) Electric lamps for illuminating purposes if each lamp does not contain more than 50 milligrams of thorium;
- (5) Germicidal lamps, sunlamps and lamps for outdoor or industrial lighting if each lamp does not contain more than 2 grams of thorium;
- (6) Rare earth metals and compounds, mixtures and products containing not more than 0.25 percent by weight thorium, uranium or any combination of these; or
- (7) Personnel neutron dosimeters if each dosimeter does not contain more than 50 milligrams of thorium.

(b) Source material contained in the following products:

- (1) Glazed ceramic tableware manufactured before August 27, 2013, if the glaze contains not more than 20 percent by weight source material;
- (2) Glassware containing not more than 2 percent by weight source material or, for glassware manufactured before August 27, 2013, 10 percent by weight source material, but not

including commercially manufactured glass brick, pane glass, ceramic tile or other glass, glass enamel or ceramic used in construction; or

(3) Piezoelectric ceramic containing not more than 2 percent by weight source material.

(c) Photographic film, negatives and prints containing uranium or thorium.

(d) Any finished product or part which is fabricated of or contains tungsten-thorium or magnesium-thorium alloys if the thorium content of the alloy does not exceed 4 percent by weight. This exemption does not authorize the chemical, physical, or metallurgical treatment or processing of any such product or part.

(e) Uranium contained in counterweights installed in aircraft, rockets, projectiles and missiles, or stored or handled in connection with installation or removal of counterweights if:

(1) Each counterweight has been impressed with the following legend clearly legible through the plating or other covering: "DEPLETED URANIUM"; and

(2) Each counterweight is durably and legibly labeled or marked with the identification of the manufacturer and the statement: "UNAUTHORIZED ALTERATIONS PROHIBITED."

↪ The exemption contained in this paragraph does not authorize the chemical, physical or metallurgical treatment or processing of any such counterweights other than repair or restoration of any plating or other covering. The requirements specified in subparagraphs (1) and (2) need not be met by counterweights manufactured before December 31, 1969, provided that such counterweights were manufactured under a specific license issued by the Atomic Energy Commission and were impressed with the legend required by the provisions of 10 C.F.R. § 40.13(c)(5)(ii) in effect on June 30, 1969.

(f) Natural or depleted uranium metal used as shielding in any shipping container if:

(1) The shipping container is conspicuously and legibly impressed with the legend “CAUTION - RADIOACTIVE SHIELDING - URANIUM”; and

(2) The uranium metal is encased in mild steel or an equally fire resistant metal with a wall thickness of one-eighth of an inch.

(g) Thorium or uranium contained in or on finished optical lenses and mirrors, if each lens or mirror does not contain more than 10 percent by weight of thorium or uranium or, for lenses manufactured before August 27, 2013, does not contain more than 30 percent by weight of thorium. The exemption contained in this paragraph does not authorize either:

(1) The shaping, grinding or polishing of such lenses or mirrors or manufacturing processes other than the assembly of such lenses or mirrors into optical systems and devices without any alteration of the lenses or mirrors; or

(2) The receipt, possession, use or transfer of uranium or thorium contained in contact lenses, in spectacles, or in eyepieces in binoculars or other optical instruments.

(h) Thorium contained in any finished aircraft engine part containing nickel-thoria alloy if:

(1) The thorium is dispersed in the nickel-thoria alloy in the form of finely divided thoria (thorium dioxide); and

(2) The thorium content in the nickel-thoria alloy does not exceed 4 percent by weight.

4. The exemptions in subsection 3 do not authorize the manufacture of any of the products described.

5. No person may initially transfer for sale or distribution a product containing source material to persons exempt under subsection 3 or the equivalent regulations of the Nuclear Regulatory Commission or an agreement state, unless authorized by a license issued under 10 C.F.R. § 40.52 to initially transfer such products for sale or distribution. Persons:

(a) Initially distributing source material in products covered by the exemptions in subsection 3 before August 27, 2013, without specific authorization may continue such distribution through August 27, 2014. Initial distribution may also be continued until the Nuclear Regulatory Commission takes final action on a pending application for license or license amendment to specifically authorize distribution submitted on or before August 27, 2014.

(b) Authorized to manufacture, process or produce those materials or products containing source material by an agreement state and persons who import finished products or parts for sale or distribution must be authorized by a license issued under 10 C.F.R. § 40.52 for distribution only and are exempt from the requirements of NAC 459.316 to 459.374, inclusive, 459.780 to 459.794, inclusive, and paragraphs (a) and (b) of subsection 1 of NAC 459.238.

459.186 Table of exempt concentrations. (NRS 459.201) Exempt concentrations are:

Element (atomic number)	Isotope	Column I Gas concentration $\mu\text{Ci/ml}$	Column II Liquid and solid concentration $\mu\text{Ci/ml}^2$	Element (atomic number)	Isotope	Column I Gas concentration $\mu\text{Ci/ml}$	Column II Liquid and solid concentration $\mu\text{Ci/ml}^2$
Antimony (51)	Sb 122		3×10^{-4}	Chlorine (17)	Cs 134		9×10^{-5}
	Sb 124		2×10^{-4}		Cr 51	9×10^{-7}	4×10^{-3}
	Sb 125		1×10^{-3}		Chromium (24)		2×10^{-2}
Argon (18)	Ar 37	1×10^{-3}		Cobalt (27)	Co 57		5×10^{-3}
	Ar 41	4×10^{-7}			Co 58		1×10^{-3}
Arsenic (33)	As 73		5×10^{-3}		Co 60		5×10^{-4}
	As 74		5×10^{-4}	Copper (29)	Cu 64		3×10^{-3}
	As 76		2×10^{-4}	Dysprosium (66)	Dy 165		4×10^{-3}
	As 77		8×10^{-4}		Dy 166		4×10^{-4}
Barium (56)	Ba 131		2×10^{-3}	Erbium (68)	Er 169		9×10^{-4}
	Ba 140		3×10^{-4}		Er 171		1×10^{-3}
Beryllium (4)	Be 7		2×10^{-2}	Europium (63)	Eu 152		6×10^{-4}
Bismuth (83)	Bi 206		4×10^{-4}		(Tr=9.2 h)		
Bromine (35)	Br 82	4×10^{-7}	3×10^{-3}	Fluorine (9)	Eu 155		2×10^{-3}
Cadmium (48)	Cd 109		2×10^{-3}		F 18	2×10^{-6}	8×10^{-3}
	Cd 115m		3×10^{-4}	Gadolinium (64)	Gd 153		2×10^{-3}
	Cd 115		3×10^{-4}		Gd 159		8×10^{-4}
Calcium (20)	Ca 45		9×10^{-5}	Gallium (31)	Ga 72		4×10^{-4}
	Ca 47		5×10^{-4}	Germanium (32)	Ge 71		2×10^{-2}
Carbon (6)	C 14	1×10^{-6}	8×10^{-3}	Gold (79)	Au 196		2×10^{-3}
Cerium (58)	Ce 141		9×10^{-4}		Au 198		5×10^{-4}
	Ce 143		4×10^{-4}		Au 199		2×10^{-3}
	Ce 144		1×10^{-4}	Hafnium (72)	Hf 181		7×10^{-4}
Cesium (55)	Cs 131		2×10^{-2}	Hydrogen (1)	H 3	5×10^{-6}	3×10^{-2}
	Cs 134m		6×10^{-2}	Indium (49)	In 113m		1×10^{-2}

Element (atomic number)	Isotope	Column I Gas concentration μCi/ml1	Column II Liquid and solid concentration μCi/ml2	Element (atomic number)	Isotope	Column I Gas concentration μCi/ml1	Column II Liquid and solid concentration μCi/ml2	
Iodine (53)	In 114m		2 x 10 ⁻⁴	Selenium (34) Silicon (14) Silver (47)	Sc 47		9 x 10 ⁻⁴	
	I 126	3 x 10 ⁻⁹	2 x 10 ⁻⁵		Sc 48		3 x 10 ⁻⁴	
	I 131	3 x 10 ⁻⁹	2 x 10 ⁻⁵		Se 75		3 x 10 ⁻³	
	I 132	8 x 10 ⁻⁸	6 x 10 ⁻⁴		Si 31		9 x 10 ⁻³	
	I 133	1 x 10 ⁻⁸	7 x 10 ⁻⁵		Ag 105		1 x 10 ⁻³	
Iridium (77)	I 134	2 x 10 ⁻⁷	1 x 10 ⁻³	Ag 110m		3 x 10 ⁻⁴		
	Ir 190		2 x 10 ⁻³	Ag 111		4 x 10 ⁻⁴		
	Ir 192		4 x 10 ⁻⁴	Na 24		2 x 10 ⁻³		
Iron (26)	Ir 194		3 x 10 ⁻⁴	Sr 85		1 x 10 ⁻³		
	Fe 55		8 x 10 ⁻³	Sr 89		1 x 10 ⁻⁴		
Krypton (36)	Fe 59		6 x 10 ⁻⁴	Sr 91		7 x 10 ⁻⁴		
	Kr 85m	1 x 10 ⁻⁶		Sr 92		7 x 10 ⁻⁴		
Lanthanum (57)	Kr 85	3 x 10 ⁻⁶		S 35	9 x 10 ⁻⁸	6 x 10 ⁻⁴		
	La 140		2 x 10 ⁻⁴	Ta 182		4 x 10 ⁻⁴		
Lead (82)	Pb 203		4 x 10 ⁻³	Tc 96m		1 x 10 ⁻¹		
Lutetium (71)	Lu 177		1 x 10 ⁻³	Tc 96		1 x 10 ⁻³		
Manganese (25)	Mn 52		3 x 10 ⁻⁴	Te 125m		2 x 10 ⁻³		
	Mn 54		1 x 10 ⁻³	Te 127m		6 x 10 ⁻⁴		
Mercury (80)	Mn 56		1 x 10 ⁻³	Te 127		3 x 10 ⁻³		
	Hg 197m		2 x 10 ⁻³	Te 129m		3 x 10 ⁻⁴		
	Hg 197		3 x 10 ⁻³	Te 131m		6 x 10 ⁻⁴		
	Hg 203		2 x 10 ⁻⁴	Te 132		3 x 10 ⁻⁴		
Molybdenum (42)	Mo 99		2 x 10 ⁻³	Tb 160		4 x 10 ⁻⁴		
Neodymium (60)	Nd 147		6 x 10 ⁻⁴	Tl 200		4 x 10 ⁻³		
	Nd 149		3 x 10 ⁻³	Tl 201		3 x 10 ⁻³		
Nickel (28)	Ni 65		1 x 10 ⁻³	Tl 202		1 x 10 ⁻³		
Niobium (Columbium) (41)	Nb 95		1 x 10 ⁻³	Tl 204		1 x 10 ⁻³		
	Nb 97		9 x 10 ⁻³	Tm 170		5 x 10 ⁻⁴		
Osmium (76)	Os 185		7 x 10 ⁻⁴	Tm 171		5 x 10 ⁻³		
	Os 191m		3 x 10 ⁻²	Sn 113		9 x 10 ⁻⁴		
	Os 191		2 x 10 ⁻³	Sn 125		2 x 10 ⁻⁴		
	Os 193		6 x 10 ⁻⁴					
Palladium (46)	Pd 103		3 x 10 ⁻³	Tungsten (Wolfram) (74)	W 181		4 x 10 ⁻³	
	Pd 109		9 x 10 ⁻⁴	W 187		7 x 10 ⁻⁴		
Phosphorus (15)	P 32		2 x 10 ⁻⁴	V 48		3 x 10 ⁻⁴		
Platinum (78)	Pt 191		1 x 10 ⁻³	Vanadium (23)	Xe 131m	4 x 10 ⁻⁶		
	Pt 193m		1 x 10 ⁻²	Xenon (54)	Xe 133	3 x 10 ⁻⁶		
	Pt 197m		1 x 10 ⁻²	Xe 135	1 x 10 ⁻⁶			
	Pt 197		1 x 10 ⁻³	Ytterbium (70)	Yb 175		1 x 10 ⁻³	
Potassium (19)	K 42		3 x 10 ⁻³	Yttrium (39)	Y 90		2 x 10 ⁻⁴	
Praseodymium (59)	Pr 142		3 x 10 ⁻⁴	Y 91m			3 x 10 ⁻²	
	Pr 143		5 x 10 ⁻⁴	Y 91			3 x 10 ⁻⁴	
Promethium (61)	Pm 147		2 x 10 ⁻³	Y 92			6 x 10 ⁻⁴	
	Pm 149		4 x 10 ⁻⁴	Y 93			3 x 10 ⁻⁴	
Rhenium (75)	Re 183		6 x 10 ⁻³	Zinc (30)	Zn 65		1 x 10 ⁻³	
	Re 186		9 x 10 ⁻⁴	Zn 69m			7 x 10 ⁻⁴	
	Re 188		6 x 10 ⁻⁴	Zn 69			2 x 10 ⁻²	
Rhodium (45)	Rh 103m		1 x 10 ⁻¹	Zirconium (40)	Zr 95		6 x 10 ⁻⁴	
	Rh 105		1 x 10 ⁻³	Zr 97			2 x 10 ⁻⁴	
Rubidium (37)	Rb 86		7 x 10 ⁻⁴	Beta, gamma, or both, emitting radioactive material not listed above with a half-life of less than 3 years.				
Ruthenium (44)	Ru 97		4 x 10 ⁻³					
	Ru 103		8 x 10 ⁻⁴					
	Ru 105		1 x 10 ⁻³					
	Ru 106		1 x 10 ⁻⁴					
Samarium (62)	Sm 153		8 x 10 ⁻⁴			1 x 10 ⁻¹⁰	1 x 10 ⁻⁶	
Scandium (21)	Sc 46		4 x 10 ⁻⁴					

1 Values are given in Column I only for those materials normally used as gases.

2 $\mu\text{Ci/gm}$ for solids.

m Metastable state.

Concentration present in the product and the exempt concentration established in this section for the specific isotope when not in combination. The sum of such ratios may not exceed "1," that is, unity. An example is:

$$\frac{\text{Concentration of Isotope A in Product}}{\text{Exempt concentration of Isotope A}} + \frac{\text{Concentration of Isotope B in Product}}{\text{Exempt concentration of Isotope B}} < 1$$

Note 1: Many radioisotopes disintegrate into isotopes which are also radioactive. In expressing the concentrations in the table, the activity stated is that of the parent isotope and takes into account the daughters.

Note 2: For the purposes of NAC 459.184 where there is involved a combination of isotopes, the limit for the combination should be derived as follows: Determine for each isotope

in the product the ratio between the concentration present in the product and the exempt concentration.

459.188 Table of exempt quantities. (NRS 459.201) Exempt quantities are:

Radioactive Material	Microcuries	Radioactive Material	Microcuries
Antimony-122 (Sb-122)	100	Europium-152 (Eu-152)9.2h	100
Antimony-124 (Sb-124)	10	Europium-152 (Eu-152)13 yr	1
Antimony-125 (Sb-125)	10	Europium-154 (Eu-154)	1
Arsenic-73 (As-73)	100	Europium-155 (Eu-155)	10
Arsenic-74 (As-74)	10	Fluorine-18 (F-18)	1,000
Arsenic-76 (As-76)	10	Gadolinium-153 (Gd-153)	10
Arsenic-77 (As-77)	100	Gadolinium-159 (Gd-159)	100
Barium-131 (Ba-131)	10	Gallium-67 (Ga-67)	100
Barium-133 (Ba-133)	10	Gallium-72 (Ga-72)	10
Barium-140 (Ba-140)	10	Germanium-68 (Ge-68)	10
Bismuth-210 (Bi-210)	1	Germanium-71 (Ge-71)	100
Bromine-82 (Br-82)	10	Gold-195 (Au-195)	10
Cadmium-109 (Cd-109)	10	Gold-198 (Au-198)	100
Cadmium-115m (Cd-115m)	10	Gold-199 (Au-199)	100
Cadmium-115 (Cd-115)	100	Hafnium-181 (Hf-181)	10
Calcium-45 (Ca-45)	10	Holmium-166 (Ho-166)	100
Calcium-47 (Ca-47)	10	Hydrogen-3 (H-3)	1,000
Carbon-14 (C-14)	100	Indium-111 (In-111)	100
Cerium-141 (Ce-141)	100	Indium-113m (In-113m)	100
Cerium-143 (Ce-143)	100	Indium-114m (In-114m)	10
Cerium-144 (Ce-144)	1	Indium-115m (In-115m)	100
Cesium-129 (Cs-129)	100	Indium-115 (In-115)	10
Cesium-131 (Cs-131)	1,000	Iodine-123 (I-123)	100
Cesium-134m (Cs-134m)	100	Iodine-125 (I-125)	1
Cesium-134 (Cs-134)	1	Iodine-126 (I-126)	1
Cesium-135 (Cs-135)	10	Iodine-129 (I-129)	0.1
Cesium-136 (Cs-136)	10	Iodine-131 (I-131)	1
Cesium-137 (Cs-137)	10	Iodine-132 (I-132)	10
Chlorine-36 (Cl-36)	10	Iodine-133 (I-133)	1
Chlorine-38 (Cl-38)	10	Iodine-134 (I-134)	10
Chromium-51 (Cr-51)	1,000	Iodine-135 (I-135)	10
Cobalt-57 (Co-57)	100	Iridium-192 (Ir-192)	10
Cobalt-58m (Co-58m)	10	Iridium-194 (Ir-194)	100
Cobalt-58 (Co-58)	10	Iron-52 (Fe-52)	10
Cobalt-60 (Co-60)	1	Iron-55 (Fe-55)	100
Copper-64 (Cu-64)	100	Iron-59 (Fe-59)	10
Dysprosium-165 (Dy-165)	10	Krypton-85 (Kr-85)	100
Dysprosium-166 (Dy-166)	100	Krypton-87 (Kr-87)	10
Erbium-169 (Er-169)	100	Lanthanum-140 (La-140)	10
Erbium-171 (Er-171)	100	Lutetium-177 (Lu-177)	100

Radioactive Material	Microcuries	Radioactive Material	Microcuries
Manganese-52 (Mn-52)	10	Scandium-48 (Sc-48)	10
Manganese-54 (Mn-54)	10	Selenium-75 (Se-75)	10
Manganese-56 (Mn-56)	10	Silicon-31 (Si-31)	100
Mercury-197m (Hg-197m)	100	Silver-105 (Ag-105)	10
Mercury-197 (Hg-197)	100	Silver-110m (Ag-110m)	1
Mercury-203 (Hg-203)	10	Silver-111 (Ag-111)	100
Molybdenum-99 (Mo-99)	100	Sodium-22 (Na-22)	10
Neodymium-147 (Nd-147)	100	Sodium-24 (Na-24)	10
Neodymium-149 (Nd-149)	100	Strontium-85 (Sr-85)	10
Nickel-59 (Ni-59)	100	Strontium-89 (Sr-89)	1
Nickel-63 (Ni-63)	10	Strontium-90 (Sr-90)	0.1
Nickel-65 (Ni-65)	100	Strontium-91 (Sr-91)	10
Niobium-93m (Nb-93m)	10	Strontium-92 (Sr-92)	10
Niobium-95 (Nb-95)	10	Sulphur-35 (S-35)	100
Niobium-97 (Nb-97)	10	Tantalum-182 (Ta-182)	10
Osmium-185 (Os-185)	10	Technetium-96 (Tc-96)	10
Osmium-191m (Os-191m)	100	Technetium-97m (Tc-97m)	100
Osmium-191 (Os-191)	100	Technetium-97 (Tc-97)	100
Osmium-193 (Os-193)	100	Technetium-99m (Tc-99m)	100
Palladium-103 (Pd-103)	100	Technetium-99 (Tc-99)	10
Palladium-109 (Pd-109)	100	Tellurium-125m (Te-125m)	10
Phosphorus-32 (P-32)	10	Tellurium-127m (Te-127m)	10
Platinum-191 (Pt-191)	100	Tellurium-127 (Te-127)	100
Platinum-193m (Pt-193m)	100	Tellurium-129m (Te-129m)	10
Platinum-193 (Pt-193)	100	Tellurium-129 (Te-129)	100
Platinum-197m (Pt-197m)	100	Tellurium-131m (Te-131m)	10
Platinum-197 (Pt-197)	100	Tellurium-132 (Te-132)	10
Polonium-210 (Po-210)	0.1	Terbium-160 (Tb-160)	10
Potassium-42 (K-42)	10	Thallium-200 (Tl-200)	100
Potassium-43 (K-43)	10	Thallium-201 (Tl-201)	100
Praseodymium-142 (Pr-142)	100	Thallium-202 (Tl-202)	100
Praseodymium-143 (Pr-143)	100	Thallium-204 (Tl-204)	10
Promethium-147 (Pm-147)	10	Thulium-170 (Tm-170)	10
Promethium-149 (Pm-149)	10	Thulium-171 (Tm-171)	10
Rhenium-186 (Re-186)	100	Tin-113 (Sn-113)	10
Rhenium-188 (Re-188)	100	Tin-125 (Sn-125)	10
Rhodium-103m (Rh-103m)	100	Tungsten-181 (W-181)	10
Rhodium-105 (Rh-105)	100	Tungsten-185 (W-185)	10
Rubidium-81 (Rb-81)	10	Tungsten-187 (W-187)	100
Rubidium-86 (Rb-86)	10	Vanadium-48 (V-48)	10
Rubidium-87 (Rb-87)	10	Xenon-131m (Xe-131m)	1,000
Ruthenium-97 (Ru-97)	100	Xenon-133 (Xe-133)	100
Ruthenium-103 (Ru-103)	10	Xenon-135 (Xe-135)	100
Ruthenium-105 (Ru-105)	10	Ytterbium-175 (Yb-175)	100
Ruthenium-106 (Ru-106)	1	Yttrium-87 (Y-87)	10
Samarium-151 (Sm-151)	10	Yttrium-88 (Y-88)	10
Samarium-153 (Sm-153)	100	Yttrium-90 (Y-90)	10
Scandium-46 (Sc-46)	10	Yttrium-91 (Y-91)	10
Scandium-47 (Sc-47)	100	Yttrium-92 (Y-92)	100

Radioactive Material	Microcuries
Yttrium-93 (Y-93)	100
Zinc-65 (Zn-65)	10
Zinc-69m (Zn-69m)	100
Zinc-69 (Zn-69)	1,000
Zirconium-93 (Zr-93)	10
Zirconium-95 (Zr-95)	10
Zirconium-97 (Zr-97)	10
Any radioactive material not listed above other than alpha-emitting radioactive material	0.1

459.190 Miscellaneous exemptions: Certain timepieces, lock illuminators, precision balances, automobile shift quadrants, marine navigational instruments, ionization chamber smoke detectors, thermostats, electron tubes, ionizing radiation measuring instruments, static elimination devices and ion generating tubes. (NRS 459.030, 459.201)

1. Except for persons who apply radioactive material to, or persons who incorporate radioactive material into, the following products, any person is exempt from NAC 459.010 to 459.950, inclusive, to the extent that he or she receives, possesses, uses, transfers, owns or acquires the following products:

(a) Timepieces, hands or dials containing not more than the following specified quantities of radioactive material and not exceeding the following specified levels of radiation:

- (1) Twenty-five millicuries (925 megabecquerels) of tritium per timepiece.
- (2) Five millicuries (185 megabecquerels) of tritium per hand.
- (3) Fifteen millicuries (555 megabecquerels) of tritium per dial. If bezels are used, they are considered part of the dial.
- (4) One hundred microcuries (3.7 megabecquerels) of promethium-147 per watch or 200 microcuries (7.4 megabecquerels) of promethium-147 per other timepiece.
- (5) Twenty microcuries (740 kilobecquerels) of promethium-147 per watch hand or 40 microcuries (1.48 megabecquerels) of promethium-147 per other timepiece hand.
- (6) Sixty microcuries (2.22 megabecquerels) of promethium-147 per watch dial or 120 microcuries (4.44 megabecquerels) of promethium-147 per other timepiece dial. If bezels are used, they are considered part of the dial.

(7) Notwithstanding these quantities, the levels of radiation from hands and dials containing promethium-147 or radium-226 must not exceed, when measured through 50 milligrams per square centimeter of absorber:

(I) For wrist watches, 0.1 millirad (1 microgray) per hour at 10 centimeters from any surface;

(II) For pocket watches, 0.1 millirad (1 microgray) per hour at 1 centimeter from any surface, also radium must not be used for pocket watches; and

(III) For any other timepiece, 0.2 millirad (2 micrograys) per hour at 10 centimeters from any surface.

(8) One microcurie (37 kilobecquerels) of radium-226 per timepiece in intact timepieces manufactured before November 30, 2010.

(b) Lock illuminators containing not more than 15 millicuries (555 megabecquerels) of tritium or not more than 2 millicuries (74 megabecquerels) of promethium-147 installed in automobile locks. The levels of radiation from each lock illuminator containing promethium-147 must not exceed 1 millirad (10 micrograys) per hour at 1 centimeter from any surface when measured through 50 milligrams per square centimeter of absorber.

(c) Precision balances containing not more than 1 millicurie (37 megabecquerels) of tritium per balance or not more than 0.5 millicurie (18.5 megabecquerels) of tritium per balance part which were manufactured before December 17, 2007.

(d) Automobile shift quadrants containing not more than 25 millicuries (925 megabecquerels) of tritium.

(e) Marine compasses containing not more than 750 millicuries (27.75 gigabecquerels) of tritium gas and other marine navigational instruments containing not more than 250 millicuries (9.25 gigabecquerels) of tritium gas which were manufactured before December 17, 2007.

(f) Ionization chamber smoke detectors containing not more than 1 microcurie (μCi) of americium-241 per detector in the form of a foil and designed to protect life and property from fire.

(g) Thermostat dials and pointers containing not more than 25 millicuries (925 megabecquerels) of tritium per thermostat.

(h) Electron tubes, if each tube does not contain more than one of the following specified quantities of radioactive material:

(1) One hundred fifty millicuries (5.55 gigabecquerels) of tritium per microwave receiver protector tube or 10 millicuries (370 megabecquerels) of tritium per any other electron tube;

(2) One microcurie (37 kilobecquerels) of cobalt-60;

(3) Five microcuries (185 kilobecquerels) of nickel-63;

(4) Thirty microcuries (1.11 megabecquerels) of krypton-85;

(5) Five microcuries (185 kilobecquerels) of cesium-137;

(6) Thirty microcuries (1.11 megabecquerels) of promethium-147; or

(7) One microcurie (37 kilobecquerels) of radium-226,

↪ and if the levels of radiation from each electron tube containing radioactive material do not exceed 1 millirad (10 micrograys) per hour at 1 centimeter from any surface when measured through 7 milligrams per square centimeter of absorber.

(i) Ionizing radiation measuring instruments containing, for purposes of internal calibration or standardization, a source of radioactive material which:

(1) Does not exceed the applicable quantity in NAC 459.188; and

(2) Contains not more than 10 exempt quantities.

(j) Static elimination devices which contain, as a sealed source or sources, by-product material consisting of a total of not more than 18.5 megabecquerels (500 microcuries (μCi)) of polonium-210 per device.

(k) Ion generating tubes designed for ionization of air that contain, as a sealed source or sources, by-product material consisting of a total of not more than:

(1) Eighteen and one-half megabecquerels (500 microcuries (μCi)) of polonium-210 per device; or

(2) One and eighty-five one hundredths gigabecquerels (50 microcuries (μCi)) of hydrogen-3 (tritium) per device.

(l) Static elimination devices and ion generating tubes authorized before October 23, 2012, for use under the general license then provided in 10 C.F.R. § 31.3 and equivalent regulations of agreement states and manufactured, tested and labeled by the manufacturer in accordance with the specifications contained in a specific license issued by the Nuclear Regulatory Commission.

2. For the purposes of NAC 459.180 to 459.3154, inclusive, authority to transfer possession or control by the manufacturer, processor or producer of any equipment, device, commodity or other product containing source material or by-product material whose subsequent possession, use, transfer and disposal by all other persons are exempted from regulatory requirements may be obtained only from the Nuclear Regulatory Commission.

3. For the purposes of paragraph (h) of subsection 1, electron tubes include spark gap tubes, power tubes, gas tubes including glow lamps, receiving tubes, microwave tubes, indicator tubes,

pick-up tubes, radiation detection tubes and any other completely sealed tube that is designed to conduct or control electrical currents.

4. For the purposes of paragraph (i) of subsection 1:

(a) The source of an instrument may contain either one type or different types of radionuclides;

(b) An individual exempt quantity may be composed of fractional parts of one or more of the exempt quantities specified in NAC 459.188; and

(c) Five hundredths of a microcurie of americium-241 shall be deemed an exempt quantity pursuant to NAC 459.188.

459.192 Miscellaneous exemptions: Certain self-luminous products, articles containing radium-226, gas and aerosol detectors, capsules containing carbon-14 urea, industrial devices containing by-product material and synthetic plastic resins containing scandium-46. (NRS 459.030, 459.201)

1. Except for persons who manufacture, process or produce self-luminous products containing tritium, krypton-85 or promethium-147, any person is exempt from the provisions of NAC 459.010 to 459.950, inclusive, to the extent that he or she receives, possesses, uses, transfers, owns or acquires tritium, krypton-85 or promethium-147 in self-luminous products manufactured, processed, produced, imported or transferred in accordance with a specific license issued by the Nuclear Regulatory Commission pursuant to 10 C.F.R. § 32.22, which license authorizes the transfer of the product to persons who are exempt from regulatory requirements. The exemption in this subsection for self-luminous products does not apply to tritium, krypton-85 or promethium-147 used in products for frivolous purposes or in toys or adornments.

2. Any person who desires to manufacture, process or produce or initially transfer for sale or distribution self-luminous products containing tritium, krypton-85 or promethium-147 for use under subsection 1 must apply for a license pursuant to 10 C.F.R. § 32.22 and for a certificate of registration in accordance with 10 C.F.R. § 32.210.

3. Any person is exempt from the provisions of NAC 459.010 to 459.950, inclusive, to the extent that he or she receives, possesses, uses, transfers or owns articles containing less than 0.1 microcurie (3.7 kilobecquerels) of radium-226 which were acquired before February 28, 1980.

4. Except for persons who manufacture, process, produce or initially transfer for sale or distribution gas and aerosol detectors containing radioactive material, any person is exempt from the provisions of NAC 459.010 to 459.950, inclusive, to the extent that he or she receives, possesses, uses, transfers, owns or acquires radioactive material in gas and aerosol detectors designed to protect the health, safety or property of persons from fires and airborne hazards if the detectors containing radioactive material have been manufactured, processed, produced or initially transferred in accordance with a specific license issued by the Division, the Nuclear Regulatory Commission or any other agreement state pursuant to 10 C.F.R. § 32.26 or its equivalent, which authorizes the initial transfer of the detectors for use. This exemption also applies to gas and aerosol detectors manufactured or distributed before November 30, 2010, in accordance with a specific license issued by a state under comparable provisions to 10 C.F.R. § 32.26 authorizing distribution to persons exempt from regulatory requirements. The following also apply to gas and aerosol detectors containing radioactive material:

(a) The provisions of subsection 2 of NAC 459.190 apply to this subsection.

(b) Any gas and aerosol detector which contains by-product material, or naturally occurring and accelerator-produced radioactive material, and which was previously manufactured and

distributed to general licensees in accordance with a specific license issued by an agreement state, pursuant to provisions comparable to 10 C.F.R. § 32.26, is exempt under this subsection if the device is labeled in accordance with the specific license and if the device meets the requirements of NAC 459.280.

5. Any person who desires to manufacture, process or produce gas and aerosol detectors containing radioactive material or to initially transfer such products for use pursuant to subsection 4 shall apply for a license pursuant to NAC 459.280 and for a certificate of registration in accordance with NAC 459.3075.

6. Except for persons who manufacture, process, produce, or initially transfer for sale or distribution industrial devices containing by-product material, any person is exempt from the provisions of NAC 459.010 to 459.950, inclusive, to the extent that the person receives, possesses, uses, transfers, owns or acquires by-product material, in industrial devices designed and manufactured for the purpose of detecting, measuring, gauging or controlling thickness, density, level, interface location, radiation, leakage, or qualitative or quantitative chemical composition, or for producing an ionized atmosphere if the devices containing by-product material have been manufactured, processed, produced or initially transferred in accordance with a specific license issued pursuant to 10 C.F.R. § 32.30, which authorizes the initial transfer of the device for use. This exemption does apply to sources not incorporated into a device, including, without limitation, calibration and reference sources.

7. Any person who desires to manufacture, process, produce or initially transfer for sale or distribution industrial devices containing by-product material for use under subsection 6 shall apply for a specific license issued by the Nuclear Regulatory Commission pursuant to 10 C.F.R. § 32.30 and for a certificate of registration in accordance with NAC 459.3075.

8. Any person who receives, possesses, uses, transfers, owns or acquires capsules that contain carbon-14 urea is exempt from the provisions of NAC 459.180 to 459.3154, inclusive, if each capsule:

(a) Is intended solely for in vivo diagnostic use in humans and is not used for research involving human subjects; and

(b) Contains, allowing for nominal variation that may occur during the manufacturing process, not more than 1 microcurie (37 kilobecquerels) of carbon-14 urea.

↪ The provisions of this subsection do not relieve a person from complying with any other federal, state or local requirement governing the receipt, administration or use of drugs.

459.194 Types of licenses. (NRS 459.201) Licenses for radioactive materials are of two types:

1. General licenses which grant authority to persons for certain activities involving radioactive materials and are effective without the filing of applications with the Division or the issuance of licensing documents to the particular persons, although the filing of a certificate with the Division may be required by the particular general license. Except as otherwise provided in the specific provisions of a general license, including, without limitation, a provision concerning NAC 459.357, a general license is subject to all other applicable portions of these regulations and any limitations of the general license.

2. Specific licenses which are issued by the Division to a named person who files an application for a license pursuant to the provisions of NAC 459.180 to 459.313, inclusive. A specific license is subject to all applicable portions of these regulations as well as any limitations specified in the licensing document.

459.195 Application for license: Evaluation or emergency plan required for certain quantities of radioisotopes. (NRS 459.201)

1. Except as otherwise provided in this subsection, each application for a license to possess radioactive materials in unsealed form, on foils, in plated sources or sealed in glass in excess of the quantities specified in the table set forth in NAC 459.1951 must contain:

(a) An evaluation showing that the maximum dose a person not on the premises of the facility where the radioactive material is located would receive due to a release of radioactive materials would not exceed 1 rem effective dose equivalent or 5 rems to the thyroid; or

(b) An emergency plan for responding to a release of radioactive material.

↪ An application for a license to possess a combination of radioactive materials must include an emergency plan if, pursuant to the table set forth in NAC 459.1951, the sum of the ratios of the quantity of each radioactive material for which the license is sought to the quantity listed for that material exceeds one.

2. An evaluation submitted pursuant to paragraph (a) of subsection 1 must be supported by one or more of the following factors:

(a) The radioactive material is physically separated so that only a portion could be involved in an accident;

(b) All or part of the radioactive material is not subject to release during an accident because of the way it is stored or packaged;

(c) The release fraction in the respirable size range would be lower than the release fraction specified in NAC 459.1951 because of the chemical or physical form of the material;

(d) The solubility of the radioactive material would reduce the dose received;

(e) The design of the facility or safety features engineered in the facility would cause the release fraction to be lower than the release fraction specified in the table set forth in NAC 459.1951;

(f) Operating restrictions or procedures would prevent a release fraction in excess of the release fraction specified in the table set forth in NAC 459.1951; or

(g) Other factors appropriate for the specific facility.

3. An emergency plan submitted pursuant to paragraph (b) of subsection 1 must include the following:

(a) A brief description of the applicant's facility and the area near the site of the facility.

(b) An identification of each type of accident involving radioactive materials that may occur for which protective actions would be needed.

(c) A classification system for classifying an accident as an alert or an emergency. As used in this paragraph:

(1) "Alert" means events may occur, are in progress or have occurred that could lead to a release of radioactive material but the release is not expected to require a response by any off-site organization for the protection of persons not on the property of the facility.

(2) "Emergency" means events may occur, are in progress or have occurred that could lead to a significant release of radioactive material and could require a response by an off-site organization for the protection of persons not on the property of the facility.

(d) An identification of the means of detecting each type of accident in a timely manner.

(e) A brief description of the means and equipment to be used to mitigate the consequences of each type of accident, including the means and equipment provided to protect employees of the facility, and a description of the program for maintaining the equipment.

(f) A brief description of the methods and equipment to be used to assess releases of radioactive materials.

(g) A requirement that in the event of a release of radioactive material a control point will be established.

(h) A brief description of the responsibilities of the personnel in the facility who would respond to an accident, including an identification of personnel responsible for promptly notifying off-site organizations and for promptly notifying the Division, and an identification of personnel responsible for maintaining and updating the emergency plan.

(i) A commitment to and a brief description of the means to notify promptly and request assistance from off-site organizations, including the means for requesting medical assistance for the treatment of contaminated or injured employees of the facility if necessary. The notification of and coordination with off-site organizations must be planned so that the unavailability of some employees of the facility, the unavailability of access to certain parts of the facility and the unavailability of certain equipment will not prevent the notification and coordination. The plan must contain a commitment for notification of the Division immediately after notification of the off-site organizations but such notification must be made not later than 1 hour after an accident has been classified as an emergency pursuant to paragraph (c).

(j) A brief description of the types of information that would be included in the notification given to off-site organizations and to the Division. Such information must include the status of the facility, any known releases of radioactive material and any recommended protective actions that should be taken.

(k) A brief description of the frequency and objectives of and plans for the training that will be provided to employees of the facility on how to respond to an emergency and a brief

description of any special instructions and orientation tours that would be offered to fire, police, medical and other emergency personnel. The training of employees must familiarize the employees with the emergency procedures to be followed at the site of the facility. In addition, the training must thoroughly prepare employees of the facility for their responsibilities in the event of the types of accidents most probable for that specific facility. The required training may include the training of groups of employees in the proper and coordinated response to such accidents.

(l) A brief description of the means of restoring the facility to a safe condition after an accident.

(m) Provisions for conducting quarterly tests of the system for communication with off-site organizations. The quarterly tests must include the check and update of all necessary telephone numbers.

(n) Provisions for biennially conducting exercises at the site of the facility to test response to simulated emergencies. Off-site organizations must be invited to participate in the exercises. The exercises must use hypothetical accident scenarios which are most probable for the specific site of the facility and the scenarios must not be revealed to most participants in the exercises before commencing the exercises. A critique of each exercise must be required by participants who are not directly responsible for the implementation of the plan. The critiques of the exercises must evaluate the plan, emergency procedures, facilities, equipment, training of personnel and the overall effectiveness of the response. Deficiencies identified by the critiques must be corrected. The provisions of this paragraph do not require the participation of off-site organizations in the exercises.

(o) A certification that the applicant has complied with the provisions of the Emergency Planning and Community Right-to-Know Act of 1986 (42 U.S.C. §§ 11001 et seq.) which are applicable to the applicant’s activities at the proposed place of use of the radioactive material.

4. The applicant shall provide off-site organizations which are expected to respond to any accidents involving radiation at the site of the facility 60 days to review and comment on the applicant’s emergency plan before submitting the plan to the Division. The applicant shall submit any comments received within the 60 days to the Division with the emergency plan.

5. As used in this section, “off-site organization” means any organization not located at the site where the radioactive material is located which responds to accidents involving radiation.

459.1951 Application for license: Quantities of radioisotopes for which evaluation or emergency plan is required. (NRS 459.201)

1. The following table sets forth quantities of radioisotopes for the purposes of subsections 1 and 2 of NAC 459.195.

Radioactive material	Release fraction	Quantity (curies)	Radioactive material	Release fraction	Quantity (curies)
Actinium-228	0.001	4,000	Curium-243	.001	3
Americium-241	.001	2	Curium-244	.001	4
Americium-242	.001	2	Curium-245	.001	2
Americium-243	.001	2	Europium-152	.01	500
Antimony-124	.01	4,000	Europium-154	.01	400
Antimony-126	.01	6,000	Europium-155	.01	3,000
Barium-133	.01	10,000	Germanium-68	.01	2,000
Barium-140	.01	30,000	Gadolinium-153	.01	5,000
Bismuth-207	.01	5,000	Gold-198	.01	30,000
Bismuth-210	.01	600	Hafnium-172	.01	400
Cadmium-109	.01	1,000	Hafnium-181	.01	7,000
Cadmium-113	.01	80	Holmium-166m	.01	100
Calcium-45	.01	20,000	Hydrogen-3	.5	20,000
Californium-252	.001	9(20mg)	Iodine-125	.5	10
Carbon-14	.01	50,000	Iodine-131	.5	10
Non CO2			Indium-114m	.01	1,000
Cerium-141	.01	10,000	Iridium-192	.001	40,000
Cerium-144	.01	300	Iron-55	.01	40,000
Cesium-134	.01	2,000	Iron-59	.01	7,000
Cesium-137	.01	3,000	Krypton-85	1.0	6,000,000
Chlorine-36	.5	100	Lead-210	.01	8
Chromium-51	.01	300,000	Manganese-56	.01	60,000
Cobalt-60	.001	5,000	Mercury-203	.01	10,000
Copper-64	.01	200,000	Molybdenum-99	.01	30,000
Curium-242	.001	60	Neptunium-237	.001	2

Radioactive material	Release fraction	Quantity (curies)
Nickel-63	.01	20,000
Niobium-94	.01	300
Phosphorus-32	.5	100
Phosphorus-33	.5	1,000
Polonium-210	.01	10
Potassium-42	.01	9,000
Promethium-145	.01	4,000
Promethium-147	.01	4,000
Radium-226	.001	100
Ruthenium-106	.01	200
Samarium-151	.01	4,000
Scandium-46	.01	3,000
Selenium-75	.01	10,000
Silver-110m	.01	1,000
Sodium-22	.01	9,000
Sodium-24	.01	10,000
Strontium-89	.01	3,000
Strontium-90	.01	90
Sulfur-35	.5	900
Technetium-99	.01	10,000
Technetium-99m	.01	400,000
Tellurium-127m	.01	5,000
Tellurium-129m	.01	5,000
Terbium-160	.01	4,000
Thulium-170	.01	4,000
Tin-113	.01	10,000
Tin-123	.01	3,000
Tin-126	.01	1,000
Titanium-44	.01	100
Vanadium-48	.01	7,000
Xenon-133	1.00	900,000
Yttrium-91	.01	2,000
Zinc-65	.01	5,000
Zirconium-93	.01	400
Zirconium-95	.01	5,000
Any other beta-gamma emitter	.01	10,000
Mixed fission products	.01	1,000
Mixed corrosion products	.01	10,000
Contaminated equipment beta-gamma	.001	10,000
Irradiated material, any form other than solid noncombustible	.01	1,000
Irradiated material, solid noncombustible	.001	10,000
Mixed radioactive waste, beta-gamma	.01	1,000
Packaged mixed waste, beta-gamma	.001	10,000
Any other alpha emitter	.001	2
Contaminated equipment, alpha	.0001	20
Packaged waste, alpha	.0001	20

2. For combinations of radioactive materials, consideration of the need for an emergency plan pursuant to NAC 459.195 is required if the sum of the ratios of the quantity of each radioactive material authorized to the quantity listed for that material in Schedule C exceeds 1.

3. Waste packaged in Type B containers does not require an emergency plan pursuant to NAC 459.195.

459.1955 Preparation for decommissioning: Plan for financing; financial assurance; records. (NRS 459.030, 459.201)

1. A plan for financing decommissioning, as described in subsection 10, must be submitted by each applicant for a license authorizing the possession and use of:

(a) Unsealed radioactive materials with a half-life of more than 120 days in quantities that exceed 10^5 times the applicable quantities set forth in NAC 459.362; or

(b) The involvement of a combination of radionuclides when R divided by 10^5 is greater than 1.

2. A plan for financing decommissioning, as described in subsection 10, must be submitted by each licensee who is authorized to possess and use, and each applicant for a specific license authorizing the possession and use of:

(a) Sealed sources of radioactive material or plated foils of radioactive material with a half-life of more than 120 days in quantities that exceed 10^{12} times the applicable quantities set forth in NAC 459.362; or

(b) The involvement of a combination of isotopes when R divided by 10^{12} is greater than 1.

3. Each applicant for a specific license that authorizes the possession and use of radioactive material with a half-life of more than 120 days and in the quantities set forth in subsection 9 must submit:

(a) A plan for financing decommissioning as described in subsection 10; or

(b) A certification which sets forth that financial assurance for decommissioning:

(1) Has been provided in the amount required by subsection 9 using one of the methods set forth in subsection 12; or

(2) Will be provided after the application has been approved and the license issued, but before the receipt of any licensed material by the licensee.

4. If an applicant:

(a) Defers the execution of the financial instrument until after the license has been issued pursuant to subparagraph (2) of paragraph (b) of subsection 3, the applicant must submit to the Division as part of the certification a signed original of the financial instrument used to comply with subsection 12 before the receipt of any licensed material.

(b) Does not defer the execution of the financial instrument until after the license has been issued, the applicant must submit to the Division as part of the certification a signed original of the financial instrument used by the applicant to comply with subsection 12.

5. An applicant for a specific license of the type described in subsection 1 or 3 must submit a plan for financing decommissioning or a certification of financial assurance for decommissioning with his or her application.

6. The holder of a specific license that is issued before January 26, 1999, and:

(a) Of a type described in subsection 1, shall submit a plan for financing decommissioning or a certification of financial assurance for decommissioning in an amount not less than \$1,125,000.

If a certification of financial assurance is submitted, the licensee shall include a plan for financing decommissioning in an application for renewal of the license.

(b) Of a type described in subsection 3, shall submit a plan for financing decommissioning or a certification of financial assurance for decommissioning.

7. A licensee who has submitted an application for renewal of his or her license before January 26, 1999, in accordance with NAC 459.202, shall:

(a) Provide financial assurance for decommissioning in accordance with subsections 1 and 3; and

(b) Submit a plan for financing decommissioning.

8. Waste collectors and waste processors, as defined in Appendix G, shall:

(a) Provide financial assurance for decommissioning in an amount based on a plan for financing decommissioning as described in subsection 10; and

(b) Submit a plan for financing decommissioning which must include, without limitation:

(1) The cost of disposal of the maximum amount, measured in curies, of radioactive material permitted by the license;

(2) The cost of disposal of the maximum quantity, measured by volume, of radioactive material which could be present at the licensee's facility at any time; and

(3) The cost to remediate the licensee's site to meet the license termination criteria set forth in NAC 459.200.

9. Financial assurance for decommissioning must be provided in accordance with the following amounts:

(a) Not less than \$1,125,000 is required if:

(1) The amount of radioactive material is greater than 10^4 , but less than or equal to 10^5 times the applicable quantities described in NAC 459.362, in unsealed form; or

(2) R, for a combination of radionuclides, divided by 10^4 is greater than 1 but R divided by 10^5 is less than or equal to 1.

(b) Not less than \$225,000 is required if:

(1) The amount of radioactive material is greater than 10^3 , but less than or equal to 10^4 times the applicable quantities described in NAC 459.362, in unsealed form; or

(2) R, for a combination of radionuclides, divided by 10^3 is greater than 1 but R divided by 10^4 is less than or equal to 1.

(c) Not less than \$113,000 is required if:

(1) The amount of radioactive material is greater than 10^{10} times the applicable quantities described in NAC 459.362, in sealed sources or plated foils; or

(2) R, for a combination of radionuclides, divided by 10^{10} is greater than 1.

10. Each plan for financing decommissioning must be submitted for review and approval by the Division and must contain the following:

(a) A detailed estimate of the costs of decommissioning the facility in an amount which reflects:

(1) The cost of an independent vendor who is licensed to perform radiological decommissioning and has the capability and expertise in radiological decommissioning to perform all decommissioning activities;

(2) The cost of satisfying the criteria set forth in NAC 459.3178 for unrestricted use, provided that, if the applicant or licensee can demonstrate his or her ability to satisfy the

requirements of NAC 459.318, the cost estimate may be based on satisfying the criteria set forth in NAC 459.318;

(3) The volume of on-site subsurface material containing residual radioactivity that will require remediation to meet the criteria for license termination; and

(4) An adequate contingency factor;

(b) Identification of and justification for using the key assumptions contained in the cost estimate for decommissioning the facility;

(c) A description of the method of assuring financing for decommissioning in compliance with subsection 12, including, without limitation, the means for adjusting the estimate of costs and associated levels of funding periodically over the life of the facility;

(d) A certification by the licensee that financial assurance for decommissioning has been provided in the amount of the cost estimate for decommissioning; and

(e) A signed original of the financial instrument obtained to satisfy the requirements of subsection 12, unless a previously submitted and accepted financial instrument continues to cover the cost estimate for decommissioning.

11. At the time of renewal of the license and at intervals not to exceed 3 years, the plan for financing decommissioning must be resubmitted to the Division with adjustments as necessary to account for changes in costs and the extent of contamination. If the amount of financial assurance will be adjusted downward, this must not be done until the updated plan for financing decommissioning is approved by the Division. The plan for financing decommissioning must update the information submitted with the original or previously approved plan and must specifically consider the effect of the following events on the cost estimate for decommissioning:

- (a) Spills of radioactive material producing additional residual radioactivity in on-site subsurface material;
- (b) An increase in waste inventory above the amount previously estimated;
- (c) An increase in waste disposal costs above the amount previously estimated;
- (d) Modifications of the facility;
- (e) Changes in the limits of radioactive materials which the licensee is authorized to possess and use;
- (f) Actual costs of remediation if those costs exceed the amount of costs previously estimated;
- (g) On-site disposal; and
- (h) Use of a settling pond.

12. Financial assurance for decommissioning must be provided by one or more of the following methods:

(a) Prepayment in the form of a deposit of an amount of money in cash or liquid assets that would be sufficient to pay the costs of decommissioning before starting operations at the facility into an account segregated from the assets of the licensee and outside the administrative control of the licensee. Prepayment may be in the form of a trust, escrow account, government fund, certificate of deposit or deposit of government securities.

(b) Provision of a surety that assures that the costs of decommissioning will be paid should the licensee fail to do so. A guarantee of money from a parent company of the licensee for the cost of decommissioning that is based on a financial test may be used if the guarantee and test meet the criteria set forth in subsection 15. Such a guarantee may not be used in combination with any other method of financing to satisfy the requirements of this subsection. A guarantee of

money by the applicant or licensee for the cost of decommissioning that is based on a financial test may be used if the guarantee and test meet the criteria set forth in subsection 15. Such a guarantee must not be used in combination with any other method of financing to satisfy the requirements of this subsection or if the applicant or licensee has a parent company that holds a majority control of the voting stock of the applicant or licensee. Any surety used to provide financial assurance for decommissioning must contain the following conditions:

(1) The surety must be open-ended or, if written for a specified term, must be renewed automatically unless 90 days or more before the renewal date the issuer notifies the Division, the beneficiary and the licensee of his or her intention not to renew. The surety must provide that the full-face amount will be paid to the beneficiary automatically before the expiration without proof of forfeiture if the licensee fails to provide a replacement acceptable to the Division within 30 days after receipt of notification of the cancellation.

(2) The surety must be payable to a trust established for the costs of decommissioning the facility. The trustee and trust must be approved by the Division. The Division will approve as a trustee an appropriate agency of the State or Federal Government or an entity which has the authority to act as a trustee and whose trust operations are regulated and examined by an agency of the State or Federal Government.

↪ A licensee shall maintain the surety in effect until the Division has terminated his or her license.

(c) Provision of an external sinking fund in which deposits are made at least annually, coupled with a surety issued in compliance with the provisions of paragraph (b) except that the value of the surety may decrease by the amount being accumulated in the external sinking fund.

(d) If the licensee is a federal, state or local governmental agency, a statement of intent containing an estimate of the costs of decommissioning or an amount required by subsection 9 and an indication that money for decommissioning will be obtained when necessary.

13. A person licensed pursuant to NAC 459.180 to 459.3154, inclusive, shall maintain the following records in an identified location until the site is released for unrestricted use:

(a) Records of spills or other unusual occurrences involving the spread of contamination in and around the facility, equipment or site. Such records must include, without limitation, the name, quantity, form and concentration of a nuclide involved in the spill or unusual occurrence.

(b) Drawings and other documents relating to:

(1) The modification of structures and equipment in restricted areas where radioactive materials are used and stored; and

(2) Locations where it is possible that contamination which is inaccessible has occurred, including, without limitation, areas of seepage into concrete and other porous materials.

(c) A list of all the areas:

(1) Designated and formerly designated as restricted areas;

(2) Outside of restricted areas that require documentation pursuant to paragraph (a);

(3) Outside of restricted areas where waste has been buried; and

(4) Outside of restricted areas which contain material that, if the license expired, the licensee would be required to decontaminate the area to unrestricted release levels or apply for approval for disposal pursuant to NAC 459.3595.

(d) Except for areas containing only sealed sources which have not leaked or where no contamination remains after any leak, or for by-product material having only a half-life of less

than 65 days, a list contained in a single document and updated every 2 years which sets forth the following:

(1) All areas designated or formerly designated as restricted areas as defined in 10 C.F.R. § 20.1003, or for requirements before January 1, 1994, 10 C.F.R. § 20.3 as contained in the C.F.R. edition revised as of January 1, 1993;

(2) All areas outside of restricted areas that require documentation pursuant to paragraph (a);

(3) All areas outside of restricted areas where current and previous wastes have been buried as documented pursuant to 10 C.F.R. § 20.2108; and

(4) All areas outside of restricted areas that contain material such that, if the license expired, the licensee would be required to either decontaminate the area to meet the criteria for decommissioning set forth in 10 C.F.R. Part 20, Subpart E, or apply for approval for disposal under 10 C.F.R. § 20.2002.

↪ If records important to the decommissioning of a facility are kept for other purposes, reference to these records and their locations may be used.

14. Before licensed activities are transferred or assigned pursuant to subsection 2 of NAC 459.198, the licensee must transfer all the records described in paragraphs (a), (b), (c) and (d) of subsection 13 to the licensee to whom the activities have been transferred or assigned. Such records become, upon receipt, the responsibility of the licensee to whom the activities have been transferred or assigned and must be retained by that licensee until its license is terminated.

15. To pass the financial test referred to in subsection 12:

(a) A parent company must have:

(1) Two of the following three ratios:

(I) A ratio of total liabilities to net worth that is less than 2;

(II) A ratio of the sum of net income plus depreciation, depletion and amortization to total liabilities that is more than 0.1; and

(III) A ratio of current assets to current liabilities that is more than 1.5;

(2) Net working capital and tangible net worth that are each at least six times the current cost estimates for decommissioning or, if certification is used, the amount set forth in subsection 9; and

(3) Assets located in the United States that amount to at least 90 percent of the total assets of the parent company or at least six times the cost estimate for decommissioning or, if certification is used, the amount set forth in subsection 9; or

(b) A parent company must have:

(1) A rating for its most recent bond issuance of AAA, AA, A or BBB as issued by Standard and Poor's Ratings Services or a rating of Aaa, Aa, A or Baa as issued by Moody's Investors Service, Inc.;

(2) Tangible net worth of at least six times the current cost estimate for decommissioning, or, if a certification is used, the amount set forth in subsection 9; and

(3) Assets located in the United States that amount to at least 90 percent of the total assets of the parent company or at least six times the cost estimate for decommissioning.

16. The terms of a guarantee of a parent company must provide that:

(a) The guarantee will remain in force unless the guarantor sends notice of cancellation by certified mail to the licensee and the Division. The guarantee may not be cancelled until 120 days after the date the notice of cancellation is received by both the licensee and the Division, as evidenced by the return receipts.

(b) If the licensee fails to provide alternate financial assurance as specified in this section within 90 days after receipt by the licensee and the Division of a notice of cancellation of the guarantee from the guarantor, the guarantor must provide such alternate financial assurance in the name of the licensee.

(c) The guarantee and financial test provisions set forth in subsection 15 must remain in effect until the Division has terminated the license.

(d) If a trust is established for the costs of decommissioning, the trustee and trust must be acceptable to the Division. An acceptable trustee includes an appropriate state or federal agency or an entity that has the authority to act as a trustee and whose trust operations are regulated and examined by a federal or state agency.

17. A licensee who guarantees the costs of decommissioning must have:

(a) A tangible net worth of at least 10 times the total estimated cost of decommissioning or the current amount required for decommissioning;

(b) Assets located in the United States that amount to at least 90 percent of its total assets or at least 10 times the cost estimate for decommissioning;

(c) A rating for its most recent bond issuance of AAA, AA or A as issued by Standard and Poor's Ratings Services or a rating of Aaa, Aa or A as issued by Moody's Investors Service, Inc.; and

(d) At least one class of equity securities registered pursuant to the Securities Exchange Act of 1934.

18. A licensee shall ensure that a certified public accountant who is independent of the licensee compares the data used to satisfy the financial test as set forth in subsections 15 and 17. The data must be derived from audited, year-end financial statements for the last fiscal year. A

licensee shall inform the Division within 90 days after matters which cause the certified public accountant to believe that the data used to satisfy the financial test should be adjusted and that the licensee or parent company, as applicable, can no longer pass the test. After the initial financial test, the licensee or parent company, as applicable, shall repeat the test within 90 days after the close of each fiscal year. If the parent company can no longer pass the test, the licensee shall notify the Division of its intent to establish alternate financial assurance as specified in this section. The notice must be sent by certified mail within 90 days after the close of the fiscal year. The licensee shall provide alternate financial assurance within 120 days after the close of such fiscal year.

19. If a bond issuance of the licensee or parent company, as applicable, ceases to be rated in a category of A or above by either Standard and Poor's Ratings Services or Moody's Investors Service, Inc., the licensee shall notify the Division in writing within 20 days after the rating. If the bond issuance ceases to be rated in a category of A or above by both Standard and Poor's Ratings Services and Moody's Investors Service, Inc., the licensee or parent company, as applicable, no longer meets the financial test as set forth in subsection 15.

20. The licensee shall provide to the Division a written guarantee or commitment by a corporate officer which provides that the licensee will fund and complete the decommissioning of the facility or, upon issuance of an order by the State Board of Health, the licensee shall establish a trust in the amount of the current cost estimates for decommissioning.

21. As used in this section:

(a) "External sinking fund" means a fund established and maintained by depositing money periodically in an account segregated from the licensee's assets and outside the licensee's administrative control in which the total amount of money to be accumulated before the

termination of the operation is expected is sufficient to pay the costs of decommissioning. The term includes, without limitation, a trust, escrow account, government fund, certificate of deposit or deposit of government securities.

(b) “R” equals the sum of the ratios of the quantity of each radionuclide to the applicable value as set forth in NAC 459.362.

(c) “Surety” includes, without limitation, a trust fund, surety bond, letter of credit, line of credit, insurance, guarantee of performance or, except as otherwise provided in this section, any combination thereof.

459.196 Issuance of specific licenses; incorporation of certain additional requirements and conditions. (NRS 459.201)

1. Upon a determination that an application meets the requirements of chapter 459 of NRS and the regulations of the Division, the Division will issue a specific license authorizing the proposed activity in a form and containing such conditions and limitations as it deems appropriate or necessary.

2. The Division may incorporate in any license at the time of issuance and thereafter, by appropriate regulation or order, additional requirements and conditions with respect to the licensee’s receipt, possession, use and transfer of radioactive material subject to NAC 459.180 to 459.3154, inclusive, as it deems appropriate or necessary in order to:

- (a) Minimize danger to public health and safety or property;
- (b) Require such reports and the keeping of such records, and to provide for such inspections of activities under the licenses as may be appropriate or necessary; and
- (c) Prevent loss or theft of material subject to NAC 459.180 to 459.3154, inclusive.

459.197 Specific licenses: Appointment of radiation safety officer required; exception.

(NRS 459.201)

1. In addition to any other requirements for obtaining a specific license issued by the Division, an applicant for a specific license must, except as otherwise provided in NAC 459.272, appoint a radiation safety officer to implement and oversee a radiation safety program for the use of radioactive material specified in the application for the specific license.

2. Before a radiation safety officer is appointed pursuant to subsection 1 or the licensee obtains licensed radioactive material, whichever occurs later, the radiation safety officer must satisfy the training and experience requirements set forth in NAC 459.3141 to 459.3154, inclusive, as applicable, and any other training deemed by the Division to be necessary to minimize danger to the public health and safety or property.

459.198 Terms and conditions of licenses; transfer of licenses. (NRS 459.201)

1. Each license issued pursuant to NAC 459.180 to 459.950, inclusive:

(a) Is subject to all the provisions of chapter 459 of NRS, now or hereafter in effect, and to all regulations and orders of the Division;

(b) Except as otherwise provided in the license, includes a right to receive, possess and utilize radioactive material; and

(c) Is governed by the provisions adopted pursuant to NAC 459.1997 with regard to the preparation for shipment and transportation of radioactive material.

2. No license issued or granted under NAC 459.180 to 459.950, inclusive, or right to possess or utilize radioactive material granted by any license issued pursuant to those provisions, may be transferred, assigned or in any manner disposed of, either voluntarily or involuntarily, directly or indirectly, through transfer of control of any license to any person unless the Division,

after securing full information, finds that the transfer is in accordance with the provisions of chapter 459 of NRS and gives its consent in writing.

3. A person licensed by the Division pursuant to NAC 459.180 to 459.950, inclusive, may apply to the Division to transfer his or her license to another person. The application for such a transfer must include, without limitation:

- (a) The identity and technical qualifications of the proposed transferee;
- (b) The financial qualifications of the proposed transferee as determined by the Division based on the financial reports or certified financial statements of the proposed transferee; and
- (c) The information concerning financial assurance for decommissioning required by NAC 459.1955.

4. Each person licensed by the Division pursuant to NAC 459.180 to 459.950, inclusive, or each person seeking a license, shall:

(a) Confine his or her use and possession of the material licensed to the locations and purposes authorized in the license.

(b) Inform the Division in writing before the sale or lease of his or her business if the transaction involves the transfer of a source of radiation to another person.

(c) Inform the Division, in writing, immediately following the filing of a voluntary or involuntary petition for bankruptcy under Title 11 of the United States Code or the appropriate chapter of NRS by or against:

- (1) The licensee;
- (2) An entity, as that term is defined in 11 U.S.C. § 101(15), which controls the licensee or which lists the licensee as a property of the estate of the entity; or
- (3) An affiliate, as that term is defined in 11 U.S.C. § 101(2), of the licensee.

↪ The notice described in this paragraph must inform the Division of the bankruptcy court in which and the date on which the petition for bankruptcy was filed.

(d) Keep records of information important to the safe and effective decommissioning of the facility where the radioactive material is located in a location identified to the Division until the license is terminated by the Division. If records of information relevant to decommissioning are kept for other purposes, references to those records and their locations may be used. Such information must include:

(1) Records of spills or other unusual occurrences involving the spread of contamination in or around the facility, the equipment of the facility or the site of the facility. The records may be limited to instances when contamination remains after any cleanup procedures or when there is a reasonable likelihood that contaminants may have spread to inaccessible areas, including possible seepage into porous materials such as concrete. The records must include any information known to the licensee on the identification of nuclides, quantities, forms and concentrations involved.

(2) Any available drawings of structures and equipment of the facility, as originally built and as modified, which are located in restricted areas where radioactive materials are used or stored, and of locations of inaccessible areas to which contaminants may spread, such as buried pipes which may be subject to contamination. If drawings are not available, the licensee shall provide to the Division other appropriate records of information concerning these areas.

(3) Records of any performance of an estimate of the costs of decommissioning for incorporation in a plan for financing the decommissioning and any records of the method used for assuring the availability of money for the costs of decommissioning the facility.

5. Each person licensed by the Division pursuant to NAC 459.180 to 459.950, inclusive, who uses a portable gauge shall, when the gauge is not under the control and constant surveillance of the licensee, use:

(a) A minimum of two independent physical controls that form tangible barriers to secure the portable gauge from unauthorized removal; and

(b) A source-locking mechanism to prevent accidental exposure to radiation.

6. Each person licensed by the Division pursuant to NAC 459.180 to 459.950, inclusive, shall conduct a physical inventory every 6 months to account for all sources of radiation received and possessed under his or her license. The licensee must retain records of the physical inventory for 3 years after the date of the inventory for inspection by the Division. The records of the physical inventory must indicate, without limitation, the quantity and kind of radioactive material, the location of each source of radiation, the model number and the name of the manufacturer of each source of radiation and the date of the inventory.

7. Each person licensed by the Division pursuant to NAC 459.180 to 459.950, inclusive, who prepares technetium-99m radiopharmaceuticals from molybdenum-99 and technetium-99m generators or who prepares rubidium-82 from strontium-82 and rubidium-82 generators shall:

(a) Test the generator eluates for molybdenum-99 breakthrough or contamination by strontium-82 and strontium-85, respectively, pursuant to 10 C.F.R. § 35.204;

(b) Record the results of each test and retain each record for at least 3 years after the record is made; and

(c) Report to the Division and to the manufacturer of the generator the levels of molybdenum-99, strontium-82 and strontium-85 that are above the permissible limits set forth in 10 C.F.R. § 35.204.

8. Each person licensed by the Division pursuant to NAC 459.300 who is required to appoint a radiation safety officer described in NAC 459.3154 shall ensure that the radiation safety officer:

(a) Has the authority to terminate any activity relating to the license if such activity is deemed necessary to protect health and minimize danger to the public health and safety without consulting the management of the licensee; and

(b) Has sufficient time and commitment from the management of the licensee to fulfill his or her duties and responsibilities with regard to ensuring that radioactive materials are possessed and used in a safe manner.

9. Each licensee authorized pursuant to NAC 459.236 to produce positron emission tomography radioactive drugs for noncommercial distribution to medical use licensees in its consortium shall:

(a) Satisfy the labeling requirements in paragraph (d) of subsection 1 of NAC 459.300 for each positron emission tomography radioactive drug, transport radiation shield and each syringe, vial or other container used to hold the positron emission tomography radioactive drug;

(b) Possess and use instrumentation to measure the radioactivity of the positron emission tomography radioactive drug and meet the procedures, radioactivity measurement, instrument test, instrument check and instrument adjustment requirements pursuant to subsection 3 of NAC 459.300;

(c) If the licensee is a pharmacy, ensure that any person who prepares positron emission tomography radioactive drugs:

(1) Is an authorized nuclear pharmacist who meets the requirements of paragraph (b) of subsection 2 of NAC 459.300; or

(2) Is under the supervision of an authorized nuclear pharmacist pursuant to 10 C.F.R. § 35.27; and

(d) If the licensee is a pharmacy that allows a person to work as an authorized nuclear pharmacist, it shall meet the requirements of paragraph (d) of subsection 2 of NAC 459.300.

↪ Any authorization obtained pursuant to NAC 459.236 to produce positron emission tomography radioactive drugs for noncommercial distribution to medical use licensees in a consortium does not relieve the licensee from the requirement to comply with any applicable regulations of the United States Food and Drug Administration, or other federal and state laws or regulations governing radioactive drugs.

459.1985 Nationally tracked sources: Assignment of unique serial numbers. (NRS 459.201) Each licensee who manufactures a nationally tracked source on or after January 30, 2008, shall assign a unique serial number to each nationally tracked source. Each unique serial number must be composed only of alpha-numeric characters.

459.199 Nationally tracked sources: Reporting requirements; reconciliation of inventory with data in National Source Tracking System. (NRS 459.201)

1. Each licensee who manufactures a nationally tracked source shall complete and submit to the National Source Tracking System a National Source Tracking Transaction Report which must include, without limitation:

- (a) The name, address and license number of the licensee;
- (b) The name of the person preparing the report;
- (c) The manufacturer, model number and serial number of the nationally tracked source;
- (d) The radioactive material contained in the nationally tracked source;

(e) The initial source strength in becquerels (curies) of the nationally tracked source at the time of manufacture; and

(f) The date of manufacture of the nationally tracked source.

2. Each licensee who transfers a nationally tracked source to another person shall complete and submit to the National Source Tracking System a National Source Tracking Transaction Report which must include, without limitation:

(a) The name, address and license number of the licensee;

(b) The name of the person preparing the report;

(c) The name, license number and shipping address of the recipient of the nationally tracked source;

(d) The manufacturer, model number and serial number of the nationally tracked source or, if such information is not available, any other information to uniquely identify the nationally tracked source;

(e) The radioactive material contained in the nationally tracked source;

(f) The initial or current source strength in becquerels (curies);

(g) The date for which the source strength is reported;

(h) The date on which the nationally tracked source was shipped;

(i) The estimated arrival date of the nationally tracked source; and

(j) For a nationally tracked source which is transferred as waste under a Uniform Low-Level Radioactive Waste Manifest, the waste manifest number and the container identification number of the nationally tracked source.

3. Each licensee who receives a nationally tracked source shall complete and submit to the National Source Tracking System a National Source Tracking Transaction Report which must include, without limitation:

- (a) The name, address and license number of the licensee;
- (b) The name of the person preparing the report;
- (c) The name, address and license number of the person who provided the nationally tracked source;
- (d) The manufacturer, model number and serial number of the nationally tracked source or, if such information is not available, any other information to uniquely identify the nationally tracked source;
- (e) The radioactive material contained in the nationally tracked source;
- (f) The initial or current source strength in becquerels (curies);
- (g) The date for which the source strength is reported;
- (h) The date of receipt of the nationally tracked source; and
- (i) For a nationally tracked source received under a Uniform Low-Level Radioactive Waste Manifest, the waste manifest number and the container identification number of the nationally tracked source.

4. Each licensee who disassembles a nationally tracked source shall complete and submit to the National Source Tracking System a National Source Tracking Transaction Report which must include, without limitation:

- (a) The name, address and license number of the licensee;
- (b) The name of the person preparing the report;

(c) The manufacturer, model number and serial number of the nationally tracked source or, if such information is not available, any other information to uniquely identify the nationally tracked source;

(d) The radioactive material contained in the nationally tracked source;

(e) The initial or current source strength in becquerels (curies);

(f) The date for which the source strength is reported; and

(g) The date of disassembly of the nationally tracked source.

5. Each licensee who disposes of a nationally tracked source shall complete and submit to the National Source Tracking System a National Source Tracking Transaction Report which must include, without limitation:

(a) The name, address and license number of the licensee;

(b) The name of the person preparing the report;

(c) The waste manifest number;

(d) The container identification number of the nationally tracked source;

(e) The date of disposal of the nationally tracked source; and

(f) The method of disposal of the nationally tracked source.

6. Any National Source Tracking Transaction Report required pursuant to subsections 1 to 5, inclusive, must be submitted by the close of the next business day after the transaction. A single National Source Tracking Transaction Report may be submitted for multiple sources and transactions. The National Source Tracking Transaction Report must be submitted to the National Source Tracking System:

(a) By the use of the online National Source Tracking System;

(b) By the use of a computer-readable electronic format;

(c) By facsimile;

(d) By mail to the address listed on the National Source Tracking Transaction Report Form (NRC Form 748); or

(e) By telephone with follow-up by facsimile or mail.

7. A licensee shall correct any error in a previously filed National Source Tracking Transaction Report or file a new National Source Tracking Transaction Report for any missed transaction not later than 5 business days after the discovery of the error or missed transaction.

8. Each licensee shall, on or before January 31 of each year:

(a) Reconcile the inventory of nationally tracked sources possessed by the licensee against the data contained in the National Source Tracking System;

(b) Resolve any discrepancies between the National Source Tracking System and the actual inventory of the licensee by filing any necessary National Source Tracking Transaction Report in accordance with the provisions of subsections 1 to 5, inclusive; and

(c) Submit to the National Source Tracking System confirmation that the data in the National Source Tracking System is correct.

9. Each licensee who possesses any Category 1 nationally tracked source on January 30, 2008, shall report its initial inventory of Category 1 nationally tracked sources to the National Source Tracking System not later than February 29, 2008. Each licensee who possesses any Category 2 nationally tracked source on January 30, 2008, shall report its initial inventory of Category 2 nationally tracked sources to the National Source Tracking System not later than February 29, 2008. The reports may be submitted by any method described in paragraphs (a) to (e), inclusive, of subsection 6 and must include, without limitation:

(a) The name, address and license number of the licensee;

- (b) The name of the person preparing the report;
- (c) The manufacturer, model number and serial number of each nationally tracked source or, if that information is not available, any other information to uniquely identify the nationally tracked source;
- (d) The radioactive material contained in the nationally tracked source;
- (e) The initial or current source strength in becquerels (curies); and
- (f) The date for which the source strength is reported.

459.200 Expiration and termination of specific licenses; notification of Division before certain events; decommissioning. (NRS 459.030, 459.201)

1. Except as otherwise provided in subsections 2, 3 and 4, a specific license expires at the end of the day on the date of expiration set forth on the license.
2. A specific license for which a licensee has, not less than 30 days before the date of expiration set forth on the license, filed an application for renewal pursuant to NAC 459.202 remains effective until the Division makes a final decision on the application, and the license application will be considered timely. If the decision is to deny the application for renewal, the license expires on the date of the decision or, if the Division specifies a date of expiration in the decision to deny the application for renewal, on the date specified.
3. If the renewal application for a specific license is not received at least 30 days before the date of expiration set forth on the license, the licensee shall:
 - (a) Pay an expedited review fee of twice the annual fee set forth in NAC 459.310, which, upon submittal, grants the licensee an administrative authorization for the license to remain effective until the Division makes an expedited decision on the application; or

(b) Stop all operations on the expiration date of the license until the Division makes a decision on the application or issues a renewed license.

4. A specific license revoked by the Division expires on the date of the decision of the Division to revoke the license or on the date specified in the decision of the Division to revoke the license.

5. A specific license continues in effect with respect to the possession of radioactive material until the Division notifies the licensee in writing that the license is terminated. During the time the specific license continues in effect, the licensee shall:

(a) Limit actions involving radioactive material to those related to decommissioning; and

(b) Continue to control entry to restricted areas until they are suitable for release so that there is no undue hazard to public health and safety.

6. Except as otherwise provided in subsection 8, a licensee shall notify the Division in writing within 60 days before:

(a) The decision of the licensee to cease permanently its principal activities at the entire site or in a separate building or outdoor area that contains residual radioactivity if the building or outdoor area is unsuitable for release because of an undue hazard to public health and safety;

(b) The end of a 24-month period in which no principal activities have been conducted pursuant to the license; or

(c) The end of a 24-month period in which no principal activities have been conducted in a separate building or outdoor area that contains residual radioactivity and the building or outdoor area is unsuitable for release because of an undue hazard to public health and safety.

7. Coincident with the notification required by subsection 6, the licensee shall maintain in effect all financial assurances for decommissioning established by the licensee pursuant to NAC

459.1955 in conjunction with the issuance or renewal of a license as required by this section. The amount of the financial assurance must be increased, or may be decreased, as appropriate, to meet the detailed cost estimate for decommissioning. After the Division approves the plan for decommissioning, a licensee may reduce the amount of the financial assurance as decommissioning proceeds and radiological contamination is reduced at the site with the approval of the Division.

8. The Division may grant a request to extend the period during which notification is required pursuant to subsection 6 if the Division determines that such an extension is not detrimental to the public health and safety and is otherwise in the public interest. The request must be submitted not later than 30 days before notification is required pursuant to subsection 6. The schedule for decommissioning may not commence until the Division has made a determination on the request.

9. A plan for decommissioning must be submitted to the Division by the licensee if it is required by a condition of the license or if the procedures for decommissioning have not been approved by the Division and these procedures could increase the potential impacts on the health and safety of workers or the public, including, without limitation, if:

(a) The procedures involve techniques not applied routinely during cleanup or maintenance operations;

(b) The workers would be entering areas not normally occupied where surface contamination and radiation levels are significantly higher than routinely encountered during normal operations;

(c) The procedures could result in a significantly greater airborne concentration of radioactive materials than is present during normal operations; or

(d) The procedures could result in a significantly greater release of radioactive material to the environment than that associated with normal operations.

↳ Such procedures may not be carried out by the licensee without being approved by the Division before they commence.

10. A proposed plan for decommissioning will be approved by the Division if decommissioning will be completed as soon as practical, the health and safety of the workers and the public will be protected and the proposed plan for decommissioning includes:

(a) A description of the conditions of the site, separate building or outdoor area sufficient to evaluate the acceptability of the plan;

(b) A description of the decommissioning activities;

(c) A description of the methods that will be used to ensure the protection of workers and the environment against radiation hazards during decommissioning;

(d) A description of the planned final radiation survey;

(e) An updated and detailed cost estimate for decommissioning, comparison of that estimate with the money set aside for decommissioning and a plan for ensuring the availability of adequate money for completion of decommissioning; and

(f) For a plan for decommissioning in which completion of decommissioning will be later than 24 months after approval of the plan, a justification for the delay based on the criteria set forth in subsection 13.

11. A licensee shall begin decommissioning of the site within 60 days after the plan for decommissioning is approved by the Division.

12. Except as otherwise provided in subsection 13, a licensee:

(a) Shall complete decommissioning of the site, separate building or outdoor area as soon as practicable, but not later than 24 months after decommissioning begins.

(b) Must, if decommissioning involves an entire site, request termination of the license as soon as practicable, but not later than 24 months after decommissioning begins.

13. The Division may approve a request by the licensee for an extension of the period allowed for decommissioning or termination of a license if the Division determines that such an extension is necessary because:

(a) It is not technically feasible to complete decommissioning within 24 months;

(b) There is not sufficient capacity for waste disposal to allow completion of decommissioning within 24 months;

(c) A significant reduction in the volume of wastes requiring disposal will be achieved by allowing short-lived radionuclides to decay;

(d) A significant reduction in radiation exposure to workers can be achieved by allowing short-lived radionuclides to decay; or

(e) There are other site-specific factors that make decommissioning within 24 months undesirable or unfeasible, including, without limitation, the regulatory requirements of other government agencies, lawsuits, activities involving the treatment of groundwater, monitored restoration of natural groundwater, actions that could result in more environmental harm than deferred cleanup and other factors beyond the control of the licensee.

14. As the final step in decommissioning, the licensee shall certify the disposition of all licensed material, including, without limitation, accumulated wastes, by submitting to the Division a completed NRC Form 314 or information that is equivalent to that contained in the completed form and:

(a) Demonstrate that the premises where the licensed activities were carried out satisfy the criteria for decommissioning set forth in NAC 459.316 to 459.3184, inclusive; or

(b) Conduct a radiation survey of the premises and submit to the Division a report of the results of this survey. The radiation survey must demonstrate that the premises are suitable for release and include:

(1) A description of the levels of gamma radiation in units of millirem (millisievert) per hour at 1 meter from surfaces;

(2) A description of the levels of radioactivity, including, without limitation, alpha and beta radiation, in units of:

(I) Microcuries (megabecquerels) per 100 square centimeters, removable and fixed, for surfaces;

(II) Microcuries (megabecquerels) per milliliter for water; and

(III) Picocuries (becquerels) per gram for solids, including, without limitation, soils and concrete; and

(3) A description of the survey instruments used and a statement that each instrument was properly calibrated and tested. The statement must be certified by the person who calibrated and tested the instrument.

15. A specific license, including an expired license, will be terminated by written notice to the licensee that the Division has determined that:

(a) All radioactive material has been disposed of properly;

(b) Reasonable effort has been made by the licensee to eliminate residual radioactive contamination, if present;

(c) All records required to be maintained pursuant to subsection 13 of NAC 459.1955 have been received by the Division; and

(d) The radiation survey performed by the licensee or other information submitted by the licensee demonstrates that the premises are suitable for release in accordance with the criteria for decommissioning set forth in NAC 459.316 to 459.3184, inclusive.

459.202 Renewal of specific licenses. (NRS 459.201) Applications for renewal of specific licenses must be filed in accordance with NAC 459.200 and 459.236 and, except as otherwise provided in NAC 459.203, must be accompanied by the appropriate fee as set forth in NAC 459.310. The application for renewal must be received by the Division not later than the date on which the license expires. If the application is not received by that date, the licensee must stop all operations involving radioactive materials and place all sources of radiation in storage until the person is issued a renewed license and:

1. Submit to the Division within 5 days after the license expires an application for renewal of the license accompanied by a fee that is equal to twice the amount of the appropriate fee set forth in NAC 459.310; or

2. Within 30 days after the license expires, transfer all sources of radiation to persons authorized to receive them.

459.203 Payment of fees for specific licenses. (NRS 459.201)

1. Except as otherwise provided in subsection 2, if the Division issues a specific license pursuant to NAC 459.196, the licensee must, for each year his or her specific license is valid, submit to the Division the appropriate fee set forth in NAC 459.310.

2. The fee must be received each year by the Division not later than the last day of the same month that is set forth as the date of expiration on the license. If the fee is not received by that date, the licensee must:

(a) Stop all operations involving radioactive materials and place all sources of radiation in storage until they can be transferred to persons authorized to receive them; or

(b) Submit to the Division within 5 days after the license expires an application for renewal of the license accompanied by a fee that is equal to twice the amount of the appropriate fee set forth in NAC 459.310.

459.204 Amendment of license. (NRS 459.201) Applications for amendment of a license must be filed in accordance with NAC 459.236 and specify the items which the licensee desires to be amended on his or her license and the ground for such amendment.

459.206 Action on applications to renew or amend licenses. (NRS 459.201) In considering an application by a licensee to renew or amend his or her license, the Division will apply the criteria set forth in NAC 459.238 to 459.307, inclusive, as applicable.

459.210 Reciprocal recognition of licenses. (NRS 459.030, 459.201)

1. Subject to the provisions of NAC 459.010 to 459.950, inclusive, a person who holds a specific license from the Nuclear Regulatory Commission or an agreement state issued by the agency having jurisdiction where the licensee maintains an office for directing the licensed activity and at which radiation safety records are normally maintained is hereby granted a general license to conduct within this State the activities authorized in the specific license for a period not in excess of 180 days in any calendar year provided that:

(a) The specific license does not limit the activity authorized by the specific license to specified installations or locations.

(b) The out-of-state licensee notifies the Division in writing at least 3 business days before engaging in the proposed activity and receives written permission from the Division to proceed with the proposed activity. The notification must indicate the location, period and type of proposed possession and use within the State, and must be accompanied by a copy of the specific license. If, for a specific case, the 3-day period would impose an undue hardship on the out-of-state licensee, he or she may apply to the Division and obtain written permission to proceed sooner. The Division may waive the requirement for filing additional written notifications during the remainder of the calendar year following the receipt of the initial notification from a person engaging in activities under the general license.

(c) The out-of-state licensee complies with all applicable regulations of the Division and with all the terms and conditions of his or her specific license, except any terms and conditions which may be inconsistent with applicable regulations of the Division.

(d) The out-of-state licensee supplies such other information as the Division may request.

(e) The out-of-state licensee shall not transfer or dispose of radioactive material possessed or used under the general license provided in this section except by transfer to a person:

(1) Specifically licensed by the Division or by the Nuclear Regulatory Commission to receive such material; or

(2) Exempt from the requirements for a license for such material pursuant to NAC 459.184.

2. A licensee must determine the jurisdiction of a temporary job site at a federal facility before radioactive materials may be used at the temporary job site. If the jurisdiction is unknown, the licensee must contact the federal agency to determine whether the job site is under exclusive federal jurisdiction. The jurisdiction of the job site must be obtained in writing from the federal

agency, or the name and title of the person at the federal agency who provided the determination must be recorded along with the date of the determination.

3. Before a licensee may use radioactive material at a temporary job site in another state or at a federal facility, the licensee must obtain authorization, if the job site is:

(a) In another state, from:

(1) That state, if that state is an agreement state; or

(2) The Nuclear Regulatory Commission, by filing for reciprocity or a specific license, if the state is not an agreement state or the job site is within an area of exclusive federal jurisdiction.

(b) At a federal facility, from the Nuclear Regulatory Commission by:

(1) Filing an NRC Form 241 in accordance with 10 C.F.R. § 150.20(b); or

(2) Filing for a specific license.

4. Any person who holds a specific license issued by the Nuclear Regulatory Commission or an agreement state authorizing the holder to manufacture, transfer, install or maintain a device described in NAC 459.216 within areas subject to the jurisdiction of the licensing body is hereby granted a general license to install, transfer, demonstrate or maintain such a device in this State provided that:

(a) The person shall file a report with the Division within 30 days after the end of each calendar quarter in which any such device is transferred to or installed in this State. Each such report must identify each general licensee to whom the device is transferred by name and address, the type of device transferred and the quantity and type of radioactive material contained in the device;

(b) The device has been manufactured, labeled, installed and maintained in accordance with applicable provisions of the specific license issued to the person by the Nuclear Regulatory Commission or an agreement state;

(c) The person must ensure that any labels required to be affixed to the device under regulations of the authority which licensed manufacture of the device bear a statement that: “Removal of this label is prohibited”; and

(d) The holder of the specific license must furnish to each general licensee to whom he or she transfers the device or on whose premises he or she installs such device a copy of the general license contained in NAC 459.216.

5. The Division may withdraw, limit or qualify its acceptance of any specific license or equivalent licensing document issued by another agency, or any product distributed pursuant to the licensing document, upon determining that such action is necessary in order to prevent undue hazard to public health and safety or property.

459.212 General licenses: Source material. (NRS 459.201)

1. A general license is hereby issued authorizing commercial and industrial firms, research, educational and medical institutions and federal, state and local governmental agencies to receive, possess, use and transfer uranium and thorium, in their natural isotopic concentrations and in the form of depleted uranium for research, development, educational, commercial or operational purposes in the following forms and quantities:

(a) Not more than 1.5 kilograms (3.3 pounds) of uranium and thorium in dispersible forms, including, without limitation, gaseous, liquid and powder forms, at any one time. Any material processed by the general licensee that alters the chemical or physical form of the material containing source material must be accounted for as a dispersible form. A person authorized to

possess, use and transfer source material under this paragraph may not receive more than a total of 7 kilograms (15.4 pounds) of uranium and thorium in any 1 calendar year. Persons possessing source material in excess of these limits on August 27, 2013, may:

(1) Continue to possess up to 7 kilograms (15.4 pounds) of uranium and thorium at any one time through August 27, 2014, or until the Division takes final action on a pending application submitted on or before August 27, 2014, for a specific license for such material; and

(2) Receive up to 70 kilograms (154 pounds) of uranium or thorium in any 1 calendar year until December 31, 2014, or until the Division takes final action on a pending application submitted on or before August 27, 2014, for a specific license for such material; and

(b) Not more than one of the following:

(1) A total of 7 kilograms (15.4 pounds) of uranium and thorium at any one time. A person authorized to possess, use and transfer source material under this subsection may not receive more than a total of 70 kilograms (154 pounds) of uranium and thorium in any 1 calendar year. A person may not alter the chemical or physical form of the source material possessed under this subsection unless it is accounted for under the limits of paragraph (a).

(2) Seven kilograms (15.4 pounds) of uranium, removed during the treatment of drinking water, at any one time. A person may not remove more than 70 kilograms (154 pounds) of uranium from drinking water during a calendar year under this subsection.

(3) Seven kilograms (15.4 pounds) of uranium and thorium at laboratories for the purpose of determining the concentration of uranium and thorium contained within the material being analyzed at any one time. A person authorized to possess, use and transfer source material under this subsection may not receive more than a total of 70 kilograms (154 pounds) of source material in any 1 calendar year.

2. Any person who receives, possesses, uses or transfers source material in accordance with the general license issued in subsection 1:

(a) Is prohibited from administering source material, or the radiation therefrom, either externally or internally, to human beings except as may be authorized by the Division in a specific license.

(b) Shall not abandon such source material. Source material may be disposed of as follows:

(1) A cumulative total of 0.5 kilogram (1.1 pounds) of source material in a solid, nondispersible form may be transferred each calendar year, by a person authorized to receive, possess, use and transfer source material under the general license to persons receiving the material for permanent disposal. The recipient of source material transferred under the provisions of this subparagraph is exempt from the requirements to obtain a license under this section to the extent the source material is permanently disposed. This subparagraph does not apply to any person who is in possession of source material under a specific license issued pursuant to NAC 459.180 to 459.3154, inclusive; or

(2) In accordance with NAC 459.359.

(c) Is subject to the provisions of NAC 459.010 to 459.116, inclusive, 459.124, 459.126, 459.128, 459.134, 459.135, 459.180, 459.196, 459.198, 459.208, 459.312, 459.373 and 459.792.

(d) Shall respond to written requests from the Division to provide information relating to the general license within 30 calendar days after the date of the request, or such other time as specified in the request. If the person cannot provide the requested information within the allotted time, the person shall, within that same time period, request a longer period to supply the information by providing the Division, in accordance with NAC 459.134, a written justification for the request.

(e) Shall not export such source material except in accordance with 10 C.F.R. Part 110.

3. Any person who receives, possesses, uses or transfers source material in accordance with subsection 1 shall conduct activities so as to minimize contamination of the facility and the environment. When activities involving such source material are permanently ceased at any site, if evidence of significant contamination is identified, the general licensee shall notify the Division, in accordance with NAC 459.134, about such contamination and may consult with the Division as to the appropriateness of sampling and restoration activities to ensure that any contamination or residual source material remaining at the site where source material was used under this general license is not likely to result in exposures that exceed the limits set forth in NAC 459.3178.

4. A person who receives, possesses, uses or transfers source material pursuant to the general license issued under this section is exempt from the provisions of NAC 459.316 to 459.374, inclusive, and 459.780 to 459.794, inclusive, to the extent that the activities are within the terms of the general license except that such person shall comply with the provisions of NAC 459.3178 and 459.359 to the extent necessary to meet the provisions of paragraph (b) of subsection 2 and subsection 3. This exemption does not apply to any person who also possesses a specific license issued pursuant to NAC 459.180 to 459.3154, inclusive.

5. Except as otherwise provided in this subsection, no person may initially transfer or distribute source material to persons generally licensed under paragraph (a) of subsection 1, or equivalent regulations of the Nuclear Regulatory Commission or an agreement state, unless authorized by a specific license issued in accordance with NAC 459.241 or equivalent provisions of the Nuclear Regulatory Commission or an agreement state. This prohibition does not apply to analytical laboratories returning processed samples to the client who initially provided the

sample. Initial distribution of source material to persons generally licensed by paragraph (a) of subsection 1 before August 27, 2013, without specific authorization may continue through August 27, 2014. Distribution may also be continued until the Division takes final action on a pending application for a license or license amendment to specifically authorize distribution submitted on or before August 27, 2014.

6. A general license is also issued authorizing the receipt of title to source material without regard to quantity. This general license does not authorize any person to receive, possess, use or transfer source material.

459.216 General licenses: Certain detecting, measuring, gauging or controlling devices and devices for producing light or ionized atmosphere. (NRS 459.201)

1. A general license is issued to commercial and industrial firms, to research, educational and medical institutions, to a person engaged in the conduct of his or her own business, and to the state and local governments, including the agencies of either, to own, receive, acquire, possess, use or transfer, in accordance with the provisions of subsections 2 and 3 and NAC 459.218, radioactive material, excluding special nuclear material, contained in devices designed and manufactured for the purpose of detecting, measuring, gauging or controlling thickness, density, level, interface location, radiation, leakage or qualitative or quantitative chemical composition or for producing light or an ionized atmosphere.

2. The general license in subsection 1 applies only to radioactive material contained in devices which have been manufactured or initially transferred and labeled in accordance with the specifications contained in a specific license issued by the Division pursuant to NAC 459.282, or in accordance with the specifications contained in a specific license issued by the Nuclear

Regulatory Commission or an agreement state or contained in an equivalent specific license issued by a state with provisions comparable to 10 C.F.R. § 32.51.

3. A general licensee may receive a device described in this section only from a specific licensee described in subsection 2 or through a transfer made pursuant to subsection 9 of NAC 459.218 and 459.2185.

4. The general license provided in subsection 1 is subject to the provisions of NAC 459.124 to 459.134, inclusive, 459.198, 459.208, 459.2185, 459.219, 459.287, 459.289, 459.2895, 459.3062, 459.3075, 459.312 and 459.313.

5. The general license provided in subsection 1 does not authorize the manufacture or import of devices containing radioactive material.

459.217 General licenses: Radium-226 contained in certain products. (NRS 459.201)

1. A general license is hereby issued to acquire, receive, possess, use or transfer radium-226 which is contained in the following products, if those products were manufactured before July 6, 2010:

(a) Antiquities which were originally intended for use by the general public and distributed in the late 19th and early 20th centuries, including, without limitation, radium emanator jars, revigators, radium water jars, radon generators, refrigerator cards, radium bath salts and healing pads;

(b) Intact timepieces containing greater than 1 microcurie (0.037 megabecquerel) of radium-226, nonintact timepieces and timepiece hands and dials which are no longer installed in timepieces;

(c) Luminous items installed in air, marine or land vehicles;

(d) All other luminous products, if not more than 100 items are used or stored at the same location at any one time; and

(e) Radium sources which contain not more than 1 microcurie (0.037 megabecquerel) of radium-226, including, without limitation, discrete survey instrument check sources, sources contained in radiation measuring instruments, sources used in educational demonstrations such as cloud chambers and spinthariscopes, electron tubes, lightning rods, ionization sources, static eliminators or items otherwise designated by the Division.

2. A person who acquires, receives, possesses, uses or transfers radium-226 contained in any product listed in subsection 1 in accordance with a general license issued pursuant to that subsection is exempt from the provisions of NAC 459.124, 459.320 to 459.374, inclusive, and 459.780 to 459.794, inclusive, and 10 C.F.R. Part 21.

3. A person who acquires, receives, possesses, uses or transfers a product containing radium-226 in accordance with a general license issued pursuant to subsection 1 shall:

(a) Notify the Division within 30 days, in writing, if there is any indication of possible damage to the product which may result in a loss of the radioactive material, including a brief description of the event in which the damage occurred and any remedial action taken;

(b) Not abandon any product containing radium-226, but ensure that the product and any radioactive material from the product are disposed of pursuant to NAC 459.3125 or by transfer to a person authorized by a specific license to receive the radium-226 in the product or as otherwise approved by the Division;

(c) Not export the product containing radium-226;

(d) Dispose of the product containing radium-226 at a disposal facility authorized to dispose of radioactive material in accordance with any federal or state hazardous waste law, including,

without limitation, the Solid Waste Disposal Act, as authorized under the Energy Policy Act of 2005, Public Law 109-058, by a transfer to a person authorized to receive radium-226 by a specific license issued pursuant to NAC 459.180 to 459.313, inclusive, or an equivalent regulation of an agreement state, or as approved by the Division; and

(e) Respond to a written request from the Division to provide information relating to the acquisition, receipt, possession, use or transfer of radium-226 contained in any product listed in subsection 1 within 30 days after the request, unless another period is specified in the request. If the person is unable to provide the requested information within the required period, he or she may request an extension of time from the Division in writing at the address specified in NAC 459.134.

4. Except for the disassembly and repair of timepieces, a general license issued pursuant to subsection 1 does not authorize a person to manufacture, assemble, disassemble, repair or import products which contain radium-226.

459.2175 General licenses: Labeling of certain sources of radium-226. (NRS 459.201)

A person who holds a general license issued pursuant to NAC 459.217 shall affix a label to each source or storage container for the source, which contains sufficient information to ensure the safe use and storage of the source and shall include in the label the information contained in NAC 459.224, or a substantially similar statement. Sources licensed under 10 C.F.R. § 32.57 or an equivalent state regulation before January 19, 1978, may bear labels authorized by the regulations in effect on January 1, 1978.

459.218 Duties and restrictions regarding certain detecting, measuring, gauging or controlling devices and devices for producing light or ionized atmosphere. (NRS 459.201)

Any person who owns, receives, acquires, possesses, uses or transfers radioactive material in a device pursuant to the general license specified in subsection 1 of NAC 459.216:

1. Shall ensure that all labels affixed to the device at the time of receipt, and bearing a statement that removal of the label is prohibited, are maintained thereon and comply with all instructions and precautions provided by the labels.

2. Shall ensure that the device is tested for leakage of radioactive material and proper operation of the on-and-off mechanism and indicator, if any, and that such tests are conducted at no longer than 6-month intervals or at such other intervals as are specified in the label, except that:

(a) Devices containing only krypton need not be tested for leakage of radioactive material; and

(b) Devices containing only tritium or not more than 100 microcuries (3.7 megabecquerels) of other beta- or gamma-emitting material, or both, or 10 microcuries of alpha-emitting material and devices held in storage in the original shipping container before initial installation need not be tested for any purpose.

3. Shall ensure that the tests required by subsection 2 and other testing, installation, servicing and removal from installation, involving the radioactive materials, its shielding or containment, are performed and recorded:

(a) In accordance with the instructions provided by the labels; or

(b) By a person holding an applicable specific license from the Division, the Nuclear Regulatory Commission or an agreement state to perform such activities.

4. Shall maintain records showing compliance with the requirements of subsections 2 and 3. The records must show the results of tests. The records also must show the dates of performance

of, and the names of persons performing, testing, installing, servicing and removal from installation concerning the radioactive material, its shielding or containment. Records of tests for leakage of radioactive material required by subsection 2 must be retained for 3 years after the next required leak test is performed or until the sealed source is transferred or disposed of. Records of tests of the on-and-off mechanism and indicator required by subsection 2 must be retained for 3 years after the next required test of the on-and-off mechanism and indicator is performed or until the sealed source is transferred or disposed of. Records which are required by subsection 3 must be retained for 3 years from the date of the recorded event or until the device is transferred or disposed of.

5. Upon the occurrence of a failure of or damage to, or any indication of a possible failure of or damage to, the shielding of the radioactive material or the on-and-off mechanism or indicator, or upon the detection of 0.005 microcurie (185 becquerels) or more of removable radioactive material:

- (a) Shall immediately inform the Division by telephone;
- (b) Shall immediately suspend operation of the device;
- (c) Shall, within 30 days, furnish to the Division a report containing a brief description of the event and the remedial action taken;
- (d) Shall, in a case of detection of 0.005 microcurie (185 becquerels) or more of radioactive material or failure of or damage to a source likely to result in contamination of the premises or the environs, furnish to the Division a plan for ensuring that the premises and environs are acceptable for unrestricted use; and
- (e) Shall not, in a case of detection of 0.005 microcurie (185 becquerels) or more of radioactive material or failure of or damage to a source likely to result in contamination of the

premises and the environs, operate the device until it has been repaired by the manufacturer or other person holding a specific license to repair the device issued pursuant to 10 C.F.R. Parts 30 and 32 or equivalent regulations of an agreement state.

6. Shall not abandon the device containing radioactive material.

7. Shall not export the device containing the by-product material except in accordance with 10 C.F.R. § 110.

8. Except as otherwise provided in subsection 9, may transfer or dispose of the device containing radioactive material only by export, as provided in subsection 7, or by transfer to a specific licensee of the Division, the Nuclear Regulatory Commission or an agreement state whose specific license authorizes him or her to receive the device or whose license authorizes waste collection. Within 30 days after transfer of a device to a specific licensee, or export, as provided in subsection 7, the person shall furnish to the Division a report containing identification of the device by the manufacturer's or initial transferor's name, the model number and serial number of the device transferred, the name, address and license number of the person receiving the device and the date of the transfer. A transferor shall not transfer the device to any specific licensee not described in this subsection without first obtaining written approval of the transfer from the Division, except that a holder of a specific license may transfer a device for possession and use pursuant to the holder's specific license without prior approval if the holder:

(a) Verifies that the specific license authorizes the possession and use, or applies for and obtains an amendment to the license authorizing the possession and use;

(b) Removes, alters, covers or clearly and unambiguously augments the existing label which is otherwise required by subsection 1, so that the device is labeled in compliance with 10 C.F.R. § 20.1904 and the manufacturer, model number and serial number are retained;

(c) Obtains the manufacturer's or initial transferor's information relating to maintenance that would be applicable under the specific license, including, without limitation, leak testing procedures; and

(d) Reports the transfer pursuant to this subsection.

9. May transfer the device to another general licensee only:

(a) Where the device remains in use at a particular location. In such a case the transferor shall give the transferee a copy of NAC 459.010 to 459.794, inclusive, and any safety documents identified in the label on the device and, within 30 days after the transfer, shall report to the Division the manufacturer's or initial transferor's name, the model number and serial number of the device transferred, the name, title, telephone number and address of the transferee, and the name and position of a person who may constitute a point of contact between the Division and the transferee and who has knowledge of, and authority to take actions to ensure compliance with, the appropriate regulations and requirements; or

(b) Where the device is held in storage by an intermediate person in the original shipping container at its intended location of use before initial use by a general licensee.

10. Shall comply with the provisions of NAC 459.369 and 459.3695 for reporting radiation incidents, theft or loss of licensed material, but is exempt from the other requirements of NAC 459.320 to 459.374, inclusive, and 459.780 to 459.794, inclusive.

11. Except as otherwise provided in this subsection, shall respond to written requests from the Division to provide information relating to the general license within 30 calendar days after the date of the request or within the time specified in the request. If the general licensee cannot provide the requested information within the allotted time, the licensee shall, within the allotted

time, request in writing additional time to comply with the request from the Division pursuant to the provisions of NAC 459.134.

12. Shall appoint a person responsible for having knowledge of the appropriate regulations and requirements and the authority for taking required actions to comply with those regulations and requirements. The general licensee, through the person appointed pursuant to this subsection, shall ensure daily compliance with all applicable regulations and requirements. The provisions of this subsection do not relieve the licensee of any responsibility or obligation under this chapter or chapter 459 of NRS.

13. Except for a person who holds a general license issued by the Nuclear Regulatory Commission or an agreement state and who uses a device described in paragraph (a) in areas subject to the jurisdiction of the Division for a period of less than 180 days in any calendar year, pursuant to the provisions of NAC 459.210, shall:

(a) Register any device which contains:

- (1) Ten millicuries (370 megabecquerels) or more of cesium-137;
- (2) One-tenth of a millicurie (3.7 megabecquerels) or more of strontium-90;
- (3) One millicurie (37 megabecquerels) or more of cobalt-60;
- (4) One-tenth of a millicurie (3.7 megabecquerels) or more of radium-226;
- (5) One millicurie (37 megabecquerels) or more of americium-241; or
- (6) One millicurie (37 megabecquerels) or more of any other transuranic element, that is,

an element with an atomic number greater than uranium-92,

↪ based on the activity indicated on the label. Each address for a location of use, as described in subparagraph (5) of paragraph (b), represents a separate general licensee and requires a separate registration and fee. The general licensee shall register the device annually with the Division and

shall pay the appropriate fee. In registering the device, the person shall verify, correct and, as appropriate, add to the information provided in a request from the Division for registration. The registration information must be submitted to the Division within 30 days after the date of the request for registration made by the Division, unless otherwise indicated in the request.

(b) In complying with the registration requirements of paragraph (a), in addition to any other information specifically requested by the Division, provide, without limitation, the following information:

- (1) The name and mailing address of the general licensee;
- (2) The name of the manufacturer or initial transferor of each device;
- (3) The model number, serial number, radioisotope and activity, as indicated on the label, of each device;
- (4) The name, title and telephone number of the responsible person designated as a representative of the general licensee pursuant to subsection 12;
- (5) The address of the physical location at which each device is used and stored or, in the case of a portable device, the address of the primary place of storage;
- (6) A certification by the responsible person designated as the representative of the general licensee pursuant to subsection 12 that the information provided in the registration has been verified through a physical inventory and check of label information; and
- (7) A certification by the responsible person designated as the representative of the general licensee pursuant to subsection 12 that the responsible person is aware of the requirements of the general license.

14. Shall report to the Division any change to the mailing address for a location of use, including any change in the name of the general licensee, within 30 days after the effective date

of the change. For a portable device, the general licensee is required to report only a change in the address of the primary place of storage of the portable device.

15. Shall not hold a device that is not in use for more than 2 years, except that a device that is kept in standby for future use is excluded from the 2-year time limit if the general licensee performs physical inventories of those devices held in standby on a quarterly basis. If a device with shutters is not being used, the shutters must be locked in the closed position. If a device is put back into service or is transferred to another person and was not tested during the required test interval, the device must be tested for leakage before use or transfer and the shutter must be tested before use. The Division may determine the eligibility for release for unrestricted use of such a device in accordance with the provisions of NAC 459.3178.

459.2185 Requirements for transfer of certain detecting, measuring, gauging or controlling devices and devices for producing light or ionized atmosphere to intended users or intermediate transferees. (NRS 459.201)

1. Except as otherwise provided in subsection 2, before a person may transfer a device containing radioactive material to the intended user of the device or an intermediate transferee for use by the intended user:

(a) Pursuant to a general license issued pursuant to NAC 459.216, the person must be licensed pursuant to NAC 459.216 and 459.282 to distribute such devices and shall, before the initial transfer of the device, provide to the intended user of the device and each intermediate transferee:

(1) A copy of the general license of the transferor issued pursuant to NAC 459.216, except that if subsections 2, 3, 4 and 13 of NAC 459.218 do not apply to the device those provisions may be omitted;

(2) A copy of the provisions of NAC 459.124, subsection 1 of NAC 459.194 and NAC 459.369 and 459.3695;

(3) A list of the services that can be performed only by a specific licensee;

(4) Information concerning acceptable disposal options, including, without limitation, information concerning estimated costs of disposal; and

(5) Notice that it is the policy of the Division to take enforcement action for improper disposal.

(b) Pursuant to a general license which is equivalent to a license issued pursuant to NAC 459.216 and which is issued pursuant to the regulations of the Nuclear Regulatory Commission or an agreement state, the person must be licensed pursuant to NAC 459.216 and shall, before the initial transfer of the device, provide to the intended user of the device and each intermediate transferee:

(1) A copy of the provisions of NAC 459.124, subsection 1 of NAC 459.194 and NAC 459.216 and 459.369 and a copy of the equivalent regulations of the Nuclear Regulatory Commission or agreement state, except that any provisions of the regulations of the Nuclear Regulatory Commission or agreement state which do not apply to the device may be omitted;

(2) If a copy of the regulations of the Nuclear Regulatory Commission is provided in lieu of a copy of the regulations of the agreement state pursuant to subparagraph (1), a statement that the use of the device is regulated by the agreement state;

(3) A list of the services that can be performed only by a specific licensee;

(4) Information concerning acceptable disposal options, including, without limitation, information concerning estimated costs of disposal; and

(5) The name or title, address and telephone number of the contact person at the Nuclear Regulatory Commission or appropriate regulatory agency of the agreement state from whom additional information may be obtained.

2. A licensee described in paragraph (a) or (b) of subsection 1 may propose an alternative method of informing an intended user of the device or other transferee of the type of information set forth in subsection 1 and may use the proposed method upon approval by the Division.

3. A general licensee who is subject to the provisions of paragraph (b) of subsection 1 and who transfers a device containing radioactive material after November 13, 2006, must comply with the provisions of NAC 459.282 concerning the labeling of the device.

459.219 Requirements for separate locations of use of certain detecting, measuring, gauging or controlling devices and devices for producing light or ionized atmosphere. (NRS

459.201) Each address for a location of use described in subparagraph (5) of paragraph (b) of subsection 13 of NAC 459.218 is deemed to represent a separate general license and requires separate registration and payment of a separate fee.

459.220 General licenses: Luminous safety devices for aircraft. (NRS 459.201)

1. A general license is issued to own, receive, acquire, possess and use tritium or promethium-147 contained in luminous safety devices for use in aircraft, if:

(a) Each device contains not more than 10 curies of tritium or 300 millicuries of promethium-147; and

(b) Each device has been manufactured, assembled or imported in accordance with a specific license issued by the Nuclear Regulatory Commission, or each device has been manufactured or assembled in accordance with the specifications contained in a specific license issued by the Division or any agreement state to the manufacturer or assembler of such device pursuant to

licensing requirements equivalent to those in 10 C.F.R. § 32.53 of the regulations of the Nuclear Regulatory Commission.

2. Persons who own, receive, acquire, possess or use luminous safety devices pursuant to the general license in subsection 1 are exempt from the requirements of NAC 459.320 to 459.374, inclusive, and 459.780 to 459.794, inclusive, except that they shall comply with the provisions of NAC 459.369 and 459.3695.

3. This general license does not authorize:

(a) The manufacture, assembly or repair of luminous safety devices containing radioactive material.

(b) The ownership, receipt, acquisition, possession or use of promethium-147 contained in instrument dials.

4. This general license is subject to the provisions of NAC 459.124 to 459.134, inclusive, 459.198, 459.208 and 459.312.

459.222 General licenses: Ownership of radioactive material. (NRS 459.201) A general license is issued to own radioactive material without regard to quantity. This general license does not authorize the manufacture, production, transfer, receipt, possession or use of radioactive material.

459.224 General licenses: Calibration and reference sources. (NRS 459.201)

1. A general license is hereby issued to those persons listed to own, receive, acquire, possess, use and transfer, in accordance with the provisions of subsections 4 and 5, americium-241 in the form of calibration or reference sources:

(a) Any person who holds a specific license issued by the Division which authorizes him or her to receive, possess, use and transfer radioactive material; and

(b) Any person who holds a specific license issued by the Nuclear Regulatory Commission which authorizes him or her to receive, possess, use and transfer special nuclear material.

2. A general license is hereby issued to own, receive, possess, use and transfer plutonium in the form of calibration or reference sources in accordance with the provisions of subsections 4 and 5 to any person who holds a specific license issued by the Division which authorizes him or her to receive, possess, use and transfer radioactive material.

3. A general license is hereby issued to own, receive, possess, use and transfer radium-226 in the form of calibration or reference sources in accordance with the provisions of subsections 4 and 5 to any person who holds a specific license issued by the Division which authorizes him or her to receive, possess, use and transfer radioactive material.

4. The general licenses in paragraphs (a), (b) and (d) of subsection 5 apply only to calibration or reference sources which have been manufactured or initially transferred in accordance with the specifications contained in a specific license issued to the manufacturer or importer of the sources by the Nuclear Regulatory Commission pursuant to 10 C.F.R. § 32.57 or § 70.39 or which have been manufactured in accordance with specifications contained in a specific license issued to the manufacturer by the Division or any agreement state pursuant to licensing requirements equivalent to those contained in 10 C.F.R. § 32.57 or § 70.39 of the regulations of the Nuclear Regulatory Commission.

5. The general licenses provided in subsections 1, 2 and 3 are subject to the provisions of NAC 459.124 to 459.134, inclusive, 459.198, 459.208, 459.312, 459.320 to 459.374, inclusive, and 459.780 to 459.794, inclusive. In addition, persons who own, receive, acquire, possess, use or transfer one or more calibration or reference sources pursuant to NAC 459.180 to 459.313, inclusive:

(a) Shall not possess at any one time or at any one location of storage or use more than 5 microcuries of americium-241, 5 microcuries of plutonium and 5 microcuries of radium-226 in those sources;

(b) Shall not receive, possess, use or transfer such a source unless the source or its storage container bears a label which includes the following statement or a substantially similar statement:

The receipt, possession, use and transfer of this source, Model, Serial No., are subject to a general license and the regulations of the Nuclear Regulatory Commission or of a state with which the Commission has entered into an agreement for the exercise of regulatory authority. Do not remove this label.

CAUTION - RADIOACTIVE MATERIAL - THIS SOURCE CONTAINS (AMERICIUM-241) (PLUTONIUM) (RADIUM-226). DO NOT TOUCH RADIOACTIVE PORTION OF THIS SOURCE.

Name of manufacturer or importer

(c) Shall ensure that the label required by paragraph (b) shows only the name of the appropriate material;

(d) Shall not transfer, abandon or dispose of such source except by transfer to a person authorized by a license from the Division, the Nuclear Regulatory Commission or an agreement state to receive the source;

(e) Shall store such source, except when the source is being used, in a closed container adequately designed and constructed to contain americium-241, plutonium or radium-226 which might otherwise escape during storage; and

(f) Shall not use such source for any purpose other than the calibration of radiation detectors or the standardization of other sources.

6. These general licenses do not authorize the manufacture of calibration or reference sources containing americium-241, plutonium or radium-226.

459.228 General licenses: Prepackaged units of radioactive material for in vitro testing. (NRS 459.201) A general license is issued to any physician, clinical laboratory or hospital to receive, acquire, possess, transfer or use, for any of the following stated tests, in accordance with the provisions of NAC 459.230, the following radioactive materials in prepackaged units:

1. Iodine 125, iodine 131, selenium 75, cobalt 57 and carbon 14 in units not exceeding 10 microcuries each for use in in vitro clinical or laboratory tests not involving internal or external administration of radioactive material, or the radiation therefrom, to human beings or animals.

2. Hydrogen 3 (tritium) in units not exceeding 50 microcuries each for use in in vitro clinical or laboratory tests not involving internal or external administration of radioactive material, or its radiation, to human beings or animals.

3. Iron 59 in units not exceeding 20 microcuries each for use in in vitro clinical or laboratory tests not involving internal or external administration of radioactive material, or its radiation, to human beings or animals.

4. Mock iodine 125 reference or calibration sources in units not exceeding 0.05 microcurie of iodine 129 and 0.005 microcurie of americium 241 each for use in in vitro clinical or laboratory tests not involving internal or external administration of radioactive material, or radiation from it to human beings or animals.

459.230 Duties and restrictions regarding prepackaged units of radioactive material for in vitro testing. (NRS 459.201)

1. A person may not receive, acquire, possess, use or transfer radioactive material pursuant to the general license established by NAC 459.228, until he or she has filed division form NRC-8, "Certificate - In Vitro Testing with Radioactive Material Under General License," with the Division and received from the Division a validated copy of division form NRC-8 with certification number assigned. The physician, clinical laboratory or hospital shall furnish on division form NRC-8 the following information and any other information required by that form:

(a) Name and address of the physician, clinical laboratory or hospital;

(b) The location of use; and

(c) A statement that the physician, clinical laboratory or hospital has appropriate radiation measuring instruments to carry out in vitro clinical or laboratory tests with radioactive material as authorized under the general license in NAC 459.228, and that tests will be performed only by personnel competent in the use of the instruments and in the handling of the radioactive material.

2. A person who receives, acquires, possesses or uses radioactive material pursuant to the general license established by NAC 459.228, shall comply with the following:

(a) The general licensee shall not possess at any one time, pursuant to the general license in NAC 459.228, at any one location of storage or use a total amount of iodine 125, iodine 131, selenium 75, iron 59 or cobalt 57 in excess of 200 microcuries.

(b) The general licensee shall store the radioactive material, until used, in the original shipping container or in a container providing equivalent radiation protection.

(c) The general licensee shall use the radioactive material only for the uses authorized by NAC 459.228.

(d) The general licensee shall not transfer the radioactive material to a person who is not authorized to receive it pursuant to a license issued by the Division, the Nuclear Regulatory Commission or any agreement state, nor transfer the radioactive material in any manner other than in the unopened, labeled shipping container as received from the supplier.

(e) The general licensee must dispose of the mock iodine 125 reference or calibration sources described in subsection 4 of NAC 459.228, as required by NAC 459.3355 and 459.359 to 459.3615, inclusive.

3. The general licensee shall not receive, acquire, possess or use radioactive material pursuant to NAC 459.228:

(a) Except as prepackaged units which are labeled in accordance with the provisions of an applicable specific license issued by the Nuclear Regulatory Commission or any agreement state which authorizes the manufacture and distribution of iodine 125, iodine 131, carbon 14, hydrogen 3 (tritium), selenium 75, iron 59, cobalt 57 or mock iodine 125 for distribution to persons generally licensed under NAC 459.228 or its equivalent; and

(b) Unless the following statement or a substantially similar statement, which contains the information in the following statement, appears on a label affixed to each prepackaged unit or appears in a leaflet or brochure which accompanies the package:

This radioactive material must be received, acquired, possessed and used only by physicians, clinical laboratories or hospitals and only for in vitro clinical or laboratory tests not involving internal or external administration of the material, or the radiation therefrom, to human beings or animals. Its receipt, acquisition, possession, use and transfer are subject to the regulations and a general license of the Nuclear Regulatory Commission or of a state with which the Commission has entered into an agreement for the exercise of regulatory authority.

.....

Name of manufacturer

4. The physician, clinical laboratory or hospital possessing or using radioactive material under the general license of NAC 459.228 shall report in writing to the Division any changes in the information furnished by him or her in the "Certificate - In Vitro Testing with Radioactive Material Under General License," division form NRC-8. The report must be furnished within 30 days after the effective date of such change.

5. Any person using radioactive material pursuant to the general license of NAC 459.228 is exempt from the requirements of NAC 459.320 to 459.374, inclusive, and 459.780 to 459.794, inclusive, with respect to radioactive material covered by that general license except that such

persons using mock iodine 125 described in subsection 4 of NAC 459.228 shall comply with the provisions of NAC 459.3355, 459.359 to 459.3615, inclusive, 459.369 and 459.3695.

459.232 General licenses: Ice detection devices. (NRS 459.201)

1. A general license is issued to own, receive, acquire, possess, use and transfer strontium-90 contained in ice detection devices, if each device contains not more than 50 microcuries of strontium-90 and each device has been manufactured or imported in accordance with a specific license issued by the Nuclear Regulatory Commission or each device has been manufactured in accordance with the specifications contained in a specific license issued by the Division or any agreement state to the manufacturer of a device pursuant to licensing requirements equivalent to those in 10 C.F.R. § 32.61 of the regulations of the Nuclear Regulatory Commission.

2. Persons who own, receive, acquire, possess, use or transfer strontium-90 contained in ice detection devices pursuant to the general license in subsection 1:

(a) Shall, upon occurrence of visually observable damage, such as a bend or crack or discoloration from overheating to the device, discontinue use of the device until it has been inspected, tested for leakage and repaired by a person holding a specific license from the Division, the Nuclear Regulatory Commission or an agreement state to manufacture or service such devices or shall dispose of the device pursuant to the provisions of NAC 459.3355 and 459.359 to 459.3615, inclusive;

(b) Shall ensure that all labels affixed to the device at the time of receipt, and which bear a statement which prohibits removal of the labels, are maintained; and

(c) Are exempt from the requirements of NAC 459.320 to 459.374, inclusive, and 459.780 to 459.794, inclusive, except that the persons shall comply with the provisions of NAC 459.3355, 459.359 to 459.3615, inclusive, 459.369 and 459.3695.

3. This general license does not authorize the manufacture, assembly, disassembly or repair of strontium-90 in ice detection devices.

4. This general license is subject to the provisions of NAC 459.124 to 459.134, inclusive, 459.198, 459.208 and 459.312.

459.234 General licenses: Intrastate transportation of radioactive material. (NRS 459.201)

1. A general license is issued to any common or contract carrier to transport and store radioactive material in the regular course of carriage for another or storage incident thereto if the transportation and storage is in accordance with the applicable requirements of the regulations, appropriate to the mode of transport, of the Department of Transportation relating to the loading and storage of packages, placarding of the transporting vehicle and incident reporting. Any notification of incidents referred to in the federal regulations must be filed with, or made to, the Division. Persons who transport and store radioactive material pursuant to this general license are exempt from the requirements of NAC 459.320 to 459.374, inclusive, and 459.780 to 459.794, inclusive.

2. A general license is issued to any private carrier to transport radioactive material, provided the transportation is in accordance with the applicable requirements of the regulations, appropriate to the mode of transport, of the Department of Transportation relating to the loading and storage of packages, placarding of the transporting vehicle and incident reporting. Incidents must be reported as described in subsection 1.

3. Persons who transport radioactive material pursuant to a general license issued under this section are exempt from the requirements of NAC 459.320 to 459.374, inclusive, and 459.780 to 459.794, inclusive, to the extent that they transport radioactive material.

4. Physicians, are exempt from the requirements of subsection 2 to the extent that they transport radioactive material for use in the practice of medicine.

459.236 Specific licenses: Application. (NRS 459.201)

1. Applications for specific licenses must be filed on a form prescribed by the Division and accompanied by the appropriate fee as prescribed in NAC 459.310.

2. The Division may at any time after the filing of the original application, and before the expiration of the license, require further statements in order to enable the Division to determine whether the application should be granted or denied or whether a license should be modified or revoked.

3. Each application must be signed by the applicant or licensee or a person duly authorized to act for and on his or her behalf.

4. An application for a license may include a request for a license authorizing one or more activities.

5. In his or her application, the applicant may incorporate by reference information contained in previous applications, statements or reports filed with the Division provided such references are clear and specific.

6. Applications and documents submitted to the Division may be made available for public inspection except that the Division may withhold any document or part thereof from public inspection if disclosure of its content is not required in the public interest and would adversely affect the interest of a person concerned.

7. Except as otherwise provided in subsection 8, an application for a specific license to use radioactive material in the form of a sealed source or in a device that contains a sealed source must:

(a) Identify the source or device by manufacturer and model number as registered with the Nuclear Regulatory Commission, or for a source or device which contains radium-226 or accelerator-produced radioactive material, pursuant to the provisions of NAC 459.289, 459.2895 or 459.3075 or 10 C.F.R. § 32.210 or registered with an agreement state pursuant to an equivalent regulation of the agreement state;

(b) Contain the information identified in NAC 459.289, 459.2895 or 459.3075, 10 C.F.R. § 32.210 or an equivalent regulation of an agreement state; or

(c) For a source or device which contains naturally occurring or accelerator-produced radioactive material which was manufactured before the effective date of this regulation, which is not registered with the Division pursuant to NAC 459.3075, the Nuclear Regulatory Commission pursuant to 10 C.F.R. § 32.210 or an agreement state pursuant to an equivalent regulation of the agreement state, and for which the applicant cannot provide all the information specified in 10 C.F.R. § 32.210(c):

(1) Include all available information identified in 10 C.F.R. § 32.210(c) which concerns the source and, if applicable, the device; and

(2) Include sufficient additional information to demonstrate with reasonable assurance that the radiation safety properties of the source or device are adequate to protect health and minimize danger to life and property, including, without limitation, a description of the source or device, a description of the radiation safety features, the intended use and associated operating experience of the licensee and the results of a recent leak test of the source or device.

8. An application for a specific license described in subsection 7:

(a) For a sealed source and device which is allowed to be distributed without registration of safety information in accordance with 10 C.F.R. § 32.210(g)(1), must include only the manufacturer, model number and radionuclide and quantity; and

(b) For which it is not feasible for the applicant to identify each sealed source and device individually, may include constraints proposed by the applicant on the number and type of sealed sources and devices to be used and the conditions under which the sealed sources and devices will be used, in lieu of identifying each sealed source and device.

9. If applicable pursuant to NAC 459.1955, an application for a specific license must contain a proposed plan for financing decommissioning or a certification of financial assurance for decommissioning.

10. An application from a medical facility or educational institution to produce positron emission tomography radioactive drugs for noncommercial distribution to its licensees in its consortium authorized for use pursuant to the provisions of 10 C.F.R. Part 35 or an equivalent regulation of an agreement state must include:

(a) A request for authorization for the production of positron emission tomography radionuclides or evidence of an existing license for a positron emission tomography radionuclide production facility within its consortium, which is issued pursuant to NAC 459.180 to 459.3154, inclusive, or an equivalent regulation in an agreement state from which it receives positron emission tomography radionuclides;

(b) Evidence that the applicant is qualified to produce radioactive drugs for medical use pursuant to NAC 459.300 or 10 C.F.R. § 32.72(a)(2);

(c) Identification of each person authorized to prepare the positron emission tomography radioactive drugs if the applicant is a pharmacy, and documentation that each meets the requirements of an authorized nuclear pharmacist pursuant to 10 C.F.R. § 32.72(b)(2); and

(d) Information set forth in 10 C.F.R. § 32.72(a)(3) concerning the positron emission tomography drugs to be noncommercially transferred to the members of its consortium.

459.238 Specific licenses: General requirements; reasons for denial. (NRS 459.201)

1. An application for a license will be approved if the Division determines that:

(a) The applicant is qualified by reason of training and experience to use the material in question for the purpose requested in accordance with the provisions of NAC 459.010 to 459.950, inclusive, in a manner to minimize danger to public health and safety or property;

(b) The applicant's proposed equipment, facilities and procedures are adequate to minimize danger to public health and safety or property;

(c) The issuance of the license will not be inimical to the health and safety of the public;

(d) The applicant satisfies the requirements set forth in NAC 459.197; and

(e) The applicant satisfies any applicable special requirements in NAC 459.236 to 459.307, inclusive.

2. The Division will deny an application for a license if the Division determines that:

(a) The issuance of the license would be inimical to the health and safety of the public;

(b) The applicant does not satisfy the requirements of paragraph (a), (b), (d) or (e) of subsection 1; or

(c) The applicant has held a license authorizing a similar use of radioactive material issued by the Division or by the appropriate licensing agency in another jurisdiction and the license has

either been revoked or the licensee has been cited for a violation, which the Division deems significant, of a regulation relating to matters of health and safety.

459.241 Specific licenses: Initial transfer of source material. (NRS 459.201)

1. An application for a specific license to initially transfer source material for use pursuant to subsections 1 to 5, inclusive, of NAC 459.212, or equivalent regulations of the Nuclear Regulatory Commission or an agreement state, will be approved if:

- (a) The applicant satisfies the general requirements specified in NAC 459.238; and
- (b) The applicant submits adequate information on, and the Division approves the methods to be used for quality control, labeling and providing safety instructions to, recipients.

2. Each person issued a license pursuant to subsection 1 shall:

- (a) Label the immediate container of each quantity of source material with the type of source material and quantity of material and the words, “radioactive material.”

- (b) Ensure that the quantities and concentrations of source material are as labeled and indicated in any transfer records.

- (c) Provide the information specified in this paragraph to each person to whom source material is transferred for use pursuant to subsections 1 to 5, inclusive, of NAC 459.212, or equivalent regulations of the Nuclear Regulatory Commission or an agreement state. This information must be provided before the source material is transferred for the first time in each calendar year to the particular recipient. The required information includes:

- (1) A copy of NAC 459.212 and 459.312, or equivalent regulations of the Nuclear Regulatory Commission or an agreement state.

- (2) Appropriate radiation safety precautions and instructions relating to the handling, use, storage and disposal of the material.

(d) Report transfers as follows:

(1) File a report with the Division which must include the following information:

(I) The name, address and license number of the person who transferred the source material;

(II) For each general license issued pursuant to NAC 459.212, or equivalent regulations of the Nuclear Regulatory Commission or an agreement state to whom greater than 50 grams (0.11 pounds) of source material has been transferred in a single calendar quarter, the name and address of the general licensee to whom source material is distributed, a responsible agent, by name or position and telephone number, of the general licensee to whom the material was distributed, and the type, physical form and quantity of source material transferred; and

(III) The total quantity of each type and physical form of source material transferred in the reporting period to all recipients identified pursuant to sub-subparagraph (II).

(2) File a report with the Nuclear Regulatory Commission or each responsible agency of the agreement state that identifies all persons, operating under provisions equivalent to NAC 459.212, to whom greater than 50 grams (0.11 pounds) of source material has been transferred within a single calendar quarter. The report must include the following information specific to those transfers made to the Nuclear Regulatory Commission or agreement state with which the report is filed:

(I) The name, address and license number of the person who transferred the source material.

(II) The name and address of the general licensee to whom source material was distributed, a responsible agent, by name or position and telephone number, of the general

licensee to whom the material was sent, and the type, physical form and quantity of source material transferred.

(III) The total quantity of each type and physical form of source material transferred in the reporting period to all such generally licensed recipients under the jurisdiction of the Nuclear Regulatory Commission or within the agreement state, as appropriate.

(3) Submit the reports required by this paragraph by January 31 of each year covering all transfers for the previous calendar year. If no transfers were made to persons generally licensed under NAC 459.212, or equivalent regulations of the Nuclear Regulatory Commission or an agreement state during the current period, a report must be submitted to the Division so indicating. If no transfers have been made to general licensees under the jurisdiction of the Nuclear Regulatory Commission or in a particular agreement state during the reporting period, the required information must be reported to the Nuclear Regulatory Commission or the responsible agency of the agreement state upon the request of the agency.

(e) Maintain all information that supports the reports required by this section concerning each transfer to a general licensee for a period of 1 year after the event is included in a report to the Division, the Nuclear Regulatory Commission or the responsible agency of the agreement state.

459.261 Specific licenses: Use of sealed sources, tracers or field flood studies in well logging. (NRS 459.201)

1. In addition to the requirements set forth in NAC 459.238, a specific license for use of sealed sources, tracers or field flood studies, or any combination thereof, in well logging will be issued if:

(a) The applicant develops a satisfactory program for training logging supervisors and logging assistants and submits to the Division a description of the program which specifies the:

(1) Initial training;

(2) On-the-job training;

(3) Annual safety reviews that will be made by the licensee;

(4) Means the applicant will use to demonstrate the logging supervisor's knowledge and understanding of and ability to comply with the Division's regulations and licensing requirements and the applicant's operating and emergency procedures; and

(5) Means the applicant will use to demonstrate the logging assistant's knowledge and understanding of an ability to comply with the applicant's operating and emergency procedures.

(b) The applicant has established and submits to the Division satisfactory written operating and emergency procedures.

(c) The applicant has established and submits to the Division a satisfactory program for annual inspections of the job performance of each logging supervisor to ensure that the Division's regulations, licensing requirements and the applicant's operating and emergency procedures are followed.

(d) The applicant submits to the Division a satisfactory description of its overall organizational structure as it applies to the radiation safety responsibilities in well logging, including specified delegations of authority and responsibility.

2. If an applicant wants to perform leak testing of sealed sources, he or she must submit to the Division the identification of the manufacturers and the model numbers of the leak test kits to be used.

3. If an applicant wants to analyze his or her own wipe samples, the applicant must submit satisfactory procedures to the Division which describe:

(a) The instruments that will be used;

- (b) The methods of performing the analysis; and
- (c) The pertinent experience of the person who will analyze the wipe samples.

459.262 Broad licenses: General requirements. (NRS 459.201)

1. NAC 459.180 to 459.274, inclusive, prescribe requirements for the issuance of specific licenses of broad scope for radioactive material, called “broad licenses” herein, and regulations governing holders of the licenses.

2. Authority to transfer possession or control by the manufacturer, processor or producer of any equipment, device, commodity or other product containing source material or by-product material whose subsequent possession, use, transfer and disposal by all other persons are exempted from regulatory requirements may be obtained only from the Nuclear Regulatory Commission, Washington, D.C. 20555.

459.264 Broad licenses: Types of licenses. (NRS 459.201) The types of broad licenses available are:

1. A “type A specific license of broad scope” is a specific license authorizing receipt, acquisition, ownership, possession, use and transfer of any chemical or physical form of the radioactive material specified in the license, not exceeding quantities specified in the license, for any authorized purpose, including, without limitation, medical use of radioactive material. The quantities specified are usually in the multicurie range.

2. A “type B specific license of broad scope” is a specific license authorizing receipt, acquisition, ownership, possession, use and transfer of any chemical or physical form of radioactive material specified in NAC 459.266, for any authorized purpose. The possession limit for a type B broad license, if only one radionuclide is possessed under the license, is the quantity specified for that radionuclide in Column I of NAC 459.266. If two or more radionuclides are

possessed, the possession limit for each is determined as follows: For each radionuclide, determine the ratio of the quantity possessed to the applicable quantity specified in Column I of NAC 459.266 for that radionuclide. The sum of the ratios for all radionuclides possessed under the license must not exceed unity.

3. A “type C specific license of broad scope” is a specific license authorizing receipt, acquisition, ownership, possession, use and transfer of any chemical or physical form of radioactive material specified in NAC 459.266 for any authorized purpose. The possession limit for a type C broad license, if only one radionuclide is possessed, is the quantity specified for that radionuclide in Column II of NAC 459.266. If two or more radionuclides are possessed, the possession limit is determined for each as follows: For each radionuclide, determine the ratio of the quantity possessed to the applicable quantity specified in Column II of NAC 459.266 for that radionuclide. The sum of the ratios for all radionuclides possessed under the license must not exceed unity.

459.266 Broad licenses: Table of limits. (NRS 459.201) The limits for radioactive material for broad licenses are:

Radioactive Material	Column I Curies	Column II Curies	Radioactive Material	Column I Curies	Column II Curies
Antimony-122	1.0	0.01	Cerium-143	10.0	0.1
Antimony-124	1.0	0.01	Cerium-144	0.1	0.001
Antimony-125	1.0	0.01	Cesium-131	100.0	1.0
Arsenic-73	10.0	0.1	Cesium-134m	100.0	1.0
Arsenic-74	1.0	0.01	Cesium-134	0.1	0.001
Arsenic-76	1.0	0.01	Cesium-135	1.0	0.01
Arsenic-77	10.0	0.1	Cesium-136	10.0	0.1
Barium-131	10.0	0.1	Cesium-137	0.1	0.001
Barium-140	1.0	0.01	Chlorine-36	1.0	0.01
Beryllium-7	10.0	0.1	Chlorine-38	100.0	1.0
Bismuth-210	0.1	0.001	Chromium-51	100.0	1.0
Bromine-82	10.0	0.1	Cobalt-57	10.0	0.1
Cadmium-109	1.0	0.01	Cobalt-58m	100.0	1.0
Cadmium-115m	1.0	0.01	Cobalt-58	1.0	0.01
Cadmium-115	10.0	0.1	Cobalt-60	0.1	0.001
Calcium-45	1.0	0.01	Copper-64	10.0	0.1
Calcium-47	10.0	0.1	Dysprosium-165	100.0	1.0
Carbon-14	100.0	1.0	Dysprosium-166	10.0	0.1
Cerium-141	10.0	0.1	Erbium-169	10.0	0.1

Radioactive Material	Column I Curies	Column II Curies	Radioactive Material	Column I Curies	Column II Curies
Erbium-171	10.0	0.1	Radium-226	0.01	0.0001
Europium-152	10.0	0.1	Rhenium-186	10.0	0.1
Europium-152 (13 y)	0.1	0.001	Rhenium-188	10.0	0.1
Europium-154	0.1	0.001	Rhodium-103m	1,000.0	10.0
Europium-155	1.0	0.01	Rhodium-105	10.0	0.1
Fluorine-18	100.0	1.0	Rubidium-86	1.0	0.01
Gadolinium-153	1.0	0.01	Rubidium-87	1.0	0.01
Gadolinium-159	10.0	0.1	Ruthenium-97	100.0	1.0
Gallium-72	10.0	0.1	Ruthenium-103	1.0	0.01
Germanium-71	100.0	1.0	Ruthenium-105	10.0	0.1
Gold-198	10.0	0.1	Ruthenium-106	0.1	0.001
Gold-199	10.0	0.1	Samarium-151	1.0	0.01
Hafnium-181	1.0	0.01	Samarium-153	10.0	0.1
Holmium-166	10.0	0.1	Scandium-46	1.0	0.01
Hydrogen-3	100.0	1.0	Scandium-47	10.0	0.1
Indium-113m	100.0	1.0	Scandium-48	1.0	0.01
Indium-114m	1.0	0.01	Selenium-75	1.0	0.01
Indium-115m	100.0	1.0	Silicon-31	10.0	0.1
Indium-115	1.0	0.01	Silver-105	1.0	0.01
Iodine-125	0.1	0.001	Silver-110m	0.1	0.001
Iodine-126	0.1	0.001	Silver-111	10.0	0.1
Iodine-129	0.1	0.01	Sodium-22	0.1	0.001
Iodine-131	0.1	0.001	Sodium-24	1.0	0.01
Iodine-132	10.0	0.1	Strontium-85m	1,000.0	10.0
Iodine-133	1.0	0.01	Strontium-85	1.0	0.01
Iodine-134	10.0	0.1	Strontium-89	1.0	0.01
Iodine-135	1.0	0.01	Strontium-90	0.01	0.0001
Iridium-192	1.0	0.01	Strontium-91	10.0	0.1
Iridium-194	10.0	0.1	Strontium-92	10.0	0.1
Iron-55	10.0	0.1	Sulphur-35	10.0	0.1
Iron-59	1.0	0.01	Tantalum-182	1.0	0.01
Krypton-85	100.0	1.0	Technetium-96	10.0	0.1
Krypton-87	10.0	0.1	Technetium-97m	10.0	0.1
Lanthanum-140	1.0	0.01	Technetium-97	10.0	0.1
Lutetium-177	10.0	0.1	Technetium-99m	100.0	1.0
Manganese-52	1.0	0.01	Technetium-99	1.0	0.01
Manganese-54	1.0	0.01	Tellurium-125m	1.0	0.01
Manganese-56	10.0	0.1	Tellurium-127m	1.0	0.01
Mercury-197m	10.0	0.1	Tellurium-127	10.0	0.1
Mercury-197	10.0	0.1	Tellurium-129m	1.0	0.01
Mercury-203	1.0	0.01	Tellurium-129	100.0	1.0
Molybdenum-99	10.0	0.1	Tellurium-131m	10.0	0.1
Neodymium-147	10.0	0.1	Tellurium-132	1.0	0.01
Neodymium-149	10.0	0.1	Terbium-160	1.0	0.01
Nickel-59	10.0	0.1	Thallium-200	10.0	0.1
Nickel-63	1.0	0.01	Thallium-201	10.0	0.1
Nickel-65	10.0	0.1	Thallium-202	10.0	0.1
Niobium-93m	1.0	0.01	Thallium-204	1.0	0.01
Niobium-95	1.0	0.01	Thulium-170	1.0	0.01
Niobium-97	100.0	1.0	Thulium-171	1.0	0.01
Osmium-185	1.0	0.01	Tin-113	1.0	0.01
Osmium-191m	100.0	1.0	Tin-125	1.0	0.01
Osmium-191	10.0	0.1	Tungsten-181	1.0	0.01
Osmium-193	10.0	0.1	Tungsten-185	1.0	0.01
Palladium-103	10.0	0.1	Tungsten-187	10.0	0.1
Palladium-109	10.0	0.1	Vanadium-48	1.0	0.01
Phosphorus-32	1.0	0.01	Xenon-131m	1,000.0	10.0
Platinum-191	10.0	0.1	Xenon-133	100.0	1.0
Platinum-193m	100.0	1.0	Xenon-135	100.0	1.0
Platinum-193	10.0	0.1	Ytterbium-175	10.0	0.1
Platinum-197m	100.0	1.0	Yttrium-90	1.0	0.01
Platinum-197	10.0	0.1	Yttrium-91	1.0	0.01
Polonium-210	0.01	0.0001	Yttrium-92	10.0	0.1
Potassium-42	1.0	0.01	Yttrium-93	1.0	0.01
Praseodymium-142	10.0	0.1	Zinc-65	1.0	0.01
Praseodymium-143	10.0	0.1	Zinc-69m	10.0	0.1
Promethium-147	1.0	0.01	Zinc-69	100.0	1.0
Promethium-149	10.0	0.1	Zirconium-93	1.0	0.01

Radioactive Material	Column I Curies	Column II Curies	Radioactive Material	Column I Curies	Column II Curies
Zirconium-95	1.0	0.01	material, or alpha-emitting radioactive material not listed above	0.1	0.001
Zirconium-97	1.0	0.01			
Any radioactive material other than source material, special nuclear					

459.268 Broad licenses: Application for type A specific license of broad scope. (NRS

459.201) An application for a type A specific license of broad scope will be approved if:

1. The applicant satisfies the general requirements specified in NAC 459.238;
2. The applicant has engaged in a reasonable number of activities involving the use of radioactive material;
3. The applicant has established administrative controls and provisions relating to organization and management, procedures, recordkeeping, material control and accounting, and management review that are necessary to ensure safe operations, including:
 - (a) The establishment of a radiation safety committee composed of such persons as a radiation safety officer, a representative of management and persons trained and experienced in the safe use of radioactive material;
 - (b) The appointment of a radiation safety officer who:
 - (1) Is qualified by training and experience in radiation protection pursuant to the requirements set forth in NAC 459.315;
 - (2) In accordance with NAC 459.197, is required to implement and oversee a radiation safety program concerning the type A specific license;
 - (3) Has full access to all activities pursuant to the license involving the use of radioactive material and the authority to terminate any activity relating to the license if such activity is

deemed necessary to protect health and minimize danger to public health and safety without consulting the management of the applicant or the radiation safety committee; and

- (4) Is available for advice and assistance on radiation safety matters; and
- (c) The establishment of appropriate administrative procedures to ensure:
 - (1) Control of procurement and use of radioactive material;
 - (2) Completion of safety evaluations of proposed uses of radioactive material which take into consideration matters such as the adequacy of facilities and equipment, training and experience of the user, and the operating or handling procedures; and
 - (3) Review, approval and recording by the radiation safety committee of safety evaluations of proposed uses prepared in accordance with subparagraph (2) prior to use of the radioactive material; and

4. The applicant has submitted a document signed by the management of the applicant which delegates authority from the management to the radiation safety officer.

459.270 Broad licenses: Application for type B specific license of broad scope. (NRS 459.201) An application for a type B specific license of broad scope will be approved if:

- 1. The applicant satisfies the general requirements specified in NAC 459.238;
- 2. The applicant has established administrative controls and provisions relating to organization and management, procedures, recordkeeping, material control and accounting and management review that are necessary to ensure safe operations, including:
 - (a) The appointment of a radiation safety officer who:
 - (1) Is qualified because of training and experience in radiation protection pursuant to the requirements set forth in NAC 459.3151;

(2) In accordance with NAC 459.197, is required to implement and oversee a radiation safety program concerning the type B specific license;

(3) Has full access to all activities pursuant to the license involving the use of radioactive material and the authority to terminate any activity relating to the license if such activity is deemed necessary to protect health and minimize danger to public health and safety without consulting the management of the applicant; and

(4) Is available for advice and assistance on radiation safety matters; and

(b) The establishment of appropriate administrative procedures to ensure:

(1) Control of procurement and use of radioactive material;

(2) Completion of safety evaluations of proposed uses of radioactive material which take into consideration such matters as the adequacy of facilities and equipment, training and experience of the user, and the operating or handling procedures; and

(3) Review, approval and recording by the radiation safety officer of safety evaluation of proposed uses prepared in accordance with subparagraph (2) prior to the use of the radioactive material; and

3. The applicant has submitted a document signed by the management of the applicant which delegates authority from the management to the radiation safety officer.

459.272 Broad licenses: Application for type C specific license of broad scope. (NRS 459.201)

1. An application for a type C specific license of broad scope will be approved if:

(a) The applicant satisfies the general requirements specified in NAC 459.238;

(b) The applicant submits a statement that radioactive material will be used only by, or under the direct supervision of, persons who have received:

(1) A college degree at the bachelor level or equivalent training and experience in the physical or biological sciences or in engineering; and

(2) At least 40 hours of training and experience in the safe handling of radioactive material, the characteristics of ionizing radiation, units of radiation dose and quantities, radiation detection instrumentation and biological hazards of exposure to radiation appropriate to the type and forms of radioactive material to be used; and

(c) The applicant has established administrative controls and provisions relating to procurement of radioactive material, procedures, recordkeeping, material control and accounting and management review necessary to ensure safe operations.

2. The applicant may appoint a radiation safety officer to implement and oversee a radiation safety program and to fulfill the duties set forth in paragraph (c) of subsection 1. If a radiation safety officer is so appointed, the radiation safety officer may delegate certain duties associated with managing the radiation safety program, but the radiation safety officer is ultimately responsible for the completion of those duties.

459.274 Broad licenses: Conditions of license. (NRS 459.030, 459.201) Specific licenses of broad scope are subject to the following conditions:

1. Unless specifically authorized, persons licensed pursuant to NAC 459.262 may not:

(a) Conduct tracer studies in the environment involving direct release of radioactive material;

(b) Receive, acquire, own, possess, use or transfer devices containing 100,000 curies or more of radioactive material in sealed sources used for irradiation of materials;

(c) Conduct activities for which a specific license issued by the Division under NAC 459.280 to 459.307, inclusive, is required; or

(d) Add or cause the addition of radioactive material to any food, beverage, cosmetic, drug or other product designed for ingestion or inhalation by, or application to, a human being.

2. Each type A specific license of broad scope issued under NAC 459.180 to 459.274, inclusive, will be subject to the condition that radioactive material possessed under the license may only be used by, or under the direct supervision of, persons approved by the radiation safety committee of the licensee.

3. Each type B specific license of broad scope issued pursuant to NAC 459.262 to 459.274, inclusive, is subject to the condition that radioactive material possessed under the license may only be used by, or under the direct supervision of, persons approved by the radiation safety officer of the licensee.

4. Each type C specific license of broad scope issued pursuant to NAC 459.262 to 459.274, inclusive, is subject to the condition that radioactive material possessed under the license may only be used by, or under the direct supervision of, persons who satisfy the requirements of NAC 459.272.

459.280 Specific licenses: Incorporation of naturally occurring or accelerator-produced radioactive material into gas and aerosol detectors. (NRS 459.030, 459.201) An application for a specific license authorizing the incorporation of a naturally occurring or accelerator-produced radioactive material, other than source or by-product material, into gas and aerosol detectors to be distributed to persons exempt under NAC 459.192 will be approved if:

1. The application satisfies requirements equivalent to those contained in 10 C.F.R. § 32.26 of the regulations of the Nuclear Regulatory Commission; and

2. The amount of radium-226 to be incorporated in each device does not exceed 0.1 microcurie (3.7 kilobecquerels).

459.282 Specific licenses: Manufacture or distribution of devices. (NRS 459.201) An application for a specific license to manufacture or distribute devices containing radioactive material, excluding special nuclear material, to persons generally licensed under NAC 459.216 or equivalent regulations of the Nuclear Regulatory Commission or an agreement state will be approved if:

1. The applicant satisfies the general requirements of NAC 459.238.
2. The applicant submits sufficient information relating to the design, manufacture, prototype testing, quality control, labels, proposed uses, installation, servicing, leak testing, operating and safety instructions and potential hazards of the device to provide reasonable assurance that:

- (a) The device can be safely operated by persons not having training in radiological protection;

- (b) Under ordinary conditions of handling, storage and use of the device, the radioactive material contained in the device will not be released or inadvertently removed from the device, and it is unlikely that any person will receive in any period of 1 year a dose in excess of 10 percent of the limits specified in NAC 459.325; and

- (c) In an accident such as fire or explosion, associated with handling, storage and use of the device, it is unlikely that any person would receive an external radiation dose or dose commitment in excess of the following organ doses:

- (1) Whole body, head and trunk, active blood-forming organs, gonads or lens of eye 15 rems

- (2) Hands and forearms, feet and ankles, localized areas of skin averaged over areas not larger than 1 square centimeter 200 rems

(3) Other organs 50 rems

3. Each device bears a durable, legible, clearly visible label or labels approved by the Division which contain in a clearly identified and separate statement:

(a) Instructions and precautions necessary to assure safe installation, operation and maintenance of the device. Documents such as operating and service manuals may be identified in the label and used to provide this information.

(b) The requirement, or lack of requirement, for leak testing, or for testing any on-and-off mechanism and indicator, including the maximum time interval for such testing, and the identification of radioactive material by isotope, quantity of radioactivity and date of determination of the quantity.

(c) The information called for in the following statement, in the same or substantially similar form:

The receipt, possession, use and transfer of this device model, serial number, are subject to a general license or the equivalent and the regulations of the Nuclear Regulatory Commission or a state with which the Nuclear Regulatory Commission has entered into an agreement for the exercises of regulatory authority. This label must be maintained on the device in a legible condition. Removal of this label is prohibited.

CAUTION - RADIOACTIVE MATERIAL

(Name of manufacturer or distributor)

(d) The model, serial number and name of the manufacturer or distributor may be omitted from the label required by this subsection if the information is specified elsewhere and labeling is affixed to the device.

4. Each device that has a separable source housing that provides primary shielding for the source also bears, on the source housing, a durable label listing the model number and serial number of the device, the isotope and quantity, the radiation symbol described in NAC 459.355, the words “CAUTION - RADIOACTIVE MATERIAL” and the name of the manufacturer or initial distributor of the device.

5. Each device described in paragraph (a) of subsection 13 of NAC 459.218 bears a permanent label, including, without limitation, an embossed, etched, engraved or a stamped label, affixed to the source housing if separable or to the device if the source housing is not separable, which contains the words “CAUTION - RADIOACTIVE MATERIAL” and the radiation symbol described in NAC 459.355, if practicable.

6. The device has been registered in the Sealed Source and Device Registry maintained by the Nuclear Regulatory Commission.

459.286 Information required for manufacture and distribution of devices. (NRS 459.201) If the applicant desires that the general licensee under NAC 459.216 or under equivalent regulations of the Nuclear Regulatory Commission or an agreement state be authorized to install the device, collect the sample to be analyzed by a specific licensee for leakage or radioactive material, perform service upon the device, test the on-and-off mechanism and indicator or remove the device from installation, the applicant shall include in his or her application written instructions to be followed by the general licensee, estimated calendar quarter

doses associated with such activity or activities and bases for such estimates. The submitted information must demonstrate that performance of the activity by a person untrained in radiological protection, in addition to other handling, storage and use of devices under the general licensee, is unlikely to cause that person to receive in 1 year a dose in excess of 10 percent of the limits specified in NAC 459.325.

459.287 Manufacturer or distributor of devices: Provision of record of final disposition of bankruptcy proceeding. (NRS 459.201) If a person licensed pursuant to NAC 459.282 is required to provide notice of a bankruptcy proceeding pursuant to subsection 4 of NAC 459.198, the licensee shall, upon request of the Division, the Nuclear Regulatory Commission or the equivalent agency of an agreement state, provide a record of the final disposition of the bankruptcy proceeding to the requesting agency.

459.288 Distribution of devices. (NRS 459.201) Each person licensed under NAC 459.282 to distribute devices to generally licensed persons shall:

1. Furnish a copy of the general license contained in NAC 459.216 to each person to whom he or she directly or through an intermediate person transfers radioactive material in a device for use pursuant to the general license contained in NAC 459.216.

2. Furnish a copy of the general license contained in the Nuclear Regulatory Commission's or agreement state's regulation equivalent to NAC 459.216, or alternatively, furnish a copy of the general license contained in NAC 459.216 to each person to whom he or she directly or through an intermediate person transfers radioactive material in a device for use pursuant to the general license of the Nuclear Regulatory Commission or the agreement state. If a copy of the general license in NAC 459.216 is furnished to such a person, it must be accompanied by a note

explaining that the use of the device is regulated by the Nuclear Regulatory Commission or an agreement state under requirements substantially the same as those in NAC 459.216.

3. Report to the Division all transfers of devices to persons for use under the general license in NAC 459.216. The report must identify each general licensee by name and address; a person by name and position who may constitute a point of contact between the Division and the general licensee; the type and model number of device transferred; and the quantity and type of radioactive material contained in the device. If one or more intermediate persons will temporarily possess the device at the intended place of use prior to its possession by the user, the report must include identification of each intermediate person by name, address, contact and relationship to the intended user. If no transfers have been made to the persons generally licensed under NAC 459.216 during the reporting period, the report must so indicate. The report must cover each calendar quarter and be filed within 30 days thereafter.

4. Reports to other agencies, for example:

(a) Report to the Nuclear Regulatory Commission all transfers of devices for use under the Nuclear Regulatory Commission general license in 10 C.F.R. § 31.5.

(b) Report to the responsible agreement state agency all transfers of devices for use under a general license in that agreement state's regulations equivalent to NAC 459.216.

(c) The reports must identify each general licensee by name and address; a person by name and position who may constitute a point of contact between the agency and the general licensee; the type and model of the device transferred; and the quantity and type of radioactive material contained in the device. If one or more intermediate persons will temporarily possess the device at the intended place of use prior to its possession by the user, the report must include identification of each intermediate person by name, address, contact and relationship to the

intended user. The report must be submitted within 30 days after the end of each calendar quarter in which such a device is transferred to the generally licensed person.

(d) If no transfers have been made to Nuclear Regulatory Commission licensees during the reporting period, this information must be reported to the Nuclear Regulatory Commission.

(e) If no transfers have been made to a particular agreement state during the reporting period, this information must be reported to the responsible agreement state agency upon request of the agency.

5. Keep records showing the name, address and the point of contact for each general licensee to whom he or she directly or through an intermediate person transfers radioactive material in devices for use pursuant to the general license provided in NAC 459.216 or equivalent regulations to the Nuclear Regulatory Commission or an agreement state. The records must show the date of each transfer, the radionuclide and the quantity of radioactivity in each device transferred, the identity of any intermediate person and compliance with the report requirements of this section.

459.289 Report of transfer of device to or receipt of device from person who has general license issued by State. (NRS 459.201)

1. A person who is licensed pursuant to NAC 459.282 to transfer devices containing radioactive material initially to a person who has been issued a general license pursuant to NAC 459.216 or who received such a device from a person who has been issued a general license pursuant to NAC 459.216 shall, in accordance with the provisions of NAC 459.134, report to the Division each such transfer and receipt of devices containing radioactive material.

2. The report required pursuant to subsection 1 must:

(a) Cover each calendar quarter;

- (b) Be filed within 30 days after each calendar quarter;
- (c) Clearly indicate the calendar quarter covered by the report;
- (d) Clearly identify the licensee submitting the report and include the license number of the licensee;
- (e) If the person making the report transferred a device containing radioactive material to a general licensee, be submitted on Nuclear Regulatory Commission Form 653, Transfers of Industrial Devices Report (To General Licensees), or in a clear and legible report containing all the data required on Form 653, including, without limitation:
 - (1) The identity of each general licensee who received such a device, by name and mailing address for the location of use of the device or, if there is no mailing address for the location of use, an alternate address for the general licensee and a description of the location of use;
 - (2) The name, title and telephone number of the person identified by the general licensee as having knowledge of and authority to take required actions to ensure compliance with the appropriate regulations and requirements;
 - (3) The date of the transfer;
 - (4) The type, model number and serial number of the device transferred; and
 - (5) The quantity and type of radioactive material contained in the device transferred;
- (f) If one or more intermediate persons will temporarily possess the device at the intended place of use before the intended user takes possession of the device, include the information required in this subsection for each intermediate person and must clearly designate each intermediate person;
- (g) If the person making the report received a device containing radioactive material from a general licensee, include, without limitation:

- (1) The name and address of the general licensee;
- (2) The type, model number and serial number of the device received;
- (3) The date of receipt; and
- (4) In the case of devices not initially transferred by the person required to make the report, the name of the manufacturer or initial transferor of the device; and

(h) If, during the calendar quarter, no transfers have been made to or from a general licensee who is licensed pursuant to NAC 459.216, indicate that no transfers were made during the calendar quarter.

3. If a person required to make a report pursuant to this section makes a change to a device possessed by a general licensee who is licensed pursuant to NAC 459.216, such that the label must be changed to update required information, the report described in subsection 2, in addition to all other requirements of this section, must:

- (a) Identify, by name and address, the general licensee and the person who possesses the device;
- (b) Identify the device by type, model number and serial number; and
- (c) Note the changes to the information on the label of the device.

4. A person required to make a report pursuant to this section shall maintain all information concerning transfers and receipts of devices containing radioactive material that supports the report for at least 3 years following the date of the recorded event.

5. If a license of a person required to make a report pursuant to this section is to be terminated for any reason, the licensee shall, upon request, provide the information described in subsection 4 to the Division.

459.2895 Report of transfer of device to or receipt of device from person who has general license issued by Nuclear Regulatory Commission or agreement state. (NRS 459.201)

1. A person who is licensed pursuant to NAC 459.282 to transfer devices containing radioactive material initially to a person who has been issued a general license by the Nuclear Regulatory Commission or an agreement state or who received such a device from a person who has been issued a general license by the Nuclear Regulatory Commission or an agreement state shall report those transfers and receipts of devices containing radioactive material to the Nuclear Regulatory Commission or appropriate regulatory agency of the agreement state.

2. The report required pursuant to subsection 1 must:

- (a) Cover each calendar quarter;
- (b) Be filed within 30 days after each calendar quarter;
- (c) Clearly indicate the calendar quarter covered by the report;
- (d) Clearly identify the licensee submitting the report and include the license number of the licensee;

(e) If the person making the report transferred a device containing radioactive material to a general licensee, be submitted on Nuclear Regulatory Commission Form 653, Transfers of Industrial Devices Report (To General Licensee), or in a clear and legible report containing all the data required by Form 653, including, without limitation:

(1) The identity of each general licensee who holds a general license issued by the Nuclear Regulatory Commission or an agreement state and who received such a device, by name and mailing address for the location of use or, if there is no mailing address for the location of use, an alternate address for the general licensee and a description of the location of use;

(2) The name, title and telephone number of the person identified by the general licensee as having knowledge of and authority to take required actions to ensure compliance with the appropriate regulations and requirements;

(3) The date of the transfer;

(4) The type, model number and serial number of the device transferred; and

(5) The quantity and type of radioactive material contained in the device transferred;

(f) If one or more intermediate persons will temporarily possess the device at the intended place of use before the intended user takes possession of the device, include the information required in this subsection for each intermediate person and must clearly designate each intermediate person;

(g) If the person making the report received a device containing radioactive material from a general licensee, include:

(1) The name and address of the general licensee;

(2) The type, model number and serial number of the device received;

(3) The date of receipt; and

(4) In the case of devices not initially transferred by the person required to make the report, the name of the manufacturer or initial transferor of the device; and

(h) If, during the calendar quarter, no transfers have been made to or from a general licensee who is licensed by the Nuclear Regulatory Commission or an agreement state, upon request from the Nuclear Regulatory Commission or agreement state, indicate that no transfers were made during the calendar quarter.

3. If a person required to make a report pursuant to this section makes a change to a device possessed by a person who holds a general license issued by the Nuclear Regulatory Commission

or an agreement state, such that the label must be changed to update required information, the report described in subsection 2, in addition to all other requirements of this section, must:

(a) Identify, by name and address, the general licensee and the person who possesses the device;

(b) Identify the device by type, model number and serial number; and

(c) Note the changes to the information on the label of the device.

4. A person required to make a report pursuant to this section shall maintain all information concerning transfers and receipts of devices containing radioactive material that supports the report for at least 3 years following the date of the recorded event.

5. If a license of a person required to make a report pursuant to this section is to be terminated for any reason, the licensee shall, upon request, provide the information described in subsection 4 to the Nuclear Regulatory Commission or the equivalent agency of an agreement state.

459.290 Specific licenses: Manufacture, assembly or repair of luminous safety devices for use in aircraft. (NRS 459.201) An application for a specific license to manufacture, assemble or repair luminous safety devices containing tritium or promethium 147 for use in aircraft, for distribution to persons generally licensed under NAC 459.220, will be approved subject to the following conditions:

1. The applicant satisfies the general requirements specified in NAC 459.238; and
2. The applicant satisfies the requirements of 10 C.F.R. §§ 32.53 to 32.56, inclusive, or their equivalent.

459.292 Specific licenses: Manufacture of calibration and reference sources. (NRS 459.201) An application for a specific license to manufacture calibration and reference sources

containing americium-241, plutonium or radium-226 to persons generally licensed under NAC 459.224 will be approved subject to the following conditions:

1. The applicant satisfies the general requirement of NAC 459.238; and
2. The applicant satisfies the requirements of 10 C.F.R. §§ 32.57 to 32.59, inclusive, and 10 C.F.R. § 70.39 or their equivalent.

459.2923 Specific licenses: Manufacture or initial transfer of calibration or reference sources. (NRS 459.201)

1. An application for a specific license to manufacture or initially transfer calibration or reference sources which contain americium-241 or radium-226 for distribution to a person who holds a general license issued pursuant to NAC 459.224 will be approved:

- (a) If the applicant satisfies the general requirements of NAC 459.238;
- (b) If the applicant submits sufficient information regarding each type of calibration or reference source relating to the evaluation of the potential radiation exposure, including, without limitation:

(1) The chemical and physical form of the source and maximum quantity of americium-241 or radium-226 in the source;

(2) The details of construction and design of the source;

(3) The details of the method of incorporation and binding of the americium-241 or radium-226 in the source;

(4) The procedure for and results of a prototype testing of a source designed to contain more than 0.005 microcurie (185 becquerels) of americium-241 or radium-226 in order to demonstrate that the americium-241 or radium-226 contained in each source will not be released or removed from the source under normal conditions of use;

(5) The details of quality control procedures which will be followed in the manufacture of the source;

(6) A description of the labeling to be affixed to the source or the storage container for the source; and

(7) Any additional information, including experimental studies and tests, required by the Division to facilitate a determination of the safety of the source;

(c) If each source contains not more than 5 microcuries (185 kilobecquerels) of americium-241 or radium-226; and

(d) If the Division determines, for any source which contains more than 0.005 microcurie (185 becquerels) of americium-241 or radium-226 that:

(1) The method of incorporation and binding of the americium-241 or radium-226 in the source is such that the americium-241 or radium-226 will not be released or removed from the source under normal conditions of use and handling of the source; and

(2) The source has been subjected to, and has passed in a satisfactory manner, the appropriate tests required by subsection 2.

2. The applicant shall subject at least five prototypes of each source that is designed to contain more than 0.185 kilobecquerel (0.005 microcurie) of americium-241 or radium-226 to the following tests:

(a) The initial quantity of radioactive material deposited on each source is measured by direct counting of the source.

(b) The sources are subjected to tests that adequately take into account the individual, aggregate and cumulative effects of environmental conditions expected in service that could

adversely affect the effective containment or binding of americium-241 or radium-226, such as physical handling, moisture and water immersion.

(c) The sources are inspected for evidence of physical damage and for loss of americium-241 or radium-226, after each stage of testing, using methods of inspection adequate for determining compliance with the criteria in paragraph (d).

(d) Source designs are rejected for which the following has been detected for any unit: Removal of more than 0.185 kilobecquerel (0.005 microcurie) of americium-241 or radium-226 from the source or any other evidence of physical damage.

459.2927 Specific licenses: Holder of license issued pursuant to NAC 459.2923 to perform dry wipe test before transferring source. (NRS 459.201)

1. Before transferring a source containing more than 0.1 microcurie (3.7 kilobecquerels) of americium-241 or radium-226 to a person who holds a general license issued pursuant to NAC 459.224, a person who holds a specific license issued pursuant to NAC 459.2923 shall perform a dry wipe test on the source. The test must be performed by wiping with moderate pressure the entire radioactive surface of the source with a filter paper.

2. The radioactivity of the filter paper after the dry wipe test must be measured by a radiation detection instrument which is capable of detecting 0.005 microcurie (185 becquerels) of americium-241 or radium-226.

3. If the test discloses more than 0.005 microcurie (185 becquerels) of radioactive material, the source shall be deemed to be leaking americium-241 or radium-226 and the source must be rejected and must not be transferred to a general licensee pursuant to NAC 459.224, 10 C.F.R. § 31.8 or an equivalent regulation of an agreement state.

459.296 Specific licenses: Manufacture or distribution of radioactive material for in vitro clinical or laboratory testing. (NRS 459.201) An application for a specific license to manufacture or distribute radioactive material for use under the general license of NAC 459.228 will be approved if:

1. The applicant satisfies the general requirements specified in NAC 459.238.
2. The radioactive material is to be prepared for distribution in prepackaged units of:
 - (a) Iodine-125 in units not exceeding 10 microcuries each.
 - (b) Iodine-131 in units not exceeding 10 microcuries each.
 - (c) Carbon-14 in units not exceeding 10 microcuries each.
 - (d) Hydrogen-3 (tritium) in units not exceeding 50 microcuries each.
 - (e) Iron-59 in units not exceeding 20 microcuries each.
 - (f) Cobalt-57 in units not exceeding 10 microcuries each.
 - (g) Selenium-75 in units not exceeding 10 microcuries each.
 - (h) Mock iodine-125 in units not exceeding 0.05 microcurie of iodine-129 and 0.005 microcurie of americium-241 each.
3. Each prepackaged unit bears a durable, clearly visible label:
 - (a) Identifying the radioactive contents as to chemical form and radionuclide, and indicating that the amount of radioactivity does not exceed:
 - (1) Ten microcuries (0.37 megabecquerel) of iodine-125, iodine-131, selenium-75, cobalt-57 or carbon-14;
 - (2) Fifty microcuries (1.85 megabecquerels) of hydrogen-3 (tritium);
 - (3) Twenty microcuries (0.74 megabecquerel) of iron-59; or

(4) For mock iodine-125, 0.05 microcurie (1.85 kilobecquerels) of iodine-129 and 0.005 microcurie (0.185 kilobecquerel) of americium-241 each.

(b) Displaying the radiation caution symbol described in NAC 459.355 and the words, “CAUTION - RADIOACTIVE MATERIAL,” and “Not for Internal or External Use in Humans or Animals.”

4. The following statement, or a substantially similar statement which contains the information called for in the following statement, appears on a label affixed to each prepackaged unit or appears in leaflet or brochure which accompanies the package:

This radioactive material may be received, acquired, possessed and used only by physicians, clinical laboratories or hospitals and only for in vitro clinical or laboratory tests not involving internal or external administration of the material, or the radiation therefrom, to human beings or animals. Its receipt, acquisition, possession, use and transfer are subject to the regulations and a general license of the Nuclear Regulatory Commission or of a state with which the Commission has entered into an agreement for the exercise of regulatory authority.

Name of Manufacturer

5. The label affixed to the unit, or the leaflet or brochure which accompanies the package, contains adequate information regarding the precautions to be observed in handling and storing such radioactive material. In the case of the mock iodine-125 reference or calibration source, the

information accompanying the source must also contain directions to the licensee regarding the waste disposal requirements of NAC 459.3355 and 459.359 to 459.3615, inclusive.

459.298 Specific licenses: Manufacture and distribution of ice detection devices. (NRS 459.201) An application for a specific license to manufacture and distribute ice detection devices to persons generally licensed under NAC 459.232 will be approved subject to the following conditions:

1. The applicant satisfies the general requirements of NAC 459.238; and
2. The criteria of 10 C.F.R. §§ 32.61 and 32.62 are met.

459.300 Specific licenses: Manufacture, preparation or transfer for commercial distribution of radioactive drugs. (NRS 459.201)

1. An application for a specific license to manufacture, prepare or transfer for commercial distribution radioactive drugs containing radioactive material for use by persons authorized under a license issued by the Nuclear Regulatory Commission or any other agreement state will be approved if:

- (a) The applicant satisfies the general requirements specified in NAC 459.238;
- (b) The applicant submits evidence that the applicant is:

(1) Registered or licensed as the owner or operator of a drug establishment that engages in the manufacture, preparation, propagation, compounding or processing of a drug by:

- (I) The United States Food and Drug Administration pursuant to 21 C.F.R. § 207.20(a);

or

- (II) An agency of this State pursuant to equivalent regulations;

(2) Licensed as a pharmacy by the State Board of Pharmacy;

(3) Operating as a nuclear pharmacy within a medical facility; or

(4) A positron emission tomography drug production facility licensed by or registered with a state agency;

(c) The applicant submits information on the radionuclide, chemical and physical form, maximum activity per vial, syringe, generator or other container of the radioactive drug and shielding provided by the packaging of the radioactive material to demonstrate that it is appropriate for safe handling and storage of radioactive drugs by licensees authorized to use radioactive material for medical use; and

(d) The applicant complies with the following labeling requirements:

(1) A label must be affixed to each transport radiation shield of the radioactive drug, including, without limitation, shields made of lead, glass or plastic, to be transferred for commercial distribution. The label must set forth or contain the radiation symbol, the words “CAUTION, RADIOACTIVE MATERIAL” or “DANGER, RADIOACTIVE MATERIAL,” the name of the radioactive drug, or its abbreviation, and the quantity of radioactivity at the time and date specified on the label. For radioactive drugs with a half-life of more than 100 days, the time may be omitted from the label.

(2) A label must be affixed to each syringe, vial or other container used to hold a radioactive drug to be transferred for commercial distribution. The label must set forth the radiation symbol, the words “CAUTION, RADIOACTIVE MATERIAL” or “DANGER, RADIOACTIVE MATERIAL” and an identifier which ensures that the syringe, vial or other container can be correlated with the information on the transport radiation shield label.

2. A licensee who is licensed as a pharmacy by the State Board of Pharmacy or who is operating as a nuclear pharmacy within a medical facility:

(a) May prepare a radioactive drug for medical use if the radioactive drug is prepared by an authorized nuclear pharmacist as specified in paragraphs (b) and (c) or a person under the supervision of an authorized nuclear pharmacist as defined in 10 C.F.R. § 35.27.

(b) May allow a pharmacist to work as an authorized nuclear pharmacist if the pharmacist qualifies as an authorized nuclear pharmacist, as defined in 10 C.F.R. § 35.2, or if the pharmacist meets the requirements of 10 C.F.R. §§ 35.55(b) and 35.59, and the licensee has received an approved license amendment which identifies the pharmacist as an authorized nuclear pharmacist.

(c) May designate a pharmacist as an authorized nuclear pharmacist if the pharmacist:

(1) Was a nuclear pharmacist preparing only radioactive drugs containing accelerator-produced radioactive material; and

(2) Practiced at a pharmacy at a government agency or federally recognized Indian tribe before November 30, 2007, or at any other pharmacy before August 8, 2009, or an earlier date as noticed by the Nuclear Regulatory Commission.

(d) Shall provide to the Division:

(1) A copy of the certification by a specialty board whose certification process has been recognized by the Nuclear Regulatory Commission or an agreement state as provided in 10 C.F.R. § 35.55(a) with the written attestation signed by a preceptor as required by 10 C.F.R. § 35.55(b)(2);

(2) A copy of:

(I) The Nuclear Regulatory Commission or agreement state license;

(II) The Nuclear Regulatory Commission master materials licensee permit; or

(III) The permit issued by a licensee or Nuclear Regulatory Commission master materials permittee of broad scope;

(3) The authorization from a commercial nuclear pharmacy that is authorized to list its own authorized nuclear pharmacist or documentation which indicates that only accelerator-produced radioactive materials were used in the practice of nuclear pharmacy at a government agency or federally recognized Indian tribe before November 30, 2007, or at all other locations of use before August 8, 2009, or an earlier date as noticed by the Nuclear Regulatory Commission; and

(4) A copy of the license or registration of the pharmacy or nuclear pharmacy within 30 days after the pharmacist performs any of the activities set forth in this subsection.

3. A licensee who prepares radioactive drugs for medical use pursuant to this section shall:

(a) Possess and use an instrument to measure the radioactivity of alpha-, beta- or photon-emitting radioactive drugs;

(b) Have procedures for the use of the instrument;

(c) Measure, by direct measurement or by a combination of measurements and calculations, the amount of radioactivity in dosages of alpha-, beta- or photon-emitting radioactive drugs before transfer for commercial distribution;

(d) Perform tests before initial use, periodically and following repair on each instrument for accuracy, linearity and geometry dependence, as appropriate for the instrument, and make adjustments to the instrument if necessary; and

(e) Check each instrument for constancy and proper operation at the beginning of each day of use.

4. The provisions of this section do not relieve a licensee of his or her duty to comply with any other federal, state or local requirement governing the receipt, administration or use of drugs or radioactive drugs.

459.302 Specific licenses: Manufacture and distribution of generators or reagent kits for preparing radioactive drugs. (NRS 459.201) An application for a specific license to manufacture and distribute generators or reagent kits containing radioactive material for preparation of radioactive drugs by persons authorized under a license issued by the Nuclear Regulatory Commission or any other agreement state will be approved if:

1. The applicant satisfies the general requirements specified in NAC 459.238;
2. The applicant submits evidence that:
 - (a) The generator or reagent kit is to be manufactured, labeled and packaged in accordance with the Federal Food, Drug and Cosmetic Act or the Public Health Service Act, such as a new drug application approved by the Food and Drug Administration, a biologic product license issued by the Administration, or a Notice of Claimed Investigational Exemption for a New Drug that has been accepted by the Administration; or
 - (b) The manufacture and distribution of the generator or reagent kit are not subject to the Federal Food, Drug and Cosmetic Act and Public Health Service Act;
3. The applicant submits information on the radionuclide, chemical and physical form, packaging, including maximum activity per package, and shielding provided by the packaging of the radioactive material contained in the generator or reagent kit;
4. The label affixed to the generator or reagent kit contains information on the radionuclide, quantity and date of assay; and

5. The label affixed to the generator or reagent kit, or the leaflet or brochure which accompanies the generator or reagent kit, contains:

(a) Adequate information from a radiation safety standpoint on the procedures to be followed and the equipment and shielding to be used in eluting the generator or processing radioactive material with the reagent kit; and

(b) A statement that this generator or reagent kit is approved for use by persons licensed by the Nuclear Regulatory Commission or an agreement state. The labels, leaflets or brochures required by this paragraph are in addition to the labeling required by the Administration, and they may be separate from or, with the approval of the Administration, may be combined with the labeling required by the Administration.

459.304 Manufacture and distribution of reagent kits not containing radioactive material. (NRS 459.201) Although the Division does not regulate the manufacture and distribution of reagent kits that do not contain radioactive material, it does regulate the use of such reagent kits for the preparation of radioactive drugs containing radioactive material as part of its licensing and regulation of the users of radioactive material. Any resident manufacturer of reagent kits not containing radioactive material who desires to have his or her reagent kits approved by the Division may submit the pertinent information specified in NAC 459.302.

459.306 Specific licenses: Manufacture and distribution of sources and devices for medical use. (NRS 459.201) An application for a specific license to manufacture and distribute sources and devices containing radioactive material to persons licensed pursuant to 10 C.F.R. Part 35 or equivalent regulations of an agreement state, for use as a calibration, transmission or reference source or for the uses listed in 10 C.F.R. §§ 35.400, 35.500, 35.600 and 35.1000 or equivalent regulations of an agreement state, will be approved if:

1. The applicant satisfies the general requirements in NAC 459.238;
2. The applicant submits sufficient information regarding each type of source or device pertinent to an evaluation of its radiation safety, including:
 - (a) The radioactive material contained, its chemical and physical form, and amount;
 - (b) Details of design and construction of the source or device;
 - (c) Procedures for, and results of, prototype tests to demonstrate that the source or device will maintain its integrity under stresses likely to be encountered in normal use and in accidents;
 - (d) For devices containing radioactive material, the radiation profile of a prototype device;
 - (e) Details of quality control procedures to ensure that production sources and devices meet the standards of the design and prototype tests;
 - (f) Procedures and standards for calibrating sources and devices;
 - (g) Legends and methods for labeling sources and devices as to their radioactive content; and
 - (h) Instructions for handling and storing the source or device from the radiation safety standpoint, which instructions must be included on a durable label attached to the source or device or attached to a permanent storage container for the source or device, provided that instructions which are too lengthy for the label may be summarized on the label and printed in detail on a brochure which is referenced on the label;
3. The label affixed to the source, device or permanent storage container for the source or device contains information on the radionuclide, quantity and date of assay, and a statement that the source or device is approved by the Division for distribution to persons licensed to use radioactive material identified in 10 C.F.R. §§ 35.65, 35.400, 35.500 and 35.600 or to persons who hold equivalent licenses of the Nuclear Regulatory Commission or an agreement state; and

4. The source has been registered in the Sealed Source and Device Registry maintained by the Nuclear Regulatory Commission.

459.307 Testing sealed sources for leakage. (NRS 459.030, 459.201)

1. Any licensee who possesses sealed sources shall have each sealed source containing radioactive material tested for leakage at intervals not to exceed 6 months, unless a longer interval is authorized by the Division, the Nuclear Regulatory Commission or an agreement state in the Sealed Source and Device Registry maintained by the Nuclear Regulatory Commission. In the absence of a certificate from a transferor indicating that a test has been made within 6 months before the transfer, the sealed sources should not be used until tested, but no leak tests are required when:

- (a) The source contains only radioactive material with a half-life of less than 30 days;
- (b) The source contains only radioactive material as a gas;
- (c) The source contains 100 microcuries (3.7 megabecquerels) or less of beta- or gamma-emitting material or 10 microcuries (370 kilobecquerels) or less of alpha-emitting material;
- (d) The sealed source is stored and is not being used. The sources must be tested for leakage before any use or transfer unless they have been leak tested within 6 months before the date of use or transfer; or
- (e) The source is seeds of iridium-192 encased in nylon ribbon.

2. The leak test must be capable of detecting the presence of 0.005 microcurie (185 becquerels) of radioactive material on the test sample. The test sample must be taken from the sealed source or from the surfaces of the device in which the sealed source is permanently mounted or stored on which contamination might be expected to accumulate. Records of leak test results must be maintained for 3 years for inspection by the Division and, for persons

licensed pursuant to the provisions of this chapter for the medical use of radioactive material, must include, without limitation:

(a) The model number and serial number, if one has been assigned, of each sealed source tested;

(b) The identity of each source by radionuclide and its estimated activity;

(c) The results of the test of each sealed source;

(d) The date of the test of each sealed source; and

(e) The name of the person who performed each test.

3. If the leak test reveals the presence of 0.005 microcurie (185 becquerels) or more of removable contamination, or 0.001 microcurie (37 becquerels) of radon 222 in a 24-hour period if the sealed source is a brachytherapy source manufactured to contain radium, the licensee shall immediately inform the Radiological Health Section of the Division by telephone, withdraw the sealed source, or the device in which it is permanently mounted, from use and cause it to be placed in locked storage. A written report must be filed with the Division within 5 days after the test and must include, without limitation:

(a) A description of the equipment involved;

(b) The model number and serial number, if assigned, of the leaking source;

(c) The radionuclide of the leaking source and its estimated activity;

(d) The test results;

(e) The date of the test; and

(f) A description of the action taken.

459.3075 Sealed source or device containing sealed source intended for use under specific license: Request for evaluation and registration; manufacture and distribution; inactivation of registration. (NRS 459.201)

1. A manufacturer or initial distributor of a sealed source or device containing a sealed source whose product is intended for use under a specific license may submit a request to the Nuclear Regulatory Commission or an agreement state for evaluation of the radiation safety information concerning its product and for registration of the product.

2. A request for review submitted pursuant to subsection 1 must be sent to the Office of Federal and State Materials and Environmental Management Programs of the United States Nuclear Regulatory Commission, ATTN: SDDR, by a method listed in 10 C.F.R. § 30.6(a) or to the equivalent agency of an agreement state.

3. A request for review of a sealed source submitted pursuant to subsection 1 must include, without limitation, sufficient information concerning the:

- (a) Design of the sealed source;
- (b) Manufacture of the sealed source;
- (c) Prototype testing of the sealed source;
- (d) Quality control program proposed for the sealed source;
- (e) Labeling of the sealed source;
- (f) Proposed uses of the sealed source; and
- (g) Leak testing of the source,

↳ to provide reasonable assurance that the radiation safety properties of the sealed source are adequate to protect health and minimize the danger to life and property.

4. A request for review of a device containing a sealed source submitted pursuant to subsection 1 must include, without limitation, sufficient information concerning the:

- (a) Design of the device;
- (b) Manufacture of the device;
- (c) Prototype testing of the device;
- (d) Quality control program proposed for the device;
- (e) Labeling of the device;
- (f) Proposed uses of the device;
- (g) Leak testing of the device;
- (h) Installation of the device;
- (i) Service and maintenance of the device;
- (j) Operating and safety instructions concerning the device; and
- (k) Potential hazards associated with the device,

↳ to provide reasonable assurance that the radiation safety properties of the device are adequate to protect health and minimize the danger to life and property.

5. In accordance with federal law, a request for review submitted pursuant to subsection 1 will be evaluated in the manner set forth in 10 C.F.R. § 32.210(d).

6. If the Nuclear Regulatory Commission or agreement state completes an evaluation pursuant to a request made pursuant to subsection 1 and issues a certificate of registration to the manufacturer or initial distributor of a sealed source or device containing a sealed source who made the request pursuant to subsection 1, the certificate of registration acknowledges the availability of the submitted information for inclusion in an application for a specific license proposing use of the product or concerning use under an exemption from licensing or general

license as applicable for the category of certificate, and the manufacturer or initial distributor shall manufacture and distribute the product in accordance with:

(a) The statements and representations, including, without limitation, the quality control program, contained in the request submitted pursuant to subsection 1; and

(b) The provisions of the certificate of registration.

7. Authority to manufacture or initially distribute a sealed source or device to specific licensees may be provided in the license without the issuance of a certificate of registration in the following cases:

(a) Calibration and reference sources containing:

(1) Not more than 37 megabecquerels (1 millicurie) for beta or gamma emitting radionuclides; or

(2) Not more than 0.37 megabecquerel (10 microcurie) for alpha emitting radionuclides; or

(b) The intended recipients are qualified by training and experience and have sufficient facilities and equipment to safely use and handle the requested quantity of radioactive material in any form in the case of unregistered sources or, for registered sealed sources contained in unregistered devices, are qualified by training and experience and have sufficient facilities and equipment to safely use and handle the requested quantity of radioactive material in unshielded form, as specified in their licenses and:

(1) The intended recipients are licensed under 10 C.F.R. Part 33 or equivalent regulations of an agreement state;

(2) The recipients are authorized for research and development; or

(3) The sources and devices are to be built to the unique specifications of the particular recipient and contain not more than 740 gigabecquerels (20 curie) of tritium or 7.4 gigabecquerels (200 millicuries) of any other radionuclide.

8. After the certificate is issued, the certificate holder shall allow the Nuclear Regulatory Commission to conduct an additional review as the Nuclear Regulatory Commission determines is necessary to ensure compliance with current regulatory standards and to complete its evaluation in accordance with criteria specified in this section. The certificate holder shall provide the Nuclear Regulatory Commission such additional information as the Nuclear Regulatory Commission considers necessary to conduct its review.

9. A certificate holder who no longer manufactures or initially transfers any sealed source or device covered by a particular certificate issued by the Nuclear Regulatory Commission shall request inactivation of the registration certificate. Such a request must be sent to the Office of Federal and State Materials and Environmental Management Programs of the United States Nuclear Regulatory Commission, ATTN: SDDR, by a method listed in 10 C.F.R. § 30.6(a) and, except as otherwise provided in this subsection, must be made not later than 2 years after the initial distribution of all of the sources or devices covered by the certificate has ceased. If the certificate holder determines that an initial transfer was the last initial transfer more than 2 years after that transfer, the certificate holder must request inactivation of the certificate within 90 days after his or her determination and briefly describe the circumstances of the delay.

10. If a distribution license is to be terminated in accordance with 10 C.F.R. § 30.36, the licensee must request inactivation of its registration certificates associated with that distribution license before the Nuclear Regulatory Commission will terminate the license. Such a request for

inactivation of certificates must indicate that the license is being terminated and include the associated specific license number.

11. A specific license to manufacture or initially transfer a source or device covered only by an inactivated certificate no longer authorizes the licensee to initially transfer such sources or certificate, including, without limitation, an inactive certificate.

459.312 Transfer of material. (NRS 459.201)

1. A licensee may transfer radioactive material only as authorized in this section.
2. Except as otherwise provided in his or her license and subject to the provisions of subsections 3 and 4, any licensee may transfer radioactive material:
 - (a) To the Division but only after receiving prior approval from the Division;
 - (b) To the United States Department of Energy;
 - (c) To any person exempt from the provisions of NAC 459.180 to 459.3154, inclusive, to the extent permitted under the exemption;
 - (d) To any person in an agreement state subject to the jurisdiction of that state who has been exempted from the licensing requirements and regulations of that state, to the extent permitted under such exemptions;
 - (e) To any person authorized to receive the material under terms of a general license or its equivalent, or a specific license or equivalent licensing document, issued by the Division, the Nuclear Regulatory Commission or any agreement state, or to any person otherwise authorized to receive material by the Federal Government or any agency thereof, the Division or any agreement state; or
 - (f) As otherwise authorized by the Division in writing.

3. Before transferring radioactive material to a specific licensee of the Division, the Nuclear Regulatory Commission, an agreement state, or to a general licensee who is required to register with the Nuclear Regulatory Commission or an agreement state before receipt of the radioactive material, the licensee transferring the material shall verify that the transferee's license authorizes the receipt of the type, form and quantity of radioactive material to be transferred.

4. The following methods for the verification required by subsection 3 are acceptable:

(a) The transferor may have in his or her possession, and read, a current copy of the transferee's specific license or registration certificate;

(b) The transferor may have in his or her possession a written certification by the transferee that he or she is authorized by license or registration certificate to receive the type, form and quantity of radioactive material to be transferred, specifying the license or registration certificate number, issuing agency and expiration date;

(c) For emergency shipments, the transferor may accept oral certification confirmed in writing within 10 days by the transferee that he or she is authorized by license or registration certificate to receive the type, form and quantity of radioactive material to be transferred, specifying the license or registration certificate number, issuing agency and expiration date;

(d) The transferor may obtain other sources of information compiled by a reporting service from official records of the Division, the Nuclear Regulatory Commission or the licensing agency of an agreement state as to the identity of licensees and the scope and expiration dates of licenses and registration; or

(e) When none of the methods of verification described in paragraphs (a) to (d), inclusive, are readily available or when a transferor desires to verify that information received by one of such methods is correct or up to date, the transferor may obtain and record confirmation from the

Division, the Nuclear Regulatory Commission or the licensing agency of an agreement state that the transferee is licensed to receive the radioactive material.

459.3125 Disposal of by-product material. (NRS 459.201) A licensee may dispose of by-product material specified in subsections 3 and 4 of NAC 459.022:

1. At a facility licensed pursuant to 10 C.F.R. Part 61 or equivalent regulations of an agreement state, even though it is not defined as low-level radioactive waste, if it meets the requirements of NAC 459.313; or

2. At any disposal facility authorized to dispose of such material in accordance with any federal or state solid or hazardous waste law, including the Solid Waste Disposal Act, as authorized pursuant to the Energy Policy Act of 2005, Public Law 109-058.

459.313 Transfer or shipment of radioactive waste or by-product material for disposal at licensed land disposal facility. (NRS 459.201)

1. Transfers of low-level radioactive waste by any waste generator, waste collector or waste processor who ships low-level radioactive waste either directly or indirectly through a waste collector or waste processor to a licensed low-level radioactive waste land disposal facility are governed by the requirements of this section and NAC 459.8231 and Appendix G.

2. A licensee who ships radioactive waste intended for ultimate disposal at a licensed land disposal facility must document the information required on the Nuclear Regulatory Commission's Uniform Low-Level Radioactive Waste Manifest, and transfer the recorded manifest information to the intended consignee in accordance with the provisions of Appendix G.

3. Each manifest described in subsection 2 must include a certification by the waste generator as provided in section II of Appendix G.

4. Each person involved in the transfer for disposal or the disposal of radioactive waste, including, without limitation, the waste generator, waste collector, waste processor and disposal facility operator, shall comply with the requirements of section III of Appendix G.

5. A licensee who ships any by-product material specified in subsections 2 and 3 of NAC 459.022, which is intended for disposal at a land disposal facility licensed pursuant to 10 C.F.R. Part 61, shall document the information required on the Nuclear Regulatory Commission's Uniform Low-Level Radioactive Waste Manifest and transfer the recorded information to the intended consignee in accordance with Appendix G.

459.316 Definitions. (NRS 459.030, 459.201) As used in NAC 459.316 to 459.3184, inclusive, unless the context otherwise requires, the words and terms defined in NAC 459.3164, 459.3166 and 459.3168 have the meanings ascribed to them in those sections.

459.3164 “Critical group” defined. (NRS 459.030) “Critical group” means the group of natural persons that, for any particular set of circumstances, are reasonably expected to receive the greatest exposure to residual radioactivity.

459.3166 “Distinguishable from background radiation” defined. (NRS 459.030)
“Distinguishable from background radiation” means that, using adequate measurement technology, survey and statistical techniques, the detectable concentration of a radionuclide is statistically different from the background concentration of that radionuclide:

1. In the site; or
2. In the case of a structure, in similar materials.

459.3168 “Residual radioactivity” defined. (NRS 459.030)

1. “Residual radioactivity” means the amount of radioactivity detectable in structures, material, soils, groundwater or other media at a site that is attributable to activities under the control of a licensee, including all licensed or unlicensed sources of radiation used by a licensee.

2. The term includes the detectable amount of radioactivity attributable to radioactive materials remaining at the site from routine or accidental releases, or burials, of radioactive materials at the site.

3. The term does not include the detectable amount of radioactivity attributable to background radiation.

459.317 Applicability. (NRS 459.030, 459.201)

1. Except as otherwise provided in subsection 2, the provisions of NAC 459.027, 459.200 and 459.316 to 459.3184, inclusive, apply to any facility licensed by the Division pursuant to NAC 459.010 to 459.950, inclusive.

2. A facility licensed by the Division pursuant to NAC 459.010 to 459.950, inclusive, is not subject to the provisions of NAC 459.027, 459.200 and 459.316 to 459.3184, inclusive, if the facility:

(a) Has been decommissioned before May 30, 2003, pursuant to:

(1) The federal Site Decommissioning Management Plan of April 16, 1992, set forth at 57 Fed. Reg. 13,389; or

(2) Other criteria approved by the Division; or

(b) Submitted a decommissioning plan before August 20, 1998, that, except for any day-to-day extension granted by the Division for the submission of an environmental impact statement, was approved by the Division before August 20, 1999, pursuant to the federal Site Decommissioning Management Plan of April 16, 1992, set forth at 57 Fed. Reg. 13,389.

459.3172 Explanation of total effective dose equivalent to average member of critical group used. (NRS 459.030) For the purposes of NAC 459.316 to 459.3184, inclusive, the total effective dose equivalent to the average member of the critical group used is the peak annual total effective dose equivalent expected within the first 1,000 years after decommissioning.

459.3174 Minimization of contamination required for issuance of any license. (NRS 459.030, 459.201)

1. An applicant for any license issued by the Division pursuant to NAC 459.010 to 459.950, inclusive, except an applicant for the renewal of a license, must describe in the application how facility design and procedures for operation will:

(a) Minimize, to the extent practicable, the:

(1) Contamination of the facility and environment; and

(2) Generation of radioactive waste; and

(b) Facilitate eventual decommissioning.

2. A licensee shall, to the extent practical, conduct operations to minimize the introduction of residual radioactivity into the site, including the subsurface, in accordance with the existing requirements for protection against radiation set forth in NAC 459.321 and radiological criteria for the termination of a license set forth in NAC 459.316 to 459.3184, inclusive.

459.3176 Additional cleanup of decommissioned site. (NRS 459.030) The Division will require a licensee to perform additional cleanup to a site that has been decommissioned and the license for which has been terminated pursuant to NAC 459.316 to 459.3184, inclusive, if, based on new information, the Division determines that:

1. The criteria for decommissioning and license termination set forth in NAC 459.316 to 459.3184, inclusive, were not met; and

2. The residual radioactivity distinguishable from background radiation remaining at the site could result in a significant threat to public health and safety.

459.3178 Property of decommissioned facility: Eligibility for release for unrestricted use. (NRS 459.030) The property of a decommissioned facility is eligible for release for unrestricted use if the residual radiation, distinguishable from background radiation, including groundwater sources of drinking water:

1. Results in the average member of the critical group receiving a total effective dose equivalent that does not exceed 25 millirem (0.25 millisievert) per year; and
2. Is as low as is reasonably achievable.

459.318 Property of decommissioned facility: Eligibility for release for restricted use. (NRS 459.030, 459.201)

1. The property of a decommissioned facility that is not eligible for release for unrestricted use is eligible for release for restricted use if the licensee:

(a) Demonstrates that further reductions in residual radioactivity necessary to comply with NAC 459.3178:

- (1) Would result in net increase in harm to the public or environment; or
- (2) Were not being made because the levels of residual radioactivity associated with restricted conditions are as low as is reasonably achievable. In determining whether those levels are as low as is reasonably achievable, the licensee shall consider any detriments, including, without limitation, traffic crashes, expected to potentially result from decontamination and waste disposal.

(b) Establishes that the licensee has provided for institutional controls that:

- (1) Are legally enforceable;

(2) Provide reasonable assurance that the average member of the critical group will receive a total effective dose equivalent from residual radioactivity at the site distinguishable from background radiation that does not exceed 25 millirem (0.25 millisievert) per year; and

(3) Will not impose an undue burden on the community to be affected by the decommissioning or any person or institution therein.

(c) Provides, by a method set forth in subsection 4, sufficient financial assurance to enable a third party, including a governmental custodian of the site, to assume and carry out responsibilities for any necessary control and maintenance of the site.

(d) Submits to the Division a decommissioning plan that:

(1) Declares the intent of the licensee to decommission in accordance with NAC 459.1955;

(2) Specifies that the licensee intends to decommission by restricting the use of the site; and

(3) Documents how the advice of persons and institutions in the community that may be affected by the decommissioning has been sought, analyzed and, if appropriate, incorporated into the decommissioning plan.

(e) Provides reasonable assurance that the residual radioactivity at the site distinguished from background radiation has been reduced to levels such that, even in the absence of the institutional controls required by paragraph (b), the average member of the critical group will receive a total effective dose equivalent, from residual radioactivity at the site distinguishable from background radiation, that:

(1) Is as low as is reasonably achievable; and

(2) Except as otherwise provided in subsection 2, does not exceed 100 millirem (1 millisievert) per year.

2. A licensee may satisfy the requirements of subparagraph (2) of paragraph (e) of subsection 1 if the licensee:

(a) Provides reasonable assurance that the average member of the critical group will receive a total effective dose equivalent, from residual radioactivity at the site distinguishable from background radiation, that does not exceed 500 millirem (5 millisieverts) per year;

(b) Demonstrates that reducing residual radioactivity to the level necessary to comply with the 100 millirem (1 millisievert) requirement of subparagraph (2) of paragraph (e) of subsection 1 is not technically feasible, would be prohibitively expensive, or would likely result in net harm to the public or environment;

(c) Makes provisions for durable institutional controls; and

(d) Provides, by a mechanism set forth in subsection 4, sufficient financial assurance to enable a third party, including a governmental custodian of the site:

(1) To carry out periodic rechecks of the site not less frequently than every 5 years to ensure that the institutional controls remain in place as necessary to meet the criteria of paragraph (b) of subsection 1; and

(2) To assume and carry out responsibility for any necessary control and maintenance of those controls.

3. Before a licensee may submit to the Division a decommissioning plan pursuant to subsection 1, the licensee must seek advice from natural persons and institutions in the community who may be affected by the decommissioning concerning whether the licensee's

proposed plan of decommissioning satisfies each of the requirements of paragraphs (b) and (c) of subsection 1.

4. A licensee, to satisfy the requirements of this section relating to the provision of financial assurance, may use any of the following methods:

(a) The deposit of an amount of money in cash or liquid assets into a trust that is segregated from the assets of the licensee and outside the administrative control of the licensee;

(b) If the licensee is a federal, state or local governmental entity, a statement of intent as described in paragraph (d) of subsection 12 of NAC 459.1955; or

(c) If a federal, state or local governmental entity is assuming custody and ownership of the site, any arrangement or mechanism for financial assurance that the governmental entity determines is adequate.

5. In assessing the adequacy of the amount of money in a trust described in paragraph (a) of subsection 4, the Division shall assume an annual real rate of return on investment of 1 percent.

6. As used in this section, “real rate of return” means the rate of return after adjusting the rate of return for inflation.

459.3182 Property of decommissioned facility: Alternate criteria for release for restricted or unrestricted use. (NRS 459.030)

1. The Division may terminate a license and release the property of a decommissioned facility for restricted or unrestricted use using alternate criteria greater than the dose criterion of 25 millirem (0.25 millisievert) per year set forth in NAC 459.3178 and paragraph (b) of subsection 1 of NAC 459.318 if the licensee:

(a) By submitting an analysis of possible sources of exposure, provides reasonable assurance that:

- (1) The public health and safety will continue to be protected; and
- (2) It is unlikely that the dose from all artificially created sources combined, other than medical, would be more than the limit of 0.1 rem (1 millisievert) per year set forth in NAC 459.335;
- (b) Has employed, to the extent practical, restrictions on site use according to the provisions of NAC 459.318 in minimizing exposures at the site;
- (c) Reduces doses to levels that are as low as is reasonably achievable, taking into consideration any detriments, including, without limitation, traffic crashes, expected to potentially result from decontamination and waste disposal;
- (d) Has provided sufficient financial assurance in the form of a trust to enable a third party, including a governmental custodian of a site, to assume and carry out responsibilities for any necessary control and maintenance of the site; and
- (e) Submits to the Division a decommissioning plan that:
 - (1) Declares the intent of the licensee to decommission in accordance with NAC 459.1955;
 - (2) Specifies that the licensee proposes to decommission pursuant to the alternate criteria provisions of this section; and
 - (3) Documents how the advice of natural persons and institutions in the community that may be affected by the decommissioning has been sought, analyzed and, if appropriate, incorporated into the decommissioning plan.

2. To satisfy the public comment requirement of subparagraph (3) of paragraph (e) of subsection 1, a licensee shall:

(a) Provide an opportunity for participation by representatives of a broad cross section of community interests;

(b) Provide an opportunity for a comprehensive, collective discussion on the issues by the participants represented; and

(c) Make publicly available a summary of the results of all such discussions, including, without limitation:

(1) A description of the individual viewpoints of the participants on the issues; and

(2) The extent of agreement and disagreement among the participants on the issues.

3. Before the Division terminates a license using the alternate criteria of this section, the Division will consider the recommendations of the staff of the Division concerning any comments provided by the Environmental Protection Agency and any public comments submitted pursuant to NAC 459.3184.

459.3184 Notice to public; public comment. (NRS 459.030)

1. The Division will notify the public and seek public comment:

(a) Upon receipt of a decommissioning plan;

(b) Upon receipt of a proposal for the release of a site pursuant to NAC 459.318 or 459.3182;

or

(c) If the Commission determines such notice to be in the public interest under the circumstances.

2. Notice will be given and comment will be sought from:

(a) State and local governments and any Indian nation or other indigenous people that have treaty or statutory rights:

(1) In the vicinity of the site; and

- (2) That could be affected by the decommissioning;
- (b) Some segment of the general public; and
- (c) If the proposal is to release a site pursuant to the alternate criteria set forth in NAC 459.3182, the Environmental Protection Agency.

3. Notice to the public must be accomplished by publication in a forum that is readily accessible to natural persons in the vicinity of the site, including, without limitation:

- (a) Newspapers;
- (b) Letters sent directly to state or local organizations; and
- (c) Any other appropriate forum.

459.3205 Adoption by reference of certain provisions of federal regulations. (NRS

459.201) The State Board of Health hereby adopts by reference appendices A, B and C to 10 C.F.R. §§ 20.1001 to 20.2402, inclusive. A copy of the volume containing these appendices may be purchased by mail from the Superintendent of Documents, U.S. Government Printing Office, P.O. Box 979050, St. Louis, Missouri 63197-9000, or by toll-free telephone at (866) 512-1800, for the price of \$67, or are available, free of charge, at the Internet address <http://www.gpoaccess.gov/cfr/index.html>.

459.3255 Compliance with requirements for summation of external and internal doses. (NRS 459.030, 459.201)

1. If a licensee is required to monitor a person pursuant to subsections 1 and 2 of NAC 459.339, the licensee shall demonstrate compliance with the limits set forth in NAC 459.325 by adding external and internal doses. The licensee may demonstrate compliance with the requirements for summation of external and internal doses by meeting one of the conditions specified in subsection 2 and the conditions specified in subsections 3 and 4. The lens dose

equivalent and the dose equivalents for the skin and the extremities are not required to be included in the summation, but are subject to separate limits set forth in NAC 459.325. If a licensee or registrant is required to monitor a person pursuant to subsection 1 of NAC 459.339 only or pursuant to subsection 2 of NAC 459.339 only, the summation of the doses is not required.

2. If the only intake of radionuclides is by inhalation, the limit for the total effective dose equivalent is not exceeded if the deep-dose equivalent divided by the limit for the total effective dose equivalent, and one of the following, does not exceed unity:

(a) The sum of the fractions of the annual limit on intake by inhalation for each radionuclide.

(b) The total number of derived air concentration-hours for all radionuclides, divided by 2,000.

(c) The sum of the committed effective dose equivalents to all significantly irradiated organs or tissues, calculated from bioassay data using appropriate biological models and expressed as a fraction of the annual limit. For the purposes of this subsection, an organ or tissue shall be deemed to be irradiated significantly if, for that organ or tissue, the product of the weighting factors and the committed dose equivalent, per unit intake, is greater than 10 percent of the maximum weighted value of the committed dose equivalent, per unit intake for any organ or tissue.

3. If a person who receives an occupational exposure also receives an intake of radionuclides by oral ingestion in an amount greater than 10 percent of the applicable annual limit on intake by oral ingestion, the licensee shall account for this intake and include it in demonstrating compliance with the limits set forth in NAC 459.325.

4. Except as otherwise provided in this subsection, the licensee shall evaluate and, to the extent practical, account for the intake of radiation through wounds or absorption through the skin. Any intake through intact skin is not required to be evaluated or accounted for pursuant to this subsection.

459.327 Determination of external dose from airborne radioactive material. (NRS 459.030, 459.201)

1. Licensees shall, when determining the external dose from airborne radioactive material, include the deep-dose equivalent, lens dose equivalent and shallow-dose equivalent caused by external exposure to the cloud of airborne radioactive material.

2. Measurements of airborne radioactive material and derived air concentration must not be used as the primary means to assess the deep-dose equivalent if the airborne radioactive material includes radionuclides other than noble gases or if the cloud of airborne radioactive material is not relatively uniform. The determination of the deep-dose equivalent must be based upon measurements using instruments or personnel monitoring equipment.

459.3275 Determination of compliance with limits for occupational doses. (NRS 459.201)

1. For the purposes of assessing the dose used to determine compliance with the limits for occupational doses set forth in NAC 459.325, a licensee shall, if required pursuant to subsection 2 of NAC 459.339, take suitable and timely measurements of:

- (a) Concentrations of radioactive materials in the air in work areas;
- (b) Quantities of radionuclides in the body;
- (c) Quantities of radionuclides excreted from the body; or
- (d) Any combination of the measurements listed in paragraphs (a), (b) and (c).

2. Unless a respiratory protective device is used or the assessment of intake is based on bioassays, the licensee shall assume that a person inhales radioactive material at the airborne concentration in which the person is present.

3. When specific information on the physical and biochemical properties of the radionuclides taken into the body or the behavior of the material in a person is known, the licensee may:

(a) Use that information to calculate the committed effective dose equivalent;

(b) Upon prior approval of the Division, adjust the values for the derived air concentration or the annual limit on intake to reflect the actual physical and chemical characteristics of airborne radioactive material; and

(c) Separately assess the contribution of fractional intakes of compounds of a given radionuclide in Class D, W or Y to the committed effective dose equivalent.

↪ If a licensee uses the information to calculate the committed effective dose equivalent pursuant to paragraph (a), the licensee shall document that information in the record of the person.

4. If the licensee chooses to assess intakes of material in Class Y using the measurements taken pursuant to paragraph (b) or (c) of subsection 1, the licensee may delay the recording and reporting of the assessments for not more than 7 months in order to make additional measurements basic to the assessments, unless he or she is otherwise required to record and report the assessments by NAC 459.3695 or 459.371.

5. If the identity and concentration of each radionuclide in a mixture are known, the fraction of the derived air concentration applicable to the mixture that is used to calculate derived air concentration-hours must be:

(a) The sum of the ratios of the concentration to the appropriate value for the derived air concentration from Appendix B for each radionuclide in the mixture; or

(b) The ratio of the total concentration for all radionuclides in the mixture to the most restrictive value for the derived air concentration for any radionuclide in the mixture.

6. If the identity of each radionuclide in a mixture is known, but the concentration of one or more of the radionuclides in the mixture is not known, the derived air concentration for the mixture must be the most restrictive derived air concentration of any radionuclide in the mixture.

7. If a mixture of radionuclides in air exists, a licensee may disregard certain radionuclides in the mixture if:

(a) The licensee uses the total activity of the mixture in demonstrating compliance with the limits specified in NAC 459.325 and in complying with the monitoring requirements specified in subsection 2 of NAC 459.339;

(b) The concentration of any radionuclide disregarded is less than 10 percent of its derived air concentration; and

(c) The sum of these percentages for all of the radionuclides disregarded in the mixture does not exceed 30 percent.

8. When determining the committed effective dose equivalent, the following information may be considered:

(a) The licensee or registrant may assume that the inhalation of one annual limit on intake, or an exposure of 2,000 derived air concentration-hours, results in a committed effective dose equivalent of 5 rems for radionuclides that have their annual limits on intake or derived air concentrations based on the committed effective dose equivalent.

(b) For an annual limit on intake and the associated derived air concentration determined by the nonstochastic organ dose limit of 50 rems, the intake of radionuclides that would result in a committed effective dose equivalent of 5 rems is listed in parentheses in Table I of Appendix B. In this case, the licensee may use the stochastic annual limit on intake to determine the committed effective dose equivalent. If the licensee uses the stochastic annual limit on intake, the licensee shall also demonstrate that the limits specified in subparagraph (2) of paragraph (a) of subsection 1 of NAC 459.325 are met.

459.336 Orders requiring bioassay services. (NRS 459.201) Where necessary or desirable in order to aid in determining the extent of a person's exposure to concentrations of radioactive material, the Division may incorporate license provisions or issue an order requiring a licensee or registrant to make available to the person appropriate bioassay services and to furnish a copy of the reports of those services to the Division.

459.345 Precautionary procedures: Control of access to very high radiation area with sealed radioactive sources used to irradiate materials. (NRS 459.201)

1. Except as otherwise provided in this section, each area in which there may exist radiation levels in excess of 500 rads in 1 hour at 1 meter from a sealed radioactive source that is used to irradiate materials must meet the following requirements:

(a) Each entrance must be equipped with entry control devices which:

(1) Function automatically to prevent any person from inadvertently entering a very high radiation area;

(2) Permit deliberate entry into the area only after the control device is actuated and causes the radiation level within the area, from the source of radiation, to be reduced below that at

which it would be possible for a person to receive a deep-dose equivalent in excess of 0.1 rem in 1 hour; and

(3) Prevent operation of the source of radiation if it would produce radiation levels in the area that could result in a deep-dose equivalent to a person in excess of 0.1 rem in 1 hour.

(b) Additional control devices must be provided so that, upon failure of the entry control devices to function as required pursuant to paragraph (a):

(1) The radiation level within the area, from the source of radiation, is reduced below the level at which it would be possible for a person to receive a deep-dose equivalent in excess of 0.1 rem in 1 hour; and

(2) Conspicuous visible and audible alarms are generated to make any person who is attempting to enter the area aware of the hazard and to make at least one other authorized person, who is physically present, familiar with the activity and prepared to render or summon assistance, aware of the failure of the entry control devices.

(c) The licensee shall provide control devices that ensure that, upon the failure or removal of physical radiation barriers other than the shielded storage container of the sealed source:

(1) The radiation level from the source is reduced below the level at which it would be possible for a person to receive a deep-dose equivalent in excess of 0.1 rem in 1 hour; and

(2) Conspicuous visible and audible alarms are generated to make potentially affected persons aware of the hazard and to make the licensee, or at least one other person who is familiar with the activity and prepared to render or summon assistance, aware of the failure or removal of the physical barrier.

(d) When the shield for stored sealed sources is a liquid, the licensee shall provide a means to monitor the integrity of the shield and to signal, automatically, loss of adequate shielding.

(e) Physical radiation barriers that comprise permanent structural components and have no reasonable probability of failure or removal in ordinary circumstances are not required to meet the requirements of paragraph (c) or (d).

(f) Each area must be equipped with devices that will automatically generate conspicuous visible and audible alarms to alert persons in the area before the source of radiation can be put into operation and in time for any persons in the area to operate a clearly identified control device, which must be installed in the area and which is able to prevent the source of radiation from being put into operation.

(g) Each area must be controlled by the use of such administrative procedures and such devices as are necessary to ensure that the area is cleared of persons before each use of the source of radiation.

(h) Each area must be checked by a radiation measurement to ensure that, before any person enters the area after any use of the source of radiation, the radiation level from the source of radiation in the area is below the level at which it would be possible for a person to receive a deep-dose equivalent in excess of 0.1 rem in 1 hour.

(i) The entry control devices required pursuant to paragraph (a) must be tested for proper functioning in the following manner:

(1) Testing must be conducted before the initial operation of the source of radiation on any day, unless operations were continued uninterrupted from the previous day;

(2) Testing must be conducted before the resumption of operation of the source of radiation after any unintentional interruption; and

(3) The licensee shall submit and adhere to a schedule for periodic tests of the entry control devices and warning systems.

(j) The licensee shall not conduct operations, other than those necessary to place the source of radiation in safe condition or to effect repairs on control devices, unless control devices are functioning properly.

(k) Entry and exit portals that are used in transporting materials to and from the area and that are not intended for use by persons to enter or exit the area, must be controlled by such devices and administrative procedures as are necessary to protect and warn against inadvertent entry by any person through these portals. Exit portals which are for irradiated materials must be equipped to detect and signal the presence of any loose radioactive material that is carried toward such a portal and automatically to prevent loose radioactive material from being carried out of the area.

2. Licensees or applicants for licenses who are subject to the provisions of subsection 1 and will use the source of radiation in a variety of positions or in locations which make it impracticable to comply with the requirements of subsection 1, may apply to the Division for approval of alternative safety measures. Alternative safety measures must provide persons with protection that is at least equivalent to the protection specified in subsection 1. At least one of the alternative measures must include an inter-lock control device that is designed to prevent entry based on a measurement of the radiation and that ensures the absence of high radiation levels before a person can gain access to the area where such sources of radiation are used.

3. The entry control devices required by subsections 1 and 2 must be established in such a manner that no person will be prevented from leaving the area.

4. As used in this section, sealed radioactive source means any by-product, source or special nuclear material that is used in sealed sources in irradiators that are not self-shielded.

459.347 Precautionary procedures: Use of process or other engineering controls; alternative controls; consideration of other safety factors. (NRS 459.201)

1. A licensee shall use, to the extent practicable, process or other engineering controls, including, without limitation, containment, decontamination and ventilation, to control the concentrations of radioactive material in the air.

2. If it is not practicable to apply process or other engineering controls to control the concentrations of radioactive material in the air to levels below those that define an area of airborne radioactivity, the licensee shall, consistent with maintaining the total effective dose equivalent as low as is reasonably achievable, increase monitoring and limit intakes by one or more of the following:

- (a) Controlling access to the area;
- (b) Limiting exposure times;
- (c) Using respiratory protective devices; or
- (d) Using any other means available to control concentrations of radioactive material in the air.

3. If the licensee performs an analysis of exposures to radiation to determine what exposure level is as low as is reasonably achievable and to determine whether respiratory protective devices should be used, the licensee may consider safety factors other than radiological safety factors, including, without limitation, consideration of the effect of respiratory protective devices on the industrial health and safety of workers.

459.349 Precautionary procedures: Use of respiratory protective devices. (NRS 459.201)

1. If a licensee uses respiratory protective devices to limit intakes as required pursuant to NAC 459.347, the licensee shall comply with the following requirements:

(a) Except as otherwise provided in paragraph (b), the licensee shall use only a respiratory protective device that is tested and certified, or has had certification extended, by the National Institute for Occupational Safety and Health.

(b) If the licensee wishes to use equipment that has not been tested or certified by the National Institute for Occupational Safety and Health, or for which there is no schedule for testing or certification, the licensee shall submit an application for authorized use of that equipment. The application must include evidence that the material and performance characteristics of the equipment are capable of providing the proposed degree of protection under anticipated conditions of use. The evidence must be acquired from tests performed on the equipment by the licensee or based on information obtained from other reliable tests that have been performed on the equipment.

(c) The licensee shall implement and maintain a program for respiratory protection that includes, without limitation:

(1) A sampling of the air that is sufficient to identify any potential hazard, permit the proper selection of equipment and estimate doses;

(2) Surveys and bioassays, as necessary, to evaluate actual intakes;

(3) Testing respiratory protective devices for operability immediately before each use, including, without limitation, user-performed seal checks for face-sealing respirators and functional checks for all other respirators;

(4) Written procedures regarding:

(I) Testing, including, without limitation, fit testing;

- (II) The supervision and training of users of respiratory protective devices;
- (III) Recordkeeping;
- (IV) Monitoring, including, without limitation, sampling air and bioassays;
- (V) Selection of respiratory protective devices;
- (VI) Breathing air quality;
- (VII) Inventory and control of respiratory protective devices;
- (VIII) Storage, issuance, maintenance, repair and quality assurance of respiratory

protective devices; and

(IX) Limitations on periods of use of respiratory protective devices and relief from use of respiratory protective devices; and

(5) The determination by a physician that each user of a face-sealing respirator or nonface-sealing respirator is medically fit to use the respirator before the initial fitting of a face-sealing respirator or before the first use of a nonface-sealing respirator and:

- (I) At least once every 12 months after the initial fitting; or
- (II) Periodically at a frequency that is determined by the physician.

(d) The licensee shall perform fit testing for a respirator before the first field use of a respirator with a tight-fitting facepiece and not less than annually thereafter. The fit test must be performed with the facepiece of the respirator operating in the negative pressure mode and the fit factor:

(1) For a negative pressure respirator must be greater than or equal to 10 times the air pressure flow; and

(2) For a positive pressure, continuous flow or pressure demand respirator must exceed 500.

(e) The licensee shall advise each user of a respiratory protective device that the user may leave the area at any time for relief from the use of the respiratory protective device if:

- (1) The device malfunctions;
- (2) He or she suffers physical or psychological distress;
- (3) There is a failure of communication or procedures;
- (4) There is a significant deterioration in the operating conditions; or
- (5) There are any other conditions that might require relief from use of the device.

(f) The licensee shall:

(1) Consider limitations appropriate to the type of respiratory protective device and the intended mode of use of the respiratory protective device;

(2) When selecting a respiratory protective device, provide for vision correction, adequate communication, low-temperature work environments and the concurrent use of other safety and radiological protection equipment; and

(3) Use equipment in a manner that does not interfere with the proper operation of the respiratory protective device.

(g) The licensee shall provide standby rescue personnel when a person is using a one-piece atmosphere-supplying suit or any combination of a supplied-air respirator and personnel protective equipment from which the person would have difficulty extricating himself or herself.

The standby rescue personnel must:

(1) Be equipped with respiratory protective devices or other equipment appropriate to the potential hazards.

(2) Visually observe the person who is using a one-piece atmosphere-supplying suit or any combination of a supplied-air respirator and personnel protective equipment or maintain

continuous communication with such person through visual, voice, signal line, telephone, radio or other suitable means of communication.

(3) Be immediately available to assist the person who is using a one-piece atmosphere-supplying suit or any combination of a supplied-air respirator and personnel protective equipment in case of a failure of air supply or for any other reason that requires relief from distress.

(4) Be sufficient in number and training to provide immediate assistance to the person who is using a one-piece atmosphere-supplying suit or any combination of a supplied-air respirator and personnel protective equipment and to provide effective emergency rescue if needed.

(h) The licensee shall ensure that atmosphere-supplying respirators are supplied with desirable air of grade D quality or better as defined in Publication G-7.1, Commodity Specification for Air (1997), and the provisions of 29 C.F.R. §§ 1910.134(i)(1)(ii)(A) to 1910.134(i)(1)(ii)(E), inclusive. A hard copy of Publication G-7.1, Commodity Specification for Air (1997), published by the Compressed Gas Association, may be obtained at a cost of \$32 for a member of the Compressed Gas Association or \$58 for a nonmember at the Internet address <http://www.cganet.com/publication.asp>. An electronic copy of the publication may be obtained free of charge for a member of the Compressed Gas Association or at a cost of \$44 for a nonmember at the Internet address <http://www.cganet.com/publication.asp>.

(i) The licensee shall ensure that no objects, materials or substances, including, without limitation, facial hair, or any conditions which could interfere with the face-to-facepiece seal or valve function and which are under the control of the user of the respirator are present between

the skin of the face of the user of the respirator and the sealing surface of a tight-fitting facepiece.

(j) In measuring the dose to persons from the intake of airborne radioactive material, the licensee must assume initially that the concentration of radioactive material in the air that is inhaled when a respirator is worn is the ambient concentration of radioactive material in the air without a respirator divided by the assigned protection factor of the respirator. If the licensee later finds that the actual dose is greater than the estimated dose, the actual dose must be used. If the actual dose is later found to be less than the estimated dose, the actual dose may be used.

2. A licensee shall obtain authorization from the Division before using assigned respiratory protection factors in excess of those specified in Appendix A. The Division may authorize a licensee to use higher assigned protection factors upon receipt of an application that:

- (a) Describes the situation for which a need exists for higher protection factors; and
- (b) Demonstrates that the respiratory protective device provides these higher protection factors under the proposed conditions of use.

3. In addition to any restrictions imposed pursuant to the provisions of this section and NAC 459.347, the Division may impose restrictions on the use of respiratory protective devices by a licensee to:

- (a) Ensure that the respiratory protection program of the licensee is adequate to limit doses to persons from the intake of airborne radioactive material consistent with maintaining the total effective dose equivalent as low as is reasonably achievable; and
- (b) Limit the extent to which a licensee may use respiratory protective devices instead of processes or engineering controls to limit doses to persons from the intake of airborne radioactive material.

459.3575 Precautionary procedures: Exceptions to requirements for labeling

containers. (NRS 459.201) A licensee is not required to label a container pursuant to NAC 459.357 if the container is:

1. Holding licensed radioactive material in quantities that are less than the quantities listed in Appendix C.
2. Holding licensed radioactive material in concentrations that are less than those specified in Table III of Appendix B.
3. Attended by a person who takes the precautions necessary to prevent the exposure of persons in excess of the limits established by NAC 459.010 to 459.950, inclusive.
4. In transport and is packaged and labeled in accordance with the regulations of the United States Department of Transportation.
5. Accessible only to persons authorized to work in the vicinity of the container or authorized to handle or use the container, if the contents of the container are identified to those persons by a readily available written record which is retained while the container is in use for the purpose indicated on the record.
6. Installed manufacturing or process equipment.

459.3585 Precautionary procedures: Receiving, monitoring and opening packages. (NRS 459.201)

1. Each licensee who expects to receive a package containing quantities of radioactive material in excess of a type A quantity, as defined in 10 C.F.R. § 71.4, shall make arrangements to receive:

- (a) The package when the carrier offers it for delivery; or

(b) Notification of the arrival of the package at the terminal of the carrier and to take possession of the package expeditiously.

2. Except as otherwise provided in subsections 3 and 7, each licensee shall monitor the external surfaces of a package known to contain radioactive material for radioactive contamination and radiation levels if the package:

- (a) Is labeled as containing radioactive material; or
- (b) Has evidence of potential contamination.

3. Each licensee shall:

(a) Monitor the external surfaces of a labeled package for radioactive contamination unless the package contains only radioactive material in the form of a gas or in special form as defined in 10 C.F.R. § 71.4;

(b) Monitor the external surfaces of a labeled package for radiation levels unless the package contains quantities of radioactive material that are less than or equal to the Type A quantity, as defined in 10 C.F.R. § 71.4 and appendix A to that part; and

(c) Monitor all packages known to contain radioactive material for radioactive contamination and radiation levels if there is evidence of degradation of package integrity, such as packages that are crushed, wet or damaged.

4. The licensee shall perform the monitoring required by subsections 2 and 3 as soon as practicable after receipt of the package, but not later than 3 hours after the package is received at the facility of the licensee if the package is received during the normal working hours of the licensee. If the package is received after the normal working hours of the licensee, the monitoring must be performed not later than 3 hours after the beginning of the next normal working day of the licensee.

5. A licensee shall immediately notify the carrier who made the final delivery of a package and, by telephone and telegram, mailgram or facsimile, the Division if:

(a) Removable radioactive contamination on the surface of the package is detected that exceeds 22,000 disintegrations per minute per 100 square centimeters of package surface; or

(b) The radiation level at 1 meter from the surface of the package exceeds 10 milliroentgens per hour.

6. Each licensee shall:

(a) Establish, maintain and retain written procedures for safely opening packages in which radioactive material is received; and

(b) Ensure that the procedures established pursuant to paragraph (a) are followed and that consideration is given to any special instructions for the type of package being opened.

7. A licensee transferring a source of radiation in a special form in a motor vehicle owned or operated by the licensee to and from a work site is not required to comply with the requirements of subsections 2 and 3, but shall ensure that the source of radiation is still properly lodged in its shield.

459.359 Disposal of waste: General requirements. (NRS 459.201)

1. A licensee shall dispose of licensed radioactive material only:

(a) By transfer to an authorized recipient as provided in NAC 459.180 to 459.3154, inclusive, and 459.8231 to 459.950, inclusive;

(b) By decay in storage;

(c) By release in effluents within the limits specified in NAC 459.335; or

(d) As authorized pursuant to NAC 459.3595 to 459.3615, inclusive.

2. A person must be licensed by the Division to receive waste containing licensed radioactive material from other persons for:

- (a) Treatment before disposal;
- (b) Treatment or disposal by incineration;
- (c) Decay in storage;
- (d) Disposal at a land disposal facility licensed pursuant to NAC 459.806 to 459.8225,

inclusive; or

(e) Storage until it is transferred to a storage or disposal facility authorized to receive the waste.

459.3595 Disposal of waste: Application for approval of proposed procedures. (NRS 459.201) A licensee or applicant for a license may apply to the Division for approval of proposed procedures, not otherwise authorized pursuant to NAC 459.010 to 459.950, inclusive, to dispose of licensed radioactive material generated in the operations of the licensee. Each application must include:

- 1. A description of the waste containing the licensed radioactive material to be disposed of, including, without limitation, the physical and chemical properties that have an impact on evaluating the risk of the proposed procedures, and the proposed manner and conditions of disposing of the waste;
- 2. An analysis and evaluation of pertinent information related to the impact of the proposed procedures on the environment;
- 3. The nature and location of other potentially affected facilities; and
- 4. Analyses and procedures to ensure that doses are maintained as low as are reasonably achievable and within the limits specified in NAC 459.325, 459.331, 459.333 and 459.335.

459.3605 Disposal of waste: Release into sanitary sewerage. (NRS 459.201)

1. Except as otherwise provided in subsection 2, a licensee may discharge licensed radioactive material into sanitary sewerage only if each of the following conditions is satisfied:

(a) The material is readily soluble in water or is readily dispersible biological material in water.

(b) The quantity of all radioactive material that the licensee releases into the sanitary sewerage in 1 month divided by the average monthly volume of water released into the sanitary sewerage by the licensee does not exceed the concentration of radioactive material listed in Table III of Appendix B.

(c) The total quantity of all radioactive material that the licensee releases into the sanitary sewerage in 1 year does not exceed 5 curies of hydrogen-3, 1 curie of carbon-14 and 1 curie of all other radioactive materials combined.

(d) If more than one radionuclide is released:

(1) The licensee determines the fraction of the limits in Table III of Appendix B represented by discharges into sanitary sewerage by dividing the actual monthly average concentration of each radionuclide released by the licensee into the sanitary sewerage by the concentration of that radionuclide listed in Table III of Appendix B; and

(2) The sum of the fractions for each radionuclide required by subparagraph (1) does not exceed unity.

2. Excreta from persons undergoing medical diagnosis or therapy with radioactive material is not subject to the limitations contained in subsection 1.

459.361 Disposal of waste: Treatment or disposal by incineration. (NRS 459.201) A licensee may treat or dispose of licensed radioactive material by incineration only in the amounts and forms:

1. Specified in NAC 459.3615; or
2. Approved by the Division pursuant to NAC 459.3595.

459.3615 Disposal of waste: Specific wastes. (NRS 459.201)

1. Except as otherwise provided in subsection 2, a licensee may dispose of the following licensed radioactive material as if it were not radioactive:

(a) Not more than 0.05 microcurie of hydrogen-3 or carbon-14 per gram of medium used for liquid scintillation counting; and

(b) Not more than 0.05 microcurie of hydrogen-3 or carbon-14 per gram of animal tissue, averaged over the weight of the entire animal.

2. A licensee shall not dispose of tissue under paragraph (b) of subsection 1 in a manner that would permit its use either as food for humans or as feed for animals.

3. The licensee shall maintain records of the disposal of radioactive material described in this section until the Division terminates his or her license.

459.362 Quantities of radioactive materials for signs, labels and signals; disposal of waste. (NRS 459.201) The following quantities must be used for the purposes of subsection 1 of NAC 459.1955:

Radioactive Material	Microcuries	Radioactive Material	Microcuries
Americium-241	0.01	Antimony-125	10
Antimony-122	100	Arsenic-73	100
Antimony-124	10	Arsenic-74	10

Radioactive Material	Microcuries	Radioactive Material	Microcuries
Arsenic-76	10	Iodine-129	0.1
Arsenic-77	100	Iodine-131	1
Barium-131	10	Iodine-132	10
Barium-133	10	Iodine-133	1
Barium-140	10	Iodine-134	10
Bismuth-210	1	Iodine-135	10
Bromine-82	10	Iridium-192	10
Cadmium-109	10	Iridium-194	100
Cadmium-115m	10	Iron-55	100
Cadmium-115	100	Iron-59	10
Calcium-45	10	Krypton-85	100
Calcium-47	10	Krypton-87	10
Carbon-14	100	Lanthanum-140	10
Cerium-141	100	Lutetium-177	100
Cerium-143	100	Manganese-52	10
Cerium-144	1	Manganese-54	10
Cesium-131	1,000	Manganese-56	10
Cesium-134m	100	Mercury-197m	100
Cesium-134	1	Mercury-197	100
Cesium-135	10	Mercury-203	10
Cesium-136	10	Molybdenum-99	100
Cesium-137	10	Neodymium-147	100
Chlorine-36	10	Neodymium-149	100
Chlorine-38	10	Nickel-59	100
Chromium-51	1,000	Nickel-63	10
Cobalt-58m	10	Nickel-65	100
Cobalt-58	10	Niobium-93m	10
Cobalt-60	1	Niobium-95	10
Copper-64	100	Niobium-97	10
Dysprosium-165	10	Osmium-185	10
Dysprosium-166	100	Osmium-191m	100
Erbium-169	100	Osmium-191	100
Erbium-171	100	Osmium-193	100
Europium-152 (9.2 h)	100	Palladium-103	100
Europium-152 (13 yr)	1	Palladium-109	100
Europium-154	1	Phosphorus-32	10
Europium-155	10	Platinum-191	100
Fluorine-18	1,000	Platinum-193m	100
Gadolinium-153	10	Platinum-193	100
Gadolinium-159	100	Platinum-197m	100
Gallium-72	10	Platinum-197	100
Germanium-71	100	Plutonium-239	0.01
Gold-198	100	Polonium-210	0.1
Gold-199	100	Potassium-42	10
Hafnium-181	10	Praseodymium-142	100
Holmium-166	100	Praseodymium-143	100
Hydrogen-3	1,000	Promethium-147	10
Indium-113m	100	Promethium-149	10
Indium-114m	10	Radium-226	0.01
Indium-115m	100	Rhenium-186	100
Indium-115	10	Rhenium-188	100
Iodine-125	1	Rhodium-103m	100
Iodine-126	1	Rhodium-105	100

Radioactive Material	Microcuries	Radioactive Material	Microcuries
Rubidium-86	10	Thorium (natural) ¹	100
Rubidium-87	10	Thulium-170	10
Ruthenium-97	100	Thulium-171	10
Ruthenium-103	10	Tin-113	10
Ruthenium-105	10	Tin-125	10
Ruthenium-106	1	Tungsten-181	10
Samarium-151	10	Tungsten-185	10
Samarium-153	100	Tungsten-187	100
Scandium-46	10	Uranium (natural) ²	100
Scandium-47	100	Uranium-233	0.01
Scandium-48	10	Uranium-234	0.01
Selenium-75	10	Uranium-235	0.01
Silicon-31	100	Vanadium-48	10
Silver-105	10	Xenon-131m	1,000
Silver-110m	1	Xenon-133	100
Silver-111	100	Xenon-135	100
Sodium-24	10	Ytterbium-175	100
Strontium-85	10	Yttrium-90	10
Strontium-89	1	Yttrium-91	10
Strontium-90	0.1	Yttrium-92	100
Strontium-91	10	Yttrium-93	100
Strontium-92	10	Zinc-65	10
Sulphur-35	100	Zinc-69m	100
Tantalum-182	10	Zinc-69	1,000
Technetium-96	10	Zirconium-93	10
Technetium-97m	100	Zirconium-95	10
Technetium-97	100	Zirconium-97	10
Technetium-99m	100	Any alpha-emitting radionuclide not listed above or mixtures of alpha emitters of unknown composition	0.01
Technetium-99	10	Any radionuclide other than alpha-emitting radionuclides, not listed above or mixtures of beta emitters of unknown composition	0.1
Tellurium-125m	10		
Tellurium-127m	10		
Tellurium-127	100		
Tellurium-129m	10		
Tellurium-129	100		
Tellurium-131m	10		
Tellurium-132	10		
Terbium-160	10		
Thallium-200	100		
Thallium-201	100		
Thallium-202	100		
Thallium-204	10		

¹ Based on alpha disintegration rate of Th 232, Th 230, and their daughter products.

² Based on alpha disintegration rate of U 238, U 234, and U 235.

459.3673 Records of disposal of waste. (NRS 459.201) Each licensee shall maintain

records of the disposal of licensed radioactive materials made pursuant to the provisions of NAC

459.010 to 459.950, inclusive, including any burial authorized before April 27, 1984. The licensee shall retain the records required by this section until the Division terminates each license or registration requiring the records.

459.373 Additional reporting requirements. (NRS 459.201) In addition to complying with any other reporting requirements specified in NAC 459.010 to 459.950, inclusive, a licensee shall comply with the following reporting requirements:

1. Each licensee shall notify the Division as soon as possible, but not later than 4 hours, after the discovery of an event that prevents immediate protective actions to be taken that are necessary to avoid exposure to radiation or radioactive materials that could exceed the limits specified in NAC 459.010 to 459.950, inclusive.

2. Each licensee shall notify the Division within 24 hours after the discovery of any of the following events involving licensed radioactive material:

(a) An unplanned event causing radioactive contamination that:

(1) Requires access to the contaminated area by workers or members of the public to be restricted for more than 24 hours by imposing additional radiological controls or by prohibiting entry into the area, if such a restriction is imposed for any reason other than to allow isotopes with a half-life of less than 24 hours to decay in storage before decontamination; and

(2) Involves a quantity of radioactive material which is greater than five times the lowest annual limit on intake specified in Appendix B for that material.

(b) An event in which equipment is disabled or fails to function as designed if:

(1) The equipment is required pursuant to NAC 459.010 to 459.950, inclusive, or as a condition of a license, to prevent releases of or exposure to radioactive materials exceeding the

limits specified in NAC 459.010 to 459.950, inclusive, or to mitigate the consequences of an accident;

(2) The equipment is required to be available and operable when it is disabled or fails to function; and

(3) Other equipment is not available and operable to perform the required safety function.

(c) An event that requires unplanned medical treatment at a medical facility for a person who has spreadable radioactive contamination on his or her clothing or body.

(d) An unplanned fire or explosion damaging any licensed radioactive material or any device, container or equipment containing licensed radioactive material if:

(1) The quantity of radioactive material involved is greater than five times the lowest annual limit on intake specified in Appendix B for that radioactive material; and

(2) The damage affects the integrity of the licensed radioactive material or its container.

3. Reports made by a licensee pursuant to this section must be made as follows:

(a) A licensee shall make the reports required by subsections 1 and 2 by telephone. To the extent that the information is available at the time of notification by telephone, the information provided in these reports must include, without limitation:

(1) The name and telephone number of the caller;

(2) A description of the event, including, without limitation, the date and time of the event;

(3) The exact location of the event;

(4) The isotopes, quantities and chemical and physical form of the licensed radioactive material involved; and

(5) Any data regarding the exposure of persons to radiation because of the event.

(b) Except as otherwise provided in paragraph (c), each licensee who makes a report by telephone shall submit a written report to the Division within 30 days after the report by telephone is made. The written report must contain:

- (1) A description of the event, including, without limitation, the probable cause of the event and the manufacturer and model number of any equipment that failed or malfunctioned;
- (2) The exact location of the event;
- (3) The isotopes, quantities and chemical and physical form of the licensed radioactive material involved;
- (4) The date and time of the event;
- (5) Any corrective actions taken or planned regarding the event;
- (6) The results of any evaluations or assessments regarding the event; and
- (7) The extent of any exposure of persons to radiation or to radioactive materials because of the event, without identifying those persons by name.

(c) A licensee is not required to comply with the provisions of paragraph (b) if a report submitted pursuant to NAC 459.010 to 459.950, inclusive, contains all the information required by paragraph (b).

459.3801 Restricted area: Release for unrestricted use. (NRS 459.201) A restricted area in which a licensee has used or stored radioactive material must not be released for unrestricted use until the Division has given its approval in writing.

459.3805 Restricted area: Persons authorized to enter. (NRS 459.201) Only those persons who perform work in a restricted area are authorized to enter such areas. A licensee shall not allow any other person to enter a restricted area.

459.738 Compliance with certain provisions of Code of Federal Regulations regarding program for inspecting and maintaining transport containers. (NRS 459.030) A program for inspecting and maintaining transport containers that complies with the provisions of 10 CFR § 34.31(b), as those provisions existed on January 1, 2001, shall be deemed to comply with the applicable provisions of Part 71 of Title 10 of the Code of Federal Regulations, as those provisions existed on January 1, 2001.

459.752 Safety requirements: Ventilation systems. (NRS 459.201)

1. A means must be provided to ensure that personnel entering any area where airborne radioactivity may be produced will not be exposed to airborne radioactive material in excess of the limits specified in Table I of Appendix B.

2. A registrant, as required by NAC 459.3355, shall not vent, release or otherwise discharge airborne radioactive material to an unrestricted area in excess of the limits specified in Table II of appendix B, except as authorized pursuant to NAC 459.3355. For the purposes of NAC 459.740 to 459.752, inclusive, concentrations may be averaged over a period not greater than 1 year. Every reasonable effort must be made to maintain releases of radioactive material to uncontrolled areas as far below these limits as is reasonably achievable.

459.756 Definitions. (NRS 459.201) As used in NAC 459.756 to 459.7745, inclusive, unless the context otherwise requires, the words and terms defined in NAC 459.757 to 459.763, inclusive, have the meanings ascribed to them in those sections.

459.757 “Field station” defined. (NRS 459.201) “Field station” means a facility where radioactive material may be stored or used and from which equipment is dispatched to temporary jobsites.

459.7575 “Fresh water aquifer” defined. (NRS 459.201) “Fresh water aquifer” means a geologic formation that is capable of yielding fresh water to a well or spring.

459.758 “Injection tool” defined. (NRS 459.201) “Injection tool” means a device used for controlled subsurface injection of radioactive tracer material.

459.7585 “Irretrievable well logging source” defined. (NRS 459.201) “Irretrievable well logging source” means any sealed source containing radioactive material that is pulled off or not connected to the wireline that suspends the source in the well and for which all reasonable effort at recovery has been expended.

459.759 “Logging assistant” defined. (NRS 459.201) “Logging assistant” means any person who, under the personal supervision of a logging supervisor, handles sealed sources or tracers that are not in logging tools or shipping containers or who performs surveys required by NAC 459.7725.

459.7595 “Logging supervisor” defined. (NRS 459.201) “Logging supervisor” means any person who uses radioactive material or provides personal supervision in the use of radioactive material at a temporary job site and who is responsible to the licensee for assuring compliance with the requirements of the Division’s regulations and the conditions of the license.

459.7598 “Logging tool” defined. (NRS 459.201) “Logging tool” means a device used below the surface to perform well logging.

459.7605 “Personal supervision” defined. (NRS 459.201) “Personal supervision” means guidance and instruction by a logging supervisor who:

1. Is physically present at a temporary job site;
2. Is in personal contact with logging assistants; and
3. Can give immediate assistance.

459.761 “Radioactive marker” defined. (NRS 459.201) “Radioactive marker” means material used for depth determination or direction orientation. The term includes radioactive collar markers and radioactive iron nails.

459.7615 “Safety review” defined. (NRS 459.201) “Safety review” means a periodic review provided by the licensee for its employees on radiation safety as it relates to well logging. The review may include, as appropriate:

1. The results of internal inspections;
2. New procedures or equipment;
3. Accidents or errors that have been observed; and
4. Safety questions of employees.

459.7621 “Source holder” defined. (NRS 459.201) “Source holder” means a housing or assembly into which a sealed source is placed to facilitate the handling and use of the source in well logging.

459.7625 “Subsurface tracer study” defined. (NRS 459.201) “Subsurface tracer study” means the release of unsealed radioactive material or a substance labeled with radioactive material in a single well for the purpose of tracing the movement or position of the material or substance in the well or adjacent formation.

459.763 “Surface casing” defined. (NRS 459.201) “Surface casing” means a pipe or tube used as a lining in a well to isolate fresh water aquifers from the well.

459.7635 Purpose and applicability. (NRS 459.201) The provisions of NAC 459.756 to 459.7745, inclusive:

1. Establish radiation safety requirements for persons using sources of radiation for well logging which are in addition to and not in substitution for other applicable requirements of NAC 459.010 to 459.950, inclusive;

2. Apply to all licensees or registrants who use sources of radiation for well logging; and

3. Apply to both radiation machines and radioactive materials unless the context otherwise requires.

459.7641 Approval of operation required; submission of information to Division; maintenance and retention of record. (NRS 459.201)

1. A person shall not perform a well logging operation without:

(a) A general license granted pursuant to NAC 459.210 and prior approval of the Division; or

(b) A specific license issued by the Division which authorizes the well logging operation.

2. A person who wishes to perform a well logging operation shall submit to the Division a description of the operation which contains:

(a) A designation of the township, range and section in which the well is located;

(b) The distance in feet from the well to two different section lines;

(c) The name or number assigned to the well;

(d) The depth of the well and the surface casing in feet;

(e) The location and distance of any freshwater aquifers within 3 miles of the well which is to be logged and a determination of whether the well penetrates an aquifer; and

(f) The location and identification of any wells within 3 miles of the well which is to be logged that are producing water for human or animal consumption or irrigation and the depths of those wells and the depths of their surface casings.

3. A person who is licensed by the Division to perform a well logging operation shall maintain a record of the information included in the description of the operation pursuant to subsection 2 for at least 3 years for inspection by the Division.

459.7645 Agreement with owner or operator of well. (NRS 459.201)

1. A licensee shall not perform well logging with a sealed source before entering into a written agreement with the owner or operator of the well who is employing the licensee.

2. The written agreement required by subsection 1 must identify the person who will assure that:

(a) If a sealed source becomes lodged in the well, a reasonable effort will be made to recover it;

(b) A person will not attempt to recover a sealed source in a manner which, in the licensee's opinion, could result in its rupture;

(c) The radiation monitoring required in NAC 459.773 will be performed;

(d) If the environment or any personnel are contaminated with radioactive material, they will be decontaminated;

(e) If any equipment is contaminated with radioactive material it will be decontaminated before it is released from the job site or released for unrestricted use at the job site; and

(f) If a sealed source is classified as irretrievable after reasonable efforts at recovery have been expended, the following requirements will be carried out within 30 days:

(1) Each irretrievable well logging source must be immobilized and sealed in place with a cement plug;

(2) A mechanical device to prevent inadvertent intrusion on the irretrievable well logging source must be set at some point in the well above the cement plug, unless the cement plug and source are not accessible to any subsequent drilling operations; and

(3) A permanent identification plaque, constructed of long lasting material such as stainless steel, brass, bronze or monel, must be mounted at the surface of the well. The size of the plaque must be at least 7 inches square and 1/8-inch thick and contain:

(I) The word "CAUTION";

(II) The radiation caution symbol, but the color requirement in NAC 459.355 need not be met;

(III) The date on which the irretrievable source was abandoned;

(IV) The name of the well owner or well operator, as appropriate;

(V) The name of the well and the well identification number or other designation;

(VI) An identification of the sealed source by radionuclide and quantity;

(VII) The depth of the sealed source and depth to the top of the plug; and

(VIII) An appropriate warning such as "DO NOT RE-ENTER THIS WELL."

3. A licensee shall retain a copy of the written agreement required by subsection 1 for 3 years after the completion of the well logging operation.

459.765 Labeling of components and containers; transportation of radioactive material. (NRS 459.201)

1. A licensee may not use a source, a source holder or a logging tool that contains radioactive material unless the smallest component that is transported as a separate piece of equipment with radioactive material inside bears a durable, legible and clearly visible marking or label. The marking or label must contain the radiation caution symbol specified in NAC 459.355

without the conventional color requirements, and the wording “CAUTION (or DANGER) RADIOACTIVE MATERIAL.”

2. A licensee may not use a container to store radioactive material unless the container has securely attached to it a durable, legible and clearly visible label. The label must contain the radiation caution symbol specified in NAC 459.355 and the wording “CAUTION. (or DANGER.) RADIOACTIVE MATERIAL. NOTIFY CIVIL AUTHORITIES (or NAME OF COMPANY) IF FOUND.”

3. A licensee may not transport radioactive material unless the material is packaged, labeled, marked and accompanied with appropriate shipping papers in accordance with regulations of the United States Department of Transportation.

459.7655 Storage of radioactive material; securing packages for transportation. (NRS 459.201) A licensee shall:

1. Store each source containing radioactive material in a storage container or transportation package. The container or package must be locked and physically secured to prevent tampering or removal of radioactive material from storage by unauthorized persons.

2. Store radioactive material in a manner which will minimize danger from explosion or fire.

3. Lock and physically secure a transport package containing radioactive material in the transporting vehicle to prevent accidental loss, tampering or unauthorized removal of the radioactive material from the vehicle.

459.7661 Availability and calibration of instruments to survey and detect radiation. (NRS 459.201) A licensee shall:

1. Keep a calibrated and operable radiation survey instrument capable of detecting beta and gamma radiation at each field station and temporary job site to make the radiation surveys required by NAC 459.337 and 459.7725. The radiation survey instrument must be capable of measuring as little as 0.1 milliroentgen per hour and as much as 50 milliroentgens per hour.

2. Have available additional calibrated and operable radiation detection instruments sensitive enough to detect the low radiation and contamination levels that could be encountered if a sealed source ruptured.

3. Have each radiation survey instrument required under subsection 1 calibrated:

(a) At intervals not to exceed 6 months; and

(b) In accordance with subsection 2 of NAC 459.712.

459.7665 Inspection and maintenance of equipment; restrictions on handling sealed sources. (NRS 459.201)

1. Each licensee shall visually inspect source holders, logging tools and source handling tools for defects before each use to ensure that the equipment is in good working condition and that the required labeling is present.

2. If defects in equipment are found during the inspection required by subsection 1, the equipment must be removed from service until repaired and a record must be made listing:

(a) The date of inspection;

(b) The name of the licensee who performed the inspection;

(c) The equipment involved;

(d) The defects found; and

(e) The repairs made.

3. The records required by subsection 2 must be retained by the licensee for 3 years after the defect is found.

4. Each licensee must have a program for semiannual visual inspection and routine maintenance of source holders, logging tools, injection tools, source handling tools, storage containers, transport containers and uranium sinker bars to ensure that the required labeling is legible and that no physical damage is visible.

5. If defects are found during the inspection required by subsection 4, the defective equipment must be removed from service until repaired and a record must be made listing:

- (a) The date of inspection;
- (b) The equipment involved;
- (c) The inspection and maintenance operations performed;
- (d) The defects found; and
- (e) The repairs made.

6. The records required by subsection 5 must be retained by the licensee for 3 years after the defect is found.

7. A licensee shall not remove a sealed source from a source holder or logging tool or perform maintenance on a sealed source or source holder unless a written procedure developed for that purpose has been approved by the Division.

8. If a sealed source is stuck in a source holder a licensee shall not perform any operation to remedy the situation, such as drilling, cutting or chiseling on the source holder, unless the licensee is specifically approved by the Division to perform such an operation.

9. No person shall open, repair or modify any sealed source unless specifically approved by the Division to perform such an operation.

459.767 Testing sealed sources for leakage. (NRS 459.201) A licensee shall test, as provided in NAC 459.307, each sealed source for leakage of radioactive material, at intervals not to exceed 6 months.

459.7675 Semiannual inventories of radioactive material. (NRS 459.201)

1. Each licensee shall conduct a semiannual physical inventory to account for all radioactive material received and possessed under his or her license. The licensee must retain records of the physical inventory for 3 years after the date of the inventory for inspection by the Division.

2. The physical inventory required by subsection 1 must indicate:

- (a) The quantity and kind of radioactive material;
- (b) The location of the radioactive material;
- (c) The date of the inventory; and
- (d) The name of the person conducting the inventory.

3. Physical inventory records may be combined with the records of leak tests required by NAC 459.767.

459.7681 Records of sources of radiation used. (NRS 459.201)

1. Each licensee or registrant shall maintain records of each use of a source of radiation in well logging, which must include:

(a) The make, model and number of sources of radiation used and a serial number or a description of each source of radiation;

(b) The name of the logging supervisor who is responsible for the safe use of sources of radiation;

(c) The names of logging assistants present; and

(d) The location and date of use of the sources of radiation.

2. A licensee or registrant shall make available for inspection by the Division the records required by subsection 1 and must retain the records for 3 years after the date of the recorded use of a source of radiation in a well logging operation.

459.7685 Criteria for design and performance of sealed sources. (NRS 459.201)

1. Except as otherwise provided in subsection 2, a licensee shall not use a sealed source in well logging unless the sealed source:

(a) Is doubly encapsulated;

(b) Contains radioactive material whose chemical and physical forms are as insoluble and nondispersible as practical; and

(c) Has been tested as a prototype and found to maintain its integrity after:

(1) A temperature test in which the prototype is subjected to -40 degrees C for 20 minutes and is subjected to 600 degrees C for 1 hour and then is subjected to a thermal shock test in which the prototype is subjected to a temperature drop from 600 degrees C to 20 degrees C within 15 seconds;

(2) An impact test in which a 5 kg steel hammer measuring 2.5 cm in diameter is dropped from a height of 1 m onto the prototype;

(3) A vibration test in which the prototype is subjected to a vibration ranging from 25 Hz to 500 Hz at 5 g amplitude for 30 minutes;

(4) A puncture test in which a 1 gram hammer attached to pin measuring 0.3 cm in diameter is dropped from a height of 1 m onto the prototype; and

(5) A pressure test in which the prototype is subjected to an external pressure of 24,600 pounds per square inch absolute.

2. The requirements of subsection 1 do not apply to sealed sources that contain radioactive material in gaseous form.

459.769 Use of sealed source in well without surface casing. (NRS 459.201) A licensee may use a sealed source to log a well that does not have a surface casing if:

1. The well does not penetrate a fresh water aquifer; or
2. The licensee follows a procedure which has been approved by the Division for reducing the probability of the source becoming lodged in the well.

459.7695 Use of radioactive markers and uranium sinker bars. (NRS 459.201)

1. A licensee shall not use radioactive markers in wells if the individual markers contain quantities of radioactive material which exceed the quantities specified in NAC 459.188.
2. The use of radioactive markers is subject to the requirements of NAC 459.7675.
3. A licensee shall not use a uranium sinker bar in well logging if the bar is not legibly impressed with the words “CAUTION - RADIOACTIVE-DEPLETED URANIUM” and “NOTIFY CIVIL AUTHORITIES (or COMPANY NAME) IF FOUND.”

459.7701 Logging supervisors and assistants: Qualifications; safety reviews; records. (NRS 459.201)

1. A licensee shall not permit a person to act as a logging supervisor until that person:
 - (a) Has completed training in the subjects set forth in NAC 459.7705.
 - (b) Has received copies of, and instruction in:
 - (1) The regulations contained in NAC 459.010 to 459.950, inclusive;
 - (2) The division license under which the logging supervisor will perform well logging;and
 - (3) The licensee’s operating and emergency procedures required by NAC 459.7715.

(c) Has completed on-the-job training and demonstrated his or her competence, in a field evaluation, in the use of:

- (1) Radioactive materials;
- (2) Remote handling tools; and
- (3) Radiation survey instruments.

(d) Has demonstrated the person's understanding of the requirements of paragraphs (a) and (b) of subsection 1 by successfully completing a written test.

2. A licensee shall not permit a person to act as a logging assistant until that person:

(a) Has received instruction in the regulations contained in NAC 459.010 to 459.950, inclusive;

(b) Has received copies of, and instruction in the licensee's operating and emergency procedures required by NAC 459.7715;

(c) Has demonstrated his or her understanding of the materials listed in paragraphs (a) and (b) by successfully completing a written or oral test; and

(d) Has received instruction appropriate for the person's job responsibilities in the use of:

- (1) Radioactive materials;
- (2) Remote handling tools; and
- (3) Radiation survey instruments.

3. A licensee shall provide a safety review for logging supervisors and logging assistants at least once during each calendar year.

4. A licensee shall maintain a record of the training and safety review provided each logging supervisor and logging assistant. The records of training must include copies of written tests and dates of oral tests. The records of training must be retained for 3 years after the termination of

employment of the supervisor or assistant. Records of the annual safety reviews must list the topics discussed and be retained for 3 years.

459.7705 Logging supervisors: Training. (NRS 459.201) A licensee shall include the following subjects in the training required by NAC 459.7701:

1. Fundamentals of radiation safety, including:
 - (a) Characteristics of radiation;
 - (b) Units of radiation dosage and quantity of radioactivity;
 - (c) Hazards of exposure to radiation;
 - (d) Levels of radiation from radioactive material;
 - (e) Methods of controlling radiation dosage (time, distance and shielding); and
 - (f) Radiation safety practices, including prevention of contamination and methods of decontamination.
2. Radiation detection instruments, including:
 - (a) Use, operation, calibration and limitations of radiation survey instruments;
 - (b) Survey techniques; and
 - (c) Use of personnel monitoring equipment.
3. Equipment, including:
 - (a) Operation of equipment, including source handling equipment and remote handling tools;
 - (b) Storage, control and disposal of licensed material; and
 - (c) Maintenance of equipment.
4. The requirements of pertinent division regulations.
5. Case histories of accidents in well logging.

459.771 Logging supervisors: Presence at temporary job sites; surveillance of operations. (NRS 459.201)

1. A logging supervisor shall be physically present at a temporary job site when radioactive materials are being handled or are not stored and locked in a vehicle or storage place. The logging supervisor may leave the temporary job site in order to obtain assistance if a source becomes lodged in a well.

2. Except when radiation sources are below ground or in shipping or storage containers, a logging supervisor or other person designated by the logging supervisor shall, during well logging, maintain direct surveillance of the operation to prevent unauthorized entry into a restricted area, as defined in NAC 459.090.

459.7715 Operating and emergency procedures. (NRS 459.201) Each licensee shall develop and follow written operating and emergency procedures that cover:

1. The handling and use of radioactive materials including, if appropriate, the use of sealed sources in wells without surface casing;

2. The use of remote handling tools for handling sealed sources and radioactive tracer material, except low activity calibration sources;

3. Methods and occasions for conducting radiation surveys, including surveys for detecting contamination, as required by NAC 459.7725;

4. Minimizing exposure of personnel to radiation including exposure from inhalation and ingestion of tracer radioactive materials;

5. Methods and occasions for locking and securing stored radioactive materials;

6. Equipment and procedures for monitoring personnel;

7. The transportation of radioactive materials to field stations or temporary jobsites, including:

- (a) The packaging of radioactive materials for transport in vehicles;
- (b) Placing placards on vehicles when needed; and
- (c) Physically securing radioactive materials in transport vehicles during transportation to prevent accidental loss, tampering or unauthorized removal;

8. Picking up, receiving and opening packages containing radioactive materials, in accordance with NAC 459.3585;

9. The use of tracers;

10. Decontamination of the environment, equipment and personnel;

11. Maintenance of records generated by logging personnel at temporary jobsites;

12. The inspection and maintenance of:

- (a) Sealed sources;
- (b) Source holders;
- (c) Logging tools;
- (d) Injection tools;
- (e) Source handling tools;
- (f) Storage containers;
- (g) Transport containers; and
- (h) Uranium sinker bars,

↪ as required by NAC 459.7665;

13. Actions to be taken if a sealed source is lodged in a well;

14. Notifying proper persons in the event of an accident; and

15. Actions to be taken if a sealed source is ruptured, including:

(a) Actions to prevent the spread of contamination and minimize inhalation and ingestion of radioactive materials; and

(b) Actions to determine the boundaries of radioactive contamination with suitable radiation survey instruments described in NAC 459.7661.

459.7721 Monitoring personnel. (NRS 459.030, 459.201)

1. A licensee shall not permit a person to act as a logging supervisor or a logging assistant unless that person wears, at all times during the handling of radioactive materials, either a film badge or a thermoluminescence dosimeter. Each film badge or thermoluminescence dosimeter must be assigned to, and worn by, only one person. Film badges must be replaced at least once every month, and thermoluminescence dosimeters must be replaced at least once every 3 months. After replacement, each film badge or thermoluminescence dosimeter must be promptly processed.

2. A licensee shall provide bioassay services to persons using radioactive materials in subsurface tracer studies if required by his or her license.

3. A licensee shall retain records of film badge, thermoluminescence dosimeter and bioassay results for inspection until the Division authorizes disposition of the records.

459.7725 Surveys of radiation: Requirements; records. (NRS 459.201)

1. A licensee shall make radiation surveys of each area where radioactive materials are used and stored.

2. Before transporting radioactive materials, a licensee shall make a radiation survey of the position occupied by each person in the vehicle and of the exterior of each vehicle used to transport the materials.

3. If a sealed source assembly is removed from a logging tool before departure from a temporary job site, the licensee shall confirm that the logging tool is free of contamination by energizing the logging tool detector or by using a survey meter.

4. If a licensee has reason to believe that, as a result of any operation involving a sealed source, the encapsulation of the sealed source could have been damaged by the operation, the licensee shall conduct a radiation survey, including a contamination survey, during and after the operation.

5. A licensee shall make a radiation survey at a temporary job site before and after each subsurface tracer study to confirm the absence of contamination.

6. The results of surveys required by subsections 1 to 5, inclusive, must be recorded and must include:

- (a) The date of the survey;
- (b) The name of the person making the survey;
- (c) The identification of the survey instrument used; and
- (d) The location of the survey.

7. A licensee shall retain the records of surveys required by subsection 6, for inspection by the Division, for 3 years after they are made.

459.773 Control of radioactive contamination. (NRS 459.201)

1. If a licensee detects evidence that a sealed source has ruptured or radioactive materials have caused contamination, the licensee shall immediately initiate the emergency procedures required by NAC 459.7715.

2. If contamination results from the use of radioactive material in well logging, a licensee shall decontaminate all work areas, equipment and unrestricted areas.

3. During efforts to recover a sealed source lodged in a well, a licensee shall continuously monitor, with an appropriate radiation detection instrument or logging tool with a radiation detector, the circulating fluids from the well, if any, to check for contamination resulting from damage to the sealed source.

459.7741 Notifying Radiological Health Section of certain events; procedure when sealed source is not retrievable. (NRS 459.201)

1. A licensee shall immediately notify the Radiological Health Section of the Division by telephone and subsequently, within 30 days, by confirmatory letter if the licensee knows, or has reason to believe, that a sealed source has been ruptured. The letter must:

- (a) Designate the well or other location;
- (b) Describe the magnitude and extent of the escape of radioactive materials;
- (c) Assess the consequences of the rupture; and
- (d) Explain efforts planned or being taken to mitigate the consequences of the rupture.

2. A licensee or registrant shall notify the Radiological Health Section by telephone of:

- (a) The theft or loss of a source of radiation;
- (b) Overexposures to radiation;
- (c) Excessive levels and concentrations of radiation; and
- (d) Accidents, as required by NAC 459.369, 459.3695 and 459.371;

3. When a sealed source becomes lodged in a well and it becomes apparent that efforts to recover the sealed source will not be successful, a licensee shall:

- (a) Notify the radiological health section by telephone of the circumstances that resulted in the inability to retrieve the source and obtain approval to carry out abandonment procedures;

(b) Advise the well owner or operator of the abandonment procedures set forth in NAC 459.7645;

(c) Ensure that abandonment procedures are completed within 30 days after the sealed source has been classified irretrievable or request an extension of time from the Division to permit completion of the abandonment procedures; and

(d) Make a report in writing to the Division within 30 days after a sealed source has been classified irretrievable. The licensee must send a copy of the report to each state or federal agency that issued permits or otherwise approved of the well drilling operation. The report must contain the following information:

- (1) The date of occurrence;
- (2) A description of the irretrievable well logging source involved, including the radionuclide and its quantity and chemical and physical form;
- (3) The surface location and identification of the well;
- (4) The results of efforts to immobilize and seal the source in place;
- (5) A brief description of the attempted recovery effort;
- (6) The depth of the source;
- (7) The depth of the top of the cement plug;
- (8) The depth of the well;
- (9) Any other information required by the Division, such as a warning statement contained on the permanent identification plaque; and
- (10) The names of the state and federal agencies receiving a copy of the report.

459.7745 Maintenance of documents and records. (NRS 459.201)

1. Each licensee and registrant shall maintain the following documents and records at the field station:

- (a) The regulations contained in NAC 459.010 to 459.950, inclusive;
- (b) The license or registration authorizing the use of a source of radiation;
- (c) The records of calibration of radiation survey instruments;
- (d) Operating and emergency procedures;
- (e) The records of leak tests;
- (f) Physical inventory records;
- (g) Utilization records;
- (h) Records of inspection and maintenance;
- (i) Training records; and
- (j) Survey records.

2. Each licensee and registrant shall maintain the following documents and records at a temporary job site while well logging operations are being conducted:

- (a) Operating and emergency procedures;
- (b) Evidence of the latest calibration of the radiation survey instruments in use at the site;
- (c) The latest survey records required by NAC 459.7725;
- (d) The shipping papers for transportation of radioactive material;
- (e) The latest leak test record;
- (f) A copy of the license or registration authorizing the use of a source of radiation; and
- (g) Identification documents for each person who enters the restricted area at the site which indicates his or her classification as logging supervisor, logging assistant or other category, and states that the person is an employee of the licensee or registrant.

459.800 Definitions. (NRS 459.201) As used in NAC 459.800 to 459.950, inclusive, unless the context otherwise requires, the words and terms defined in NAC 459.8005 to 459.8055, inclusive, have the meanings ascribed to them in those sections.

459.8005 “Active maintenance” defined. (NRS 459.201) “Active maintenance” means any significant activity needed during the period of control after closure of the disposal area to ensure reasonable protection against inadvertent intruders and the migration of radionuclides, including activities such as the pumping and treatment of water from a disposal unit or replacement of the cover of a disposal unit. The term does not include continuing custodial activities such as the repair of fencing, repair or replacement of equipment for detecting radiation, revegetation, minor additions to the depth of soil covering a disposal unit and general upkeep such as mowing grass.

459.801 “Buffer zone” defined. (NRS 459.201) “Buffer zone” means a portion of the disposal area which is controlled by the licensee and lies under the disposal units or between the disposal units and the boundary of the disposal area.

459.8015 “Chelating agent” defined. (NRS 459.201) “Chelating agent” means amine polycarboxylic acids, hydroxycarboxylic acids and polycarboxylic acids.

459.802 “Disposal” defined. (NRS 459.201) “Disposal” means the isolation of radioactive wastes from the biospheres inhabited by humans and the plants and animals on which they feed, directly or indirectly, by emplacement in a disposal area on land.

459.8025 “Disposal area” defined. (NRS 459.201) “Disposal area” means the land which is used for the disposal of waste, consisting of disposal units and a buffer zone.

459.803 “Disposal unit” defined. (NRS 459.201) “Disposal unit” means a discrete portion of a disposal area into which waste is placed for disposal. For disposal near the surface, the unit is usually a trench.

459.8035 “Explosive material” defined. (NRS 459.201) “Explosive material” means any chemical compound, mixture or device which produces a substantial instantaneous release of gas and heat spontaneously or by contact with sparks or flame.

459.804 “Hydrogeological unit” defined. (NRS 459.201) “Hydrogeological unit” means a unit or zone of soil or rock which by virtue of its porosity or permeability, or lack thereof, has a distinct influence on the storage or movement of groundwater.

459.8045 “Inadvertent intruder” defined. (NRS 459.201) “Inadvertent intruder” means a person who occupies a disposal area after its closure and engages in normal activities, such as agriculture or the construction of a dwelling, in which he or she may unknowingly be exposed to radiation from the waste.

459.805 “Near the surface” defined. (NRS 459.201) “Near the surface” means within the upper 100 feet (approximately 30 meters) of the earth’s surface.

459.8055 “Waste” defined. (NRS 459.201) “Waste” has the meaning ascribed to it in subsection G of Article 2 of the Rocky Mountain Low-level Radioactive Waste Compact in NRS 459.007.

459.806 Scope. (NRS 459.201) NAC 459.806 to 459.8225, inclusive:

1. Establish the procedures, criteria, terms and conditions upon which the Division will issue licenses for the disposal in soil of radioactive wastes received from other persons.
2. Do not apply to the disposal of licensed material as provided in NAC 459.3355 and 459.359 to 459.3615, inclusive.

459.8065 General requirements for license. (NRS 459.201) A person who desires to apply for a license to locate, design, construct and operate in this State an area for the disposal in soil of wastes that are received from others and contain or are contaminated with radioactive material must:

1. Comply with the requirements for a specific license set forth in NAC 459.236; and
2. Submit to the Division the necessary general, technical, analytical, organizational and financial information.

459.807 Collection of environmental data. (NRS 459.201) At the time a person applies for a license, the person must have conducted a program to collect basic environmental data on the characteristics of the proposed disposal area, including data about the ecology, meteorology, climate, hydrology, geology, geochemistry and seismology of the area. For those characteristics that are subject to seasonal variation, the data must cover at least a 12-month period.

459.8075 Application for license: General information. (NRS 459.201) An applicant for a license to operate a disposal area must submit to the Division the following general information:

1. The identity of the applicant, including the full name, address, telephone number and a description of the business or occupation of the applicant, and if the applicant is:
 - (a) A partnership, the name and address of each partner and the principal location where the partnership does business;
 - (b) A corporation or an unincorporated association, the state where it is incorporated or organized, the principal location where it does business and the names and addresses of its directors and principal officers; and

(c) Acting as an agent or representative for another person in filing the application, all information required under this subsection which applies to the other person.

2. The qualifications of the applicant, including:

(a) The organizational structure of the applicant, together with a description of lines of authority and assignments of responsibilities, whether in the form of administrative directives, contractual provisions or otherwise;

(b) The technical qualifications, training and experience of the applicant and members of the applicant's staff to engage in the proposed activities, as well as the minimum training and experience required of personnel in the organizational structure described in paragraph (a);

(c) A description of the applicant's training program for personnel; and

(d) The plan to maintain an adequate complement of trained personnel to carry out the receipt, handling and disposal of waste in a safe manner.

3. A description of:

(a) The location of the proposed disposal area;

(b) The general character of the proposed activities;

(c) The types and quantities of waste to be received, possessed and disposed of;

(d) Plans for use of the disposal area for any purposes other than for the disposal of radioactive wastes; and

(e) The proposed facilities and equipment for the disposal area.

4. Proposed schedules for construction, the receipt of waste and the first emplacement of waste at the disposal area.

459.808 Application for license: Technical information. (NRS 459.201) An applicant for a license to operate a disposal area must submit to the Division the following technical

information to demonstrate that the applicant is capable of meeting the objectives and technical requirements of disposal:

1. A description of the natural and demographic characteristics of the disposal area, including geologic, geotechnical, hydrologic, meteorologic, climatologic and biotic features of the disposal area and its vicinity.

2. A description of the design of the disposal area and proposed disposal units. For disposal near the surface, the description must include those features of the design related to:

- (a) The infiltration of water;
- (b) Integrity of covers for disposal units;
- (c) Structural stability of backfill, wastes and covers;
- (d) Contact of wastes with standing water;
- (e) Drainage;
- (f) Closure and stabilization;
- (g) Elimination, to the extent practicable, of long-term maintenance;
- (h) Prevention of inadvertent intrusion;
- (i) Exposure of employees to radiation;
- (j) Detection of radiation in the disposal area; and
- (k) Adequacy of the size of the buffer zone for detection and prevention of the migration of radionuclides.

3. A description of the principal criteria of the design and their relationship to the objectives of disposal.

4. A description of the natural events or phenomena on which the design is based and their relationship to the principal criteria of the design.

5. A description of codes and standards of construction which the applicant has applied to the design and which will apply to construction of the disposal area.

6. A description of the construction and operation of the disposal area. The description must include, at a minimum the:

- (a) Methods of construction of disposal units;
- (b) Methods for emplacement of waste;
- (c) Procedures and areas for the segregation of waste;
- (d) Types of barriers against intruders;
- (e) Systems for vehicular traffic and drainage on the site;
- (f) Program for control of emplacement by surveying;
- (g) Methods and areas of waste storage;
- (h) Methods to control the access of surface water and groundwater to the wastes; and
- (i) Methods to be employed in the handling and disposal of wastes containing chelating agents or other nonradiological substances which may affect compliance with the objectives of disposal.

7. A description of the plan for closure of the disposal area, including those features of the design which are intended to facilitate closure of the disposal area and to eliminate the need for active maintenance.

8. An identification of those known natural resources at the disposal area whose future exploitation may result in inadvertent intrusion into the wastes after the removal of governmental control of the area.

9. A description of the kind, amount, classification and specifications of the radioactive material proposed to be received, possessed and disposed of at the disposal area.

10. A description of the programs for ensuring reliability:
 - (a) In the determination of natural characteristics of the disposal area;
 - (b) During the design, construction, operation and closure of the disposal area; and
 - (c) For the receipt, handling and emplacement of waste, including audits and managerial controls.

11. A description of the program for:
 - (a) Control and detection of radioactive effluents to ensure compliance with the requirements of NAC 459.8155;
 - (b) Control and measurement of exposure of employees to radiation to ensure compliance with the requirements of NAC 459.320 to 459.374, inclusive; and
 - (c) Control of contamination of personnel, vehicles, equipment, buildings and the disposal area. The programs must govern both routine operations and accidents and the descriptions must include applicable procedures, instrumentation, facilities and equipment.

12. A description of the program for detection and measurement of radionuclides migrating from the disposal area to provide data to evaluate potential effects on health and the environment and the plan for taking corrective measures if a migration of radionuclides is discovered.

13. A description of the administrative procedures that the applicant will apply to control activities at the disposal area.

459.8085 Application for license: Analyses. (NRS 459.201) An applicant for a license to operate a disposal area must submit to the Division the following analyses to demonstrate that the objectives of disposal will be met:

1. Pathways of migration of radionuclides which are analyzed in demonstrating protection of the general population from releases of radioactivity must include air, soil, groundwater,

surface water, vegetative growth and exhumation by burrowing animals. The analyses must clearly identify and differentiate between the roles performed by the natural characteristics of the disposal area and features of design to isolate and segregate the wastes. The analyses must clearly demonstrate that there is a reasonable assurance that the exposures of persons to the release of radioactivity will not exceed the limits set forth in NAC 459.8155.

2. Analyses of the protection of persons who inadvertently intrude must include a demonstration that there is a reasonable assurance that the requirement of segregation of wastes will be met and that adequate barriers to inadvertent intrusion will be provided.

3. Analyses of the protection of persons during operations must include assessments of expected exposures resulting from routine operations and likely accidents during the handling, storage and disposal of waste. The analyses must provide a reasonable assurance that exposure will be controlled to meet the requirements of NAC 459.320 to 459.374, inclusive.

4. Analyses of the long-term stability of the disposal area and the need for active maintenance after closure must be based upon analyses of active natural processes such as erosion, mass wasting, slope failure, settlement of wastes and backfill, infiltration through covers over disposal areas and adjacent soils and the surface drainage of the disposal area. The analyses must provide a reasonable assurance that active maintenance of the disposal area will not be needed following closure.

459.809 Application for license: Information concerning ownership. (NRS 459.201)

An applicant for a license to operate a disposal area must submit to the Division the following information concerning ownership of the area:

1. If the disposal area is proposed to be located on land already owned by the Federal Government or this State, a certification by the federal or state agency which owns the land that the agency will:

(a) Accept transfer of the license when the provisions of NAC 459.8215 are met; and

(b) Assume responsibility for custodial care upon closure of the disposal area and observation and maintenance after closure.

2. If the disposal area is proposed to be located on land not owned by the Federal Government or this State, the applicant must submit evidence that arrangements have been made for assumption of ownership in fee by a federal or state agency before the Division issues a license.

459.8095 Application for license: Financial information. (NRS 459.201) An applicant for a license to operate a disposal area must submit to the Division financial information which is sufficient to demonstrate that the finances of the applicant are adequate to carry out the activities for which the license is sought and meet the financial requirements in NAC 459.8115 to 459.813, inclusive.

459.810 General requirements of disposal area. (NRS 459.201) A disposal area must be so located, designed, operated, closed and controlled after closure as reasonable to ensure that:

1. Any exposures of persons to radiation are within the limits established in this section and NAC 459.815 and 459.8155;

2. A person is protected who inadvertently intrudes into and occupies the disposal area or comes into contact with the waste at any time after active governmental control over the disposal area is removed; and

3. Long-term stability of the disposal area is achieved and the need for active maintenance of the area following closure is eliminated to the extent practicable, so that only surveillance, detection of radiation and minor custodial care are required.

459.8105 Location and minimum characteristics of disposal area. (NRS 459.201)

1. The primary objectives in assessing the location of a disposal area are to determine that the characteristics of the proposed area will ensure the isolation of wastes and the attainment of other long-term requirements.

2. A proposed disposal area must have the following minimum characteristics to be approved for disposal near the surface of low-level radioactive waste:

(a) The disposal area must be capable of being characterized, modeled, analyzed and observed.

(b) A site must be selected so that projected growth of the population and other future developments within the region where the disposal area is to be located are not likely to affect the capability of the disposal area to meet the objectives of disposal.

(c) Geographical areas must be avoided which contain valuable natural resources which are known to exist and which, if exploited, would result in the eventual failure of the disposal area to meet the objectives of disposal.

(d) The disposal area must be generally well drained and free of areas of flooding or frequent accumulations of water in ponds. The disposal of wastes will not be allowed in a 100-year floodplain, coastal area with a high risk of flooding or wetland, as those terms are defined in Executive Order No. 11,988, Floodplain Management Guidelines in 43 FR 6030 (1978).

(e) Drainage areas which are upstream from the site must be minimized to decrease the amount of runoff which could erode or inundate disposal units.

(f) Wastes, when buried, must be sufficiently above the water table so that the intrusion of groundwater, perennial or otherwise, into the waste will not occur. The disposal of waste will not be allowed in the zone of fluctuation of the water table.

(g) The hydrogeological unit in which the site is located must not discharge groundwater to the surface within the disposal area.

(h) The disposal of wastes will not be allowed in geographic areas where tectonic processes such as faulting, folding, seismic activity or vulcanism may occur with a frequency and to an extent that significantly affects the capability of the disposal area to meet the objectives of disposal, or may preclude defensible modeling and the prediction of long-term effects.

(i) The disposal of wastes will not be allowed in geographical areas where surface geologic processes such as mass wasting, erosion, slumping, landsliding or weathering occur with a frequency and to an extent that significantly affects the capability of the disposal area to meet the objectives of disposal, or may preclude defensible modeling and prediction of long-term effects.

(j) The disposal area must not be located where nearby facilities or activities could adversely affect the capability of the area to meet the objectives of disposal or significantly interfere with the detection of radionuclides migrating from the disposal area.

459.811 Design of disposal area. (NRS 459.201) The design of the disposal area must be directed toward the long-term isolation of wastes and avoidance of the need for active maintenance after closure of the area, and must meet the following criteria:

1. The design and operation of the disposal area must be compatible with the plan for closure and stabilization and lead to closure which reasonably ensures that the objectives of disposal will be met.

2. The disposal area must be designed to complement and improve, where appropriate, the capability of the disposal area's natural characteristics to ensure that the objectives of disposal will be met.

3. Covers must be designed to:

- (a) Minimize the infiltration of water to the extent practicable;
- (b) Direct percolating or surface water away from the waste; and
- (c) Resist degradation by surface geologic processes and biotic activity.

4. Surface features must direct the drainage of surface water away from disposal units at velocities and gradients that will not cause erosion and result in active maintenance of the units in the future.

5. The disposal area must be designed to minimize, to the extent practicable, the contact of:

- (a) Water with waste during storage;
- (b) Standing water with waste during disposal; and
- (c) Percolating or standing water with waste after disposal.

459.8115 Financial requirements: Demonstration of ability to obtain necessary money.

(NRS 459.201) Each applicant must demonstrate to the satisfaction of the Division that it possesses or has a reasonable likelihood of obtaining the necessary money, to cover the estimated costs of conducting all licensed activities over the planned operating life of the disposal area, including costs of construction and disposal.

459.812 Financial requirements: Assurances of sufficient money for closure and stabilization. (NRS 459.201)

1. The applicant must provide assurances before the commencement of operations that sufficient money will be available to carry out closure and stabilization of the disposal area,

including the decontamination or dismantling of structures in the disposal area, so that after transfer of control over the disposal area to its governmental owner, the need for active maintenance is eliminated to the extent practicable and only minor custodial care, surveillance and detection of radiation are required. These assurances must be based on cost estimates approved by the Division for carrying out the plan for closure and stabilization. The applicant's estimates of cost must take into account the total costs that would be incurred if an independent contractor were hired to perform the work of closure and stabilization.

2. In order to avoid duplication and unnecessary expense, the Division will accept sureties or undertakings that have been consolidated with other undertakings established to meet the requirements of other federal, state or local governmental agencies for decontamination closure and stabilization. The Division will accept these consolidated undertakings only if:

- (a) They are considered adequate to satisfy the requirements of this section; and
- (b) The portion of the undertaking which covers the closure of the disposal area is clearly identified and committed for use in accomplishing those activities.

3. The licensee must annually submit his or her sureties or other arrangements to the Division for its review to ensure that sufficient money is available for completion of the plan for closure, assuming that the work will be performed by an independent contractor.

4. The amount of the undertaking must be changed in accordance with the predicted cost of final closure and stabilization. Factors affecting the estimated costs of closure and stabilization include monetary inflation, increases in the amount of disturbed land, changes in engineering plans, any closure and stabilization that has already been accomplished and any other conditions affecting costs. The undertaking must also be sufficient at all times to cover the costs of closure

of the disposal units that are expected to be used before the next renewal of the license for the disposal area.

5. The term of any undertaking must be unlimited unless the applicant or licensee can demonstrate that another arrangement, such as the one described in NAC 459.8125, will provide an equivalent level of assurance.

6. Financial arrangements which are generally acceptable to the Division include surety bonds, cash deposits, certificates of deposit, deposits of government securities, escrow accounts, irrevocable letters or lines of credit, trust funds or any combination of them. Other types of arrangements may be approved by the Division. Self-insurance or any other arrangement which essentially constitutes pledging the assets of the licensee will not satisfy the requirement for an applicant that is not a governmental agency, because it provides no additional assurance other than that which already exists through licensing.

7. Liability of a surety or upon another undertaking must remain in effect until the program for closure and stabilization has been completed and approved by the Division and the license has been transferred to the governmental agency which owns the disposal area.

459.8125 Financial requirements: Alternative form of assurance. (NRS 459.201)

1. An alternative form of assurance may be provided by an undertaking which covers a specific period, for example, 5 years, but which is automatically renewed unless the party who issues the surety notifies the Division, the beneficiary (the owner of the disposal area) and the principal (the licensee), not less than 90 days before the date for renewal, of its intention not to renew. If the undertaking is not renewed the licensee must submit another surety undertaking within 30 days after notification of this intent. If the licensee fails to provide such a replacement which is acceptable to the Division, the owner of the disposal area may demand payment from

the original surety or upon the original undertaking. Proof of forfeiture must not be required to collect this payment, so that, if the licensee does not provide an acceptable replacement within the required time, the amount of the undertaking must be automatically collected prior to its expiration.

2. The conditions described in subsection 1 must be clearly stated in any undertaking whose term is limited and must be agreed to by all parties.

459.813 Financial requirements: Contract with governmental agency which owns disposal area. (NRS 459.201)

1. Before the Division issues a license, the applicant must provide for review and approval by the Division of a copy of a periodically modifiable contract between the applicant and the governmental agency which owns the disposal area that ensures sufficient money will be available to cover the costs of inspecting the disposal area, detecting radiation and any required maintenance during the period of governmental control after closure. The Division will review the contract periodically to ensure that changes in the value of money or in technology and operations in the disposal area are reflected in the costs to be covered.

2. Modifications to the contract described in subsection 1 must be agreed to by the Division.

459.8135 Variances. (NRS 459.201) The Division may, upon application by an interested person or upon its own initiative, grant a variance from any of the requirements of NAC 459.806 to 459.8225, inclusive, which it finds:

1. Is not contrary to law;
2. Will not endanger life or property; and
3. Is in the public interest.

459.814 Licenses: Necessary findings. (NRS 459.201) The Division will issue a license to receive, possess and dispose of waste containing or contaminated with radioactive material upon finding that:

1. The issuance of the license will not constitute an unreasonable risk to the health and safety of the public;
2. The applicant is qualified by reason of training and experience to carry out the disposal of waste in a manner that protects health and minimizes danger to life and property;
3. The applicant's proposed disposal area, its design and operations, including equipment, facilities and procedures, and the plans for closure and care and control after closure are adequate to protect the public health and safety in that they provide reasonable assurance that:
 - (a) The standards for protection from radiation as provided in NAC 459.320 to 459.374, inclusive, will be met;
 - (b) The general population will be protected from releases of radioactivity as provided in NAC 459.8155;
 - (c) Any inadvertent intruder into the area will be protected as provided in subsection 2 of NAC 459.810; and
 - (d) The long-term stability of the buried waste and the disposal area will be achieved and will eliminate to the extent practicable the need for active maintenance of the disposal area after closure;
4. The applicant's demonstration provides a reasonable assurance that the applicable technical requirements for disposal will be met;

5. The applicant's proposal for governmental control after closure provides a reasonable assurance that care will be furnished for the length of time necessary to carry out the requirements of subsection 3 and meets the requirements provided in NAC 459.822; and

6. The financial assurances meet the requirements provided in NAC 459.813.

459.8145 Licenses: Conditions. (NRS 459.201)

1. The Division shall attach the following conditions to each license to operate a disposal area which it issues:

(a) No license or any right thereunder may be transferred, assigned or in any manner disposed of, either voluntarily or involuntarily, directly or indirectly, through transfer of control of the license to any person unless the Division finds, after obtaining full information, that the transfer is in accordance with the provisions of NAC 459.198 and gives its consent in writing in the form of an amendment to the license.

(b) The licensee shall submit written statements under oath upon request of the Division at any time before termination of the license to enable the Division to determine whether or not the license should be modified, suspended or revoked.

(c) The license will be transferred to the state agency which owns the land only after the plan for closure approved by the Division is fully carried out, including observation and maintenance after closure.

(d) The licensee and its license are subject to the provisions of chapter 459 of NRS and all rules, regulations and orders of the Division and any subsequent amendments to them, adopted or issued in accordance with the terms of chapter 459 of NRS.

(e) The licensee shall confine its possession and use of radioactive materials to the locations and purposes authorized in its license.

(f) The licensee shall not dispose of radioactive waste until the Division has inspected the disposal area and has found it to be in conformance with the description, design and construction described in the application for a license.

2. The Division may add to any license at the time of its issuance or thereafter, by appropriate regulation or order, additional requirements and conditions with respect to the licensee's receipt, possession and disposal of source material, special nuclear material, by-product material or other radioactive material as it deems appropriate or necessary, in order to:

(a) Protect health or to minimize danger to life or property; or

(b) Require reports and the keeping of records and provide for inspections of activities under the license that may be necessary or appropriate to effectuate the purposes of chapter 459 of NRS and the Division's regulations.

3. The authority to dispose of wastes expires on the date stated in the license except as provided in subsection 1 of NAC 459.820.

459.815 Conduct of operations: Standards for protection from radiation. (NRS 459.201) The licensee must conduct operations at the disposal area in compliance with the standards for protection from radiation set forth in NAC 459.320 to 459.374, inclusive, except for releases of radioactivity in effluents from the disposal area which are governed by the provisions of NAC 459.8155. The licensee must make reasonable efforts to keep exposures to radiation as low as is reasonably achievable.

459.8155 Limitations on annual release of radioactive material to general environment. (NRS 459.201)

1. Concentrations of radioactive material which may be released to the general environment in groundwater, surface water, air, soil, plants or animals must not result in an annual dose

exceeding an equivalent of 25 millirems to the whole body, 75 millirems to the thyroid and 25 millirems to any other organ of any person.

2. The licensee must make reasonable efforts to keep releases of radioactivity in effluents to the general environment as low as is reasonably achievable.

459.816 Segregation and disposal of waste. (NRS 459.201)

1. The licensee shall:

(a) Segregate wastes designated as Class A pursuant to NAC 459.8265 to 459.8305, inclusive, from other wastes by placing them in disposal units which are sufficiently separated from disposal units for the other classes of waste so that any interaction between Class A wastes and other wastes will not result in a failure to meet the objectives of disposal. This type of segregation is not necessary for Class A wastes if they meet the requirements for stability in NAC 459.8305.

(b) Dispose of wastes designated as Class C:

(1) So that the top of the waste is at least 16 feet below the top surface of the cover; or
(2) With barriers against intruders that are designed to protect against an inadvertent intrusion for at least 500 years.

(c) Dispose of all wastes in accordance with the requirements of subsections 2 to 8, inclusive.

2. Wastes must be emplaced in a manner that:

(a) Maintains the integrity of packages during emplacement;
(b) Minimizes the spaces between packages; and
(c) Permits the remaining spaces between packages to be filled.

3. Spaces between packages of waste must be filled with earth or other materials to reduce future subsidence within the fill.

4. Waste must be placed and covered in a manner that limits the rate of radiation at the surface of the cover to levels that, at a minimum, will permit the licensee to comply with all the provisions of NAC 459.335 at the time the license is transferred pursuant to NAC 459.8215.

5. The boundaries and location of each disposal unit must be accurately located and mapped by means of a survey. Disposal units near the surface must be marked in such a way that the boundaries of each unit can be easily identified. Three permanent control points, consisting of survey markers whose location can be found from control stations of surveys of the United States Geological Survey or National Geodetic Survey, must be established on the site to facilitate surveys. The control stations must provide horizontal and vertical controls.

6. A buffer zone must be maintained between any buried waste and the boundary of the disposal area and beneath the disposed waste. The buffer zone must be of adequate dimensions to enable the licensee or other custodian of the disposal area to carry out the provisions of subsection 3 of NAC 459.817 and take mitigative measures if needed.

7. The licensee shall carry out the measures for closure and stabilization set forth in the approved plan for closure of the site after each disposal unit is filled and covered.

8. Current operations of disposal must not adversely affect completed measures for closure and stabilization.

9. Only wastes containing or contaminated with radioactive materials may be disposed of at the disposal area.

459.8165 Records of shipments. (NRS 459.201)

1. After receipt and acceptance of a shipment of radioactive waste, the licensee shall record:

(a) The date of receipt and the condition of the packages of waste as received at the disposal facility;

- (b) Any discrepancies between the materials listed on the manifest and those received;
 - (c) Any evidence of leaking or damaged packages or radiation, or levels of contamination in excess of the limits specified in the regulations of the United States Department of Transportation and the Division;
 - (d) The traceable shipment manifest number;
 - (e) A description of any engineered barrier or structural overpack provided for disposal of the waste;
 - (f) The volume of any pallets, bracing or other shipping or on-site generated materials that are contaminated and are disposed of as contaminated or suspect materials;
 - (g) The date of disposal of the waste and its location in the disposal area; and
 - (h) Any other information that may be required by the Division as a condition of the license.
2. The licensee shall retain the records described in subsection 1 until the Division transfers or terminates the license that authorizes the activities described in this section.
3. The licensee shall briefly describe any repackaging performed on the waste included in the shipment and any other information required to be kept by the Division.
4. The licensee shall store, or have stored, the manifest and any other information relating to the receipt and disposal of radioactive waste in a medium that is computer readable, including, without limitation, the information described in:
- (a) Paragraphs (a) to (d), inclusive, of subsection 1;
 - (b) Subsection 3; and
 - (c) NAC 459.8231, except for:
 - (1) The telephone numbers of the persons shipping and carrying the waste; and
 - (2) The certifications of the consignee and the shipper of the waste.

5. As used in this section:

(a) “Engineered barrier” means an artificially created structure or device that is used to improve the ability of the disposal facility to meet the requirements set forth in NAC 459.810.

(b) “Medium that is computer readable” means a medium from which information can be transferred into the memory of the computer of the Division.

(c) “Structural overpack” means an enclosure that is used by a single consignor to protect a package of waste, for convenience in the handling of such a package or to consolidate two or more such packages. The term does not include a vehicle used for transportation or a freight container.

459.817 Program of environmental observation. (NRS 459.201)

1. During construction and operation of the disposal area, the licensee shall establish and maintain a program of environmental observation to detect radiation. Observations and measurements must be made and recorded to provide data to evaluate potential effects on health and the environment during both the construction and the operation of the disposal area and long-term effects and the need for mitigative measures. The program for detection of radiation must be capable of providing an early warning of releases of radionuclides from the disposal area, before they leave the boundaries of the disposal area.

2. The licensee must have plans for taking corrective measures if the program for detection of radiation detects a migration of radionuclides which indicates that radionuclides may leave the disposal area.

3. After the disposal area is closed, the licensee who is responsible for surveillance of the disposal area shall maintain a program for detection of radiation based on the operating history and the closure and stabilization of the disposal area. The program must be capable of providing

an early warning of releases of radionuclides from the disposal area, before they leave the boundaries of the disposal area.

459.8175 Authorization of specific alternatives to requirements. (NRS 459.201) The Division may, upon request or on its own initiative, authorize specific provisions other than those set forth in NAC 459.807, 459.811, 459.816 and 459.817 for the segregation and disposal of waste and for the design and operation of a disposal area if it finds those specific provisions ensure reasonable compliance with the requirements concerning disposal.

459.818 Inspection by Division. (NRS 459.201)

1. Each licensee shall permit the Division at all reasonable times to inspect radioactive waste not yet disposed of and the premises, equipment, operations and facilities in which radioactive wastes are received, possessed, handled, treated, stored and disposed of, unless the licensee has a record of satisfactory compliance with the regulations of the United States Department of Transportation, as determined by the Division.

2. Each licensee shall make available to the Division for inspection, upon reasonable notice, records kept by it pursuant to the provisions of NAC 459.3665 and 459.800 to 459.8225, inclusive. An authorized representative of the Division may copy for the Division's use any record required to be kept pursuant to the provisions of NAC 459.010 to 459.950, inclusive.

459.8185 Tests by licensee or Division. (NRS 459.201) Each licensee shall perform, or permit the Division to perform, any tests the Division deems appropriate or necessary for the administration of NAC 459.800 to 459.8225, inclusive, including tests of:

1. Radioactive wastes and facilities used for the receipt, storage, treatment, handling and disposal of radioactive wastes;
2. Instruments for the detection and measurement of radiation; and

3. Other equipment and devices used in connection with the receipt, possession, handling, treatment, storage and disposal of radioactive waste.

459.819 Annual reports. (NRS 459.201) Each licensee shall submit to the Division the following annual reports:

1. A report of activities at the disposal area during the preceding year which includes:

- (a) A specification of the quantity of each of the principal radionuclides released to unrestricted areas in liquid and in airborne effluents;
- (b) The results of the program for detecting radiation;
- (c) A summary of the surveys and maintenance of disposal units;
- (d) A summary, by class of waste, of activities and quantities of radionuclides disposed of;
- (e) Any instance in which observed characteristics of the disposal area or its vicinity were significantly different from those described in the application for a license; and
- (f) Any other information the Division may require.

↪ This report must be submitted by the end of the first calendar quarter of each year for the preceding year. If the quantities of radioactive materials which have been released during the reporting period, while disposing of wastes, performing maintenance, measuring the area to detect radiation or during other activities are significantly different from the quantities anticipated in the plans and other documents which were a part of the licensee's application for a license, the report must specifically describe those differences.

2. A copy of its financial report or a certified financial statement in order to update the information for determining financial qualifications.

459.8195 Records and reports: Preparation; retention; reproduced copy. (NRS 459.201)

1. Each licensee shall prepare and keep such records and submit such reports in connection with its licensed activities as may be required by the conditions of the license or the regulations or orders of the Division.

2. Each licensee shall keep copies of required records and reports for the period specified in NAC 459.3665 or in the license. If a period of retention is not otherwise specified, these records must be kept and transferred to the persons specified by the Division upon termination of its license unless the Division authorizes their disposition at an earlier date.

3. A record which is required to be kept may be maintained in the form of the original, or a reproduced copy or on microfilm if the reproduced copy or microfilm is capable of producing a copy that is clear and legible at the end of the required period of retention.

4. If different periods of retention are specified for the same type of record in this regulation, a condition of the license or an order of the Division, the longest period specified takes precedence.

459.820 Renewal of license. (NRS 459.201)

1. An application for the renewal of a license must be filed at least 90 days before the date of its expiration and be in accordance with the provisions of NAC 459.8065 and 459.8075 to 459.8095, inclusive.

2. Information contained in applications, reports or other documents previously filed with the Division under the license may be incorporated by reference if the reference is clear and specific.

3. If a licensee has filed a complete application for renewal of a license, the license does not expire until the Division has taken final action on the application for renewal.

4. In determining whether a license will be renewed, the Division will apply the criteria set forth in NAC 459.814.

5. The date of expiration on a license or the denial of an application to renew a license applies only to the licensee's activities above the ground at the disposal area and authority to dispose of waste. Failure to renew a license does not relieve the licensee of responsibility for carrying out the plan for closure of the disposal area including inspection of the area and detection of radiation after closure, and transfer of the license to the governmental agency which owns the disposal area.

459.8205 Application to amend license for closure. (NRS 459.201)

1. A licensee who desires to close a disposal area or is directed to do so by the Division shall submit an application to amend the license for closure. An application for closure must be filed at least 90 days before the date proposed for closure.

2. The application for closure must include a final revision and specific details of the plan for closure of the disposal area which was a part of the application for a license. The final revision of the plan for closure must include:

(a) Any additional geologic, hydrologic or other data concerning the disposal area which is pertinent to the long-term containment of wastes emplaced during the operation of the disposal area;

(b) The results of tests or any other analyses relating to back-filling of excavated areas, closure and sealing, migration of waste and interaction with emplaced media, and any other tests or analysis pertinent to the long-term containment of emplaced waste within the disposal area;

(c) Any proposed revision of plans for:

(1) Decontamination or dismantling of facilities above the ground;

- (2) Backfilling of excavated areas; or
- (3) Stabilization of the disposal area for care after closure; and
- (d) Any significant new information regarding the environmental effect of the activities of closure and the long-term performance of the disposal area.

3. Upon review and consideration of an application to amend the license for closure, the Division will amend the license to authorize closure if there is a reasonable assurance that the long-term objectives after closure will be met.

4. Information contained in applications, reports or other documents previously filed with the Division may be incorporated by reference in the application for closure if the reference is clear and specific.

459.821 Responsibility of licensee after authorization to close disposal area. (NRS 459.201) After receiving authorization from the Division to close the disposal area, the licensee shall continue the program for detection of radiation and inspect and carry out necessary maintenance and repairs at the disposal area until closure of the disposal area is complete and the license is transferred by the Division to the governmental agency which owns the disposal area. Responsibility for the disposal area must remain with the licensee for at least 5 years before the transfer of the license, unless a shorter or longer period for observation and maintenance after closure is established and approved by the Division as a part of the closure plan, based on conditions peculiar to the disposal area.

459.8215 Transfer of license to governmental agency after closure. (NRS 459.201) Following closure and the period of observation and maintenance after closure, the licensee may apply for an amendment to transfer the license to the governmental agency which owns the disposal area. The license will be transferred when the Division finds that:

1. The closure of the disposal area has been completed in conformance with the licensee's plan for closure as revised and approved by the Division;
2. Reasonable assurance has been provided by the licensee that the requirements for control of radiation have been met;
3. Any money and records necessary for care have been transferred to the owner of the disposal area;
4. The program for detecting radiation after closure is operational and may be carried out by the owner of the disposal area; and
5. The federal or state agency which will assume responsibility for control of the disposal area is prepared to do so and will meet the requirements for control in subsection 5 of NAC 459.814.

459.822 Program to control access to area after transfer of control. (NRS 459.201)

The governmental agency to whom the land is transferred by the licensee shall carry out a program to control physical access to the disposal area following transfer of control of the disposal area. The program of control must also include carrying out a program for detecting radiation at the disposal area, periodic inspections, minor custodial care, other requirements determined by the Division and administration of the money to cover the costs for these activities. The period of control will be determined by the Division, but controls may not be relied upon for more than 100 years after transfer of control of the disposal area to the owner.

459.8225 Amendment to terminate license. (NRS 459.201)

1. After any period of control by a governmental agency which is necessary to meet the requirements under NAC 459.814, the agency which holds the license may apply for an amendment to terminate the license. The license will be terminated if the Division finds that:

- (a) The requirements for control under subsection 5 of NAC 459.814 have been met; and
- (b) Any additional requirements resulting from new information developed during the period of control have been met and permanent monuments or markers warning against intrusion have been installed.

2. At the time of termination of the license, the agency must transfer copies of records of the location and the quantity of radioactive wastes contained in the disposal area to the Governor, governing body of the county in which the disposal area is located, governing body of the nearest municipality, their respective planning commissions, if any, and other state, local and federal governmental agencies designated by the Division at the time of termination of the license.

459.8231 Requirements for shipping manifest; exceptions. (NRS 459.030, 459.201)

1. A waste generator, waste collector or waste processor who transports or offers for transportation low-level radioactive waste intended for ultimate disposal at a licensed land disposal facility for low-level radioactive waste must, except as otherwise provided in subsection 2, prepare a manifest that includes the information requested on NRC Forms 540, 540A, 541 and 542, as applicable. NRC Forms 540 and 540A must be completed by the waste generator, waste collector or waste processor and must accompany the shipment. Upon agreement between the waste generator, waste collector or waste processor and the consignee, NRC Forms 541, 541A, 542 and 542A may be completed, transmitted and stored in electronic media with the capability of producing legible, accurate and complete records of the forms in the format of a uniform manifest.

2. A licensee is not required to comply with subsection 1 if the licensee ships:

- (a) Low-level waste for processing and expects return of the waste before it is disposed of at a licensed land disposal facility;

(b) Low-level waste that is being returned to the licensee who is the generator; or

(c) Material that is contaminated with radioactivity to a waste processor and the waste becomes the residual waste of the waste processor.

3. A licensee who ships the radioactive waste shall provide the following information on the uniform manifest for each disposal container in the shipment:

(a) The name, address and telephone number of the licensee shipping the waste;

(b) A declaration of whether the licensee is acting as a waste generator, waste collector, waste processor or any combination thereof for the shipment;

(c) The name, address, telephone number and Environmental Protection Agency identification number of the carrier transporting the waste;

(d) The date of the shipment;

(e) The total number of packages and containers;

(f) The total volume and weight of the shipment;

(g) The total radionuclide activity in the shipment;

(h) The identity and activity of each of the radionuclides contained in the shipment, including, without limitation, the activity of any H-3, C-14, Tc-99 and I-129 contained in the shipment;

(i) The total masses of U-233, U-235 and plutonium in the material shipped, including in any special nuclear material;

(j) The total mass of uranium and thorium in the material shipped, including in any source material;

(k) The alphabetic or numeric identification that uniquely identifies each disposal container in the shipment;

(l) A physical description of the disposal container, including, without limitation, the name of the manufacturer and model of any high integrity container;

(m) The volume displaced by the disposal container;

(n) The gross weight of the disposal container and the waste contained therein;

(o) For waste consigned to a disposal facility, the maximum radiation level at the surface of each disposal container;

(p) A physical and chemical description of the waste;

(q) The total percentage by weight of the chelating agent for any waste containing more than 0.1 percent by weight of a chelating agent and the name of the principal chelating agent;

(r) The approximate volume of waste within the container;

(s) The sorbing media or solidification media, if any, and the identity of the vendor and name of the brand of any solidification media;

(t) For discrete waste types, including, without limitation, activated materials, contaminated equipment, mechanical filters, sealed sources and devices and wastes in solidification media or stabilization media, the identities and activities of individual radionuclides associated with or contained in the waste types;

(u) The total radioactivity within each container;

(v) For waste that is consigned to a disposal facility, the classification of the waste as set forth in NAC 459.8265; and

(w) The name of any waste that does not meet the structural stability requirements as set forth in NAC 459.8305.

4. A licensee who ships radioactive waste that is delivered without a disposal container must provide the following information on the manifest:

- (a) The approximate volume and weight of the waste;
- (b) A physical and chemical description of the waste;
- (c) The total percentage by weight of the chelating agent for any waste containing more than 0.1 percent by weight of a chelating agent and the name of the principal chelating agent;
- (d) For waste that is consigned to a disposal facility:
 - (1) The classification of the waste as set forth in NAC 459.8265; and
 - (2) The maximum radiation levels at the surface of the waste;
- (e) The name of any waste that does not meet the structural stability requirements as set forth in NAC 459.8305; and
- (f) The identities and activities of individual radionuclides contained in the waste, the masses of U-233, U-235 and plutonium in the special nuclear material and the masses of uranium and thorium in the source material.

5. A licensee who ships disposal containers of mixtures of waste originating from different waste generators or mixtures of waste shipped without a container for which portions of the mixture within the shipment originate from different waste generators shall provide the following information on the manifest:

- (a) For homogeneous mixtures of waste, including, without limitation, ash from an incinerator, the waste description applicable to the mixture and the volume of the waste attributed to each waste generator.
- (b) For heterogeneous mixtures of waste, including, without limitation, the combined products from a large compactor, the identification of each waste generator contributing waste to the disposal container.

(c) For discrete waste types, including, without limitation, activated materials, contaminated equipment, mechanical filters, sealed sources and devices, and wastes in solidification media or stabilization media, the identities and activities of individual radionuclides contained in the waste types.

(d) For each waste generator:

(1) The volume of waste within the disposal container;

(2) A physical and chemical description of the waste, including, without limitation, the solidification media, if any;

(3) The total percentage by weight of the chelating agent for any disposal container containing more than 0.1 percent by weight of a chelating agent and the name of the principal chelating agent;

(4) The sorbing media or solidification media, if any, and the identity of the vendor and name of the brand of any solidification media if the media is claimed to meet stability requirements as set forth in NAC 459.8305; and

(5) The identities and activities of any radionuclides contained in the waste, the masses of U-233, U-235 and plutonium in special nuclear material and the masses of uranium and thorium in source material in the waste.

6. A licensee who ships radioactive waste shall ensure that an authorized representative certifies, by signing and dating the shipment manifest, that the materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the United States Department of Transportation and the Division. By signing the certification, a waste collector certifies that the collected waste has

not been tampered with in any manner that would invalidate the certification of the authorized representative of the licensee.

7. A licensee who ships radioactive waste shall provide on the required Environmental Protection Agency forms any information regarding hazardous, medical or other waste that is required to comply with Environmental Protection Agency regulations, as codified in 40 C.F.R. Parts 260, 261 and 263, as those provisions existed on January 26, 1999. The required Environmental Protection Agency forms must accompany the uniform manifest required by this section.

8. Copies of the manifests required by this section may be legible carbon copies, photocopies or computer printouts that reproduce the data in the format of the uniform manifest. NRC Forms 540, 540A, 541, 541A, 542 and 542A and their instructions may be obtained at no charge by mail from the Information and Records Management Branch, Office of the Chief Information Officer, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001, or by toll-free telephone at (800) 397-4209, or at the Internet address <https://www.nrc.gov/reading-rm/doc-collections/forms/>.

9. As used in this section:

(a) “EPA identification number” means the number received pursuant to 40 C.F.R. Part 263, as those provisions existed on January 26, 1999.

(b) “High integrity container” means a container used to meet the structural stability requirements of NAC 459.830 and the United States Department of Transportation requirements for shipping a package that contains a type A quantity of radioactive waste.

(c) “Waste description” means the physical, chemical and radiological description of the waste that is required on NRC Form 541.

459.8235 Procedure for transfer to land disposal facility, licensed waste collector or licensed waste processor. (NRS 459.030, 459.201)

1. Any licensee who transfers radioactive waste to a land disposal facility or to a licensed waste collector shall comply with all the requirements of this section. Any licensee who transfers waste to a licensed waste processor for processing, treatment or repackaging shall comply with the requirements of paragraphs (d) to (i), inclusive, of subsection 2.

2. A licensee shall:

(a) Prepare all wastes so that they are in compliance with the permitted classes of waste set forth in NAC 459.8265 and 459.830 and meet the requirements for stability set forth in NAC 459.8305;

(b) Label each disposal container or transport package to identify whether it contains Class A, Class B or Class C waste, as set forth in NAC 459.8265 and 459.827;

(c) Conduct a program of inspection, including managerial evaluation of audits, to ensure that the wastes conform to permitted classes and the requirements for physical form and packaging;

(d) Prepare the NRC uniform low-level radioactive waste manifest that contains the required information and certifications;

(e) Forward or electronically transfer a copy of the NRC uniform low-level radioactive waste manifest to the intended consignee so that the receipt of the manifest precedes the shipment or so that the manifest is delivered to the consignee with the waste at the time the waste is transferred to the consignee;

(f) Include NRC Form 540 or NRC Form 540A, as applicable, with the shipment;

(g) Receive acknowledgment of the receipt of the shipment in the form of a signed copy of NRC Form 540;

(h) Retain or electronically store a copy of the uniform low-level radioactive waste manifest and documentation of the acknowledgment of receipt as the required record of transfer of the licensed material; and

(i) For a shipment or part of a shipment for which an acknowledgment of its receipt has not been received within 20 days after the shipping date, conduct the investigation required pursuant to NAC 459.8255.

459.824 Duties of waste collector who collects and handles only prepackaged waste.

(NRS 459.030, 459.201) A waste collector who collects and handles only prepackaged waste shall:

1. Acknowledge receipt of the waste from the shipper by returning a signed copy of NRC Form 540 within 1 week after receiving the waste.
2. Prepare a new shipping manifest to reflect consolidated shipments that meets the requirements of NAC 459.8231. The waste collector shall ensure that for each container of waste in the shipment NRC Form 540 identifies the generator of that container of waste.
3. Comply with the provisions of paragraphs (e) to (i), inclusive, of subsection 2 of NAC 459.8235.
4. Notify the shipper and Division when any shipment or part of a shipment has not arrived within 60 days after receipt of an advanced manifest unless the waste collector is notified by the shipper that the shipment has been cancelled.

459.8245 Duties of waste processor who processes, treats or repackages waste. (NRS 459.030, 459.201) A waste processor who processes, treats or repackages wastes shall:

1. Acknowledge receipt of the waste from the shipper by returning a signed copy of NRC Form 540 within 1 week after receipt of the waste.

2. Prepare a new shipping manifest which contains the required information and certificate, the preparation of which is acknowledgment that the waste processor is responsible for the waste. For each container of waste in the shipment, the manifest must set forth the waste generator, the volume of preprocessed waste and any other information required pursuant to NAC 459.8231.

3. Prepare all wastes so that the waste is classified according to NAC 459.8265 and meets the requirements of NAC 459.830 and 459.8305.

4. Label each package of waste to identify whether it is Class A, Class B or Class C waste in accordance with NAC 459.8265.

5. Conduct a program of inspection, including a managerial evaluation of audits, to ensure that the waste conforms to permitted classes and the requirements for physical form and packaging.

6. Forward or electronically transfer a copy of the uniform low-level radioactive waste manifest to the consignee so that the manifest is received before or at the same time the shipment is delivered to the consignee.

7. Include NRC Form 540 or Form 540A, as applicable, with the shipment.

8. Receive acknowledgment of the receipt of the shipment in the form of a signed copy of NRC Form 540.

9. Retain or electronically store a copy of the uniform low-level radioactive waste manifest and documentation of acknowledgment of receipt as the required record of transfer of licensed material.

10. For any shipment or part of a shipment for which an acknowledgment of its receipt has not been received within 20 days after the shipping date, conduct the investigation required by NAC 459.8255.

11. Notify the shipper and Division when any shipment or part of a shipment has not arrived within 60 days after receipt of an advanced manifest, unless the waste processor is notified by the shipper that the shipment has been cancelled.

459.825 Labels identifying classification of waste. (NRS 459.201) A generator of waste or broker who processes, treats or repackages waste must affix a label to each package of waste before shipment to identify it as containing Class A, Class B or Class C waste.

459.8255 Investigation and report if receipt not acknowledged. (NRS 459.201) Any shipment or part of a shipment of waste which is delivered by a shipper to an authorized recipient and for which acknowledgment of its receipt is not returned within 20 days after the shipping date must be:

1. Investigated by the shipper, including tracing of the shipment; and
2. Reported by the shipper to the Division when the investigation is begun, and reported in writing to the Division within 2 weeks after completion of the investigation.

459.826 Duties of operator of land disposal facility. (NRS 459.201) An operator of a land disposal facility shall:

1. Acknowledge receipt of the waste within 1 week after its receipt by returning a signed copy of NRC Form 540 to the shipper. The shipper to be notified is the licensee who last possessed the waste and transferred the waste to the operator. The returned copy or electronic copy of NRC Form 540 must indicate any discrepancies between materials listed on NRC Form 540 and materials received.

2. Maintain copies of all completed manifests and electronically store the information required pursuant to NAC 459.8165 until the Division authorizes their disposition.

3. Notify the shipper and the Division when any shipment or part of a shipment has not arrived within 60 days after receipt of an advance manifest, unless the operator of the land disposal facility is notified by the shipper that the shipment has been cancelled.

4. Notify the Division within 5 days after receipt of a shipment of any discrepancies between the materials listed on NRC Form 540 and the materials received.

459.8265 Characteristics of each class. (NRS 459.201) Radioactive waste is classified according to its concentration of radionuclides and the following characteristics:

1. Class A waste is waste that meets the minimum requirements for packaging. Class A waste must be segregated from other classes of waste unless it meets the requirements for stability, in which case it does not have to be segregated.

2. Class B waste is waste that meets more rigorous requirements on form to ensure stability after disposal. Class B waste must meet the minimum requirements for physical form and packaging and for stability.

3. Class C waste is waste that not only meets more rigorous requirements on form to ensure stability but also requires additional measures at the disposal area to protect against inadvertent intrusion. Class C waste must meet the minimum requirements for physical form and packaging and for stability.

459.827 Waste containing long-lived radionuclides. (NRS 459.201) If the radioactive waste contains only the long-lived radionuclides listed in Table 1, classification must be determined as follows:

TABLE 1

Radionuclide	Concentration in curies/cubic meter
C-14	8
C-14 in activated metal	80
Ni-59 in activated metal	220
Nb-94 in activated metal	0.2
Tc-99	3
I-129	0.08
Alpha emitting transuranic radionuclides with half-life greater than 5 years	100*
Pu-241	3,500*
Cm-242	20,000*

* Units are nanocuries per gram

1. If the concentration does not exceed 0.1 times the value in Table 1, the waste is Class A;
2. If the concentration exceeds 0.1 times the value in Table 1, the waste is Class C; and
3. If the concentration exceeds the value in Table 1, the waste is not acceptable for burial at any state-owned disposal area.

459.8275 Waste containing short-lived radionuclides. (NRS 459.201)

1. If the radioactive waste does not contain any of the long-lived radionuclides listed in Table 1, classification must be determined based on the concentrations of short-lived

radionuclides listed in Table 2. If a radionuclide is not listed in Table 2, it does not need to be considered in determining the class of the waste.

TABLE 2

Radionuclide	Concentration in curies/cubic meter		
	Column 1	Column 2	Column 3
Total of all radionuclides with less than 5-year half-life	700	**	**
H-3	40	**	**
Co-60	700	**	**
Ni-63	3.5	70	700
Ni-63 in activated metal	35	700	7000
Sr-90	0.04	150	7000
Cs-137	1	44	4600

** There are no limits established for these radionuclides in Class B or C wastes. Practical considerations such as the effects of external radiation and the internal generation of heat on the transportation, handling and disposal of the waste will limit the concentrations for these wastes. These wastes are Class B unless the concentrations of other radionuclides in Table 2 result in the waste being Class C independently of these radionuclides.

2. If the concentration does not exceed the value in Column 1, the waste is Class A.
3. If the concentration exceeds the value in Column 1, but does not exceed the value in Column 2, the waste is Class B.
4. If the concentration exceeds the value in Column 2, but does not exceed the value in Column 3, the waste is Class C.
5. If the concentration exceeds the value in Column 3, the waste is not acceptable for burial at a state-owned disposal area.

459.828 Waste containing mixture of long-lived and short-lived radionuclides. (NRS 459.201) If the radioactive waste contains a mixture of long-lived and short-lived radionuclides, some of which are listed in Table 1 and some of which are listed in Table 2, classification must be determined as follows:

1. If the concentration of a radionuclide listed in Table 1 is less than 0.1 times the value listed in Table 1, the class must be determined by the concentration of radionuclides listed in Table 2; and
2. If the concentration of a radionuclide listed in Table 1 exceeds 0.1 times the value listed in Table 1, the waste is Class C if the concentration of radionuclides listed in Table 2 does not exceed the value shown in Column 3 of Table 2.

459.8285 Absence of listed radionuclides. (NRS 459.201) If the radioactive waste does not contain any of the radionuclides listed in Tables 1 and 2, it is Class A.

459.829 Waste containing mixture of radionuclides: Computation of classification. (NRS 459.201) If the waste contains a mixture of radionuclides, the classification must be determined by dividing each nuclide's concentration by its limit in the appropriate table and adding the resulting quotients. In computing this sum, all limits must all be taken from the same

column of the same table. The sum of the fractions for the column must be less than 1.0 if the class of the waste is to be determined by that column. For example, a package of waste contains Sr-90 in a concentration of 50 Ci/m³ and Cs-137 in a concentration of 22 Ci/m³. Since the concentration of one of the nuclides exceeds the value in Column 1 of Table 2, they must be compared to the values in Column 2. The computations of the fractions are: for Sr-90, $50/150 = 0.33$; for Cs-137, $22/44 = 0.5$. The sum of the fractions is: $0.33 + 0.5 = 0.83$. Since the sum is less than 1.0, the waste is Class B.

459.8295 Determination of concentration of radionuclide. (NRS 459.201)

1. The concentration of a radionuclide may be determined by an indirect method such as the use of a scaling factor which relates the inferred concentration of one radionuclide to the concentration of another that is measured, or by radionuclide material accountability, if there is a reasonable assurance that the indirect method can be correlated with actual measurements.

2. The concentration of a radionuclide may be averaged over the volume of the waste, or over the weight of the waste if the concentration is expressed as nanocuries per gram.

459.830 Requirements for physical form and packaging for all classes. (NRS 459.201)

1. The minimum requirements for physical form and packaging for all classes of waste are as follows:

(a) Radioactive wastes must be packaged in conformance with the conditions of the license issued to the operator of the disposal area to which the waste will be shipped, and if the conditions in the license for disposal are more restrictive than the provisions of NAC 459.8231 to 459.8305, inclusive, the conditions in the license must govern;

(b) Wastes must not be packaged for disposal in cardboard or fiberboard boxes;

(c) Liquid waste must be packaged in absorbent material sufficient to absorb twice the volume of the liquid;

(d) Solid waste containing a liquid must contain as little free standing, noncorrosive liquid as is reasonably achievable, but in no case may the amount of the liquid exceed 1 percent of the volume;

(e) Waste must not be readily capable of detonation or of explosive decomposition or reaction at normal pressures and temperatures or capable of explosive reaction with water;

(f) Waste must not contain or be capable of generating quantities of toxic gases, vapors or fumes which are harmful to persons transporting, handling or disposing of the waste, except for radioactive gaseous waste which is packaged in accordance with the provisions of paragraph (h);

(g) Waste must not be pyrophoric unless the pyrophoric materials contained in the waste are treated, prepared and packaged to be nonflammable;

(h) Waste in a gaseous form must be packaged at a pressure that does not exceed 1.5 atmospheres at 20 degrees C and an amount of activity that does not exceed 100 curies per container;

(i) Waste containing hazardous, biological, pathogenic or infectious material must be treated to reduce to the maximum extent practicable the potential hazard from the nonradiological materials; and

(j) Waste containing radium-226 must be in the form of a sealed source and packaged in a specification 2 R inside containment vessel or its equivalent before it can be accepted for disposal at the state-owned disposal area.

2. As used in this section, “pyrophoric” means capable of spontaneous ignition and includes any:

(a) Liquid that ignites spontaneously in dry or moist air at or below 130 degrees F (54.5 degrees C).

(b) Solid material, other than one classed as an explosive, which under normal conditions may cause a fire through friction or heat retained from manufacturing or processing, or which can be readily ignited and when ignited burns so vigorously and persistently as to create a serious hazard to persons or property while being transported, handled or disposed of. Pyrophoric solid materials include spontaneously combustible and water-reactive materials.

459.8305 Minimum requirements for stability of wastes. (NRS 459.201) The minimum requirements for the stability of wastes are as follows:

1. Waste must have structural stability and generally maintain its physical dimensions and its form under the expected conditions of disposal and its internal factors such as the effects of radiation and chemical changes. Structural stability may be provided by the form of the waste, the processing of the waste to a stable form or by placing the waste in a container for disposal or other structure that provides stability after disposal.

2. Liquid wastes or waste containing liquid must be converted into a form that contains as little free standing and noncorrosive liquid as is reasonably achievable, but in no case may the liquid exceed 1 percent of the volume of the waste if the waste is in a container for disposal which is designed to ensure stability, or 0.5 percent of the volume of the waste if the waste is processed to a stable form.

3. Any space within the waste or between the waste and its package must be reduced to the extent practicable.