Chapter 6 – Environmental Health

Subchapter 5 –

Radiological Health Rule

Section I. OVERVIEW

1.0 General Provisions

1.1 Purpose.

This rule establishes requirements for the protection of public health and safety as related to radiation sources and implements the requirements of 18 V.S.A. §§ 1652 and 1653.

1.2 Scope.

1.2.1 This regulation, except as otherwise specifically provided, applies to persons who use, manufacture, produce, transport, transfer, receive, acquire, possess, own or dispose of a radiation source.

1.2.2 A person, when required, shall register or obtain a license for radiation sources in the possession or control of the person, and shall comply with the statute and this regulation.

1.2.3 As established in 18 V.S.A. § 1653 (c) this rule does not regulate materials or activities reserved to the Nuclear Regulatory Commission (NRC) under 42 U.S.C. § 2021 (c) and 10 C.F.R. Part 150. Similarly, this rule only regulates nonionizing radiation under state authority.

1.2.4 Notwithstanding the requirements incorporated by reference, nothing in this rule relieves or limits a person from complying with the laws of the State of Vermont, including Vermont Statutes Title 18: Chapter 32, Title 10: Chapter 161, Title 10: Chapter 162 and Title 18: Chapter 31.

1.2.5 Title 10 Chapter I (Nuclear Regulatory Commission) Parts 19, 20, 30, 31, 32, 33, 34, 35, 36, 37, 39, 40, 70, 71, 150.1, 150.2, 150.3, 150.11, 150.20, 170, and 171 of the C.F.R. are incorporated by reference with the exceptions set forth in the following subsections, which either do not apply or are under the authority of the NRC. The unofficial version of these parts may be accessed at: **http://www.nrc.gov/.** An official version is also available by hard copy.

1.2.5.1 Sections 19.4; 19.5; 19.8; 19.11(a)(4), (b) and (e); 19.14(a); 19.30 and 19.40 are not incorporated. In 10 C.F.R. 19.13(a), where it says “Commission” and “Nuclear Regulatory Commission” this means the Department.

1.2.5.2 Sections 20.1006; 20.1009; 20.1405(b); 20.1406(b); 20.1905 (g); 20.2203(c); 20.2206(a)(1), (3), (4) and (5); 20.2401 and 20.2402 are not incorporated.

1.2.5.3 Sections 30.5; 30.6; 30.8; 30.21(c); 30.34(d) and (e)(1) and (3); 30.41(b)(6); 30.55; 30.63; 30.64 and the words "common defense and security" in the definitions for "Commencement of Construction" and "Construction" in 10 C.F.R. 30.4 are not incorporated. In 10 C.F.R. 30.10(b), the reference to 10 C.F.R. 2, relating to deliberate misconduct, is replaced with 18 V.S.A. § 1651 – 1657 and Radioactive Material Program Procedure Section 2.5, Enforcement, Escalated Enforcement and Administrative Actions. In 10 C.F.R. 30.50 (c)(1), a reference to "NRC Operations Center" means "Department." In 10 C.F.R. 30.50(c)(2), reference to written reports means written reports must be sent to: Vermont Department of Health, 108 Cherry Street, Suite 201, Burlington, Vermont 05401, Attn: Radioactive Materials Program.

1.2.5.4 Sections 31.4, 31.22 and 31.23 are not incorporated. In 10 C.F.R. 31.5(c)(7), the phrase "part 110" is replaced by "10 C.F.R. part 110." In 10 C.F.R. 31, the term "any non-agreement state" means "Vermont."

1.2.5.5 Sections 32.1(c)(1), 32.8, 32.11, 32.12, 32.14, 32.15, 32.16, 32.18, 32.19, 32.20, 32.21, 32.21a, 32.22, 32.23, 32.25, 32.26, 32.27, 32.28, 32.29, 32.30, 32.31 and 32.32 are not incorporated.

1.2.5.6 Sections 33.8, 33.21 and 33.23 are not incorporated.

1.2.5.7 Sections 34.5, 34.8, 34.121 and 34.123 are not incorporated.

1.2.5.8 Sections 35.8, 35.11(c)(1), 35.13(a)(1), 35.4001 and 35.4002 are not incorporated.

1.2.5.9 Sections 36.5, 36.8, 36.91, 36.93 and the words "common defense and security" in the definitions for "Commencement of Construction" and "Construction" in 10 C.F.R. 36.2 are not incorporated.

1.2.5.10 Sections 37.3(b)(2), 37.13, 37.73(d) and (e), 37.107 and 37.109 are not incorporated.

1.2.5.11 Sections 39.5, 39.8, 39.101 and 39.103 are not incorporated.

1.2.5.12 Sections 40.4; 40.6; 40.8; 40.12(b); 40.13 (c)(5)(iv), (j) and (m); 40.23; 40.27; 40.28; 40.31(j),(k),(l) and (m); 40.32(d) and (g) and those portions of paragraph (e) which apply to uranium enrichment and uranium hexafluoride facilities; 40.33; 40.38; 40.41(d), (e)(1), (e)(3), (g) and (h); 40.51(b)(6); 40.52; 40.53; 40.56; 40.64; 40.66; 40.67; 40.81; and 40.82; Appendix A to

Part 40; and the words "common defense and security" in the definitions for "Commencement of Construction" and "Construction" in 10 C.F.R. 40.4 are not incorporated. In 10 C.F.R. 40.4, the definition of "Byproduct Material" includes NARM. In 10 C.F.R. 40.10, the reference to 10 C.F.R. 2, relating to deliberate misconduct, is replaced with 18 V.S.A. § 1651-1657 and Radioactive Material Program Procedure Section 2.5, Enforcement, Escalated Enforcement and Administrative Actions. In 10 C.F.R. 40.4 the terms "Foreign Obligations" and "Reconciliation" are not incorporated. In 10 C.F.R. 40.4, the phrase "and any other material which the Commission, pursuant to the provision of section 51 of the Act, determines to be special nuclear material" is preserved without change. In 10 C.F.R. 40.10(b) the reference to 10 C.F.R. 2 subpart B is replaced by 18 V.S.A. § 130. In 10 CFR 40.60, reference to written reports means "Written reports must be sent to: Vermont Department of Health, 108 Cherry Street, Suite 201, Burlington, Vermont 05401, Attn: Radioactive Materials Program."

1.2.5.13 Sections 70.1(c), (d) and (e); 70.5; 70.6; 70.8; 70.13; 70.14; 70.20a; 70.20b; 70.21(a)(1), (c), (f), (g) and (h); 70.22(b), (c), (f), (g), (h), (i), (j), (k), (l), (m) and (n); 70.23(a)(6), (7), (8), (9), (10), (11) and (12) and (b); 70.23a; 70.24; 70.25(a)(1); 70.31(c), (d) and (e); 70.32(a)(1), (4), (5), (6) and (7); 70.32(b)(1), (3) and (4), (c), (d), (e), (f), (g), (h), (i), (j) and (k); 70.37; 70.40; 70.42(b)(6); 70.44; 70.51(c); 70.52; 70.55(c)(1), (2) and (3); 70.56(c) and (d); 70.59; 70.60; 70.61; 70.64; 70.65; 70.66; 70.72; 70.73; 70.74; 70.76; 70.82; Appendix A to Part 70 and the words "common defense and security" in the definitions for "Commencement of Construction" and "Construction" in 10 C.F.R. 70.4 are not incorporated. In 10 C.F.R. 70.10, the reference to 10 C.F.R. 2, relating to deliberate misconduct, is replaced with 18 V.S.A. § 1651-1657 and Radioactive Material Program Procedures Section 2.5, Enforcement, Escalated Enforcement and Administrative Action. In 70.19(a)(1) and 70.19(c)(3), the terms "Commission or the Atomic Energy Commission" remains, and does not mean the "Department." In 10 C.F.R. 70.4, the phrase "and any other material which the Commission, pursuant to the provisions of section 51 of the Act, determines to be special nuclear material" is preserved without change. In 10 CFR 70.50(c), preparation and submission of reports, all communications are to be made to the Vermont Department of Health 108 Cherry Street, Suite 201, Attn: Radioactive

Materials Program, Burlington Vermont 05401, and by telephone at 802-863-7200 for immediate and 24-hour reports.

1.2.5.14 Sections 71.2; 71.6; 71.11; 71.14(b); 71.19; 71.31; 71.33; 71.35; 71.37; 71.38; 71.39; 71.41; 71.43; 71.45; 71.51; 71.55; 71.59; 71.61; 71.63; 71.64; 71.65; 71.70; 71.71; 71.73; 71.74; 71.75; 71.77; 71.85(a), (b) and (c); 71.91(b); 71.99; 71.100; 71.101(c)(2), (d) and (e); 71.107; 71.109; 71.111; 71.113; 71.115; 71.117; 71.119; 71.121; 71.123 and 71.125 are not incorporated. In 10 C.F.R. 71 Subpart H the terms "Certificate of Compliance," "certificate holder," and "applicant for CoC" apply only to the NRC. In 10 C.F.R. 71(c)(3), the submission required before the first use of a NRC approved package should be sent to the NRC, ATTN: Document Control Desk, Director, Division of Spent Fuel Storage and Transportation, Office of Nuclear Material Safety and Safeguards, using an appropriate method listed in § 71.1(a), the licensee's name and license number and the package identification number specified in the package approval.

1.2.5.15 Section 150.3 is not incorporated.

1.2.5.16 Sections 170.2(d), 170.2(e), 170.2(g) through 170.2(p), 170.2(r), 170.2(t), 170.4, 170.5, 170.8, 170.11, 170.12(c)(1), 170.12(c)(3), 170.12(d) through 170.12(f), 170.21, 170.51, 171.8, 171.9, 171.11, 171.13, 171.15, 171.16(a)(1)(v), 171.17(a), 171.19, 171.23 and 171.25 are not incorporated by reference.

1.2.6 To reconcile differences between this regulation and the incorporated sections of Federal regulations and to effectuate their joint enforcement, the following words and phrases shall be substituted for the language of the Federal regulations:

1.2.6.1 With the exception of 10 CFR 30.4 and in the definition of Special Nuclear Material in 10 CFR 20.1003 which is incorporated by reference, a reference to ''NRC'' or ''Commission'' means the Vermont Department of Health.

1.2.6.2 A reference to ''NRC or agreement state'' means the Vermont Department of Health, NRC, or agreement state.

1.2.6.3 A reference to "the Act" means a reference to Vermont statute 18 V.S.A. § 1651-1658.

1.2.6.4 The definition of ''sealed source'' means radioactive material that is permanently bonded or fixed in a capsule or matrix designed to prevent release and dispersal of the radioactive material under the most severe conditions which are likely to be encountered in normal use and handling.

1.2.6.5 A reference to ‘‘byproduct material’’ includes NARM. In 10 C.F.R. 40.4, the definition of “Byproduct Material” includes naturally occurring or accelerator-produced material (NARM).

1.2.6.6 In 10 CFR 40.4 the terms “Foreign Obligations” and Reconciliation” are not incorporated. In 10 CFR 40.4, in the definition of “Special Nuclear Material”, the sentence “and any other material which the Commission, pursuant to the provisions of section 51 of the Act, determines to be special nuclear material”, remains preserved.

1.2.6.7 With the exception of criminal history records required by 10 C.F.R. 37.27 (relating to requirements for criminal history checks of individuals granted unescorted access to category 1 or category 2 quantities of radioactive material), notifications, reports and correspondence referenced in the incorporated parts of 10 C.F.R. shall be directed to the Vermont Department of Health after agreement state status is in effect, and, for NRC licenses, to the NRC until agreement state status is in effect. Criminal history records required by 10 C.F.R. 37.27 are to be sent to the NRC. Communications and reports concerning these regulations and applications filed under it shall be addressed to the Radiological & Toxicological Sciences Program, Vermont Department of Health, 108 Cherry Street, Burlington, Vermont, 05401.

1.2.6.8 Instructions in 10 C.F.R. to use forms of the NRC means to use forms of the Department, which will be available on the Department website at **http://healthvermont.gov**.

1.2.6.9 In 10 C.F.R. 30.18(d), 30.32(g), 31.5(b)(1)(ii), 31.5(c)(3)(ii), 31.5(c)(8)(i), 31.6, 31.7(a), 31.10(a), 31.10(b)(1), 31.12(c)(4), 32.13, 32.51(a), 32.51(c), 32.56, 32.59, 32.72(b)(5)(ii), 40.13(c)(10), 40.22(e), 40.25(b), 40.25(d)(3), 40.54, 40.55(c), (c)(1), (d)(1)(ii), (d)(2) and (d)(3), where a reference is made to “an Agreement State”, it means “an Agreement State or the NRC”.

1.2.6.10 In 10 C.F.R. 70.19(a) (1) and 70.19(c)(3), the terms “Commission or the Atomic Energy Commission” remains, and does not mean the “Department”. In 10 CFR 70.42(b)(1) the word “Department” means the “US Department of Energy”.

1.2.7 The following Conference of Radiation Control Program Directors (CRCPD) Suggested State Regulations (SSRs) are incorporated by reference:

1.2.7.1 Part B, Registration of Radiation Machine Facilities, Services and Associated Healthcare Professionals.

1.2.7.2 Part F, Medical Diagnostic and Interventional X-Ray Systems.

1.2.7.3 Part H, Radiation Safety Requirements for Non-Healing Arts Radiation Generating Devices.

1.2.7.4 Part I, Radiation Safety Requirements for Particle Accelerators.

1.2.7.5 Part X, Therapeutic Radiation Machines.

1.2.8 The above CRCPD SSRs do not pertain to the use of radioactive materials. Notwithstanding the SSRs incorporated by reference in section 1.2.7 the following are not incorporated by reference:

1.2.8.1 Section B.1.b and c; Section B.17.e; Appendix B, paragraph 2(c); Appendix C, paragraph 2(a)(2)(g); and Appendix D, paragraph 2.

1.2.8.2 Sections F.1.; F.3.a.i.(2); F.3.a.xxi; F.3.a; and F.15.b.

1.2.8.3 Sections H.2.a and e; H.3; H.5.c.iv; H.6.b.i; H.6.c.i; H.6.e.i.7; H.6.e.iii; H.6.f; H.8.i; H.8.k; H.9.a.i; and H.10.f

1.2.8.4 Sections I.1.b; I.3.a; I.6.a.ii; I.7.b; and I.12.a and b.

1.2.8.5 Sections X.3.i; X.4.a.i; X.4.b; X.6.r.vi; X.7; X.7.q.vii; X.9.a; and Appendix A, paragraph II.c.

1.2.9 To reconcile differences between this regulation and the incorporated sections of the Conference of Radiation Control Program Directors (CRCPD) Suggested State Regulations, the following words and phrases shall be substituted for the language of*:*

1.2.9.1 *Title and name changes*. To reconcile differences between this chapter and the incorporated sections of the CRCPD Suggested State Regulations (SSRs) and to effectuate their joint enforcement, the following words and phrases shall be substituted for the language of the SSRs as follows:

1.2.9.1.1 A reference to ‘‘NRC’’ or ‘‘Commission’’ or “Agency” means Department.

1.2.9.1.2 A reference to ‘‘NRC or agreement state’’ means ‘‘Department, NRC or agreement state.’’

1.2.9.2 *Forms and documents*. References to forms in the SSR incorporated by reference will be replaced by the appropriate forms prescribed by the Department.

1.2.9.3 *Notifications, reports and correspondence*. Notifications, reports and correspondence referenced in the incorporated parts of the SSR shall be directed to the Department and, for NRC licenses, to the NRC until agreement state status is in effect. Communications and reports concerning these regulations and applications filed under it shall be addressed to the

Radiological & Toxicological Sciences Program, Vermont Department of Health, 108 Cherry Street, Burlington, Vermont, 05401.

1.2.9.4 A reference to ‘‘license,’’ ‘‘licenses,’’ ‘‘licensed’’ and ‘‘licensed radioactive material’’ also include ‘‘registration,’’ ‘‘registrant’’ ‘‘registered,’’ and ‘‘registered source of radiation,’’ respectively.

1.3 Definitions

The definitions in 10 C.F.R. Chapter 1, Parts 19, 20, 30, 31, 32, 33, 34, 35, 36, 37, 39, 40, 70, 71,150, 170 and 171 and in CRCPD SSR B, F, H, I, S and X are incorporated by reference in this rule unless indicated otherwise. In addition, the following words and terms, when used in this rule, have the following meanings, unless the context clearly indicates otherwise:

1.3.1 “Department” means the Department of Health.

1.3.1.1

1.3.2 “Licensed practitioner of the healing arts” means an individual licensed by the State of Vermont pursuant to Title 26 to practice the healing arts, which for the purposes of this rule shall be limited to medicine, surgery, dentistry, osteopathy, podiatry and chiropractic.

1.3.3 “NARM” means a naturally occurring or accelerator-produced radioactive material. The term does not include by-product, source or special nuclear material. In 10 C.F.R. 40.4, the definition of “Byproduct Material” includes NARM.

1.3.4 “Registrant” means a person who is legally obligated to register radiation machines with the Department under these regulations and the statute.

1.3.5 “Registration” means the act of registering radiation machines with the Department under these regulations.

1.3.6 “Regulated entity” means any individual, person, organization or corporation that is subject to the regulatory jurisdiction of the Department within the scope of this rule.

1.3.7 “Traceable to a National Standard” means a system which has been calibrated by the National Institute of Science and Technology or by a Regional Calibration Laboratory accredited by the American Association of Physicists in Medicine.

2.0 Compliance Monitoring

2.1 Records

2.1.1 Registrants shall maintain records showing the receipt, transfer and disposal of radiation producing machines. Additional record requirements are specified elsewhere in these regulations including but not limited to Section III. Radiation-Producing Machines.

2.1.2 Licensees shall maintain records showing the receipt, transfer and disposal of radioactive material as described in 10 C.F.R. 30.51, relating to records.

2.2 Inspections and investigations

2.2.1 The Department may conduct inspections and investigations of the facilities and regulated activities of registrants of radiation-producing machines and licensees of radioactive material necessary to demonstrate compliance with these regulations.

2.2.2 *Maintenance of records*. Licensees and registrants shall maintain records under this rule and have these records available for inspection by the Department at permanent sites or facilities of use identified in a license or registration issued under this regulation.

2.2.3 Licensees and registrants will permit the Department to:

2.2.3.1 Have access to, and require the production of, books, papers, documents and other records and physical evidence pertinent to a matter under inspection or investigation.

2.2.3.2 Require a registrant or licensee to make reports and furnish information to the Department.

2.2.3.3 Enter the premises of a licensee or registrant for the purpose of investigation or inspection of radiation sources and the premises and facilities where radiation sources are used or stored, necessary to ascertain the compliance or noncompliance with these regulations and this subsection and to protect health, safety and the environment.

2.2.4 The Department, may conduct additional follow-up inspections and investigations if violations of the regulations promulgated thereunder were noted at the time of the original inspection, or if a person presents information, or circumstances arise, which give the Department reason to believe that the health and safety of a person is threatened or that these regulations are being violated.

2.3 Tests

2.3.1 Licensees and registrants, upon instruction from the Department, shall perform, or permit the Department to perform reasonable tests as the Department deems appropriate or necessary including, but not limited to, tests of:

2.3.1.1 Radiation sources.

2.3.1.2 Facilities in which radiation sources are used or stored.

2.3.1.3 Radiation detection and monitoring instruments.

2.3.1.4 Other equipment and devices in connection with utilization or storage of licensed or registered radiation sources.

2.4 The Department may impose upon a person, requirements additional to those established in these regulations which it may deem reasonable and necessary to protect the public health and safety. As an example, when necessary or desirable to determine the extent of an individual's exposure to concentrations of radioactive material, the Department may require a licensee to provide to the individual appropriate bioassay services, medical services and the services of a qualified expert and to furnish a copy of the reports of these services to the Department.

3.0 Prohibitions, Restrictions and Additional Requirements

3.1 Sale or installation of radiation sources.

No person may sell or install within the State of Vermont a radiation source which does not meet the requirements of these regulations.

3.2 Human use

3.2.1 No use of radiation sources on humans may be permitted except under this regulation, and limited to the following license or certificate holders under Vermont Statutes Annotated, Title 26 Professions and Occupations:

Podiatry (Chapter 7); Chiropractic (Chapter 10); Dentists, Dental Hygienists, and Dental Assistants (Chapter 12); Medicine (Chapter 23); Physician Assistants (Chapter 31); Osteopathy (Chapter 33); Radiology (Chapter 51); Radiologist Assistants (Chapter 52).

3.2.2 Auxiliary personnel employed by a licensed practitioner of the healing arts at the location at which the licensed practitioner practices may use radiation sources in the healing arts provided those individuals comply with the applicable requirements in 3.2.1.

3.2.3 Auxiliary personnel employed by a health care facility regulated by the Department of Health may only use radiation sources in the healing arts in accordance with written job descriptions and employee qualifications.

3.2.4 Paragraphs 3.2.2 and 3.2.3 notwithstanding, human use of radiation sources is permitted by individuals enrolled in clinical training programs that satisfy the related accreditation requirements of the boards in paragraph 3.2.1 and who are under the supervision of a licensed practitioner of the healing arts or of auxiliary personnel authorized under paragraphs 3.2.2 and 3.2.3 to use radiation sources in the healing arts.

3.3 Deliberate misconduct.

The requirements under 10 C.F.R. 30.10 (relating to deliberate misconduct) are incorporated by reference. In 10 C.F.R. 30.10(b), the reference to 10 C.F.R. 2, relating to deliberate misconduct, is replaced with 18 VSA § 1651 – 1657 and

Radioactive Material Program Procedure Section 2.5, Enforcement, Escalated Enforcement and Administrative Actions. This requirement also applies to radiation machine registrants.

3.4 Employee protections.

The requirements under 10 C.F.R. 30.7 (relating to employee protection) are incorporated by reference. This requirement also applies to radiation machine registrants.

3.5 Vacating premises.

In addition to the decommissioning requirements of 10 C.F.R. 30.36 (relating to expiration and termination of licenses and decommissioning of sites and separate buildings or outdoor areas) that are incorporated by reference under Subsection 11.0 (relating to licensing of radioactive material), a licensee shall notify the Department in writing of intent to vacate at least 30 days before vacating or relinquishing possession or control of premises which may have been contaminated with radioactive material as a result of the licensee's activities. When deemed necessary by the Department, the licensee shall decontaminate the premises as the Department may specify.

3.6 Improper use of a monitoring device.

The deliberate exposure of, failure to use, or improper use of, an individual monitoring device or area monitoring device by an individual is prohibited.

3.7 Penalties.

A person who violates this rule is subject to the civil and criminal penalties in the Atomic Energy Act (AEA) of 1954, as amended, and the Energy Reauthorization Act (ERA) of 1974, as amended. At a minimum, civil penalties may be assessed in an amount sufficient to recover the costs expended by the Department in the correction of the violation or abatement of the resulting radiological nuisance.

4.0 Exemptions

4.1 Granting exemptions

The Department may, upon application therefore or upon its own initiative, grant exemptions from this regulation when the Department makes a finding that the exemption(s) do not result in significant risk to the health and safety of the public and safeguards that provide equivalent levels of protection in this rule are implemented.

4.2 Exemption Qualifications.

The following sources, uses and types of users are exempt from this subchapter:

4.2.1 Federal government agencies

4.2.2 Electrical equipment

4.2.2.1 Equipment that produces radiation incidental to its operation for other purposes if the dose equivalent rate averaged over an area of 10 square centimeters does not exceed 0.005 mSv (0.5 mrem) per hour at 5 centimeters from an accessible surface.

4.2.2.2 The equipment is not exempt when operated without adequate shielding during testing and servicing if radiation levels exceed those specified. Electron beam welders and electron microscopes are not exempt.

4.2.3 Radiation-producing machines in transit or in storage incident thereto.

4.2.4 A material, product or use specifically exempted from licensing requirements by the NRC, the Department or an agreement state or authorized for distribution to persons exempt from license requirements.

5.0 Fees

5.1 Scope.

5.1.1 This subsection establishes fees for registrations of radiation-producing machines and licensing of radioactive materials and provides for their payment. The fee for registering machines is found at 18 V.S.A. § 1652 (e) and the fee schedule for licensing materials is found at 18 V.S.A. § 1653 (b)(3).

5.1.2 For the purpose of this subsection, radiation-producing machines and/or radioactive materials under the same administrative control in a single building are registered or licensed as a single facility. Radiation-producing machines and/or radioactive materials under the same administrative control at the same address or in a contiguous group of buildings may be registered or licensed as a single facility if the Department determines that it is appropriate.

5.1.3 Except as otherwise specifically provided, this subsection applies to a person who:

5.1.3.1 Is required to register or renew registration for radiation-producing machines or radiation-producing machine service providers under Subsection 19.0 (relating to registration of radiation machine facilities, services and associated healthcare professionals).

5.1.3.2 Is an applicant for or holder of a radioactive material license issued under Subsection 11.0 (relating to licensing of radioactive materials).

5.1.3.3 Is an applicant for or holder of an accelerator license issued under Subsection 22.0 (relating to radiation safety requirements for particle accelerators).

5.2 Incorporation by reference.

5.2.1 Notwithstanding the requirements incorporated by reference, 10 C.F.R. 170.2(d), 170.2(e), 170.2(g) through 170.2(p), 170.2(r), 170.2(t), 170.4, 170.5, 170.8, 170.11, 170.12(c)(1), 170.12(c)(3), 170.12(d) through 170.12(f), 170.21, 170.51, 171.8, 171.9, 171.11, 171.13, 171.15, 171.16(a)(1)(v), 171.17(a), 171.19, 171.23 and 171.25 are not incorporated by reference.

5.2.2 The following categories of materials licenses and types of fees are also not incorporated from 10 C.F.R. 170.31 and 171.16: 1.A, 1.B, 1.E, 1.F, 2.A.(1), 2.A.(2)(a) – 2.A.(2)(e), 2.A.(3), 2.A.(4), 2.C, 3.D, 3.H, 9, 10, 11, 12, 13, 15, 17 and 18.

5.3 Radioactive Materials and X-ray fees.

5.3.1 The annual registration fees for radiation-producing machines are found at 18 V.S.A. § 1652 (e).

5.3.2 A registrant filing an initial registration or an application for renewal of a certificate of registration in accordance with Subsection 19.0 (relating to registration of radiation producing machines) shall remit the appropriate fee calculated by using the information on the registration or application form and the fee schedule in affect at the time of registration. Fees for any initial registration are payable upon the filing of the registration. Fees for the renewal of a certificate of registration are payable upon the submission of an application for a renewal of a certificate of registration. If the number of tubes increases after an initial registration or after an application for renewal has been filed with the Department, no additional fee is required until the time of the next registration. Likewise, if the number of tubes decreases during the year, no refund will be made for that year.

5.3.3 Annual license fees for radioactive material are set forth in 10 C.F.R. 171. Other radioactive materials fees are described in 10 C.F.R. 170.

5.3.3.1 No refund will be made for termination of a license.

5.3.3.2 If, by amendment or otherwise, a license changes to another fee category, the fee for the new category will take effect on the anniversary date of the license.

5.3.4 An initial application for a license or reciprocity shall be accompanied by a check payable to the Department in accordance with the fee schedules in 10 C.F.R. 170 and 171. Thereafter, the Department will issue an annual fee invoice in accordance with the appropriate fee schedule at least 2 months prior to the license expiration. Fees are payable by the last day of the license expiration month as shown on the license fee invoice. This provision is not applicable to full cost recovery licenses.

5.3.5 The Department will not accept an initial application for a license or registration prior to payment of the fees required by paragraphs 5.3.2 and 5.3.3.

5.3.6 If the registration involves more than one facility in paragraph 5.3.2, or if a license involves more than one of the categories in paragraph 5.3.3, the highest applicable fee applies.

5.3.7 Special provisions for calculating annual fees during agreement state transition period.

5.3.7.1 The annual fees for the NRC licenses that are transferred to the State of Vermont on the date the State of Vermont becomes an agreement state will be invoiced on the license's next anniversary date.

5.3.7.2 During the first year after the date the Department attains agreement state status, the annual fee for each NRC license transferred to the State of Vermont will include a proportional amount, based on the schedule of fees in 10 C.F.R. 171, for the period from the date agreement state status is attained until the license's next anniversary date, in addition to the amount assessed for the year following the license's anniversary date.

6.0 Standards for Protection Against Radiation

6.1 Purpose and scope

6.1.1 This subsection establishes standards for protection against ionizing radiation resulting from activities conducted under licenses or registrations issued by the Department. Licensees and registrants shall comply with this subsection.

6.1.2 The requirements of this subsection are designed to control the receipt, possession, use, transfer and disposal of sources of radiation by a licensee or registrant so the total dose to an individual, including doses resulting from all sources of radiation other than background radiation, does not exceed the standards for protection against radiation prescribed in this subsection. This subsection does not limit actions that may be necessary to protect health and safety in an emergency. In the event of an emergency, the Department will provide temporary guidance for dose management and other health protections.

6.1.3 Except as specifically provided in other subsections of this rule, this subsection applies to persons licensed or registered by the Department to receive, possess, use, transfer or dispose of sources of radiation including radiation-producing machines.

6.1.4 The limits in this subsection do not apply to doses due to background radiation, to exposure of patients to radiation for the purpose of medical diagnosis or therapy, to exposure from individuals administered radioactive material in accordance with Subsection 14.0 (related to medical use of byproduct material) or to voluntary participation in medical research programs.

6.2 Incorporation by reference

6.2.1 Except as provided in this subsection, the requirements of 10 C.F.R. Part 20 (relating to standards for protection against radiation) are incorporated by reference. An unofficial version can be accessed at **http://www.nrc.gov**. The official version is also available in hard copy.

6.2.2 Notwithstanding the requirements incorporated by reference, 20.1006, 20.1009, 20.1405(b), 20.1406(b), 20.1905(g), 20.2203(c), 20.2206(a)(1), (3), (4) and (5), 20.2401 and 20.2402 are not incorporated by reference.

6.2.3 Effect of incorporation of 10 C.F.R. 20.1403 ‘‘Criteria for license termination under restricted conditions.’’

The Department will not terminate a license under the conditions of restricted release as provided for in 10 C.F.R. 20.1403 (relating to criteria for license termination under restricted conditions) until a license termination plan (LTP), approved by the Department, has been in effect for a period of time demonstrating to the Department that continued implementation of the plan will be effective in maintaining compliance with the required conditions of the plan. The Department may choose to implement the license termination process in one or more of the following steps:

6.2.3.1 The license is amended to authorize activities necessary to begin decommissioning under the LTP.

6.2.3.2 After decommissioning activities are complete and the provisions of 10 C.F.R. 20.1403 are in effect under the LTP, the license may be amended to end authorization of licensed activities. The license shall remain in effect for up to 5 years being limited to ownership/possession of the decommissioned material.

6.2.3.3 At the end of the period prescribed in paragraph 6.2.3.2, the Department will make a determination of the effectiveness of the established LTP. If the LTP has demonstrated the ability to maintain compliance with 10 C.F.R. 20.1403, the license will be terminated subject to the revisitation provision of 10 C.F.R. 20.1401(c) (relating to general provision and scope) regarding new evidence of a significant threat to health and safety. Otherwise, the licensee will be directed by the Department to take corrective actions as necessary to conform to 10 C.F.R. 20.1403 and the process shall revert back to paragraph 6.2.3.2.

6.3 Requirements for a Radiation Safety Committee

The requirements of 10 C.F.R. 35.24 (relating to authority and responsibilities for the radiation protection program) apply to registrants as well as licensees. For the purpose of this requirement, facilities that utilize two or more

modalities in which patients are likely to receive, or will receive a dose to an organ in excess of 2.0 gray (200 rads), shall have a radiation safety committee.

6.4 Storage and control of licensed or registered sources of radiation

6.4.1 *Security of stored radiation machines.* In addition to incorporation by reference of 10 C.F.R. Part 20 (relating to standards for protection against radiation), the licensee or registrant shall secure from unauthorized removal or access radiation sources including radiation machines that are in storage.

6.4.2 *Control of radiation machines not in storage.* In addition to incorporation by reference of 10 C.F.R. Part 20 (relating to standards for protection against radiation), the licensee or registrant shall maintain control of radiation producing machines that are not in storage.

6.5 Precautionary procedures. Posting of radiation-producing machines

6.5.1 The registrant or licensee shall ensure that each radiation producing machine is labeled in a conspicuous manner which cautions individuals that radiation is produced when it is energized. For example:

Caution—Radiation
This Equipment Produces Radiation
When Energized.

6.5.2 In addition to incorporation by reference of 10 C.F.R. Part 20 (relating to standards for protection against radiation), a room or area is not required to be posted with a caution sign because of the presence of radiation machines used solely for diagnosis in the healing arts.

6.6 Reports of stolen, lost or missing licenses, or registered sources of radiation

6.6.1 *Reports.* In addition to incorporation by reference of the requirements in 10 C.F.R. Part 20 (relating to standards for protection against radiation) covering the reporting requirements associated with reports of theft or loss of licensed material, the following reporting requirements apply to radiation-producing machines:

6.6.1.1 *Telephone reports*. Each licensee or registrant shall report to the Department by telephone within 24 hours, after its occurrence becomes known, a stolen, lost or missing radiation producing machine.

6.6.1.2 *Written reports*. Each licensee or registrant required to make a report under 6.7.1 shall, within 30 days after making the telephone report, make a written report to the Department setting forth the following information:

6.6.1.2.1 A description of the licensed or registered source of radiation involved, including, for radiation

producing machines, the manufacturer, model and serial number, type and maximum energy of radiation emitted.

6.6.1.2.2 A description of the circumstances under which the loss or theft occurred.

6.6.1.2.3 A statement of disposition, or probable disposition, of the licensed or registered source of radiation involved.

6.6.1.2.4 Exposures of individuals to radiation, circumstances under which the exposures occurred and the possible total effective dose equivalent to persons in unrestricted areas.

6.6.1.2.5 Actions that have been taken, or will be taken, to recover the source of radiation.

6.6.1.2.6 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.

6.6.1.3 *Additional information*. Subsequent to filing the written report, the licensee or registrant shall also report any additional substantive information on the loss or theft within 30 days after the licensee or registrant learns of the information.

6.6.1.4 *Detachable reports*. The licensee or registrant shall prepare a report filed with the Department under this subsection so that the names of individuals who may have received exposure to radiation are stated in a separate and detachable portion of the report.

6.6.2 *Notification of incidents and reportable events.* In addition to incorporation by reference of the requirements in 10 C.F.R. 20.2202 and 20.2203 (relating to notification of incidents; and reports of exposures, radiation levels and concentrations of radioactive material exceeding the constraints or limits), those notification requirements, as well as written 30-day reports under 10 C.F.R. 20.2203(a), also apply to radiation-producing machines and NARM.

6.6.3 *Reports of leaking or contaminated sealed sources.* If the test for leakage or contamination, required under Subsection 6.5 (relating to testing for leakage or contamination of sealed sources), indicates a sealed source is leaking or contaminated, a report of the test shall be filed within 5 days with the Department describing the equipment involved, the test results and the corrective action taken.

6.6.4 *Reports of medical reportable events for radiation-producing machine therapy.* For a medical reportable event for radiation-producing machine therapy, the licensee or registrant shall do the following:

6.6.4.1 Notify the Department by telephone within 24 hours after discovery of the event.

6.6.4.2 Submit a written report to the Department within 15 days after discovery of the event. The written report shall include:

6.6.4.2.1 the licensee's or registrant's name;

6.6.4.2.2 the prescribing physician's name;

6.6.4.2.3 a brief description of the event;

6.6.4.2.4 why the event occurred;

6.6.4.2.5 the effect on the patient;

6.6.4.2.6 what improvements are needed to prevent recurrence;

6.6.4.2.7 actions taken to prevent recurrence;

6.6.4.2.8 whether the licensee or registrant notified the patient, or the patient's responsible relative or guardian (for notification purposes under this subsection, this person will be included in subsequent references to ''the patient''), and if not, why not; and if the patient was notified, what information was provided to the patient. (The report may not include the patient's name or other information that could lead to identification of the patient.)

6.6.4.3 Notify the referring physician, if applicable, and also notify the patient of the event within 24 hours after its discovery, unless the referring physician personally informs the licensee either that he will inform the patient or that, based on medical judgment, telling the patient would be harmful. The licensee or registrant is not required to notify the patient without first consulting the referring physician. If the referring physician or patient cannot be reached within 24 hours, the licensee or registrant shall notify the patient as soon as possible thereafter. The licensee or registrant may not delay appropriate medical care for the patient, including necessary remedial care, because of delay in notification.

6.6.4.4 If the patient was notified, the licensee or registrant shall also furnish, within 15 days after discovery of the event, a written report to the patient by sending either a copy of the report that was submitted to the Department OR a brief description of both the event and the consequences, as they may affect the patient, if a statement is included that the report submitted to the Department can be obtained from the licensee or registrant.

6.6.5 The licensee or registrant shall retain a record of each medical reportable event for radiation-producing machine therapy for ten years. The record shall contain the names of the individuals involved

(including the prescribing physician, allied health personnel, the patient and the patient's referring physician), the patient's Social Security number or identification number if one has been assigned, a brief description of the event, why it occurred, the effect on the patient, what improvements are needed to prevent recurrence and the actions taken to prevent recurrence.

6.6.6 Other medical reports

Within 30 days of the determination by a physician of either actual or suspected acute or long-term functional damage to an organ or a physiological system of a patient exposed to therapeutic or diagnostic radiation from a radiation-producing machine, the registrant or licensee shall document the finding and provide a report to the Department and provide a clinical summary to the prescribing physician and the patient.

6.6.6.1 The report shall be retained for at least ten years.

6.6.6.2 Exempt from this reporting requirement are any events already reported under Subsection 23.0 (relating to reports for therapeutic radiation machines and notifications of misadministrations) and any functional damage to a patient organ or a physiological system that was an expected outcome when the causative procedures were prescribed.

6.6.7 In addition to incorporation by reference of 10 C.F.R. Part 20, the registrant of radiation producing machines shall prepare each report filed with the Department pursuant to 10CFR 20.2202 (relating to notification of incidents) so that names of individuals who have received exposure to radiation from radiation producing machines are stated in a separate and detachable portion of the report.

7.0 Notices, Instructions and Reports to Workers; Inspections and Investigations

7.1 Purpose and scope.

7.1.1 This subsection establishes requirements for notices, instructions and reports by licensees or registrants to individuals engaged in activities under a license or registration. This subsection also establishes options available to the individuals in connection with Department inspections of licensees or registrants to ascertain compliance with the provisions of the Vermont State Statutes and regulations, orders and licenses issued thereunder regarding radiological working conditions.

7.1.2 This subsection applies to persons who receive, possess, use, own or transfer radiation sources licensed by or registered with the Department under Subsections 11.0 and 19.0 (relating to licensing of radioactive material; and registration of radiation machine facilities, services and associated healthcare professionals).

7.2 Incorporation by reference.

7.2.1 Except as provided in this subsection, the requirements of 10 C.F.R. Part 19 (relating to notices, instructions and reports to workers; inspections and investigations) are incorporated by reference. The unofficial version can be accessed at **http://www.nrc.gov/.** The official version is also available in hard copy.

7.2.2 Notwithstanding the requirements incorporated by reference, 10 C.F.R. 19.4; 19.5; 19.8; 19.11(a)(4), (b) and (e); 19.14(a); 19.30 and 19.40 are not incorporated by reference. In 10 C.F.R. 19.13(a), where it says "Commission" and "Nuclear Regulatory Commission" this means the Department.

8.0 Reserved

9.0 Reserved

10.0 Enforcement

10.1 Purpose and Scope

10.1.1 Whenever the Department has reasonable grounds to believe that there has been a violation of any of the provisions of this rule, the Department may take appropriate action as provided in this subsection or otherwise provided in law at 18 V.S.A. Ch. 32, to protect the public health and safety.

10.1.2 If an inspection indicates that the regulated entity is not in compliance with the requirements of this rule, the Department shall notify the regulated entity in writing regarding any deficiencies.

10.1.3 The notice shall include specific required corrective actions necessary for the regulated entity to take to regain compliance with this rule and may include interim corrective actions, such as requiring further investigation of the circumstances giving rise to the notice, or ceasing use of the sources of radiation until full compliance is restored, or such other action deemed necessary by the Department to protect the public health and safety is completed.

10.1.4 If the Department determines that an enforcement action is appropriate, or if timely and satisfactory compliance with a notice issued pursuant to paragraph 10.1.2 has not been achieved, the Department shall issue a notice of violation in writing.

10.2 Denial, Amendment, Suspension, Revocation or Waiver.

10.2.1 In any proceeding for granting denying, amending, suspending or revoking a license or registration, determining compliance with, or granting exemptions from, rules or regulations of the Department the Department shall hold a public hearing upon the request of any person whose interest may be affected. Any such person shall become a party to the proceeding. Proceedings shall be conducted in accordance with

18 V.S.A. § 1655 and 3 V.S.A. § 814 (the Administrative Procedures Act).

10.2.2 Any final order entered in any proceeding under 10.2.1 may be appealed to the Civil Division of the Superior Court.

10.3 Emergency Orders.

If the Department finds that an emergency exists that requires immediate action to protect the public health and safety the Department may, without notice or hearing, issue an order requiring such action as is necessary to address the emergency in accordance with 18 V.S.A. § 1655 (b). Such orders must include a description of the nature of the emergency. Emergency orders take immediate effect and any person to whom the order is directed shall immediately comply. Any person(s) subject to such an order may make application to the Department for a hearing which shall be held within ten days. A decision shall be issued within ten days of the hearing that will continue, modify, or revoke the emergency order.

10.4 Whenever, in the judgment of the Department, any person has engaged in or is about to engage in any acts or practices which constitute or will constitute a violation of this rule, or its authorizing statute, the Department will refer the matter to the Attorney General who can seek relief in accordance with 18 V.S.A. § 1656.

Section II. Radioactive Material

11.0 Licensing of Radioactive Materials

11.1 Purpose and scope.

11.1.1 This subsection establishes requirements for the licensing of radioactive material. A person may not manufacture, produce, receive, possess, use, transfer, own, dispose or acquire radioactive material except as authorized in a specific or general license issued under this subsection or otherwise provided in this subsection.

11.1.2 A licensee is also subject to Section I. Overview and other relevant subsections of Section II Radioactive Material.

11.2 The use of radioactive material in the State of Vermont under a license issued by the NRC is exempt from the licensing requirements of this subsection.

12.0 Rules of general applicability to licensing of radioactive materials.

12.1 Persons possessing a license for source, byproduct or special nuclear material in quantities not sufficient to form a critical mass on the date Vermont becomes an Agreement State as published in the *Federal Register:*

On the date the State of Vermont becomes an agreement state as published in the Federal Register, a person who possesses a general or specific license issued by the NRC for source, byproduct or special nuclear material in quantities not sufficient to form a critical mass, is deemed to possess a like license issued under this subsection and the statutes. The license shall expire either 90 days after receipt from the Department of a notice of expiration of the license, or on the date of expiration specified in the NRC license, whichever is earlier.

12.2 Incorporation by reference.

12.2.1 Except as provided in this subsection, the requirements of 10 C.F.R. Part 30 (relating to rules of general applicability to domestic licensing of byproduct material) are incorporated by reference. The unofficial version can be accessed at **http://www.nrc.gov/.** The official version is also available in hard copy. In 10 C.F.R. 30.10(b), the reference to 10 C.F.R. 2 relating to deliberate misconduct is replaced with 18 VSA § 1651 – 1657 and Radioactive Material Program Procedure Section 2.5, Enforcement, Escalated Enforcement and Administrative Actions. In 10 C.F.R. 30.50(c)(1), a reference to "NRC Operations Center" means "Department". In 10 C.F.R. 30.50(c)(2), reference to written reports means 'Written reports must be sent to: Vermont Department of Health, 108 Cherry Street, Suite 201, Burlington Vermont 05401, Attn: Radioactive Materials Program."

12.2.2 Notwithstanding the requirements incorporated by reference, 10 C.F.R. 30.5; 30.6; 30.8; 30.21(c); 30.34(d), (e)(1) and (e)(3); 30.41(b)(6); 30.55; 30.63; 30.64 and the words "common defense and

security" in the definition for "Commencement of Construction" and "Construction" in 10 C.F.R. 30.4 are not incorporated by reference.

12.2.3 Only the NRC can issue a license under 10 C.F.R. 32.11, 32.22, 32.26 and 32.30.

12.3 Filing applications for specific license

In addition to incorporation by reference, an application for a specific license shall be accompanied by the fee required under Subsection 5.0 (relating to fees).

12.4 Renewal of licenses.

An application for renewal of a specific license shall be filed under Subsection 11.0 (relating to licensing of radioactive material).

12.4.1 If a renewal application is filed prior to 30 days before the expiration of a license, the existing license does not expire until definitive notice has been given by the Department of its action on the renewal application.

12.4.2 This paragraph also applies to new license applications incorporating other licenses.

12.5 General licenses for radioactive material

12.5.1 Incorporation by reference.

12.5.1.1 Except as provided in this subsection, the requirements of 10 C.F.R. Part 31 (relating to general domestic licenses for byproduct material) are incorporated by reference. The unofficial version can be accessed at **http://www.nrc.gov/.** The official version is also available in hard copy.

12.5.1.2 Notwithstanding the requirements incorporated by reference, 10 C.F.R. 31.4, 31.22 and 31.23 (relating to information collection requirements: OMB approval; and criminal penalties) are not incorporated by reference. In 10 C.F.R. 31.5, replace the phrase "part 110" with the phrase "10 C.F.R. part 110". In 10 C.F.R. 31.6, the term "any non-agreement state" means "Vermont."

12.5.2 Certain measuring, gauging or controlling devices.

12.5.2.1 In addition to the parts of 10 C.F.R. 31.5 (relating to certain detecting, measuring, gauging, or controlling devices and certain devices for producing light or an ionized atmosphere) incorporated by reference, general licensees subject to registration under 10 C.F.R. 31.5(c)(13)(i) or possessing general licensed devices containing 37 MBq (1 mCi) or more of accelerator-produced material, as determined on the date of manufacture, or 3.7 MBq (0.1

mCi) or more of radium-226 shall also comply with the following:

12.5.2.2 Conduct a physical inventory every six months to account for all sources or devices, or both, received and possessed under this subsection and do the following:

12.5.2.2.1 Maintain the physical inventory records for three years from the date of each inventory.

12.5.2.2.2 Furnish a report to the Department annually showing to the extent practicable, the make, model, serial number, isotope, source activity and location of each device. The report shall list an individual to contact regarding questions about this report.

12.5.3 For portable devices, also comply with the following:

12.5.3.1 A person who initiates acquisition, transfer or disposal of a portable device shall notify the Department within 15 days of the action. Sending a portable device for calibration, maintenance or source replacement does not constitute transfer.

12.5.3.2 Portable devices may only be used by or under the direct supervision of individuals who have been instructed in the operating and emergency procedures necessary to ensure safe use.

12.5.3.3 For each individual that the licensee permits to use a portable device, the licensee shall maintain a record showing the type of device use permitted and the basis, such as training certificates, for that authorization. An individual's record shall be kept for at least 3 years after the individual terminates association with the licensee.

12.5.3.4 Portable devices shall be secured from access by unauthorized personnel whenever the device is not under the direct surveillance of an individual authorized to use the device.

12.5.3.5 The licensee shall maintain a current sign out log at the permanent storage location of the portable device. Log entries shall be available for inspection by the Department for 3 years from the date of entry. The following information shall be recorded for each portable device:

12.5.3.5.1 The model and serial number of the device.

12.5.3.5.2 The name of the assigned user.

12.5.3.5.3 The locations and dates of use.

12.5.3.6 Emergency instructions shall accompany each portable device taken off the premises of the licensee.

12.5.4 Incidental radioactive material produced by a particle accelerator

12.5.4.1 A general license is issued to possess radioactive material produced incidentally to the operation of a particle accelerator. The general license is also subject to the applicable provisions of this subsection and Subsections 1.0, 6.0, and 7.0 (relating to general provisions; standards for protection against radiation; and notices, instructions and reports to workers; inspections and investigations).

12.5.4.2 A licensee may transfer this radioactive material only under Subsection 6.0 and Subsection 18.0 (relating to transfer of radioactive material; and packaging and transportation of radioactive material).

12.5.4.3 A licensee may dispose of this radioactive material only with Department approval.

12.6 Specific licenses to manufacture or transfer certain items containing radioactive material.

12.6.1 Incorporation by reference

12.6.1.1 Except as provided in this subsection, the requirements of 10 C.F.R. Part 32 (relating to specific domestic licenses to manufacture or transfer certain items containing byproduct material) are incorporated by reference. The unofficial version can be accessed at **http://www.nrc.gov/.** The official version is also available in hard copy.

12.6.1.2 Notwithstanding the requirements incorporated by reference, 10 C.F.R. 32.1(c)(1), 32.8, 32.11, 32.12, 32.14, 32.15, 32.16, 32.18, 32.19, 32.20, 32.21, 32.21a, 32.22, 32.23, 32.25, 32.26, 32.27, 32.28, 32.29, 32.30, 32.31, 32.32, 32.301 and 32.303 are not incorporated by reference.

12.6.1.3 Only the NRC can issue a license under 10 CFR 32.11, 32.22, 32.26 and 32.30.

12.6.1.4 Licensing the incorporation of NARM into gas and aerosol detectors. An application for a specific license authorizing the incorporation of NARM into gas and aerosol detectors to be distributed to persons exempt under Subchapter B (relating to general provisions for radioactive material) will be approved if the application satisfies requirements equivalent to those in 10 C.F.R. 32.26—32.29. The maximum quantity of radium-226 may not exceed 3.7 kBq (0.1 microcuries).

12.7 Specific Domestic Licenses of Broad Scope for Radioactive Material.

12.7.1 Incorporation by reference

12.7.1.1 Except as provided in this subsection, the requirements of 10 C.F.R. Part 33 (relating to specific domestic licenses of broad scope for byproduct material) are incorporated by reference. The unofficial version can be accessed at **http://www.nrc.gov/**. The official version is also available in hard copy.

12.7.1.2 Notwithstanding the requirements incorporated by reference, 10 C.F.R. 33.8, 33.21 and 33.23 (relating to information collection requirements: OMB approval; violations; and criminal penalties) are not incorporated by reference.

12.7.2 Inclusion of naturally occurring or accelerator-produced radioactive material (NARM)

The requirements of 10 C.F.R. 33, relating to specific licenses of broad scope for radioactive material, also apply to NARM.

12.8 Licensing of source material

12.8.1 Incorporation by reference. Except as provided in this subsection, the requirements of 10 C.F.R. Part 40 (relating to domestic licensing of source material) are incorporated by reference. The unofficial version can be accessed at **http://www.nrc.gov/.** The official version is also available in hard copy.

12.8.2 Notwithstanding the requirements incorporated by reference, 10 C.F.R. 40.4; 40.6; 40.8; 40.12(b); 40.13(c)(5)(iv); 40.23; 40.25(b); 40.25(d)(3); 40.27; 40.28; 40.31(j), (k) (l) and (m); 40.32(d) and (g) and those portions of paragraph (e) which apply to uranium enrichment and uranium hexafluoride facilities; 40.33; 40.38; 40.41(d), (e)(1), (3), (g) and (h); 40.51(b)(6); 40.52; 40.53, 40.56, 40.64; 40.66; 40.67; 40.81; 40.82 and Appendix A to Part 40 are not incorporated by reference. In 10 C.F.R. 40.4, the definition of "Byproduct Material" includes NARM. In 10 C.F.R. 40.4, the terms "Foreign Obligations" and "Reconciliation" are not incorporated. In 10 C.F.R. 40.4, in the definition of "Special Nuclear Material", the sentence, "and any other material which the Commission, pursuant to the provisions of section 51 of the Act, determines to be special nuclear material", remains preserved. In 10 C.F.R. 40.10, the reference to 10 C.F.R. 2, relating to deliberate misconduct, is replaced with 18 VSA § 1651 – 1657 and Radioactive Material Program Procedure Section 2.5, Enforcement, Escalated Enforcement and Administrative Actions. In 10 C.F.R. 40.10(b), "the notifications in 10 C.F.R. part 2 subpart B are replaced with 18 VSA § 130. In 10 C.F.R. 40.60, reference to written reports means 'Written reports must be sent to: Vermont Department of Health, 108 Cherry Street, Suite 201, Burlington Vermont 05401, Attn: Radioactive Materials Program".

12.8.3 Only the NRC can issue a license pursuant to 10 C.F.R. 40.52.

12.9 Licensing of special nuclear material

12.9.1 Incorporation by reference. Except as provided in this subsection, the requirements of 10 C.F.R. Part 70 (relating to domestic licensing of special nuclear material) are incorporated by reference. The unofficial version can be accessed at **http://www.nrc.gov/.** The official version is also available in hard copy. In section 70.10, the phrase "the procedures in 10 C.F.R. part 2 subpart B" is replaced with 18 V.S.A. § 130. In 70.19(a)(1), the terms Commission and Atomic Energy Commission remain.

12.9.2 Notwithstanding the requirements incorporated by reference, 10 C.F.R. 70.1(c), (d) and (e); 70.5; 70.6; 70.8; 70.13; 70.13a; 70.14; 70.20a; 70.20b; 70.21(a)(1), (c), (f), (g) and (h); 70.22(b), (c), (f), (g), (h), (i), (j), (k), (l), (m) and (n); 70.23(a)(6), (7), (8), (9), (10), (11) and (12) and (b); 70.23a; 70.24; 70.25(a)(1); 70.31(c), (d) and (e); 70.32(a)(1), (4), (5), (6) and (7) and (b)(1), (3) and (4) and (c), (d), (e), (f), (g), (h), (i), (j) and (k); 70.37; 70.40; 70.42(b)(6); 70.44; 70.51(c), (d) and (e); 70.52; 70.53; 70.54; 70.55(c)(1), (2) and (3); 70.56(c) and (d); 70.57; 70.58; 70.59; 70.60; 70.61; 70.62; 70.64; 70.65; 70.66; 70.71; 70.72; 70.73; 70.74; 70.76; 70.82; Appendix A to Part 70 and the words "common defense and security" in the definitions for "Commencement of Construction" and "Construction in 10 C.F.R. 70.4 are not incorporated by reference. In 10 C.F.R. 70.4, the phrase "and any other material which the Commission, pursuant to the provisions of section 51 of the Act, determines to be special nuclear material" is preserved without change. In 10 C.F.R. 70.10, the reference to 10 C.F.R. 2, relating to deliberate misconduct, is replaced with 18 VSA § 1651 – 1657 and Radioactive Material Program Procedure Section 2.5, Enforcement, Escalated Enforcement and Administrative Actions. In 10 C.F.R. 70.19(a)(1) and 70.19(c)(3), the terms "Commission or the Atomic Energy Commission" remains, and does not mean the "Department". In 10 C.F.R. 70.50(c), preparation and submission of reports, all communications are to be made to: Vermont Department of Health 108 Cherry Street, Suite 201, Attn: Radioactive Materials Program, Burlington Vermont 05401, and by telephone at 802-863-7200 for immediate and 24-hour reports.

12.9.3 In C.F.R. 70.42(b)(1), the word "Department" means the "US Department of Energy."

12.10 Transfer of radioactive material

The requirements of 10 C.F.R. 30.41 (relating to transfer of byproduct material) also apply to NARM.

12.10.1.1.1

12.10.2Incorporation by reference. Except as provided in this subsection, the requirements of 10 C.F.R. 150.1, 150.2, 150.11 and 150.20 are

incorporated by reference. The unofficial version may be accessed at **http://www.nrc.gov/.** An official hard copy version is also available. 10 C.F.R. 150.3 is not incorporated.

12.10.3 The Department may withdraw, limit or qualify its acceptance of a specific license or equivalent licensing document issued by another agency, or product distributed under the licensing document, upon determining that the action is necessary to prevent a public health hazard as defined in 18 V.S.A. §2 (9).

12.10.4 When a person is granted a general license under paragraph 12.12. (relating to reciprocity of licenses) and subsequently exceeds the prescribed 180-day period, the person shall file a license application with the Department under paragraph 12.0 (relating to rules of general applicability to licensing of radioactive materials) within 30 days after the end of the 180-day period.

12.10.5 Implementation of the requirements of this subsection regarding byproduct, source and special nuclear material is subject to paragraph 12.2 (relating to persons possessing a license for source, byproduct or special nuclear material in quantities not sufficient to form a critical mass on the date Vermont becomes an agreement state as published in the Federal Register).

13.0 Physical Protection of Category 1 and Category 2 Quantities of Radioactive Material

13.1 Purpose and scope

13.1.1 This subsection establishes the requirements for the physical protection program for any licensee that possesses an aggregated category 1 or category 2 quantity of radioactive material listed in Appendix A to 10 C.F.R. Part 37 Category 1 and Category 2 Radioactive Materials.

13.1.2 No provision of this subsection authorizes possession of licensed material.

13.2 Incorporation by reference

13.2.1 Except as provided in this subsection, the requirements of 10 C.F.R. Part 37 (relating to physical protection of category 1 and category 2 quantities of radioactive materials) are incorporated by reference. The unofficial version can be accessed at **http://www.nrc.gov.** The official version is also available in hard copy.

13.2.2 Notwithstanding the requirements incorporated by reference, 10 C.F.R. 37.3(b)(2), 37.13, 37.73(d) and (e), 37.107 and 37.109 are not incorporated by reference.

14.0 Medical Use of Byproduct Material

14.1 Purpose and scope

14.1.1 This subsection prescribes requirements and provisions for the medical use of radioactive material and for issuance of specific licenses authorizing the medical use of radioactive material. These requirements and provisions provide for the protection of the public health and safety.

14.1.2 The requirements of this chapter are in addition to, and not in substitution for, other applicable requirements in these regulations.

14.2 Incorporation by reference.

14.2.1 Except as provided in this subsection, the requirements of 10 C.F.R. Part 35 (relating to medical use of byproduct material) are incorporated by reference. The unofficial version can be accessed at **http://www.nrc.gov.** The official version is also available in hard copy.

14.2.2 Notwithstanding the requirements incorporated by reference, 10 C.F.R. 35.8, 35.11(c)(1), 35.13(a)(1), 35.4001 and 35.4002 (relating to information collection requirements: OMB approval; violations; and criminal penalties) are not incorporated by reference.

14.3 Authorization for calibration, transmission and reference sources

Notwithstanding the incorporation by reference of 10 C.F.R. 35.65 (relating to authorization for calibration, transmission, and reference sources), a licensee authorized for medical use of radioactive materials may not receive, possess or use radium in total quantity of 3.7 MBq (100 µci) or more for check, calibration, transmission and reference use except as specifically authorized by the Department.

15.0 Licenses for Industrial Radiography and Radiation Safety Requirements for Industrial Radiographic Operations

15.1 General provisions

15.1.1 Purpose and scope

15.1.1.1 This subsection establishes radiation safety requirements for persons using radiation sources for industrial radiography. Licensees and registrants who use radiation sources for industrial radiography shall comply with this subsection. The requirements of this subsection are in addition to and not in substitution for other applicable requirements in this rule.

15.1.1.2 Persons using only radiation-producing machines for industrial radiographic operations need not comply with paragraph 15.1.2 (relating to incorporation by reference) unless otherwise specified in paragraph 15.2 (relating to radiography using radiation-producing machines).

15.1.1.3 This subsection does not apply to the use of radiation sources for medical diagnosis or therapy.

15.1.2 Incorporation by reference

15.1.2.1 Except as provided in this subsection, the requirements of 10 C.F.R. Part 34 (relating to licenses for industrial radiography and radiation safety requirements for industrial radiographic operations) are incorporated by reference. The unofficial version can be accessed at **http://www.nrc.gov/.** The official version is also available in hard copy.

15.1.2.2 Notwithstanding the requirements incorporated by reference, 10 C.F.R. 34.5, 34.8, 34.121 and 34.123 are not incorporated by reference.

15.1.3 Radiation safety program

15.1.3.1 A person who intends to use radiation-producing machines for industrial radiography shall have a program for training personnel, written operating procedures and emergency procedures, an internal review system and an organizational structure for radiographic operations which includes specified delegations of authority and responsibility for operation of the program. This program shall be approved by the Department before commencing industrial radiographic operations.

15.1.3.2 The registrant shall notify the Department of intended changes to the registrant's radiation safety program and obtain Departmental approval.

15.1.4 Reciprocity. Out-of-State users of radiation producing machines for radiography shall meet the requirements of Subsection 19.0 and SSR Part B (relating to reciprocal recognition of out-of-State radiation machines).

15.1.5 Prohibitions. Use of radiation sources covered under this subsection for diagnosis or therapy on humans or animals is not permitted.

15.2 Radiography using radiation-producing machines.

15.2.1 Duties of personnel

15.2.1.1 The RSO shall assure that the radiation safety program of the registrant or licensee is implemented and suspend or terminate operations that are not being conducted in accordance with approved procedures or the Department's requirements.

15.2.1.2 The radiographer is responsible to the registrant or licensee for following the procedures of the registrant or licensee and for complying with the Department's requirements

while industrial radiographic operations are being conducted.

15.2.1.3 Other than a radiographer, or a radiographer's assistant who is under the personal supervision of a radiographer, an individual may not manipulate the controls or operate the equipment used in industrial radiographic operations.

15.2.1.4 The radiographer's assistant may only use radiation producing machines or radiation survey instrumentation under the personal supervision of a radiographer.

15.2.1.5 The radiographer trainee is not permitted to operate radiation producing machines or radiation survey instrumentation.

15.2.2 Training of personnel.

15.2.2.1 A registrant may not allow an individual to act as a radiographer or radiographer's assistant unless that individual meets the requirements of paragraph 15.2.3 (relating to training and testing).

15.2.2.2 Persons performing field radiography shall comply with the training requirements in Table 4 (relating to subjects to be covered during the instruction of radiographers).

15.2.3 Training and Testing.

15.2.3.1 The registrant may not permit an individual to act as a radiographer until that individual has:

15.2.3.1.1 Been instructed in the subjects outlined in Table 4.

15.2.3.1.2 Received copies of this subsection, Subsections 6.0 and 7.0, and 10 C.F.R. 19 and 20 (relating to standards for protection against radiation; and notices, instructions and reports to workers; inspections and investigations), and copies of the license or certificate of registration and the operating and emergency procedures of the registrant or licensee.

15.2.3.1.3 Received instruction covering regulatory requirements, operating and emergency procedures and the use of radiation-producing machines and radiation survey instruments of the registrant or licensee.

15.2.3.1.4 Demonstrated competency and understanding of the information in this subsection to the satisfaction of the registrant or licensee as evidenced by the successful completion of a written test and a field examination.

15.2.3.2 The registrant or licensee may not permit an individual to act as a radiographer's assistant until that individual has:

15.2.3.2.1 Received copies of, and instruction in, the applicable operating and emergency procedures and has been instructed in the use of sources of radiation and radiation survey instruments of the registrant or licensee.

15.2.3.2.2 Demonstrated that, under direct personal supervision of a radiographer, the individual is competent to use sources of radiation and radiation survey instruments as evidenced by the successful completion of a written or oral test and a field examination on the subjects relevant to being an assistant radiographer.

15.2.3.3 Records of the training required under paragraphs 15.2.3.1 and 15.2.3.2, including copies of written tests, dates of oral tests and field examinations, shall be maintained for inspection by the Department for 3 years following termination of employment by the individual or until the registration or license is terminated.

15.2.4 Audits and safety reviews of radiographers and radiographer's assistants

15.2.4.1 The registrant or licensee shall review and provide for the safety and ongoing training needs of radiographers and radiographer's assistants at least once during each calendar year.

15.2.4.2 The registrant or licensee shall conduct an annual inspection program of the job performance of each radiographer and radiographer's assistant to ensure that operating and emergency procedures and this subchapter and registration or license requirements for the registrant or licensee are followed. This audit program shall:

15.2.4.2.1 Include observation of the performance of each radiographer and radiographer's assistant during an actual radiographic operation at intervals not to exceed 1 calendar year.

15.2.4.2.2 Provide that, if a radiographer or radiographer's assistant has not participated in a radiographic operation for more than 6 months since the last annual inspection, the individual's performance shall be observed and recorded when the individual next participates in a radiographic operation.

15.2.4.3 The registrant or licensee shall maintain records of the training set forth in paragraph 15.2.3 to include certification documents, written and field examinations, annual safety reviews and annual audits of job performance. Records shall be available for inspection by the Department for 3

years following the termination of employment of the individual or until the registration or license is terminated.

15.2.5 Reporting requirements

15.2.5.1 In addition to the reporting requirements in 6.7.1 and 6.7.2 (relating to reports of stolen, lost or missing licensed or registered sources of radiation; and notification of incidents and reportable events), each registrant or licensee shall provide to the Department, within 30 days of its occurrence, a written report on any of the following incidents involving machines or equipment used in radiographic operations:

15.2.5.1.1 The inability to terminate irradiation from a radiation producing machine.

15.2.5.1.2 An interlock failure during shielded room radiography.

15.2.5.2 The registrant or licensee shall include the following information in each report submitted under paragraph 15.2.5.1:

15.2.5.2.1 A description of the equipment problem.

15.2.5.2.2 The cause of the incident, if known or determined.

15.2.5.2.3 The manufacturer and model number of the equipment involved.

15.2.5.2.4 The place, date and time of the incident.

15.2.5.2.5 Actions taken to reestablish normal operations.

15.2.5.2.6 Corrective actions taken or planned to prevent reoccurrence.

15.2.5.2.7 The names and qualifications of personnel involved.

15.2.5.3 Reports of overexposures, required under 10 C.F.R. 20.2202 (relating to notification of incidents) or of excessive exposures, required under 10 C.F.R. 20.2203 (relating to reports of exposures, radiation levels and concentrations of radioactive material exceeding the limits) which involve the failure of safety components of radiography equipment shall also include, to the extent known, the information specified under paragraph 15.2.5.2. Complete information required in paragraph 15.2.5.2 shall be available in the 30-day follow-up report rule under 10 C.F.R. 20.2203(a).

15.2.6 Permanent radiographic installations

15.2.6.1 Permanent radiographic installations having high radiation area entrance controls of the types described in 10 C.F.R. 20.1601 and 20.1902 (relating to control of access to high radiation areas; and posting requirements) shall also meet the following requirements.

15.2.6.1.1 Each entrance that is used for personnel access to the high radiation area in a permanent radiographic installation shall have both visible and audible warning signals to warn of the presence of radiation. The visible signal shall be activated by radiation whenever the X-ray source is energized. The audible signal shall be actuated when an attempt is made to enter the installation while the X-ray source is energized.

15.2.6.1.2 The entrance control device or alarm system shall be tested for proper function prior to beginning operations on each day of use.

15.2.6.1.3 The radiographic exposure system may not be used if an entrance control device or alarm system is not operating properly. If an entrance control device or alarm system is not functioning properly, it shall be removed from service and repaired or replaced immediately. If no replacement is available, the facility may continue to be used provided that the registrant implements the continuous surveillance under 10 C.F.R. 34.51 and 34.52 (relating to surveillance; posting), 15.2.8 (relating to records required at field radiography sites) and uses an alarming ratemeter. Before the entrance control device or alarm system is returned to service, the radiation safety officer or an individual designated by the radiation safety officer shall validate the repair.

15.2.6.2 Records of the tests performed under paragraph 15.2.6.1 shall be maintained for inspection by the Department for 3 years.

15.2.7 Operating requirements

15.2.7.1 When radiographic operations are performed at a location other than a permanent radiographic installation, a minimum of two radiographic personnel shall be present to operate the X-ray device. At least one of the radiographic personnel shall be qualified as a radiographer. The other individual may be either a radiographer, a radiographer's assistant or a radiographer trainee.

15.2.7.2 At each job site, the following shall be supplied by the registrant or licensee:

15.2.7.2.1 The appropriate barrier ropes and warning signs.

15.2.7.2.2 At least one operable, calibrated radiation survey instrument.

15.2.7.2.3 For each worker requiring monitoring, an individual personnel dosimeter that is processed and evaluated by an NVLAP processor.

15.2.7.2.4 An operable, calibrated direct reading dosimeter with a range of zero to 51.6 microcoulomb per kilogram (μC/kg) (200 milliroentgen) for each worker requiring monitoring.

15.2.7.3 An industrial radiographic operation may not be performed if any of the items in paragraph 15.2.7.2 is not available at the job site or is inoperable.

15.2.8 Records required at field radiography sites.

Each registrant or licensee conducting radiographic operations at a field radiography site shall maintain and have available for inspection by the Department at that job site, the following records or documents:

15.2.8.1 The certificate of registration, license or equivalent document which authorizes radiographic operations, and radiographic personnel certifications.

15.2.8.2 Operating and emergency procedures.

15.2.8.3 Relevant regulations of the Department.

15.2.8.4 Survey records required under this chapter for the period of operation at the site.

15.2.8.5 Daily direct reading dosimeter records for the period of operation at the site.

15.2.8.6 The current radiation survey meter calibration records for meters in use at the site. Acceptable records include tags or labels that are affixed to the survey meter.

15.2.9 Operating and emergency procedures.

The operating and emergency procedures of the registrant or licensee shall include instruction in at least the following:

15.2.9.1 Handling and use of sources of radiation to be employed so that no individual is likely to be exposed to radiation in excess of the limits established in Subsection 6.0 (relating to standards for protection against radiation).

15.2.9.2 Methods and occasions for conducting radiation surveys and the proper use of survey meters.

15.2.9.3 Methods for controlling access to areas where radiographic operations are being conducted.

15.2.9.4 Methods and occasions for locking and securing sources of radiation.

15.2.9.5 Personnel monitoring and the use of individual monitoring devices, including steps that are to be taken immediately by radiographic personnel when a direct reading dosimeter is found to be off-scale.

15.2.9.6 Methods and procedures for minimizing exposure to individuals in the event of an accident.

15.2.9.7 The procedure for notifying proper personnel in the event of an accident.

15.2.9.8 Maintenance of records required by the Department.

15.2.9.9 The inspection and maintenance of radiation-producing machines and survey meters.

15.2.10 Surveys and survey records.

15.2.10.1 A survey with a calibrated radiation survey instrument shall be made after each radiographic exposure to determine that the emission of radiation has terminated.

15.2.10.2 Records of the surveys required by paragraph 15.2.10.1 shall be maintained (for inspection by the Department) for 3 years. If the survey has been used to determine an individual's exposure, the records of the survey shall be maintained until the Department terminates the registration or license.

15.2.11 Utilization logs. A registrant or licensee shall maintain current logs, which shall be kept available for inspection by the Department for 3 years from the date of the event, showing for each radiation-producing machine, the following applicable information:

15.2.11.1 The identity (name and signature) of the operator to whom the radiation-producing machine is assigned.

15.2.11.2 The model and serial number of the radiation-producing machine.

15.2.11.3 The locations and dates of use.

15.2.11.4 The technique factors (tube kilovoltage, tube current, exposure time) used for each radiographic exposure.

15.2.12 Security. During each radiographic operation, the radiographer or radiographer's assistant shall maintain direct surveillance of the operation to protect against unauthorized entry into a high radiation area, except when one of the following exists:

15.2.12.1 The high radiation area is equipped with a control device or an alarm system as described in 10 C.F.R. 20.1601 and 20.1902(b) (relating to control of access to high radiation areas; and posting of high radiation areas).

15.2.12.2 The high radiation area is locked to protect against unauthorized or accidental entry.

15.2.13 Posting. Areas in which radiographic operations are being performed shall be conspicuously posted as required by 10 C.F.R. 20.1902 (relating to posting requirements).

15.2.14 Radiation survey meter requirements.

15.2.14.1 A registrant or licensee shall maintain sufficient calibrated and operable radiation survey instruments to make physical radiation surveys as required by this subsection and

Subsection 6.0 (relating to standards for the protection against radiation).

15.2.14.2 A radiographic operation may not be conducted unless calibrated and operable radiation survey instrumentation is available and used at each site where radiographic operations are conducted.

15.2.14.3 Immediately prior to first use at a site where radiographic operations are conducted and at the beginning of work shift changes thereafter, a radiation survey instrument shall be checked to ensure that it is operating properly by exposing the instrument to a reference source of radiation and observing its response. Instruments that fail to respond as expected may not be used.

15.2.15 Radiation survey meter calibration requirements.

15.2.15.1 In addition to the requirements of paragraph 15.2.14 (relating to survey meter requirements), instruments required by this chapter shall have a range so that 0.516 μC/kg (2 mR) per hour through 258 μc/kg (1 R) per hour can be measured.

15.2.15.2 Each radiation instrument shall be calibrated:

15.2.15.2.1 At energies appropriate for use.

15.2.15.2.2 At intervals not to exceed 6 months.

15.2.15.2.3 After each instrument servicing, other than battery replacement.

15.2.15.2.4 To within an accuracy of +/- 20%.

15.2.15.2.5 At two points located approximately one-third and two-thirds of full scale on each scale of linear scale instruments; at mid-range of each decade and at two points of at least 1 decade for logarithmic scale instruments; and for digital instruments, at three points between 0.516 μC/kg (2 mR) and 258 μC/kg (1000 mR) per hour.

15.2.15.2.6 By a person authorized by the Department, the NRC or an agreement state.

15.2.15.3 Calibration records shall be maintained for inspection by the Department for 3 years after the date of calibration.

15.2.16 Personnel monitoring control.

15.2.16.1 The registrant or licensee may not permit an individual to act as a radiographer or as a radiographer's assistant unless, at all times during radiographic operations, each individual wears a direct reading dosimeter and a personnel dosimeter that is processed and evaluated by an NVLAP processor.

15.2.16.1.1 Personnel monitoring devices used to determine compliance with dose limits for the whole body shall be worn on the trunk of the

body over the area most likely to receive exposure.

15.2.16.1.2 This does not relieve the registrant or licensee from providing peripheral monitoring devices such as ring finger dosimeters when appropriate.

15.2.16.1.3 Each personnel monitoring device shall be assigned to and worn by only one individual.

15.2.16.2 Film badges shall be replaced at intervals not to exceed 1 month. Other personnel dosimeters processed and evaluated by an accredited NVLAP processor shall be replaced at intervals not to exceed 3 months.

15.2.16.3 Direct reading dosimeters (DRDs) shall meet the criteria as in ANSI N13.5-1972, ‘‘Performance Specifications for Direct Reading and Indirect Reading Pocket Dosimeters for X- and Gamma-Radiation’’ published in 1972, inclusive of subsequent amendments or additions.

15.2.16.4 The use of DRDs is subject to the following requirements:

15.2.16.4.1 DRDs shall have a range of zero to 51.6 μC/kg (200 mR) and shall be rezeroed at the start of each work shift.

15.2.16.4.2 As a minimum, at the beginning and the end of each worker’s shift involving the use of a source of radiation, DRDs shall be read and the exposure values recorded.

15.2.16.4.3 Direct reading dosimeters shall be checked for correct response to radiation at periods not to exceed 1 year. A dosimeter may not be used for personnel monitoring unless the response is accurate within +/- 20% of the true radiation exposure. Records of dosimeter response checks shall be maintained for inspection by the Department for 3 years.

15.2.16.4.4 If an individual’s DRD indicates exposure that is ‘‘off-scale’’ beyond the range it can measure, industrial radiographic operations by that individual shall cease immediately and the individual’s personnel dosimeter shall be sent immediately for processing. The individual may not use any sources of radiation until the individual’s radiation dose has been determined.

15.2.16.5 Data on personnel exposure reported or recorded from personnel monitoring devices shall be kept for inspection by the Department until the certificate of registration or license is terminated or until the Department authorizes

their disposition, in writing, following a determination by the Department that the records contain inaccurate personnel monitoring information.

15.2.17 Cabinet X-ray systems and baggage/package X-ray systems

15.2.17.1 Cabinet and baggage/package X-ray systems that are certified under 21 C.F.R. Chapter I, Subchapter J (relating to radiological health) shall also meet the requirement of 21 C.F.R. 1020.40 (relating to cabinet X-ray systems).

15.2.17.2 A cabinet X-ray system may not be energized unless all openings are securely closed and exposure to radiation from the system does not exceed the limits in 10 C.F.R. 20.1301 (relating to dose limits for individual members of the public). Each access door to the cabinet shall have an interlock that terminates the exposure whenever the door is opened. The enclosure shall be shielded so that every location on the exterior meets the conditions for an unrestricted area.

15.2.17.3 A registrant may not permit an individual to operate a cabinet X-ray system until the individual has received a copy of, and instruction in, the operating procedures for the X-ray system and has demonstrated competency in the use of the cabinet X-ray system and an understanding of the operating procedures.

15.2.17.4 The registrant shall perform radiation surveys to demonstrate compliance with 10 C.F.R. 20.1301 and maintain records of these surveys for inspection by the Department for 3 years:

15.2.17.4.1 Upon installation of the equipment.

15.2.17.4.2 Following a change in the initial arrangement, relocation of the unit, or following any maintenance requiring the disassembly or removal of any shielding component.

15.2.17.4.3 When a visual inspection reveals an abnormal condition.

15.2.17.5 The registrant shall test on-off switches, interlocks and safety devices at intervals not exceeding 1 year, and make repairs as necessary to maintain all safety features including warning labels. Records of these tests shall be maintained for inspection by the Department for 3 years.

15.2.17.6 The registrant shall test on-off switches, interlocks and safety devices at intervals not exceeding 1 year, and make repairs as necessary to maintain all safety features including warning labels. Records of these tests shall be maintained for inspection by the Department for 3 years.

15.2.18 Shielded room X-ray radiography

15.2.18.1 A room used for shielded room X-ray radiography shall be shielded so that every location on the exterior meets conditions for an unrestricted area and the only access to the room is through openings which are interlocked so that the radiation source will not operate unless all openings are securely closed and meet the requirements of 10 C.F.R. 20.1601 (relating to control of access to high radiation areas).

15.2.18.2 The operator shall conduct a physical radiation survey to determine that the radiation source is de-energized prior to each entry into the radiographic exposure area.

15.2.18.3 As an alternative to paragraph 15.2.18.2, the registrant may use an independent radiation monitoring system that displays the radiation intensity or displays when radiation levels have returned to their pre-irradiation levels.

15.2.18.4 With the exception of the provisions in paragraphs 15.1.3, 15.2.5 and 15.2.9 (relating to radiation safety program; reporting requirements; and operating and emergency procedures), shielded room radiography is exempt from all other provisions of this subsection.

15.2.19 Field site radiography

15.2.19.1 The operator shall conduct a physical radiation survey to determine that the radiation source is de-energized prior to each entry into the radiographic exposure area. Survey results and records of the boundary location shall be maintained and kept available for inspection by the Department for three years.

15.2.19.2 Mobile or portable radiation producing machines shall be physically secured to prevent tampering or removal by unauthorized personnel.

15.2.20 X-ray detection systems for explosives, weapons and illegal items

15.2.20.1 This section applies to X-ray systems that produce an image that may be used to screen for the presence of explosive devices or components, weapons, contraband or prohibited items. This section does not apply to cabinet and baggage/package X-ray systems covered under paragraph 15.2.17 (relating to cabinet X-ray systems and baggage/package X-ray systems).

15.2.20.2 An X-ray system used for detection of explosives, weapons or illegal items may not be used on human beings or animals without specific permission of the Department. X-ray systems that irradiate human beings for medical diagnosis are covered under Subsection 20.0 (relating to medical diagnostic and interventional X-ray and imaging systems).

15.2.20.3 Radiographic X-ray detection systems shall conform to the following:

15.2.20.3.1 The leakage radiation from the source assembly measured at a distance of 1 meter in any direction from the source may not exceed 25.8 μC/kg (100 mR) in 1 hour when the X-ray tube is operated at its leakage technique factors. Compliance shall be determined by measurements averaged over an area of 100 square centimeters with no linear dimension greater than 20 centimeters.

15.2.20.3.2 Portable X-ray systems shall be equipped with collimators which are capable of restricting the useful beam to the area of interest. Collimators shall provide the same degree of protection required in paragraph 15.2.20.3.1.

15.2.20.3.3 A means shall be provided to terminate the exposure after a preset time, a preset to image receptor (for example automatic exposure control or AEC) or a preset product of exposure time and tube current.

15.2.20.3.4 The X-ray control shall have a dead-man type exposure switch.

15.2.20.3.5 The X-ray controls shall indicate the technique factors, (that is, kilovoltage, tube current and exposure time or the product of tube current and exposure time).

15.2.20.3.6 The X-ray machine shall be labeled with a readily discernible sign bearing the radiation symbol and the words, ‘‘CAUTION RADIATION—THIS EQUIPMENT PRODUCES RADIATION WHEN ENERGIZED’’ or words having a similar intent, near any switch that energizes the X-ray tube.

15.2.20.3.7 For fixed radiographic equipment, an easily visible warning light shall be located adjacent to the X-ray tube and labeled with the words ‘‘X-RAY ON’’ or words having a similar intent. The warning light shall be illuminated only when the X-ray tube is energized or only when the shutter is open.

15.2.20.4 Fluoroscopic X-ray detection systems shall conform to the following:

15.2.20.4.1 The leakage radiation from the source assembly measured at a distance of 1 meter in

any direction from the source may not exceed 25.8 μC/kg (100 mR) in 1 hour when the X-ray tube is operated at its leakage technique factors. Compliance shall be determined by measurements averaged over an area of 100 square centimeters with no linear dimension greater than 20 centimeters.

15.2.20.4.2 The X-ray machine shall be labeled with a readily discernible sign bearing the radiation symbol and the words, ‘‘CAUTION RADIATION—THIS EQUIPMENT PRODUCES RADIATION WHEN ENERGIZED’’ or words having a similar intent, near any switch that energizes the X-ray tube.

15.2.20.4.3 To the extent practicable, the X-ray system (X-ray tube, imaging system and the object being irradiated) shall be completely enclosed so that every location on the exterior meets conditions for an unrestricted area and the only access to the room or enclosure is through openings which are interlocked so that the radiation source will not operate unless all openings are securely closed and meet the requirements of 10 C.F.R. 20.1601 (relating to control of access to high radiation areas).

15.2.20.4.4 The equipment shall be constructed so that, under conditions of normal use, the entire cross-section of the useful beam shall be attenuated by a primary protective barrier permanently incorporated into the equipment.

15.2.20.4.5 The X-ray control shall have a dead-man type exposure switch. Activation of the X-ray beam shall be possible only by continuous pressure on the exposure switch.

15.2.20.4.6 An easily visible warning light shall be located adjacent to the X-ray tube or on the outside of the enclosure and be labeled with the words ‘‘X-RAY ON’’ or words having a similar intent. This light shall be illuminated only when the X-ray tube is energized or only when the shutter is open.

15.2.20.5 Operating procedures for portable radiographic X-ray detection systems are as follows:

15.2.20.5.1 To the extent practicable, portable X-ray tube heads shall be supported by a stand.

15.2.20.5.2 To the extent practicable, supporting or positioning devices for the image receptor shall be used during radiation exposures.

15.2.20.5.3 Individuals, other than those whose presence is necessary to conduct the X-ray procedure, shall be located at least 2 meters away from the X-ray tube and the object being irradiated during exposures.

15.2.20.5.4 An individual may not be regularly employed to support the image receptor or object during radiation exposures.

15.2.20.6 Operating procedures for fixed radiographic X-ray detection systems are as follows:

15.2.20.6.1 A registrant shall test the safety and warning devices, including interlocks, at intervals not to exceed 12 months. Test records shall be maintained for inspection by the Department for 3 years after the test has been conducted.

15.2.20.6.2 Safety or warning devices that do not function properly shall be repaired in a timely manner.

15.2.20.6.3 If an X-ray detection system is required to be operated while in need of repair, procedures shall be modified to maintain the design level equivalent of safety or else the equipment may not be used.

Table 4

Subjects to be Covered During the
Instruction of Radiographers

I. *Fundamentals of Radiation Safety*
- A. Characteristics of radiation
- B. Units of radiation dose and quantity of radioactivity
- C. Significance of radiation dose
  1. Radiation protection standards
  2. Biological effects of radiation dose
- D. Levels of radiation from radiation sources
- E. Methods of controlling radiation dose
  1. Working time
  2. Working distances
  3. Shielding

II. *Radiation Detection Instrumentation to be Used*
- A. Use of radiation survey instruments
  1. Operation
  2. Calibration
  3. Limitations
- B. Survey techniques
- C. Use of personnel monitoring equipment
  1. Film badges
  2. Thermoluminescent dosimeters
  3. Pocket dosimeters

III. *Radiographic Equipment to be Used*
- A. Remote handling equipment
- B. Radiographic exposure devices and sealed sources
- C. Storage containers
- D. Operation and control of X-ray equipment

IV. *The Requirements of Pertinent Federal and State Regulations*

V. *The Licensee's or Registrant's Written Operating and Emergency Procedures*

VI. *Inspection and Maintenance Performed by the Radiographers*

VII. *Case Histories of Radiography Incidents*

16.0 Licenses and Radiation Safety Requirements for Well Logging

16.1 Purpose and Scope.

This subsection establishes radiation safety requirements for persons using radiation sources for well logging in a single well, radioactive markers, uranium sinker bars and subsurface tracer studies. Persons who use radiation sources for well logging operations shall comply with this subsection, which is in addition to and not in substitution for other applicable requirements of this rule.

16.2 Incorporation by reference

16.2.4 Except as provided in this subsection, the requirements of 10 C.F.R. Part 39 (relating to licenses and radiation safety requirements for well logging) are incorporated by reference. The unofficial version can be accessed at **http://www.nrc.gov/**. The official version is also available in hard copy.

16.2.5 Notwithstanding the requirements incorporated by reference, 10 C.F.R. 39.5, 39.8, 39.101 and 39.103 are not incorporated by reference.

16.3 Particle accelerators

16.3.4 A licensee or registrant may not permit aboveground testing of particle accelerators designed for use in well logging which results in the production of radiation, except in areas or facilities controlled or shielded so that the requirements of 10 C.F.R. 20.1301 (relating to radiation dose to, and dose limits for individual members of the public) are met.

16.3.5 The use of particle accelerators for well logging shall be conducted under the licensing provisions of Subsection 22.0 (relating to radiation safety requirements for particle accelerators).

17.0 Licenses and Radiation Safety Requirements for Irradiators

17.1 Purpose and scope

17.1.1 This subsection contains the requirements for the issuance of a license authorizing the use of radioactive materials in sealed sources to irradiate objects or materials with gamma radiation.

17.1.2 The requirements of this subsection are in addition to, and not in substitution for, other applicable requirements in this regulation.

17.2 Incorporation by reference

17.2.1 Except as provided in this subsection, the requirements of 10 C.F.R. Part 36 (relating to licenses and radiation safety requirements for irradiators) are incorporated by reference. The unofficial version can be accessed at **http://www.nrc.gov/.** The official version is also available in hard copy.

17.2.2 Notwithstanding the requirements incorporated by reference, 10 C.F.R. 36.5, 36.8, 36.91 and 36.93 are not incorporated by reference.

18.0 Packaging and Transportation of Radioactive Material

18.1 Purpose and scope

This subsection establishes requirements for packaging, preparation for shipment and transportation of radioactive material. This subsection applies to a person who transports radioactive material or delivers radioactive material to a carrier for transport.

18.2 Incorporation by reference.

18.2.1 Except as provided in this subsection, the requirements of 10 C.F.R. Part 71 (relating to packaging and transportation of radioactive material) are incorporated by reference. The unofficial version can be accessed at **http://www.nrc.gov/.** The official version is also available in hard copy.

18.2.2 Notwithstanding the requirements incorporated by reference, 10 C.F.R. 71.2; 71.6; 71.11; 71.14(b); 71.19; 71.31; 71.33; 71.35; 71.37; 71.38; 71.39; 71.41; 71.43; 71.45; 71.51; 71.55; 71.59; 71.61; 71.63; 71.64; 71.65; 71.70; 71.71; 71.73; 71.74; 71.75; 71.77; 71.85(a), (b) and (c); 71.91(b); 71.99; 71.100; 71.101(c)(2), (d) and (e); 71.107; 71.109; 71.111; 71.113; 71.115; 71.117; 71.119; 71.121; 71.123 and 71.125 are not incorporated by reference. In 10 C.F.R. 71 Subpart H, the terms "Certificate of Compliance," "certificate holder," and "applicant for a CoC" apply only to the NRC.

18.3 Transportation of licensed material

In addition to the incorporation by reference of 10 C.F.R. Part 71 (relating to packaging and transportation of radioactive material), if VSA Title 23 (relating to interstate motor carrier safety requirements; intrastate motor carrier requirements; and hazardous materials transportation) or the regulations of the United States Department of Transportation in 49 C.F.R. Parts 171—180 and 388—397 do not apply to a shipment of licensed material, the licensee shall conform to the standards and requirements of those regulations to the same extent as if the shipment was subject to the regulations.

Section III. Radiation-Producing Machines

19.0 Registration of Radiation Machine Facilities, Services and Associated Healthcare Professionals. This section does not pertaing to radioactive materials

19.1 Purpose and scope

19.1.1 This subsection establishes requirements for the registration of radiation-producing machines and radiation-producing machine service providers. A person who possesses a radiation-producing machine or provides services described in this chapter shall comply with this subsection.

19.1.2 In addition to the requirements of this subsection, all registrants are subject to the applicable provisions of Section I Overview.

19.2 Incorporation by reference.

All registered entities shall comply with the Conference of Radiation Control Program Directors (CRCPD) Suggested State Regulations (SSRs) Part B, Registration of Radiation Machine Facilities, Services and Associated Healthcare Professionals. This can be accessed at: http://www.crcpd.org/page/SSRCRs.

19.3 Notwithstanding the requirements incorporated by reference:

19.3.1 Section B.3 regarding licensure of radiation machine service providers does not apply until two years after these rules are promulgated.

19.3.2 Section B.5 regarding shielding plan review submission to the State for review and approval does not apply to dental and podiatric registrants.

19.3.3 Section B.6.b regarding radiation safety officer requirements and responsibilities does not apply to dental and podiatric registrants.

19.3.4 Section B.16 on reciprocal recognition of out-of-state radiation machines temporarily used in Vermont. They are registered as permanent or temporary in-state machines.

19.3.5 SSR Sections B.1.b and c, B.17.e, Appendix B paragraph 2(c), Appendix C paragraph 2(a)(2)(g), and Appendix D paragraph 2 are not incorporated by reference.

20.0 Medical Diagnostic & Interventional X-Ray & Imaging Systems

20.1 Purpose and scope.

This subsection establishes requirements, for which a registrant is responsible, for use of diagnostic and interventional X-ray equipment and imaging systems by, or under the supervision of an individual authorized by and licensed in accordance with Vermont State Statutes to engage in the healing arts or veterinary medicine. The provisions of this subsection are in addition to and

not in substitution for other applicable provisions of these regulations. Some registrants may also be subject to the requirements of Subsection 23.0 (relating to therapeutic radiation machines) of these regulations.

20.2 Incorporation by reference.

20.2.1 All registered entities shall comply with the Conference of Radiation Control Program Directors (CRCPD) Suggested State Regulations (SSRs) Part F, Medical Diagnostic and Interventional X-Ray and Imaging Systems. This can be accessed at: http://www.crcpd.org/page/SSRCRs.

20.2.2 Notwithstanding the requirements incorporated by reference, SSR Sections F.1., F.3.a.i.(2), F.3.a.xxi, F.3.a and F.15.b are not incorporated by reference.

21.0 Radiation Safety Requirements for Non-Healing Arts Radiation Generating Devices

21.1 Purpose and scope.

This subsection establishes the requirements for the use of analytical X-ray equipment, X-ray gauging equipment, electron microscopes, electron beam welders and X-ray calibration systems. Registrants who use analytical X-ray equipment, X-ray gauging equipment, electron microscopes, electron beam welders or X-ray calibration systems shall comply with this subsection. The requirements of this subsection are in addition to, and not in substitution for, other applicable provisions of this regulation.

21.2 Incorporation by reference.

21.2.1 All registered entities shall comply with the Conference of Radiation Control Program Directors (CRCPD) Suggested State Regulations (SSRs) Part H, Radiation Safety Requirements for Non-Healing Arts Radiation Generating Devices. This can be accessed at: http://www.crcpd.org/page/SSRCRs.

21.2.2 Notwithstanding the requirements incorporated by reference, SSR Sections H.2.a and e, H.3, H.5.c.iv, H.6.b.i, H.6.c.i, H.6.e.i.7, H.6.e.iii, H.6.f, H.8.i, H.8.k, H.9.a.i, and H.10.f are not incorporated by reference.

22.0 Radiation Safety Requirements for Particle Accelerators

22.1 Purpose and Scope

This subsection establishes radiation safety requirements for persons utilizing particle accelerators for industrial and research purposes. Persons who use particle accelerators shall comply with this subsection. The requirements in this subsection are in addition to and not in substitution for other applicable requirements of these regulations, including those of Subsection 23.0. Radiation safety requirements for particle accelerators used in the healing arts are found in Subsection 23.0.

22.2 Incorporation by reference.

22.2.1 All registered entities shall comply with the Conference of Radiation Control Program Directors (CRCPD) Suggested State Regulations (SSRs) Part I, Radiation Safety Requirements for Particle Accelerators. This can be accessed at: http://www.crcpd.org/page/SSRCRs.

22.2.2 Notwithstanding the requirements incorporated by reference, SSR Sections I.1.b, I.3.a, I.6.a.ii, I.7.b, and I.12.a and b are not incorporated by reference.

22.3 Incidental radioactive material produced by a particle accelerator.

A general license is issued to possess radioactive material produced incidentally to the operation of a particle accelerator. The general license is also subject to the applicable provisions of this subsection and Section I Overview. A licensee may transfer this radioactive material only under Subsection 6.0 and Subsection 18.0 (relating to transfer of radioactive material; and packaging and transportation of radioactive material). A licensee may dispose of this radioactive material only with Department approval.

23.0 Therapeutic Radiation Machines

23.1 Purpose and scope

23.1.1 This subsection establishes requirements, for which the registrant is responsible, for use of therapeutic radiation machines. The provisions of this subsection are in addition to, and not in substitution for, other applicable provisions of these regulations. This subsection shall also apply to veterinary medicine.

23.1.2 The use of therapeutic radiation machines shall be by, or under the supervision of, a licensed practitioner of the healing arts or veterinarian.

23.2 Incorporation by reference.

23.2.1 All registered entities shall comply with the Conference of Radiation Control Program Directors (CRCPD) Suggested State Regulations (SSRs) Part X, Therapeutic Radiation Machines. This can be accessed at: http://www.crcpd.org/page/SSRCRs.

23.2.2 Notwithstanding the requirements incorporated by reference, SSR Sections X.3.i, X.4.a.i, X.4.b, X.6.r.vi, X.7, X.7.q.vii, X.9.a, and Appendix A paragraph II.c are not incorporated by reference.

Section IV. Criteria Applicable to Operating or Decommissioning Nuclear Reactor Facilities Relating to Members of the Public.

24.0 Criteria applicable to operating or decommissioning nuclear reactor facilities relating to members of the public.

The maximum permissible total effective dose equivalent of members of the public in unrestricted areas from all regulated uses of ionizing radiation shall be kept as low as reasonably achievable (ALARA) and shall not exceed the values specified below:

24.1 Discharges of radioactive materials and direct gamma radiation to unrestricted areas shall be controlled as follows:

24.1.1 *Gaseous Effluents:* The annual committed effective dose equivalent limit for an individual in an unrestricted area due to plant emissions of radioactive noble gases is 5 millirem. The committed effective dose equivalent from noble gases is calculated using noble gas concentrations in air samples obtained by the Department and as reported by VYNPS.

24.1.1 *Liquid Effluents.* The annual committed effective dose equivalent limit for an individual in an unrestricted area, due to plant discharges of liquid effluents is 5 millirem. The committed effective dose equivalent from liquid effluents is calculated using liquid effluent concentrations in water samples obtained by the Department and as reported by VYNPS.

24.1.2 *Radioiodine.* The annual committed effective dose equivalent limit of an individual in an unrestricted area due to plant emissions of radioiodine is 5 millirem. The committed effective dose equivalent from radioiodines is calculated using radioiodine concentrations in air samples obtained by the Department and as reported by VYNPS.

24.1.3 *Radioactive Particulates.* The annual committed effective dose equivalent limit for an individual in an unrestricted area due to plant emissions of radioactive particulates is 5 millirem. The committed effective dose equivalent from radioactive particulates is calculated using radioactive particulate concentrations in air samples obtained by the Department and as reported by VYNPS.

24.1.4 *Direct Gamma Radiation.* The annual effective dose equivalent limit for a member of the public in an unrestricted area due to plant emanations of direct gamma radiation is 5 millirem. For the purpose of this subsection, a measured exposure value of 20 milliroentgen per

year above background radiation at any point on the site boundary bordered by land shall be considered equivalent to a 5 millirem effective dose equivalent for a member of the public in an unrestricted area.

24.1.5 If any site boundary, bordered by land, quarterly measured exposure value exceeds 10 milliroentgen above background radiation, VYNPS shall take the actions described in Subsection 10.0.

24.2 Compliance with Dose Limits for Members of the Public

24.2.1 VYNPS shall submit an annual report to the Department detailing the surveys and calculations of discharges of all radioactive materials and direct gamma radiation from all operations and activities at the plant and specifically addressing each of the applicable criteria specified in this rule. The annual report shall be due no later than May 15 for the prior calendar year.

24.2.1 VYNPS shall submit monthly reports to the Department detailing the surveys and calculations of direct gamma radiation from all operations and activities at the plant and specifically addressing the quarterly and annual direct gamma radiation exposure limits specified in this rule. The monthly reports shall include copies of all records of all instruments used to monitor public exposure, including all records of calibration of the main steam line radiation monitors and all reports relevant to the off-site dose calculation manual issued or created during the report period. The monthly reports shall be due no later than the 15th of the month for the prior calendar month.

24.2.1.1 For purposes of the annual and monthly reports, VYNPS shall calculate the committed effective dose equivalent of discharges of radioactive materials and shall report the measured exposure values of direct gamma radiation to unrestricted areas as provided in the most current VYNPS Off-Site Dose Calculation Manual as approved by the Nuclear Regulatory Commission, and shall report all measured exposure values from all other instruments used by VYNPS to monitor public exposure.

24.2.1.2 VYNPS shall provide any other information requested by the Department relating to the information and underlying data and calculations in the annual and monthly reports.

24.3 VYNPS shall take the following actions as soon as it becomes evident that the quarterly or annual committed effective dose equivalents or measured exposure values exceed, or may exceed, the limits specified in this rule, but in

no event later than the last day of the calendar quarter in which the discharge exceeds these values:

24.3.1 Immediately report the discharge or direct gamma radiation exceedance to the Department.

24.3.1 Immediately make an investigation to identify the causes of the exceedance, or anticipated exceedance, of maximum limits for committed effective dose equivalent or measured exposure values, including an evaluation of all discharges of radioactive materials or direct gamma radiation that contributed to the exceedance, and initiate a program designed to ensure that future discharges will be maintained at or below values not likely to cause exceedance of the maximum limits for committed effective dose equivalent or measured exposure values specified in this rule. As soon as possible, VYNPS shall report to the Department the action taken or proposed to be taken to achieve immediate reduction of the discharges for the Department's approval; and

24.3.2 VYNPS shall implement the plan approved by the Department with all reasonable speed.

24.3.3 Within 14 days, but in no event later than 10 days after the end of the calendar quarter, submit a report to the Department detailing the actions described above and providing verification of the completion of the implementation of the plan approved by the Department.

24.4 **Independent Compliance Monitoring by the Department.**

The Department shall conduct environmental surveys and sampling and shall deploy appropriate instruments to measure discharges of radioactive materials and direct gamma radiation emanations from VYNPS. The Department shall use that information to determine compliance with the requirements established in this rule.

24.5 **Inspections.**

All regulated entities who receive, possess, use or transfer sources of ionizing radiation shall:

24.5.1 Provide the Commissioner with copies of all reports furnished to the NRC related to radioactive effluent discharges and gamma radiation emanations under normal or abnormal conditions.

24.5.2 Permit the Commissioner at all times the opportunity to inspect and evaluate sources of radiation and the premises and facilities wherein such sources of radiation are used or stored, and shall make available pertinent data, as well as records and reports as may be required by the Department.

24.5.3 Grant to the Commissioner access to all records pertaining to the radiological health and safety of employees, to discharges of radioactive material and gamma radiation emanations to the environment, and to any effect of the operation of the facility upon the environment.

24.5.4 Provide the same notice to the Commissioner of any radiological incident and reports thereof and in the same manner as provided to the NRC.

24.5.5 Permit the Commissioner to make unscheduled visits to the regulated facility for the purpose of obtaining samples and surveys for analysis.

24.5.6 Upon request by the Commissioner, VYNPS shall furnish advance notification of each scheduled calibration of effluent monitors and shall permit the Commissioner to be present during such calibration.

24.5.7 Upon request by the Commissioner, VYNPS shall share samples of environmental media for purposes of data correlation.

24.6 Enforcement

24.6.1 Whenever the Department has reasonable grounds to believe that there has been a violation of any of the provisions of this rule, the Department may take appropriate action as provided in this subsection or otherwise provided in law at 18 V.S.A. Ch. 32, to protect the public health and safety.

24.6.2 If an inspection, including the Department's independent compliance monitoring of Vermont Yankee Nuclear Power Station, indicates that the regulated entity is not in compliance with the requirements of this rule, the Department shall notify the regulated entity in writing regarding any deficiencies.

24.6.3 The notice shall include specific required corrective actions necessary for the regulated entity to take to regain compliance with this rule and may include interim corrective actions, such as requiring further investigation of the circumstances giving rise to the notice, or ceasing use of the sources of radiation until full compliance is restored, or such other action deemed necessary by the Department to protect the public health and safety is completed.

24.6.4 If the Department determines that an enforcement action is appropriate, or if timely and satisfactory compliance with a notice issued pursuant to paragraph 24.6.3 has not been achieved, the Department shall issue a notice of violation in writing.