Radiological Health Rule: Part A

PART 5. CHAPTER 3

RADIOLOGICAL HEALTH

SUBCHAPTER 1. RADIATION PROTECTION

Section:

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SUBCHAPTER 1. RADIATION PROTECTION

Section 5-301. Purpose, Authority, Effective Date.

Purpose: This rule establishes standards for the control of ionizing radiation for the protection of occupational and public health and safety and implements the provisions of 18 V.S.A. Chapter 32. This rule regulates x-ray and other radiographic diagnostic equipment used by physicians, dentists and other health professionals, occupational sources of radiation, and the radiation exposure values at the site-boundary of the Vermont Yankee Nuclear Power Station (VYNPS).

This rule sets maximum limits in terms of the dose an individual may receive depending on the source and type of ionizing radiation. The dose limits are established both for people who work with radioactive materials or equipment and for members of the public exposed to ionizing radiation in unrestricted areas from the VYNPS. For purposes of the dose limits established in this rule for the VYNPS site-boundary, a maximum exposure value is established as a proxy to assure that no individual would be exposed to a dose in excess of the established limit.

Authority: This rule is adopted under the authority of3 V.S.A. §§ 80l(b)(l l) and 3003(a) and 18 V.S.A. § 1652(c).

Effective Date: All provisions of this Part shall be effective on January 1, 2010.

Section 5-302. Scope.

This rule applies to all persons who receive, possess, use or transfer sources of ionizing radiation except that nothing in these regulations shall be construed to limit the kind or amount of radiation that may be applied intentionally to a patient for diagnostic or therapeutic purposes by or under the direction of a practitioner of the healing arts licensed by the State of Vermont.

Section 5-303. Definitions.

(1) "Absorbed dose" means the energy imparted by ionizing radiation per unit of mass of irradiated material. The units of absorbed dose are the rad and the gray (Gy).

(2) "As low as is reasonably achievable"(ALARA) means making every reasonable effort to maintain exposures to radiation as far below the dose limit in this rule as is practical consistent with the purpose for which the regulated activity is undertaken, taking into account the state of technology, and the economics of improvements in relation to the benefits to the public health and safety, and other societal and socioeconomic considerations, and in relation to utilization of nuclear energy and regulated materials in the public interest.

(3) "Background radiation" means radiation from cosmic sources, naturally occurring radioactive material, including radon (except as a decay product of source or special nuclear material); and global fallout as it exists in the environment from the testing of nuclear explosive devices or from past nuclear accidents such as Chernobyl that contribute to background radiation and are not under the control of the regulated entity. "Background radiation" does not include radiation from source, byproduct, or special nuclear materials regulated by this rule.

(4) "Bioassay" (radiobioassay) means the determination of kinds, quantities or concentrations, and, in some cases, the locations of radioactive material in the human body, whether by direct measurement (in vivo counting) or by analysis and evaluation of materials excreted or removed from the human body.

(5) "Board" means the Vermont Board of Health.

(6) "Commissioner" means the Commissioner of the Vermont Department of Health, or designee.

(7) "Committed dose equivalent" (HT,so) means the dose equivalent to organs or tissues of reference (T) that will be received from an intake of radioactive material by an individual during the 50-year period following intake.

(8) "Committed effective dose equivalent" (HE,so) is the sum of the products of the weighting factors applicable to each of the body organs or tissues that are irradiated and the committed dose equivalent to these organs or tissues (HE,so = L WT HT,so).

(9) "Controlled area" means an area, outside of a restricted area but inside the site boundary, access to which can be limited by the regulated entity for any reason.

(10) "Curie" (Ci) is defined as 3.7×10^{10} disintegrations per second. Commonly used submultiples of the curie are millicurie (mCi) and the microcurie (μCi):

1. One millicurie = 0.001 curie
2. One microcurie = 0.000001 curie

(11) "Declared pregnant woman" means a woman who has voluntarily informed the regulated entity, in writing, of her pregnancy and the estimated date of conception. The declaration remains in effect until the declared pregnant woman withdraws the declaration in writing or is no longer pregnant.

(12) "Department" means the Vermont Department of Health.

(13) "Dose equivalent" (HT) means the product of the absorbed dose in tissue, quality factor, and all other necessary modifying factors at the location of interest. The units of dose equivalent are the rem and sievert (Sv). Other necessary modifying factors include the specific energy or spectrum of energies of radiation; the specific size and shape of the source of radiation and radiation detector; the specific radiation scattering characteristics in the environment; differences in temperature, humidity and atmospheric pressure of the radiation detector and radiation environment; limitations of the radiation detector; characteristics of the specific tissues absorbing the radiation; and differences in physiological responses in specific persons absorbing the radiation.

(14) "Effective dose equivalent" (HE) is the sum of the products of the dose equivalent to the organ or tissue (HT) and the weighting factors (WT) applicable to each of the body organs or tissues that are irradiated (HE= :E WT HT),

(15) "Embryo/fetus" means the developing human organism from conception until the time of birth.

(16) "Exposure" means being exposed to ionizing radiation or to radioactive material. The unit of measurement of external exposure is the roentgen (R).

(17) "Exposure value" means the numerical value of the measured exposure in units of milliroentgen or roentgen where 1 roentgen equals exactly 2.58×10^{-4} coulombs per kilogram of air at standard temperature and pressure.

(18) "External dose" means that portion of the dose equivalent received from radiation sources _outside the body.

(19) "Gray"(Gy) is the SI unit of absorbed dose. One gray is equal to an absorbed dose of 1 Joule/kilogram (100 rads).

(20) "Individual" means any human being.

(21) "Individual monitoring" means- (1) The assessment of dose equivalent by the use of devices designed to be worn by an individual; (2) The assessment of committed effective dose equivalent by bioassay or by determination of the time-weighted air concentrations to which an individual has been exposed; or (3) The assessment of dose equivalent by the use of survey data.

(22) "Licensee" means the holder of a license issued by the NRC.

(23) "Limits" (dose limits) means the permissible upper bounds of radiation doses.

(24) "Member of the public" means any individual except when that individual is receiving an occupational dose.

(25) "Minor" means an individual less than 18 years of age.

(26) "Monitoring" (radiation monitoring, radiation protection monitoring) means the measurement of radiation levels, concentrations, surface area concentrations or quantities of radioactive material and the use of the results of these measurements to evaluate potential exposures and doses.

(27) "NRC" means the Nuclear Regulatory Commission or its duly authorized representatives.

(28) "Occupational dose" means the dose received by an individual in the course of employment in which the individual's assigned duties involve exposure to radiation or to radioactive material from regulated and unregulated sources of radiation, whether in the possession of the regulated entity or other person. Occupational dose does not include doses received from background radiation, from any medical administration the individual has received, from exposure to individuals administered radioactive material and released, from voluntary participation in medical research programs, or as a member of the public.

(29) "Public dose" means the dose received by a member of the public from exposure to radiation or to radioactive material released by a regulated entity, or to any other source of radiation under the control of a regulated entity. Public dose does not include occupational dose or doses received from background radiation, from any medical administration the individual has received, from exposure to individuals administered radioactive material and released, or from voluntary participation in medical research programs.

(30) "Quarter" means a period of time equal to one-fourth of the year observed by the regulated entity (approximately 13 consecutive weeks), providing that the beginning of

the first quarter in a year coincides with the starting date of the year and that no day is omitted or duplicated in consecutive quarters.

(31) "Rad" is the special unit of absorbed dose. One rad is equal to an absorbed dose of 100 ergs/gram or 0.01 joule/kilogram (0.01 gray). A subunit of the rad is the millirad. 1 millirad == 0.001 rad.

(32) "Radiation" (ionizing radiation) means alpha particles, beta particles, gamma rays, x-rays, neutrons, high-speed electrons, high-speed protons, and other particles capable of producing ions. Radiation, as used in this rule, does not include non-ionizing radiation, such as radio- or microwaves, or visible, infrared, or ultraviolet light.

(33) "Radioactive materials' means all materials that are determined to be a source of ionizing radiation.

(34) "Registrant" means a person registered with the Department pursuant to this rule.

(35) "Regulated entity" means all persons who receive, possess, use or transfer sources of ionizing radiation in the State of Vermont.

(36) "Rem" is the special unit of any of the quantities expressed as dose equivalent. The dose equivalent in rems is equal to the absorbed dose in rads multiplied by the quality factor (1 rem==0.01 sievert). A subunit of the rem is millirem. 1 millirem == 0.001 rem.

As used in this rule, the quality factors for converting absorbed dose to dose equivalent are shown in Table 1.

TABLE I-Quality Factors and Absorbed Dose Equivalencies

Type of radiation	.Quality Factor (Q)	Absorbed dose equal to a unit dose equivalent
X-, gamma, or beta radiation	1	1
Alpha particles, multiple-charged particles, fission fragments and heavy particles of unknown charge	20	0.05
Neutrons of unknown energy	10	0.1
High-energy protons	10	0.1

a.Absorbed dose in rad equal to 1 rem or the absorbed dose in gray equal to 1- sie:v.ert.

(37) Roentgen (R) is a measure of exposure and is equivalent to 2.58 x 1 0-^{4} coloumbs per kilogram in air at standard temperature and pressure. A subunit of the roentgen is the milliroentgen (mR). 1 mR equals 0.001 R.

(38) "Sievert" is the SI unit of any of the quantities expressed as dose equivalent. The dose equivalent in sieverts is equal to the absorbed dose in grays multiplied by the quality factor (1 Sv=l00 rems).

(39) "Site boundary" means that line beyond which the land or property is not owned, leased, or otherwise controlled by the regulated entity.

(40) "Survey" means an evaluation of the radiological conditions and potential hazards incident to the production, use, transfer, release, disposal, or presence of radioactive material or other sources of radiation. When appropriate, such an evaluation includes a physical survey of the location of radioactive material and measurements or calculations of levels of radiation, or concentrations or quantities of radioactive material present.

(41) "Total Effective Dose Equivalent" (TEDE) means the sum of the effective dose equivalent (for external exposures) and the committed effective dose equivalent (for internal exposures).

(42) "Unrestricted Area means an area, access to which is neither limited nor controlled by the regulated entity.

(43) "VYNPS" means the Vermont Yankee Nuclear Power Station, the entity licensed by the NRC to operate the plant and its owners.

(44) "Weighting factor" WT, for an organ or tissue (T) is the proportion of the risk of stochastic effects resulting from irradiation of that organ or tissue to the total risk of stochastic effects when the whole body is irradiated uniformly. For calculating the effective dose equivalent, the values of WT are:

ORGAN DOSE WEIGHTING FACTORS

Organ or tissue	WT
Gonads	0.25
Breast	0.15
Red bone marrow	.0.12
Lung	0.12
Thyroid	0.03
Bone surfaces	0.03
Remainder	0.30[1]
Whole Body	*l.OOL*

[1] 0.30 results from 0.06 for each of 5 "remainder" organs (excluding the skin and the lens of the eye) that receive the highest doses.

[2] For the purpose of weighting the external whole body dose (for adding it to the internal dose), a single weighting factor, WT =1.0, has been specified. The use of other weighting factors for external exposure will be approved on a case-by-case basis until such time as specific guidance is issued.

(45) "Whole body" means, for purposes of external exposure, head, trunk (including male gonads), arms above the elbow, or legs above the knee.

(46) "Year" means the period of time beginning in January used to determine compliance with the provisions of this part. The regulated entity may change the starting date of the year used to determine compliance by the regulated entity provided that the change is made at the beginning of the year and that no day is omitted or duplicated in consecutive years.

Section 5-304. Exemptions.

The following materials, machines and conditions are exempt from these regulations:

(A) Radioactive materials of an equivalent specific radioactivity not exceeding that of natural potassium. (10^{-9} curies per gram of potassium).

(B) Quantities of byproduct, source, accelerator produced, and special nuclear materials exempted from licensing requirements of the U.S. Nuclear Regulatory Commission.

(C) Domestic television receivers, providing the effective dose rate at 5 cm from any outer surface is less than 0.5 mrem per hour.

(D) Other electrical equipment that produces radiation incidental to its operation for other purposes, providing the effective dose rate to the whole body at the point of nearest approach to such equipment when any external shielding is removed does not exceed 0.5 rem per year. The production testing or factory servicing of such equipment shall not be exempt.

(E) Radiation machines which cannot be used in such manner as to produce radiation. (For example, X-ray machines in transport or electrical equipment in storage).

(F) Radioactive material, except as specified in Section 5-309, being transported across the state in conformance with regulations of any Federal agency having jurisdiction over safety in interstate commerce.

(G) Excreta from individuals undergoing medical diagnosis or therapy with radioactive materials are exempt from any limitation contained in this regulation.

(H) Other sources of radiation that the Department finds should be exempted.

Section 5-305. Standards.

(A) The Department shall make use of the best scientific information, recommendations and guidelines such as those contained in the reports and other publications of the National Council on Radiation Protection and Measurements, the National Institute of Standards and Technology, the Health Physics Society, the International Commission on Radiological Protection, the American Nuclear Society, the Food and Drug Administration, the Environmental Protection Agency, the Nuclear Regulatory Commission, the Conference of Radiation Control Program Directors and the American National Standards Institute, as applicable, in the interpretation and implementation of this rule.

(B) Maximum Permissible Total Effective Dose Equivalent

Except activities regulated by subsection 5-305(D) for VYNPS, the maximum permissible total effective dose equivalent of individuals from all regulated uses of ionizing radiation shall be kept as low as reasonably achievable (ALARA) and shall not exceed the values specified below:

(1) 0.5 rem for the fetus during the entire gestation period from occupational radiation exposure of a declared pregnant woman.

(2) 0.1 rem per year for minors under 18 years of age from occupational radiation exposure or from radiation exposure received during educational or training activities.

(3) 0.1 rem per year for members of the public from any source of ionizing radiation.

(4) 5.0 rem per year from occupational radiation exposure for all other individuals not covered by subsections (a), (b) or (c).

(C) Additional Criteria for the Healing Arts

(1) Practices of the regulated entity shall be consistent with those recommended by the National Council for Radiation Protection and other guidance bodies as cited in Section 5-305(A).

(2) Entrance Skin Exposure Criteria (ESEC) for non-specialty radiographic examinations shall not be exceeded when technical factors for an average adult patient (Standard person-defined below) are utilized.

(a) P.A. Chest: ESEC shall not exceed 30 milliroentgen per radiograph. Radiation exposure at the patient's skin of 15 milliroentgen or less per radiograph is strongly recommended.

(b) Lateral Skull: ESEC shall not exceed 300 milliroentgen per radiograph. Radiation exposure at the patient's skin of 200 milliroentgen or less per radiograph is strongly recommended.

(c) A.P. Abdomen: ESEC shall not exceed 750 milliroentgen per radiograph. Radiation exposure at the patient's skin of 500 milliroentgen or less per radiograph is strongly recommended.

(d) A.P. Cervical Spine: ESEC shall not exceed 250 milliroentgen per radiograph. Radiation exposure at the patient's skin of 175 milliroentgen or less per radiograph is strongly recommended.

(e) A.P. Thoracic Spine: ESEC shall not exceed 900 milliroentgen per radiograph. Radiation exposure at the patient's skin of 600 milliroentgen or less per radiograph is strongly recommended.

(f) A.P. Lumbar Spine: ESEC shall not exceed 1000 milliroentgen per radiograph. Radiation exposure at the patient's skin of 675 milliroentgen or less per radiograph is strongly recommended.

(g) A.P. Retrograde Pyelogram: ESEC shall not exceed 900 milliroentgen per radiograph. Radiation exposure at the patient's skin of 600 milliroentgen or less per radiograph is strongly recommended.

(h) Dental (Bitewing or Periapical): ESEC shall not exceed 700 milliroentgen per radiograph. Radiation exposure at the patient's skin of 350 milliroentgen or less per radiograph is strongly recommended.

(3) A standard person, for purposes of this regulation, is defined as an individual meeting the following anthropometric guidelines for the radiographic examination projection specified.

Body Part	Thickness of Part Centimeters	Examination DescriQtion
Thorax	23	P.A. chest
Head	15	Lateral Skull
Abdomen	23	A.P. Abdomen
Neck	13	A.P. Cervical Spine
Thorax	23	A.P. Thoracic Spine
Abdomen	23	A.P. Lumbar Spine
Abdomen	23	A.P. Retrograde Pyelogr.am

(4) Actual patient skin doses may exceed those shown for the standard person or for correlated doses for persons of greater or lesser anthopometric measurements if the attending practitioner of the healing arts determines that clear and present medical/dental necessity requires such dosage increase. A written, signed statement by the practitioner explaining the need for increased patient dosage shall become a permanent part of the patient's medical/dental record.

ADVISORY NOTE: The following Entrance Skin Exposure Criteria measurement protocol will be used by the State Health Department personnel to obtain data for regulatory purposes:

(a) A calibrated integrating radiation measuring device is placed in the center of the primary X-ray field at the location of entrance skin of a standard person for determination of exposure in air.

(b) Technical factors and other parameters such as field size and source-to-receptor distance are determined for a specific examination of a standard person.

(c) For photo-timed X-ray equipment, a phantom designed to simulate attenuation of a standard person is placed between the radiation measuring device and the photo-time sensing element in a manner to minimize backscatter.

(d) The radiographic equipment is energized (without patient) and the radiation measuring device reading is recorded for compliance purposes.

(5) Specific area gonad shielding on patients during medical diagnostic X-ray procedures shall have a lead equivalent of at least 0.25 mm and shall be required when the following conditions exist:

(a) The gonads will lie within the primary X-ray field or within close proximity (5 centimeters) despite proper beam limitation.

ADVISORY NOTE: Specific area testicular shielding also should be used during examinations of the abdominal region in which the testes may lie close to the primary X-ray field. Examples of such examinations include lumbar spine, intravenous pyelogram, and abdomen films.

(b) The clinical objectives of the examination will not be compromised.

ADVISORY NOTE: Each X-ray facility should compile a list of radiographic examinations for which gonad shielding is appropriate. Specific area ovarian shielding should be used during any examination of the abdominal region when such shielding will not obscure visualization of adjacent structures required by the examination. Specific area testicular shielding should be used for all examinations of male patients in which the pubic symphysis will be visualized on the film and when such shielding will not obscure visualization of adjacent structures required by the examination.

(c) The patient has a reasonable reproductive potential.

(6) Special dose limiting requirements.

Protection of the embryo or fetus during radiological examination of women known to be pregnant shall be given special consideration.

ADVISORY NOTE: It is recommended that radiologic examinations of the abdomen and pelvis which do not contribute to the diagnosis of pregnant or potentially pregnant women in relation to their current illness be restricted to the first 10 days of the menstrual cycle in the case of potentially pregnant individuals and avoided entirely during known pregnancy. The attending practitioner of the healing arts reiains full and complete discretion to carry out any radiographic examination considered medically necessary without regard for the phase of the menstrual cycle or fetal presence.

(D) Criteria Applicable to VYNPS 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:

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

(a) 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.

(b) 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.

(c) 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.

(d) 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.

(e) Direct Gamma Radiation

1) 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.

2) 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 (D)(3).

(2) Compliance with Dose Limits for Members of the Public

(a) 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.

(b) 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 15^{th} of the month for the prior calendar month.

(c) 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.

(d) 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.

(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:

(a) Immediately report the discharge or direct gamma radiation exceedance to the Department.

(b) 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

(c) VYNPS shall implement the plan approved by the Department with all reasonable speed.

(d) 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.

(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.

Section 5-306. Inspections.

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

(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 operating conditions.

(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.

(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.

(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.

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

(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.

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

Section 5-307. Notice, Corrective Actions and Enforcement.

(A) Whenever the Department has reasonable grounds to believe that there has been a violation of any of the provisions of this rule, the Department shall take appropriate action as provided in this subsection or otherwise provided in law, in order to protect the public health and safety.

(B) If an inspection, including the Department's independent compliance monitoring of VYNPS, indicates that the regulated entity is not in compliance with the requirements of this rule, the Department shall notify the regulated entity in writing, with full particulars regarding any deficiencies.

(1) 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 source ofradiation until such time as full compliance is restored, or such other action deemed necessary by the Department to protect the public health and safety is completed.

(2) A regulated entity shall respond to the Department within the time specified in the notice, which shall be determined by the risk associated with the alleged non-compliance.

(3) If the regulated entity fails to timely and satisfactorily comply with the requirements of the notice, the Department shall initiate an enforcement action.

(C) If the Department determines that an enforcement action is appropriate, or if timely and satisfactory compliance with a notice issued pursuant to subsection (B) of this subsection has not been achieved, the Department shall issue a notice

of violation in writing. The notice shall specify the nature of the violation and required action to restore full compliance. If the Department determines that enforcement action is required, the Department shall:

(1) refer the matter to the Attorney General for injunction proceedings consistent with 18 V.S.A. §1656, or

(2) in the event of an emergency, take immediate action consistent with 18 V.S.A. §1655 (b), or

(3) initiate a proceeding before the Board by issuing a written notice of the alleged violation to the regulated entity and filing the notice with the Board. The Board shall convene a contested case proceeding pursuant to 3 V.S.A. § 809 and 18 V.S.A. § 1655. On the basis of the evidence produced at the hearing the Board shall make findings of fact and conclusions of law and enter such order as in its opinion will best further the purposes of this rule and applicable law and shall give written notice of such order to the alleged violator, the Department and to any other parties to the proceeding, or

(4) take such other action in the discretion of the Commissioner as authorized by law.

(D) An appeal of any order issued by the Board pursuant to this subsection shall be to the superior court as provided in 18 V.S.A. § 1655(c).

Section 5-308. Registration.

(A) The owner or person having possession of any source of ionizing radiation except those exempted in Section 5-304, or licensed by the NRC, shall register each source with the Department within 30 days after the acquisition of such source. Registration shall be on forms provided by the Department.

(B) The registrant shall notify the Department within 30 days after any change in address or termination of use of any registered source of radiation.

(C) The owner or person having possession of any source of ionizing radiation not exempted in Section 5-304 (a) shall re-register such source every 3 years.

(D) No person, in any advertisement, shall refer to the fact that a source is registered with the Department and no person shall state or imply that any activity under such registration has been approved by the Department.

Section 5-309. Transportation.

(A) Persons transporting or shipping radioactive materials into, out of, through, or within the state shall provide notification to the Commissioner prior to such shipment or transport if such shipment or transport meets any of the following criteria:

(1) Any shipment or package containing a large quantity of radioactive material regulated by the NRC or US Department of Transportation (DOT).

(2) Fuel elements which have been utilized in a nuclear reactor.

(3) Any Fissile Class I, Class II, or Class III package regulated by the DOT.

(4) Any road, rail, air or sea transport of radioactive waste material for disposal.

(B) The shipper shall supply the following information in writing or by telephone to the Commissioner at least two working days prior to shipment. Schedule changes or additional information must be provided no later than two hours prior to shipment. To avoid undue hardship the Commissioner may approve other reporting schedules requested by the shipper.

(1) Name of shipper.

(2) Name of carrier.

(3) Type and quantity of radioactive material.

(4) Date and time of shipment.

(5) Starting point, scheduled route, and destination.

(6) Other information required by the Commissioner.

Shipments shall be made throughout the state with due regard to public health and safety. The Commissioner may require 'changes in dates, routes or time of shipment if necessary to maximize protection to public health and safety. Where possible, the Commissioner shall coordinate such changes with his or her counterparts in adjoining political jurisdictions.

Radiological Health Rule: Part B – Effective March 1, 2019

Chapter 6 – Environmental Health

Subchapter 5 –

Radioactive Materials 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 radioactive materials 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 radioactive materials.

1.2.2 A person, when required, shall obtain a license for radioactive materials 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.

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, 61.55, 61.56, 61.57, 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 relevant 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.

1.2.6 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 are 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 naturally occurring or accelerator-produced radioactive material (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”.

1.2.6.11 In 10 CFR 150.20, where the words “non-agreement states”, “areas of exclusive federal jurisdiction within agreement states”, or “offshore waters” are used in 150.20(a)(1)(i), (ii), (iii), (b), (b)(3), and (b)(4) substitute the words “the State of Vermont”. Where the words “agreement state license” are used in 10 CFR 150.20, also add the words “Nuclear Regulatory Commission license”. Where the words “license issued by an agreement state” are used in 10 CFR 150.20 also add the words “license issued by the Nuclear Regulatory Commission”. Where the words “license from an agreement state” are used in 10 CFR 150.20 also add the words “license from the Nuclear Regulatory Commission”.

1.2.6.12 In 10 CFR 31, where the words “any non-agreement state” or “offshore waters” are used in 31.6 substitute the words “State of Vermont”.

1.2.7 This Part does not regulate x-ray and other radiographic diagnostic or therapeutic equipment use by physicians, dentists, and other health professionals, occupational sources of radiation from machines and the radiation exposure values at the site boundary of the Vermont Yankee Nuclear Power Station.

1.3 Definitions

The definitions in 10 C.F.R. Chapter I, Parts 19, 20, 30, 31, 32, 33, 34, 35, 36, 37, 39, 40, 61, 70, 71,150, 170 and 171 are incorporated by reference in this rule unless indicated otherwise.

1.3.1 “Agreement State” means any State with which the Atomic Energy Commission or the Nuclear Regulatory Commission has entered into an effective agreement under subsection 274b. of the Atomic Energy Act of 1954, as amended.

1.3.2 “Department” means the Vermont Department of Health unless the provision of the rule states that the term references the Department of Energy as referenced in 10 C.F.R. 70.42(b)(1).

1.3.3 “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.

1.3.4 “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.

1.3.5 “Radioactive material” means any material, whether solid, liquid, or gas, that emits ionizing radiation spontaneously. The term includes material made radioactive by a particle accelerator, byproduct material, naturally occurring radioactive material, source material, and special nuclear material.

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 "Source material" means: (1) uranium or thorium, or any combination thereof, in any physical or chemical form or (2) ores which contain by weight one-twentieth of one percent (0.05%) or more of: (1) uranium, (ii) thorium or (iii) any combination thereof. Source materials does not include special nuclear material.

1.3.8 "Special nuclear material" means: (1) plutonium, uranium 233, uranium enriched in the isotope 233 or in the isotope 235, and any other material which the Commission, pursuant to the provisions of section 51 of the Act, determines to be special nuclear material; or (2) any material artificially enriched by any of the foregoing.

1.3.9 "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.

1.3.10 Unrefined and unprocessed ore" means ore in its natural form prior to any processing, such as grinding, roasting or beneficiating, or refining. Processing does not include sieving or encapsulation of ore or preparation of samples for laboratory analysis.

1.3.11 The definition of regulated entities in 10 CFR 19.3 is not incorporated by reference.

2.0 Compliance Monitoring

2.1 Records

2.1.1 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.

2.1.2 Additional record requirements are specified elsewhere in these regulations.

2.2 Inspections and investigations

2.2.1 The Department may conduct inspections and investigations of the facilities and regulated activities of radioactive material necessary to demonstrate compliance with these regulations.

2.2.2 *Maintenance of records*. Licensees 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 issued under this regulation.

2.2.3 Licensees 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 licensee to make reports and furnish information to the Department.

2.2.3.3 Enter the premises of a licensee for the purpose of investigation or inspection of radioactive materials and the premises and facilities where radioactive materials 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, 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 Radioactive materials.

2.3.1.2 Facilities in which radioactive materials 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 radioactive materials.

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 of radioactive materials.

No person may sell within the State of Vermont radioactive materials which do not meet the requirements of these regulations.

3.2 Human use

3.2.1 No use of radioactive materials 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 radioactive materials 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 radioactive materials 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 radioactive materials 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 radioactive materials 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.

3.4 Employee protections.

The requirements under 10 C.F.R. 30.7 (relating to employee protection) are incorporated by reference.

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 18 V.S.A. §§ 1651-1657. 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

4.2.1 Electrical equipment

4.2.1.1 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.

4.2.1.2 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 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 licensing of radioactive materials and provides for their payment. 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, radioactive materials under the same administrative control in a single building are licensed as a single facility. Radioactive materials under the same administrative control at the same address or in a contiguous group of buildings may be licensed as a single facility if the Department determines that it is appropriate.

Except as otherwise specifically provided, this subsection applies to a person who: Is an applicant for or holder of a radioactive material license issued under Subsection 11.0 (relating to licensing of radioactive materials).

5.2 Incorporation by reference.

5.2.1 Notwithstanding the requirements incorporated by reference, 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.

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 fees.

5.3.1 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.

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

5.3.1.2 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.

5.3.2 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.

5.3.3 The Department will not accept an initial application for a license prior to payment of the fees required by paragraphs 5.3.1 and 5.3.2.

5.3.4 If a license involves more than one of the categories in paragraph 5.3.2, the highest applicable fee applies.

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

5.3.5.1 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.

5.3.5.2 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 issued by the Department. Licensees 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 radioactive materials by a licensee 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 by the Department to receive, possess, use, transfer or dispose of radioactive materials..

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, 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.

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.

6.2.4 *Reports of leaking or contaminated sealed sources.* If the test for leakage or contamination 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.

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 to individuals engaged in activities under a license. This subsection also establishes options available to the individuals in connection with Department inspections of licensees 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 radioactive materials licensed by the Department under Subsection 11.0(relating to licensing of radioactive material, 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, 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.

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 radioactive materials 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, 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, 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.

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, 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."

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, 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.

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

12.6.2 *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, Sections 33.8, 33.21 and 33.23 are not incorporated.

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, Sections 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."

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, 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.

12.9.3 In 10 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 *Incorporation by reference.* Except as provided in this subsection, the requirements of 10 C.F.R. 150.1, 150.2, 150.3, 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.

12.10.2 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).

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

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

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 Purpose and Scope

This subsection establishes radiation safety requirements for persons using radioactive

materials for industrial radiography.

15.2 Incorporation by reference

15.2.1 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.

15.2.2 Notwithstanding the requirements incorporated by reference, Sections 34.5, 34.8, 34.121 and 34.123 are not incorporated.

15.3 Prohibitions

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

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

16.2.1 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.

16.2.2 Notwithstanding the requirements incorporated by reference, Sections 39.5, 39.8, 39.101 and 39.103 are not incorporated.

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, 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.

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, 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. 71.17(c)(3), the submission required before the first use of an 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.

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.

19.0 **Waste Classification, Characteristics and Labeling: The requirements of 10 C.F.R. 61. 55, 61.56 and 61.57 (relating to classification characterization and labeling of radioactive wastes) are incorporated by reference. The official version can be accessed at http://www.nrc.gov/. The official version is also available in hard copy.**