

**SUBCHAPTER A: GENERAL PROVISIONS**  
**§§336.1 - 336.6, 336.9**  
**Effective December 8, 2016**

**§336.1. Scope and General Provisions.**

(a) Except as otherwise specifically provided, the rules in this chapter apply to all persons who dispose of radioactive substances; all persons who recover or process source material; and all persons who receive radioactive substances from other persons for storage or processing.

(1) However, nothing in these rules shall apply to any person to the extent that person is subject to regulation by the United States Nuclear Regulatory Commission (NRC) or to radioactive material in the possession of federal agencies.

(2) Any United States Department of Energy contractor or subcontractor or any NRC contractor or subcontractor of the following categories operating within the state, is exempt from the rules in this chapter, with the exception of any applicable fee set forth in Subchapter B of this chapter (relating to Radioactive Substance Fees), to the extent that such contractor or subcontractor under his contract receives, possesses, uses, transfers, or acquires sources of radiation:

(A) prime contractors performing work for the United States Department of Energy at a United States government-owned or controlled site, including the transportation of radioactive material to or from the site and the performance of contract services during temporary interruptions of transportation;

(B) prime contractors of the United States Department of Energy performing research in or development, manufacture, storage, testing, or transportation of atomic weapons or components thereof;

(C) prime contractors of the United States Department of Energy using or operating nuclear reactors or other nuclear devices in a United States government-owned vehicle or vessel; and

(D) any other prime contractor or subcontractor of the United States Department of Energy or the NRC when the state and the NRC jointly determine that:

(i) the exemption of the prime contractor or subcontractor is authorized by law; and

(ii) under the terms of the contract or subcontract, there is adequate assurance that the work thereunder can be accomplished without undue risk to the public health and safety or the environment.

(3) Radioactive material that is physically received from the federal government by a non-federal facility is subject to state jurisdiction except as provided in paragraph (2) of this subsection.

(4) The rules of this chapter do not apply to transportation of radioactive materials. This provision does not exempt a transporter from other applicable requirements.

(5) The rules in this chapter do not apply to the disposal of radiation machines as defined in this subchapter or electronic devices that produce non-ionizing radiation.

(b) Regulation by the State of Texas of source material, by-product material, and special nuclear material in quantities not sufficient to form a critical mass is subject to the provisions of the agreement between the State of Texas and the NRC and to 10 Code of Federal Regulations Part 150 (10 CFR Part 150) (Exemptions and Continued Regulatory Authority in Agreement States and in Offshore Waters Under Section 274). (A copy of the Texas agreement, "Articles of Agreement between the United States Nuclear Regulatory Commission and the State of Texas for Discontinuance of Certain Commission Regulatory Authority and Responsibility Within the State Pursuant to Section 274 of the Atomic Energy Act of 1954, as Amended" (Agreement), may be obtained from this commission.) Under the Agreement and 10 CFR Part 150, the NRC retains certain regulatory authorities over source material, by-product material, and special nuclear material in the State of Texas. Persons in the State of Texas are not exempt from the regulatory requirements of the NRC with respect to these retained authorities.

(c) No person may receive, possess, use, transfer, or dispose of radioactive material, which is subject to the rules in this chapter, in such a manner that the standards for protection against radiation prescribed in these rules are exceeded.

(d) Each person licensed by the commission under this chapter shall confine possession, use, and disposal of licensed radioactive material to the locations and purposes authorized in the license.

(e) No person may cause or allow the release of radioactive material, which is subject to the rules in this chapter, to the environment in violation of this chapter or of any rule, license, or order of the Texas Commission on Environmental Quality (commission).

(f) No person shall:

(1) dispose of low-level radioactive waste on site, except as authorized under §336.501(b) of this title (relating to Scope and General Provisions);

(2) receive low-level radioactive waste from other persons for the purpose of disposal, except for a person specifically licensed for the disposal of low-level radioactive waste;

(3) dispose of radioactive materials other than low-level radioactive waste, except for diffuse naturally occurring radioactive material waste having concentrations of less than 2,000 picocuries per gram (pCi/g) radium-226 or radium-228;

(4) dispose of radioactive materials from other persons other than low-level radioactive waste, except for naturally occurring radioactive material waste in accordance with Subchapter K of this chapter (relating to Commercial Disposal of Naturally Occurring Radioactive Material Waste from Public Water Systems);

(5) recover or process source material, except in accordance with Subchapter L of this chapter (relating to Licensing of Source Material Recovery and By-Product Material Disposal Facilities);

(6) store, process, or dispose of by-product material, except in accordance with Subchapter L of this chapter; or

(7) receive radioactive substances from other persons for storage or processing, except in accordance with Subchapter M of this chapter (relating to Licensing of Radioactive Substances Processing and Storage Facilities).

Adopted January 11, 2012

Effective February 2, 2012

### **§336.2. Definitions.**

The following words and terms, when used in this chapter, shall have the following meanings, or as described in Chapter 3 of this title (relating to Definitions), unless the context clearly indicates otherwise. Additional definitions used only in a certain subchapter will be found in that subchapter.

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

(2) Accelerator-produced radioactive material--Any material made radioactive by a particle accelerator.

(3) Access control--A system for allowing only approved individuals to have unescorted access to the security zone and for ensuring that all other individuals are subject to escorted access.

(4) Activity--The rate of disintegration (transformation) or decay of radioactive material. The units of activity are the curie (Ci) and the becquerel (Bq).

(5) Adult--An individual 18 or more years of age.

(6) Aggregated--Accessible by the breach of a single physical barrier that allows access to radioactive material in any form, including any devices containing the radioactive material, when the total activity equals or exceeds a category 2 quantity of radioactive material.

(7) Agreement state--Any state with which the United States Nuclear Regulatory Commission (NRC) or the Atomic Energy Commission has entered into an effective agreement under the Atomic Energy Act of 1954, §274b, as amended. Non-agreement State means any other State.

(8) Airborne radioactive material--Any radioactive material dispersed in the air in the form of dusts, fumes, particulates, mists, vapors, or gases.

(9) Airborne radioactivity area--A room, enclosure, or area in which airborne radioactive materials, composed wholly or partly of licensed material, exist in concentrations:

(A) in excess of the derived air concentrations (DACs) specified in Table I of §336.359(d) of this title (relating to Appendix B. Annual Limits on Intake (ALI) and Derived Air Concentrations (DAC) of Radionuclides for Occupational Exposure; Effluent Concentrations; Concentrations for Release to Sanitary Sewerage); or

(B) to a degree that an individual present in the area without respiratory protective equipment could exceed, during the hours an individual is present in a week, an intake of 0.6% of the ALI or 12 DAC-hours.

(10) Air-purifying respirator--A respirator with an air-purifying filter, cartridge, or canister that removes specific air contaminants by passing ambient air through the air-purifying element.

(11) Annual limit on intake (ALI)--The derived limit for the amount of radioactive material taken into the body of an adult worker by inhalation or ingestion in a year. ALI is the smaller value of intake of a given radionuclide in a year by the "reference man" that would result in a committed effective dose equivalent of 5 rems (0.05 sievert) or a committed dose equivalent of 50 rems (0.5 sievert) to any individual organ or tissue. ALI values for intake by ingestion and by inhalation of selected radionuclides are given in Table I, Columns 1 and 2 of §336.359(d) of this title (relating to Appendix B. Annual Limits on Intake (ALI) and Derived Air Concentrations (DAC) of Radionuclides for Occupational Exposure; Effluent Concentrations; Concentrations for Release to Sanitary Sewerage).

(12) Approved individual--An individual whom the licensee has determined to be trustworthy and reliable for unescorted access in accordance with §336.357(b) - (h) of this title (relating to Physical Protection of Category 1 and Category 2 Quantities of Radioactive Material) and who has completed the training required by §336.357(j)(3) of this title.

(13) As low as is reasonably achievable--Making every reasonable effort to maintain exposures to radiation as far below the dose limits in this chapter as is practical, consistent with the purpose for which the licensed activity is undertaken, taking into account the state of technology, the economics of improvements in relation to the state of technology, the economics of improvements in relation to benefits to the public health and safety, and other societal and socioeconomic considerations, and in relation to utilization of ionizing radiation and licensed radioactive materials in the public interest.

(14) Assigned protection factor (APF)--The expected workplace level of respiratory protection that would be provided by a properly functioning respirator or a class of respirators to properly fitted and trained users. Operationally, the inhaled concentration can be estimated by dividing the ambient airborne concentration by the APF.

(15) Atmosphere-supplying respirator--A respirator that supplies the respirator user with breathing air from a source independent of the ambient atmosphere, and includes supplied-air respirators and self-contained breathing apparatus units.

(16) Background investigation--The investigation conducted by a licensee or applicant to support the determination of trustworthiness and reliability.

(17) Background radiation--Radiation from cosmic sources; non-technologically enhanced 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 licensee. "Background radiation" does not include radiation from radioactive materials regulated by the commission, Texas Department of State Health Services, United States Nuclear Regulatory Commission, or an Agreement State.

(18) Becquerel (Bq)--See §336.4 of this title (relating to Units of Radioactivity).

(19) Bioassay--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. For purposes of the rules in this chapter, "radiobioassay" is an equivalent term.

(20) Byproduct material--

(A) a radioactive material, other than special nuclear material, that is produced in or made radioactive by exposure to radiation incident to the process of producing or using special nuclear material;

(B) the tailings or wastes produced by or resulting from the extraction or concentration of uranium or thorium from ore processed primarily for its source material content, including discrete surface wastes resulting from uranium solution extraction processes, and other tailings having similar radiological characteristics. Underground ore bodies depleted by these solution extraction processes do not constitute "byproduct material" within this definition;

(C) any discrete source of radium-226 that is produced, extracted, or converted after extraction, for use for a commercial, medical, or research activity;

(D) any material that has been made radioactive by use of a particle accelerator, and is produced, extracted, or converted for use for a commercial, medical, or research activity; and

(E) any discrete source of naturally occurring radioactive material, other than source material, that is extracted or converted after extraction for use in a commercial, medical, or research activity and that the United States Nuclear Regulatory Commission, in consultation with the Administrator of the United States Environmental Protection Agency, the United States Secretary of Energy, the United States Secretary of Homeland Security, and the head of any other appropriate Federal agency, determines would pose a threat similar to the

threat posed by a discrete source of radium-226 to the public health and safety or the common defense and security.

(21) CFR--Code of Federal Regulations.

(22) Carrier--A person engaged in the transportation of passengers or property by land or water as a common, contract, or private carrier, or by civil aircraft.

(23) Category 1 quantity of radioactive material--A quantity of radioactive material meeting or exceeding the category 1 threshold in accordance with §336.357(z) of this title (relating to Physical Protection of Category 1 and Category 2 Quantities of Radioactive Material). This is determined by calculating the ratio of the total activity of each radionuclide to the category 1 threshold for that radionuclide and adding the ratios together. If the sum is equal to or exceeds 1, the quantity would be considered a category 1 quantity. Category 1 quantities of radioactive material do not include the radioactive material contained in any fuel assembly, subassembly, fuel rod, or fuel pellet.

(24) Category 2 quantity of radioactive material--A quantity of radioactive material meeting or exceeding the category 2 threshold but less than the category 1 threshold in accordance with §336.357(z) of this title (relating to Physical Protection of Category 1 and Category 2 Quantities of Radioactive Material). This is determined by calculating the ratio of the total activity of each radionuclide to the category 2 threshold for that radionuclide and adding the ratios together. If the sum is equal to or exceeds 1, the quantity would be considered a category 2. Category 2 quantities of radioactive material do not include the radioactive material contained in any fuel assembly, subassembly, fuel rod, or fuel pellet.

(25) Class--A classification scheme for inhaled material according to its rate of clearance from the pulmonary region of the lung. Materials are classified as D, W, or Y, which applies to a range of clearance half-times: for Class D (Days) of less than ten days, for Class W (Weeks) from 10 to 100 days, and for Class Y (Years) of greater than 100 days. For purposes of the rules in this chapter, "lung class" and "inhalation class" are equivalent terms.

(26) Collective dose--The sum of the individual doses received in a given period of time by a specified population from exposure to a specified source of radiation.

(27) Committed dose equivalent (HT,50) (CDE)--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 the intake.

(28) Committed effective dose equivalent (HE,50) (CEDE)--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 each of these organs or tissues.

(29) Compact--The Texas Low-Level Radioactive Waste Disposal Compact established under Texas Health and Safety Code, §403.006 and Texas Low-Level Radioactive Waste Disposal Compact Consent Act, Public Law Number 105-236 (1998).

(30) Compact waste--Low-level radioactive waste that:

(A) is generated in a host state or a party state; or

(B) is not generated in a host state or a party state, but has been approved for importation to this state by the compact commission under §3.05 of the compact established under Texas Health and Safety Code, §403.006.

(31) Compact waste disposal facility--The low-level radioactive waste land disposal facility licensed by the commission under Subchapter H of this chapter (relating to Licensing Requirements for Near-Surface Land Disposal of Low-Level Radioactive Waste) for the disposal of compact waste.

(32) Constraint (dose constraint)--A value above which specified licensee actions are required.

(33) Critical group--The group of individuals reasonably expected to receive the greatest exposure to residual radioactivity for any applicable set of circumstances.

(34) Curie (Ci)--See §336.4 of this title (relating to Units of Radioactivity).

(35) Declared pregnant woman--A woman who has voluntarily informed the licensee, 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.

(36) Decommission--To remove (as a facility) safely from service and reduce residual radioactivity to a level that permits:

(A) release of the property for unrestricted use and termination of license; or

(B) release of the property under restricted conditions and termination of the license.

(37) Deep-dose equivalent (Hd) (which applies to external whole-body exposure)--The dose equivalent at a tissue depth of one centimeter (1,000 milligrams/square centimeter).

(38) Demand respirator--An atmosphere-supplying respirator that admits breathing air to the facepiece only when a negative pressure is created inside the facepiece by inhalation.

(39) Depleted uranium--The source material uranium in which the isotope uranium-235 is less than 0.711%, by weight, of the total uranium present. Depleted uranium does not include special nuclear material.

(40) Derived air concentration (DAC)--The concentration of a given radionuclide in air which, if breathed by the "reference man" for a working year of 2,000 hours under conditions of light work (inhalation rate of 1.2 cubic meters of air/hour), results in an intake of one ALI. DAC values are given in Table I, Column 3, of §336.359(d) of this title (relating to Appendix B. Annual Limits on Intake (ALI) and Derived Air Concentrations (DAC) of Radionuclides for Occupational Exposure; Effluent Concentrations; Concentrations for Release to Sanitary Sewerage).

(41) Derived air concentration-hour (DAC-hour)--The product of the concentration of radioactive material in air (expressed as a fraction or multiple of the derived air concentration for each radionuclide) and the time of exposure to that radionuclide, in hours. A licensee shall take 2,000 DAC-hours to represent one, equivalent to a committed effective dose equivalent of 5 rems (0.05 sievert).

(42) Discrete source--A radionuclide that has been processed so that its concentration within a material has been purposely increased for use for commercial, medical, or research activities.

(43) Disposal--With regard to low-level radioactive waste, the isolation or removal of low-level radioactive waste from mankind and mankind's environment without intent to retrieve that low-level radioactive waste later.

(44) Disposable respirator--A respirator for which maintenance is not intended and that is designed to be discarded after excessive breathing resistance, sorbent exhaustion, physical damage, or end-of-service-life renders it unsuitable for use. Examples of this type of respirator are a disposable half-mask respirator or a disposable escape-only Self-Contained breathing apparatus.

(45) Distinguishable from background--The detectable concentration of a radionuclide is statistically different from the background concentration of that radionuclide in the vicinity of the site or, in the case of structures, in similar materials using adequate measurement technology, survey, and statistical techniques.

(46) Diversion--The unauthorized movement of radioactive material subject to §336.357 of this title (relating to Physical Protection of Category 1 and Category 2 Quantities of Radioactive Material) to a location different from the material's authorized destination inside or outside of the site at which the material is used or stored.

(47) Dose--A generic term that means absorbed dose, dose equivalent, effective dose equivalent, committed dose equivalent, committed effective dose equivalent, total organ dose equivalent, or total effective dose equivalent. For purposes of the rules in this chapter, "radiation dose" is an equivalent term.

(48) Dose equivalent (HT)--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).

(49) Dose limits--The permissible upper bounds of radiation doses established in accordance with the rules in this chapter. For purposes of the rules in this chapter, "limits" is an equivalent term.

(50) Dosimetry processor--An individual or organization that processes and evaluates individual monitoring devices in order to determine the radiation dose delivered to the monitoring devices.

(51) Effective dose equivalent (HE)--The sum of the products of the dose equivalent to each organ or tissue (HT) and the weighting factor (wT) applicable to each of the body organs or tissues that are irradiated.

(52) Embryo/fetus--The developing human organism from conception until the time of birth.

(53) Entrance or access point--Any opening through which an individual or extremity of an individual could gain access to radiation areas or to licensed radioactive materials. This includes portals of sufficient size to permit human access, irrespective of their intended use.

(54) Environmental Radiation and Perpetual Care Account--An account in the general revenue fund established for the purposes specified in the Texas Health and Safety Code, §401.306.

(55) Escorted access--Accompaniment while in a security zone by an approved individual who maintains continuous direct visual surveillance at all times over an individual who is not approved for unescorted access.

(56) Exposure--Being exposed to ionizing radiation or to radioactive material.

(57) Exposure rate--The exposure per unit of time.

(58) External dose--That portion of the dose equivalent received from any source of radiation outside the body.

(59) Extremity--Hand, elbow, arm below the elbow, foot, knee, and leg below the knee. The arm above the elbow and the leg above the knee are considered part of the whole body.

(60) Federal facility waste--Low-level radioactive waste that is the responsibility of the federal government under the Low-Level Radioactive Waste Policy Act, as amended by the Low-Level Radioactive Waste Policy Amendments Act of 1985 (42 United States Code, §2021b - 2021j). Excluded from this definition is low-level radioactive waste that is classified as greater than Class C in §336.362 of this title (relating to Appendix E. Classification and Characteristics of Low-Level Radioactive Waste).

(61) Federal facility waste disposal facility--A low-level radioactive waste land disposal facility for the disposal of federal facility waste licensed under Subchapters H and J of this chapter (relating to Licensing Requirements for Near-Surface Land Disposal of Low-Level Radioactive Waste, and Federal Facility Waste Disposal Facility).

(62) Filtering facepiece (dust mask)--A negative pressure particulate respirator with a filter as an integral part of the facepiece or with the entire facepiece composed of the filtering medium, not equipped with elastomeric sealing surfaces and adjustable straps.

(63) Fingerprint Orders--Orders issued by the Nuclear Regulatory Commission or the legally binding requirements issued by Agreement States that require fingerprints and criminal history records checks for individuals with unescorted access to category 1 and category 2 quantities of radioactive material or safeguards information-modified handling.

(64) Fit factor--A quantitative estimate of the fit of a particular respirator to a specific individual, and typically estimates the ratio of the concentration of a substance in ambient air to its concentration inside the respirator when worn.

(65) Fit test--The use of a protocol to qualitatively or quantitatively evaluate the fit of a respirator on an individual.

(66) General license--An authorization granted by an agency under its rules which is effective without the filing of an application with that agency or the issuance of a licensing document to the particular person.

(67) Generally applicable environmental radiation standards--Standards issued by the EPA under the authority of the Atomic Energy Act of 1954, as amended through October 4, 1996, that impose limits on radiation exposures or levels, or concentrations or quantities of radioactive material, in the general environment outside the boundaries of locations under the control of persons possessing or using radioactive material.

(68) Gray (Gy)--See §336.3 of this title (relating to Units of Radiation Exposure and Dose).

(69) Hazardous waste--Hazardous waste as defined in §335.1 of this title (relating to Definitions).

(70) Helmet--A rigid respiratory inlet covering that also provides head protection against impact and penetration.

(71) High radiation area--An area, accessible to individuals, in which radiation levels from radiation sources external to the body could result in an individual receiving a dose equivalent in excess of 0.1 rem (1 millisievert) in one hour at 30 centimeters from the radiation source or 30 centimeters from any surface that the radiation penetrates.

(72) Hood--A respiratory inlet covering that completely covers the head and neck and may also cover portions of the shoulders and torso.

(73) Host state--A party state in which a compact facility is located or is being developed. The state of Texas is the host state under the Texas Low-Level Radioactive Waste Disposal Compact, §2.01, established under Texas Health and Safety Code, §403.006.

(74) Individual--Any human being.

(75) Individual monitoring--The assessment of:

(A) dose equivalent by the use of individual monitoring devices;

(B) committed effective dose equivalent by bioassay or by determination of the time-weighted air concentrations to which an individual has been exposed, that is, derived air concentration-hour; or

(C) dose equivalent by the use of survey data.

(76) Individual monitoring devices--Devices designed to be worn by a single individual for the assessment of dose equivalent such as film badges, thermoluminescence dosimeters, pocket ionization chambers, and personal ("lapel") air sampling devices.

(77) Inhalation class--See "Class."

(78) Inspection--An official examination and/or observation including, but not limited to, records, tests, surveys, and monitoring to determine compliance with the Texas Radiation Control Act and rules, orders, and license conditions of the commission.

(79) Internal dose--That portion of the dose equivalent received from radioactive material taken into the body.

(80) Land disposal facility--The land, buildings and structures, and equipment which are intended to be used for the disposal of low-level radioactive wastes into the subsurface of the land. For purposes of this chapter, a "geologic repository" as defined in 10 Code of Federal Regulations §60.2 as amended through October 27, 1988 (53 FR 43421) (relating to Definitions - high-level radioactive wastes in geologic repositories) is not considered a "land disposal facility."

(81) Lens dose equivalent (LDE)--The external exposure of the lens of the eye and is taken as the dose equivalent at a tissue depth of 0.3 centimeter (300 mg/cm<sup>2</sup>).

(82) License--See "Specific license."

(83) Licensed material--Radioactive material received, possessed, used, processed, transferred, or disposed of under a license issued by the commission.

(84) Licensee--Any person who holds a license issued by the commission in accordance with the Texas Health and Safety Code, Chapter 401 (Radioactive Materials and Other Sources of Radiation) and the rules in this chapter. For purposes of the rules in this chapter, "radioactive material licensee" is an equivalent term. Unless stated otherwise, "licensee" as used in the rules of this chapter means the holder of a "specific license."

(85) Licensing state--Any state with rules equivalent to the Suggested State Regulations for Control of Radiation relating to, and having an effective program for, the regulatory control of naturally occurring or accelerator-produced radioactive material (NARM) and which has been designated as such by the Conference of Radiation Control Program Directors, Inc.

(86) Local law enforcement agency (LLEA)--A public or private organization that has been approved by a federal, state, or local government to carry firearms; make arrests; and is authorized and has the capability to provide an armed response in the jurisdiction where the licensed category 1 or category 2 quantity of radioactive material is used, stored, or transported.

(87) Loose-fitting facepiece--A respiratory inlet covering that is designed to form a partial seal with the face.

(88) Lost or missing licensed radioactive material--Licensed material whose location is unknown. This definition includes material that has been shipped but has not reached its planned destination and whose location cannot be readily traced in the transportation system.

(89) Low-level radioactive waste--

(A) Except as provided by subparagraph (B) of this paragraph, low-level radioactive waste means radioactive material that:

(i) is discarded or unwanted and is not exempt by a Texas Department of State Health Services rule adopted under the Texas Health and Safety Code, §401.106;

(ii) is waste, as that term is defined by 10 Code of Federal Regulations (CFR) §61.2; and

(iii) is subject to:

(I) concentration limits established under this chapter; and

(II) disposal criteria established under this chapter.

(B) Low-level radioactive waste does not include:

(i) high-level radioactive waste defined by 10 CFR §60.2;

(ii) spent nuclear fuel as defined by 10 CFR §72.3;

(iii) transuranic waste as defined in this section;

(iv) byproduct material as defined by paragraph (20)(B) -  
(E) of this section;

waste; or  
(v) naturally occurring radioactive material (NORM)

(vi) oil and gas NORM waste.

(C) When used in this section, the references to 10 CFR sections mean those CFR sections as they existed on September 1, 1999, as required by Texas Health and Safety Code, §401.005.

(90) Lung class--See "Class."

(91) Member of the public--Any individual except when that individual is receiving an occupational dose.

(92) Minor--An individual less than 18 years of age.

(93) Mixed waste--A combination of hazardous waste, as defined in §335.1 of this title (relating to Definitions) and low-level radioactive waste. The term includes compact waste and federal facility waste containing hazardous waste.

(94) Mobile device--A piece of equipment containing licensed radioactive material that is either mounted on wheels or casters, or otherwise equipped for moving without a need for disassembly or dismounting; or designed to be hand carried. Mobile devices do not include stationary equipment installed in a fixed location.

(95) Monitoring--The measurement of radiation levels, radioactive material concentrations, surface area activities, or quantities of radioactive material and the use of the results of these measurements to evaluate potential exposures and doses. For purposes of the rules in this chapter, "radiation monitoring" and "radiation protection monitoring" are equivalent terms.

(96) Movement control center--An operations center that is remote from transport activity and that maintains position information on the movement of radioactive material, receives reports of attempted attacks or thefts, provides a means for reporting these and other problems to appropriate agencies and can request and coordinate appropriate aid.

(97) Nationally tracked source--A sealed source containing a quantity equal to or greater than category 1 or category levels of any radioactive material listed in §336.351 of this title (relating to Reports of Transactions Involving Nationally Tracked Sources). In this context a sealed source is defined as radioactive material that is sealed in a capsule or closely bonded, in a solid form and which is not exempt from regulatory control. It does not mean material encapsulated solely for disposal, or nuclear material contained in any fuel assembly, subassembly, fuel rod, or fuel pellet. Category 1 nationally tracked sources are those containing radioactive material at a quantity equal to or greater than the category 1 threshold. Category 2 nationally tracked sources are those containing radioactive material at a quantity equal to or greater than the category 2 threshold but less than the category 1 threshold.

(98) Naturally occurring or accelerator-produced radioactive material (NARM)--Any NARM except source material or special nuclear material.

(99) Naturally occurring radioactive material (NORM) waste--Solid, liquid, or gaseous material or combination of materials, excluding source material, special nuclear material, and byproduct material, that:

(A) in its natural physical state spontaneously emits radiation;

(B) is discarded or unwanted; and

(C) is not exempt under rules of the Texas Department of State Health Services adopted under Texas Health and Safety Code, §401.106.

(100) Near-surface disposal facility--A land disposal facility in which low-level radioactive waste is disposed of in or within the upper 30 meters of the earth's surface.

(101) Negative pressure respirator (tight fitting)--A respirator in which the air pressure inside the facepiece is negative during inhalation with respect to the ambient air pressure outside the respirator.

(102) No-later-than arrival time--The date and time that the shipping licensee and receiving licensee have established as the time an investigation will be

initiated if the shipment has not arrived at the receiving facility. The no-later-than arrival time may not be more than six hours after the estimated arrival time for shipments of category 2 quantities of radioactive material.

(103) Nonstochastic effect--A health effect, the severity of which varies with the dose and for which a threshold is believed to exist. Radiation-induced cataract formation is an example of a nonstochastic effect. For purposes of the rules in this chapter, "deterministic effect" is an equivalent term.

(104) Occupational dose--The dose received by an individual in the course of employment in which the individual's assigned duties involve exposure to radiation and/or to radioactive material from licensed and unlicensed sources of radiation, whether in the possession of the licensee or other person. Occupational dose does not include dose received from background radiation, as a patient from medical practices, from voluntary participation in medical research programs, or as a member of the public.

(105) Oil and gas naturally occurring radioactive material (NORM) waste--NORM waste that constitutes, is contained in, or has contaminated oil and gas waste as that term is defined in the Texas Natural Resources Code, §91.1011.

(106) On-site--The same or geographically contiguous property that may be divided by public or private rights-of-way, provided the entrance and exit between the properties is at a cross-roads intersection, and access is by crossing, as opposed to going along, the right-of-way. Noncontiguous properties owned by the same person but connected by a right-of-way that the property owner controls and to which the public does not have access, is also considered on-site property.

(107) Particle accelerator--Any machine capable of accelerating electrons, protons, deuterons, or other charged particles in a vacuum and discharging the resultant particulate or other associated radiation at energies usually in excess of 1 million electron volts (MeV).

(108) Party state--Any state that has become a party to the compact in accordance with Article VII of the Texas Low-Level Radioactive Waste Disposal Compact, established under Texas Health and Safety Code, §403.006.

(109) Perpetual care account--The Environmental Radiation and Perpetual Care Account as defined in this section.

(110) Personnel monitoring equipment--See "Individual monitoring devices."

(111) Planned special exposure--An infrequent exposure to radiation, separate from and in addition to the annual occupational dose limits.

(112) Positive pressure respirator--A respirator in which the pressure inside the respiratory inlet covering exceeds the ambient air pressure outside the respirator.

(113) Powered air-purifying respirator (PAPR)--An air-purifying respirator that uses a blower to force the ambient air through air-purifying elements to the inlet covering.

(114) Pressure demand respirator--A positive pressure atmosphere-supplying respirator that admits breathing air to the facepiece when the positive pressure is reduced inside the facepiece by inhalation.

(115) Principal activities--Activities authorized by the license which are essential to achieving the purpose(s) for which the license is issued or amended. Storage during which no licensed material is accessed for use or disposal and activities incidental to decontamination or decommissioning are not principal activities.

(116) Public dose--The dose received by a member of the public from exposure to radiation and/or radioactive material released by a licensee, or to any other source of radiation under the control of the licensee. It does not include occupational dose or doses received from background radiation, as a patient from medical practices, or from voluntary participation in medical research programs.

(117) Qualitative fit test (QLFT)--A pass/fail test to assess the adequacy of respirator fit that relies on the individual's response to the test agent.

(118) Quality factor (Q)--The modifying factor listed in Table I or II of §336.3(c) or (d) of this title (relating to Units of Radiation Exposure and Dose) that is used to derive dose equivalent from absorbed dose.

(119) Quantitative fit test (QNFT)--An assessment of the adequacy of respirator fit by numerically measuring the amount of leakage into the respirator.

(120) Quarter (Calendar quarter)--A period of time equal to one-fourth of the year observed by the licensee (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.

(121) Rad--See §336.3 of this title (relating to Units of Radiation Exposure and Dose).

(122) Radiation--Alpha particles, beta particles, gamma rays, x-rays, neutrons, high-speed electrons, high-speed protons, and other particles capable of producing ions. For purposes of the rules in this chapter, "ionizing radiation" is an equivalent term. Radiation, as used in this chapter, does not include non-ionizing radiation, such as radio- or microwaves or visible, infrared, or ultraviolet light.

(123) Radiation area--Any area, accessible to individuals, in which radiation levels could result in an individual receiving a dose equivalent in excess of 0.005 rem (0.05 millisievert) in one hour at 30 centimeters from the source of radiation or from any surface that the radiation penetrates.

(124) Radiation machine--Any device capable of producing ionizing radiation except those devices with radioactive material as the only source of radiation.

(125) Radioactive material--A naturally-occurring or artificially-produced solid, liquid, or gas that emits radiation spontaneously.

(126) Radioactive substance--Includes byproduct material, radioactive material, low-level radioactive waste, source material, special nuclear material, source of radiation, and naturally occurring radioactive material (NORM) NORM waste, excluding oil and gas NORM waste.

(127) Radioactivity--The disintegration of unstable atomic nuclei with the emission of radiation.

(128) Radiobioassay--See "Bioassay."

(129) Reference man--A hypothetical aggregation of human physical and physiological characteristics determined by international consensus. These characteristics shall be used by researchers and public health workers to standardize results of experiments and to relate biological insult to a common base. A description of "reference man" is contained in the International Commission on Radiological Protection (ICRP) report, ICRP Publication 23, "Report of the Task Group on Reference Man."

(130) Rem--See §336.3 of this title (relating to Units of Radiation Exposure and Dose).

(131) Residual radioactivity--Radioactivity in structures, materials, soils, groundwater, and other media at a site resulting from activities under the licensee's control. This includes radioactivity from all licensed and unlicensed sources used by the licensee, but excludes background radiation. It also includes

radioactive materials remaining at the site as a result of routine or accidental releases of radioactive material at the site and previous burials at the site, even if those burials were made in accordance with the provisions of 10 Code of Federal Regulations Part 20.

(132) Respiratory protection equipment--An apparatus, such as a respirator, used to reduce an individual's intake of airborne radioactive materials. For purposes of the rules in this chapter, "respiratory protective device" is an equivalent term.

(133) Restricted area--An area, access to which is limited by the licensee for the purpose of protecting individuals against undue risks from exposure to radiation and radioactive materials. Restricted area does not include areas used as residential quarters, but separate rooms in a residential building shall be set apart as a restricted area.

(134) Reviewing official--The individual who shall make the trustworthiness and reliability determination of an individual to determine whether the individual may have, or continue to have, unescorted access to the category 1 or category 2 quantities of radioactive materials that are possessed by the licensee.

(135) Roentgen (R)--See §336.3 of this title (relating to Units of Radiation Exposure and Dose).

(136) Sabotage--Deliberate damage, with malevolent intent, to a category 1 or category 2 quantity of radioactive material, a device that contains a category 1 or category 2 quantity of radioactive material, or the components of the security system.

(137) Safe haven--A readily recognizable and readily accessible site at which security is present or from which, in the event of an emergency, the transport crew can notify and wait for the local law enforcement authorities.

(138) Sanitary sewerage--A system of public sewers for carrying off waste water and refuse, but excluding sewage treatment facilities, septic tanks, and leach fields owned or operated by the licensee.

(139) Sealed source--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 that are likely to be encountered in normal use and handling.

(140) Security zone--Any temporary or permanent area established by the licensee for the physical protection of category 1 or category 2 quantities of radioactive material.

(141) Self-contained breathing apparatus (SCBA)--An atmosphere-supplying respirator for which the breathing air source is designed to be carried by the user.

(142) Shallow-dose equivalent ( $H_s$ ) (which applies to the external exposure of the skin of the whole body or the skin of an extremity)--The dose equivalent at a tissue depth of 0.007 centimeter (seven milligrams/square centimeter).

(143) SI--The abbreviation for the International System of Units.

(144) Sievert ( $S_v$ )--See §336.3 of this title (relating to Units of Radiation Exposure and Dose).

(145) Site boundary--That line beyond which the land or property is not owned, leased, or otherwise controlled by the licensee.

(146) Source material--

(A) uranium or thorium, or any combination thereof, in any physical or chemical form; or

(B) ores that contain, by weight, 0.05% or more of uranium, thorium, or any combination thereof. Source material does not include special nuclear material.

(147) Special form radioactive material--Radioactive material which is either a single solid piece or is contained in a sealed capsule that can be opened only by destroying the capsule and which has at least one dimension not less than five millimeters and which satisfies the test requirements of 10 Code of Federal Regulations §71.75 as amended through September 28, 1995 (60 FR 50264) (Transportation of License Material).

(148) Special nuclear material--

(A) plutonium, uranium-233, uranium enriched in the isotope 233 or in the isotope 235, and any other material that the National Regulatory Commission, under the provisions of the Atomic Energy Act of 1954, §51, as amended through November 2, 1994 (Public Law 103-437), determines to be special nuclear material, but does not include source material; or

(B) any material artificially enriched by any of the foregoing, but does not include source material.

(149) Special nuclear material in quantities not sufficient to form a critical mass--Uranium enriched in the isotope 235 in quantities not exceeding 350 grams of contained uranium-235; uranium-233 in quantities not exceeding 200 grams; plutonium in quantities not exceeding 200 grams; or any combination of these in accordance with the following formula: For each kind of special nuclear material, determine the ratio between the quantity of that special nuclear material and the quantity specified in this paragraph for the same kind of special nuclear material. The sum of such ratios for all of the kinds of special nuclear material in combination shall not exceed 1. For example, the following quantities in combination would not exceed the limitation: (175 grams contained U-235/350 grams) + (50 grams U-233/200 grams) + (50 grams Pu/200 grams) = 1.

(150) Specific license--A licensing document issued by an agency upon an application filed under its rules. For purposes of the rules in this chapter, "radioactive material license" is an equivalent term. Unless stated otherwise, "license" as used in this chapter means a "specific license."

(151) State--The state of Texas.

(152) Stochastic effect--A health effect that occurs randomly and for which the probability of the effect occurring, rather than its severity, is assumed to be a linear function of dose without threshold. Hereditary effects and cancer incidence are examples of stochastic effects. For purposes of the rules in this chapter, "probabilistic effect" is an equivalent term.

(153) Supplied-air respirator (SAR) or airline respirator--An atmosphere-supplying respirator for which the source of breathing air is not designed to be carried by the user.

(154) Survey--An evaluation of the radiological conditions and potential hazards incident to the production, use, transfer, release, disposal, and/or presence of radioactive materials or other sources of radiation. When appropriate, this evaluation includes, but is not limited to, physical examination of the location of radioactive material and measurements or calculations of levels of radiation or concentrations or quantities of radioactive material present.

(155) Telemetric position monitoring system--A data transfer system that captures information from instrumentation and/or measuring devices about the location and status of a transport vehicle or package between the departure and destination locations.

(156) Termination--As applied to a license, a release by the commission of the obligations and authorizations of the licensee under the terms of the license. It does not relieve a person of duties and responsibilities imposed by law.

(157) Tight-fitting facepiece--A respiratory inlet covering that forms a complete seal with the face.

(158) Total effective dose equivalent (TEDE)--The sum of the effective dose equivalent (for external exposures) and the committed effective dose equivalent (for internal exposures).

(159) Total organ dose equivalent (TODE)--The sum of the deep-dose equivalent and the committed dose equivalent to the organ receiving the highest dose as described in §336.346(a)(6) of this title (relating to Records of Individual Monitoring Results).

(160) Transuranic waste--For the purposes of this chapter, wastes containing alpha emitting transuranic radionuclides with a half-life greater than five years at concentrations greater than 100 nanocuries/gram.

(161) Trustworthiness and reliability--Characteristics of an individual considered dependable in judgment, character, and performance, such that unescorted access to category 1 or category 2 quantities of radioactive material by that individual does not constitute an unreasonable risk to the public health and safety or security. A determination of trustworthiness and reliability for this purpose is based upon the results from a background investigation.

(162) Type A quantity (for packaging)--A quantity of radioactive material, the aggregate radioactivity of which does not exceed A 1 for special form radioactive material or A2 for normal form radioactive material, where A1 and A2 are given in or shall be determined by procedures in Appendix A to 10 Code of Federal Regulations Part 71 as amended through September 28, 1995 (60 FR 50264) (Packaging and Transportation of Radioactive Material).

(163) Type B quantity (for packaging)--A quantity of radioactive material greater than a Type A quantity.

(164) Unescorted access--Solitary access to an aggregated category 1 or category 2 quantity of radioactive material or the devices that contain the material.

(165) Unrefined and unprocessed ore--Ore in its natural form before any processing, such as grinding, roasting, beneficiating, or refining.

(166) Unrestricted area--Any area that is not a restricted area.

(167) User seal check (fit check)--An action conducted by the respirator user to determine if the respirator is properly seated to the face. Examples include negative pressure check, positive pressure check, irritant smoke check, or isoamyl acetate check.

(168) Very high radiation area--An area, accessible to individuals, in which radiation levels from radiation sources external to the body could result in an individual receiving an absorbed dose in excess of 500 rads (five grays) in one hour at one meter from a source of radiation or one meter from any surface that the radiation penetrates.

(169) Violation--An infringement of any provision of the Texas Radiation Control Act (TRCA) or of any rule, order, or license condition of the commission issued under the TRCA or this chapter.

(170) Waste--Low-level radioactive wastes containing source, special nuclear, or byproduct material that are acceptable for disposal in a land disposal facility. For the purposes of this definition, low-level radioactive waste means radioactive waste not classified as high-level radioactive waste, transuranic waste, spent nuclear fuel, or byproduct material as defined in paragraph (20)(B) - (E) of this section.

(171) Week--Seven consecutive days starting on Sunday.

(172) Weighting factor ( $w_T$ ) for an organ or tissue (T)--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  $w_T$  are:

Figure: 30 TAC §336.2(172)

### Organ Dose Weighting Factors

Organ or Tissue	$w_T$
Gonads	0.25

Breast	0.15
Red bone marrow	0.12
Lung	0.12
Thyroid	0.03
Bone surfaces	0.03
Remainder	0.30 <sup>1</sup>
Whole body	1.00 <sup>2</sup>

1. The value 0.30 results from 0.06 for each of five 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 ( $w_T$ ),  $w_T = 1.0$ , 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.

(173) Whole body--For purposes of external exposure, head, trunk including male gonads, arms above the elbow, or legs above the knee.

(174) Worker--An individual engaged in activities under a license issued by the commission and controlled by a licensee, but does not include the licensee.

(175) Working level (WL)--Any combination of short-lived radon daughters in one liter of air that will result in the ultimate emission of  $1.3 \times 10^5$  MeV of potential alpha particle energy. The short-lived radon daughters are: for radon-222: polonium-218, lead-214, bismuth-214, and polonium-214; and for radon-220: polonium-216, lead-212, bismuth-212, and polonium-212.

(176) Working level month (WLM)--An exposure to one working level for 170 hours (2,000 working hours per year divided by 12 months per year is approximately equal to 170 hours per month).

(177) Year--The period of time beginning in January used to determine compliance with the provisions of the rules in this chapter. The licensee shall change the starting date of the year used to determine compliance by the licensee provided that the change is made at the beginning of the year and that no day is omitted or duplicated in consecutive years.

Adopted November 16, 2016

Effective December 8, 2016

**§336.3. Units of Radiation Exposure and Dose.**

(a) As used in the rules in this chapter, the International System of Units (SI) unit of exposure is the coulomb/kilogram (C/kg) of air. The special unit of exposure is the roentgen. One roentgen equals  $2.58 \times 10^{-4}$  coulomb/kilogram of air.

(b) As used in the rules in this chapter, the units of radiation dose are as follows:

(1) 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).

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

(3) Rem is the special unit of any of the quantities expressed as dose equivalent. The dose equivalent in rem is equal to the absorbed dose in rad multiplied by the quality factor (1 rem = 0.01 sievert).

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

(c) As used in the rules in this chapter, the quality factors for converting absorbed dose to dose equivalent are shown in Table I.

Figure 1: 30 TAC §336.3(c)

Table I

Quality Factors and Absorbed Dose Equivalencies

Type of Radiation	Quality Factor (Q)	Absorbed Dose Equal to
-------------------	--------------------	------------------------

		a Unit Dose Equivalent <sup>1</sup>
Gamma, beta, or x-ray	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

1. Absorbed dose in rad equal to 1 rem or the absorbed dose in gray equal to 1 sievert.

(d) If it is more convenient to measure the neutron fluence rate than to determine the neutron dose equivalent rate in rem/hour or sievert/hour, as provided in subsection (c) of this section, 1 rem (0.01 sievert) of neutron radiation of unknown energies may, for purposes of the rules in this chapter, be assumed to result from a total fluence of 25 million neutrons/square centimeter incident upon the body. If sufficient information exists to estimate the approximate energy distribution of the neutrons, the licensee may use the fluence rate per unit dose equivalent or the appropriate Q value from Table II to convert a measured tissue dose in rad (gray) to dose equivalent in rem (sievert).

Figure 2: 30 TAC §336.3(d)

Table II

Mean Quality Factors, Q, and Fluence per Unit Dose  
 Equivalent for Monoenergetic Neutrons

	Neutron Energy (MeV)	Quality Factor <sup>1</sup> (Q)	Fluence per Unit Dose Equivalent <sup>2</sup> (neutrons cm <sup>-2</sup> rem <sup>-1</sup> )	Fluence per Unit Dose Equivalent <sup>2</sup> (neutrons cm <sup>-2</sup> Sv <sup>-1</sup> )
(thermal)...	2.5 x 10 <sup>-8</sup>	2	980 x 10 <sup>6</sup>	980 x 10 <sup>8</sup>
	1 x 10 <sup>-7</sup>	2	980 x 10 <sup>6</sup>	980 x 10 <sup>8</sup>
	1 x 10 <sup>-6</sup>	2	810 x 10 <sup>6</sup>	810 x 10 <sup>8</sup>
	1 x 10 <sup>-5</sup>	2	810 x 10 <sup>6</sup>	810 x 10 <sup>8</sup>
	1 x 10 <sup>-4</sup>	2	840 x 10 <sup>6</sup>	840 x 10 <sup>8</sup>
	1 x 10 <sup>-3</sup>	2	980 x 10 <sup>6</sup>	980 x 10 <sup>8</sup>
	1 x 10 <sup>-2</sup>	2.5	1,010 x 10 <sup>6</sup>	1,010 x 10 <sup>8</sup>
	1 x 10 <sup>-1</sup>	7.5	170 x 10 <sup>6</sup>	170 x 10 <sup>8</sup>
	5 x 10 <sup>-1</sup>	11	39 x 10 <sup>6</sup>	39 x 10 <sup>8</sup>
	1	11	27 x 10 <sup>6</sup>	27 x 10 <sup>8</sup>
	2.5	9	29 x 10 <sup>6</sup>	29 x 10 <sup>8</sup>
	5	8	23 x 10 <sup>6</sup>	23 x 10 <sup>8</sup>
	7	7	24 x 10 <sup>6</sup>	24 x 10 <sup>8</sup>
	10	6.5	24 x 10 <sup>6</sup>	24 x 10 <sup>8</sup>
	14	7.5	17 x 10 <sup>6</sup>	17 x 10 <sup>8</sup>
	20	8	16 x 10 <sup>6</sup>	16 x 10 <sup>8</sup>
	40	7	14 x 10 <sup>6</sup>	14 x 10 <sup>8</sup>
	60	5.5	16 x 10 <sup>6</sup>	16 x 10 <sup>8</sup>
	1 x 10 <sup>2</sup>	4	20 x 10 <sup>6</sup>	20 x 10 <sup>8</sup>
	2 x 10 <sup>2</sup>	3.5	19 x 10 <sup>6</sup>	19 x 10 <sup>8</sup>
	3 x 10 <sup>2</sup>	3.5	16 x 10 <sup>6</sup>	16 x 10 <sup>8</sup>
	4 x 10 <sup>2</sup>	3.5	14 x 10 <sup>6</sup>	14 x 10 <sup>8</sup>

1. Value of quality factor (Q) at the point where the dose equivalent is maximum in a 30-centimeter (cm) diameter cylinder tissue-equivalent phantom.
2. Monoenergetic neutrons incident normally on a 30-cm diameter cylinder tissue-equivalent phantom.

Adopted May 14, 1997

Effective June 5, 1997

#### **§336.4. Units of Radioactivity.**

For purposes of the rules in this chapter, activity is expressed in the special unit of curie (Ci) or in the International System of Units unit of becquerel (Bq), or its multiples, or disintegrations (transformations) per unit of time, as follows:

(1) One curie (Ci) =  $3.7 \times 10^{10}$  disintegrations or transformations/second (dps or tps) =  $3.7 \times 10^{10}$  becquerel (Bq) =  $2.22 \times 10^{12}$  disintegrations or transformations/minute (dpm or tpm). Commonly used submultiples of the curie are as follows. One millicurie (mCi) =  $1 \times 10^{-3}$  Ci =  $3.7 \times 10^7$  dps. One microcurie (microCi) =  $1 \times 10^{-6}$  Ci =  $3.7 \times 10^4$  dps. One nanocurie (nCi) =  $1 \times 10^{-9}$  Ci =  $3.7 \times 10$  dps. One picocurie (pCi) =  $1 \times 10^{-12}$  Ci =  $3.7 \times 10^{-2}$  dps.

(2) One becquerel (Bq) = 1 disintegration or transformation/second (dps or tps).

Adopted May 14, 1997

Effective June 5, 1997

#### **§336.5. Exemptions.**

(a) The commission may exempt a source of radiation or a kind of use or user from the application of a rule in this chapter if it determines that the exemption is not prohibited by law and will not result in a significant risk to public health and safety or the environment. Persons requesting an exemption shall submit an application to the agency using the process in Chapter 90 of this title (relating to Regulatory Flexibility), including the submittal of any fees and which includes:

(1) the nature of the request;

(2) a legal analysis to demonstrate that the exemption is not prohibited by law;

(3) a technical analysis to demonstrate that the exemption will not result in a significant risk to public health and safety or the environment; and

(4) a detailed explanation, including a demonstration as appropriate, that the proposed exemption is:

(A) not prohibited by law, including any requirement for a federally approved or authorized program; and

(B) at least as protective of the environment and the public health as the method or standard prescribed by the commission rule that would otherwise apply.

(b) A person who is subject to an order issued under Texas Health and Safety Code, §361.188 or §361.272, for sites subject to Texas Health and Safety Code, Subchapter F, Chapter 361, or an agreement entered into under Texas Health and Safety Code, §361.606, is exempt from the requirement to obtain a license or other authorization from the commission. This provision does not exempt the person from complying with technical standards under this chapter. The exemption applies only to the assessment and remediation of the contamination at the site.

(c) Waste, that is exempted from licensing requirements under Texas Health and Safety Code, §401.106(a), is exempted from the requirements of this chapter.

(d) Any material exempted from licensing requirements for disposal by the Texas Department of State Health Services under 25 TAC §289.251 and §289.259 prior to June 18, 2007 is exempted from the requirements of this chapter.

Adopted January 30, 2008

Effective February 28, 2008

### **§336.6. Additional Requirements.**

The commission may, by rule, order, or condition of license, impose upon any licensee such requirements in addition to those established in the rules in this chapter as it deems appropriate or necessary under the Texas Radiation Control Act to minimize danger to public health and safety or property or the environment.

Adopted May 14, 1997

Effective June 5, 1997

### **§336.9. Deliberate Misconduct.**

(a) Any licensee, applicant for a license, employer of a licensee or applicant, or any contractor (including a supplier or consultant), subcontractor, employee of a contractor, or subcontractor of any licensee or applicant for a license, who

knowingly provides to any licensee, applicant, contractor, or subcontractor, any components, equipment, materials, or other goods or services that relate to a licensee's or applicant's activities in this chapter, may not:

(1) engage in deliberate misconduct that causes or would have caused if not detected, a licensee or applicant to be in violation of any rule, regulation, or order, or any term, condition, or limitation of any license issued by the commission; or

(2) deliberately submit to the commission, a licensee, an applicant, or a licensee's or applicant's contractor or subcontractor, information that the person submitting the information knows to be incomplete or inaccurate in some respect material to the commission.

(b) A person who violates subsection (a)(1) or (2) of this section may be subject to enforcement action under Texas Health and Safety Code, §401.393 and Texas Water Code, Chapter 7.

(c) For the purposes of subsection (a)(1) of this section, deliberate misconduct by a person means an intentional act or omission that the person knows:

(1) would cause a licensee or applicant to be in violation of any rule, regulation, or order; or any term, condition, or limitation of any license issued by the commission; or

(2) constitutes a violation of a requirement, procedure, instruction, contract, purchase order, or policy of a licensee, applicant, contractor, or subcontractor.

Adopted December 17, 2003

Effective January 8, 2004