SUBCHAPTER A: GENERAL PROVISIONS
§§336.1 - 336.6, 336.9
Effective March 12, 2009

§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).

(g) For the purpose of this chapter, any time the term "low-level radioactive waste" is used, the provision also applies to accelerator-produced radioactive material.

Adopted February 11, 2009 Effective March 12, 2009

§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 exposing it to the radiation from a particle accelerator.

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

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

(5) **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 through October 24, 1992 (Public Law 102-486).

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

(7) **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 §336.359, Appendix B, Table I, Column 1, of this title (relating to 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.

(8) **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.

(9) **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, Appendix B, of this title.

(10) **As low as is reasonably achievable (ALARA) -** 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.

(11) **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.

(12) **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 (SARs) and self-contained breathing apparatus (SCBA) units.

(13) **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 Health, NRC, or an Agreement State.

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

(15) **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.

(16) **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; or

(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.

(17) **CFR** - Code of Federal Regulations.

(18) **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.

(19) **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.

(20) **Committed dose equivalent ($H_{T,50}$) (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.

(21) **Committed effective dose equivalent ($H_{E,50}$) (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.

(22) **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).

(23) **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.

(24) **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.

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

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

(27) **Curie (Ci)** - See §336.4 of this title.

(28) **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.

(29) **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.

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

(31) **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.

(32) **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.

(33) **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, Appendix B, of this title.

(34) **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 ALI, equivalent to a committed effective dose equivalent of 5 rems (0.05 sievert).

(35) **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.

(36) **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 (SCBA).

(37) **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.

(38) **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.

(39) **Dose equivalent (H_T) -** 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).

(40) **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.

(41) **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.

(42) **Effective dose equivalent (H_E) -** The sum of the products of the dose equivalent to each organ or tissue (H_T) and the weighting factor (w_T) applicable to each of the body organs or tissues that are irradiated.

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

(44) **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.

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

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

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

(48) **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.

(49) **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).

(50) **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.

(51) **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.

(52) **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.

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

(54) **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.

(55) **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.

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

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

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

(59) **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.

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

(61) **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.

(62) **Individual** - Any human being.

(63) **Individual monitoring** - The assessment of:

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

(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, DAC-hours; or

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

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

(65) **Inhalation class** - See "Class."

(66) **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 (TRCA) and rules, orders, and license conditions of the commission.

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

(68) **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 CFR §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."

(69) **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^2).

(70) **License -** See "Specific license."

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

(72) **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."

(73) **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.

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

(75) **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.

(76) **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 Health rule adopted under the Texas Health and Safety Code, §401.106;

(ii) is waste, as that term is defined by 10 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 (16)(B) of this section;

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

(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.

(77) **Lung class** - See "Class."

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

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

(80) **Mixed waste** - A combination of hazardous waste, as defined in 30 TAC §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.

(81) **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.

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

(83) **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 Health adopted under Texas Health and Safety Code, §401.106.

(84) **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.

(85) **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.

(86) **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.

(87) **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.

(88) **Oil and gas naturally occurring radioactive material (NORM) waste** - Naturally occurring radioactive material (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.

(89) **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.

(90) **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.

(91) **Perpetual care account** - The radiation and perpetual care account as defined in this section.

(92) **Personnel monitoring equipment** - See "Individual monitoring devices."

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

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

(95) **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.

(96) **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.

(97) **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.

(98) **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.

(99) **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.

(100) **Quality factor (Q)** - The modifying factor listed in Table I or II of §336.3 of this title that is used to derive dose equivalent from absorbed dose.

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

(102) **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.

(103) **Rad** - See §336.3 of this title.

(104) **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.

(105) **Radiation and Perpetual Care Account** - An account in the general revenue fund established for the purposes specified in the Texas Health and Safety Code, §401.305.

(106) **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.

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

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

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

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

(111) **Radiobioassay** - See "Bioassay."

(112) **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 report, ICRP Publication 23, "Report of the Task Group on Reference Man."

(113) **Rem** - See §336.3 of this title.

(114) **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 CFR Part 20.

(115) **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.

(116) **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.

(117) **Roentgen (R)** - See §336.3 of this title.

(118) **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.

(119) **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.

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

(121) **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).

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

(123) **Sievert (Sv)** - See §336.3 of this title.

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

(125) **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.

(126) **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 CFR §71.75 as amended through September 28, 1995 (60 FR 50264) (Transportation of License Material).

(127) **Special nuclear material** -

(A) Plutonium, uranium-233, uranium enriched in the isotope 233 or in the isotope 235, and any other material that the NRC, 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.

(128) **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 above 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.

(129) **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."

(130) **State** - The State of Texas.

(131) **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.

(132) **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.

(133) **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.

(134) **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.

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

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

(137) **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).

(138) **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.

(139) **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 A_2 for normal form radioactive material, where A_1 and A_2 are given in or shall be determined by procedures in Appendix A to 10 CFR Part 71 as amended through September 28, 1995 (60 FR 50264) (Packaging and Transportation of Radioactive Material).

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

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

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

(143) **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.

(144) **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.

(145) **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.

(146) **Week** - Seven consecutive days starting on Sunday.

(147) **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:

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[1]
Whole body	1.00[2]

l. 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 =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.

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

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

(150) **Working level (WL)** - Any combination of short-lived radon daughters in one liter of air that will result in the ultimate emission of 1.3×10^5 million electron volts (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.

(151) **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).

(152) **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 December 17, 2003 Effective January 8, 2004

§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 2.58×10^{-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.

Table I

Quality Factors and Absorbed Dose Equivalencies

Type of Radiation	Quality Factor (Q)	Absorbed Dose Equal to a Unit Dose Equivalent[1]
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)

Table II

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

	Neutron Energy (MeV)	Quality Factor[1] (Q)	Fluence per Unit Dose Equivalent[2] (neutrons cm^{-2} rem^{-1})	Fluence per Unit Dose Equivalent[2] (neutrons cm^{-2} Sv^{-1})
(thermal)...	2.5×10^{-8}	2	980×10^{6}	980×10^{8}
	1×10^{-7}	2	980×10^{6}	980×10^{8}
	1×10^{-6}	2	810×10^{6}	810×10^{8}
	1×10^{-5}	2	810×10^{6}	810×10^{8}
	1×10^{-4}	2	840×10^{6}	840×10^{8}
	1×10^{-3}	2	980×10^{6}	980×10^{8}
	1×10^{-2}	2.5	$1{,}010 \times 10^{6}$	$1{,}010 \times 10^{8}$
	1×10^{-1}	7.5	170×10^{6}	170×10^{8}
	5×10^{-1}	11	39×10^{6}	39×10^{8}
	1	11	27×10^{6}	27×10^{8}
	2.5	9	29×10^{6}	29×10^{8}
	5	8	23×10^{6}	23×10^{8}
	7	7	24×10^{6}	24×10^{8}
	10	6.5	24×10^{6}	24×10^{8}
	14	7.5	17×10^{6}	17×10^{8}
	20	8	16×10^{6}	16×10^{8}
	40	7	14×10^{6}	14×10^{8}
	60	5.5	16×10^{6}	16×10^{8}
	1×10^{2}	4	20×10^{6}	20×10^{8}
	2×10^{2}	3.5	19×10^{6}	19×10^{8}
	3×10^{2}	3.5	16×10^{6}	16×10^{8}
	4×10^{2}	3.5	14×10^{6}	14×10^{8}

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.

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

SUBCHAPTER B: RADIOACTIVE SUBSTANCE FEES
§§336.101 - 336.103, 336.105 - 336.107, 336.109 - 336.114
Effective March 12, 2009

§336.101. Purpose and Scope.

(a) This subchapter establishes fees for licensing, commercial disposal, emergency response activities including training, and other regulatory services and provides for their payment.

(b) Except as otherwise specifically provided, this subchapter applies to any person who is:

(1) an applicant for or holder of a radioactive material license issued under this chapter; or

(2) the holder of a fixed nuclear facility construction permit or operating license issued by the United States Nuclear Regulatory Commission under 10 Code of Federal Regulations Part 50 (Domestic Licensing of Production and Utilization Facilities); or

(3) the operator of any other fixed nuclear facility.

Adopted February 11, 2009 Effective March 12, 2009

§336.102. Definitions.

Terms used in this subchapter are defined in §336.2 of this title (relating to Definitions). Additional terms used in this subchapter have the following definitions:

(1) **Emergency response** - The application of those capabilities necessary for the protection of the public and the environment from the effects of an accidental or uncontrolled release of radioactive materials, including the equipping, training, and periodic retraining of response personnel.

(2) **Fixed nuclear facility** -

(A) Any nuclear reactor(s) at a single site;

(B) Any facility designed or used for the assembly or disassembly of nuclear weapons; or

(C) Any other facility using special nuclear material for which emergency response activities, including training, are conducted to protect the public health and safety or the environment.

Adopted July 29, 1998 Effective September 3, 1998

§336.103. Schedule of Fees for Subchapter H Licenses.

(a) An application for a low-level radioactive waste disposal site license under Subchapter H of this chapter (relating to Licensing Requirements for Near-Surface Land Disposal of Low-Level Radioactive Waste) shall be accompanied by a nonrefundable application processing fee of $500,000. If the commission's costs in processing an application under Subchapter H of this chapter exceed the $500,000 application processing fee, the commission may assess and collect additional fees from the applicant to recover the costs. Recoverable costs include costs incurred by the commission for administrative review, technical review, and hearings associated with the application.

(b) An applicant shall submit an annual fee for the actual costs incurred by the commission for hearings associated with an application for a low-level radioactive waste disposal site under Subchapter H of this chapter. The executive director shall send an invoice for the amount of the costs incurred during the period September 1 through August 31 of each year. Payment shall be made within 30 days following the date of the invoice.

(c) A holder of a license for a low-level radioactive waste disposal site issued under Subchapter H of this chapter shall submit an annual license fee for the services received. This fee shall recover for the state the actual expenses arising from the regulatory activities associated with the license. This fee shall include reimbursement for the salary and other expenses of the resident inspectors as provided by §336.743 of this title (relating to Resident Inspector). The executive director shall send an invoice for the amount of the costs incurred during the period September 1 through August 31 of each year. Payment shall be made within 30 days following the date of the invoice.

(d) An application for a major amendment of a license issued under Subchapter H of this chapter must be accompanied by an application fee of $50,000.

(e) An application for renewal of a license issued under Subchapter H of this chapter must be accompanied by an application fee of $300,000.

(f) The compact waste disposal facility license holder shall remit to the commission 5% of the gross receipts from compact waste received at the compact waste disposal facility and any federal facility waste received at the federal facility waste disposal facility. Payment shall be made within 30 days of the end of each quarter. The end of each quarter is the last day of the months of November, February, May, and August.

(g) The compact waste disposal facility license holder shall remit directly to the host county 5% of the gross receipts from compact waste received at the compact waste disposal facility and any federal facility waste received at the federal facility waste disposal facility as required in Texas Health and Safety Code, §401.244. Payment shall be made within 30 days of the end of each quarter. The end of each quarter is the last day of the months of November, February, May, and August.

Adopted February 11, 2009 Effective March 12, 2009

§336.105. Schedule of Fees for Other Licenses.

(a) Each application for a license under Subchapter F of this chapter (relating to Licensing of Alternative Methods of Disposal of Radioactive Material), Subchapter G of this chapter (relating to

Decommissioning Standards), Subchapter K of this chapter (relating to Commercial Disposal of Naturally Occurring Radioactive Material Waste from Public Water Systems), Subchapter L of this chapter (relating to Licensing of Source Material Recovery and By-product Material Disposal Facilities), or Subchapter M of this chapter (relating to Licensing of Radioactive Substances Processing and Storage Facilities) must be accompanied by an application fee as follows:

(1) facilities regulated under Subchapter F of this chapter: $50,000;

(2) facilities regulated under Subchapter G of this chapter: $10,000;

(3) facilities regulated under Subchapter K of this chapter: $50,000;

(4) facilities regulated under Subchapter L of this chapter: $463,096 for conventional mining; $322,633 for in situ mining; $325,910 for heap leach; and $374,729 for disposal only; or

(5) facilities regulated under Subchapter M of this chapter: $3,830 for Waste Processing - Class I Exempt; $39,959 for Waste Processing - Class I; $94,661 for Waste Processing - Class II; and $273,800 for Waste Processing - Class III.

(b) An annual license fee shall be paid for each license issued under Subchapter F, Subchapter G, Subchapter K, Subchapter L, and Subchapter M of this chapter. The amount of each annual fee is as follows:

(1) facilities regulated under Subchapter F of this chapter: $25,000;

(2) facilities regulated under Subchapter G of this chapter: $8,400;

(3) facilities regulated under Subchapter K of this chapter: $25,000;

(4) facilities regulated under Subchapter L of this chapter that are operational: $60,929.50;

(5) facilities regulated under Subchapter L of this chapter that are in closure: $60,929.50;

(6) facilities regulated under Subchapter L of this chapter that are in post-closure: $52,011.50 for conventional mining; $26,006 for in situ mining; and $52,011.50 for disposal only;

(7) facilities regulated under Subchapter L of this chapter, if additional noncontiguous source material recovery facility sites are authorized under the same license, the annual fee shall be increased by 25% for each additional site and 50% for sites in closure;

(8) facilities regulated under Subchapter L of this chapter, if an authorization for disposal of by-product material is added to a license, the annual fee shall be increased by 25%;

(9) facilities regulated under Subchapter L of this chapter, the following one-time fees apply if added after an environmental assessment has been completed on a facility:

(A) $28,658 for in situ wellfield on noncontiguous property;

(B) $71,651 for in situ satellite;

(C) $11,235 for wellfield on contiguous property;

(D) $50,756 for non-vacuum dryer; or

(E) $71, 651 for disposal (including processing, if applicable) of by-product material; or

(10) facilities regulated under Subchapter M of this chapter: $3,830 for Waste Processing - Class I Exempt; $39,959 for Waste Processing - Class I; $94,661 for Waste Processing - Class II; and $273,800 for Waste Processing - Class III.

(c) An application for a major amendment of a license issued under Subchapter F, Subchapter G, Subchapter K, Subchapter L, or Subchapter M of this chapter must be accompanied by an application fee of $10,000.

(d) An application for renewal of a license issued under Subchapter F, Subchapter G, Subchapter K, Subchapter L, or Subchapter M of this chapter must be accompanied by an application fee of $35,000.

(e) Upon permanent cessation of all disposal activities and approval of the final decommissioning plan, holders of licenses issued under Subchapter F, Subchapter K, Subchapter L, or Subchapter M of this chapter shall use the applicable fee schedule for subsections (b) and (c) of this section.

(f) For any application for a license issued under this chapter, the commission may assess and collect additional fees from the applicant to recover costs. Recoverable costs include costs incurred by the commission for administrative review, technical review, and hearings associated with the application. The executive director shall send an invoice for the amount of the costs incurred during the period September 1 through August 31 of each year. Payment shall be made within 30 days following the date of the invoice.

(g) If a licensee remitted a biennial licensing fee to the Texas Department of State Health Services during the one year period prior to June 17, 2007, the licensee is not subject to an annual fee under subsection (b) of this section until the expiration of the second year for which the biennial fee was paid.

(h) The commission may charge an additional 5% of annual fee assessed under subsection (b) of this section. The fee is non-refundable and will be deposited to the perpetual care account.

(i) The holder of a license authorizing disposal of a radioactive substance from other persons shall remit to the commission 5% of the holder's gross receipts received from disposal operations under a license. Payment shall be made within 30 days of the end of each quarter. The end of each quarter is the

last day of the months of November, February, May, and August. This subsection does not apply to the disposal of compact waste or federal facility waste.

(j) The holder of a license authorizing disposal of a radioactive substance from other persons shall remit directly to the host county 5% of the gross receipts disposal operations under a license as required in Texas Health and Safety Code, §401.271(2). Payment shall be made within 30 days of the end of each quarter. The end of each quarter is the last day of the months of November, February, May, and August. This subsection does not apply to the disposal of compact waste or federal facility waste.

Adopted February 11, 2009 Effective March 12, 2009

§336.106. Annual Fees for Emergency Response Activities, including Training.

Each holder of a fixed nuclear facility construction permit or operating license issued by the United States Nuclear Regulatory Commission or an operator of any other fixed nuclear facility shall submit an annual fee for the services received. This fee shall recover for the State the actual expenses arising from emergency response activities, including training. Costs of activities benefiting more than one facility shall be prorated. The executive director shall send an invoice after completion of emergency response activities held before August 31 of each year. Payment shall be made within 30 days following the date of the invoice.

Adopted May 14, 1997 Effective June 5, 1997

§336.107. Annual License Fee Due Date and Period Covered.

(a) Payment for annual fees set forth in §336.105(b) of this title (relating to Schedule of Fees for Other Licenses) shall be due on or before October 31st of each year.

(b) The period covered by each annual fee set forth in §336.105(b) of this title shall be the 12 months preceding the fee payment due date, except fees may be prorated for a period less than 12 months to accommodate the due date established in subsection (a) of this section.

Adopted February 11, 2009 Effective March 12, 2009

§336.109. Fees after Request for Termination of License.

(a) If a licensee requests termination of a license, the amount of the annual fee due on the next fee payment due date may be prorated based on the number of months completed through the month of the termination request out of the 12-month period covered by the annual fee. As an example, if a licensee requests termination of a license on August 20 and the next annual fee is due on or before November 30, the annual fee for that year may be prorated as 9/12 of the applicable fee amount. After the next annual fee due date, the annual fee may be waived pending the final determination on the termination request. The annual fee may be prorated or waived as provided in this subsection if the executive director has reasonable basis to find, from information provided by the licensee, that the licensee has satisfied the applicable requirements for decommissioning and closure. If the executive director has insufficient

information or finds that the licensee has not satisfied the requirements for decommissioning and closure, the annual fee shall not be prorated or waived and shall be the full amount.

(b) If an annual fee has been prorated or waived under subsection (a) of this section and the executive director later determines, before making the final determination on the request for termination, that the licensee has not met the decommissioning and closure requirements, then any amount of annual fees not paid due to proration or waiving shall be payable immediately upon notice to the licensee.

(c) The commission may not terminate a license for which the licensee has not paid any outstanding fees prescribed by this subchapter until the fees are paid.

Adopted May 14, 1997 Effective June 5, 1997

§336.110. Nonrefundable Fees.

(a) Fee payments set forth in this subchapter are not refundable, except as provided in subsection (b) of this section. Fee payments for applications or amendment applications as set forth in this subchapter shall be charged irrespective of the commission's disposition of the application or a withdrawal of the application by the applicant.

(b) If the executive director determines that a license application or an amendment application is not administratively complete, the application and any accompanying application fee may be returned to the applicant.

Adopted May 14, 1997 Effective June 5, 1997

§336.111. Method of Payment of Fees.

Fee payments prescribed by this subchapter shall be made in cash or by check or money order made payable to the Texas Commission on Environmental Quality. The payments may be made by personal delivery to the Financial Administration Cashier Office, Texas Commission on Environmental Quality, in Austin, Texas, or mailed to the Texas Commission on Environmental Quality, Cashier's Office, MC 214, P.O. Box 13088, Austin, Texas 78711-3088.

Adopted December 17, 2003 Effective January 8, 2004

§336.112. Failure to Pay Prescribed Application Fees.

In any case where an applicant for a license or a license amendment has failed to pay the application fee or amendment application fee prescribed in this subchapter, the executive director shall not process that application until this fee is paid in full. If the applicable fee is not paid in full, the executive director may find that the application or amendment application is not administratively complete and may return the application to the applicant.

Adopted May 14, 1997 Effective June 5, 1997

§336.113. Failure to Pay Prescribed Annual Fees.

(a) A licensee failing to make payment of the fees when due under this chapter shall be assessed penalties and interest in accordance with Chapter 12 of this title (relating to Payment of Fees).

(b) In any case where the executive director finds that a licensee has failed to pay a fee prescribed by this subchapter by the due date, the executive director may implement compliance procedures.

(c) In any case where the executive director finds that a fixed nuclear facility has failed to pay fees for emergency response activities, including training, within 90 days following the date of the invoice, the executive director may recommend and the commission may issue an order to show cause why those services should not be terminated.

Adopted December 17, 2003 Effective January 8, 2004

§336.114. Fee for Fixed Nuclear Facilities.

The commission may set and collect an annual fee from the operator of each nuclear reactor or other fixed nuclear facility in the state that uses special nuclear material. The amount of fees collected may not exceed the actual expenses that arise from emergency planning and implementation and environmental surveillance activities.

Adopted February 11, 2009 Effective March 12, 2009

SUBCHAPTER C: GENERAL LICENSING REQUIREMENTS
§§336.201, 336.203, 336.205, 336.207 -336.211, 336.213, 336.215, 336.217, 336.219, 336.221, 336.223, 336.225, 336.229
Effective March 12, 2009

§336.201. Purpose and Scope.

This subchapter establishes general licensing requirements for all radioactive materials, except oil and gas naturally occurring radioactive material waste.

Adopted January 30, 2008 Effective February 28, 2008

§336.203. License Required.

No person shall dispose of radioactive material unless that person has a license from the Texas Commission on Environmental Quality, or an exemption under Texas Health and Safety Code, §401.106(a).

Adopted January 30, 2008 .Effective February 28, 2008

§336.205. Application Requirements.

(a) Applications shall be submitted according to the requirements of Chapter 305 of this title (relating to Consolidated Permits), unless otherwise indicated.

(b) An application for a license, or amendment of a license shall be accompanied by the appropriate fee, specified in Subchapter B of this chapter (relating to Radioactive Substance Fees).

Adopted August 23, 2000 Effective September 14, 2000

§336.207. General Requirements for Issuance of a License.

An application may be approved if the commission determines that the requirements set forth in the applicable subchapter of this chapter and Chapter 305, Subchapter C of this title (relating to Application for Permit) have been met and that:

(1) the applicant is qualified by training and experience to conduct the proposed radioactive material activities in accordance with the rules in this chapter in such a manner as to protect and minimize danger to the public health and safety and the environment;

(2) the applicant's proposed equipment, facilities, and procedures are adequate to protect and minimize danger to the public health and safety and the environment;

(3) the issuance of the license will not be inimical to public health and safety nor have a long-term detrimental impact on the environment.

(4) the applicant for a license issued under Subchapter H of this chapter (relating to Licensing Requirements for Near-Surface Land Disposal of Low-Level Radioactive Waste) has acquired the title to and any interest in land and buildings, including the surface and mineral estates, on which the facility or facilities are to be located by either having acquired:

(A) an undivided ownership of the buildings, surface estate, and mineral estate in fee simple through purchase or completed condemnation; or

(B) an undivided ownership of the buildings and surface estate, along with an exemption, granted by the commission in accordance with federal law for use of a surface use agreement, in lieu of acquiring fee simple title to the mineral estate; and

(5) if applicable, the applicant has demonstrated financial capability to conduct the proposed activity, including all costs associated with decommissioning, decontamination, disposal, reclamation, and any long-term care and surveillance.

Adopted January 30, 2008 Effective February 28, 2008

§336.208. Radiation Safety Officer.

(a) Qualifications of the designated radiation safety officer (RSO) are adequate for the purpose requested and include as a minimum:

(1) have earned at least a bachelor's degree in a physical or biological science, industrial hygiene, health physics, radiation protection, or engineering from an accredited college or university, or an equivalent combination of training and relevant experience, with two years of relevant experience equivalent to a year of academic study, from a uranium or mineral extraction/recovery, radioactive waste processing, or a radioactive waste or by-product material disposal facility;

(2) have at least one year of relevant experience, in addition to that used to meet the educational requirement, working under the direct supervision of the RSO at a uranium or mineral extraction/recovery, radioactive waste processing, or radioactive waste or by-product material disposal facility; and

(3) have at least four weeks of specialized training in health physics or radiation safety applicable to uranium or mineral extraction/recovery, radioactive waste processing, or radioactive waste or by-product material disposal operations from a course provider that has been evaluated and approved by the agency.

(b) The specific duties of the RSO include, but are not limited to, the following:

(1) to establish and oversee operating, safety, emergency, and as low as reasonably achievable procedures, and to review them at least annually to ensure that the procedures are current and conform with this chapter;

(2) to oversee and approve all phases of the training program for operations and/or personnel so that appropriate and effective radiation protection practices are taught;

(3) to ensure that required radiation surveys and leak tests are performed and documented in accordance with this chapter, including any corrective measures when levels of radiation exceed established limits;

(4) to ensure that individual monitoring devices are used properly by occupationally-exposed personnel, that records are kept of the monitoring results, and that timely notifications are made in accordance with §336.405 of this title (relating to Notifications and Reports to Individuals);

(5) to investigate and cause a report to be submitted to the agency for each known or suspected case of radiation exposure to an individual or radiation level detected in excess of limits established by this chapter and each theft or loss of source(s) of radiation, to determine the cause(s), and to take steps to prevent a recurrence;

(6) to investigate and cause a report to be submitted to the executive director for each known or suspected case of release of radioactive material to the environment in excess of limits established by this chapter;

(7) to have a thorough knowledge of management policies and administrative procedures of the licensee;

(8) to assume control and have the authority to institute corrective actions, including shutdown of operations when necessary in emergency situations or unsafe conditions;

(9) to ensure that records are maintained as required by this chapter;

(10) to ensure the proper storing, labeling, transport, use and disposal of sources of radiation, storage, and/or transport containers;

(11) to ensure that inventories are performed in accordance with the activities for which the license application is submitted;

(12) to perform an inventory of the radioactive sealed sources authorized for use on the license every six months and make and maintain records of the inventory of the radioactive sealed sources authorized for use on the license every six months, to include, but not be limited to, the following:

(A) isotope(s);

(B) quantity(ies);

(C) radioactivity(ies); and

(D) date inventory is performed.

(13) to ensure that personnel are complying with this chapter, the conditions of the license, and the operating, safety, and emergency procedures of the licensee; and

(14) to serve as the primary contact with the agency.

Adopted February 11, 2009 Effective March 12, 2009

§336.209. Issuance of License.

Upon a determination that an application meets the requirements of the Texas Health and Safety Code, Chapter 401 and the commission rules relating to radioactive material licensing, the commission may issue a license authorizing the proposed activity.

Adopted December 17, 2003 Effective January 8, 2004

§336.210. Emergency Plan for Responding to a Release.

(a) A new or renewal application for each specific license to possess radioactive materials in unsealed form, on foils or plated sources, or sealed in glass in excess of the quantities in subsection (e) of this section shall contain either:

(1) an evaluation showing that the maximum dose to a person off-site due to a release of radioactive material would not exceed 1 rem effective dose equivalent or 5 rems to the thyroid; or

(2) an emergency plan for responding to a release of radioactive material.

(b) One or more of the following factors may be used to support an evaluation submitted in accordance with subsection (a)(1) of this section:

(1) the radioactive material is physically separated so that only a portion could be involved in an accident;

(2) all or part of the radioactive material is not subject to release during an accident because of the way it is stored or packaged;

(3) the release fraction in the respirable size range would be lower than the release fraction in subsection (e) of this section due to the chemical or physical form of the material;

(4) the solubility of the radioactive material would reduce the dose received;

(5) facility design or engineered safety features in the facility would cause the release fraction to be lower than that in subsection (e) of this section;

(6) operating restrictions or procedures would prevent a release fraction as large as that in subsection (e) of this section; or

(7) other factors appropriate for the specific facility.

(c) An emergency plan for responding to a release of radioactive material submitted in accordance with subsection (a)(1) of this section shall include the following information.

(1) Facility description. A brief description of the licensee's facility and area near the site.

(2) Types of accidents. An identification of each type of radioactive materials accident for which protective actions may be needed.

(3) Classification of accidents. A classification system for classifying accidents as alerts or site area emergencies.

(4) Detection of accidents. Identification of the means of detecting each type of accident in a timely manner.

(5) Mitigation of consequences. A brief description of the means and equipment for mitigating the consequences of each type of accident, including those provided to protect workers onsite, and a description of the program for maintaining the equipment.

(6) Assessment of releases. A brief description of the methods and equipment to assess releases of radioactive materials.

(7) Responsibilities. A brief description of the responsibilities of licensee personnel should an accident occur, including identification of personnel responsible for promptly notifying off-site response organizations and the agency; also, responsibilities for developing, maintaining, and updating the plan.

(8) Notification and coordination. A commitment to and a brief description of the means to promptly notify off-site response organizations and request off-site assistance, including medical assistance for the treatment of contaminated injured onsite workers when appropriate. A control point shall be established. The notification and coordination shall be planned so that unavailability of some personnel, parts of the facility, and some equipment will not prevent the notification and coordination. The licensee shall also commit to notify the agency immediately after notification of the appropriate off-site response organizations and not later than one hour after the licensee declares an emergency. These reporting requirements do not supersede or release licensees from complying with the requirements in accordance with the Emergency Planning and Community Right-to-Know-Act of 1986, Title III, Publication L. 99-499 or other state or federal reporting requirements.

(9) Information to be communicated. A brief description of the types of information on facility status, radioactive releases, and recommended protective actions, if necessary, to be given to off-site response organizations and to the agency.

(10) Training. A brief description of the frequency, performance objectives, and plans for the training that the licensee will provide workers on how to respond to an emergency, including any special instructions and orientation tours the licensee would offer to fire, police, medical, and other

emergency personnel. The training shall familiarize personnel with site-specific emergency procedures. Also, the training shall thoroughly prepare site personnel for their responsibilities in the event of accident scenarios postulated as most probable for the specific site, including the use of team training for such scenarios.

(11) Safe shutdown. A brief description of the means of restoring the facility to a safe condition after an accident.

(12) Exercises. Provisions for conducting quarterly communications checks with off-site response organizations at intervals not to exceed three months and biennial onsite exercises to test response to simulated emergencies. Communications checks with off-site response organizations shall include the check and update of all necessary telephone numbers. The licensee shall invite off-site response organizations to participate in the biennial exercises. Participation of off-site response organizations in biennial exercises, although recommended, is not required. Exercises shall use accident scenarios postulated as most probable for the specific site and the scenarios shall not be known to most exercise participants. The licensee shall critique each exercise using individuals not having direct implementation responsibility for the plan. Critiques of exercises shall evaluate the appropriateness of the plan, emergency procedures, facilities, equipment, training of personnel, and overall effectiveness of the response. Deficiencies found by the critiques shall be corrected.

(13) Hazardous chemicals. A certification that the applicant has met its responsibilities in accordance with the Emergency Planning and Community Right-to-Know Act of 1986, Title III, Publication L. 99-499, if applicable to the applicant's activities at the proposed place of use of the radioactive material.

(d) The licensee shall allow the off-site response organizations expected to respond in case of an accident 60 days to comment on the licensee's emergency plan before submitting it to the agency. The licensee shall provide any comments received within the 60 days to the agency with the emergency plan.

(e) The following indicates release fractions for radioactive material.

Radioactive Material*	Release Fraction	Quantity (curies)	Radioactive Material*	Release Fraction	Quantity (curies)	Radioactive Material*	Release Fraction	Quantity (curies)
Ac-228 (89)	0.001	4,000	In-114m (49)	0.01	1,000	Xe-133 (54)	1.0	900,000
Am-241 (95)	0.001	2	Ir-192 (77)	0.001	40,000	Y-91 (39)	0.01	2,000
Am-242 (95)	0.001	2	Fe-55 (26)	0.01	40,000	Zn-65 (30)	0.01	5,000
Am-243 (95)	0.001	2	Fe-59 (26)	0.01	7,000	Zr-93 (40)	0.01	400
Sb-124 (51)	0.01	4,000	Kr-85 (36)	1.0	6,000,000	Zr-95 (40)	0.01	5,000
Sb-126 (51)	0.01	6,000	Pb-210 (82)	0.01	8	Any other ß-emitter	0.01	10,000

Ba-133 (56)	0.01	10,000	Mn-56 (25)	0.01	60,000			
Ba-140 (56)	0.01	30,000	Hg-203 (80)	0.01	10,000	Mixed fission products	0.01	1,000
Bi-207 (83)	0.01	5,000	Mo-99 (42)	0.01	30,000			
Bi-210 (83)	0.01	600	Np-237 (93)	0.001	2	Mixed corrosion products	0.01	10,000
Cd-109 (48)	0.01	1,000	Ni-63 (28)	0.01	20,000			
Cd-113 (48)	0.01	80	Nb-94 (41)	0.01	300			
Ca-45 (20)	0.01	20,000	P-32 (15)	0.5	100	Contaminated equipment, ß-	0.001	10,000
Cf-252 (98)	0.001	9(20mg)	P-33 (15)	0.5	1,000			
C-14 (6)**	0.01	50,000	Po-210 (84)	0.01	10			
Ce-141 (58)	0.01	10,000	K-42 (19)	0.01	9,000	Irradiated material, any form other than solid non-combustible	0.01	1,000
Ce-144 (58)	0.01	300	Pm-145 (61)	0.01	4,000			
Cs-134 (55)	0.01	2,000	Pm-147 (61)	0.01	4,000			
Cs-137 (55)	0.01	2,000	Ru-106 (44)	0.01	200			
Cl-36 (17)	0.5	100	Sm-151 (62)	0.01	4,000			
Cr-51 (24)	0.01	300,000	Sc-46 (21)	0.01	3,000			
Co-60 (27)	0.001	5,000	Se-75 (34)	0.01	10,000	Irradiated material, solid non-combustible	0.001	10,000
Cu-64 (29)	0.01	200,000	Ag110m (47)	0.01	1,000			
Cm-242 (96)	0.001	60	Na-22 (11)	0.01	9,000			
Cm-243 (96)	0.001	3	Na-24 (11)	0.01	10,000			
Cm-244 (96)	0.001	4	Sr-89 (38)	0.01	3,000	Mixed radioactive waste, ß-	0.01	1,000
Cm-245 (96)	0.001	2	Sr-90 (38)	0.01	90			
Eu-152 (63)	0.01	500	Sr-35 (16)	0.5	900			
Eu-154 (63)	0.01	400	Tc-99 (43)	0.01	10,000	Packaged waste, ß-***	0.001	10,000
Eu-155 (63)	0.01	3,000	Tc-99m (43)	0.01	400,000			
Ge-68 (32)	0.01	2,000	Te-127m(52)	0.01	5,000			

Gd-153 (64)	0.01	5,000	Te-129m(52)	0.01	5,000	Any other α-emitter	0.001	2
Au-198 (79)	0.01	30,000	Tb-160 (65)	0.01	4,000			
Hf-172 (72)	0.01	400	Tm-170 (69)	0.01	4,000	Contaminated equipment, α	0.0001	20
Hf-181 (72)	0.01	7,000	Sn-113 (50)	0.01	10,000			
Ho-166 (67)	0.01	100	Sn-123 (50)	0.01	3,000	Packaged waste***	0.0001	20
H-3 (1)	0.5	20,000	Sn-126 (50)	0.01	1,000			
I-125 (53)	0.5	10	Ti-144 (22)	0.01	100			
I-131 (53)	0.5	10	V-48 (23)	0.01	7,000			

* For combinations of radionuclides, consideration of the need for an emergency plan is required if the sum of the ratios of the quantity of each radionuclide authorized to the quantity listed for that radionuclide in this paragraph exceeds one. ( ) indicates atomic number.
** Non CO forms only.
*** Waste packaged in Type B containers does not require an emergency plan.

Adopted February 11, 2009 Effective March 12, 2009

§336.211. General Requirements for Radioactive Material Disposal.

(a) Unless otherwise exempted, a licensee may dispose of licensed material, as appropriate to the type of licensed material, only:

(1) by transfer to an authorized recipient as provided in §336.331(g) and (h) of this title (relating to Transfer of Radioactive Material), Subchapter H of this chapter (relating to Licensing Requirements for Near-Surface Land Disposal of Low-Level Radioactive Waste), or in Subchapter L of this chapter (relating to Licensing of Source Material Recovery and By-product Material Disposal Facilities);

(2) by transfer to a recipient authorized in another state by license issued by the United States Nuclear Regulatory Commission or an Agreement State or to the United States Department of Energy;

(3) by decay in storage as authorized by law;

(4) by release in effluents within the limits specified in §336.313 of this title (relating to Dose Limits for Individual Members of the Public);

(5) as authorized under §336.213 of this title (relating to Method of Obtaining Approval of Proposed Disposal Procedures);

(6) as authorized under §336.215 of this title (relating to Disposal by Release into Sanitary Sewerage);

(7) as authorized under §336.223 of this title (relating to Disposal in Underground Injection Control Class I Injection Wells);

(8) as authorized under §336.225 of this title (relating to Disposal of Specific Wastes); or

(9) as specifically authorized by commission license issued under this chapter.

(b) A person must be specifically licensed to receive waste containing licensed material from other persons for:

(1) treatment prior to disposal;

(2) treatment by incineration;

(3) decay in storage;

(4) disposal at a land disposal facility; or

(5) disposal by injection in an underground injection control Class I injection well.

(c) Except as provided in subsection (d) of this section, the processing and storage of radioactive material received from other persons is subject to Subchapter M of this chapter (relating to Licensing of Radioactive Substances Processing and Storage Facilities).

(d) The receipt, storage, and/or processing of radioactive materials received at a licensed commercial radioactive material disposal facility for the explicit purpose of disposal at that facility shall be regulated in accordance with the license authorizing disposal under this chapter.

(e) The on-site disposal of low-level radioactive waste is prohibited, except as provided by this section. The commission may, on request or its own initiative, authorize on-site disposal of low-level radioactive waste on a specific basis at any facility at which licensed low-level radioactive waste disposal operations began before September 1, 1989, if, after evaluation of the specific characteristics of the waste, the disposal site, and the method of disposal, the commission finds that the continuation of the disposal activity will not constitute a significant risk to public health and safety and to the environment. Persons subject to this subsection shall be licensed under Subchapter F of this chapter (relating to Licensing of Alternative Methods of Disposal of Radioactive Material).

(f) The disposal of low-level radioactive waste received from other persons is prohibited, except by a person who is specifically licensed under Subchapter H of this chapter.

Adopted January 30, 2008 Effective February 28, 2008

§336.213. Method of Obtaining Approval of Proposed Activities.

(a) A person who plans to dispose of radioactive material; store or process radioactive substances from other persons; or recover or process source material shall submit an application for a license according to Chapter 305 of this title (relating to Consolidated Permits) and the applicable subchapter in this chapter.

(b) A person holding a license issued under this chapter shall request changes to the license by requesting a license amendment, according to Chapter 305, Subchapter D of this title (relating to Amendments, Renewals, Transfers, Corrections, Revocation, and Suspension of Permits).

(c) If this chapter does not specifically authorize a proposed disposal procedure, a person shall file an application for a license or license amendment under Subchapter F of this chapter (relating to Licensing of Alternative Methods of Disposal of Radioactive Material) for approval of on-site disposal of radioactive material generated in the person's activities.

Adopted January 30, 2008 Effective February 28, 2008

§336.215. Disposal by Release into Sanitary Sewerage.

A licensee may discharge licensed material into sanitary sewerage if each of the following conditions is satisfied:

(1) the material is readily soluble in water, or is readily dispersible biological material;

(2) the quantity of licensed or other radioactive material that the licensee releases into the sewer in one month divided by the average monthly volume of water released into the sewer by the licensee does not exceed the concentration listed in Table III of §336.359 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);

(3) if more than one radionuclide is released, the licensee shall determine the fraction of the limit in Table III of §336.359 of this title represented by discharges into sanitary sewerage by dividing the actual monthly average concentration of each radionuclide released by the licensee into the sewer by the concentration of that radionuclide listed in Table III of §336.359 of this title; the sum of the fractions for all of the radionuclides released shall not exceed one; and

(4) the total quantity of licensed and other radioactive material that the licensee releases into the sanitary sewerage in a year does not exceed five curies (185 gigabecquerels) of hydrogen-3, one curie (37 gigabecquerels) of carbon-14, and one curie (37 gigabecquerels) of all other radioactive materials combined.

Adopted August 23, 2000 Effective September 14, 2000

§336.217. Disposal by Burial in Soil.

No licensee shall dispose of radioactive material by burial in soil except as provided by:

(1) §336.225 of this title (relating to Disposal of Specific Wastes);

(2) specific license issued under the applicable subchapter of this chapter; or

(3) an exemption issued under §336.5(a) of this title (relating to Exemptions).

Adopted August 23, 2000 Effective September 14, 2000

§336.219. Disposal by Release into Septic Tanks.

No licensee shall discharge radioactive material into a septic tank system except by specific license issued by the commission under Subchapter F of this chapter (relating to Alternative Methods of Disposal of Radioactive Material).

Adopted August 23, 2000 Effective September 14, 2000

§336.221. Treatment or Disposal by Incineration.

(a) Treatment of radioactive material by incineration, except in a form and concentration specified by §336.225 of this title (relating to Disposal of Specific Wastes), shall be subject to applicable rules of the Texas Department of Health.

(b) Ash residue waste containing radioactive material shall be disposed of in accordance with §336.211 of this title (relating to General Requirements for Radioactive Material Waste Disposal).

Adopted August 23, 2000 Effective September 14, 2000

§336.223. Disposal in Underground Injection Control Class I Injection Wells.

A person shall dispose of radioactive material by injection, only into an underground injection control Class I injection well that is:

(1) permitted under Chapter 331 of this title (relating to Underground Injection Control); and

(2) specifically licensed under this chapter for radioactive material waste disposal.

Adopted August 23, 2000 Effective September 14, 2000

§336.225. Disposal of Specific Wastes.

(a) A licensee may dispose of the following licensed material as if it were not radioactive:

(1) 0.05 microcurie (1.85 kilobecquerels), or less, of hydrogen-3, carbon-14, or iodine-125 per gram of medium used for liquid scintillation counting or in vitro clinical or in vitro laboratory testing; and

(2) 0.05 microcurie (1.85 kilobecquerels), or less, of hydrogen-3, carbon-14, or iodine-125 per gram of animal tissue, averaged over the weight of the entire animal.

(b) A licensee shall not dispose of tissue under subsection (a)(2) of this section in a manner that would permit its use either as food for humans or as animal feed.

(c) A licensee may, upon commission approval under subsection (d) of this section, dispose of licensed material listed in §336.365 of this title (relating to Appendix H. Radionuclide Concentration and Annual Activity Limits for Disposal in a Type I Municipal Solid Waste Facility or a Hazardous Waste Facility), provided that the licensed material does not exceed the specified concentration and annual activity limits, in a Type I municipal solid waste facility as defined in the commission's rules in Chapter 330 of this title (relating to Municipal Solid Waste), unless the licensed material is hazardous waste, or is combined with hazardous waste, as defined in Chapter 330 of this title. Licensed material listed in §336.365 of this title which does not exceed the specified concentration and annual activity limits and which is hazardous waste, or is combined with hazardous waste, shall be disposed of at a hazardous waste disposal facility in accordance with the commission's rules in Chapter 335 of this title (relating to Industrial Solid Waste and Municipal Hazardous Waste). Disposals at a Type I municipal solid waste facility or a hazardous waste disposal facility must comply with other requirements for those facilities as set forth in Chapters 330 or 335 of this title, respectively.

(d) A licensee shall apply for commission authorization, by license amendment, for the disposal of licensed material under subsection (c) of this section by submitting procedures for the following to the agency:

(1) physical delivery of the material to the disposal facility;

(2) surveys to be performed for compliance with subsection (e)(1) of this section;

(3) maintaining secure packaging during transportation to the site; and

(4) maintaining records of any disposals made under this subsection.

(e) Each licensee who disposes of licensed material under subsections (a) - (d) of this section shall:

(1) make surveys adequate to assure that the limits specified in subsection (a) or (c) of this section are not exceeded; and

(2) remove or otherwise obliterate or obscure all labels, tags, or other markings which would indicate that the material or contents is radioactive.

(f) Each licensee who disposes of licensed material under subsections (a) - (d) of this section shall maintain records in accordance with §336.338 of this title (relating to General Recordkeeping Requirements for Disposal).

(g) Material disposed of under this section is exempt from the requirements of §336.332 of this title (relating to Preparation of Radioactive Material for Transport).

Adopted August 23, 2000 Effective September 14, 2000

§336.229. Prohibition of Dilution.

No person shall reduce the concentration of radioactive constituents by dilution to meet exemption levels established under the Texas Health and Safety Code, Chapter 401, §401.106, or change the waste's classification or disposal requirements. Radioactive material that has been diluted as a result of stabilization, mixing, or treatment, including, but not limited to, Resource Conservation and Recovery Act (RCRA) Land Disposal Restrictions (LDR) treatment, or for any other reason, shall be subject to the disposal regulations it would have been subject to prior to dilution.

Adopted August 23, 2000 Effective September 14, 2000

SUBCHAPTER L: LICENSING OF SOURCE MATERIAL RECOVERY AND BY-PRODUCT MATERIAL DISPOSAL FACILITIES
§§336.1101, 336.1103, 336.1105, 336.1107, 336.1109, 336.1111, 336.1113, 336.1115, 336.1117, 336.1119, 336.1121, 336.1123, 336.1125, 336.1127, 336.1129, 336.1131, 336.1133, 336.1135
Effective March 12, 2009

§336.1101. Purpose.

This subchapter provides for the specific licensing of the receipt, possession, use, or disposal of radioactive material in source material recovery facilities and other operations that accept by-product material for disposal. No person may engage in such activities except as authorized in a specific license issued in accordance with this subchapter.

Adopted January 30, 2008 Effective February 28, 2008

§336.1103. Scope.

In addition to the requirements of this subchapter, all licensees, unless otherwise specified, are subject to the requirements of Subchapters A - E of this chapter.

Adopted January 30, 2008 Effective February 28, 2008

§336.1105. Definitions.

The following words and terms, when used in this subchapter, have the following meanings, unless the context clearly indicates otherwise.

(1) **Aquifer**--A geologic formation, group of formations, or part of a formation capable of yielding a significant amount of groundwater to wells or springs. Any saturated zone created by uranium or thorium recovery operations would not be considered an aquifer unless the zone is or potentially is:

(A) hydraulically interconnected to a natural aquifer;

(B) capable of discharge to surface water; or

(C) reasonably accessible because of migration beyond the vertical projection of the boundary of the land transferred for long-term government ownership and care in accordance with §336.1131 of this title (relating to Land Ownership of By-Product Material Disposal Sites).

(2) **As expeditiously as practicable considering technological feasibility**--As quickly as possible considering the physical characteristics of the by-product material and the site, the limits of "available technology" (as defined in this section), the need for consistency with mandatory requirements of other regulatory programs, and "factors beyond the control of the licensee" (as defined in this section). The phrase permits consideration of the cost of compliance only to the extent specifically provided for by use of the term "Available technology."

(3) **Available technology**--Technologies and methods for emplacing a final radon barrier on by-product material piles or impoundments. This term must not be construed to include extraordinary measures or techniques that would impose costs that are grossly excessive as measured by practice within the industry (or one that is reasonably analogous), (for example, by way of illustration only, unreasonable overtime, staffing, or transportation requirements, etc., considering normal practice in the industry; laser fusion of soils; etc.), provided there is reasonable progress toward emplacement of the final radon barrier. To determine grossly excessive costs, the relevant baseline against which costs must be compared is the cost estimate for tailings impoundment closure contained in the licensee's approved reclamation plan, but costs beyond these estimates shall not automatically be considered grossly excessive.

(4) **By-product material**--Tailings or wastes produced by or resulting from the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content, including discrete surface wastes resulting from uranium solution extraction processes. Underground ore bodies depleted by such solution extraction operations do not constitute "by-product material" within this definition.

(5) **By-product material disposal cell**--A man-made excavation and/or construction designed, sited, and built in accordance with the requirements of §336.1129 of this title (relating to Technical Requirements) for the purpose of disposal of by-product material.

(6) **By-product material pond**--A man-made excavation designed, constructed, and sited in accordance with the requirements of §336.1129 of this title (relating to Technical Requirements).

(7) **Capable fault**--As used in this section, "Capable fault" has the same meaning as defined in Section III(g) of Appendix A of Title 10 Code of Federal Regulations (CFR) Part 100.

(8) **Closure**--The post-operational activities to decontaminate and decommission the buildings and site used to produce by-product materials and/or reclaim the tailings or disposal area, including groundwater restoration, if needed.

(9) **Closure plan**--The plan approved by the agency to accomplish closure. The closure plan consists of a decommissioning plan and may also include a reclamation plan.

(10) **Commencement of construction**--Any clearing of land, excavation, or other substantial action that would adversely affect the environment of a site, but does not include changes desirable for the temporary use of the land for public recreational uses, necessary borings to determine site characteristics or other preconstruction monitoring to establish background information related to the suitability of a site, or to the protection of the environment.

(11) **Compliance period**--The period of time that begins when the agency sets secondary groundwater protection standards and ends when the owner or operator's license is terminated and the site is transferred to the state or federal government for long-term care, if applicable.

(12) **Decommissioning plan**--The plan approved by the agency to accomplish decommissioning. Decommission is defined in §336.2(29) of this title (relating to Definitions).

(13) **Dike**--An embankment or ridge of either natural or man-made materials used to prevent the movement of liquids, sludges, solids, or other materials.

(14) **Disposal area**--The area containing by-product materials to which the requirements of §336.1129(p) - (aa) of this title (relating to Technical Requirements) apply.

(15) **Existing portion**--As used in §336.1129(i)(1) of this title (relating to Technical Requirements), "existing portion" is that land surface area of an existing surface impoundment on which significant quantities of uranium or thorium by-product materials had been placed prior to September 30, 1983.

(16) **Factors beyond the control of the licensee**--Factors proximately causing delay in meeting the schedule in the applicable reclamation plan for the timely emplacement of the final radon barrier notwithstanding the good faith efforts of the licensee to complete the barrier in compliance with §336.1129(x) of this title (relating to Technical Requirements). These factors may include, but are not limited to:

(A) physical conditions at the site;

(B) inclement weather or climatic conditions;

(C) an act of God;

(D) an act of war;

(E) a judicial or administrative order or decision, or change to the statutory, regulatory, or other legal requirements applicable to the licensee's facility that would preclude or delay the performance of activities required for compliance;

(F) labor disturbances;

(G) any modifications, cessation or delay ordered by state, federal, or local agencies;

(H) delays beyond the time reasonably required in obtaining necessary government permits, licenses, approvals, or consent for activities described in the reclamation plan proposed by the licensee that result from government agency failure to take final action after the licensee has made a good faith, timely effort to submit legally sufficient applications, responses to requests (including relevant data requested by the agencies), or other information, including approval of the reclamation plan; and

(I) an act or omission of any third party over whom the licensee has no control.

(17) **Final radon barrier**--The earthen cover (or approved alternative cover) over by-product material constructed to comply with §336.1129(p) - (aa) of this title (relating to Technical Requirements) (excluding erosion protection features).

(18) **Groundwater**--Water below the land surface in a zone of saturation. For purposes of this subchapter, groundwater is the water contained within an aquifer as defined in this section.

(19) **Hazardous constituent**--Subject to §336.1129(j)(5) of this title (relating to Technical Requirements), "hazardous constituent" is a constituent that meets all three of the following tests:

(A) the constituent is reasonably expected to be in or derived from the by-product material in the disposal area;

(B) the constituent has been detected in the groundwater in the uppermost aquifer; and

(C) the constituent is listed in 10 Code of Federal Regulations Part 40, Appendix A, Criterion 13.

(20) **In situ leach**--Refers to the actual oxidation and dissolution of uranium in an underground formation.

(21) **In situ recovery**--Refers to the process of stripping, precipitating, de-watering, and drying uranium in a surface processing plant.

(22) **Leachate**--Any liquid, including any suspended or dissolved components in the liquid, that has percolated through or drained from the by-product material.

(23) **Licensed site**--The area contained within the boundary of a location under the control of persons generating or storing by-product materials under a license.

(24) **Liner**--A continuous layer of natural or man-made materials, beneath or on the sides of a surface impoundment that restricts the downward or lateral escape of by-product material, hazardous constituents, or leachate.

(25) **Maximum credible earthquake**--That earthquake that would cause the maximum vibratory ground motion based upon an evaluation of earthquake potential considering the regional and local geology and seismology and specific characteristics of local subsurface material.

(26) **Milestone**--An action or event that is required to occur by an enforceable date.

(27) **Operation**--

(A) The period of time during which a by-product material disposal area is being used for the continued placement of by-product material or is in standby status for such placement. A disposal area is in operation from the day that by-product material is first placed in it until the day final closure begins; and

(B) The period of time during which an in situ leach uranium recovery operation is actively leaching or recovering uranium.

(28) **Point of compliance**--The site-specific location in the uppermost aquifer where the groundwater protection standard shall be met. The objective in selecting the point of compliance is to provide the earliest practicable warning that an impoundment is releasing hazardous constituents to the groundwater. The point of compliance is selected to provide prompt indication of groundwater contamination on the hydraulically downgradient edge of the disposal area.

(29) **Principal activities**--Activities authorized by the license that 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.

(30) **Reclamation**--Those activities at a uranium recovery licensed facility that work towards achieving the criteria under this subchapter for release of equipment, facilities and/or the site (including land) to unrestricted use or termination of the license.

(31) **Reclamation plan--**

(A) For the purposes of paragraph (21) and §336.1115 of this title (relating to In situ recovery and Expiration and Termination of Licenses; Decommissioning of Sites; Separate Buildings or Outdoor Areas, respectively), "reclamation plan" is the plan detailing activities to accomplish reclamation of the licensed site (land surface) where in situ recovery and related activities are licensed to occur. The reclamation plan shall include a schedule for reclamation milestones that are key to the clean-up of the in situ recovery plant location, well fields, and any by-product waste storage location; or

(B) For the purposes of §336.1129(p) - (aa) of this title (relating to Technical Requirements), "reclamation plan" is the plan detailing activities to accomplish reclamation of the by-product material disposal area in accordance with the technical criteria of this section. The reclamation plan shall include a schedule for reclamation milestones that are key to the completion of the final radon barrier, including as appropriate, but not limited to, windblown tailings retrieval and placement on the pile, interim stabilization (including dewatering or the removal of freestanding liquids and recontouring), and final radon barrier construction. Reclamation of by-product material shall also be addressed in the closure plan. The detailed reclamation plan may be incorporated into the closure plan.

(32) **Restoration**--Those activities that seek to return the groundwater at an underground injection control permitted site to restoration levels established by permit.

(33) **Security**--This term has the same meaning as financial assurance.

(34) **Surface impoundment**--A natural topographic depression, man-made excavation, or diked area at a conventional uranium mill, which is designed to receive waste from the milling process which may contain liquid wastes or wastes containing free liquids, solid wastes, mill site demolition materials and debris, and other by-product materials from the milling site.

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

(36) **Uppermost aquifer**--The geologic formation nearest the natural ground surface that is an aquifer, as well as lower aquifers that are hydraulically interconnected with this aquifer within the facility's property boundary.

(37) **Uranium recovery,** --Any uranium extraction or concentration activity that results in the production of "by-product material" as it is defined in this chapter and as it pertains to uranium ore only. As used in this definition, "Uranium recovery" has the same meaning as "uranium milling" in 10 Code of Federal Regulations §40.4.

Adopted February 11, 2009 Effective March 12, 2009

§336.1107. Filing Application for Specific Licenses.

Unless otherwise specified, an applicant for a license is subject to the requirements in §336.205 of this title (relating to Application Requirements). The applicant shall also comply with the following additional filing requirements.

(1) Applications for specific licenses shall be filed in seven copies in a manner specified by the agency.

(2) Each applicant shall demonstrate to the agency that the applicant is financially qualified to conduct the licensed activity, including any required decontamination, decommissioning, reclamation, and disposal, before the agency issues or renews a license by posting security as required under §336.1125 of this title (relating to Financial Security Requirements).

(3) An application for a license shall contain written specifications relating to the source material recovery facility operations and the disposition of the by-product material.

(4) Each application shall clearly demonstrate how the requirements of §§336.1107, 336.1109, 336.1111, 336.1113, 336.1125, 336.1127, 336.1129, and 336.1131 of this title (relating to Filing Application for Specific Licenses; General Requirements for the Issuance of Specific Licenses; Special Requirements for a License Application for Source Material Recovery and By-Product Material Disposal Facilities; Specific Terms and Conditions of Licenses; Financial Security Requirements; Long-Term Care and Maintenance Requirements; Technical Requirements; and Land Ownership of By-Product Material Disposal Sites) have been addressed.

(5) Applications for new licenses shall be processed in accordance with Chapter 281 of this title (relating to Applications Processing).

Adopted January 30, 2008 Effective February 28, 2008

§336.1109. General Requirements for the Issuance of Specific Licenses.

A license application may be approved if the agency determines that the applicant has met the requirements of §336.207 of this title (relating to General Requirements for Issuance of a License) and the following:

(1) qualifications of the designated radiation safety officer as stated in §336.208 of this title (relating to Radiation Safety Officer); and

(2) the applicant satisfies all applicable special requirements in this subchapter.

Adopted February 11, 2009 Effective March 12, 2009

§336.1111. Special Requirements for a License Application for Source Material Recovery and By-product Material Disposal Facilities.

In addition to the requirements in §336.1109 of this title (relating to General Requirements for the Issuance of Specific Licenses), a license may be issued if the applicant submits the items in paragraph (1) of this section for agency approval and meets the conditions in paragraphs (2) and (3) of this section.

(1) An application for a license must include the following:

(A) for new licenses, an environmental report that includes the results of a one-year preoperational monitoring program and for renewal of licenses, an environmental report containing the results of the operational monitoring program. Both must also include the following:

(i) description of the proposed project or action;

(ii) area/site characteristics including ecology, geology, topography, hydrology, meteorology, historical and cultural landmarks, and archaeology;

(iii) radiological and nonradiological impacts of the proposed project or action, including waterway and groundwater impacts and any long-term impacts;

(iv) environmental effects of accidents;

(v) by-product material disposal, decommissioning, decontamination, and reclamation and impacts of these activities; and

(vi) site and project alternative;

(B) a closure plan for decontamination, decommissioning, restoration, and reclamation of buildings and the site to levels that would allow unrestricted use and for reclamation of the by-product material disposal areas in accordance with the technical requirements of §336.1129 of this title (relating to Technical Requirements);

(C) proposal of an acceptable form and amount of financial security consistent with the requirements of §336.1125 of this title (relating to Financial Security Requirements);

(D) procedures describing the means employed to meet the requirements of §336.1113(1) and (2) of this title (relating to Specific Terms and Conditions of Licenses) and §336.1129(o) of this title during the operational phase of any project;

(E) specifications for the emissions control and disposition of the by-product material; and

(F) for disposal of by-product material received from others, information on the chemical and radioactive characteristics of the wastes to be received, detailed procedures for receiving and documenting incoming waste shipments, and detailed waste acceptance criteria.

(G) an adequate operating, radiation safety, and emergency procedures manual; and

(H) a signed certification from the owner or owners of the real property on which radioactive substances are recovered, stored, processed, or disposed acknowledging that:

(i) radioactive substances are recovered, stored, processed or disposed on the property with the consent of the property owner or owners; and

(ii) decommissioning of the licensed site may be required even if the applicant or licensee is unable or fails to decommission the licensed site as required by a license, rule or order of the commission.

(2) Except as provided in this section, the applicant shall not commence construction at the site until the agency has issued the license. Commencement of construction prior to issuance of the license shall be grounds for denial of a license. For an application for a new license to dispose of by-product material that was filed with the Texas Department of State Health Services on or before January 1, 2007, the applicant may commence construction as provided in §336.1135 of this title (relating to Construction Activities), at the applicant's own risk, upon the executive director's issuance of the Environmental Analysis provided under §281.21(f) of this title (relating to Draft Permit, Technical Summary, Fact Sheet, and Compliance History).

(3) An application for a license must be submitted according to the applicable requirements of the Texas Engineering Practice Act, the Texas Geoscience Practice Act, and the Professional Land Surveying Practices Act.

Adopted January 30, 2008 Effective February 28, 2008

§336.1113. Specific Terms and Conditions of Licenses.

Unless otherwise specified, each license issued in accordance with this section is subject to the requirements of §305.125 of this title (relating to Standard Permit Conditions) and the following.

(1) Daily inspection of any by-product material retention systems shall be conducted by the licensee. General qualifications for individuals conducting inspections shall be approved by the agency. Records of the inspections shall be maintained for review by the agency.

(2) In addition to the applicable requirements of §336.350 and §336.352 of this title (relating to Reports of Stolen, Lost, or Missing Licensed Radioactive Material and Reports of Exposures,

Radiation Levels, and Concentrations of Radioactive Material Exceeding the Limits), the licensee shall immediately notify the agency of the following:

(A) any failure in a by-product material retention system that results in a release of by-product material into unrestricted areas;

(B) any release of radioactive material that exceeds the concentrations for water listed in Table II, Column 2, of §336.359 of this title (relating to Appendix B. Annual Limits in Intake (ALI) and Derived Air Concentrations (DAC) of Radionuclides for Occupational Exposure; Effluent Concentrations; Concentrations for Release to Sanitary Sewerage) and that extends beyond the licensed boundary;

(C) any spill that exceeds 20,000 gallons and that exceeds the concentrations for water listed in Table II, Column 2, of §336.359 of this title; or

(D) any release of solids that exceeds the limits in §336.1115(e) of this title (relating to Expiration and Termination of Licenses; Decommissioning of Sites, Separate Buildings or Outdoor Areas) and that extends beyond the licensed boundary.

(3) In addition to the applicable requirements of Chapter 327 of this title (relating to Spill Prevention and Control) and §336.350 and §336.352 of this title, the licensee shall notify the agency within 24 hours of the following:

(A) any spill that extends:

(i) beyond the wellfield monitor well ring;

(ii) more than 400 feet from an injection or production well pipe artery to or from a recovery plant; or

(iii) more than 200 feet from a recovery plant; or

(B) any spill that exceeds 2,000 gallons and that exceeds the concentrations for water listed in Table II, Column 2, of §336.359 of this title.

(4) A written report to the executive director within 30 days after learning of the occurrence of a spill as described in subparagraph (A) or (B) of this paragraph. The report shall include the following:

(i) location of the spill;

(ii) cause of the spill;

(iii) corrective steps taken or planned to ensure against a recurrence; and

(iv) timely schedule for remediation of the spill or release, if required.

(5) At any time before termination of the license, the licensee shall submit written statements under oath upon request of the commission or executive director to enable the commission to determine whether or not the license should be modified, suspended, or revoked.

(6) The licensee shall be subject to the applicable provisions of Texas Health and Safety Code, Chapter 401, also known as the Texas Radiation Control Act (TRCA) now or hereafter in effect and to applicable rules and orders of the commission. The terms and conditions of the license are subject to amendment, revision, or modification, by reason of amendments to TRCA or by reason of rules and orders issued in accordance with terms of TRCA.

(7) Any license may be revoked, suspended, or modified, in whole or in part, for any material false statement in the application or any statement of fact required under provisions of TRCA, or because of conditions revealed by any application or statement of fact or any report, record or inspection or other means that would warrant the commission to refuse to grant a license on the original application, or for failure to operate the facility in accordance with the terms of the license, or for any violation of or failure to observe any of the terms and conditions of TRCA or the license or of any rule or order of the commission.

(8) Each person licensed by the commission under this subchapter shall confine possession and use of radioactive materials to the locations and purposes authorized in the license.

(9) No by-product may be disposed of until the executive director has inspected the facility and has found it to be conformance with the description, design, and construction described in the application for a by-product disposal license. No by-product may be received for disposal at the facility until the executive director has approved financial assurance.

(10) The commission may incorporate in any license at the time of issuance, or thereafter, by appropriate rule or order, additional requirements or conditions with respect to the licensee's receipt, possession, or disposal of by-product as it deems appropriate or necessary in order to:

(A) protect the health and safety of the public and the environment; or

(B) require reports and recordkeeping and to provide for inspections of activities under the licenses that may be necessary or appropriate to effectuate the purposes of TRCA and rules thereunder.

Adopted February 11, 2009 Effective March 12, 2009

§336.1115. Expiration and Termination of Licenses; Decommissioning of Sites, Separate Buildings or Outdoor Areas.

(a) The term of the specific license is for a fixed term not to exceed ten years.

(b) Expiration of the specific license does not relieve the licensee of the requirements of this chapter.

(c) All license provisions continue in effect beyond the expiration date with respect to possession of radioactive material until the agency notifies the former licensee in writing that the provisions of the license are no longer binding. During this time, the former licensee must:

(1) be limited to actions involving radioactive material that are related to decommissioning; and

(2) continue to control entry to restricted areas until the location(s) is suitable for release for unrestricted use in accordance with the requirements of subsection (e) of this section.

(d) Within 60 days of the occurrence of any of the following, each licensee must provide notification to the agency in writing and either begin decommissioning its site, or any separate buildings or outdoor areas that contain residual radioactivity in accordance with the closure plan in §336.1111(1)(B) of this title (relating to Special Requirements for a License Application for Source Material Recovery and By-Product Material Disposal Facilities), so that the buildings or outdoor areas are suitable for release in accordance with subsection (e) of this section if:

(1) the license has expired in accordance with subsection (a) of this section; or

(2) the licensee has decided to permanently cease principal activities, as defined in §336.1105(24) of this title (relating to Definitions), at the entire site or in any separate building or outdoor area; or

(3) no principal activities have been conducted for a period of 24 months in any building or outdoor area that contains residual radioactivity such that the building or outdoor area is unsuitable for release in accordance with agency requirements.

(e) Outdoor areas are considered suitable for release for unrestricted use if the following limits are not exceeded.

(1) The concentration of radium-226 or radium-228 (in the case of thorium by-product material) in soil, averaged over any 100 square meters (m^2), may not exceed the background level by more than:

(A) 5 picocuries per gram (pCi/g) (0.185 becquerel per gram (Bq/g)), averaged over the first 15 cm of soil below the surface; and

(B) 15 pCi/g (0.555 Bq/g), averaged over 15 cm thick layers of soil more than 15 cm below the surface.

(2) The contamination of vegetation may not exceed 5 pCi/g (0.185 Bq/g), based on dry weight, for radium-226 or radium-228.

(3) The concentration of natural uranium in soil, with no daughters present, averaged over any 100 m^2, may not exceed the background level by more than:

(A) 30 pCi/g (1.11 Bq/g), averaged over the top 15 cm of soil below the surface; and

(B) 150 pCi/g (5.55 Bq/g), average concentration at depths greater than 15 centimeters below the surface ; and

(4) no individual member of the public will receive an effective dose equivalent in excess of 100 mrem (1 mSv) per year as calculated by the methodology provided in NUREG-1620, Appendix H - "Guidance to the U.S. Nuclear Regulatory Commission Staff on the Radium Dose Approach."

(f) Coincident with the notification required by subsection (c) of this section, the licensee shall maintain in effect all decommissioning financial security established by the licensee in accordance with §336.1125 of this title (relating to Financial Security Requirements) in conjunction with a license issuance or renewal or as required by this section. The amount of the financial security must be increased, or may be decreased, as appropriate, with agency approval, to cover the detailed cost estimate for decommissioning established in accordance with subsection (l)(5) of this section.

(g) In addition to the provisions of subsection (h) of this section, each licensee must submit an updated closure plan to the agency within 12 months of the notification required by subsection (d) of this section. The updated closure plan must meet the requirements of §336.1111(1)(B) and §336.1125 of this title. The updated closure plan must describe the actual conditions of the facilities and site and the proposed closure activities and procedures.

(h) The agency may grant a request to delay or postpone initiation of the decommissioning process if the agency determines that such relief is not detrimental to the occupational and public health and safety and is otherwise in the public interest. The request must be submitted no later than 30 days before notification in accordance with subsection (d) of this section. The schedule for decommissioning in subsection (d) of this section may not begin until the agency has made a determination on the request.

(i) A decommissioning plan must be submitted if required by license condition or if the procedures and activities necessary to carry out decommissioning of the site or separate building or outdoor area have not been previously approved by the agency and these procedures could increase potential health and safety impacts to workers or to the public, such as in any of the following cases:

(1) procedures would involve techniques not applied routinely during cleanup or maintenance operations;

(2) workers would be entering areas not normally occupied where surface contamination and radiation levels are significantly higher than routinely encountered during operation;

(3) procedures could result in significantly greater airborne concentrations of radioactive materials than are present during operation; or

(4) procedures could result in significantly greater releases of radioactive material to the environment than those associated with operation.

(j) The agency may approve an alternate schedule for submittal of a decommissioning plan required in accordance with subsection (d) of this section if the agency determines that the alternative schedule is necessary to the effective conduct of decommissioning operations and presents no undue risk from radiation to the occupational and public health and safety and is otherwise in the public interest.

(k) The procedures listed in subsection (i) of this section may not be carried out prior to approval of the decommissioning plan.

(l) The proposed decommissioning plan for the site or separate building or outdoor area must include:

(1) a description of the conditions of the site, separate buildings, or outdoor area sufficient to evaluate the acceptability of the plan;

(2) a description of planned decommissioning activities;

(3) a description of methods used to ensure protection of workers and the environment against radiation hazards during decommissioning;

(4) a description of the planned final radiation survey;

(5) an updated detailed cost estimate for decommissioning, comparison of that estimate with present funds set aside for decommissioning, and a plan for assuring the availability of adequate decommissioning; and

(6) for decommissioning plans calling for completion of decommissioning later than 24 months after plan approval, a justification for the delay based on the criteria in subsection (p) of this section.

(m) The proposed decommissioning plan may be approved by the agency if the information in the plan demonstrates that the decommissioning will be completed as soon as practicable and that the occupational health and safety of workers and the public will be adequately protected.

(n) Except as provided subsection (p) of this section, licensees shall complete decommissioning of the site or separate building or outdoor area as soon as practicable but no later than 24 months following the initiation of decommissioning.

(o) Except as provided in subsection (p) of this section, when decommissioning involves the entire site, the licensee must request license termination as soon as practicable but no later than 24 months following the initiation of decommissioning.

(p) The agency may approve a request for an alternate schedule for completion of decommissioning of the site or separate buildings or outdoor areas and the license termination if appropriate, if the agency determines that the alternative is warranted by the consideration of the following:

(1) whether it is technically feasible to complete decommissioning within the allotted 24-month period;

(2) whether sufficient waste disposal capacity is available to allow completion of decommissioning within the allotted 24-month period; and

(3) other site-specific factors that the agency may consider appropriate on a case-by-case basis, such as the regulatory requirements of other government agencies, lawsuits, groundwater treatment activities, monitored natural groundwater restoration, actions that could result in more environmental harm than deferred cleanup, and other factors beyond the control of the licensee.

(q) As the final step in decommissioning, the licensee must:

(1) certify the disposition of all radioactive material, including accumulated by-product material;

(2) conduct a radiation survey of the premises where the licensed activities were carried out and submit a report of the results of this survey unless the licensee demonstrates that the premises are suitable for release in accordance with subsection (e) of this section. The licensee shall, as appropriate:

(A) report the following levels:

(i) gamma radiation in units of microroentgen per hour (μR/hr) (millisieverts per hour (mSv/hr)) at 1 meter (m) from surfaces;

(ii) radioactivity, including alpha and beta, in units of disintegrations per minute (dpm) or microcuries (μCi) (megabecquerels (MBq)) per 100 square centimeters (cm^2) for surfaces;

(iii) μCi (MBq) per milliliter for water; and

(iv) picocuries (pCi) (becquerels (Bq)) per gram (g) for solids such as soils or concrete; and

(B) specify the manufacturer's name, and model and serial number of survey instrument(s) used and certify that each instrument is properly calibrated and tested.

(r) The executive director will provide written notification to specific licensees, including former licensees with license provisions continued in effect beyond the expiration date in accordance with subsection (d) of this section, that the provisions of the license are no longer binding. The executive director will provide such notification when the executive director determines that:

(1) radioactive material has been properly disposed;

(2) reasonable effort has been made to eliminate residual radioactive contamination, if present;

(3) a radiation survey has been performed that demonstrates that the premises are suitable for release in accordance with agency requirements;

(4) other information submitted by the licensee is sufficient to demonstrate that the premises are suitable for release in accordance with the requirements of subsection (e) of this section;

(5) all records required by §336.343 of this title (relating to Records of Surveys) have been submitted to the agency;

(6) the licensee has paid any outstanding fees required by this chapter and has resolved any outstanding notice(s) of violation issued to the licensee;

(7) the licensee has met the applicable technical and other requirements for closure and reclamation of a by-product material disposal site; and

(8) the United States Nuclear Regulatory Commission (NRC) has made a determination that all applicable standards and requirements have been met.

(s) Licenses for source material recovery or by-product material disposal are exempt from subsections (d)(3), (g), and (h) of this section with respect to reclamation of by-product material impoundments or disposal areas. Timely reclamation plans for by-product material disposal areas must be submitted and approved in accordance with §336.1129(p) - (aa) of this title (relating to Technical Requirements).

(t) A licensee may request that a subsite or a portion of a licensed site be released for unrestricted use before full license termination as long as release of the area of concern will not adversely impact the remaining unaffected areas and will not be recontaminated by ongoing authorized activities. When the licensee is confident that the area of concern will be acceptable to the agency for release for unrestricted use, a written request for release for unrestricted use and agency confirmation of closeout work performed shall be submitted to the agency. The request should include a comprehensive report, accompanied by survey and sample results that show contamination is less than the limits specified in subsection (e) of this section and an explanation of how ongoing authorized activities will not adversely affect the area proposed to be released. Upon confirmation by the agency that the area of concern is releasable for unrestricted use, the licensee may apply for a license amendment, if required.

Adopted January 30, 2008 Effective February 28, 2008

§336.1117. Renewal of Licenses.

(a) Application for a renewal of specific licenses must be filed in accordance with §336.1107 of this title (relating to Filing Application for Specific Licenses) and §336.1111(1) of this title (relating to Special Requirements for a License Application for Source Material Recovery and By-Product Material Disposal Facilities). Application for a renewal of a specific license must be filed by the date specified in the license. If the licensee fails to apply for a renewal and fails to pay the fee required by Subchapter B of this chapter, the license expires and the licensee must comply with the requirements of §336.1115 of this title (relating to Expiration and Termination of Licenses; Decommissioning of Sites, Separate Buildings, or Outdoor Areas). In any application for renewal, the applicant may incorporate drawings by clear and

specific reference (for example, title, date and unique number of drawing), if no modifications have been made since previously submitted.

(b) In any case in which a licensee, prior to expiration of the existing license, has filed a request in proper form for a renewal or for a new license authorizing the same activities, such existing license will not expire until the application has been finally determined by the agency. In any case in which a licensee, not more than 30 days after the expiration of an existing license, has filed an application for renewal or for a new license authorizing the same activities and paid the fee required by Subchapter B of this chapter, the agency may reinstate the license and extend the expiration until the request has been finally determined by the agency.

(c) An application for renewal of a license may be approved if the agency determines that the requirements of §336.1109 of this title (relating to General Requirements for the Issuance of Specific Licenses) have been satisfied.

Adopted January 30, 2008 Effective February 28, 2008

§336.1119. Amendment of Licenses at Request of Licensee.

Requests for amendment of a license shall be filed in accordance with §336.1107 of this title (relating to Filing Application for Specific Licenses) and §336.205 of this title (relating to Application Requirements). Such requests shall be signed by the radiation safety officer and specify how the licensee desires the license to be amended and the basis for such amendment.

Adopted January 30, 2008 Effective February 28, 2008

§336.1121. Agency Action on Applications to Renew or Amend.

In considering a request by a licensee to renew or amend a license, the agency will apply the appropriate criteria in §336.1109 of this title (relating to General Requirements for the Issuance of Specific Licenses) and §336.1111 of this title (relating to Special Requirements for a License Application for Source Material Recovery and By-Product Material Disposal Facilities).

Adopted January 30, 2008 Effective February 28, 2008

§336.1123. Transfer of Material.

(a) A licensee may not transfer radioactive material except as authorized in accordance with this chapter.

(b) Except as otherwise provided in a license and subject to the provisions of subsections (c) and (d) of this section, any licensee may transfer radioactive material:

(1) to the agency after receiving prior approval from the agency;

(2) to the United States Department of Energy;

(3) to any person exempt from the licensing requirements of the Texas Radiation Control Act and these requirements or exempt from the licensing requirements of the United States Nuclear Regulatory Commission (NRC) or an agreement state, to the extent permitted by these exemptions;

(4) to any person authorized to receive such material in accordance with terms of a general license or its equivalent, a specific license or equivalent licensing document issued by the agency, NRC, any agreement state, any licensing state, or to any person otherwise authorized to receive such material by the federal government or any agency of the federal government, or the agency;

(5) to any person abroad pursuant to an export license issued under Title 10, Chapter 1, Code of Federal Regulations Part 110; or

(6) as otherwise authorized by the agency in writing.

(c) Before transferring radioactive material to a specific licensee of the agency, NRC, an agreement state, a licensing state, or to a general licensee who is required to register with the agency, the licensee transferring the radioactive material shall verify that the transferee's license authorizes the receipt of the type, form, and quantity of radioactive material to be transferred.

(d) The following methods for the verification of subsection (c) of this section are acceptable:

(1) the transferor may possess and have read a current copy of the transferee's specific license or registration certificate;

(2) the transferor may possess a written certification by the transferee that the transferee is authorized by the license or certificate of registration to receive the type, form, and quantity of radioactive material to be transferred, specifying the license or registration certificate number, issuing agency, and expiration date;

(3) for emergency shipments, the transferor may accept oral certification by the transferee that the transferee is authorized by license or registration certificate to receive the type, form, and quantity of radioactive material to be transferred, specifying the license or registration certificate number, issuing agency, and expiration date, provided that the oral certification is confirmed in writing within ten days; or

(4) when none of the methods of verification described in paragraphs (1) - (3) of this subsection are readily available or when a transferor desires to verify that information received by one of these methods is correct or up-to-date, the transferor may obtain and record confirmation from the agency, or the NRC, that the transferee is licensed to receive the radioactive material.

(e) Preparation for shipment and transport of radioactive material shall be in accordance with the provisions of §336.332 of this title (relating to Preparation of Radioactive Material for Transport).

Adopted January 30, 2008 Effective February 28, 2008

§336.1125. Financial Assurance Requirements.

(a) Financial assurance for decontamination, decommissioning, reclamation, restoration, disposal, and any other requirements of the agency shall be established by each licensee 60 days prior to the initial receipt, production, or possession of radioactive substances, or injection operations in a production area to assure that sufficient funds will be available to carry out the decontamination and decommissioning of buildings and the site and for the reclamation of any by-product material disposal areas. The amount of funds to be ensured by such financial assurance mechanism shall be based on agency-approved cost estimates in an agency-approved closure plan for:

(1) decontamination and decommissioning of buildings and the site to levels that allow unrestricted use of these areas upon decommissioning; and

(2) the reclamation of by-product material disposal areas in accordance with technical criteria delineated in §336.1129 of this title (relating to Technical Requirements); or

(3) the aquifer restoration which is based on the physical characteristics of the mining aquifer; the costs of equipment, labor, and administration; and any other data required under Chapter 331 of this title (relating to Underground Injection Control) for a production area authorization application.

(b) The licensee shall submit this closure plan in conjunction with an environmental report that addresses the expected environmental impacts of the licensee's operation, decommissioning and reclamation, and evaluates alternatives for mitigating these impacts.

(c) The financial assurance shall also cover the payment of the charge for long-term surveillance and control for by-product material disposal areas required by §336.1127(c) of this title (relating to Long-Term Care and Maintenance Requirements).

(d) The licensee's cost estimates must take into account total costs that would be incurred if an independent contractor were hired to perform the decommissioning and reclamation work in establishing specific financial assurance mechanisms. The agency may accept financial assurance mechanisms that have been consolidated with financial or security arrangements established to meet requirements of other federal or state agencies and/or local governing bodies for such decommissioning, decontamination, reclamation, and long-term site surveillance and control, provided such arrangements are considered adequate to satisfy these requirements and that the portion of the security that covers the decommissioning and reclamation of the buildings, site, and by-product material disposal areas, and the long-term funding charge is clearly identified and committed for use in accomplishing these activities.

(e) The financial assurance mechanism shall be continuous for the term of the license and shall be payable to the State of Texas and deposited to the credit of the perpetual care account.

(f) The licensee's financial assurance mechanism and the underlying cost estimates will be reviewed annually by the agency to assure that sufficient funds are available for completion of the decommissioning and reclamation plan if the work had to be performed by an independent contractor. The amount of financial assurance must be adjusted to recognize any increases resulting from inflation, changes in engineering plans, activities performed, and any other conditions affecting costs. A licensee must submit a cost estimate report annually for decommissioning and reclamation of the facility in accordance with the decommissioning and reclamation plans by no later than an anniversary date as

determined by the executive director. The licensee must provide any increase in the amount of financial assurance within 60 days of a determination of the cost estimate by the executive director.

(g) Except as provided in subsection (i) of this section, financial assurance required under this subchapter must meet the requirements specified in Chapter 37, Subchapter T of this title (relating to Financial Assurance for Radioactive Substances and Aquifer Restoration) by June 1, 2009. Regardless of whether reclamation is phased through the life of the operation or takes place at the end of operations, an appropriate portion of financial assurance amount as determined by the executive director shall be retained until final compliance with the reclamation plan is determined. This will yield a financial assurance mechanism that is at least sufficient at all times to cover the costs of decommissioning and reclamation of the areas that are expected to be disturbed before the next license renewal.

(h) Self-insurance, or any arrangement that essentially constitutes self-insurance (for example, a contract with a state or federal agency), will not satisfy the financial assurance requirement since this provides no additional assurance other than that which already exists through license requirements.

(i) A licensee with a performance bond mechanism(s) issued in favor of Texas Department of State Health Services and submitted to Texas Department of State Health Services or its predecessor with an original effective date prior to June 15, 2007 that does not provide a new mechanism(s) under subsection (g) of this section must:

(1) amend the performance bond by June 1, 2009 to:

(A) reflect Texas Commission on Environmental Quality as the beneficiary;

(B) reflect the current total penal sum; and

(C) correct regulatory citations and Texas Commission on Environmental Quality license number.

(2) provide replacement financial assurance mechanism(s) that meets the requirements specified in Chapter 37, Subchapter T of this title by March 31, 2010.

Adopted February 11, 2009 Effective March 12, 2009

§336.1127. Long-term Care and Maintenance Requirements.

(a) Unless otherwise provided by the agency, each licensee licensed in accordance with this part for disposal of by-product material shall make payments into the Perpetual Care Account in amounts specified by the agency. The agency shall make such determinations on a case-by-case basis.

(b) The final disposition of by-product material should be such that the need for ongoing active maintenance is eliminated to the maximum extent practicable.

(c) A minimum charge of $250,000 (1978 dollars) or more, if determined by the agency, must be paid into the Perpetual Care Account to cover the costs of long-term care and maintenance. The total charge must be paid prior to the termination of a license. With agency approval, the charge may be paid in

installments. The total or unpaid portion of the charge must be covered during the term of the license by additional security meeting the requirements of §336.1125 of this title (relating to Financial Security Requirements). If site surveillance, control, or maintenance requirements at a particular site are determined, on the basis of a site-specific evaluation, to be significantly greater (for example, if fencing or monitoring is determined to be necessary), the agency may specify a higher charge. The total charge must be such that, with an assumed 2.0% annual real interest rate, the collected funds will yield interest in an amount sufficient to cover the annual costs of site care, surveillance, and where necessary, maintenance. Prior to actual payment, the total charge will be adjusted annually for inflation. The inflation rate to be used is that indicated by the change in the Consumer Price Index published by the United States Department of Labor, Bureau of Labor Statistics.

(d) The requirements of this section apply only to those sites whose ownership is subject to being transferred to the state or the federal government. The total amount of funds collected by the agency in accordance with this section must be transferred to the federal government if title and custody of the by-product material disposal site is transferred to the federal government upon termination of the license.

Adopted January 30, 2008 Effective February 28, 2008

§336.1129. Technical Requirements.

(a) By-product material handling and disposal systems must be designed to accommodate full-capacity production over the lifetime of the facility. When later expansion of systems or operations may be likely, capability of the disposal system to be modified to accommodate increased quantities without degradation in long-term stability and other performance factors must be evaluated.

(b) In selecting among alternative by-product material disposal sites or judging the adequacy of existing sites, the following site features which would assure meeting the broad objective of isolating the tailings and associated contaminants without ongoing active maintenance must be considered:

(1) remoteness from populated areas;

(2) hydrogeologic and other environmental conditions conducive to continued immobilization and isolation of contaminants from usable groundwater sources; and

(3) potential for minimizing erosion, disturbance, and dispersion by natural forces over the long term.

(c) The site selection process must be an optimization to the maximum extent reasonably achievable in terms of these site features.

(d) In the selection of disposal sites, primary emphasis must be given to isolation of the by-product material, a matter having long-term impacts, as opposed to consideration only of short-term convenience or benefits (e.g., minimization of transportation of land acquisition costs). While isolation of by-product material will also be a function of both site and engineering design, overriding consideration must be given to siting features.

(e) By-product material should be disposed of in a manner such that no active maintenance is required to preserve conditions of the site.

(f) The applicant's environmental report must evaluate alternative sites and disposal methods and shall consider disposal of by-product material by placement below grade. Where full below grade burial is not practicable, the size of retention structures, and size and steepness of slopes associated with exposed embankments must be minimized by excavation to the maximum extent reasonably achievable or appropriate given the geologic and hydrologic conditions at a site. In these cases, it must be demonstrated that an above grade disposal program will provide reasonably equivalent isolation of the by-product material from natural erosional forces.

(g) To avoid proliferation of small waste disposal sites and thereby reduce perpetual surveillance obligations, by-product material from in situ extraction operations, such as residues from solution evaporation or contaminated control processes, and wastes from small remote above ground extraction operations must be disposed of at existing large mill tailings disposal sites; unless, considering the nature of the wastes, such as their volume and specific activity, and the costs and environmental impacts of transporting the wastes to a large disposal site, such offsite disposal is demonstrated to be impracticable or the advantages of onsite burial clearly outweigh the benefits of reducing the perpetual surveillance obligations.

(h) The following site and design requirements must be adhered to whether by-product material is disposed of above or below grade:

(1) the upstream rainfall catchment areas must be minimized to decrease erosion potential by flooding that could erode or wash out sections of the by-product material disposal area;

(2) the topographic features must provide good wind protection;

(3) the embankment and cover slopes must be relatively flat after final stabilization to minimize erosion potential and to provide conservative factors of safety assuring long term stability. The objective should be to contour final slopes to grades that are as close as possible to those that would be provided if by-product material was disposed of below grade. Slopes must not be steeper than 5 horizontal to 1 vertical (5h:1v), except as specifically authorized by the agency. Where steeper slopes are proposed, reasons why a slope steeper than 5h:1v would be as equally resistant to erosion shall be provided, and compensating factors and conditions that make such slopes acceptable shall be identified;

(4) a full self-sustaining vegetative cover must be established or rock cover employed to reduce wind and water erosion to negligible levels;

(5) where a full vegetative cover is not likely to be self-sustaining due to climatic conditions, such as in semi-arid and arid regions, rock cover shall be employed on slopes of the impoundment system. The agency may consider relaxing this requirement for extremely gentle slopes, such as those that may exist on the top of the pile;

(6) the following factors must be considered in establishing the final rock cover design to avoid displacement of rock particles by human and animal traffic or by natural processes, and to preclude undercutting and piping:

(A) shape, size, composition, gradation of rock particles (excepting bedding material, average particles size must be at least cobble size or greater);

(B) rock cover thickness and zoning of particles by size; and

(C) steepness of underlying slopes.

(7) individual rock fragments must be dense, sound, and resistant to abrasion, and shall be free from cracks, seams, and other defects that would tend to unduly increase their destruction by erosion and weathering action. Local rock materials are permissible provided the characteristics under local climatic conditions indicate similar long-term performance as a protective layer. Weak, friable, or laminated aggregate may not be used;

(8) rock covering of slopes may not be required where top covers are very thick (on the order of 10 m or greater); impoundment slopes are very gentle (on the order of 10h:1v or less); bulk cover materials have inherently favorable erosion resistance characteristics; there is negligible drainage catchment area upstream of the pile; and there is good wind protection;

(9) all impoundment surfaces must be contoured to avoid areas of concentrated surface runoff or abrupt or sharp changes in slope gradient. In addition to rock cover on slopes, areas toward which surface runoff might be directed must be well protected with substantial rock cover (riprap). In addition to providing for stability of the impoundment system itself, overall stability, erosion potential, and geomorphology of surrounding terrain must be evaluated to assure that there are no ongoing or potential processes, such as gully erosion, which would lead to impoundment instability;

(10) the impoundment must not be located near a capable fault that could cause a maximum credible earthquake larger than that which the impoundment could reasonably be expected to withstand; and

(11) the impoundment should be designed to incorporate features that will promote deposition. Design features that promote deposition of sediment suspended in any runoff which flows into the impoundment area might be utilized. The object of such a design feature would be to enhance the thickness of cover over time.

(i) The following groundwater protection requirements and those in subsections (j) and (k) of this section and §336.1133 of this title (relating to Maximum Values for Use in Groundwater Protection) apply during operations and until closure is completed. Groundwater monitoring to comply with these standards is required by subsections (bb) and (cc) of this section.

(1) The primary groundwater protection standard is a design standard for surface impoundments used to manage uranium or thorium by-product material. Unless exempted under subsection (i)(3) of this section, surface impoundments (except for an existing portion) must have a liner that is designed, constructed, and installed to prevent any migration of wastes out of the impoundment to the adjacent subsurface soil, groundwater, or surface water at any time during the active life (including the closure period) of the impoundment. If the liner is constructed of materials that may allow wastes to migrate into the liner during the active life of the facility, impoundment closure shall include removal or

decontamination of all waste residues, contaminated containment system components (liners, etc.), contaminated subsoils, and structures and equipment contaminated with waste and leachate. For impoundments that will be closed with the liner material left in place, the liner must be constructed of materials that can prevent wastes from migrating into the liner during the active life of the facility.

(2) The liner required by paragraph (1) of this subsection must be:

(A) constructed of materials that have appropriate chemical properties and sufficient strength and thickness to prevent failure due to pressure gradients (including static head and external hydrogeologic forces), physical contact with the waste or leachate to which they are exposed, climatic conditions, the stress of installation, and the stress of daily operation;

(B) placed upon a foundation or base capable of providing support to the liner and resistance to pressure gradients above and below the liner to prevent failure of the liner due to settlement, compression, or uplift; and

(C) installed to cover all surrounding earth likely to be in contact with the wastes or leachate.

(3) The applicant or licensee may be exempted from the requirements of paragraph (1) of this subsection if the agency finds, based on a demonstration by the applicant or licensee, that alternate design and operating practices, including the closure plan, together with site characteristics will prevent the migration of any hazardous constituents into groundwater or surface water at any future time. In deciding whether to grant an exemption, the agency will consider:

(A) the nature and quantity of the wastes;

(B) the proposed alternate design and operation;

(C) the hydrogeologic setting of the facility, including the attenuative capacity and thickness of the liners and soils present between the impoundment and groundwater or surface water; and

(D) all other factors that would influence the quality and mobility of the leachate produced and the potential for it to migrate to groundwater or surface water.

(4) A surface impoundment must be designed, constructed, maintained, and operated to prevent overtopping resulting from normal or abnormal operations, overfilling, wind and wave actions, rainfall, or run-off; from malfunctions of level controllers, alarms, and other equipment; and from human error.

(5) When dikes are used to form the surface impoundment, the dikes must be designed, constructed, and maintained with sufficient structural integrity to prevent massive failure of the dikes. In ensuring structural integrity, it must not be presumed that the liner system will function without leakage during the active life of the impoundment.

(j) By-product materials must be managed to conform to the following secondary groundwater protection requirements.

(1) Hazardous constituents, as defined in §336.1105(16) of this title (relating to Definitions), entering the groundwater from a licensed site must not exceed the specified concentration limits in the uppermost aquifer beyond the point of compliance during the compliance period.

(2) Specified concentration limits are those limits established by the agency as indicated in paragraph (7) of this subsection.

(3) The agency will also establish the point of compliance and compliance period on a site-specific basis through license conditions and orders.

(4) When the detection monitoring established under subsections (bb) and (cc) of this section indicates leakage of hazardous constituents from the disposal area, the agency will perform the following:

(A) identify hazardous constituents;

(B) establish concentration limits;

(C) set the compliance period; and

(D) may adjust the point of compliance if needed in accordance with developed data and site information regarding the flow of groundwater or contaminants.

(5) Even when constituents meet all three tests in the definition of hazardous constituent, the agency may exclude a detected constituent from the set of hazardous constituents on a site-specific basis if it finds that the constituent is not capable of posing a substantial present or potential hazard to human health or the environment. In deciding whether to exclude constituents, the agency will consider the following:

(A) potential adverse effects on groundwater quality, considering the following:

(i) physical and chemical characteristics of the waste in the licensed site, including its potential for migration;

(ii) hydrogeological characteristics of the licensed site and surrounding land;

(iii) quantity of groundwater and the direction of groundwater flow;

(iv) proximity of groundwater users and groundwater withdrawal rates;

(v) current and future uses of groundwater in the area;

(vi) existing quality of groundwater, including other sources of contamination and cumulative impact on the groundwater quality;

(vii) potential for human health risks caused by human exposure to waste constituents;

(viii) potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents; and

(ix) persistence and permanence of potential adverse effects; and

(B) potential adverse effects on quality of hydraulically-connected surface water, considering the:

(i) volume and physical and chemical characteristics of the by-product material in the licensed site;

(ii) hydrogeological characteristics of the licensed site and surrounding land;

(iii) quantity and quality of groundwater and the direction of groundwater flow;

(iv) patterns of rainfall in the region;

(v) proximity of the licensed site to surface waters;

(vi) current and future uses of surface waters in the area and any water quality standards established for those surface waters;

(vii) existing quality of surface water, including potential impacts from other sources of contamination and the cumulative impact on surface water quality;

(viii) potential for human health risks caused by human exposure to waste constituents;

(ix) potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents; and

(x) persistence and permanence of the potential adverse effects.

(6) In making any determinations under paragraphs (5) and (8) of this subsection about the use of groundwater in the area around the facility, the agency will consider any identification of underground sources of drinking water and exempted aquifers made by the United States Environmental Protection Agency (EPA) and the commission under Chapter 331 of this title.

(7) At the point of compliance, the concentration of a hazardous constituent may not exceed the following:

(A) the agency approved background concentration in the groundwater of the constituents listed in 10 Code of Federal Regulations (CFR) 40, Appendix A, Criterion 13;

(B) the respective value given in §336.1133 of this title if the constituent is listed in the table and if the background level of the constituent is below the value listed; or

(C) an alternate concentration limit established by the agency.

(8) Alternate concentration limits to background concentration or to the drinking water limits in §336.1133 of this title that present no significant hazard may be proposed by licensees for agency consideration. Licensees must provide the basis for any proposed limits including consideration of practicable corrective actions, evidence that limits are as low as reasonably achievable, and information on the factors the agency shall consider. The agency may establish a site-specific alternate concentration limit for a hazardous constituent, as provided in paragraph (7) of this subsection, if it finds that the proposed limit is as low as reasonably achievable, after considering practicable corrective actions, and that the constituent will not pose a substantial present or potential hazard to human health or the environment as long as the alternate concentration limit is not exceeded. In making the present and potential hazard finding, the agency will consider the factors listed in paragraph (4) of this subsection.

(k) If the groundwater protection standards established under subsection (i) of this section are exceeded at a licensed site, a corrective action program must be put into operation as soon as is practicable, and in no event later than 18 months after the agency finds that the standards have been exceeded. The licensee must submit the proposed corrective action program and supporting rationale for executive director approval prior to putting the program into operation, unless otherwise directed by the executive director. The licensee's proposed program must address removing or treating in place any hazardous constituents that exceed concentration limits in groundwater between the point of compliance and downgradient licensed site boundary. The licensee must continue corrective action measures to the extent necessary to achieve and maintain compliance with the groundwater protection standard. The executive director will determine when the licensee may terminate corrective action measures based on data from the groundwater monitoring program and other information that provides reasonable assurance that the groundwater protection standard will not be exceeded.

(l) In developing and conducting groundwater protection programs, applicants and licensees must also consider the following:

(1) installation of bottom liners. Where synthetic liners are used, a leakage-detection system must be installed immediately below the liner to ensure detection of any major failures. This is in addition to the groundwater monitoring program conducted as provided in subsection (cc) of this section. Where clay liners are proposed or relatively thin, in situ clay soils are to be relied upon for seepage control, tests must be conducted with representative tailings solutions and clay materials to confirm that no significant deterioration of permeability or stability properties will occur with continuous exposure of clay to by-product material solutions. Tests must be run for a sufficient period of time to reveal any effects that may occur;

(2) mill process designs that provide the maximum practicable recycle of solutions and conservation of water to reduce the net input of liquid to the by-product material impoundment;

(3) dewatering of by-product material solutions by process devices and/or in situ drainage systems. At new sites, by-product material solutions must be dewatered by a drainage system installed at the bottom of the impoundment to lower the phreatic surface and reduce the driving head of seepage, unless tests show by-product material solutions are not amenable to such a system. Where in situ dewatering is to be conducted, the impoundment bottom must be graded to assure that the drains are at a low point. The drains must be protected by suitable filter materials to assure that drains remain free-running. The drainage system must also be adequately sized to assure good drainage; and

(4) neutralization to promote immobilization of hazardous constituents.

(m) Technical specifications must be prepared for installation of seepage control systems. A quality assurance, testing, and inspection program, which includes supervision by a qualified engineer or scientist, must be established to assure that specifications are met. If adverse groundwater impacts or conditions conducive to adverse groundwater impacts occur due to seepage, action must be taken to alleviate the impacts or conditions and restore groundwater quality to levels consistent with those before operations began. The specific seepage control and groundwater protection method, or combination of methods, to be used must be worked out on a site-specific basis.

(n) In support of a by-product material disposal system proposal, the applicant/licensee must supply the following information:

(1) the chemical and radioactive characteristics of the waste solutions;

(2) the characteristics of the underlying soil and geologic formations particularly as they will control transport of contaminants and solutions. This must include detailed information concerning extent, thickness, uniformity, shape, and orientation of underlying strata. Hydraulic gradients and conductivities of the various formations must be determined. This information must be gathered by borings and field survey methods taken within the proposed impoundment area and in surrounding areas where contaminants might migrate to groundwater. The information gathered on boreholes must include both geologic and geophysical logs in sufficient number and degree of sophistication to allow determining significant discontinuities, fractures, and channeled deposits of high hydraulic conductivity. If field survey methods are used, they should be in addition to and calibrated with borehole logging. Hydrologic parameters such as permeability must not be determined on the basis of laboratory analysis of samples alone. A sufficient amount of field testing (e.g., pump tests) must be conducted to assure actual field properties are adequately understood. Testing must be conducted to make possible estimates of chemisorption attenuation properties of underlying soil and rock; and

(3) location, extent, quality, capacity, and current uses of any groundwater at and near the site.

(o) If ore is stockpiled, methods must be used to minimize penetration of radionuclides and other substances into underlying soils.

(p) In disposing of by-product material, licensees must place an earthen cover over the by-product material at the end of the facility's operations and shall close the waste disposal area in accordance with a design that provides reasonable assurance of control of radiological hazards to the following:

(1) be effective for 1,000 years to the extent reasonably achievable and, in any case, for at least 200 years; and

(2) limit releases of radon-222 from uranium by-product materials and radon-220 from thorium by-product materials to the atmosphere so as not to exceed an average release rate of 20 picocuries per square meter per second (pCi/m^2s) to the extent practicable throughout the effective design life determined in accordance with paragraph (1) of this subsection. This average applies to the entire surface of each disposal area over a period of at least one year, but a short period compared to 100 years. Radon will come from both by-product materials and cover materials. Radon emissions from cover materials should be estimated as part of developing a closure plan for each site. The standard, however, applies only to emissions from by-product materials to the atmosphere.

(q) In computing required by-product material cover thicknesses, moisture in soils in excess of amounts found normally in similar soils in similar circumstances may not be considered. Direct gamma exposure from the by-product material should be reduced to background levels. The effects of any thin synthetic layer may not be taken into account in determining the calculated radon exhalation level. Cover may not include materials that contain elevated levels of radium. Soils used for near-surface cover must be essentially the same, as far as radioactivity is concerned, as that of surrounding surface soils. If non-soil materials are proposed as cover materials, the licensee must demonstrate that such materials will not crack or degrade by differential settlement, weathering, or other mechanisms over the long term.

(r) As soon as reasonably achievable after emplacement of the final cover to limit releases of radon-222 from uranium by-product material and prior to placement of erosion protection barriers of other features necessary for long-term control of the tailings, the licensee must verify through appropriate testing and analysis that the design and construction of the final radon barrier is effective in limiting releases of radon-222 to a level not exceeding $20pCi/m^2s$ averaged over the entire pile or impoundment using the procedures described in Appendix B, method 115 of 40 CFR Part 61, or another method of verification approved by the agency as being at least as effective in demonstrating the effectiveness of the final radon barrier.

(s) When phased emplacement of the final radon barrier is included in the applicable reclamation plan, as defined in §336.1105(25) of this title, the verification of radon-222 release rates required in subsection (dd) of this section must be conducted for each portion of the pile or impoundment as the final radon barrier for that portion is emplaced.

(t) Within 90 days of the completion of all testing and analysis relevant to the required verification in subsection (dd)(3) and (dd)(4) of this section, the uranium recovery licensee must report to the agency the results detailing the actions taken to verify that levels of release of radon-222 do not exceed 20 pCi/m^2s when averaged over the entire pile or impoundment. The licensee must maintain records documenting the source of input parameters, including the results of all measurements on which they are based, the calculations and/or analytical methods used to derive values for input parameters, and the procedure used to determine compliance. These records must be maintained until termination of the license and shall be kept in a form suitable for transfer to the custodial agency at the time of transfer of

the site to the state or federal government in accordance with §336.1131 of this title (relating to Land Ownership of By-Product Material Disposal Sites).

(u) Near-surface cover materials may not include waste, rock, or other materials that contain elevated levels of radium. Soils used for near-surface cover must be essentially the same, as far as radioactivity is concerned, as surrounding surface soils. This is to ensure that surface radon exhalation is not significantly above background because of the cover material itself.

(v) The design requirements for longevity and control of radon releases apply to any portion of a licensed and/or disposal site unless such portion contains a concentration of radium in land averaged over areas of 100 square meters (m^2), that, as a result of by-product material, does not exceed the background level by more than:

(1) 5 picocuries per gram (pCi/g) of radium-226, or in the case of thorium by-product material, radium-228, averaged over the first 15 centimeters (cm) below the surface; and

(2) 15 pCi/g of radium-226, or in the case of thorium by-product material, radium-228, averaged over 15-cm thick layers more than 15 cm below surface.

(w) The licensee must also address the nonradiological hazards associated with the waste in planning and implementing closure. The licensee must ensure that disposal areas are closed in a manner that minimizes the need for further maintenance. To the extent necessary to prevent threats to human health and the environment, the licensee shall control, minimize, or eliminate post-closure escape of nonradiological hazardous constituents, leachate, contaminated rainwater, or waste decomposition products to groundwater or surface waters or to the atmosphere.

(x) For impoundments containing uranium by-product materials, the final radon barrier shall be completed as expeditiously as practicable considering technological feasibility after the pile or impoundment ceases operation in accordance with a written reclamation plan, as defined in §336.1105(25) of this title, approved by the agency, by license amendment. (The term "As expeditiously as practicable considering technological feasibility" includes "Factors beyond the control of the licensee.") Deadlines for completion of the final radon barrier and applicable interim milestones shall be established as license conditions. Applicable interim milestones may include, but are not limited to, the retrieval of windblown by-product material and placement on the pile and the interim stabilization of the by-product material (including dewatering or the removal of freestanding liquids and recontouring). The placement of erosion protection barriers or other features necessary for long-term control of the by-product material shall also be completed in a timely manner in accordance with a written reclamation plan approved by the agency by license amendment.

(y) The agency may approve by license amendment a licensee's request to extend the time for performance of milestones related to emplacement of the final radon barrier if, after providing an opportunity for public participation, the agency finds that the licensee has adequately demonstrated in the manner required in subsection (r) of this section that releases of radon-222 do not exceed an average of 20 pCi/m^2s. If the delay is approved on the basis that the radon releases do not exceed 20 pCi/m^2s, a verification of radon levels, as required by subsection (r) of this section, shall be made annually during the period of delay. In addition, once the agency has established the date in the reclamation plan for the milestone for completion of the final radon barrier, the agency may by license amendment extend that

date based on cost if, after providing an opportunity for public participation, the agency finds that the licensee is making good faith efforts to emplace the final radon barrier, the delay is consistent with the definition of "Available technology," and the radon releases caused by the delay will not result in a significant incremental risk to the public health.

(z) The agency may authorize by license amendment, upon licensee request, a portion of the impoundment to accept uranium by-product material, or such materials that are similar in physical, chemical, and radiological characteristics to the uranium mill tailings and associated wastes already in the pile or impoundment, from other sources during the closure process. No such authorization will be made if it results in a delay or impediment to emplacement of the final radon barrier over the remainder of the impoundment in a manner that will achieve levels of radon-222 releases not exceeding 20 pCi/m^2s averaged over the entire impoundment. The verification required in subsection (r) of this section may be completed with a portion of the impoundment being used for further disposal if the agency makes a final finding that the impoundment will continue to achieve a level of radon-222 release not exceeding 20 pCi/m^2s averaged over the entire impoundment. After the final radon barrier is complete except for the continuing disposal area, only by-product material will be authorized for disposal, and the disposal will be limited to the specified existing disposal area. This authorization by license amendment will only be made after providing opportunity for public participation. Reclamation of the disposal area, as appropriate, must be completed in a timely manner after disposal operations cease in accordance with subsection (p) of this section. These actions are not required to be complete as part of meeting the deadline for final radon barrier construction.

(aa) The licensee's closure plan must provide reasonable assurance that institutional control will be provided for the length of time found necessary by the agency to ensure the requirements of subsection (p) of this section are met.

(bb) Prior to any major site construction, a preoperational monitoring program must be conducted for one full year to provide complete baseline data on the site and its environs. Throughout the construction and operating phases of the project, an operational monitoring program must be conducted to measure or evaluate compliance with applicable standards and rules; to evaluate performance of control systems and procedures; to evaluate environmental impacts of operation; and to detect potential long-term effects.

(cc) The licensee shall establish a detection monitoring program needed for the agency to set the site-specific groundwater protection standards in subsection (j)(4) of this section. For all monitoring under this paragraph, the licensee or applicant will propose, as license conditions for agency approval, which constituents are to be monitored on a site-specific basis. The data and information must provide a sufficient basis to identify those hazardous constituents that require concentration limit standards and to enable the agency to set the limits for those constituents and compliance period. They may provide the basis for adjustments to the point of compliance. The detection monitoring program must be in place when specified by the agency in orders or license conditions. Once groundwater protection standards have been established in accordance with subsection (j)(4) of this section, the licensee shall establish and implement a compliance monitoring program. In conjunction with a corrective action program, the licensee shall establish and implement a corrective action monitoring program to demonstrate the effectiveness of the corrective actions. Any monitoring program required by this subsection may be based on existing monitoring programs to the extent the existing programs can meet the stated objective for the program.

(dd) Systems must be designed and operated so that all airborne effluent releases are as low as is reasonably achievable. The primary means of accomplishing this must be by means of emission controls. Institutional controls, such as extending the site boundary and exclusion area, may be employed to ensure that offsite exposure limits are met, but only after all practicable measures have been taken to control emissions at the source.

(1) During operations and prior to closure, radiation doses from radon emissions from surface impoundments of by-product materials must be kept as low as is reasonably achievable.

(2) Checks must be made and logged hourly of all parameters which determine the efficiency of emission control equipment operation. It must be determined whether or not conditions are within a range prescribed to ensure that the equipment is operating consistently near peak efficiency. Corrective action must be taken when performance is outside of prescribed ranges. Effluent control devices must be operative at all times during drying and packaging operations and whenever air is exhausting from the uranium dryer stack. Drying and packaging operations must terminate when controls are inoperative. When checks indicate the equipment is not operating within the range prescribed for peak efficiency, actions must be taken to restore parameters to the prescribed range. When this cannot be done without shutdown and repairs, drying and packaging operations must cease as soon as practicable. Operations may not be restarted after cessation due to off-normal performance until needed corrective actions have been identified and implemented. All such cessations, corrective actions, and re-starts must be reported to the executive director in writing within ten days of the subsequent restart.

(3) To control dusting from by-product material, that portion not covered by standing liquids must be wetted or chemically stabilized to prevent or minimize blowing and dusting to the maximum extent reasonably achievable. This requirement may be relaxed if by-product materials are effectively sheltered from wind, as in the case of below-grade disposal. Consideration must be given in planning by-product material disposal programs to methods for phased covering and reclamation of by-product material impoundments. To control dusting from diffuse sources, applicants/licensees must develop written operating procedures specifying the methods of control that will be utilized.

(4) Uranium recovery facility operations producing or involving thorium by-product material must be conducted in such a manner as to provide reasonable assurance that the annual dose equivalent does not exceed 25 millirems (mrem) to the whole body, 75 mrem to the thyroid, and 25 mrem to any other organ of any member of the public as a result of exposures to the planned discharge of radioactive materials to the general environment, radon-220 and its daughters excepted.

(5) By-product materials must be managed so as to conform to the applicable provisions of 40 CFR Part 440, as codified on January 1, 1983.

(ee) Licensees/applicants may propose alternatives to the specific requirements in §336.1125 of this title (relating to Financial Security Requirements), §336.1127 of this title (relating to Long-Term Care and Maintenance Requirements), §336.1129 of this title (relating to Technical Requirements) and §336.1131 of this title (relating to Land Ownership of By-Product Material Disposal Sites). The alternative proposals may take into account local or regional conditions including geology, topography, hydrology, and meteorology.

(ff) The agency may find that the proposed alternatives meet the agency's requirements if the alternatives will achieve a level of stabilization and containment of the sites concerned and a level of protection for the public health and safety and the environment from radiological and nonradiological hazards associated with the sites, which is equivalent to, to the extent practicable, or more stringent than the level that would be achieved by the requirements of §§336.1125, 336.1127, 336.1129 and 336.1131 of this title and the standards promulgated by EPA in 40 CFR Part 192, Subparts D and E.

(gg) All site-specific licensing decisions based on the criteria in §§336.1125, 336.1127, 336.1129 and 336.1131 of this title, or alternatives proposed by licensees or applicants must take into account the risk to the public health and safety and the environment with due consideration to the economic costs involved and any other factors the agency determines to be appropriate.

(hh) Any proposed alternatives to the specific requirements in §§336.1125, 336.1127, 336.1129 and 336.1131 of this title must meet the requirements of 10 CFR §150.31(d).

(ii) No new site may be located in a 100-year floodplain or wetland as defined in "Floodplain Management Guidelines for Implementing Executive Order 11988."

Adopted January 30, 2008 Effective February 28, 2008

§336.1131. Land Ownership of By-product Material Disposal Sites.

(a) These criteria relating to ownership of by-product material and their disposal sites apply to all licenses terminated, issued, or renewed after November 8, 1981.

(b) Unless exempted by the United States Nuclear Regulatory Commission (NRC), title to land (including any affected interests therein) that is used for the disposal of by-product material or that is essential to ensure the long-term stability of the disposal site and title to the by-product material must be transferred to the State of Texas or the United States prior to the termination of the license. Material and land transferred must be transferred without cost to the State of Texas or the United States. In cases where no ongoing site surveillance will be required, surface land ownership transfer requirements may be waived. For licenses issued before November 8, 1981, NRC may take into account the status of the ownership of the land and interests therein, and the ability of a licensee to transfer title and custody thereof to the State.

(c) Any uranium recovery facility license must contain terms and conditions as the agency determines necessary to assure that, prior to termination of the license, the licensee will comply with ownership requirements of this section for sites used for tailings disposal.

(d) For surface impoundments only, the applicant/licensee shall demonstrate a serious effort to obtain severed mineral rights and shall, in the event that fee simple title including all mineral rights cannot be obtained, provide notification in local public land records of the fact that the land is being used for the disposal of radioactive material and is subject to an NRC license prohibiting the disruption and disturbance of the tailings.

(e) If NRC, subsequent to title transfer, determines that use of the surface or subsurface estates, or both, of the land transferred to the state or federal government will not endanger the public health and

safety or the environment, NRC may permit the use of the surface or subsurface estates, or both, of such land in a manner consistent with the provisions of this section. If NRC permits the use of such land, it will provide the person who transferred the land with the first refusal with respect to the use of such land.

Adopted January 30, 2008 Effective February 28, 2008

§336.1133. Maximum Values for Use in Groundwater Protection.

The following is a list of the maximum concentration values to be used for groundwater protection.

Constituent or Property	Maximum (mg/l)	Concentration (pCi/l)
Arsenic	0.05	
Barium	1	
Cadmium	0.01	
Chromium	0.05	
Lead	0.05	
Mercury	0.002	
Selenium	0.01	
Silver	0.05	
Endrin 1,2,3,4,10,10-hexachloro-6, 7-expoxy-1,4,4a,5,6,7,8, 8a-octahydro-endo, endo-1,4:5,8-dimethanonaphthalene	0.0002	
Lindane 1,2,3,4,5, 6-hexachlorocyclohexane	0.004	
Methoxychlor 1,1,1-trichloro-2,2-bis-(p-methoxyphenyl) ethane	0.1	
Toxaphene Chlorinated camphene	0.005	
2,4-D (2,4, 5-Trichlorophenoxy) acetic acid	0.1	
Silvex 2-(2,4,5-Trichlorophenoxy) propionic acid	0.01	
Combined radium-226 and radium-228		5
Gross alpha-particle activity (excluding radon and uranium when producing uranium by-product material or radon and thorium when producing thorium by-product material)		15

Adopted January 30, 2008 Effective February 28, 2008

§336.1135. Construction Activities.

For an application for a new license to dispose of by-product material that was filed with the Texas Department of State Health Services on or before January 1, 2007, an applicant may commence construction activities before issuance of a license, at the applicant's own risk, under the following conditions:

(1) the applicant has completed preoperational monitoring provided under §336.1129(bb) of this title (relating to Technical Requirements);

(2) the executive director has issued an environmental analysis and final draft license with recommendation to approve the application under §281.21 of this title (relating to Draft Permit, Technical Summary, Fact Sheet, and Compliance History);

(3) the applicant may not receive, store, possess, receive or dispose of by-product material without a license from the commission authorizing the activity;

(4) the agency may inspect and observe the construction activities;

(5) the applicant must cease construction activities when directed by the executive director to do so; and

(6) the commencement of construction activities may not be considered as a factor in determining whether to issue a license.

Adopted January 30, 2008 Effective February 28, 2008

SUBCHAPTER M: LICENSING OF RADIOACTIVE SUBSTANCES PROCESSING AND STORAGE FACILITIES
§§336.1201, 336.1203, 336.1205, 336.1207, 336.1209, 336.1211, 336.1213, 336.1215, 336.1217, 336.1219, 336.1221, 336.1223, 336.1225, 336.1227, 336.1229, 336.1231, 336.1233, 336.1235
Effective March 12, 2009

§336.1201. Purpose and Scope.

(a) This section establishes the requirements for management of commercial radioactive substances processing and storage facilities, the procedures and criteria for the issuance of licenses to receive, possess, transport, store, and process radioactive substances from other persons, and the terms and conditions upon which the agency may issue such licenses.

(b) In addition to the requirements of this subchapter, all licensees, unless otherwise specified, are subject to the requirements of Subchapters A - E and G of this chapter (relating to General Provisions; Radioactive Substance Fees; General Disposal Requirements; Standards for Protection Against Radiation; Notices, Instructions, and Reports to Workers and Inspections; and Decommissioning Standards).

Adopted January 30, 2008 Effective February 28, 2008

§336.1203. Definitions.

The following words and terms, when used in this subchapter, have the following meanings, unless the context clearly indicates otherwise.

(1) **Commencement of major construction**--Any major structural erection or major alterations to existing structures, or other substantial action that would change the facility design or site for the purpose of establishing a radioactive substances processing or storage facility. The term does not mean the acquisition of existing structures or minor changes thereto.

(2) **Decommissioning--**The final activities carried out at a radioactive substances processing or storage site after completion of processing operations to remove safely from service and reduce residual radioactivity to a level that permits release of the property for unrestricted use and/or termination of the license. Such activities must include:

(A) disposing of all radioactive substances at a licensed radioactive waste disposal site;

(B) dismantling or decontaminating site structures;

(C) decontaminating site surfaces and remaining equipment; and

(D) conducting final closure surveys, decontamination, and reclamation of the site.

(3) **Disposal**--Isolation or removal of radioactive substances from mankind and his environment. The term does not include emissions and discharges under rules of the agency.

(4) **Engineered barriers**--Man-made devices to contain or limit the potential movement of radioactive material, which might result from spills or other accidents.

(5) **Floodplain--**The lowland and relatively flat areas adjoining inland and coastal waters, including flood prone areas of off-shore islands.

(6) **Local government**--A county, an incorporated city or town, a special district, or other political subdivision of the state.

(7) **Major aquifer**--An aquifer that yields large quantities of water in a comparatively large area of the state. Major aquifers are located in the following formations: Ogallala, Alluvium and Bolsom Deposits, Edwards-Trinity (Plateau), Edwards (Balcones Fault Zone - San Antonio Region), Edwards (Balcones Fault Zone - Austin Region), Trinity Group, Carrizo-Wilcox, and Gulf Coast.

(8) **Natural barriers**--The natural characteristics of a site or surface and subsurface composition that serves to impede the movement of radioactive material. Natural barriers may include, for example, the location of a facility remote from an aquifer, or the sorptive capability of the soil surrounding a facility.

(9) **Processing--**The storage, extraction of materials, transfer, volume reduction, compaction, incineration, solidification, or other separation and preparation of radioactive substances from other persons for reuse or disposal, including any treatment or activity that renders the waste less hazardous, safer for transport, or amenable to recovery, storage, or disposal.

(10) **Radioactive substances processing facility**--A facility where radioactive substances received from other persons are processed and/or repackaged according to United States Department of Transportation (DOT) regulations.

(11) **Radioactive substances storage facility**--A facility where radioactive substances received from other persons are stored while awaiting shipment to a licensed radioactive substances processing or disposal facility.

(12) **Reconnaissance level information**--Any information or analysis that can be retrieved or generated without the performance of new comprehensive site-specific investigations. Reconnaissance level information includes, but is not limited to, relevant published scientific literature; drilling records required by state agencies, such as the Railroad Commission of Texas, the Texas Commission on Environmental Quality, and the Texas Natural Resources Information System; and reports of governmental agencies.

(13) **Site**--The real property, including the buffer zone, on which a radioactive substances processing or storage facility may be located.

(14) **Site monitoring**--The procedures for the monitoring of the site and environment to assess quality of site operations and performance and to detect and quantify levels and types of radioactivity and chemicals in the environment. It includes preoperational, operational, and license termination phases.

(15) **Site operations**--The routine day-to-day activities carried out at the site for the receipt, processing, and storage of radioactive substances.

(16) **Site suitability**--The capability of the various characteristics of a processing or storage facility or site to safely contain the radioactive substances expected to be present at the site.

(17) **Sole source aquifer**--The aquifer that is the sole or principal source of drinking water for an area designated under the Safe Drinking Water Act of 1974, 42 United States Code Annotated 300f, *et seq*.

(18) **Waste processing and storage categories**--Radionuclides classified as follows:

(A) any one of seven groups into which radionuclides in normal form are classified, according to their toxicity and their relative potential hazard in transport, as specified in §336.1231 of this title (relating to Radioactive Substances Processing and Storage Categories of Radionuclides); and

(B) any radionuclide not specifically listed in one of the categories in §336.1231 of this title shall be assigned to one of the categories in accordance with §336.1231(b) of this title.

(19) **Wetlands**--Areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support and that, under normal circumstances, do support a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include playa lakes, swamps, marshes, bogs, and similar areas.

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§336.1205. Activities Requiring License.

Except for persons exempted by this subchapter, no person may receive, possess, store or process radioactive substances from another person except as authorized in a specific license issued in accordance with this subchapter.

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§336.1207. Radioactive Substances Processing and Storage Facility Classification.

(a) Radioactive substances processing and storage facilities are classified according to the radionuclides, other than sealed sources, received, possessed, or processed in each of the waste processing and storage categories, as defined in §336.1203 of this title (relating to Definitions) with all applicable provisions, except that, for the purposes of this section which apply to processing and storage of radioactive substances, Category IV must include waste processing and storage categories IV-VII. The total possession limit of each category of unsealed (dispersible) radionuclides for each class of facility is as follows:

	Category I	Category II	Category III	Category IV
Class I Storage or Processing Facility	10 mCi	100 mCi	1 Ci	10 Ci
Class II Storage Facility	2 Ci	20 Ci	200 Ci	2000 Ci
Class II Processing Facility	1 Ci	10 Ci	100 Ci	1000 Ci

(b) Class III storage facilities are those in which the applicable possession limit of radioactive substances exceeds any limit of Class II storage facilities.

(c) Class III processing facilities are those in which the applicable possession limit of radioactive substances exceeds any limit of Class II processing facilities.

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§336.1209. Exemptions.

(a) Sealed sources. Persons who receive, possess, or process sealed sources of radioactive material as radioactive waste from other persons are exempt from this section, provided that:

(1) encapsulated sources are tested upon receipt and determined to have less than 0.005 microcurie of removable contamination; and

(2) sealed sources of radioactive material remain in sealed form after receipt.

(b) Unsealed sources.

(1) Persons who receive, possess, or process sources of radioactive material in unsealed form as radioactive waste from other persons are exempt from this section provided that:

(A) the total radioactivity of all radioactive waste possessed at any one time does not exceed the applicable limits for Class I processing or storage facilities as described in §336.1207 of this title (relating to Radioactive Substances Processing and Storage Facility Classification); and

(B) the total volume of radioactive waste processed in any one year does not exceed 50 cubic feet.

(2) Persons who receive, possess, and store radioactive material in unsealed form as radioactive substances from other persons are exempt from this section provided that:

(A) the radioactive substance consists only of radiopharmaceutical residues resulting from radiopharmaceuticals manufactured, compounded, and supplied by those persons receiving the radiopharmaceutical residues as radioactive waste;

(B) the radioactive substance is held in storage for decay to background radiation levels; and

(C) the radioactive substances is not shipped to a radioactive waste processing or disposal facility.

(c) Radioactive material. A person who receives, possesses, and stores radioactive material as waste from sites owned and controlled by that same person is not considered to have received waste from other persons.

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§336.1211. Filing Application for a Specific License.

Unless otherwise specified, an applicant for a license to receive, possess, or process radioactive substances from other persons is subject to the requirements in §336.205 of this title (relating to Application Requirements). The applicant shall also comply with the following additional filing requirements.

(1) The applicant for a license to receive, possess, or process radioactive substances from other persons shall submit seven copies of each license application or application for amendment and any supporting documents in a manner specified by the agency. Applications for issuance of licenses must include all general and specific technical requirements, financial information, and environmental requirements, if applicable, described in this section.

(2) Each application must clearly demonstrate how the requirements of this section and §§336.1213, 336.1215, and 336.1217 of this title (relating to Additional Environmental Requirements for Class III Facilities, Issuance of Licenses, Commencement of Major Construction, respectively) have been addressed.

(3) Applications for licenses will be processed in accordance with the requirements of Chapter 281 of this title (relating to Applications Processing).

(4) An applicant for a license under this section must include the following additional information in the application:

(A) identity of the applicant including the full name, address, telephone number, and description of the business(es) or occupation(s) of the applicant;

(B) the organizational structure of the applicant, both off-site and on-site, including a description of lines of authority and assignments of responsibilities, whether in the form of administrative directives, contract provisions, or otherwise;

(C) a description of past operations that the applicant has been involved in including any license limitations, suspensions or revocations of such licenses, and any other information that will allow the agency to assess the applicant's past operating history;

(D) the technical qualifications, including training and experience, of the applicant and members of the applicant's staff to engage in the proposed activities; and minimum training and experience requirements for personnel;

(E) a description of the personnel training and retraining program;

(F) a statement of need and a description of the proposed activities identifying:

(i) the location of the proposed site;

(ii) the character of the proposed activities;

(iii) the types, chemical and/or physical forms and quantities of radioactive substances to be received, possessed, and processed; and

(iv) the plans for use of the facility for purposes other than processing of radioactive substances;

(G) proposed time schedules for construction and receipt and processing of radioactive waste at the proposed facility;

(H) description of the site and accurate drawings of the facility including, but not limited to:

(i) construction;

(ii) foundation details;

(iii) ventilation;

(iv) plumbing and fire suppression systems;

(v) physical security system;

(vi) storage areas;

(vii) radioactive substances handling or processing areas;

(viii) proximity to creeks or culverts; and

(ix) soil types under the facility with respect to compatibility with foundation and structural design;

(I) a description that demonstrates that the site suitability characteristics will meet the following requirements:

(i) the overall hydrogeologic environment of the site, in combination with engineering design, must act to minimize and control potential migration of radioactive substances into surface water and groundwaters;

(ii) no new site may be located in a 100-year floodplain, as designated by the Commission, or a wetland; and

(iii) no new site may be located in the recharge area of a sole source aquifer or a major aquifer unless it can be demonstrated with reasonable assurance that the new site will be designed, constructed, operated, and closed without an unreasonable risk to the aquifer.

(J) minimum criteria for facility design and operation to include:

(i) the building used for processing radioactive wastes must have a minimum classification of Type II (111) in accordance with National Fire Protection Association 220 titled, "Standard Types of Building Construction;"

(I) buildings used for processing or storage of radioactive substances shall have ventilation and fire protection systems to minimize the release of radioactive materials into the soils, waters, and the atmosphere; and

(II) facilities and equipment for repackaging leaking and/or damaged containers must be provided.

(ii) the design and operation of the radioactive substances processing or storage facility must be such that:

(I) releases of non-radiological noxious materials from the facility are minimized; and

(II) radiation levels, concentrations, and potential exposures off-site due to airborne releases during operations are within the limits established in Subchapter D of this chapter and are maintained as low as reasonably achievable.

(iii) the design and operation of the radioactive substances processing or storage facility must be compatible with the objectives of the site closure and decommissioning plan;

(iv) the facility must be designed to confine spills. Independent and diverse engineered barriers must be provided, as necessary, to complement natural barriers in minimizing potential releases from the facility and in complying with this section;

(v) the location and construction of any new radioactive substances processing facility must have a buffer zone adequate to permit emergency measures to be implemented following accidents and to address airborne plume dispersions and, as a minimum, shall be such that:

(I) the active components of a Class II facility are located at least 30 meters from the nearest residence as of the date of the license application; and

(II) the active components of a Class III facility are located at least 30 meters from the nearest property not owned or occupied by the licensee.

(K) a flow diagram of radioactive substances processing operations;

(L) a description and accurate drawings of processing equipment and any required special handling techniques to be employed;

(M) a description of personnel monitoring methods, training, and procedures to be followed to keep employees from ingesting and inhaling radioactive materials, including a description of methods to keep the radiation exposure to levels as low as reasonably achievable;

(N) a description of the site monitoring program to include prelicense data and proposed operational monitoring programs for direct gamma radiation measurements and radioactive and chemical characteristics of the soils, groundwater, surface waters, and vegetation, as applicable;

(i) for radioactive substances storage facilities, the applicant shall address on-site air quality; and

(ii) for radioactive substances processing facilities, the applicant shall address on-site and off-site air quality;

(O) spill detection and cleanup plans for the licensed site and for associated transportation of radioactive material;

(P) an operating, safety, and emergency procedures manual that must provide detailed procedures for receiving, handling, storing, processing, and shipping radioactive substances;

(Q) for radioactive substances processing facilities, a description of the equipment to be installed to maintain control over maximum concentrations of radioactive materials in gaseous and liquid effluents produced during normal operations and the means to be employed for keeping levels of radioactive material in effluents to unrestricted areas as low as reasonably achievable and within the limits listed in Subchapter D of this chapter;

(R) methods of ultimate disposal and decommissioning; and

(S) the system for maintaining inventory of receipt, storage, and transfer of radioactive substances.

(T) an adequate operating, radiation safety, and emergency procedures manual; and

(U) a signed certification from the owner or owners of the real property on which radioactive substances are stored or processed acknowledging that:

(i) radioactive substances are stored or processed on the property with the consent of the property owner or owners; and

(ii) decommissioning of the site may be required even if the applicant or licensee is unable or fails to decommission the site as required by a license, rule or order of the commission.

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§336.1213. Additional Environmental Requirements .

An application for a license for a processing or storage facility must include environmental information that may be based on reconnaissance level information when appropriate and addresses the following:

(1) description of present land uses and population distribution in the vicinity of the site:

(A) for radioactive substances storage facilities, the description must address properties adjacent to the site; and

(B) for radioactive substances processing facilities, the description must address properties adjacent to the site and shall include population distribution within a one-mile radius of the site;

(2) area/site suitability including geology, hydrology, and natural hazards. For radioactive substances processing facilities, area meteorology also must be addressed;

(3) site and project alternatives including alternative siting analysis;

(4) socioeconomic effects on surrounding communities of operation of the licensed activity and of associated transportation of radioactive material; and

(5) environmental effects of postulated accidents.

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§336.1215. Issuance of Licenses.

(a) A license for a radioactive substances processing or storage facility may be issued if the agency finds reasonable assurance that:

(1) an application meets the requirements of the Texas Radiation Control Act and the rules of the agency;

(2) the proposed radioactive substances facility will be sited, designed, operated, decommissioned, and closed in accordance with this chapter;

(3) the issuance of the license will not be inimical to the health and safety of the public or the environment; and

(4) there is no reason to deny the license because of:

(A) any material false statement in the application or any statement of fact required under provisions of the Texas Radiation Control Act;

(B) conditions revealed by the application or statement of fact or any report, record, or inspection, or other means that would warrant the agency to refuse to grant a license on an application; or

(C) failure to clearly demonstrate how the requirements in this chapter have been addressed; and

(5) qualifications of the designated radiation safety officer (RSO) are adequate for the purpose requested in the application and include as a minimum:

(A) have earned at least a bachelor's degree in a physical or biological science, industrial hygiene, health physics, radiation protection, or engineering from an accredited college or university, or an equivalent combination of training and relevant experience, with two years of relevant experience equivalent to a year of academic study, from a uranium or mineral extraction/recovery, radioactive waste processing, or a radioactive waste or by-product material disposal facility;

(B) have at least one year of relevant experience, in addition to that used to meet the educational requirement, working under the direct supervision of the radiation safety officer at a uranium or mineral extraction/recovery, radioactive waste processing, or radioactive waste or by-product material disposal facility; and

(C) have at least four weeks of specialized training in health physics or radiation safety applicable to uranium or mineral extraction/recovery, radioactive waste processing, or radioactive waste or by-product material disposal operations from a course provider that has been evaluated and approved by the agency.

(b) The agency may request, and the licensee must provide, additional information after the license has been issued to enable the agency to determine whether the license should be modified, suspended, or revoked.

Adopted January 30, 2008 Effective February 28, 2008

§336.1217. Commencement of Major Construction.

Commencement of major construction is prohibited until a license has been issued by the commission.

Adopted January 30, 2008 Effective February 28, 2008

§336.1219. Commencement of Operations.

No licensee issued a license under this section may commence operations until the licensee has obtained licenses or permits from other agencies as required by law.

Adopted January 30, 2008 Effective February 28, 2008

§336.1221. Specific Terms and Conditions of Licenses.

(a) Unless otherwise specified, each license issued in accordance with this subchapter is subject to the requirements in §305.125 of this title (relating to Standard Permit Conditions). A license issued under this subchapter must include license conditions derived from the evaluations of the application and analyses performed by the agency, including amendments and changes made before a license is issued. License conditions may include, but are not limited to, the following:

(1) restrictions as to the total radioactive inventory of radioactive substances to be received;

(2) restrictions as to size, shape, and materials and methods of construction of radioactive substances packaging and maximum number of package units stored, at any one time;

(3) restrictions as to the physical and chemical form and radioisotopic content and concentration of radioactive substances;

(4) controls to be applied to restrict access to the site;

(5) controls to be applied to maintain and protect the health and safety of the public and site employees and the environment;

(6) administrative controls, which are the provisions relating to organization, management, and operating procedures; record-keeping, review and audit; and reporting necessary to assure that activities at the facility are conducted in a safe manner and in conformity with agency rules and license conditions;

(7) maximum retention time for radioactive substances received at the facility; and

(8) term of the specific license for a fixed term not to exceed ten years.

(b) The commission may incorporate in any license at the time of issuance, or thereafter, by appropriate rule or order, additional requirements or conditions with respect to the licensee's receipt, possession, or transfer of radioactive substances as it deems appropriate or necessary in order to:

(1) protect the health and safety of the public and the environment; or

(2) require reports and recordkeeping and to provide for inspections of activities under the licenses that may be necessary or appropriate to effectuate the purposes of the Texas Radiation Control Act and rules thereunder.

(c) Each person licensed by the commission in accordance with this subchapter shall confine the use and possession of the radioactive substance licensed to the locations and purposes authorized in the license.

Adopted January 30, 2008 Effective February 28, 2008

§336.1223. Renewal of Licenses.

(a) Renewal of licenses must be filed in accordance with §336.205 of this title (relating to Application Requirements) and §336.1211 of this title (relating to Filing Application for a Specific License).

(b) The licensee is responsible for decommissioning the facility and continued safe storage of any radioactive substances whether an application for continued receipt of radioactive substances is filed or not.

Adopted January 30, 2008 Effective February 28, 2008

§336.1225. Amendment of License at Request of Licensee.

Applications for amendment of a license shall be filed in accordance with §336.1211 of this title (relating to Filing Application for a Specific License) and §336.205 of this title (relating to Application Requirements). Amendment applications must be signed by the RSO, specify the proposed amendment, and describe the basis for such amendment.

Adopted January 30, 2008 Effective February 28, 2008

§336.1227. Radioactive Substances Processing and Packaging Requirements.

All processed radioactive substances offered for transport or disposal must meet:

(1) all applicable transportation requirements of the agency, the United States Nuclear Regulatory Commission, and of the DOT; and

(2) all applicable disposal facility license conditions.

Adopted January 30, 2008 Effective February 28, 2008

§336.1229. Environmental Assessment.

A written analysis of the impact on the human environment will be prepared or secured by the agency for any license for a class III processing or storage facility in accordance with §281.21(f) of this title (relating to Draft Permit, Technical Summary, Fact Sheet, and Compliance History).

Adopted January 30, 2008 Effective February 28, 2008

§336.1231. Radioactive Substances Processing and Storage Categories of Radionuclides.

(a) The following table contains waste processing and storage categories of radionuclides.

Element*	Radionuclide**	Category
Actinium (89)	Ac-227	I
	Ac-228	I
Americium (95)	Am-241	I
	Am-243	I
Antimony (51)	Sb-122	IV
	Sb-124	III
	Sb-125	III
Argon (18)	Ar-37	VI
	Ar-41	II
	Ar-41 (uncompressed)†	V
Arsenic (33)	As-73	IV
	As-74	IV
	As-76	IV
	As-77	IV
Astatine (85)	Ar-211	III
Barium (56)	Ba-131	IV
	Ba-133	II
	Ba-140	III
Berkelium (97)	Bk-249	I
Beryllium (4)	Be-7	IV
Bismuth (83)	Bi-206	IV
	Bi-207	III
	Bi-210	II
	Bi-212	III
Bromine (35)	Br-82	IV
Cadmium (48)	Cd-109	IV
	Cd-115m	III
	Cd-115	IV
Calcium (20)	Ca-45	IV
	Ca-47	IV
Californium (98)	Cf-249	I
	Cf-250	I
	Cf-252	I
Carbon (6)	C-14	IV
Cerium (58)	Ce-141	IV
	Ce-143	IV

Element*	Radionuclide**	Category
	Ce-144	III
Cesium (55)	Cs-131	IV
	Cs-134mCs-134	IIIIII
	Cs-135	IV
	Cs-136	IV
	Cs-137	III
Chlorine (17)	Cl-36	III
	Cl-38	IV
Chromium (24)	Cr-51	IV
Cobalt (27)	Co-56	III
	Co-57	IV
	Co-58m	IV
	Co-58	IV
	Co-60	III
Copper (29)	Cu-64	IV
Curium (96)	Cm-242	I
	Cm-243	I
	Cm-244	I
	Cm-245	I
	Cm-246	I
Dysprosium (66)	Dy-154	III
	Dy-165	IV
	Dy-166	IV
Erbium (68)	Er-169	IV
	Er-171	IV
Europium (63)	Eu-150Eu-152m	IIIIV
	Eu-152	III
	Eu-154	II
	Eu-155	IV
Florine (9)	F-18	IV
Gadolinium (64)	Gd-153	IV
	Gd-159	IV
Galium (31)	Ga-67	III
	Ga-72	IV
Germanium (32)	Ge-71	IV
Gold (79)	Au-193	III
	Au-194	III
	Au-195	III
	Au-196	IV
	Au-198	IV

Element*	Radionuclide**	Category
	Au-199	IV
Hafnium (72)	Hf-181	IV
Holmium (67)	Ho-166	IV
Hydrogen (1)	H-3 (see tritium)	
Indium (49)	In-113m	IV
	In-114m	III
	In-115m	IV
	In-115	IV
Iodine (53)	I-124	III
	I-125I-126	IIIIII
	I-129	III
	I-131	III
	I-132	IV
	I-133	III
	I-134	IV
	I-135	IV
Iridium (77)	Ir-190	IV
	Ir-192	III
	Ir-194	IV
Iron (26)	Fe-55	IV
	Fe-59	IV
Krypton (36)	Kr-85m	III
	Kr-85m (uncompresssed)†	V
	Kr-85	III
	Kr-85 (uncompressed)†	VI
	Kr-87	II
	Kr-87 (uncompressed)†	V
Lanthanum (57)	La-140	IV
Lead (82)	Pb-203	IV
	Pb-210	II
	Pb-212	II
Lutetium (71)	Lu-172Lu-177	IIIIV
Magnesium (12)	Mg-28	III
Manganese (25)	Mn-52	IV
	Mn-54	IV
	Mn-56	IV
Mercury (80)	Hg-197m	IV
	Hg-197	IV
	Hg-203	IV

Element*	Radionuclide**	Category
Mixed fission products (MFP)		II
Molybdenum (42)	Mo-99	IV
Neodymium (60)	Nd-147	IV
	Nd-149	IV
Neptunium (93)	Np-237	I
	Np-239	I
Nickel (28)	Ni-56	III
	Ni-59	IV
	Ni-63	IV
	Ni-65	IV
Niobium (41)	Nb-93m	IV
	Nb-95	IV
	Nb-97	IV
Osmium (76)	Os-185	IV
	Os-191m	IV
	Os-191Os-193	IVIV
Palladium (46)	Pd-103	IV
	Pd-109	IV
Phosphorus (15)	P-32	IV
Platinum (73)	Pt-191	IV
	Pt-193	IV
	Pt-193m	IV
	Pt-197m	IV
	Pt-197	IV
Plutonium (94)	Pu-238 F	I
	Pu-239 F	I
	Pu-240	I
	Pu-241 F	I
	Pu-242	I
Polonium (84)	Po-210	I
Potassium (19)	K-42	IV
	K-43	III
Praseodymium (59)	Pr-142	IV
	Pr-143	IV
Promethium (61)	Pm-147	IV
	Pm-149	IV
Protactinium (91)	Pa-230	I
	Pa-231	I

Element*	Radionuclide**	Category
	Pa-233	II
Radium (88)	Ra-223	II
	Ra-224	II
	Ra-226	I
	Ra-228	I
Radon (86)	Rn-220	IV
	Rn-222	II
Rhenium (75)	Re-183	IV
	Re-186	IV
	Re-187	IV
	Re-188	IV
	Re-Natural	IV
Rhodium (45)	Rh-103m	IV
	Rh-105	IV
Rubidium (37)	Rb-86	IV
	Rb-87	IV
	Rb-Natural	IV
Ruthenium (44)	Ru-97	IV
	Ru-103	IV
	Ru-105	IV
	Ru-106	III
Samarium (62)	Sm-145	III
	Sm-147	III
	Sm-151Sm-153	IVIV
Scandium (21)	Sc-46	III
	Sc-47	IV
	Sc-48	IV
Selenium (34)	Se-75	IV
Silicon (14)	Si-31	IV
Silver (47)	Ag-105	IV
	Ag-110m	III
	Ag-111	IV
Sodium (11)	Na-22	III
	Na-24	IV
Strontium (38)	Sr-85m	IV
	Sr-85	IV
	Sr-89	III
	Sr-90	II
	Sr-91	III
	Sr-92	IV

Element*	Radionuclide**	Category
Sulfur (16)	S-35	IV
Tantalum (73)	Ta-182	III
Technetium (43)	Tc-96m	IV
	Tc-96	IV
	Tc-97m	IV
	Tc-97	IV
	Tc-99mTc-99	IVIV
Tellurium (52)	Te-125m	IV
	Te-127m	IV
	Te-127	IV
	Te-129m	III
	Te-129	IV
	Te-131m	III
	Te-132	IV
Terbium (65)	Tb-160	III
Thallium (81)	Tl-200	IV
	Tl-201	IV
	Tl-202	IV
	Tl-204	III
Thorium (90)	Th-227	II
	Th-228	I
	Th-230	I
	Th-231	I
	Th-232	III
	Th-234	II
	Th-Natural	III
Thulium (69)	Tm-168	III
	Tm-170	III
	Tm-171	IV
Tin (50)	Sn-113	IV
	Sn-117m	III
	Sn-121	III
	Sn-125	IV
Tritium (1)	H-3	IV
	H-3 (as a gas, as luminous paint, or adsorbed on solid material.)	VII
Tungsten (74)	W-181	IV
	W-185	IV
	W-187	IV
Uranium (92)	U-230	II

Element*	Radionuclide**	Category
	U-232	I
	U-233 F	II
	U-234	II
	U-235 F	III
	U-236	II
	U-238	III
	U-Natural	III
	U-Enriched F	III
	U-Depleted	III
Vanadium (23)	V-48	IV
	V-49	III
Xenon (54)	Xe-125	III
	Xe-131m	III
	Xe-131m (uncompressed)†	V
	Xe-133	III
	Xe-133 (uncompressed)†	VI
	Xe-135	II
	Xe-135 (uncompressed)†	V
Ytterbium (70)	Yb-175	IV
Yttrium (39)	Y-88	III
	Y-90	IV
	Y-91m	III
	Y-91	III
	Y-92	IV
	Y-93	IV
Zinc (30)	Zn-65	IV
	Zn-69m	IV
	Zn-69	IV
Zirconium (40)	Zr-93	IV
	Zr-95	III
	Zr-97	IV

NOTE: For mixtures of radionuclides and for radionuclides not included in this subsection, see subsection (b) of this section, waste processing and storage categories.

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* Atomic number shown in parentheses.
** Atomic mass number shown after the element symbol.
F Fissile material.
m Metastable state.
† Uncompressed means at a pressure not exceeding 1 atmosphere.

(b) Any radionuclide not specifically listed in subsection (a) of this section must be assigned to one of the categories in accordance with the following table.

	RADIOACTIVE HALF-LIFE		
Radionuclide	0 to 1000 days	1000 days to 10^6 years	Over 10^6 years
Atomic No. 1-81	Category III	Category II	Category III
Atomic No. 82 and over	Category I	Category I	Category III

(c) For mixtures of radionuclides, the following must apply.

(1) If the identity and respective activity of each radionuclide are known, the permissible activity of each radionuclide shall be such that the sum, for all categories present, of the ratio between the total activity for each category to the permissible activity for each category will not be greater than unity.

(2) If the categories of the radionuclides are known but the amount in each category cannot be reasonably determined, the mixture must be assigned to the most restrictive category present.

(3) If the identity of all or some of the radionuclides cannot be reasonably determined, each of those unidentified radionuclides shall be considered as belonging to the most restrictive category that cannot be positively excluded.

(4) Mixtures consisting of a single radioactive decay chain where the radionuclides are in the naturally occurring proportions must be considered as consisting of a single radionuclide. The category and activity must be that of the first member present in the chain, except that if radionuclide "X" has a half-life longer than that of that first member and an activity greater than that of any other member, including the first, at any time during processing, the waste processing and storage category must be that of nuclide "X" and the activity of the mixture must be the maximum activity of nuclide "X" during processing.

Adopted January 30, 2008 Effective February 28, 2008

§336.1233. Radiation Safety Committee.

The duties and responsibilities of the Radiation Safety Committee include but are not limited to the following:

(1) meeting as often as necessary to conduct business but no less than three times a year;

(2) reviewing summaries of the following information presented by the radiation safety officer:

(A) over-exposures;

(B) significant incidents, including spills, contamination, or medical events; and

(C) items of noncompliance following an inspection;

(3) reviewing the program for maintaining doses as low as reasonably achievable, and providing any necessary recommendations to ensure doses are as low as reasonably achievable;

(4) reviewing the overall compliance status for authorized users;

(5) sharing responsibility with the radiation safety officer to conduct periodic audits of the radiation safety program;

(6) reviewing the audit of the radiation safety program and acting upon the findings;

(7) developing criteria to evaluate training and experience of new authorized user applicants;

(8) evaluating and approving authorized user applicants who request authorization to use radioactive material at the facility;

(9) evaluating new uses of radioactive material; and

(10) reviewing and approving permitted program and procedural changes prior to implementation.

Adopted January 30, 2008 Effective February 28, 2008

§336.1235. Financial Assurance for Storage and Processing.

(a) A licensee must establish financial assurance for decommissioning and any other requirements of this subchapter 60 days prior to the initial possession of radioactive substances.

(b) In establishing financial assurance, the licensee's cost estimates must take into account total costs that would be incurred if an independent contractor were hired to perform the decommissioning. The amount of financial assurance must be in an amount approved by the agency.

(c) The licensee's financial assurance mechanism and the underlying cost estimates will be reviewed annually by the agency to assure that sufficient funds are available for completion of decommissioning. The amount of financial assurance must be adjusted to recognize any increases resulting from inflation, changes in engineering plans, activities performed, and any other conditions affecting costs. A licensee must submit a cost estimate report annually for decommissioning the facility in accordance with the decommissioning plan by no later than an anniversary date as determined by the executive director. The licensee must provide any increase in the amount of financial assurance within 60 days of a determination of the cost estimate by the executive director.

(d) Financial assurance required under this subchapter must meet the requirements specified in Chapter 37, Subchapter T of this title (relating to Financial Assurance for Radioactive Substances and Aquifer Restoration) by June 1, 2009. Regardless of whether reclamation is phased through the life of the operation or takes place at the end of operations, an appropriate portion of financial assurance amount as

determined by the executive director shall be retained until final compliance with the reclamation plan is determined. This will yield a financial assurance mechanism that is at least sufficient at all times to cover the costs of decommissioning and reclamation of the areas that are expected to be disturbed before the next license renewal.

Adopted February 11, 2009 Effective March 12, 2009

SUBCHAPTER N: FEES FOR LOW-LEVEL RADIOACTIVE WASTE DISPOSAL
§§336.1301, 336.1303, 336.1305, 336.1307, 336.1309, 336.1311, 336.1313, 336.1315, 336.1317
Effective March 12, 2009

§336.1301. Purpose and Scope.

(a) State and national policy directs that the management of low-level radioactive waste be accomplished by a system of interstate compacts and the development of regional disposal sites. Under federal law, Texas is responsible for managing the low-level radioactive waste generated within its borders. The Texas Low-Level Radioactive Waste Disposal Compact, comprised of the states of Texas and Vermont, has as its disposal facility the compact waste disposal facility licensed under Subchapter H of this chapter (relating to Licensing Requirements Near-Surface Land Disposal of Low-Level Radioactive Waste). The compact waste disposal facility is expected to be the sole facility for disposal of low-level radioactive waste for generators within the states of Texas and Vermont.

(b) Low-level radioactive waste is generated by essential activities and services that benefit the citizens of the state. For the Compact Waste Facility Disposal, the price of disposing of low-level radioactive waste at the Texas low-level radioactive waste disposal site will be determined by the commission. To protect Texas and Vermont compact states' businesses and services, such as electrical production, medical and university research, and private industries, upon which the public relies, the commission will establish the maximum disposal rates charged by the licensee in accordance with the rules in this subchapter.

(c) A licensee who receives low-level radioactive waste for disposal pursuant to the Texas Low-Level Radioactive Waste Disposal Compact established under Texas Health and Safety Code, Chapter 403 shall collect a fee to be paid by each person who delivers low-level radioactive waste to the compact waste disposal facility for disposal. This fee shall be based on the commission approved maximum disposal rate, as specified in this subchapter.

Adopted February 11, 2009 Effective March 12, 2009

§336.1303. Definitions.

Terms used in this subchapter are defined in §336.2 of this title (relating to Definitions). Additional terms used in this subchapter have the following definitions.

(1) **Allowable expenses--**Only those expenses which are reasonable and necessary to provide service to the public shall be included in allowable expenses. Allowable expenses to the extent they are reasonable and necessary, may include but are not limited to the following general categories:

(A) operation and maintenance expense incurred in providing normal compact waste disposal facility services and in maintaining compact waste disposal facility used and useful to the licensee in providing such services. Payments to affiliated interests shall be allowed as described in §336.1317 of this title (relating to Consideration of Payment to Affiliate);

(B) expense to meet future costs of decommissioning, closing, and post closure maintenance and surveillance of the compact waste disposal facility;

(C) depreciation expense based on original cost and computed on a straight-line basis as approved by the commission. Other methods of depreciation may be used when it is determined that such depreciation methodology is a more equitable means of recovering the cost of the facility;

(D) assessments and taxes other than income taxes;

(E) federal income tax on a normalized basis;

(F) expenses for advertising, contributions, and donations may be allowed as a cost of service provided that the total sum of all such items allowed in the cost of service shall not exceed three-tenths of one percent (0.3%) maximum of the gross receipts; and

(G) accruals credited to reserve accounts for self-insurance under a plan requested by a licensee and approved by the commission. The commission shall consider approval of a self-insurance plan in a rate case in which expenses or rate base treatments are requested for such a plan. For the purposes of this section, a self-insurance plan is a plan providing for accruals to be credited to reserve accounts. The reserve accounts are to be charged with property and liability losses which occur, and which could not have been reasonably anticipated and included in operating and maintenance expenses, and are not paid or reimbursed by commercial insurance. The commission will approve a self-insurance plan to the extent it finds it to be in the public interest.

(2) **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).

(3) **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 Texas Low-Level Radioactive Waste Disposal Compact established under Texas Health and Safety Code, §403.006.

(4) **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.

(5) **Extraordinary volume**--Volumes of low-level radioactive waste delivered to a site caused by nonrecurring events, outside normal operations of a generator, that are in excess of 20,000 cubic feet or 20% of the preceding year's total volume at such site, whichever is less.

(6) **Extraordinary volume adjustment**--A mechanism that allocates the potential rate reduction benefits of an extraordinary volume between all generators and the generator responsible for

such extraordinary volume as described in §336.1313 of this title (relating to Extraordinary Volume Adjustment).

(7) **Generator**--A person, partnership, association, corporation, or any other entity whatsoever that, as a part of its activities, produces low-level radioactive waste and is subject to the Compact.

(8) **Gross receipts**--Includes, with respect to an entity or affiliated members, owners, shareholders, or limited or general partners, all receipts from the entity's disposal operations in Texas licensed under this chapter including any bonus, commission, or similar payment received by the entity from a customer, contractor, subcontractor, or other person doing business with the entity or affiliated members, owners, shareholders, or limited or general partners. This term does not include receipts from the entity's operations in Texas, or affiliated members, owners, shareholders, or limited or general partners, for capital reimbursements, bona fide storage, treatment, and processing, and federal or state taxes or fees on waste received uniquely required to meet the specifications of a license or contract.

(9) **Inflation adjustment**--A mechanism that adjusts the maximum disposal rate by a percentage equal to the change in price levels in the preceding period. The adjustment shall be made using an inflation factor derived from the most recent annual Implicit Price Deflator for Gross National Product published by the United States Department of Commerce in its Survey of Current Business.

(10) **Invested capital**--The original cost, less accumulated depreciation, of property used by and useful to the licensee in providing service. The original cost of property shall be determined at the time the property is dedicated to public use, whether by the licensee that is the present owner or by a predecessor. In this subchapter, "original cost" means the actual money cost, or the actual money value of any consideration paid other than money.

(11) **Licensee**--The holder of the license authorizing the compact waste disposal facility license issued by the commission under this chapter.

(12) **Maximum disposal rate**--The rate described in §336.1311 of this title (relating to Revisions to Maximum Disposal Rates).

(13) **Reasonable rate of return**--The return on invested capital based on calculations of revenue and operating costs on an after-tax basis which may include the following applicable factors:

(A) the efforts and achievements of the licensee in conserving resources;

(B) the quality of the licensee's services;

(C) the efficiency of the licensee's operations; and

(D) the quality of the licensee's management.

(14) **Relative hazard** --The properties of a waste stream for disposal that may present a particular hazard or danger for safe management based on the radioactivity in curies and dose rate as well as special handling requirements due to size, shape, or configuration.

(15) **Revenue requirement**--Based on a formula which is the invested capital multiplied by the rate of return on invested capital , plus the allowable expenses , where all amounts are only those used and useful for the compact facility.

(16) **Volume adjustment**--A mechanism that adjusts the maximum disposal rate in response to material changes in volumes of waste deposited at the site during the preceding period so as to provide a level of total revenues sufficient to recover the costs to operate and maintain the site.

Adopted February 11, 2009 Effective March 12, 2009

§336.1305. Commission Powers.

(a) The commission shall establish rates to be charged by the licensee. In establishing the rates, the commission shall ensure that they are fair, just, reasonable, and sufficient considering the value of the licensee's real property and license interests, the unique nature of its business operations, the licensee's liability associated with the site, its investment incurred over the term of its operations, and the reasonable rate of return equivalent to that earned by comparable enterprises.

(b) The commission may use any standard, formula, method, or theory of valuation reasonably calculated to arrive at the objective of prescribing and authorizing fair, just, reasonable, and sufficient rates.

(c) In any proceeding involving an initial or a change of rate, the burden of proof shall be on the licensee to show that the proposed rate, if proposed by the licensee, or that the existing rate, if it is proposed to reduce the rate, is just and reasonable. In any other matters or proceedings, the burden of proof is on the moving party.

(d) The commission may refer a request for a contested case hearing to the State Office of Administrative Hearings on the establishment of a rate under this subchapter.

(e) The commission may audit a licensee's financial records and waste manifest information to ensure that the fees imposed under this chapter are accurately charged and paid. The licensee shall comply with the commission's audit-related requests for information.

(1) To achieve the purposes, proper administration, and enforcement of this chapter, the executive director may conduct audits or investigations of waste disposal rates, payments and fees authorized by Texas Health and Safety Code, Chapter 401, and the veracity of information submitted to the commission.

(2) Each person subject to or involved with an audit or investigation under subsection (a) of this section shall cooperate fully with the audit or investigation by the executive director.

(f) After consideration of initial rate application or revision, the commission shall establish, by rule, the maximum disposal rate and schedule.

(g) The authority to establish the rates under this subchapter maybe delegated to the executive director if the application is not contested.

(h) Initiation of rate revision by the executive director.

(1) If good cause exists, the executive director may initiate revisions to the maximum disposal rates established under this subchapter which may include a true-up proceeding, subject to notice and opportunity for a contested case hearing. No revision to the maximum disposal rate is final until approved in the commission's rules establishing the maximum disposal rate. Good cause includes, but is not limited to:

(A) there are material and substantial changes in the information used to establish the maximum disposal rates ;

(B) information, not available at the time the maximum rates were established, is received by the executive director, justifying a rate revision; or

(C) the rules or statutes on which the maximum disposal rates were based have been changed by statute, rule, or judicial decision after the establishment of the maximum disposal rates .

(2) One or more generators may petition the executive director to initiate a revision to the maximum disposal rate under the requirements of this subsection. The generator must provide a copy of the petition to the licensee at the time the petition is submitted to the executive director. The executive shall grant or deny the petition within 90 days of filing, or request more information from the petitioner. The executive director's decision on a petition filed under this paragraph is subject to a motion to overturn filed with the commission under Chapter 50 of this title (relating to Actions on Applications and Other Authorizations).

Adopted February 11, 2009 Effective March 12, 2009

§336.1307. Factors Considered for Maximum Disposal Rates.

Maximum disposal rates adopted by the commission shall consider the following factors and be sufficient to:

(1) allow the licensee to recover allowable expenses. Allowable expenses shall never include: legislative advocacy expenses; political expenditures or contributions; expenses in support of or promoting political movements, or political or religious causes; funds expended for membership in or support of social, fraternal, or religious clubs or organizations; costs, including interest expense, of processing a refund or credit ordered by the commission; or any expenditure found by the commission to be unreasonable, unnecessary or against public interest, including but not limited to, executive salaries, legal expenses, penalties, fines, or costs not used or useful for the provision of compact waste disposal finality services;

(2) provide an amount to fund local public projects under Texas Health and Safety Code, §401.244;

(3) provide a reasonable opportunity to earn a reasonable rate of return on invested capital in the facilities used for management, disposal, processing, or treatment of compact waste at the compact waste disposal facility, which rate of return is expressed as a percentage of invested capital. In addition to the factors set forth in §336.1303(13) of this title (relating to Definitions), the rate of return should be reasonably sufficient to assure confidence in the financial soundness of the licensee and should be adequate, under efficient and economical management, to maintain and support its credit and enable it to raise the money necessary for the proper discharge of its public duties. A rate of return may be reasonable at one time and become too high or too low because of changes affecting opportunities for investment, the money market, and business conditions generally. The commission may, in addition, consider inflation, deflation, and the need for the licensee to attract new capital. The rate of return must be high enough to attract new capital but need not go beyond that. In each case, the commission shall consider the licensee's cost of capital, which is the weighted average of the costs of the various classes of capital used by the licensee:

(A) Debt capital. The cost of debt capital is the actual cost of the debt at the time of issuance, plus adjustments for premiums, discounts, and refunding and issuance costs.

(B) Equity capital. For companies with ownership expressed in terms of shares of stock, equity capital commonly consists of the following classes of stock:

(i) Common stock capital. The cost of common stock capital shall be based upon a fair return on its market value; or

(ii) Preferred stock capital. The cost of preferred stock capital is the actual cost of preferred stock at the time of issuance, plus an adjustment for premiums, discounts and refunding and issuance costs; and

(4) provide an amount necessary to pay compact waste disposal facility licensing fees, to pay compact waste disposal facility fees set by rule or statute, to provide financial assurance for the compact waste disposal facility as required by the commission under law and commission rules, and to reimburse the commission for the salary and other expenses of two or more resident inspectors employed by the commission pursuant to Texas Health and Safety Code, §401.206.

Adopted February 11, 2009 Effective March 12, 2009

§336.1309. Initial Determination of Rates and Fees.

(a) The licensee shall file an application with the executive director to establish initial maximum disposal rates that consider the factors identified in §336.1307 of this title (relating to Factors Considered for Maximum Disposal Rates). The application shall include exhibits, workpapers, summaries, annual reports, cost studies, a proposed reasonable rate of return on invested capital, proposed fees, and other information as requested by the executive director to demonstrate rates that meet the requirements of this subchapter. In addition, the application shall include revenue requirements for cost recovery from the compact waste disposal facility.

(1) The licensee shall submit a rate filing application package in accordance with the application prescribed by the executive director.

(2) After receipt of the application, the executive director shall review the application and recommend one or more rates to the commission for approval. In reviewing the application and evaluating the rate information, the executive director may request additional information from the licensee.

(3) The licensee shall provide notice of the application to all known customers that will ship or deliver waste to the compact waste disposal facility and shall provide notice of the application to any person by any method as directed by the executive director.

(4) The executive director shall maintain a Web site to inform the public on the process for consideration of the rate application and shall provide notice by publication in the *Texas Register*.

(b) After notice and the opportunity for a contested case hearing, the commission shall establish the initial maximum disposal rates that may be charged by the licensee. Upon request for a contested case hearing by a waste generator in the Texas Compact, the executive director shall directly refer an application to establish maximum disposal rates to the State Office of Administrative Hearings for a contested case hearing. Only the executive director, the licensee, or a generator has a right to a contested case hearing.

(c) A request for a contested case hearing filed by a generator shall contain the following information for each signatory generator:

(1) a clear and concise statement that the application is a request for a contested case hearing; and

(2) the generator's licensing numbers indicating the location or locations where the compact waste is generated.

(d) Generators must initiate a request for a contested case hearing by filing individual requests rather than joint requests.

(e) In the initial rate proceeding, the commission also shall determine the factors necessary to calculate the inflation adjustment, volume adjustment, extraordinary volume adjustment, and relative hazard.

(f) Initial rates shall be interim rates subject to a true-up in the first revision to maximum disposal rates pursuant to §336.1311 of this title (relating to Revisions to Maximum Disposal Rates). The true-up will measure the differences between projected and actual volumes of cubic feet of waste, allowable expenses, and invested capital for the time period that the interim rates are in effect, based on actual, historical amounts during that time period. The licensee shall refund to the generators who paid interim rates where money collected under the interim rates that is in excess of the adopted rates; or the licensee shall surcharge bills to the generators who paid interim rates to recover the amount by which the money collected under interim rates is less than the money that would have been collected under adopted rates.

(g) After determining the initial maximum disposal rates, inflation adjustment, and volume adjustment under this subchapter, the commission shall direct the executive director to initiate expedited rulemaking to establish the rate by rule.

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§336.1311. Revisions to Maximum Disposal Rates.

(a) The maximum disposal rates that a licensee may charge generators shall be determined in accordance with this section, and §336.1307 of this title (relating to Factors Considered for Maximum Disposal Rates). The rates shall include all charges for disposal services at the site.

(b) Initially, the maximum disposal rates shall be the initial rates established pursuant to §336.1309 of this title (relating to Initial Determination of Rates and Fees).

(c) Subsequently, the maximum disposal rates shall be adjusted in January of each year to incorporate inflation adjustments and volume adjustments. Such adjustments shall take effect unless the commission authorizes that the adjustments take effect according to an alternate schedule.

(d) The licensee may also file an application for revisions to the maximum disposal rates due to:

(1) changes in any governmentally imposed fee, surcharge, or tax assessed on a volume or a gross receipts basis against or collected by the licensee, including site closure fees, perpetual care and maintenance fees, business and occupation taxes, site surveillance fees, commission regulatory fees, taxes, and a tax or payment in lieu of taxes authorized by the state to compensate the county in which a site is located for that county's legitimate costs arising out of the presence of that site within that county;

(2) factors outside the control of the licensee such as a material change in regulatory requirements regarding the physical operation of the site; or

(3) changes in the licensee's revenue requirements or in any of the other factors in §336.1307 of this title that necessitate a change in the licensee's maximum disposal rates.

(e) For revisions to maximum disposal rates, the application must meet the requirements in §336.1309(a) and (b) of this title. In computing allowable expenses for revisions to maximum disposal rates, only the licensee's test year expenses as adjusted for known and measurable changes will be considered.

(f) For any revisions to the maximum disposal rates , including inflation and volume adjustments, the licensee shall provide notice to its customers concurrent with the filing as consistent with §336.1309(a)(3) of this title.

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§336.1313. Extraordinary Volume Adjustment.

(a) In establishing the extraordinary volume adjustment, unless the licensee and generator of the extraordinary volume agree to a contract disposal rate, one-half of the extraordinary volume delivery shall be priced at the maximum disposal rate and one-half shall be priced at the licensee's incremental cost to receive the delivery. Such incremental cost shall be determined in the initial rate proceeding.

(b) For purposes of the subsequent calculation of the volume adjustment, one-half of the total extraordinary volume shall be included in the calculation.

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§336.1315. Revenue Statements and Consideration of Payment to Affiliate.

(a) The licensee shall, on or before April 1st of each year, file with the commission:

(1) an audited financial statement showing its gross receipts for the preceding calendar year;

(2) a statement in a form prescribed by the executive director reflecting the licensee's revenues and allowable expenses for the previous calendar year from its low-level radioactive waste disposal activities; and

(3) a validation of payments made in §336.103(f) and (g) of this title (relating to Schedule of Fees for Subchapter H Licenses) must also be included.

(b) The financial statement as specified in subsection (a) of this section shall be prepared in accordance with Generally Accepted Accounting Principles and audited by a Certified Public Accounting (CPA) firm. The audited financial statement shall include an Auditor's Report from the CPA indicating an "unqualified" opinion of the licensee's financial statements.

(c) In addition to the financial statement on gross receipts, the licensee shall provide an audited cost statement that provides all investment and operating costs for the preceding calendar year.

(d) In addition to information submitted under this section, all revenues and costs shall be provided by the licensee upon request by the executive director to consider revision of rates under §336.1305(c) of this title (relating to Commission Powers.)

(e) Except as provided by subsection (f) of this section, the commission may not allow as capital cost or as allowable expenses a payment to an affiliate for:

(1) the cost of service, property, right, or other item; or

(2) interest expense.

(f) The commission may allow a payment described by subsection (e) of this section only to the extent that the commission finds the payment is reasonable and necessary for each item or class of items as determined by the commission.

(g) A finding under subsection (f) of this section must include:

(1) a specific finding of the reasonableness and necessity of each item or class of items allowed; and

(2) a finding that the price charged to the licensee is not higher than the prices charged by the supplying affiliate for the same item or class of items to:

(A) its other affiliates or divisions; or

(B) a nonaffiliated person within the same market area or having the same market conditions.

(h) In making a finding regarding an affiliate transaction, the commission shall:

(1) determine the extent to which the conditions and circumstances of that transaction are reasonably comparable relative to quantity, terms, date of contract, and place of delivery; and

(2) allow for appropriate differences based on that determination.

(i) If the commission finds that an affiliate expense for the test period is unreasonable, the commission shall:

(1) determine the reasonable level of the expense; and

(2) include that expense in determining the licensee's cost of service.

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§336.1317. Contracted Disposal Rates.

(a) At any time, a licensee may contract with any person to provide a contract disposal rate that is lower than the maximum disposal rate.

(b) A contract or contract amendment shall be submitted to the executive director for approval at least 30 days before its effective date. If the executive director takes no action within 30 days of filing, the contract or amendment shall go into effect according to its terms. Each contract filing shall be accompanied with documentation to show that the contract does not result in unreasonable discrimination between generators receiving like and contemporaneous service under substantially similar circumstances and provides for the recovery of all costs associated with the provision of the service.

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