

The Texas Commission on Environmental Quality (TCEQ, agency, or commission) proposes amendments to §§336.2, 336.105, 336.1111, and 336.1127; and new §336.739.

### **Background and Summary of the Factual Basis for the Proposed Rules**

The purpose of this rulemaking is to implement Senate Bill (SB) 347, 83rd Texas Legislature, 2013, and its amendments to Texas Health and Safety Code (THSC), Chapter 401 (also known as the Texas Radiation Control Act (TRCA)) and to add non-substantive changes to rules to ensure the commission's continued compatibility with the United States Nuclear Regulatory Commission (NRC). This proposed rulemaking also creates new provisions in Chapter 336 for the compact waste disposal facility license holder who may accept nonparty compact waste for disposal at the facility only if it has been volume reduced.

Corresponding rulemaking is published in this issue of the *Texas Register* concerning 30 TAC Chapter 37, Financial Assurance.

### **Section by Section Discussion**

#### *§336.2, Definitions*

The commission proposes to amend §336.2 to revise the definitions of "Perpetual care account" and "Radiation and Perpetual Care Account" to reflect the new name of the dedicated general revenue account created by SB 347. The definitions have been

reorganized to keep them in alphabetical order and renumbered accordingly. The commission proposes to amend §336.2(139) to make a non-substantive revision to the definition of "Total effective dose equivalent (TEDE)" to conform to updated federal regulations by adding two sets of parentheses.

*§336.105, Schedule of Fees for Other Licenses*

The commission proposes to amend §336.105(h)(1) to reflect the new name of the dedicated general revenue account created by SB 347.

*§336.739, Volume Reduction*

The commission proposes new §336.739 to establish new restrictions on the disposal of low-level radioactive waste in Texas, that was generated outside of Texas or Vermont. Those restrictions require that any such waste to be disposed in Texas must have been volume reduced to a certain degree.

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

The commission proposes to amend §336.1111(1)(H) regarding the application requirements for a new license for source material recovery (i.e., uranium mining) and by-product disposal facilities. Under the current rule, an applicant is required to submit a signed certification from the landowners on which radioactive substances are

recovered, stored, processed or disposed to reflect the landowner's consent to that activity and to acknowledge that decommissioning of the licensed site is required even if the licensee fails to perform the required decommissioning. The purpose of this provision was to assure that landowners are fully informed of both on-going licensed activities involving radioactive substances on the property and future closure requirements. The landowner acknowledgement was not intended to provide landowner approval power of a proposed project or disrupt the ability of an applicant to prepare a complete application. In addition, changes in land ownership can complicate and delay an applicant's need for timely application development and processing. Arrangements between landowners and uranium miners regarding use of the property should be made in private agreements and not be made part of the commission's license application processing. Instead of requiring landowners' signatures and consent, the proposed amendment will require the applicant to provide notification to the landowners. The notification is in addition to any required public notice under 30 TAC Chapter 39 of the commission's rules. The proposed revisions to §336.1111(1)(H) require an applicant to submit proof of the effort to provide the landowners with notification by certified and regular United States mail that radioactive materials will be recovered, stored, processed or disposed on the property and that the decommissioning of the property may be required and performed on the licensed site even if the licensee is unable to perform the decommissioning. An applicant may be able to submit the required proof in a variety of ways, such as an affidavit from the person responsible for mailing the

notification, proof of certified mail receipts, or a description of the efforts implemented to comply with the requirements that is included in the sworn application.

*§336.1127, Long-term Care and Maintenance Requirements*

The commission proposes to amend §336.1127(a) and (c) to reflect the new name of the dedicated general revenue account created by SB 347. The commission also proposes to amend §336.1127(c) to decrease the assumed annual real interest rate allowed for certain licensee's financial assurance in order to comply with new federal requirements.

**Fiscal Note: Costs to State and Local Government**

Jeffrey Horvath, Analyst in the Chief Financial Officer Division, has determined that for the first five-year period the proposed rules are in effect, no direct fiscal implications are anticipated for the agency or for other units of state or local government as a result of the administration or enforcement of the proposed rules. However, fiscal implications are anticipated for the state and units of local government in as much as the proposed rules relate to the passage of SB 347. In concurrent rulemaking, the commission is proposing provisions in Chapter 37 which would implement other provisions of SB 347. The fiscal implications for these amendments are discussed in the fiscal note for the Chapter 37 rulemaking.

The proposed rulemaking would implement portions of SB 347. SB 347 created a new

account within the General Revenue Fund to be called the Environmental Radiation and Perpetual Care Account, for the use of the TCEQ to prevent or mitigate the adverse effects of radioactive substances and ensure protection of public health. Funds in the account could be used for the decontamination, decommissioning, stabilization, reclamation, maintenance, surveillance, control, storage, and disposal of radioactive substances for the protection of the public health and safety, and the environment. The account would consist of fees on licenses and registrations as well as revenues from the 20% surcharge on nonparty compact waste previously deposited into the Low Level Radioactive Waste Account 088. This surcharge would now be deposited into the newly-created Environmental Radiation and Perpetual Care Account instead of Account 088. However, as part of the legislature's funds consolidation efforts, through the passage of House Bill 6, 83rd Texas Legislature, 2013, the new account was abolished just after it was established. Fee revenue that was required by SB 347 to be deposited into the new Environmental Radiation and Perpetual Care Account is now going into the General Revenue Fund.

In anticipation of the re-creation of the Environmental Radiation and Perpetual Care Account by the 84th Texas Legislature, 2015, and the re-dedication of funds in the account for low-level radioactive site closure, post closure and corrective action activities, and to implement provisions of SB 347, the commission is proposing this rulemaking.

The proposed amendments to Chapter 336 would revise the definitions of "Perpetual care account" and "Radiation and Perpetual Care Account" to reflect the name of the dedicated general revenue account created by SB 347. The proposed rules would also make a non-substantive revision to the definition of "Total effective dose equivalent" to conform to updated federal regulations. The proposed rulemaking would amend the schedule of fees in §336.105(h)(1) to reflect the name of the dedicated general revenue account created by SB 347. No fiscal implications are anticipated from these proposed changes. This account was created and then abolished by the 83rd Texas Legislature, 2013, but it is assumed that the account will be re-created as TCEQ and the Texas Department of State Health Services (DSHS) each require their respective perpetual care accounts for the entities they regulate.

As required by SB 347, the proposed rules also require that waste generated outside of Texas or Vermont that is to be disposed of in Texas, must be volume reduced. The commission also proposes to amend §336.1127(c) to decrease the assumed annual real interest rate allowed for certain licensee's financial assurance in order to comply with new federal requirements. This proposed revision is not anticipated to have significant fiscal implications.

Because SB 347 increases the curie capacity of nonparty waste that may be disposed at

the site to 275,000 curies per year, an increase in revenue was anticipated from the 20% surcharge fee on nonparty waste. This revenue was to be deposited to the credit of Environmental Radiation and Perpetual Care Account. The agency estimated that \$4.6 million would be generated from the surcharge on nonparty waste per year. However, because this account was abolished, this anticipated revenue will now go into the General Revenue Fund. This will be in addition to the already estimated \$4.6 million that is currently collected from the 20% surcharge fee.

SB 347 provided that beginning September 1, 2015, the license holder may only accept nonparty waste for disposal if the waste has been volume-reduced and the license holder collects a fee to support the compact commission. However, if volume reduction would change the waste classification to greater than Class C, volume reduction will not be required. Further, the license holder may not dispose of nonparty Class A waste unless it is containerized. The license holder may collect a fee and dispose of not more than the greater of 1.167 million curies of nonparty waste or an amount of nonparty waste equal to 30% of the initial licensed capacity of the facility. SB 347 sets the annual nonparty waste curie limit at 275,000 curies. The legislature may revise these limits based on the TCEQ's capacity study due in 2016.

SB 347 also requires TCEQ and DSHS to collect a 5% fee on the annual license cost for radioactive material licensees. The 5% fee and the transportation fee required in THSC,

§401.052(d) collected by TCEQ were to be deposited into the Environmental Radiation and Perpetual Care Account. Further, SB 347 repeals the \$500,000 cap on the 5% and transportation fees, and sets a new cap of \$100 million (total for both the Radiation and Perpetual Care Account and the Environmental Radiation and Perpetual Care Account) and requires reinstatement of the fees if the combined balance of the funds is subsequently reduced to \$50 million or less. SB 347 further provides that the 20% surcharge on disposing of nonparty low-level radioactive waste continues to be collected regardless of whether the cap is reached. SB 347 carves out two separate caps within the \$100 million cap for both compact generators and the uranium industry. Compact generators retain the original \$500,000 cap on the amount of the transportation fee they are required to pay. The cap for the 5% fee of the annual cost for licensees for the extraction, processing, or concentration of uranium or thorium from ore is set at \$2 million and they are not required to pay the 5% fee until they begin operations.

Based on 2012 revenue from the annual license for the extraction, processing, or concentration of uranium or thorium from ore, it is estimated that the 5% license surcharge will generate \$50,000 per year in new revenue. It is estimated the \$2 million cap will be reached in 40 years based on the 2012 revenue. This additional revenue was to be deposited to the credit of the Environmental Radiation and Perpetual Care Account but will now be deposited into the General Revenue Fund.

The 5% surcharge for Compact Waste Disposal Facility License (CWF) and By-Product Licenses (BYP) will be collected until their cap is reached. As a result of raising the cap it is estimated that an additional \$88,000 per year will be collected based on 2012 collected revenue from the 5% license surcharge on BYP and CWF. This additional revenue was to be deposited to the credit of the Environmental Radiation and Perpetual Care Account. It is projected that this fee will be suspended within three years as a result of cap being reached.

The total additional revenue deposited into the Environmental Radiation and Perpetual Care Account was estimated to be approximately \$9.2 million per year based on the 275,000 curie capacity and the 5% license surcharges.

In addition, the revenue deposited into General Revenue from the 5% Gross Receipts Fee was projected to increase. It was assumed that receipts by the facility will increase by \$22 million from the increase in non-party curie capacity to 275,000. This will correlate to an increase of \$1.1 million per year from for the 5% Gross Receipts Fee beginning in 2015. Andrews County is estimated to collect an additional \$1.1 million from additional 5% gross receipts as result of the increase in curie capacity to 275,000 per year. Due to the abolishment of the Environmental Radiation and Perpetual Care Account, it is estimated that an additional \$9.2 million per year will be deposited into the General Revenue Fund.

### **Public Benefits and Costs**

Mr. Horvath has also determined that for each year of the first five years the proposed rules are in effect, the public benefit anticipated from the changes seen in the proposed rules will be in compliance with state law and the potential for a dedicated account and funding for post closure and corrective action activities associated with the low-level radioactive waste disposal site, assuming the legislature re-creates the account.

No direct fiscal implications are anticipated for individuals as a result of the proposed rulemaking. Any additional costs to businesses are an indirect result of this rulemaking and a direct result of the passage of SB 347.

It is assumed that receipts by the low-level radioactive waste facility will increase by \$22 million from the increase in non-party curie capacity to 275,000. All radioactive material licensees will be required to pay a 5% fee of their annual license cost. At this time, TCEQ has 14 radioactive material licenses issued to 11 companies. Costs from the 5% surcharge on licenses is estimated to be approximately \$138,000 for the first three years the rules are in effect as the surcharge for CWF and BYP is expected to reach its cap. The remaining two years of the five-year period would see an increase in costs of \$50,000 each year for the annual license costs for the extraction, processing, or concentration of uranium or thorium from ore.

### **Small Business and Micro-Business Assessment**

No adverse fiscal implications are anticipated for small or micro-businesses due to the implementation or administration of the proposed rules for the first five-year period the proposed rules are in effect. There are an estimated six small or micro-businesses that may be subject to the 5% surcharge on licenses. This surcharge is not a direct result of this rulemaking but rather a result of the passage of SB 347.

### **Small Business Regulatory Flexibility Analysis**

The commission has reviewed this proposed rulemaking and determined that a small business regulatory flexibility analysis is not required because the proposed rules are required to implement state law and therefore are consistent with the health, safety, or environmental and economic welfare of the state.

### **Local Employment Impact Statement**

The commission has reviewed this proposed rulemaking and determined that a local employment impact statement is not required because the proposed rules do not adversely affect a local economy in a material way for the first five years that the proposed rules are in effect.

### **Draft Regulatory Impact Analysis Determination**

The commission proposes the rulemaking action under the regulatory analysis requirements of Texas Government Code, §2001.0225, and determined that the action is not subject to Texas Government Code, §2001.0225 because it does not meet the definition of a "major environmental rule" as defined in the statute. A "major environmental rule" means a rule, the specific intent of which, is to protect the environment or reduce risks to human health from environmental exposure and that may adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, or the public health and safety of the state or a sector of the state. The proposed rulemaking action implements legislative requirements in SB 347 regarding funding and subject to appropriation by the legislature of the Environmental Radiation and Perpetual Care Account. The proposed rulemaking action also implements the option for the low-level radioactive waste disposal compact waste facility license holder to accept nonparty compact waste for disposal only if it is volume-reduced as provided by commission rule and subject to the license holder's surcharge and may be subject to a commission fee. The fees and surcharge if collected at all will be deposited into the Environmental Radiation and Perpetual Care Account. The proposal to Chapter 336 is not anticipated to adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, or the public health and safety of the state or a sector of the state, because financial assurance and this fund was already required for

these licensing programs. The proposed rulemaking only changes the name for the fund that is administered by the commission and the commission will only be implementing an appropriation of the state budget from the legislature following an order from the Texas Comptroller of Public Accounts. While there could be new costs associated with obtaining a financial assurance mechanism that meets the requirements of the proposed rules, the commission does not expect that the costs to adversely affect the economy, productivity, or competition in a material way.

Furthermore, the proposed rulemaking action does not meet any of the four applicability requirements listed in Texas Government Code, §2001.0225(a). Texas Government Code, §2001.0225 only applies to a major environmental rule, the result of which is to: 1) exceed a standard set by federal law, unless the rule is specifically required by state law; 2) exceed an express requirement of state law, unless the rule is specifically required by federal law; 3) exceed a requirement of a delegation agreement or contract between the state and an agency or representative of the federal government to implement a state and federal program; or 4) adopt a rule solely under the general powers of the agency instead of under a specific state law. The proposed rulemaking action does not exceed a standard set by federal law, an express requirement of state law, a requirement of a delegation agreement, nor does it adopt a rule solely under the general powers of the agency.

THSC, Chapter 401, authorizes the commission to regulate the disposal of most radioactive substances in Texas. THSC, §§401.051, 401.103, 401.104, and 401.412 authorize the commission to adopt rules for the control of sources of radiation and the licensing of the disposal of radioactive substances. In addition, Texas is an "Agreement State" authorized by the NRC to administer a radiation control program under the Atomic Energy Act of 1954, as amended (Atomic Energy Act). The proposed rules are compatible with federal law.

The proposed rules do not exceed an express requirement of state law. THSC, Chapter 401, establishes general requirements, including requirements for public notices, for the licensing and disposal of radioactive substances, source material recovery, and commercial radioactive substances storage and processing. The purpose of the rulemaking is to implement statutory requirements consistent with recent amendments to THSC, Chapter 401, as provided in SB 347.

The proposed rules are compatible with a requirement of a delegation agreement or contract between the state and an agency of the federal government. Texas has been designated as an "Agreement State" by the NRC under the authority of the Atomic Energy Act. The Atomic Energy Act requires that the NRC find that the state radiation control program is compatible with the NRC requirements for the regulation of radioactive materials and is adequate to protect health and safety. Under the 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, NRC requirements must be implemented to maintain a compatible state program for protection against hazards of radiation. The proposed rules are compatible with the NRC requirements and the requirements for retaining status as an "Agreement State."

This rulemaking is proposed under the specific authority of THSC, Chapter 401. THSC, §§401.051, 401.103, 401.104, and 401.412 authorize the commission to adopt rules for the control of sources of radiation and the licensing of the disposal of radioactive substances.

Written comments on the draft regulatory impact analysis determination may be submitted to the contact person at the address listed under the Submittal of Comments section of this preamble.

### **Takings Impact Assessment**

The commission evaluated this proposed rulemaking and performed a preliminary assessment of whether the Private Real Property Rights Preservation Act, Texas Government Code, Chapter 2007 is applicable. The commission's preliminary assessment indicates that the Private Real Property Rights Preservation Act does not

apply to this proposed rulemaking because these rules implement SB 1604, 80th Texas Legislature, 2007, transferring certain regulatory responsibilities from DSHS to the commission and is an action reasonably taken to fulfill an obligation mandated by federal law. Financial assurance is required for these licensing programs under the NRC's requirements.

Nevertheless, the commission further evaluated this proposed rulemaking and performed a preliminary assessment of whether these proposed rules constitute a taking under Texas Government Code, Chapter 2007. The purpose of this proposed rulemaking is to implement changes to the TRCA required by SB 347, for the deposit of funds into the Environmental Radiation and Perpetual Care Account. The proposed rule amendments to Chapter 336 would require nonparty compact waste, if eligible, for disposal at the low-level radioactive waste compact disposal facility by the license holder to be volume reduced by a factor of three subject to proposed volume reduction rules and a surcharge collected by the license holder. The surcharge, if collected, will be deposited to the credit of the Environmental Radiation and Perpetual Care Account.

Promulgation and enforcement of this proposed rulemaking would be neither a statutory nor a constitutional taking of private real property. The proposed rules do not affect a landowner's rights in private real property because this rulemaking action does not constitutionally burden, nor restrict or limit, the owner's right to property and

reduce its value by 25% or more beyond which would otherwise exist in the absence of the regulations.

### **Consistency with the Coastal Management Program**

The commission reviewed the proposed rules and found that they are neither identified in Coastal Coordination Act Implementation Rules, 31 TAC §505.11(b)(2) or (4), nor will they affect any action/authorization identified in Coastal Coordination Act Implementation Rules, 31 TAC §505.11(a)(6). Therefore, the proposed rules are not subject to the Texas Coastal Management Program.

Written comments on the consistency of this rulemaking may be submitted to the contact person at the address listed under the Submittal of Comments section of this preamble.

### **Announcement of Hearing**

The commission will hold a public hearing on this proposal in Austin on January 13, 2015, at 10:00 a.m., in Building E, Room 201S, at the commission's central office located at 12100 Park 35 Circle. The hearing is structured for the receipt of oral or written comments by interested persons. Individuals may present oral statements when called upon in order of registration. Open discussion will not be permitted during the hearing; however, commission staff members will be available to discuss the proposal 30 minutes

prior to the hearing.

Persons who have special communication or other accommodation needs who are planning to attend the hearing should contact Sandy Wong, Office of Legal Services at (512) 239-1802. Requests should be made as far in advance as possible.

### **Submittal of Comments**

Written comments may be submitted to Kris Hogan, MC 205, Office of Legal Services, Texas Commission on Environmental Quality, P.O. Box 13087, Austin, Texas 78711-3087, or faxed to (512) 239-4808. Electronic comments may be submitted at: <http://www5.tceq.texas.gov/rules/ecomments/>. File size restrictions may apply to comments being submitted via the eComments system. All comments should reference Rule Project Number 2013-056-037-WS. The comment period closes on January 20, 2015. Copies of the proposed rulemaking can be obtained from the commission's Web site at [http://www.tceq.texas.gov/nav/rules/propose\\_adopt.html](http://www.tceq.texas.gov/nav/rules/propose_adopt.html). For further information, please contact Bobby Janecka, Radioactive Material Licensing Section, (512) 239-6415.

## **SUBCHAPTER A: GENERAL PROVISIONS**

### **§336.2**

#### **Statutory Authority**

The amendment is proposed under the specific authority of Texas Health and Safety Code (THSC), Chapter 401. THSC, §§401.051, 401.103, 401.104, and 401.412 authorize the commission to adopt rules for the control of sources of radiation and the licensing of the disposal of radioactive substances. The amendment is also proposed under Texas Water Code (TWC), §5.103, concerning Rules, and TWC, §5.105, concerning General Policy, which authorize the commission to adopt rules necessary to carry out its powers and duties under TWC and other laws of the state.

The amendment is proposed to implement Senate Bill 347, 83rd Texas Legislature, 2013, and its amendments to THSC, Chapter 401 and to add nonsubstantive changes to rules to ensure the commission's continued compatibility with the United States Nuclear Regulatory Commission.

#### **§336.2. Definitions.**

The following words and terms, when used in this chapter, shall have the following meanings, or as described in Chapter 3 of this title (relating to Definitions),

unless the context clearly indicates otherwise. Additional definitions used only in a certain subchapter will be found in that subchapter.

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

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

(3) 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 Table I of §336.359(d) [§336.359, Appendix B, Table I, Column 1,] of this title (relating to Appendix B. Annual Limits on Intake (ALI) and Derived Air Concentrations (DAC) of Radionuclides for Occupational Exposure; Effluent Concentrations; Concentrations for Release to Sanitary Sewerage); or

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

(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(d)[, Appendix B,] 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).

(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 State Health Services, 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;

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

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

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

(E) Any discrete source of naturally occurring radioactive material, other than source material, that is extracted or converted after extraction for use in a commercial, medical, or research activity and that the NRC, in consultation with the Administrator of the United States Environmental Protection Agency (EPA), the United States Secretary of Energy, the United States Secretary of Homeland Security, and the head of any other appropriate Federal agency, determines would pose a threat similar to the threat posed by a discrete source of radium-226 to the public health and safety or the common defense and security.

(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 (relating to Units of Radioactivity).

(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(d)[, Appendix B,] 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).

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

(36) 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.

(37) 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 SCBA [self-contained breathing apparatus (SCBA)].

(38) 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.

(39) 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.

(40) 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).

(41) 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.

(42) 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.

(43) 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.

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

(45) 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.

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

(47) [(46)] Exposure--Being exposed to ionizing radiation or to radioactive material.

(48) [(47)] Exposure rate--The exposure per unit of time.

(49) [(48)] External dose--That portion of the dose equivalent received from any source of radiation outside the body.

(50) [(49)] 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.

(51) [(50)] 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).

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

(53) [(52)] 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.

(54) [(53)] 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.

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

(56) [(55)] 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.

(57) [(56)] 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.

(58) [(57)] Gray (Gy)--See §336.3 of this title (relating to Units of Radiation Exposure and Dose).

(59) [(58)] Hazardous waste--Hazardous waste as defined in §335.1 of this title (relating to Definitions).

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

(61) [(60)] **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.

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

(63) [(62)] **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.

(64) [(63)] **Individual**--Any human being.

(65) [(64)] **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.

(66) [(65)] 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.

(67) [(66)] Inhalation class--See "Class."

(68) [(67)] 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.

(69) [(68)] Internal dose--That portion of the dose equivalent received from radioactive material taken into the body.

(70) [(69)] 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."

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

(72) [(71)] License--See "Specific license."

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

(74) [(73)] 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."

(75) [(74)] 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.

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

(77) [(76)] 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.

(78) [(77)] Low-level radioactive waste--

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

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

(ii) is waste, as that term is defined by 10 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) - (E)  
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.

(79) [(78)] Lung class--See "Class."

(80) [(79)] Member of the public--Any individual except when that individual is receiving an occupational dose.

(81) [(80)] Minor--An individual less than 18 years of age.

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

(83) [(82)] 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.

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

material at a quantity equal to or greater than the Category 1 threshold. Category 2 nationally tracked sources are those containing radioactive material at a quantity equal to or greater than the Category 2 threshold but less than the Category 1 threshold.

(85) [(84)] Naturally occurring or accelerator-produced radioactive material (NARM)--Any naturally occurring or accelerator-produced radioactive material except source material or special nuclear material.

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

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

(B) is discarded or unwanted; and

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

(87) [(86)] 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.

(88) [(87)] 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.

(89) [(88)] 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.

(90) [(89)] 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.

(91) [(90)] Oil and gas naturally occurring radioactive material (NORM) waste--NORM [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.

(92) [(91)] 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.

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

(94) [(93)] 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.

(95) [(94)] Perpetual care account--The Environmental Radiation and Perpetual Care Account [radiation and perpetual care account] as defined in this section.

(96) [(95)] Personnel monitoring equipment--See "Individual monitoring devices."

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

(98) [(97)] Positive pressure respirator--A respirator in which the pressure inside the respiratory inlet covering exceeds the ambient air pressure outside the respirator.

(99) [(98)] 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.

(100) [(99)] 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.

(101) [(100)] 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.

(102) [(101)] 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.

(103) [(102)] 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.

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

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

(106) [(105)] 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.

(107) [(106)] Rad--See §336.3 of this title (relating to Radiation Exposure and Dose).

(108) [(107)] 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.

[(108) 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.]

(109) 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.

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

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

(112) 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.

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

(114) Radiobioassay--See "Bioassay."

(115) 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."

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

(117) 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.

(118) 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.

(119) 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.

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

(121) 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.

(122) 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.

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

(124) 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).

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

(126) Sievert (Sv)--See §336.3 of this title (relating to Units of Radiation Exposure and Dose).

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

(128) 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.

(129) 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).

(130) 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.

(131) Special nuclear material in quantities not sufficient to form a critical mass--Uranium enriched in the isotope 235 in quantities not exceeding 350 grams of contained uranium-235; uranium-233 in quantities not exceeding 200 grams;

plutonium in quantities not exceeding 200 grams; or any combination of these in accordance with the following formula: For each kind of special nuclear material, determine the ratio between the quantity of that special nuclear material and the quantity specified in this paragraph [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.

(132) 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."

(133) State--The State of Texas.

(134) 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.

(135) 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.

(136) 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.

(137) 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.

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

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

(140) 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).

(141) 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.

(142) 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).

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

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

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

(146) 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.

(147) 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.

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

(149) Waste--Low-level radioactive wastes containing source, special nuclear, or byproduct material that are acceptable for disposal in a land disposal facility. For the purposes of this definition, low-level radioactive waste means radioactive waste not classified as high-level radioactive waste, transuranic waste, spent nuclear fuel, or byproduct material as defined in paragraph (16)(B) - (E) of this section.

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

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

Figure: 30 TAC §336.2(151) (No change to the figure as it exists in TAC.)

<b>Organ Dose Weighting Factors</b>	
<u>Organ or Tissue</u>	<u><math>w_T</math></u>
Gonads	0.25
Breast	0.15
Red bone marrow	0.12
Lung	0.12
Thyroid	0.03

Bone surfaces	0.03
Remainder	0.30 <sup>1</sup>
Whole body	1.00 <sup>2</sup>

1. The value 0.30 results from 0.06 for each of five remainder organs, excluding the skin and the lens of the eye, that receive the highest doses.

2. For the purpose of weighting the external whole body dose (for adding it to the internal dose) a single weighting factor,  $w_T = 1.0$ , 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.

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

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

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

(155) 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).

(156) 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.

## **SUBCHAPTER B: RADIOACTIVE SUBSTANCE FEES**

### **§336.105**

#### **Statutory Authority**

The amendment is proposed under the specific authority of Texas Health and Safety Code (THSC), Chapter 401. THSC, §§401.051, 401.103, 401.104, and 401.412 authorize the commission to adopt rules for the control of sources of radiation and the licensing of the disposal of radioactive substances. The amendment is also proposed under Texas Water Code (TWC), §5.103, concerning Rules, and TWC, §5.105, concerning General Policy, which authorize the commission to adopt rules necessary to carry out its powers and duties under TWC and other laws of the state.

The amendment is proposed to implement Senate Bill 347, 83rd Texas Legislature, 2013, and its amendments to THSC, Chapter 401 and to add nonsubstantive changes to rules to ensure the commission's continued compatibility with the United States Nuclear Regulatory Commission.

#### **§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

(A) if the application fee is not sufficient to cover costs incurred by the commission, then the applicant shall submit a supplemental fee to recover the actual costs incurred by the commission for review of the application and any hearings associated with an application for commercial by-product material disposal under

Subchapter L of this chapter in accordance with Texas Health and Safety Code,  
§401.301(g);

(B) the executive director shall invoice for the amount of the costs incurred quarterly. Payment shall be made within 30 days following the date of the invoice;

(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 Subchapters F, G, K, L, and M [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; or

(A) if the annual fee is not sufficient to cover costs incurred by the commission, a holder of a license for commercial by-product material disposal issued under Subchapter L of this chapter shall submit a supplemental license fee sufficient to recover the actual costs incurred by the commission. This fee shall recover for the state the actual expenses arising from the regulatory activities associated with the license in accordance with Texas Health and Safety Code, §401.412(d);

(B) the executive director shall invoice for the amount of the costs incurred quarterly. Payment shall be made within 30 days following the date of the invoice;

(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, G, K, L, or M [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, G, K, L, or M [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, K, L, or M [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 and §336.103 of this title (relating to Schedule of Fees for Subchapter H Licenses). The fee is non-refundable and will be deposited to the perpetual care account.

(1) The fees collected by the agency in accordance with this subsection shall be deposited to the credit of the Environmental Radiation and Perpetual Care Account, until the fees collectively total \$500,000.

(2) If the balance of fees collected in accordance with this subsection is subsequently reduced to \$350,000 or less, the agency shall reinstitute assessment of the fee until the balance reaches \$500,000.

(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.

**SUBCHAPTER H: LICENSING REQUIREMENTS FOR NEAR-SURFACE  
LAND DISPOSAL OF LOW-LEVEL RADIOACTIVE WASTE**

**§336.739**

**Statutory Authority**

The new section is proposed under the specific authority of Texas Health and Safety Code (THSC), Chapter 401. THSC, §§401.051, 401.103, 401.104, and 401.412 authorize the commission to adopt rules for the control of sources of radiation and the licensing of the disposal of radioactive substances. The new section is also proposed under Texas Water Code (TWC), §5.103, concerning Rules, and TWC, §5.105, concerning General Policy, which authorize the commission to adopt rules necessary to carry out its powers and duties under TWC and other laws of the state.

The new section is proposed to implement Senate Bill 347, 83rd Texas Legislature, 2013, and its amendments to THSC, Chapter 401.

**§336.739. Volume Reduction.**

(a) Beginning September 1, 2015, a licensee may not dispose of low-level radioactive waste, other than party state compact waste, at the Compact Waste Disposal Facility, unless the generator of that waste certifies that the waste has been volume-

reduced by at least a factor of three, or less to the greatest extent possible if it is not technically feasible to reduce it by a factor of three, provided that:

(1) volume reduction of that waste does not result in a change of waste classification to a class higher than Class C;

(2) volume reduction does not cause concentrations of radioactivity of that waste to exceed concentration levels, as determined by the executive director; and

(3) at least two unaffiliated commercial radioactive waste processors are licensed companies in operation in the United States and offer low-level radioactive waste volume reduction for that waste.

(b) Wastes that are exempt from these volume reduction requirements include:

(1) irradiated hardware;

(2) solid forms such as non-compactible metals or monoliths;

(3) soils and demolition debris;

(4) sealed sources; and

(5) other waste, as determined by the executive director on a case-by-case

basis.

**SUBCHAPTER L: LICENSING OF SOURCE MATERIAL RECOVERY AND  
BY-PRODUCT MATERIAL DISPOSAL FACILITIES**

**§336.1111, §336.1127**

**Statutory Authority**

The amendments are proposed under the specific authority of Texas Health and Safety Code (THSC), Chapter 401. THSC, §§401.051, 401.103, 401.104, and 401.412 authorize the commission to adopt rules for the control of sources of radiation and the licensing of the disposal of radioactive substances. The amendments are also proposed under Texas Water Code (TWC), §5.103, concerning Rules, and TWC, §5.105, concerning General Policy, which authorize the commission to adopt rules necessary to carry out its powers and duties under TWC and other laws of the state.

The proposed amendments implement Senate Bill 347, 83rd Texas Legislature, 2013, and its amendments to THSC, Chapter 401 and to add nonsubstantive changes to rules to ensure the commission's continued compatibility with the United States Nuclear Regulatory Commission and implement THSC, §401.2625, regarding the commission's authority to grant licenses for source material recovery and by-product disposal.

**§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 Assurance [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) for applications for a new license or applications for license amendments to expand the licensed site, proof of mailed notification to the owner or owners of the real property on which radioactive substances are recovered, stored, processed or disposed. The application for a new license must demonstrate that the owner or owners of the real property were sent by certified and regular United States mail, notification from the applicant stating that: [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 will be [are] recovered, stored, processed or disposed on the property [with the consent of the property owner or owners]; and

(ii) decommissioning by the agency, a surety, or as directed by order may be required and performed on [of] the licensed site even if the [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.

**§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 Environmental Radiation and 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 Environmental Radiation and 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 Assurance [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 1.0% [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.