

The Texas Commission on Environmental Quality (commission) adopts amendments to §§335.1, 335.116, 335.123, 335.156, 335.172, 335.204, 335.348, and 335.553. Sections 335.1, 335.116, 335.123, 335.156, 335.172, 335.348, and 335.553 are adopted *with changes* to the proposed text as published in the May 30, 2003 issue of the *Texas Register* (28 TexReg 4266). Section 335.204 is adopted *without change* to the proposed text and will not be republished.

BACKGROUND AND SUMMARY OF THE FACTUAL BASIS FOR THE ADOPTED RULES

Senate Bill (SB) 405, 77th Legislature, established the Texas Board of Professional Geoscientists and the regulation of professional geoscientists. The Texas Geoscience Practice Act (the Act) requires that a person may not take responsible charge of a geoscientific report or a geoscientific portion of a report required by state agency rule unless the person is licensed through the Texas Board of Professional Geoscientists. The primary purpose of the adopted amendments is to establish regulations for the public practice of geoscience in conformance with the Act by requiring a person who prepares and submits geoscientific information to the commission to be a licensed professional geoscientist. The Act also allows certain specified engineers to publicly practice geoscience in conformance with the Act. According to the bill analysis prepared at the time of passage, the ultimate purpose of the Act was public safety through the public registration of the practice of geoscience.

SECTION BY SECTION DISCUSSION

Adopted §335.1, Definitions, amends the introductory paragraph by deleting the word “shall” and the phrase “unless the context clearly indicates otherwise.” The definition of licensed professional geoscientist is adopted as new paragraph (85). The definition of person in paragraph (104) is deleted

because it is defined in 30 TAC Chapter 3, Definitions. Existing paragraphs (85) - (103) are renumbered accordingly. In addition, an administrative change is made from proposal in paragraph (27) to correct “ground water” to “groundwater.”

Adopted §335.116, Applicability of Groundwater Monitoring Requirements, replaces the term “qualified geologist” with “licensed professional geoscientist” regarding the demonstration of groundwater monitoring requirements. In addition, an administrative change is made from proposal in subsection (c)(1)(B) to correct “ground water” to “groundwater.”

Adopted §335.123, Closure and Post-Closure (Land Treatment Facilities), replaces the term “independent qualified soil scientist” with “independent licensed professional geoscientist” regarding certification of closures.

Adopted §335.156, Applicability of Groundwater Monitoring and Response, replaces the term “qualified geologist” with “licensed professional geoscientist.” At the January 8, 2003 commission agenda for the post-closure rules (Rule Log Number 2000-048-335-WS), the text of §335.156(a)(2) was inadvertently adopted as the text for §335.156(b)(2). Therefore, the correct text of §335.156(b)(2) has been properly added as originally proposed in the post-closure rules. In addition, an administrative change is made from proposal in subsection (b)(3) to correct a typographical error.

Adopted §335.172, Closure and Post-Closure Care (Land Treatment Units), replaces the term “independent qualified soil scientist” with “independent licensed professional geoscientist.”

Adopted §335.204, Unsuitable Site Characteristics, replaces the term “qualified geologist” with “licensed professional geoscientist.”

Adopted §335.348, General Requirements for Remedial Investigations, adds new subsection (n) requiring that all engineering and geoscientific information submitted to the agency shall be prepared by, or under the supervision of, a licensed professional engineer or licensed professional geoscientist, and shall be signed, sealed, and dated by qualified professionals as required by the Texas Engineering Practice Act and the Texas Geoscience Practice Act and the licensing and registration boards under these acts. In addition, an administrative change is made from proposal in subsection (d)(3) to correct “ground water” to “groundwater.”

Adopted §335.553, Required Information, adds the requirement that all engineering and geoscientific information submitted to the agency shall be prepared by, or under the supervision of, a licensed professional engineer or licensed professional geoscientist, and shall be signed, sealed, and dated by qualified professionals as required by the Texas Engineering Practice Act and the Texas Geoscience Practice Act and the licensing and registration boards under these acts. In addition, administrative changes are made from proposal to correct “ground water” to “groundwater” and to correct cross-reference titles.

FINAL REGULATORY IMPACT ANALYSIS DETERMINATION

The commission reviewed the adopted rulemaking in light of the regulatory analysis requirements of Texas Government Code, §2001.0225, and determined that the rulemaking is not subject to §2001.0225

because it does not meet the criteria for a “major environmental rule” as defined in that 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 specific intent of the adopted rules is to establish regulations allowing for the public practice of geoscience in agency procedures in accordance with the Act. The Act requires that a person may not take responsible charge of a geoscientific report or a geoscientific portion of a report required by a state agency rule unless the person is licensed through the Texas Board of Professional Geoscientists. The Act also allows certain specified engineers to publicly practice geoscience in conformance with the Act. The adopted rules are not specifically intended to protect the environment or reduce risks to human health. The adopted rules are intended to establish procedures to require that specific reports and necessary data submitted to the commission be produced, signed, sealed, and dated by licensed professional geoscientists who have obtained their licenses through the Texas Board of Professional Geoscientists. Therefore, it is not anticipated that the adopted rules will 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 commission concludes that these adopted rules do not meet the definition of major environmental rule.

Furthermore, even if the adopted rules did meet the definition of a major environmental rule, the rules are not subject to Texas Government Code, §2001.0225, because they do not accomplish any of the

four results specified in §2001.0225(a). Section 2001.0225(a) applies to a rule adopted by an agency, 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.

In this case, the adopted rules do not meet any of these requirements. First, there are no federal standards that these rules would exceed. Second, the adopted rules do not exceed an express requirement of state law. Third, there is no delegation agreement that would be exceeded by these adopted rules. Fourth, the commission adopts these rules to allow for the public practice of geoscience in agency procedures in accordance with the Act. Therefore, the commission does not adopt the rules solely under the commission's general powers.

TAKINGS IMPACT ASSESSMENT

The commission evaluated these adopted rules and performed an assessment of whether these rules constitute a takings under Texas Government Code, Chapter 2007. The specific intent of the rules is to establish regulations allowing for the public practice of geoscience in agency procedures in accordance with the Act. The adopted rules would substantially advance this stated purpose by requiring that specific reports and necessary data submitted to the commission be produced, signed, sealed, and dated by licensed professional geoscientists who have obtained their licenses through the Texas Board of Professional Geoscientists.

Promulgation and enforcement of these adopted rules would be neither a statutory nor a constitutional taking of private real property. Specifically, the rules do not affect a landowner's rights in private real property by burdening private real property, nor restricting or limiting a landowner's right to property, or reducing the value of property by 25% or more beyond that which would otherwise exist in the absence of the adopted rules. These rules simply require that specific portions of applications or necessary data submitted to the commission be produced, signed, sealed, and dated by a qualified professional individual who has demonstrated his or her qualifications by obtaining a license to engage in the public practice of geoscience from the Texas Board of Professional Geoscientists. The Act also allows certain specified engineers to publicly practice geoscience in conformance with the Act. These adopted rules do not affect any private real property.

There are no burdens imposed on private real property, and the benefits to society are better applications for environmental permits based upon reliable reports and data submitted by qualified licensed professional geoscientists.

CONSISTENCY WITH THE COASTAL MANAGEMENT PROGRAM

The commission reviewed the adopted rulemaking and found that the adoption is a rulemaking identified in Coastal Coordination Act Implementation Rules, 31 TAC §505.11(b)(2), relating to Actions and Rules Subject to the Texas Coastal Management Program (CMP), or will affect an action and/or authorization identified in Coastal Coordination Act Implementation Rules, 31 TAC §505.11(a)(6).

The commission prepared a consistency determination for the rules under 31 TAC §505.22 and found that the rulemaking is consistent with the applicable CMP goals and policies. The CMP goal applicable

to the rulemaking is the goal to protect, preserve, restore, and enhance the diversity, quality, quantity, functions, and values of coastal natural resource areas. CMP policies applicable to the adopted rules include the construction and operation of solid waste treatment, storage, and disposal facilities, and the discharge of municipal and industrial wastewater to coastal waters. Promulgation and enforcement of these rules will not violate (exceed) any standards identified in the applicable CMP goals and policies because the adopted rule changes do not modify or alter standards set forth in existing rules, and do not govern or authorize any actions subject to the CMP. The adopted rulemaking would require a person who prepares and submits geoscientific information to the agency to be a licensed professional geoscientist. The Act also allows certain specified engineers to publicly practice geoscience in conformance with the Act.

PUBLIC COMMENT

A public hearing was not held on this rulemaking and one comment was received from the Texas Board of Professional Geoscientists (TBPG) during the comment period, which closed June 30, 2003.

RESPONSE TO COMMENT

TBPG stated that the proposed rules add needed clarification to commission rules as the rules relate to the role of professional geoscientists. TBPG recommended that §335.123(e) be modified to remove the requirement that certification be performed by the owner or operator in some cases.

The commission disagrees with this comment. 40 Code of Federal Regulations (CFR) §265.115, referenced in 30 TAC §335.123(e), requires that the owner/operator submit certification that a

hazardous waste management unit or facility has been closed in accordance with the approved closure plan. Moreover, the certification must be signed by both the owner/operator and an independent licensed professional engineer or an independent licensed professional geoscientist.

No change has been made in response to this comment.

TBPG commented that §335.123(e) should be modified to provide that the certification in question can be performed by either an independent licensed professional geoscientist or an independent licensed professional engineer.

40 CFR §265.115 requires certifications by an independent registered professional engineer. Section 335.123(e) allows an independent licensed professional geoscientist to certify closures in lieu of an independent licensed professional engineer. No change has been made in response to this comment.

TBPG commented that §335.172(b) should be modified to require that certification be performed by an “independent” licensed professional geoscientist.

The commission agrees with this comment and has changed the rule language to add the word “independent” before “licensed professional geoscientist.”

TBPG commented that the “in lieu of” language be replaced by “or” in §335.172(b).

The commission disagrees with this comment. Existing rule language supports the TBPG recommendation to allow certifications by both independent licensed professional engineers and geoscientists. The use of the words “in lieu of” in §335.123(e) correctly highlights the fact that state regulations provide certification by independent licensed professional geoscientists as an alternative to the professional engineers required by the federal regulations. No change has been made in response to this comment.

TBPG commented that the term “registered professional engineer” should be replaced with “licensed professional engineer.”

The commission agrees with this comment, and has added the word “licensed” to §335.172(b), regarding closure and post-closure of permitted status hazardous waste management units, to mirror §335.123(e) concerning closure and post-closure of interim status hazardous waste management units.

**SUBCHAPTER A: INDUSTRIAL SOLID WASTE AND
MUNICIPAL HAZARDOUS WASTE IN GENERAL**

§335.1

STATUTORY AUTHORITY

The amendment is adopted under Texas Water Code, §5.103, which provides the commission with the authority to adopt rules necessary to carry out its power and duties under this code and other laws of this state; Texas Water Code, §5.105, which authorizes the commission to establish and approve all general policy of the commission by rule; and Texas Civil Statutes, Article 3271b, the Act, which authorizes the public practice of geoscience in the State of Texas.

§335.1. Definitions.

In addition to the terms defined in Chapter 3 of this title (relating to Definitions), the following words and terms, when used in this chapter, have the following meanings.

(1) **Aboveground tank** - A device meeting the definition of tank in this section and that is situated in such a way that the entire surface area of the tank is completely above the plane of the adjacent surrounding surface and the entire surface area of the tank (including the tank bottom) is able to be visually inspected.

(2) **Act** - Texas Health and Safety Code, Chapter 361.

(3) **Active life** - The period from the initial receipt of hazardous waste at the facility until the executive director receives certification of final closure.

(4) **Active portion** - That portion of a facility where processing, storage, or disposal operations are being or have been conducted after November 19, 1980, and which is not a closed portion. (See also "closed portion" and "inactive portion.")

(5) **Activities associated with the exploration, development, and protection of oil or gas or geothermal resources** - Activities associated with:

(A) the drilling of exploratory wells, oil wells, gas wells, or geothermal resource wells;

(B) the production of oil or gas or geothermal resources, including:

(i) activities associated with the drilling of injection water source wells that penetrate the base of usable quality water;

(ii) activities associated with the drilling of cathodic protection holes associated with the cathodic protection of wells and pipelines subject to the jurisdiction of the commission to regulate the production of oil or gas or geothermal resources;

(iii) activities associated with gasoline plants, natural gas or natural gas liquids processing plants, pressure maintenance plants, or repressurizing plants;

(iv) activities associated with any underground natural gas storage facility, provided the terms "natural gas" and "storage facility" shall have the meanings set out in the Texas Natural Resources Code, §91.173;

(v) activities associated with any underground hydrocarbon storage facility, provided the terms "hydrocarbons" and "underground hydrocarbon storage facility" shall have the meanings set out in the Texas Natural Resources Code, §91.173; and

(vi) activities associated with the storage, handling, reclamation, gathering, transportation, or distribution of oil or gas prior to the refining of such oil or prior to the use of such gas in any manufacturing process or as a residential or industrial fuel;

(C) the operation, abandonment, and proper plugging of wells subject to the jurisdiction of the commission to regulate the exploration, development, and production of oil or gas or geothermal resources; and

(D) the discharge, storage, handling, transportation, reclamation, or disposal of waste or any other substance or material associated with any activity listed in subparagraphs (A) - (C) of this paragraph, except for waste generated in connection with activities associated with gasoline

plants, natural gas or natural gas liquids processing plants, pressure maintenance plants, or repressurizing plants if that waste is a hazardous waste as defined by the administrator of the EPA in accordance with the Federal Solid Waste Disposal Act, as amended (42 United States Code, §§6901 *et seq.*).

(6) **Administrator** - The administrator of the EPA or his designee.

(7) **Ancillary equipment** - Any device that is used to distribute, meter, or control the flow of solid waste or hazardous waste from its point of generation to a storage or processing tank(s), between solid waste or hazardous waste storage and processing tanks to a point of disposal on-site, or to a point of shipment for disposal off-site. Such devices include, but are not limited to, piping, fittings, flanges, valves, and pumps.

(8) **Aquifer** - A geologic formation, group of formations, or part of a formation capable of yielding a significant amount of groundwater to wells or springs.

(9) **Area of concern** - Any area of a facility under the control or ownership of an owner or operator where a release to the environment of hazardous wastes or hazardous constituents has occurred, is suspected to have occurred, or may occur, regardless of the frequency or duration.

(10) **Authorized representative** - The person responsible for the overall operation of a facility or an operation unit (i.e., part of a facility), e.g., the plant manager, superintendent, or person of equivalent responsibility.

(11) **Battery** - Has the definition adopted under §335.261 of this title (relating to Universal Waste Rule).

(12) **Boiler** - An enclosed device using controlled flame combustion and having the following characteristics:

(A) the unit must have physical provisions for recovering and exporting thermal energy in the form of steam, heated fluids, or heated gases;

(B) the unit's combustion chamber and primary energy recovery section(s) must be of integral design. To be of integral design, the combustion chamber and the primary energy recovery section(s) (such as waterwalls and superheaters) must be physically formed into one manufactured or assembled unit. A unit in which the combustion chamber and the primary energy recovery section(s) are joined only by ducts or connections carrying flue gas is not integrally designed; however, secondary energy recovery equipment (such as economizers or air preheaters) need not be physically formed into the same unit as the combustion chamber and the primary energy recovery section. The following units are not precluded from being boilers solely because they are not of integral design:

(i) process heaters (units that transfer energy directly to a process stream); and

(ii) fluidized bed combustion units;

(C) while in operation, the unit must maintain a thermal energy recovery efficiency of at least 60%, calculated in terms of the recovered energy compared with the thermal value of the fuel; and

(D) the unit must export and utilize at least 75% of the recovered energy, calculated on an annual basis. In this calculation, no credit shall be given for recovered heat used internally in the same unit. (Examples of internal use are the preheating of fuel or combustion air, and the driving of induced or forced draft fans or feedwater pumps); or

(E) the unit is one which the executive director has determined, on a case-by-case basis, to be a boiler, after considering the standards in §335.20 of this title (relating to Variance to be Classified as a Boiler).

(13) **Carbon regeneration unit** - Any enclosed thermal treatment device used to regenerate spent activated carbon.

(14) **Certification** - A statement of professional opinion based upon knowledge and belief.

(15) **Class 1 wastes** - Any industrial solid waste or mixture of industrial solid wastes which because of its concentration, or physical or chemical characteristics, is toxic, corrosive, flammable, a strong sensitizer or irritant, a generator of sudden pressure by decomposition, heat, or other means, or may pose a substantial present or potential danger to human health or the environment when improperly processed, stored, transported, or disposed of or otherwise managed, as further defined in §335.505 of this title (relating to Class 1 Waste Determination).

(16) **Class 2 wastes** - Any individual solid waste or combination of industrial solid waste which cannot be described as Hazardous, Class 1 or Class 3 as defined in §335.506 of this title (relating to Class 2 Waste Determination).

(17) **Class 3 wastes** - Inert and essentially insoluble industrial solid waste, usually including, but not limited to, materials such as rock, brick, glass, dirt, and certain plastics and rubber, etc., that are not readily decomposable, as further defined in §335.507 of this title (relating to Class 3 Waste Determination).

(18) **Closed portion** - That portion of a facility which an owner or operator has closed in accordance with the approved facility closure plan and all applicable closure requirements. (See also "active portion" and "inactive portion.")

(19) **Closure** - The act of permanently taking a waste management unit or facility out of service.

(20) **Commercial hazardous waste management facility** - Any hazardous waste management facility that accepts hazardous waste or polychlorinated biphenyl compounds for a charge, except a captured facility or a facility that accepts waste only from other facilities owned or effectively controlled by the same person, where "captured facility" means a manufacturing or production facility that generates an industrial solid waste or hazardous waste that is routinely stored, processed, or disposed of on a shared basis in an integrated waste management unit owned, operated by, and located within a contiguous manufacturing complex.

(21) **Component** - Either the tank or ancillary equipment of a tank system.

(22) **Confined aquifer** - An aquifer bounded above and below by impermeable beds or by beds of distinctly lower permeability than that of the aquifer itself; an aquifer containing confined groundwater.

(23) **Consignee** - The ultimate treatment, storage, or disposal facility in a receiving country to which the hazardous waste will be sent.

(24) **Container** - Any portable device in which a material is stored, transported, processed, or disposed of, or otherwise handled.

(25) **Containment building** - A hazardous waste management unit that is used to store or treat hazardous waste under the provisions of §335.152(a)(19) or §335.112(a)(21) of this title (relating to Standards).

(26) **Contaminant** - Includes, but is not limited to, “solid waste,” “hazardous waste,” and “hazardous waste constituent” as defined in this subchapter, “pollutant” as defined in Texas Water Code (TWC), §26.001, and Texas Health and Safety Code (THSC), §361.431, “hazardous substance” as defined in THSC, §361.003, and other substances that are subject to the Texas Hazardous Substances Spill Prevention and Control Act, TWC, §§26.261 - 26.268.

(27) **Contaminated medium/media** - A portion or portions of the physical environment to include soil, sediment, surface water, groundwater or air, that contain contaminants at levels that pose a substantial present or future threat to human health and the environment.

(28) **Contingency plan** - A document setting out an organized, planned, and coordinated course of action to be followed in case of a fire, explosion, or release of hazardous waste or hazardous waste constituents which could threaten human health or the environment.

(29) **Control** - To apply engineering measures such as capping or reversible treatment methods and/or institutional measures such as deed restrictions to facilities or areas with wastes or contaminated media which result in remedies that are protective of human health and the environment when combined with appropriate maintenance, monitoring, and any necessary further corrective action.

(30) **Corrective action management unit (CAMU)** - An area within a facility that is designated by the commission under 40 Code of Federal Regulations Part 264, Subpart S, for the purpose of implementing corrective action requirements under §335.167 of this title (relating to Corrective Action for Solid Waste Management Units) and Texas Water Code, §7.031 (Corrective Action related to Hazardous Waste). A CAMU shall only be used for the management of remediation wastes in accordance with implementing such corrective action requirements at the facility.

(31) **Corrosion expert** - A person who, by reason of his knowledge of the physical sciences and the principles of engineering and mathematics, acquired by a professional education and related practical experience, is qualified to engage in the practice of corrosion control on buried or submerged metal piping systems and metal tanks. Such a person must be certified as being qualified by the National Association of Corrosion Engineers or be a registered professional engineer who has certification or licensing that includes education and experience in corrosion control on buried or submerged metal piping systems and metal tanks.

(32) **Decontaminate** - To apply a treatment process(es) to wastes or contaminated media whereby the substantial present or future threat to human health and the environment is eliminated.

(33) **Designated facility** - A Class 1 or hazardous waste storage, processing, or disposal facility which has received an EPA permit (or a facility with interim status) in accordance with the requirements of 40 Code of Federal Regulations (CFR) Parts 270 and 124; a permit from a state

authorized in accordance with 40 CFR Part 271 (in the case of hazardous waste); a permit issued in accordance with §335.2 of this title (relating to Permit Required) (in the case of nonhazardous waste); or that is regulated under §335.24(f), (g), or (h) of this title (relating to Requirements for Recyclable Materials and Nonhazardous Recyclable Materials) or §335.241 of this title (relating to Applicability and Requirements) and that has been designated on the manifest by the generator in accordance with §335.10 of this title (relating to Shipping and Reporting Procedures Applicable to Generators of Hazardous Waste or Class 1 Waste and Primary Exporters of Hazardous Waste). If a waste is destined to a facility in an authorized state which has not yet obtained authorization to regulate that particular waste as hazardous, then the designated facility must be a facility allowed by the receiving state to accept such waste.

(34) **Destination facility** - Has the definition adopted under §335.261 of this title (relating to Universal Waste Rule).

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

(36) **Dioxins and furans (D/F)** - Tetra, penta, hexa, hepta, and octa-chlorinated dibenzo dioxins and furans.

(37) **Discharge or hazardous waste discharge** - The accidental or intentional spilling, leaking, pumping, pouring, emitting, emptying, or dumping of waste into or on any land or water.

(38) **Disposal** - The discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste or hazardous waste (whether containerized or uncontainerized) into or on any land or water so that such solid waste or hazardous waste or any constituent thereof may enter the environment or be emitted into the air or discharged into any waters, including groundwaters.

(39) **Disposal facility** - A facility or part of a facility at which solid waste is intentionally placed into or on any land or water, and at which waste will remain after closure. The term “disposal facility” does not include a corrective action management unit into which remediation wastes are placed.

(40) **Drip pad** - An engineered structure consisting of a curbed, free-draining base, constructed of a non-earthen materials and designed to convey preservative kick-back or drippage from treated wood, precipitation, and surface water run-on to an associated collection system at wood preserving plants.

(41) **Elementary neutralization unit** - A device which:

(A) is used for neutralizing wastes which are hazardous only because they exhibit the corrosivity characteristic defined in 40 Code of Federal Regulations (CFR) §261.22, or are listed in 40 CFR Part 261, Subpart D, only for this reason; or is used for neutralizing the pH of non-hazardous industrial solid waste; and

(B) meets the definition of tank, tank system, container, transport vehicle, or vessel as defined in this section.

(42) **Environmental Protection Agency acknowledgment of consent** - The cable sent to EPA from the United States Embassy in a receiving country that acknowledges the written consent of the receiving country to accept the hazardous waste and describes the terms and conditions of the receiving country's consent to the shipment.

(43) **Environmental Protection Agency hazardous waste number** - The number assigned by the EPA to each hazardous waste listed in 40 Code of Federal Regulations (CFR) Part 261, Subpart D and to each characteristic identified in 40 CFR Part 261, Subpart C.

(44) **Environmental Protection Agency identification number** - The number assigned by the EPA or the commission to each generator, transporter, and processing, storage, or disposal facility.

(45) **Essentially insoluble** - Any material, which if representatively sampled and placed in static or dynamic contact with deionized water at ambient temperature for seven days, will not leach any quantity of any constituent of the material into the water in excess of current United States Public Health Service or EPA limits for drinking water as published in the *Federal Register*.

(46) **Equivalent method** - Any testing or analytical method approved by the administrator under 40 Code of Federal Regulations §260.20 and §260.21.

(47) **Existing portion** - That land surface area of an existing waste management unit, included in the original Part A permit application, on which wastes have been placed prior to the issuance of a permit.

(48) **Existing tank system or existing component** - A tank system or component that is used for the storage or processing of hazardous waste and that is in operation, or for which installation has commenced on or prior to July 14, 1986. Installation will be considered to have commenced if the owner or operator has obtained all federal, state, and local approvals or permits necessary to begin physical construction of the site or installation of the tank system and if either:

(A) a continuous on-site physical construction or installation program has begun; or

(B) the owner or operator has entered into contractual obligations - which cannot be canceled or modified without substantial loss - for physical construction of the site or installation of the tank system to be completed within a reasonable time.

(49) **Explosives or munitions emergency** - A situation involving the suspected or detected presence of unexploded ordnance, damaged or deteriorated explosives or munitions, an

improvised explosive device, other potentially explosive material or device, or other potentially harmful military chemical munitions or device, that creates an actual or potential imminent threat to human health, including safety, or the environment, including property, as determined by an explosives or munitions emergency response specialist. These situations may require immediate and expeditious action by an explosives or munitions emergency response specialist to control, mitigate, or eliminate the threat.

(50) **Explosives or munitions emergency response** - All immediate response activities by an explosives and munitions emergency response specialist to control, mitigate, or eliminate the actual or potential threat encountered during an explosives or munitions emergency, subject to the following:

(A) an explosives or munitions emergency response includes in-place render-safe procedures, treatment or destruction of the explosives or munitions and/or transporting those items to another location to be rendered safe, treated, or destroyed;

(B) any reasonable delay in the completion of an explosives or munitions emergency response caused by a necessary, unforeseen, or uncontrollable circumstance will not terminate the explosives or munitions emergency; and

(C) explosives and munitions emergency responses can occur on either public or private lands and are not limited to responses at hazardous waste facilities.

(51) **Explosives or munitions emergency response specialist** - An individual trained in chemical or conventional munitions or explosives handling, transportation, render-safe procedures, or destruction techniques, including United States Department of Defense (DOD) emergency explosive ordnance disposal, technical escort unit, and DOD-certified civilian or contractor personnel; and, other federal, state, or local government, or civilian personnel similarly trained in explosives or munitions emergency responses.

(52) **Extrusion** - A process using pressure to force ground poultry carcasses through a decreasing-diameter barrel or nozzle, causing the generation of heat sufficient to kill pathogens, and resulting in an extruded product acceptable as a feed ingredient.

(53) **Facility** - Includes:

(A) all contiguous land, and structures, other appurtenances, and improvements on the land, used for storing, processing, or disposing of municipal hazardous waste or industrial solid waste. A facility may consist of several storage, processing, or disposal operational units (e.g., one or more landfills, surface impoundments, or combinations of them);

(B) for the purpose of implementing corrective action under §335.167 of this title (relating to Corrective Action for Solid Waste Management Units), all contiguous property under the control of the owner or operator seeking a permit for the storage, processing, and/or disposal of

hazardous waste. This definition also applies to facilities implementing corrective action under Texas Water Code, §7.031 (Corrective Action Relating to Hazardous Waste).

(54) **Final closure** - The closure of all hazardous waste management units at the facility in accordance with all applicable closure requirements so that hazardous waste management activities under Subchapter E of this chapter (relating to Interim Standards for Owners and Operators of Hazardous Waste Storage, Processing, or Disposal Facilities) and Subchapter F of this chapter (relating to Permitting Standards for Owners and Operators of Hazardous Waste Storage, Processing, or Disposal Facilities) are no longer conducted at the facility unless subject to the provisions in §335.69 of this title (relating to Accumulation Time).

(55) **Food-chain crops** - Tobacco, crops grown for human consumption, and crops grown for feed for animals whose products are consumed by humans.

(56) **Freeboard** - The vertical distance between the top of a tank or surface impoundment dike, and the surface of the waste contained therein.

(57) **Free liquids** - Liquids which readily separate from the solid portion of a waste under ambient temperature and pressure.

(58) **Generator** - Any person, by site, who produces municipal hazardous waste or industrial solid waste; any person who possesses municipal hazardous waste or industrial solid waste to

be shipped to any other person; or any person whose act first causes the solid waste to become subject to regulation under this chapter. For the purposes of this regulation, a person who generates or possesses Class 3 wastes only shall not be considered a generator.

(59) **Groundwater** - Water below the land surface in a zone of saturation.

(60) **Hazardous industrial waste** - Any industrial solid waste or combination of industrial solid wastes identified or listed as a hazardous waste by the administrator of the EPA in accordance with the RCRA of 1976, §3001. The administrator has identified the characteristics of hazardous wastes and listed certain wastes as hazardous in 40 Code of Federal Regulations Part 261. The executive director will maintain in the offices of the commission a current list of hazardous wastes, a current set of characteristics of hazardous waste, and applicable appendices, as promulgated by the administrator.

(61) **Hazardous substance** - Any substance designated as a hazardous substance under the CERCLA, 40 Code of Federal Regulations Part 302.

(62) **Hazardous waste** - Any solid waste identified or listed as a hazardous waste by the administrator of the EPA in accordance with the federal Solid Waste Disposal Act, as amended by the RCRA, 42 United States Code §§6901 *et seq.*, as amended.

(63) **Hazardous waste constituent** - A constituent that caused the administrator to list the hazardous waste in 40 Code of Federal Regulations (CFR) Part 261, Subpart D or a constituent listed in Table 1 of 40 CFR §261.24.

(64) **Hazardous waste management facility** - All contiguous land, including structures, appurtenances, and other improvements on the land, used for processing, storing, or disposing of hazardous waste. The term includes a publicly- or privately-owned hazardous waste management facility consisting of processing, storage, or disposal operational hazardous waste management units such as one or more landfills, surface impoundments, waste piles, incinerators, boilers, and industrial furnaces, including cement kilns, injection wells, salt dome waste containment caverns, land treatment facilities, or a combination of units.

(65) **Hazardous waste management unit** - A landfill, surface impoundment, waste pile, industrial furnace, incinerator, cement kiln, injection well, container, drum, salt dome waste containment cavern, or land treatment unit, or any other structure, vessel, appurtenance, or other improvement on land used to manage hazardous waste.

(66) **In operation** - Refers to a facility which is processing, storing, or disposing of solid waste or hazardous waste.

(67) **Inactive portion** - That portion of a facility which is not operated after November 19, 1980. (See also "active portion" and "closed portion.")

(68) **Incinerator** - Any enclosed device that:

(A) uses controlled flame combustion and neither meets the criteria for classification as a boiler, sludge dryer, or carbon regeneration unit, nor is listed as an industrial furnace; or

(B) meets the definition of infrared incinerator or plasma arc incinerator.

(69) **Incompatible waste** - A hazardous waste which is unsuitable for:

(A) placement in a particular device or facility because it may cause corrosion or decay of containment materials (e.g., container inner liners or tank walls); or

(B) commingling with another waste or material under uncontrolled conditions because the commingling might produce heat or pressure, fire or explosion, violent reaction, toxic dusts, mists, fumes, or gases, or flammable fumes or gases.

(70) **Individual generation site** - The contiguous site at or on which one or more solid waste or hazardous wastes are generated. An individual generation site, such as a large manufacturing plant, may have one or more sources of solid waste or hazardous waste, but is considered a single or individual generation site if the site or property is contiguous.

(71) **Industrial furnace** - Includes any of the following enclosed devices that use thermal treatment to accomplish recovery of materials or energy:

(A) cement kilns;

(B) lime kilns;

(C) aggregate kilns;

(D) phosphate kilns;

(E) coke ovens;

(F) blast furnaces;

(G) smelting, melting, and refining furnaces (including pyrometallurgical devices such as cupolas, reverberator furnaces, sintering machines, roasters, and foundry furnaces);

(H) titanium dioxide chloride process oxidation reactors;

(I) methane reforming furnaces;

(J) pulping liquor recovery furnaces;

(K) combustion devices used in the recovery of sulfur values from spent sulfuric acid;

(L) halogen acid furnaces for the production of acid from halogenated hazardous waste generated by chemical production facilities where the furnace is located on the site of a chemical production facility, the acid product has a halogen acid content of at least 3.0%, the acid product is used in a manufacturing process, and, except for hazardous waste burned as fuel, hazardous waste fed to the furnace has a minimum halogen content of 20% as generated; and

(M) other devices the commission may list, after the opportunity for notice and comment is afforded to the public.

(72) **Industrial solid waste** - Solid waste resulting from or incidental to any process of industry or manufacturing, or mining or agricultural operation, which may include hazardous waste as defined in this section.

(73) **Infrared incinerator** - Any enclosed device that uses electric powered resistance heaters as a source of radiant heat followed by an afterburner using controlled flame combustion and which is not listed as an industrial furnace.

(74) **Inground tank** - A device meeting the definition of tank in this section whereby a portion of the tank wall is situated to any degree within the ground, thereby preventing visual inspection of that external surface area of the tank that is in the ground.

(75) **Injection well** - A well into which fluids are injected. (See also "underground injection.")

(76) **Inner liner** - A continuous layer of material placed inside a tank or container which protects the construction materials of the tank or container from the contained waste or reagents used to treat the waste.

(77) **Installation inspector** - A person who, by reason of his knowledge of the physical sciences and the principles of engineering, acquired by a professional education and related practical experience, is qualified to supervise the installation of tank systems.

(78) **International shipment** - The transportation of hazardous waste into or out of the jurisdiction of the United States.

(79) **Lamp** - Has the definition adopted under §335.261 of this title (relating to Universal Waste Rule).

(80) **Land treatment facility** - A facility or part of a facility at which solid waste or hazardous waste is applied onto or incorporated into the soil surface and that is not a corrective action management unit; such facilities are disposal facilities if the waste will remain after closure.

(81) **Landfill** - A disposal facility or part of a facility where solid waste or hazardous waste is placed in or on land and which is not a pile, a land treatment facility, a surface impoundment, an injection well, a salt dome formation, a salt bed formation, an underground mine, a cave, or a corrective action management unit.

(82) **Landfill cell** - A discrete volume of a solid waste or hazardous waste landfill which uses a liner to provide isolation of wastes from adjacent cells or wastes. Examples of landfill cells are trenches and pits.

(83) **Leachate** - Any liquid, including any suspended components in the liquid, that has percolated through or drained from solid waste or hazardous waste.

(84) **Leak-detection system** - A system capable of detecting the failure of either the primary or secondary containment structure or the presence of a release of solid waste or hazardous waste or accumulated liquid in the secondary containment structure. Such a system must employ operational controls (e.g., daily visual inspections for releases into the secondary containment system of aboveground tanks) or consist of an interstitial monitoring device designed to detect continuously and

automatically the failure of the primary or secondary containment structure or the presence of a release of solid waste or hazardous waste into the secondary containment structure.

(85) **Licensed professional geoscientist** - A geoscientist who maintains a current license through the Texas Board of Professional Geoscientists in accordance with its requirements for professional practice.

(86) **Liner** - A continuous layer of natural or man-made materials, beneath or on the sides of a surface impoundment, landfill, or landfill cell, which restricts the downward or lateral escape of solid waste or hazardous waste, hazardous waste constituents, or leachate.

(87) **Management or hazardous waste management** - The systematic control of the collection, source separation, storage, transportation, processing, treatment, recovery, and disposal of solid waste or hazardous waste.

(88) **Manifest** - The waste shipping document which accompanies and is used for tracking the transportation, disposal, treatment, storage, or recycling of shipments of hazardous wastes or Class 1 industrial solid wastes. The form used for this purpose is TNRCC-0311 (Uniform Hazardous Waste Manifest) which is furnished by the executive director or may be printed through the agency's "Print Your Own Manifest Program."

(89) **Manifest document number** - A number assigned to the manifest by the commission for reporting and recordkeeping purposes.

(90) **Military munitions** - All ammunition products and components produced or used by or for the Department of Defense (DOD) or the United States Armed Services for national defense and security, including military munitions under the control of the DOD, the United States Coast Guard, the United States Department of Energy (DOE), and National Guard personnel. The term “military munitions”:

(A) includes confined gaseous, liquid, and solid propellants, explosives, pyrotechnics, chemical and riot control agents, smokes, and incendiaries used by DOD components, including bulk explosives and chemical warfare agents, chemical munitions, rockets, guided and ballistic missiles, bombs, warheads, mortar rounds, artillery ammunition, small arms ammunition, grenades, mines, torpedoes, depth charges, cluster munitions and dispensers, demolition charges, and devices and components thereof; and

(B) includes non-nuclear components of nuclear devices, managed under DOE's nuclear weapons program after all required sanitization operations under the Atomic Energy Act of 1954, as amended, have been completed; but

(C) does not include wholly inert items, improvised explosive devices, and nuclear weapons, nuclear devices, and nuclear components thereof.

(91) **Miscellaneous unit** - A hazardous waste management unit where hazardous waste is stored, processed, or disposed of and that is not a container, tank, surface impoundment, pile, land treatment unit, landfill, incinerator, boiler, industrial furnace, underground injection well with appropriate technical standards under Chapter 331 of this title (relating to Underground Injection Control), corrective action management unit, containment building, staging pile, or unit eligible for a research, development, and demonstration permit or under Chapter 305, Subchapter K of this title (relating to Research Development and Demonstration Permits).

(92) **Movement** - That solid waste or hazardous waste transported to a facility in an individual vehicle.

(93) **Municipal hazardous waste** - A municipal solid waste or mixture of municipal solid wastes which has been identified or listed as a hazardous waste by the administrator of the EPA.

(94) **Municipal solid waste** - Solid waste resulting from or incidental to municipal, community, commercial, institutional, and recreational activities; including garbage, rubbish, ashes, street cleanings, dead animals, abandoned automobiles, and all other solid waste other than industrial waste.

(95) **New tank system or new tank component** - A tank system or component that will be used for the storage or processing of hazardous waste and for which installation has commenced after July 14, 1986; except, however, for purposes of 40 Code of Federal Regulations (CFR)

§264.193(g)(2) (incorporated by reference at §335.152(a)(8) of this title (relating to Standards)) and 40 CFR §265.193(g)(2) (incorporated by reference at §335.112(a)(9) of this title (relating to Standards)), a new tank system is one for which construction commences after July 14, 1986. (See also “existing tank system.”)

(96) **Off-site** - Property which cannot be characterized as on-site.

(97) **Onground tank** - A device meeting the definition of tank in this section and that is situated in such a way that the bottom of the tank is on the same level as the adjacent surrounding surface so that the external tank bottom cannot be visually inspected.

(98) **On-site** - The same or geographically contiguous property which 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 which he controls and to which the public does not have access, is also considered on-site property.

(99) **Open burning** - The combustion of any material without the following characteristics:

(A) control of combustion air to maintain adequate temperature for efficient combustion;

(B) containment of the combustion-reaction in an enclosed device to provide sufficient residence time and mixing for complete combustion; and

(C) control of emission of the gaseous combustion products. (See also "incineration" and "thermal treatment.")

(100) **Operator** - The person responsible for the overall operation of a facility.

(101) **Owner** - The person who owns a facility or part of a facility.

(102) **Partial closure** - The closure of a hazardous waste management unit in accordance with the applicable closure requirements of Subchapters E and F of this chapter (relating to Interim Standards for Owners and Operators of Hazardous Waste Storage, Processing, or Disposal Facilities; and Permitting Standards for Owners and Operators of Hazardous Waste Storage, Processing, or Disposal Facilities) at a facility that contains other active hazardous waste management units. For example, partial closure may include the closure of a tank (including its associated piping and underlying containment systems), landfill cell, surface impoundment, waste pile, or other hazardous waste management unit, while other units of the same facility continue to operate.

(103) **PCBs or polychlorinated biphenyl compounds** - Compounds subject to 40 Code of Federal Regulations Part 761.

(104) **Permit** - A written permit issued by the commission which, by its conditions, may authorize the permittee to construct, install, modify, or operate a specified municipal hazardous waste or industrial solid waste storage, processing, or disposal facility in accordance with specified limitations.

(105) **Personnel or facility personnel** - All persons who work at, or oversee the operations of, a solid waste or hazardous waste facility, and whose actions or failure to act may result in noncompliance with the requirements of this chapter.

(106) **Pesticide** - Has the definition adopted under §335.261 of this title (relating to Universal Waste Rule).

(107) **Petroleum substance** - A crude oil or any refined or unrefined fraction or derivative of crude oil which is a liquid at standard conditions of temperature and pressure.

(A) Except as provided in subparagraph (C) of this paragraph for the purposes of this chapter, a "petroleum substance" shall be limited to a substance in or a combination or mixture of substances within the following list (except for any listed substance regulated as a hazardous waste under the federal Solid Waste Disposal Act, Subtitle C (42 United States Code (USC), §§6921, *et seq.*)) and which is liquid at standard conditions of temperature (20 degrees Centigrade) and pressure (1 atmosphere):

- (i) basic petroleum substances - i.e., crude oils, crude oil fractions, petroleum feedstocks, and petroleum fractions;

- (ii) motor fuels - a petroleum substance which is typically used for the operation of internal combustion engines and/or motors (which includes, but is not limited to, stationary engines and engines used in transportation vehicles and marine vessels);

- (iii) aviation gasolines - i.e., Grade 80, Grade 100, and Grade 100-LL;

- (iv) aviation jet fuels - i.e., Jet A, Jet A-1, Jet B, JP-4, JP-5, and JP-8;

- (v) distillate fuel oils - i.e., Number 1-D, Number 1, Number 2-D, and Number 2;

- (vi) residual fuel oils - i.e., Number 4-D, Number 4-light, Number 4, Number 5-light, Number 5-heavy, and Number 6;

- (vii) gas-turbine fuel oils - i.e., Grade O-GT, Grade 1-GT, Grade 2-GT, Grade 3-GT, and Grade 4-GT;

- (viii) illuminating oils - i.e., kerosene, mineral seal oil, long-time burning oils, 300 oil, and mineral colza oil;

(ix) lubricants - i.e., automotive and industrial lubricants;

(x) building materials - i.e., liquid asphalt and dust-laying oils;

(xi) insulating and waterproofing materials - i.e., transformer oils and cable oils; and

(xii) used oils - See definition for "used oil" in this section.

(B) For the purposes of this chapter, a "petroleum substance" shall include solvents or a combination or mixture of solvents (except for any listed substance regulated as a hazardous waste under the federal Solid Waste Disposal Act, Subtitle C (42 USC, §§6921, *et seq.*)) and which is liquid at standard conditions of temperature (20 degrees Centigrade) and pressure (1 atmosphere) i.e., Stoddard solvent, petroleum spirits, mineral spirits, petroleum ether, varnish makers' and painters' naphthas, petroleum extender oils, and commercial hexane.

(C) The following materials are not considered petroleum substances:

(i) polymerized materials, i.e., plastics, synthetic rubber, polystyrene, high and low density polyethylene;

(ii) animal, microbial, and vegetable fats;

(iii) food grade oils;

(iv) hardened asphalt and solid asphaltic materials - i.e., roofing shingles, roofing felt, hot mix (and cold mix); and

(v) cosmetics.

(108) **Pile** - Any noncontainerized accumulation of solid, nonflowing solid waste or hazardous waste that is used for processing or storage, and that is not a corrective action management unit or a containment building.

(109) **Plasma arc incinerator** - Any enclosed device using a high intensity electrical discharge or arc as a source of heat followed by an afterburner using controlled flame combustion and which is not listed as an industrial furnace.

(110) **Post-closure order** - An order issued by the commission for post-closure care of interim status units, a corrective action management unit unless authorized by permit, or alternative corrective action requirements for contamination commingled from RCRA and solid waste management units.

(111) **Poultry** - Chickens or ducks being raised or kept on any premises in the state for profit.

(112) **Poultry carcass** - The carcass, or part of a carcass, of poultry that died as a result of a cause other than intentional slaughter for use for human consumption.

(113) **Poultry facility** - A facility that:

(A) is used to raise, grow, feed, or otherwise produce poultry for commercial purposes; or

(B) is a commercial poultry hatchery that is used to produce chicks or ducklings.

(114) **Primary exporter** - Any person who is required to originate the manifest for a shipment of hazardous waste in accordance with the regulations contained in 40 Code of Federal Regulations Part 262, Subpart B, which are in effect as of November 8, 1986, or equivalent state provision, which specifies a treatment, storage, or disposal facility in a receiving country as the facility to which the hazardous waste will be sent and any intermediary arranging for the export.

(115) **Processing** - The extraction of materials, transfer, volume reduction, conversion to energy, or other separation and preparation of solid waste for reuse or disposal, including the treatment or neutralization of solid waste or hazardous waste, designed to change the physical, chemical, or biological character or composition of any solid waste or hazardous waste so as to neutralize such waste, or so as to recover energy or material from the waste or so as to render such

waste nonhazardous, or less hazardous; safer to transport, store or dispose of; or amenable for recovery, amenable for storage, or reduced in volume. The transfer of solid waste for reuse or disposal as used in this definition does not include the actions of a transporter in conveying or transporting solid waste by truck, ship, pipeline, or other means. Unless the executive director determines that regulation of such activity is necessary to protect human health or the environment, the definition of processing does not include activities relating to those materials exempted by the administrator of the EPA in accordance with the federal Solid Waste Disposal Act, as amended by the RCRA, 42 United States Code, §§6901 *et seq.*, as amended.

(116) **Publicly-owned treatment works (POTW)** - Any device or system used in the treatment (including recycling and reclamation) of municipal sewage or industrial wastes of a liquid nature which is owned by a state or municipality (as defined by the Clean Water Act, §502(4)). The definition includes sewers, pipes, or other conveyances only if they convey wastewater to a POTW providing treatment.

(117) **Qualified groundwater scientist** - A scientist or engineer who has received a baccalaureate or post-graduate degree in the natural sciences or engineering, and has sufficient training and experience in groundwater hydrology and related fields as may be demonstrated by state registration, professional certifications, or completion of accredited university courses that enable that individual to make sound professional judgments regarding groundwater monitoring and contaminant fate and transport.

(118) **Receiving country** - A foreign country to which a hazardous waste is sent for the purpose of treatment, storage, or disposal (except short-term storage incidental to transportation).

(119) **Regional administrator** - The regional administrator for the EPA region in which the facility is located, or his designee.

(120) **Remediation** - The act of eliminating or reducing the concentration of contaminants in contaminated media.

(121) **Remediation waste** - All solid and hazardous wastes, and all media (including groundwater, surface water, soils, and sediments) and debris, which contain listed hazardous wastes or which themselves exhibit a hazardous waste characteristic, that are managed for the purpose of implementing corrective action requirements under §335.167 of this title (relating to Corrective Action for Solid Waste Management Units) and Texas Water Code, §7.031 (Corrective Action Relating to Hazardous Waste). For a given facility, remediation wastes may originate only from within the facility boundary, but may include waste managed in implementing corrective action for releases beyond the facility boundary under TSWDA, §361.303 (Corrective Action), §335.166(5) of this title (relating to Corrective Action Program), or §335.167(c) of this title.

(122) **Remove** - To take waste, contaminated design or operating system components, or contaminated media away from a waste management unit, facility, or area to another location for storage, processing, or disposal.

(123) **Replacement unit** - A landfill, surface impoundment, or waste pile unit:

(A) from which all or substantially all the waste is removed; and

(B) that is subsequently reused to treat, store, or dispose of hazardous waste.

"Replacement unit" does not apply to a unit from which waste is removed during closure, if the subsequent reuse solely involves the disposal of waste from that unit and other closing units or corrective action areas at the facility, in accordance with an approved closure plan or EPA or state approved corrective action.

(124) **Representative sample** - A sample of a universe or whole (e.g., waste pile, lagoon, groundwater) which can be expected to exhibit the average properties of the universe or whole.

(125) **Run-off** - Any rainwater, leachate, or other liquid that drains over land from any part of a facility.

(126) **Run-on** - Any rainwater, leachate, or other liquid that drains over land onto any part of a facility.

(127) **Saturated zone or zone of saturation** - That part of the earth's crust in which all voids are filled with water.

(128) **Shipment** - Any action involving the conveyance of municipal hazardous waste or industrial solid waste by any means off-site.

(129) **Sludge dryer** - Any enclosed thermal treatment device that is used to dehydrate sludge and that has a maximum total thermal input, excluding the heating valve of the sludge itself, of 2,500 British thermal units per pound of sludge treated on a wet-weight basis.

(130) **Small quantity generator** - A generator who generates less than 1,000 kilogram of hazardous waste in a calendar month.

(131) **Solid waste** -

(A) Any garbage, refuse, sludge from a waste treatment plant, water supply treatment plant or air pollution control facility, and other discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, municipal, commercial, mining, and agricultural operations, and from community and institutional activities, but does not include:

(i) solid or dissolved material in domestic sewage, or solid or dissolved material in irrigation return flows, or industrial discharges subject to regulation by permit issued in accordance with Texas Water Code, Chapter 26 (an exclusion applicable only to the actual point source discharge that does not exclude industrial wastewaters while they are being collected, stored, or

processed before discharge, nor does it exclude sludges that are generated by industrial wastewater treatment);

(ii) uncontaminated soil, dirt, rock, sand, and other natural or man-made inert solid materials used to fill land if the object of the fill is to make the land suitable for the construction of surface improvements. The material serving as fill may also serve as a surface improvement such as a structure foundation, a road, soil erosion control, and flood protection. Man-made materials exempted under this provision shall only be deposited at sites where the construction is in progress or imminent such that rights to the land are secured and engineering, architectural, or other necessary planning have been initiated. Waste disposal shall be considered to have occurred on any land which has been filled with man-made inert materials under this provision if the land is sold, leased, or otherwise conveyed prior to the completion of construction of the surface improvement. Under such conditions, deed recordation shall be required. The deed recordation shall include the information required under §335.5(a) of this title (relating to Deed Recordation), prior to sale or other conveyance of the property;

(iii) waste materials which result from activities associated with the exploration, development, or production of oil or gas or geothermal resources, as those activities are defined in this section, and any other substance or material regulated by the Railroad Commission of Texas in accordance with the Natural Resources Code, §91.101, unless such waste, substance, or material results from activities associated with gasoline plants, natural gas, or natural gas liquids processing plants, pressure maintenance plants, or repressurizing plants and is a hazardous waste as

defined by the administrator of the EPA in accordance with the federal Solid Waste Disposal Act, as amended by the RCRA, 42 United States Code, §§6901 *et seq.*, as amended; or

(iv) a material excluded by 40 Code of Federal Regulations (CFR) §261.4(a)(1) - (19), as amended through May 11, 1999, (64 FR 25408), subject to the changes in this clause, or by variance granted under §335.18 of this title (relating to Variances from Classification as a Solid Waste) and §335.19 of this title (relating to Standards and Criteria for Variances from Classification as a Solid Waste). For the purposes of the exclusion under 40 CFR §261.4(a)(16), 40 CFR §261.38 is adopted by reference as amended through July 10, 2000 (65 FR 42292), and is revised as follows, with "subparagraph (A)(iv) under the definition of 'Solid Waste' in 30 TAC §335.1" meaning "subparagraph (A)(iv) under the definition of 'Solid Waste' in §335.1 of this title (relating to Definitions)":

(I) in the certification statement under 40 CFR §261.38(c)(1)(i)(C)(4), the reference to "40 CFR §261.38" is changed to "40 CFR §261.38, as revised under subparagraph (A)(iv) under the definition of 'Solid Waste' in 30 TAC §335.1," and the reference to "40 CFR §261.28(c)(10)" is changed to "40 CFR §261.38(c)(10)";

(II) in 40 CFR §261.38(c)(2), the references to "§260.10 of this chapter" are changed to "§335.1 of this title (relating to Definitions)," and the reference to "parts 264 or 265 of this chapter" is changed to "Chapter 335, Subchapter E of this title (relating to Interim Standards for Owners and Operators of Hazardous Waste Storage, Processing, or Disposal Facilities) or

Chapter 335, Subchapter F of this title (relating to Permitting Standards for Owners and Operators of Hazardous Waste Storage, Processing, or Disposal Facilities)";

(III) in 40 CFR §261.38(c)(3) - (5), the references to "parts 264 and 265, or §262.34 of this chapter" are changed to "Chapter 335, Subchapter E of this title (relating to Interim Standards for Owners and Operators of Hazardous Waste Storage, Processing, or Disposal Facilities) and Chapter 335, Subchapter F of this title (relating to Permitting Standards for Owners and Operators of Hazardous Waste Storage, Processing, or Disposal Facilities), or §335.69 of this title (relating to Accumulation Time)";

(IV) in 40 CFR §261.38(c)(5), the reference to "§261.6(c) of this chapter" is changed to "§335.24(e) and (f) of this title (relating to Requirements for Recyclable Materials and Nonhazardous Recyclable Materials)";

(V) in 40 CFR §261.38(c)(7), the references to "appropriate regulatory authority" and "regulatory authority" are changed to "executive director";

(VI) in 40 CFR §261.38(c)(8), the reference to "§262.11 of this chapter" is changed to "§335.62 of this title (relating to Hazardous Waste Determination and Waste Classification)";

(VII) in 40 CFR §261.38(c)(9), the reference to "§261.2(c)(4) of this chapter" is changed to "§335.1(129)(D)(iv) of this title (relating to Definitions)"; and

(VIII) in 40 CFR §261.38(c)(10), the reference to "implementing authority" is changed to "executive director."

(B) A discarded material is any material which is:

(i) abandoned, as explained in subparagraph (C) of this paragraph;

(ii) recycled, as explained in subparagraph (D) of this paragraph;

(iii) considered inherently waste-like, as explained in subparagraph (E)

of this paragraph; or

(iv) a military munition identified as a solid waste in 40 CFR

§266.202.

(C) Materials are solid wastes if they are abandoned by being:

(i) disposed of;

(ii) burned or incinerated; or

(iii) accumulated, stored, or processed (but not recycled) before or in lieu of being abandoned by being disposed of, burned, or incinerated.

(D) Except for materials described in subparagraph (H) of this paragraph, materials are solid wastes if they are "recycled" or accumulated, stored, or processed before recycling as specified in this subparagraph. The chart referred to as Table 1 indicates only which materials are considered to be solid wastes when they are recycled and is not intended to supersede the definition of solid waste provided in subparagraph (A) of this paragraph.

(i) Used in a manner constituting disposal. Materials noted with an asterisk in Column 1 of Table 1 are solid wastes when they are:

(I) applied to or placed on the land in a manner that constitutes disposal; or

(II) used to produce products that are applied to or placed on the land or are otherwise contained in products that are applied to or placed on the land (in which cases the product itself remains a solid waste). However, commercial chemical products listed in 40 CFR §261.33 are not solid wastes if they are applied to the land and that is their ordinary manner of use.

(ii) Burning for energy recovery. Materials noted with an asterisk in Column 2 of Table 1 are solid wastes when they are:

(I) burned to recover energy; or

(II) used to produce a fuel or are otherwise contained in fuels (in which cases the fuel itself remains a solid waste). However, commercial chemical products, which are listed in 40 CFR §261.33, not listed in §261.33, but that exhibit one or more of the hazardous waste characteristics, or will be considered nonhazardous waste if disposed, are not solid wastes if they are fuels themselves and burned for energy recovery.

(iii) Reclaimed. Materials noted with an asterisk in Column 3 of Table 1 are solid wastes when reclaimed (except as provided under 40 CFR §261.4(a)(17)). Materials without an asterisk in Column 3 of Table 1 are not solid wastes when reclaimed (except as provided under 40 CFR §261.4(a)(17)).

(iv) Accumulated speculatively. Materials noted with an asterisk in Column 4 of Table 1 are solid wastes when accumulated speculatively.

Figure: 30 TAC §335.1(131)(D)(iv) (No change.)

(E) Materials that are identified by the administrator of the EPA as inherently waste-like materials under 40 CFR §261.2(d) are solid wastes when they are recycled in any manner.

(F) Materials are not solid wastes when they can be shown to be recycled by being:

(i) used or reused as ingredients in an industrial process to make a product, provided the materials are not being reclaimed;

(ii) used or reused as effective substitutes for commercial products;

(iii) returned to the original process from which they were generated, without first being reclaimed or land disposed. The material must be returned as a substitute for feedstock materials. In cases where the original process to which the material is returned is a secondary process, the materials must be managed such that there is no placement on the land. In cases where the materials are generated and reclaimed within the primary mineral processing industry, the conditions of the exclusion found at 40 CFR §261.4(a)(17) apply rather than this provision; or

(iv) secondary materials that are reclaimed and returned to the original process or processes in which they were generated where they are reused in the production process provided:

(I) only tank storage is involved, and the entire process through completion of reclamation is closed by being entirely connected with pipes or other comparable enclosed means of conveyance;

(II) reclamation does not involve controlled flame combustion (such as occurs in boilers, industrial furnaces, or incinerators);

(III) the secondary materials are never accumulated in such tanks for over 12 months without being reclaimed; and

(IV) the reclaimed material is not used to produce a fuel, or used to produce products that are used in a manner constituting disposal.

(G) Except for materials described in subparagraph (H) of this paragraph, the following materials are solid wastes, even if the recycling involves use, reuse, or return to the original process, as described in subparagraph (F) of this paragraph:

(i) materials used in a manner constituting disposal, or used to produce products that are applied to the land;

(ii) materials burned for energy recovery, used to produce a fuel, or contained in fuels;

(iii) materials accumulated speculatively; or

(iv) materials deemed to be inherently waste-like by the administrator of the EPA, as described in 40 CFR §261.2(d)(1) - (2).

(H) With the exception of contaminated soils which are being relocated for use under §350.36 of this title (relating to Relocation of Soils Containing Chemicals of Concern for Reuse Purposes) and other contaminated media, materials that will otherwise be identified as nonhazardous solid wastes if disposed of are not considered solid wastes when recycled by being applied to the land or used as ingredients in products that are applied to the land, provided these materials can be shown to meet all of the following criteria:

(i) a legitimate market exists for the recycling material as well as its products;

(ii) the recycling material is managed and protected from loss as will be raw materials or ingredients or products;

(iii) the quality of the product is not degraded by substitution of raw material/product with the recycling material;

(iv) the use of the recycling material is an ordinary use and it meets or exceeds the specifications of the product it is replacing without treatment or reclamation, or if the recycling material is not replacing a product, the recycling material is a legitimate ingredient in a production process and meets or exceeds raw material specifications without treatment or reclamation;

(v) the recycling material is not burned for energy recovery, used to produce a fuel or contained in a fuel;

(vi) the recycling material can be used as a product itself or to produce products as it is generated without treatment or reclamation;

(vii) the recycling material must not present an increased risk to human health, the environment, or waters in the state when applied to the land or used in products which are applied to the land and the material, as generated:

(I) is a Class 3 waste under Chapter 335, Subchapter R of this title (relating to Waste Classification), except for arsenic, cadmium, chromium, lead, mercury, nickel, selenium, and total dissolved solids; and

(II) for the metals listed in subclause (I) of this clause:

(-a-) is a Class 2 or Class 3 waste under Chapter 335,

Subchapter R of this title; and

(-b-) does not exceed a concentration limit under

§312.43(b)(3), Table 3 of this title (relating to Metal Limits); and

(viii) notwithstanding the requirements under §335.17(a)(8) of this title

(relating to Special Definitions for Recyclable Materials and Nonhazardous Recyclable Materials):

(I) at least 75% (by weight or volume) of the annual

production of the recycling material must be recycled or transferred to a different site and recycled on an annual basis; and

(II) if the recycling material is placed in protective storage,

such as a silo or other protective enclosure, at least 75% (by weight or volume) of the annual production of the recycling material must be recycled or transferred to a different site and recycled on a biennial basis.

(I) Respondents in actions to enforce the industrial solid waste regulations who raise a claim that a certain material is not a solid waste, or is conditionally exempt from regulation, must demonstrate that there is a known market or disposition for the material, and that they meet the terms of the exclusion or exemption. In doing so, they must provide appropriate documentation (such

as contracts showing that a second person uses the material as an ingredient in a production process) to demonstrate that the material is not a waste, or is exempt from regulation. In addition, owners or operators of facilities claiming that they actually are recycling materials must show that they have the necessary equipment to do so and that the recycling activity is legitimate and beneficial.

(J) Materials that are reclaimed from solid wastes and that are used beneficially are not solid wastes and hence are not hazardous wastes under 40 CFR §261.3(c) unless the reclaimed material is burned for energy recovery or used in a manner constituting disposal.

(K) Other portions of this chapter that relate to solid wastes that are recycled include §335.6 of this title (relating to Notification Requirements), §§335.17 - 335.19 of this title, §335.24 of this title (relating to Requirements for Recyclable Materials and Nonhazardous Recyclable Materials), and Subchapter H of this chapter (relating to Standards for the Management of Specific Wastes and Specific Types of Materials).

(132) **Sorbent** - A material that is used to soak up free liquids by either adsorption or absorption, or both. Sorb means to either adsorb or absorb, or both.

(133) **Spill** - The accidental spilling, leaking, pumping, emitting, emptying, or dumping of solid waste or hazardous wastes or materials which, when spilled, become solid waste or hazardous wastes into or on any land or water.

(134) **Staging pile** - An accumulation of solid, non-flowing remediation waste, as defined in this section, that is not a containment building and that is used only during remedial operations for temporary storage at a facility. Staging piles must be designated by the executive director according to the requirements of 40 Code of Federal Regulations §264.554, as adopted by reference under §335.152(a) of this title (relating to Standards).

(135) **Storage** - The holding of solid waste for a temporary period, at the end of which the waste is processed, disposed of, recycled, or stored elsewhere.

(136) **Sump** - Any pit or reservoir that meets the definition of tank in this section and those troughs/trenches connected to it that serve to collect solid waste or hazardous waste for transport to solid waste or hazardous waste storage, processing, or disposal facilities; except that as used in the landfill, surface impoundment, and waste pile rules, "sump" means any lined pit or reservoir that serves to collect liquids drained from a leachate collection and removal system or leak detection system for subsequent removal from the system.

(137) **Surface impoundment or impoundment** - A facility or part of a facility which is a natural topographic depression, man-made excavation, or diked area formed primarily of earthen materials (although it may be lined with man-made materials), which is designed to hold an accumulation of liquid wastes or wastes containing free liquids, and which is not an injection well or a corrective action management unit. Examples of surface impoundments are holding, storage, settling, and aeration pits, ponds, and lagoons.

(138) **Tank** - A stationary device, designed to contain an accumulation of solid waste which is constructed primarily of non-earthen materials (e.g., wood, concrete, steel, plastic) which provide structural support.

(139) **Tank system** - A solid waste or hazardous waste storage or processing tank and its associated ancillary equipment and containment system.

(140) **TEQ** - Toxicity equivalence, the international method of relating the toxicity of various dioxin/furan congeners to the toxicity of 2,3,7,8-tetrachlorodibenzo-p-dioxin.

(141) **Thermal processing** - The processing of solid waste or hazardous waste in a device which uses elevated temperatures as the primary means to change the chemical, physical, or biological character or composition of the solid waste or hazardous waste. Examples of thermal processing are incineration, molten salt, pyrolysis, calcination, wet air oxidation, and microwave discharge. (See also "incinerator" and "open burning.")

(142) **Thermostat** - Has the definition adopted under §335.261 of this title (relating to Universal Waste Rule).

(143) **Totally enclosed treatment facility** - A facility for the processing of hazardous waste which is directly connected to an industrial production process and which is constructed and

operated in a manner which prevents the release of any hazardous waste or any constituent thereof into the environment during processing. An example is a pipe in which acid waste is neutralized.

(144) **Transfer facility** - Any transportation-related facility including loading docks, parking areas, storage areas, and other similar areas where shipments of hazardous or industrial solid waste are held during the normal course of transportation.

(145) **Transit country** - Any foreign country, other than a receiving country, through which a hazardous waste is transported.

(146) **Transport vehicle** - A motor vehicle or rail car used for the transportation of cargo by any mode. Each cargo-carrying body (trailer, railroad freight car, etc.) is a separate transport vehicle. Vessel includes every description of watercraft, used or capable of being used as a means of transportation on the water.

(147) **Transporter** - Any person who conveys or transports municipal hazardous waste or industrial solid waste by truck, ship, pipeline, or other means.

(148) **Treatability study** - A study in which a hazardous or industrial solid waste is subjected to a treatment process to determine:

(A) whether the waste is amenable to the treatment process;

(B) what pretreatment (if any) is required;

(C) the optimal process conditions needed to achieve the desired treatment;

(D) the efficiency of a treatment process for a specific waste or wastes; or

(E) the characteristics and volumes of residuals from a particular treatment process. Also included in this definition for the purpose of 40 Code of Federal Regulations §261.4(e) and (f) (§§335.2, 335.69, and 335.78 of this title (relating to Permit Required; Accumulation Time; and Special Requirements for Hazardous Waste Generated by Conditionally Exempt Small Quantity Generators)) exemptions are liner compatibility, corrosion, and other material compatibility studies and toxicological and health effects studies. A treatability study is not a means to commercially treat or dispose of hazardous or industrial solid waste.

(149) **Treatment** - To apply a physical, biological, or chemical process(es) to wastes and contaminated media which significantly reduces the toxicity, volume, or mobility of contaminants and which, depending on the process(es) used, achieves varying degrees of long-term effectiveness.

(150) **Treatment zone** - A soil area of the unsaturated zone of a land treatment unit within which hazardous constituents are degraded, transferred, or immobilized.

(151) **Underground injection** - The subsurface emplacement of fluids through a bored, drilled, or driven well; or through a dug well, where the depth of the dug well is greater than the largest surface dimension. (See also "injection well.")

(152) **Underground tank** - A device meeting the definition of tank in this section whose entire surface area is totally below the surface of and covered by the ground.

(153) **Unfit-for-use tank system** - A tank system that has been determined through an integrity assessment or other inspection to be no longer capable of storing or processing solid waste or hazardous waste without posing a threat of release of solid waste or hazardous waste to the environment.

(154) **Universal waste** - Any of the hazardous wastes defined as universal waste under §335.261(b)(13)(F) of this title (relating to Universal Waste Rule) that are managed under the universal waste requirements of Subchapter H, Division 5 of this chapter (relating to Universal Waste Rule).

(155) **Universal waste handler** - Has the definition adopted under §335.261 of this title (relating to Universal Waste Rule).

(156) **Universal waste transporter** - Has the definition adopted under §335.261 of this title (relating to Universal Waste Rule).

(157) **Unsaturated zone or zone of aeration** - The zone between the land surface and the water table.

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

(159) **Used oil** - Any oil that has been refined from crude oil, or any synthetic oil, that has been used, and, as a result of such use, is contaminated by physical or chemical impurities. Used oil fuel includes any fuel produced from used oil by processing, blending, or other treatment. Rules applicable to nonhazardous used oil, oil characteristically hazardous from use versus mixing, Conditionally Exempt Small Quantity Generator hazardous used oil, and household used oil after collection that will be recycled are found in Chapter 324 of this title (relating to Used Oil) and 40 Code of Federal Regulations Part 279 (Standards for Management of Used Oil).

(160) **Wastewater treatment unit** - A device which:

(A) is part of a wastewater treatment facility subject to regulation under either the Federal Water Pollution Control Act (Clean Water Act), 33 United States Code, §§466 *et seq.*, §402 or §307(b), as amended;

(B) receives and processes or stores an influent wastewater which is a hazardous or industrial solid waste, or generates and accumulates a wastewater treatment sludge which is a hazardous or industrial solid waste, or processes or stores a wastewater treatment sludge which is a hazardous or industrial solid waste; and

(C) meets the definition of tank or tank system as defined in this section.

(161) **Water (bulk shipment)** - The bulk transportation of municipal hazardous waste or Class 1 industrial solid waste which is loaded or carried on board a vessel without containers or labels.

(162) **Well** - Any shaft or pit dug or bored into the earth, generally of a cylindrical form, and often walled with bricks or tubing to prevent the earth from caving in.

(163) **Zone of engineering control** - An area under the control of the owner/operator that, upon detection of a solid waste or hazardous waste release, can be readily cleaned up prior to the release of solid waste or hazardous waste or hazardous constituents to groundwater or surface water.

**SUBCHAPTER E: INTERIM STANDARDS FOR OWNERS AND OPERATORS OF
HAZARDOUS WASTE STORAGE, PROCESSING, OR DISPOSAL FACILITIES**

§335.116, §335.123

STATUTORY AUTHORITY

The amendments are adopted under Texas Water Code, §5.103, which provides the commission with the authority to adopt rules necessary to carry out its power and duties under this code and other laws of this state; Texas Water Code, §5.105, which authorizes the commission to establish and approve all general policy of the commission by rule; and Texas Civil Statutes, Article 3271b, the Act, which authorizes the public practice of geoscience in the State of Texas.

§335.116. Applicability of Groundwater Monitoring Requirements.

(a) On November 19, 1981, the owner or operator of a surface impoundment, landfill, or land treatment facility which is used to manage hazardous waste must implement a groundwater monitoring program capable of determining the facility's impact on the quality of groundwater in the uppermost aquifer underlying the facility, except as provided in subsection (c) of this section.

(b) Except as provided in subsections (c), (d), and (g) of this section, the owner or operator must install, operate, and maintain a groundwater monitoring system which meets the requirements of 40 Code of Federal Regulations (CFR) §265.91, and must comply with 40 CFR §265.92 and §265.93, and §335.117 of this title (relating to Recordkeeping and Reporting). This groundwater monitoring

program must be carried out during the active life of the facility, and for disposal facilities during the post-closure care period as well.

(c) All or part of the groundwater monitoring requirements of this subchapter may be waived if the owner or operator can demonstrate that there is a low potential for migration of hazardous waste or hazardous waste constituents from the facility via the uppermost aquifer to water supply wells (domestic, industrial, or agricultural) or to surface water. This demonstration must be in writing and must be kept at the facility. This demonstration shall be certified by a licensed professional geoscientist or geotechnical engineer and must establish the following:

(1) the potential for migration of hazardous waste constituents from the facility to the uppermost aquifer, by an evaluation of:

(A) a water balance of precipitation, evapotranspiration, runoff, and infiltration; and

(B) unsaturated zone characteristics (i.e., geologic materials, physical properties, and depth to groundwater); and

(2) the potential for hazardous waste or hazardous waste constituents which enter the uppermost aquifer to migrate to a water supply well or surface water, by an evaluation of:

(A) saturated zone characteristics (i.e., geologic materials, physical properties, and rate of groundwater flow); and

(B) the proximity of the facility to water supply wells or surface water.

(d) If an owner or operator assumes (or knows) that groundwater monitoring of indicator parameters in accordance with 40 CFR §265.91 and §265.92 would show statistically significant increases (or decreases in the case of pH) when evaluated under 40 CFR §265.93(b), he may install, operate, and maintain an alternate groundwater monitoring system (other than the one described in 40 CFR §265.91 and §265.92). If the owner or operator does decide to use an alternate groundwater monitoring system he must:

(1) prior to November 19, 1981, submit to the executive director a specific plan certified by a qualified geologist or geotechnical engineer which satisfies the requirements of 40 CFR §265.93(d)(3), for an alternate groundwater monitoring system;

(2) prior to November 19, 1981, initiate the determinations specified in 40 CFR §265.93(d)(4);

(3) prepare and submit a written report in accordance with 40 CFR §265.93(d)(5);

(4) continue to make the determinations specified in 40 CFR §265.93(d)(4) on a quarterly basis until final closure of the facility; and

(5) comply with the recordkeeping and reporting requirements in §335.117 of this title.

(e) The groundwater monitoring requirements of this subchapter may be waived with respect to any surface impoundment that:

(1) is used to neutralize wastes which are hazardous solely because they exhibit the corrosivity characteristic under 40 CFR §261.22 or are listed as hazardous wastes in 40 CFR Part 261, Subpart D, only for this reason; and

(2) contains no other hazardous wastes, if the owner or operator can demonstrate that there is no potential for migration of hazardous wastes from the impoundment. The demonstrations must establish, based upon consideration of the characteristics of the wastes and the impoundment, that the corrosive wastes will be neutralized to the extent that they no longer meet the corrosivity characteristic before they can migrate out of the impoundment. The demonstration must be in writing and must be certified by a qualified professional.

(f) For owners and operators who have not established background concentrations or values in accordance with 40 CFR §265.92(c) by November 19, 1982, the executive director may require the implementation of a groundwater assessment plan under 40 CFR §265.93, whenever he determines that

existing data indicates that there is a substantial likelihood that hazardous waste or hazardous constituents from the facility have entered the uppermost aquifer.

(g) The commission may replace all or part of the requirements of this subchapter applying to a regulated unit with alternative requirements developed for groundwater monitoring set out in a permit or a post-closure order where the commission determines that:

(1) a regulated unit is situated among solid waste management units or area of concern, a release has occurred, and both the regulated unit and one or more solid waste management unit(s) or area of concern are likely to have contributed to the release; and

(2) it is not necessary to apply the requirement of this subchapter because the alternative requirements will be protective of human health and the environment. The alternative standards for the regulated unit must meet the requirements of §335.8 and §335.167 of this title (related to Closure and Remediation and Corrective Action for Solid Waste Management Units).

§335.123. Closure and Post-Closure (Land Treatment Facilities).

(a) In the closure plan under 40 Code of Federal Regulations (CFR) §265.112 and the post-closure plan under 40 CFR §265.118, the owner or operator must address the following objectives and indicate how they will be achieved:

(1) control of the migration of hazardous waste and hazardous waste constituents from the treated area into the groundwater;

(2) control of the release of contaminated run-off from the facility into surface water;

(3) control of the release of airborne particulate contaminants caused by wind erosion;

and

(4) compliance with 40 CFR §265.276, concerning the growth of food-chain crops.

(b) The owner or operator must consider at least the following factors addressing the closure and post-closure care objectives of subsection (a) of this section:

(1) type and amount of hazardous waste and hazardous waste constituents applied to the land treatment facility;

(2) the mobility and the expected rate of migration of the hazardous waste and hazardous waste constituents;

(3) site location, topography, and surrounding land use, with respect to the potential effects of pollutant migration (e.g., proximity to groundwater, surface water, and drinking water sources);

(4) climate, including amount, frequency, and pH or precipitation;

(5) geological and soil profiles and surface and subsurface hydrology of the site, and soil characteristics, including cation exchange capacity, total organic carbon, and pH;

(6) unsaturated zone monitoring information obtained under 40 CFR §265.278; and

(7) type, concentration, and depth of migration of hazardous waste constituents in the soil as compared to their background concentrations.

(c) The owner or operator must consider at least the following methods in addressing the closure and post-closure care objectives of subsection (a) of this section:

(1) removal of contaminated soils;

(2) placement of a final cover, considering:

(A) functions of the cover (e.g., infiltration control, erosion and run-off control, and wind erosion control), and

(B) characteristics of the cover, including material, final surface contours, thickness, porosity and permeability, slope, length of run of slope, and type of vegetation on the cover;

(3) collection and treatment run-off;

(4) diversion structures to prevent surface water run-on from entering the treated area;

and

(5) monitoring of soil, soil-pore water, and groundwater.

(d) In addition to the requirements of 40 CFR Part 265; Subpart G, relating to closure and post-closure, §335.118 of this title (relating to Closure Plan; Submission and Approval of Plan) and §335.119 of this title (relating to Post-Closure Plan; Submission and Approval Plan), during the closure period the owner or operator of a land treatment facility must:

(1) continue unsaturated zone monitoring in a manner and frequency specified in the closure plan, except that soil pore liquid monitoring may be terminated 90 days after the last application of waste to the treatment zone;

(2) maintain the run-on control system required under §335.121(b) of this title (relating to General Operating Requirements (Land Treatment Facilities));

(3) maintain the run-off management system required under §335.121(c) of this title;

and

(4) control wind dispersal of particulate matter which may be subject to wind dispersal.

(e) For the purpose of complying with 40 CFR §265.115 concerning certification of closure, when closure is completed, the owner or operator may submit to the executive director certification both by the owner or operator and by an independent licensed professional geoscientist, in lieu of an independent licensed professional engineer, that the facility has been closed in accordance with the specifications in the approved closure plan.

(f) In addition to the requirements of 40 CFR §265.117 concerning post-closure care and use of property during the post-closure care period, the owner or operator of a land treatment unit must:

(1) continue soil-core monitoring by collecting and analyzing samples in a manner and frequency specified in the post-closure plan;

(2) restrict access to the unit as appropriate for its post-closure use;

(3) assure that growth of food chain crops complies with 40 CFR §265.276 concerning food chain crops; and

(4) control wind dispersal of hazardous waste.

**SUBCHAPTER F: PERMITTING STANDARDS FOR OWNERS AND
OPERATORS OF HAZARDOUS WASTE STORAGE, PROCESSING, OR
DISPOSAL FACILITIES**

§335.156, §335.172

STATUTORY AUTHORITY

The amendments are adopted under Texas Water Code, §5.103, which provides the commission with the authority to adopt rules necessary to carry out its power and duties under this code and other laws of this state; Texas Water Code, §5.105, which authorizes the commission to establish and approve all general policy of the commission by rule; and Texas Civil Statutes, Article 3271b, the Act, which authorizes the public practice of geoscience in the State of Texas.

§335.156. Applicability of Groundwater Monitoring and Response.

(a) Except as provided in subsection (b) of this section, the rules pertaining to groundwater monitoring and response apply to owners and operators of facilities that process, store, or dispose of hazardous waste.

(1) The owner or operator must satisfy those requirements of paragraph (2) or (3) of this subsection for all wastes (or constituents thereof) contained in any such waste management unit at the facility, regardless of the time at which waste was placed in the units.

(2) Except as provided in paragraph (3) of this subsection, all solid waste management units must comply with the requirements in §335.167 of this title (relating to Corrective Action for Solid Waste Management Units). A surface impoundment, waste pile, land treatment unit, or landfill that receives hazardous waste after July 26, 1982, (hereinafter referred to as a regulated unit) must comply with the requirements of §§335.157 - 335.166 of this title (relating to Required Program; Groundwater Protection Standard; Hazardous Constituents; Concentration Limits; Point of Compliance; Compliance Period; General Groundwater Monitoring Requirements; Detection Monitoring Program; Compliance Monitoring Program; and Corrective Action Program) in lieu of §335.167 of this title for purposes of detecting, characterizing, and responding to releases to the uppermost aquifer. The financial responsibility requirements of §335.167 of this title apply to regulated units.

(3) The commission may replace all or part of the requirements of §§335.157 - 335.166 of this title with alternative requirements for groundwater monitoring and corrective action for releases to groundwater set out in the permit or in a post-closure order where the commission determines that:

(A) a regulated unit is situated among solid waste management units or area of concern, a release has occurred, and both the regulated unit and one or more solid waste management unit(s) or area of concern are likely to have contributed to the release; and

(B) it is not necessary to apply the groundwater monitoring and corrective action requirements of §§335.157 - 335.166 of this title because the alternative requirements will be protective of human health and the environment.

(4) If a permitted facility obtains an order setting out alternative requirements provided in §335.151(e) of this title (relating to Purpose, Scope, and Applicability), then the alternative requirements shall also be referenced in the facility's permit.

(b) The owner or operator's regulated unit or units are not subject to regulation for releases into the uppermost aquifer under this section and §§335.157 - 335.166 of this title if:

(1) he is exempted under 40 Code of Federal Regulations (CFR) §264.1;

(2) he operates a unit which the commission finds:

(A) is an engineered structure;

(B) does not receive or contain liquid waste or waste containing free liquids;

(C) is designed and operated to exclude liquid, precipitation, and other run-on and run-off;

(D) has both inner and outer layer of containment enclosing the waste;

(E) has a leak detection system built into each containment layer for which continuing operation and maintenance will be provided during the active life of the unit and the closure and post-closure care periods; and

(F) to a reasonable degree of certainty, will not allow hazardous constituents to migrate beyond the outer containment layer prior to the end of the post-closure care period.

(3) the commission finds, in accordance with 40 CFR §264.280(d), that the treatment zone of a land treatment unit that qualifies as a regulated unit does not contain levels of hazardous constituents that are above background levels of those constituents by an amount that is statistically significant, and if an unsaturated zone monitoring program meeting the requirements of 40 CFR §264.278 has not shown a statistically significant increase in hazardous constituents below the treatment zone during the operating life of the unit. An exemption under this paragraph can only relieve an owner or operator of responsibility to meet the requirements of this subchapter relating to groundwater monitoring and response during the post-closure care period;

(4) the commission finds that there is no potential for migration of liquid from a regulated unit to the uppermost aquifer during the active life of the regulated unit (including the closure period) and the post-closure care period specified under 40 CFR §264.117. This demonstration shall be certified by a licensed professional geoscientist or geotechnical engineer. In order to provide an

adequate margin of safety in the prediction of potential migration of liquid, the owner or operator shall base any predictions on assumptions that maximize the rate of liquid migration; or

(5) he designs and operates a pile in compliance with 40 CFR §264.250(c).

(c) Sections 335.157 - 335.166 of this title apply during the active life of the regulated unit (including the closure period). After closure of the regulated unit, these sections:

(1) do not apply if all waste, waste residues, contaminated containment system components, and contaminated subsoils are removed or decontaminated at closure;

(2) apply during the post-closure care period under 40 CFR §264.117 if the owner or operator is conducting a detection monitoring program under §335.164 of this title; or

(3) apply during the compliance period under §335.162 of this title if the owner or operator is conducting a compliance monitoring program under §335.165 of this title or a corrective action program under §335.166 of this title.

§335.172. Closure and Post-Closure Care (Land Treatment Units).

(a) During the closure period, the owner or operator must:

(1) continue all operations (including pH control) necessary to maximize degradation, transformation, or immobilization of hazardous constituents within the treatment zone as required under §335.171(1) of this title (relating to Design and Operating Requirements (Land Treatment Units)), except to the extent such measures are inconsistent with paragraph (8) of this subsection;

(2) continue all operations in the treatment zone to minimize run-off of hazardous constituents as required under §335.171(3) of this title;

(3) maintain the run-on control system required under §335.171(3) of this title;

(4) maintain the run-off management system required under §335.171(4) of this title;

(5) control wind dispersal of hazardous waste if required under §335.171(6) of this title;

(6) continue to comply with any prohibitions or conditions concerning growth of food-chain crops under 40 Code of Federal Regulations (CFR) §264.276;

(7) continue unsaturated zone monitoring in compliance with 40 CFR §264.278, except that soil-pore liquid monitoring may be terminated 90 days after the last application of waste to the treatment zone; and

(8) establish a vegetative cover on the portion of the facility being closed at such time that the cover will not substantially impede degradation, transformation, or immobilization of hazardous constituents in the treatment zone. The vegetative cover must be capable of maintaining growth without extensive maintenance.

(b) For the purpose of complying with 40 CFR §264.115, when closure is completed, the owner or operator may submit to the executive director certification by an independent licensed professional geoscientist, in lieu of an independent licensed professional engineer, that the facility has been closed in accordance with the specifications in the approved closure plan.

(c) During the post-closure care period, the owner or operator must:

(1) continue all operations (including pH control) necessary to enhance degradation and transformation and sustain immobilization of hazardous constituents in the treatment zone to the extent that such measures are consistent with other post-closure care activities;

(2) maintain a vegetative cover over closed portions of the facility;

(3) maintain the run-on control system required under §335.171(3) of this title;

(4) maintain the run-off management system required under §335.171(4) of this title;

(5) control wind dispersal of hazardous waste if required under §335.171(6) of this title;

(6) continue to comply with any prohibition or conditions concerning growth of food-chain crops under 40 CFR §264.276; and

(7) continue unsaturated zone monitoring in compliance with 40 CFR §264.278, except that soil-pore liquid monitoring may be terminated 90 days after the last application of waste to the treatment zone.

(d) The owner or operator is not subject to regulation under subsections (a)(8) and (c) of this section if the commission finds that the level of hazardous constituents in the treatment zone does not exceed the background value of those constituents by an amount that is statistically significant when using the test specified in paragraph (3) of this subsection. The owner or operator may submit such a demonstration to the executive director at any time during the closure or post-closure care periods.

(1) The owner or operator must establish background soil values and determine whether there is a statistically significant increase over those values for all hazardous constituents specified in the facility permit under 40 CFR §264.271(b).

(A) Background soil values may be based on a one-time sampling of a background plot having characteristics similar to those of the treatment zone.

(B) The owner or operator must express background values and values for hazardous constituents in the treatment zone in a form necessary for the determination of statistically significant increases under paragraph (3) of this subsection.

(2) In taking samples used in the determination of background and treatment zone values, the owner or operator must take samples at a sufficient number of sampling points and at appropriate locations and depths to yield samples that represent the chemical make-up of soil that has not been affected by solid waste or leakage from the treatment zone, and the soil within the treatment zone, respectively.

(3) In determining whether a statistically significant increase has occurred, the owner or operator must compare the value of each constituent in the treatment zone to the background value for that constituent using a statistical procedure that provides reasonable confidence that constituent presence in the treatment zone will be identified. The owner or operator must use a statistical procedure that:

(A) is appropriate for the distribution of the data used to establish background values; and

(B) provides a reasonable balance between the probability of falsely identifying hazardous constituent presence in the treatment zone and the probability of failing to identify real presence in the treatment zone.

(e) The owner or operator is not subject to regulation under §§335.156 - 335.166 of this title (relating to Applicability of Groundwater Monitoring and Response; Required Programs; Groundwater Protection Standard; Hazardous Constituents; Concentration Limits; Point of Compliance; Compliance Period; General Groundwater Monitoring Requirements; Detection Monitoring Program; Compliance Monitoring Program; and Corrective Action Program); if the commission finds that the owner or operator satisfied subsection (d) of this section and if unsaturated zone monitoring under 40 CFR §264.278 indicates that hazardous constituents have not migrated beyond the treatment zone during the active life of the land treatment unit.

**SUBCHAPTER G: LOCATION STANDARDS FOR HAZARDOUS
WASTE STORAGE, PROCESSING, OR DISPOSAL**

§335.204

STATUTORY AUTHORITY

The amendment is adopted under Texas Water Code, §5.103, which provides the commission with the authority to adopt rules necessary to carry out its power and duties under this code and other laws of this state; Texas Water Code, §5.105, which authorizes the commission to establish and approve all general policy of the commission by rule; and Texas Civil Statutes, Article 3271b, the Act, which authorizes the public practice of geoscience in the State of Texas.

§335.204. Unsuitable Site Characteristics.

(a) Storage or processing facilities (excluding storage surface impoundments).

(1) A storage or processing facility (excluding storage surface impoundments) may not be located in the 100-year floodplain unless it is designed, constructed, operated, and maintained to prevent physical transport of any hazardous waste by a 100-year flood event. "Physical transport" does not include movement of hazardous waste by an owner or operator to move the hazardous waste to safety during the threat of a 100-year flood event.

(2) A storage or processing facility (excluding storage surface impoundments) may not be located in wetlands.

(3) A storage or processing facility (excluding storage surface impoundments) may not be located on the recharge zone of a sole-source aquifer unless secondary containment is provided to preclude migration to groundwater from spills, leaks or discharges.

(4) A storage or processing facility (excluding storage surface impoundments) may not be located in areas overlying regional aquifers unless:

(A) the regional aquifer is separated from the facility by a minimum of ten feet of material with a hydraulic conductivity toward the aquifer not greater than 10^{-7} centimeters per second (cm/sec), or a thicker interval of more permeable material which provides equivalent or greater retardation to pollutant migration; or

(B) secondary containment is provided to preclude migration to groundwater from spills, leaks or discharges.

(5) A storage or processing facility (excluding storage surface impoundments) may not be located in areas where soil unit(s) within five feet of the containment structure have a Unified Soil Classification of GW, GP, GM, GC, SW, SP, or SM, or a hydraulic conductivity greater than 10^{-5} cm/sec unless:

(A) secondary containment is provided to preclude migration to groundwater or surface water from spills, leaks or discharges; or

(B) the soil unit is not sufficiently thick and laterally continuous to provide a significant pathway for waste migration.

(6) A storage or processing facility (excluding storage surface impoundments) may not be located in areas of direct drainage within one mile of a lake at its maximum conservation pool level, if the lake is used to supply public drinking water through a public water system, unless the design, construction, and operational features of the facility will prevent adverse effects resulting from a release in such areas.

(7) A storage or processing facility (excluding storage surface impoundments) may not be located in areas of active geologic processes unless the design, construction, and operational features of the facility will prevent adverse effects resulting from the geologic processes.

(8) A storage or processing facility may not be located in the critical habitat of an endangered species of plant or animal unless the design, construction, and operational features of the facility will prevent adverse effects on the critical habitat of the endangered species.

(9) A storage or processing facility may not be located within 30 feet of the upthrown side or 50 feet of the downthrown side of the actual or inferred surface expression of a fault that has reasonably been shown to have caused displacement of shallow Quaternary sediments or of man-made structures, unless the design, construction, and operational features of the facility will prevent adverse effects resulting from fault movement. The presence, and if a fault is found to be present, the width and location of the actual or inferred surface expression of a fault, including both the identified zone of deformation and the combined uncertainties in locating a fault trace, shall be determined by a licensed professional geoscientist or geotechnical engineer. For purposes of fault assessment under this paragraph, depths of shallow sediments to be considered could be as little as 100 feet (for older, slowly accumulated sediments), or as great as 300 feet (for younger, rapidly accumulated sediments). The fault study should include analyses of any electric logs developed for any required subsurface characterization of the site, interpretation of available aerial photographs, study of available maps, logs, and documents that may indicate fault locations at the surface and in the subsurface, and a visual observation of the proposed site.

(b) Land treatment facilities.

(1) A land treatment facility may not be located in the 100-year floodplain unless it is designed, constructed, operated and maintained to prevent physical transport of any hazardous waste by a 100-year flood event. A new commercial hazardous waste management facility land treatment unit may not be located in a 100-year flood plain, unless the applicant demonstrates to the satisfaction of the

commission that the facility design will prevent the physical transport of any hazardous waste by a 100-year flood event.

(2) A land treatment facility may not be located in wetlands.

(3) A land treatment facility may not be located in the recharge zone of a sole-source aquifer.

(4) A land treatment facility may not be located in areas overlying regional aquifers unless:

(A) it is an area where the average annual evaporation exceeds average annual rainfall plus the hydraulic loading rate of the facility by more than 40 inches and the depth to the regional aquifer is greater than 100 feet from the base of the treatment zone; or

(B) the regional aquifer is separated from the base of the treatment zone by a minimum of ten feet of material with a hydraulic conductivity toward the aquifer not greater than 10^{-7} cm/sec, or a thicker interval of more permeable material which provides equivalent or greater retardation to pollutant migration.

(5) A land treatment facility may not be located in areas where soil units(s) within five feet of the treatment zone have a Unified Soil Classification of GW, GP, GM, GC, SW, SP or SM, or a hydraulic conductivity greater than 10^{-5} cm/sec, unless:

(A) it is in an area where the average annual evaporation exceeds average annual rainfall plus the hydraulic loading rate by more than 40 inches; or

(B) the soil unit is not sufficiently thick and laterally continuous to provide a significant pathway for waste migration.

(6) A land treatment facility may not be located within 1,000 feet of an established residence, church, school, day care center, surface water body used for a public drinking water supply, or dedicated public park which is in use at the time the notice of intent to file a permit application is filed with the commission, or if no such notice is filed, at the time the permit application is filed with the commission. The measurement of distances required for a new hazardous waste land treatment facility shall be taken from a perimeter around the proposed new hazardous waste land treatment management unit. The perimeter shall be not more than 75 feet from the edge of the proposed new hazardous waste land treatment unit.

(7) A land treatment facility may not be located in areas of direct drainage within one mile of a lake at its maximum conservation pool level, if the lake is used to supply public drinking

water through a public water system, unless the design, construction, and operational features of the facility will prevent adverse effects resulting from a release in such areas.

(8) A land treatment facility may not be located in areas of active geologic processes unless the design, construction, and operational features of the facility will prevent adverse effects resulting from the geologic processes.

(9) A land treatment facility may not be located within 1,000 feet of an area subject to active coastal shoreline erosion if the area is protected by a barrier island or peninsula unless the design, construction, and operational features of the facility will prevent adverse effects resulting from storm surge and erosion or scouring by water. On coastal shorelines which are subject to active shoreline erosion and which are unprotected by a barrier island or peninsula, a separation distance from the shoreline to the facility must be at least 5,000 feet unless the design, construction, and operational features of the facility will prevent adverse effects resulting from storm surge and erosion or scouring by water.

(10) A land treatment facility may not be located in the critical habitat of an endangered species of plant or animal unless the design, construction, and operational features of the facility will prevent adverse effects on the critical habitat of the endangered species.

(11) A land treatment facility may not be located on a barrier island or peninsula.

(12) A land treatment facility may not be located within 30 feet of the upthrown side or 50 feet of the downthrown side of the actual or inferred surface expression of a fault that has reasonably been shown to have caused displacement of shallow Quaternary sediments or of man-made structures, unless the design, construction, and operational features of the facility will prevent adverse effects resulting from fault movement. The presence, and if a fault is found to be present, the width and location of the actual or inferred surface expression of a fault, including both the identified zone of deformation and the combined uncertainties in locating a fault trace, shall be determined by a licensed professional geoscientist or geotechnical engineer. For purposes of fault assessment under this paragraph, depths of shallow sediments to be considered could be as little as 100 feet (for older, slowly accumulated sediments), or as great as 300 feet (for younger, rapidly accumulated sediments). The fault study should include analyses of any electric logs developed for any required subsurface characterization of the site, interpretation of available aerial photographs, study of available maps, logs, and documents that may indicate fault locations at the surface and in the subsurface, and a visual observation of the proposed site.

(c) Waste piles.

(1) A waste pile may not be located in the 100-year floodplain unless it is designed, constructed, operated, and maintained to prevent physical transport of any hazardous waste by a 100-year flood event. "Physical transport" does not include movement of hazardous waste by an owner or operator to move the hazardous waste to safety during the threat of a 100-year flood event.

(2) A waste pile may not be located in wetlands.

(3) A waste pile may not be located on the recharge zone of a sole-source aquifer.

(4) A waste pile may not be located in areas overlying regional aquifers unless:

(A) the regional aquifer is separated from the base of the containment structure by a minimum of ten feet of material with a hydraulic conductivity toward the aquifer not greater than 10^{-7} cm/sec or a thicker interval of more permeable material which provides equivalent or greater retardation to pollutant migration; or

(B) secondary containment is provided to preclude pollutant migration to groundwater from spills, leaks, or discharges.

(5) A waste pile may not be located in areas where soil unit(s) within five feet of the containment structure have a Unified Soil Classification of GW, GP, GM, GC, SW, SP, or SM, or a hydraulic conductivity greater than 10^{-5} cm/sec unless:

(A) secondary containment is provided to preclude pollutant migration to groundwater or surface water from spills, leaks, or discharges; or

(B) the soil unit is not sufficiently thick and laterally continuous to provide a significant pathway for waste migration.

(6) A waste pile may not be located in areas of direct drainage within one mile of a lake at its maximum conservation pool level, if the lake is used to supply public drinking water through a public water system, unless the design, construction, and operational features of the facility will prevent adverse effects resulting from a release in such areas.

(7) A waste pile may not be located in areas of active geologic processes unless the design, construction, and operational features of the facility will prevent adverse effects resulting from the geologic processes.

(8) A waste pile may not be located within 1,000 feet of an area subject to active coastal shoreline erosion if the area is protected by a barrier island or peninsula unless the design, construction, and operational features of the facility will prevent adverse effects resulting from storm surge and erosion or scouring by water. On coastal shorelines which are subject to active shoreline erosion and which are unprotected by a barrier island or peninsula, a separation distance from the shoreline to the facility must be at least 5,000 feet unless the design, construction, and operational features of the facility will prevent adverse effects resulting from storm surge and erosion or scouring by water.

(9) A waste pile may not be located in the critical habitat of an endangered species of plant or animal unless the design, construction, and operational features of the facility will prevent adverse effects on the critical habitat of the endangered species.

(10) A waste pile may not be located on a barrier island or peninsula.

(11) A waste pile may not be located within 30 feet of the upthrown side or 50 feet of the downthrown side of the actual or inferred surface expression of a fault that has reasonably been shown to have caused displacement of shallow Quaternary sediments or of man-made structures, unless the design, construction, and operational features of the facility will prevent adverse effects resulting from fault movement. The presence, and if a fault is found to be present, the width and location of the actual or inferred surface expression of a fault, including both the identified zone of deformation and the combined uncertainties in locating a fault trace, shall be determined by a licensed professional geoscientist or geotechnical engineer. For purposes of fault assessment under this paragraph, depths of shallow sediments to be considered could be as little as 100 feet (for older, slowly accumulated sediments), or as great as 300 feet (for younger, rapidly accumulated sediments). The fault study should include analyses of any electric logs developed for any required subsurface characterization of the site, interpretation of available aerial photographs, study of available maps, logs, and documents that may indicate fault locations at the surface and in the subsurface, and a visual observation of the proposed site.

(d) Storage surface impoundments.

(1) A storage surface impoundment may not be located in the 100-year floodplain unless it is designed, constructed, operated, and maintained to prevent physical transport of any hazardous waste by a 100-year flood event. "Physical transport" does not include movement of hazardous waste by an owner or operator to move the hazardous waste to safety during the threat of a 100-year flood event.

(2) A storage surface impoundment may not be located in wetlands.

(3) A storage surface impoundment may not be located on the recharge zone of a sole-source aquifer.

(4) A storage surface impoundment may not be located in areas overlying regional aquifers unless:

(A) the regional aquifer is separated from the base of the containment structure by a minimum of ten feet of material with a hydraulic conductivity toward the aquifer not greater than 10^{-7} cm/sec or a thicker interval of more permeable material which provides equivalent or greater retardation to pollutant migration; or

(B) the impoundment is double-lined and has an intervening leak detection system or the facility has an equivalent design which provides commensurate or greater assurance of waste containment.

(5) A storage surface impoundment may not be located in areas where soil unit(s) within five feet of the containment structure have a Unified Soil Classification of GW, GP, GM, GC, SW, SP, or SM, or a hydraulic conductivity greater than 10^{-5} cm/sec unless:

(A) the impoundment is double-lined and has an intervening leak detection system or the facility has an equivalent design which provides commensurate or greater assurance of waste containment; or

(B) the soil unit is not sufficiently thick and laterally continuous to provide a significant pathway for waste migration.

(6) A storage surface impoundment may not be located in areas of direct drainage within one mile of a lake at its maximum conservation pool level, if the lake is used to supply public drinking water through a public water system, unless the design, construction, and operational features of the facility will prevent adverse effects resulting from a release in such areas.

(7) A storage surface impoundment may not be located in areas of active geologic processes unless the design, construction, and operational features of the facility will prevent adverse effects resulting from the geologic processes.

(8) A storage surface impoundment may not be located within 1,000 feet of an area of active coastal shoreline erosion if the area is protected by a barrier island or peninsula, unless the

design, construction, and operational features of the facility will prevent adverse effects resulting from storm surge and erosion or scouring by water. On coastal shorelines which are subject to active shoreline erosion and which are unprotected by a barrier island or peninsula, a separation distance from the shoreline to the facility must be at least 5,000 feet unless the design, construction, and operational features of the facility will prevent adverse effects resulting from storm surge and erosion or scouring by water.

(9) A storage surface impoundment may not be located in the critical habitat of an endangered species of plant and animal unless the design, construction, and operational features of the facility will prevent adverse effects on the critical habitat of the endangered species.

(10) A storage surface impoundment may not be located on a barrier island or peninsula.

(11) A storage surface impoundment may not be located within 30 feet of the upthrown side or 50 feet of the downthrown side of the actual or inferred surface expression of a fault that has reasonably been shown to have caused displacement of shallow Quaternary sediments or of man-made structures, unless the design, construction, and operational features of the facility will prevent adverse effects resulting from fault movement. The presence, and if a fault is found to be present, the width and location of the actual or inferred surface expression of a fault, including both the identified zone of deformation and the combined uncertainties in locating a fault trace, shall be determined by a licensed professional geoscientist or geotechnical engineer. For purposes of fault assessment under this

paragraph, depths of shallow sediments to be considered could be as little as 100 feet (for older, slowly accumulated sediments), or as great as 300 feet (for younger, rapidly accumulated sediments). The fault study should include analyses of any electric logs developed for any required subsurface characterization of the site, interpretation of available aerial photographs, study of available maps, logs, and documents that may indicate fault locations at the surface and in the subsurface, and a visual observation of the proposed site.

(e) Landfills. Any surface impoundment to be closed as a landfill (where wastes will remain after closure of the impoundment) is subject to the requirements for landfills.

(1) Except as provided in subparagraphs (A) and (B) of this paragraph, a landfill may not be located in the 100-year floodplain existing prior to site development except in areas with flood depths less than three feet. Any landfill within the 100-year floodplain must be designed, constructed, operated, and maintained to prevent physical transport of any hazardous waste by a 100-year flood event.

(A) The areal expansion of a landfill in a 100-year floodplain may be allowed by the commission if the applicant demonstrates to the satisfaction of the commission that the facility design will prevent the physical transport of any hazardous waste by a 100-year flood event.

(B) A new commercial hazardous waste management facility landfill unit may not be located in a 100-year floodplain, unless the applicant demonstrates to the satisfaction of the

commission that the facility design will prevent the physical transport of any hazardous waste by a 100-year flood event.

(2) A landfill may not be located in wetlands.

(3) A landfill may not be located on the recharge zone of a sole-source aquifer.

(4) A landfill may not be located in areas overlying regional aquifers unless:

(A) it is in an area where the average annual evaporation exceeds average annual rainfall by more than 40 inches and the depth to the regional aquifer is greater than 100 feet from the base of the containment structure; or

(B) the regional aquifer is separated from the base of the containment structure by a minimum of ten feet of material with a hydraulic conductivity toward the aquifer not greater than 10^{-7} cm/sec or a thicker interval of more permeable material which provides equivalent or greater retardation to pollutant migration.

(5) A landfill may not be located in areas where soil unit(s) within five feet of the containment structure have a Unified Soil Classification of GW, GP, GM, GC, SW, SP, or SM, or a hydraulic conductivity greater than 10^{-5} cm/sec unless:

(A) it is in an area where the average annual evaporation exceeds average annual rainfall by more than 40 inches; or

(B) the soil unit is not sufficiently thick and laterally continuous to provide a significant pathway for waste migration.

(6) A landfill may not be located within 1,000 feet of an established residence, church, school, day care center, surface water body used for a public drinking water supply, or dedicated public park which is in use at the time the notice of intent to file a permit application is filed with the commission, or if no such notice is filed, at the time the permit application is filed with the commission. The measurement of distances required for a new hazardous waste landfill shall be taken from a perimeter around the proposed new hazardous waste landfill. The perimeter shall be not more than 75 feet from the edge of the proposed new hazardous waste landfill unit.

(7) A landfill at which hazardous waste is received for a fee may not be located in the 100-year floodplain of a perennial stream, delineated on a flood map adopted by the Federal Emergency Management Agency after September 1, 1985, as zone A1-99, VO, or V1-30. This provision shall not apply to any facility for which a notice of intent to file an application, or an application, has been filed with the commission as of September 1, 1985.

(8) A landfill may not be located in areas of direct drainage within one mile of a lake at its maximum conservation pool level, if the lake is used to supply public drinking water through a

public water system, unless the design, construction, and operational features of the facility will prevent adverse effects resulting from a release in such areas.

(9) A landfill may not be located in areas of active geologic processes unless the design, construction, and operational features of the facility will prevent adverse effects resulting from the geologic processes.

(10) A landfill may not be located within 1,000 feet of an area subject to active coastal shoreline erosion, if the area is protected by a barrier island or peninsula, unless the design, construction, and operational features of the facility will prevent adverse effects resulting from storm surge and erosion or scouring by water. On coastal shorelines which are subject to active shoreline erosion and which are unprotected by a barrier island or peninsula, a separation distance from the shoreline to the facility must be at least 5,000 feet unless the design, construction, and operational features of the facility will prevent adverse effects resulting from storm surge and erosion or scouring by water.

(11) A landfill may not be located in the critical habitat of an endangered species of plant or animal unless the design, construction, and operational features of the facility will prevent adverse effects on the critical habitat of the endangered species.

(12) A landfill may not be located on a barrier island or peninsula.

(13) A landfill may not be located within 30 feet of the upthrown side or 50 feet of the downthrown side of the actual or inferred surface expression of a fault that has reasonably been shown to have caused displacement of shallow Quaternary sediments or of man-made structures, unless the design, construction, and operational features of the facility will prevent adverse effects resulting from fault movement. The presence, and if a fault is found to be present, the width and location of the actual or inferred surface expression of a fault, including both the identified zone of deformation and the combined uncertainties in locating a fault trace, shall be determined by a licensed professional geoscientist or geotechnical engineer. For purposes of fault assessment under this paragraph, depths of shallow sediments to be considered could be as little as 100 feet (for older, slowly accumulated sediments), or as great as 300 feet (for younger, rapidly accumulated sediments). The fault study should include analyses of any electric logs developed for any required subsurface characterization of the site, interpretation of available aerial photographs, study of available maps, logs, and documents that may indicate fault locations at the surface and in the subsurface, and a visual observation of the proposed site.

(14) For purposes of this subchapter, any surface impoundment to be closed as a landfill (where wastes will remain after closure of the impoundment) is subject to the requirements for landfills.

(f) Injection Wells. The placement of any noncontainerized or bulk liquid hazardous waste in any salt dome formation, salt bed formation, underground mine, or cave is prohibited.

**SUBCHAPTER K: HAZARDOUS SUBSTANCE FACILITIES ASSESSMENT
AND REMEDIATION**

§335.348

STATUTORY AUTHORITY

The amendment is adopted under Texas Water Code, §5.103, which provides the commission with the authority to adopt rules necessary to carry out its power and duties under this code and other laws of this state; Texas Water Code, §5.105, which authorizes the commission to establish and approve all general policy of the commission by rule; and Texas Civil Statutes, Article 3271b, the Act, which authorizes the public practice of geoscience in the State of Texas.

§335.348. General Requirements for Remedial Investigations.

(a) Unless otherwise directed by the commission, a remedial investigation as approved by the executive director shall be completed before the executive director's selection of the remedial action, except for removals and preliminary site investigations in accordance with §335.346 of this title (relating to Removals and Preliminary Site Investigations).

(b) A similar study may be approved by the executive director as an appropriate alternative to the performance of a full remedial investigation when necessary to avoid delay, to make more effective use of resources or when such similar study is sufficient to adequately characterize a site.

(c) The contents of the remedial investigation as approved by the executive director, will depend on the particular circumstances of each specific facility. Under any remedial investigation, however, sufficient information must be collected and evaluated to allow the executive director to select an appropriate remedial action.

(d) A remedial investigation may include the following, as appropriate to a particular facility, for the purpose of allowing the executive director to select an appropriate remedial action:

(1) investigations of surface water and sediments necessary to characterize hydrologic features such as surface drainage patterns, areas of erosion and sediment deposition, surface waters, floodplains, and actual or potential hazardous substance migration routes within these areas. Properties of surface and subsurface sediments, which would influence the type and rate of hazardous substance migration or affect the ability to implement alternative remedial actions, shall be characterized;

(2) investigations to adequately characterize the nature and extent of hazardous substances in the soils encompassing the facility. Properties associated with the soils, which would influence the type and rate of hazardous substance migration or affect the ability to implement alternative remedial actions, shall be characterized;

(3) investigations of hydrogeology and geology to adequately characterize the nature and extent of hazardous substances in the groundwater and the features which affect the fate and transport of those hazardous substances. This should include, but is not limited to, the physical

properties and distribution of bedrock and unconsolidated materials, groundwater flow rate and gradient for contaminated and potentially contaminated aquifers, groundwater divides, areas of groundwater recharge and discharge, and location of public and private groundwater wells;

(4) information regarding local climatological characteristics which are likely to affect the hazardous substance migration such as: rainfall patterns; frequency of storm events; temperature variations; prevailing wind direction; and wind velocity;

(5) an ecological risk assessment;

(6) descriptions of the location, quantity, horizontal and vertical extent, concentrations and sources of hazardous substances. Information on the physical and chemical characteristics and the toxicological effects of hazardous substances shall be provided, if available; and

(7) a feasibility study.

(e) Protective concentration levels shall be developed in accordance with Chapter 350, Subchapter D of this title (relating to Development of Protective Concentration Levels).

(f) A workplan for a remedial investigation shall be submitted to the executive director for final review and possible modifications and shall include the following:

(1) a sampling and analysis plan covering all sampling activities to be undertaken in accordance with the remedial investigation;

(2) a quality assurance project plan to ensure the integrity of all samples taken in accordance with the remedial investigation;

(3) a health and safety plan to describe steps to be taken to assure the health and safety of all personnel engaged in implementing the remedial investigation; and

(4) an implementation schedule for all aspects of the remedial investigation.

(g) Treatability studies may be required as necessary to provide information to evaluate remedial action alternatives.

(h) In evaluating the acceptability of a remedial investigation, the executive director may require the utilization of published agency and EPA technical guidance documents.

(i) A health and safety plan shall be prepared that addresses the protection of on-site personnel and the public from potential hazards associated with implementing the remedial investigation at a particular facility.

(j) A report shall be prepared at the completion of the remedial investigation and submitted to the executive director for review, possible modification, and final approval.

(k) The selection of the remedial alternative shall be made according to the process outlined in the guidance document "Presumptive Remedies for Soils at Texas State Superfund Sites" or other applicable presumptive remedy documents, unless the executive director determines that a feasibility study must be conducted.

(l) The remedial action for a particular facility shall be selected based on the remedial alternative that the executive director determines to be the lowest cost alternative which is technologically feasible and reliable, effectively mitigates and minimizes damage to the environment, and provides adequate protection of the public health and safety and the environment.

(m) All engineering evaluations, plans, and specifications included in the feasibility study or similar study must be prepared and submitted in accordance with the Texas Engineering Practice Act.

(n) All engineering and geoscientific information submitted to the agency shall be prepared by, or under the supervision of, a licensed professional engineer or licensed professional geoscientist, and shall be signed, sealed, and dated by qualified professionals as required by the Texas Engineering Practice Act and the Texas Geoscience Practice Act and the licensing and registration boards under these acts.

SUBCHAPTER S: RISK REDUCTION STANDARDS

§335.553

STATUTORY AUTHORITY

The amendment is adopted under Texas Water Code, §5.103, which provides the commission with the authority to adopt rules necessary to carry out its power and duties under this code and other laws of this state; Texas Water Code, §5.105, which authorizes the commission to establish and approve all general policy of the commission by rule; and Texas Civil Statutes, Article 3271b, the Act, which authorizes the public practice of geoscience in the State of Texas.

§335.553. Required Information.

(a) For Risk Reduction Standard Number 1 or 2, the person shall provide a final report that documents attainment of the risk reduction standard in accordance with §335.554 or §335.555 of this title (relating to Attainment of Risk Reduction Standard Number 1 and Attainment of Risk Reduction Standard Number 2). The report shall include, but is not limited to, descriptions of procedures and conclusions of the investigation to characterize the nature, extent, direction, rate of movement, volume, composition and concentration of contaminants in environmental media; basis for selecting environmental media of concern; documentation supporting selection of exposure factors; descriptions of removal or decontamination procedures performed in closure or remediation; summaries of sampling methodology and analytical results which demonstrate that contaminants have been removed or decontaminated to applicable levels; and a document that the person proposes to use to fulfill the

requirements of §335.560(b) of this title (relating to Post-Closure Care and Deed Certification for Risk Reduction Standard Number 2), as applicable.

(b) Risk Reduction Standard Number 3, the person shall conduct the activities set forth in paragraphs (1) - (4) of this subsection. The results of activities required by paragraphs (1) - (3) of this subsection may be combined to address a portion of a facility or one or more facilities of a similar nature or close proximity. The submittal shall be subject to review and approval by the executive director prior to carrying out the closure or remediation. Upon completion of the approved activity, the person shall submit the final report required by paragraph (4) of this subsection.

(1) The person shall prepare a remedial investigation report which contains sufficient documentation such as, but not limited to, descriptions of procedures and conclusions of the investigation to characterize the nature, extent, direction, rate of movement, volume, composition, and concentration of contaminants in environmental media of concern, including summaries of sampling methodology and analytical results. Information obtained from attempts to attain Risk Reduction Standard Number 1 or 2 may be submitted for this purpose.

(2) The person shall prepare a baseline risk assessment report which describes the potential adverse effects under both current and future conditions caused by the release of contaminants in the absence of any actions to control or mitigate the release. The report shall also discuss the degree of uncertainty associated with the baseline risk assessment. Residential land use with on-site exposure shall be assumed to evaluate the future use condition unless the person demonstrates to the satisfaction

of the executive director that a different land use assumption such as industrial use is more appropriate. The standard exposure factors set forth in Table 1 (located following paragraph (4) of this subsection) shall be used unless the person documents to the executive director's satisfaction that site-specific exposure data should be used instead.

(3) The person shall evaluate the relative abilities and effectiveness of potential remedies to achieve the requirements for remedies described in §335.561 of this title (relating to Attainment of Risk Reduction Standard Number 3: Closure/Remediation with Controls) when considering the evaluation factors described in §335.562 of this title (relating to Remedy Evaluation Factors for Risk Reduction Standard Number 3). Using this information, the person shall prepare a corrective measure study which recommends the remedy which best achieves the requirements for remedies described in §335.561 of this title. Persons may seek to satisfy the requirements of §335.564 of this title (relating to Post-Closure Care Not Required for Risk Reduction Standard Number 3) by demonstrating in the corrective measure study using the procedures of §335.563 of this title (relating to Media Cleanup Requirements for Risk Reduction Standard Number 3) that no remedy needs to be performed since the existing conditions of the facility or area conform to the media cleanup requirements without the use of removal, decontamination or control measures. Persons may also seek to satisfy the requirements of §335.564 of this title by demonstrating in the corrective measure study that following completion of their recommended removal and/or decontamination activities the conditions of the facility or area will conform to the media cleanup requirements of §335.563 of this title without the use of control measures. Upon review of the corrective measure study, the executive

director may require the person to further evaluate the proposed remedy or to evaluate one or more additional remedies.

(4) The person shall submit to the executive director, for review and acceptance, a final report containing sufficient documentation which demonstrates that the remedy has been completed in accordance with the approved plan and also a document that the person proposes to use to fulfill the requirements of §335.566 of this title (relating to Deed Recordation for Risk Reduction Standard Number 3).

Figure: 30 TAC §335.553(b)(4) (No change.)

(c) For risk reduction standards Numbers 1, 2, and 3, in order for a treatment process to achieve decontamination in contrast to being a control measure, the person must demonstrate to the satisfaction of the executive director that the treatment process permanently alters all contaminants to levels that will not pose a substantial present or future threat to human health and the environment, and must further demonstrate that any residue remaining in place from the treatment will not pose the threat of any future release that would increase the concentrations of contaminants in environmental media above the cleanup levels determined for that particular risk reduction standard.

(d) For Risk Reduction Standards Numbers 1, 2, and 3, attainment of cleanup levels shall be demonstrated by collection and analysis of samples from the media of concern. Persons shall utilize techniques described in SW 846, Test Methods for Evaluating Solid Waste, EPA, or other available

guidance in developing a sampling and analysis plan appropriate for the distribution, composition, and heterogeneity of contaminants and environmental media. A sufficient number of samples shall be collected and analyzed for individual compounds to both accurately assess the risk to human health and the environment posed by the facility or area and to demonstrate the attainment of cleanup levels. Noncompound-specific analytical techniques (e.g., total petroleum hydrocarbons, total organic carbon, etc.) may, where appropriate for the nature of the wastes or contaminants, be used to aid in the determination of the lateral and vertical extent and volume of contaminated media; however, such noncompound-specific analyses will serve only as indicator measures and must be appropriately supported by compound-specific analyses. Comparisons may be based on the following methods:

- (1) direct comparison of the results of analysis of discrete samples of the medium of concern with the cleanup level;
- (2) for a data set of ten or more samples, statistical comparison of the results of analysis utilizing the 95% confidence limit of the mean concentration of the contaminant as determined by the following expression:

Figure: 30 TAC §335.553(d)(2) (No change.)

- (3) other statistical methods appropriate for the distribution of the data, subject to prior approval by the executive director.

Figure: 30 TAC §335.553(d)(3) (No change.)

(e) For Risk Reduction Standards Numbers 2 and 3, in determining toxicity information for contaminants (e.g., EPA carcinogen classification, type of toxicant, reference doses, carcinogenic slope factors, etc.), persons shall utilize values from the following sources in the order indicated. For Risk Reduction Standard Number 2, persons may utilize data from these sources that are more current than those used to derive the unadjusted medium-specific concentrations listed in §335.568 of this title (relating to Appendix II), provided that substantiating information is furnished to the executive director in the report required by §335.555(f) of this title (relating to Attainment of Risk Reduction Standard Number 2: Closure/Remediation to Health-Based Standards and Criteria).

(1) Integrated Risk Information System (IRIS);

(2) Health Effects Assessment Summary Table (HEAST);

(3) EPA Criteria Documents;

(4) Agency for Toxic Substances and Disease Registry (ATSDR) Toxicological

Profiles; and

(5) other scientifically valid published sources.

(f) For Risk Reduction Standards Numbers 2 and 3, persons determining cleanup levels for contaminated media characterized by noncompound-specific analytical techniques (e.g., total petroleum hydrocarbons, total organic carbon, etc.) and for which individual compounds such as hazardous constituents are not present as contaminants, must at a minimum consider other scientifically valid published numeric criteria to address: adverse impacts on environmental quality; adverse impacts on the public welfare and safety; conditions that present objectionable characteristics (e.g., taste, odor, etc.); or conditions that make a natural resource unfit for use.

(g) All engineering and geoscientific information submitted to the agency shall be prepared by, or under the supervision of, a licensed professional engineer or licensed professional geoscientist, and shall be signed, sealed, and dated by qualified professionals as required by the Texas Engineering Practice Act and the Texas Geoscience Practice Act and the licensing and registration boards under these acts.