

## **SUBCHAPTER A: GENERAL INFORMATION**

### **§§350.1 - 350.5**

**Effective March 19, 2009**

#### **§350.1. Purpose.**

This chapter specifies the information and procedures necessary to demonstrate compliance with the Texas Risk Reduction Program. This program provides a consistent corrective action process directed toward protection of human health and the environment balanced with the economic welfare of the citizens of this state. This program uses a tiered approach incorporating risk assessment techniques to help focus investigations, to determine appropriate protective concentration levels for human health, and when necessary, for ecological receptors. The program also sets reasonable response objectives that will protect human health and the environment and preserve the active and productive use of land.

(1) The provisions of this chapter in no way prohibit actions which should be taken by the person to mitigate emergency situations, to abate an ongoing release, or to stabilize or abate the spread of released chemicals of concern.

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

Adopted August 6, 2003

Effective September 1, 2003

#### **§350.2. Applicability.**

(a) General applicability. On May 1, 2000, persons shall comply with the requirements of this chapter to the extent not modified by the provisions of this section. Before May 1, 2000, the person may use this chapter upon the effective date of the chapter. The rules in this chapter specify objectives for response actions for affected properties and further specify the mechanism to evaluate such response actions once an obligation is established to take a response action via other applicable rules, orders, permits or statutes. All actions undertaken and demonstrations required by this chapter must be performed and documented to the reasonable satisfaction of the executive director. Additionally, no person shall submit information to the executive director or to parties who are required to be provided information under this chapter which they know or reasonably should have known to be false or intentionally misleading, or fail to submit available information which is critical to the understanding of the matter at hand or to the basis of critical decisions which reasonably would have been influenced by that information. This chapter does not establish requirements for reporting releases to program areas. The regulations in this chapter address releases of chemicals of concern (COCs) as defined by various programs subject to this chapter as specified in subsections (b) - (m) of this section. However, the regulations in this chapter do not eliminate the need for the person to meet any more stringent or additional requirements found in the particular rules for the covered program areas or applicable federal requirements.

(b) Property where a release of COCs occurs that is regulated under Chapter 327 of this title (relating to Spill Prevention and Control), as amended. The person shall first complete notification for releases under §327.3 of this title (relating to Notification Requirements), as amended, and then conduct response actions under §327.5 of this title (relating to Actions Required), as amended. The person shall utilize this chapter to conduct response actions when either the conditions of paragraphs (1) or (2) of this subsection apply.

(1) The person chooses to respond under this chapter to a release of COCs within the first six months after the release is reported to the executive director.

(2) The person determines that the response action to the release of COCs cannot be completed to the satisfaction of the executive director within the first six months following notification to the executive director.

(c) Property regulated under Chapter 330 of this title (relating to Municipal Solid Waste). Persons shall comply with the requirements of this chapter for those municipal solid waste properties except when subject to the requirements of 40 Code of Federal Regulations Parts 257 and/or 258, as amended. However, for those municipal solid waste properties subject to the requirements of 40 Code of Federal Regulations Parts 257 and/or 258, as amended, the executive director may establish an alternative health-based groundwater protection standard for a COC in accordance with §330.409 of this title (relating to Assessment Monitoring Program), as amended. Determination of such an alternative standard shall be made using the procedures of Subchapter D of this chapter (relating to Development of Protective Concentration Levels).

(d) Property regulated under Chapter 331 of this title (relating to Underground Injection Control). The person shall address unauthorized releases of COCs from associated tankage and equipment utilizing the procedures of this chapter. Excursions of injected mining solutions at in-situ mining properties or injection of waste which is confined below all underground sources of drinking water as defined in §331.2 of this title (relating to Definitions), as amended, are not subject to the requirements of this chapter.

(e) Property regulated under Chapter 332 of this title (relating to Composting). The person shall comply with the requirements of this chapter to conduct assessments, response actions, and post-response action care for releases of COCs in environmental media at a compost facility, mulching facility or land application property authorized under Chapter 332 of this title, as amended.

(f) Property regulated under Chapter 333 of this title (relating to Brownfields Initiatives). The person entering the Voluntary Cleanup Program (VCP) shall comply with all requirements found in the Texas Health and Safety Code, Chapter 361, Subchapter S, as amended, concerning the Voluntary Cleanup Program; Subchapter A of Chapter 333 of this title (relating to Voluntary Cleanup Program Section), as amended; and the requirements of this chapter. Where there is a conflict between the requirements of this chapter and the requirements in the Texas Health and Safety Code, Chapter 361, Subchapter S, as amended, and Chapter 333, Subchapter A of this title, as amended, the requirements of the Texas Health and Safety Code, Chapter 361, Subchapter S, as amended, and Chapter 333, Subchapter A of this title, as amended, shall apply.

(g) Property regulated under Chapter 334 of this title (relating to Underground and Aboveground Storage Tanks). The person shall comply with the requirements of Chapter 334 of this title and not this chapter for the assessment, response actions, and post-response action care for releases of regulated substances from underground storage tanks (USTs) and aboveground storage tanks (ASTs).

(h) Property regulated under Chapter 335 of this title (relating to Industrial Solid Waste and Municipal Hazardous Waste). The person shall comply with the requirements of this chapter when undertaking the remediation of affected property at facilities used for the storage, processing or disposal of industrial solid waste or municipal hazardous waste, or for the remediation of environmental media containing COCs resulting from releases from waste management facility components (e.g., tank, container storage area, surface impoundment, etc.), either as part of closure or at any time before or after closure. The person shall close a waste management facility component in a manner that minimizes or eliminates the need for further maintenance and controls. The manner of closure shall also minimize or eliminate, to the extent necessary to protect human health and the environment, the post-closure escape of waste, contaminants, leachate, run-off, or decomposition products to the surrounding environmental media. Waste management facility components undergoing closure for which the person can demonstrate that no release of COCs to surrounding environmental media has occurred are subject to this chapter only with regard to this closure performance standard and the removal, decontamination or control requirements for waste as specified in Subchapter B of this chapter (relating to Remedy Standards). In the event a release of COCs to surrounding environmental media has occurred, then the person shall comply with this chapter for response to the release. The person shall comply with §335.118(b) of this title (relating to Closure Plan; Submission and Approval of Plan), as amended, or applicable permit provisions regarding requirements for public participation in the corrective action process for permitted hazardous waste facilities. The person shall also comply with the requirements of paragraphs (1) - (3) of this subsection, as applicable.

(1) Any person who stores, processes, or disposes of industrial solid waste or municipal hazardous waste at a facility permitted under §335.2(a) of this title (relating to Permit Required), as amended, shall, unless specifically modified by other order of the commission, close the facility in accordance with the closing provisions of the permit.

(2) Any person who stores, processes, or disposes of hazardous waste is also subject to the applicable provisions relating to closure and post-closure in Chapter 335, Subchapters E and F of this title (relating to Interim Standards for Owners and Operators of Hazardous Waste Treatment, Storage, or Disposal Facilities; and Permitting Standards for Owners and Operators of Hazardous Waste Treatment, Storage, or Disposal Facilities, respectively), as amended.

(3) The person may utilize this chapter to determine if COCs, specifically listed hazardous waste or hazardous constituents, exceed concentrations protective of human health and the environment when making "contained-in" determinations for environmental media being managed as wastes (e.g., excavated soils, investigation derived wastes such as monitor well purge water, etc.) for purposes of treatment or disposal in a different location. In such cases, the person must still perform a waste classification in response to Chapter 335, Subchapters A and R of this title (relating to Industrial Solid Waste and Municipal Hazardous Waste Management in General; and Waste Classification, respectively), as amended.

(4) The person may propose a facility operations area (FOA) to address multiple sources of COCs within an active facility that is required to perform corrective action for releases pursuant to a permit or commission corrective action order. The requirements for establishing a FOA are specified in Subchapter G of this chapter (relating to Establishing a Facility Operations Area).

(i) Affected property regulated under Chapter 335, Subchapter K of this title (relating to Hazardous Substance Facilities Assessment and Remediation). The person shall comply with all requirements found in the Texas Health and Safety Code, Chapter 361, Subchapter F, as amended; Chapter 335, Subchapter K of this title, as amended; and the requirements of this chapter for any release or threatened release of hazardous substances into the environment that may constitute an imminent and substantial endangerment to public health and safety or the environment. Where there is a conflict between the requirements in this chapter and the requirements of Texas Health and Safety Code, Chapter 361, Subchapter F, as amended, and Chapter 335, Subchapter K of this title, as amended, the requirements of Texas Health and Safety Code, Chapter 361, Subchapter F and Chapter 335, Subchapter K of this title shall apply.

(j) Property regulated under Chapter 336 of this title (relating to Radioactive Substance Rules). The person shall comply with the requirements of Chapter 336 of this title, as amended, regarding contamination limits for radioactive material in environmental media. In instances involving remediation of releases in media containing both radioactive material and other COCs, the person shall use the contamination limits determined in accordance with Chapter 336 of this title, as amended, for radioactive material and PCLs determined by the procedures of this chapter for other COCs.

(k) Property regulated under Chapter 312 of this title (relating to Sludge Use, Disposal, and Transportation). The executive director may reference this chapter in permits subject to Chapter 312 of this title, as amended, when specifying closure provisions to address releases of COCs from facility components at municipal wastewater treatment plants.

(l) Other releases. The executive director may require the use of this chapter to address other releases of COCs subject to Texas Water Code, Chapter 26, as amended.

(m) Use of this chapter on or after May 1, 2000. The person who started a response action under Chapter 335, Subchapters A and S of this title (relating to Industrial Solid Waste and Municipal Hazardous Waste in General; Risk Reduction Standards, respectively), as amended, may qualify to continue under those previous commission rules subject to the limitations specified in paragraphs (1) - (4) of this subsection. Any person desiring to remain under Chapter 335 of this title may not use any of the provisions of this chapter. If a person elects to proceed under this chapter, then they shall not be allowed to return to Chapter 335 of this title. Also, the person shall respond as described in §350.35 of this title (relating to Substantial Change in Circumstances) in the event a substantial change in circumstance occurs which results in an unacceptable threat to human health or the environment.

(1) The person who has submitted an initial notification of intent to conduct a Risk Reduction Standard 1 or 2 response action (i.e., §335.8(c)(1) and (2) of this title (relating to Closure and Remediation), as amended) prior to May 1, 2000, and has submitted a final report within five years after that date may request that the response action be reviewed according to the regulations in effect at the time of initial notification. Persons will automatically qualify for this grandfathering provision if they

have previously received a letter from the agency acknowledging receipt of the initial notification, or submit other forms of documentation by May 1, 2001, that proper and timely notification had been made.

(2) The person who has submitted a remedial investigation report that fully complies with §335.553(b)(1) of this title (relating to Required Information), as amended, prior to May 1, 2001, may elect to either continue under those rules or to proceed under this chapter.

(3) Any closure plans approved as part of a permit issued prior to May 1, 2000, but not implemented at the time of permit renewal are subject to review for compliance with this chapter as part of the permit renewal process.

(4) The person may resubmit plans or reports that the person has revised voluntarily to conform with the requirements of this chapter, unless such resubmittal would result in noncompliance with a previously approved or imposed schedule of compliance.

Adopted February 25, 2009

Effective March 19, 2009

### **§350.3. Process.**

Once a release of COCs as defined by various programs has been identified and reported pursuant to rules or procedures established by one of the program areas identified in §350.2 of this title (relating to Applicability), this chapter controls the assessment and any action taken in response to that release. Upon initial notification to the appropriate program, the person will follow the general process as stated in paragraphs (1) - (5) of this section to demonstrate compliance with this chapter.

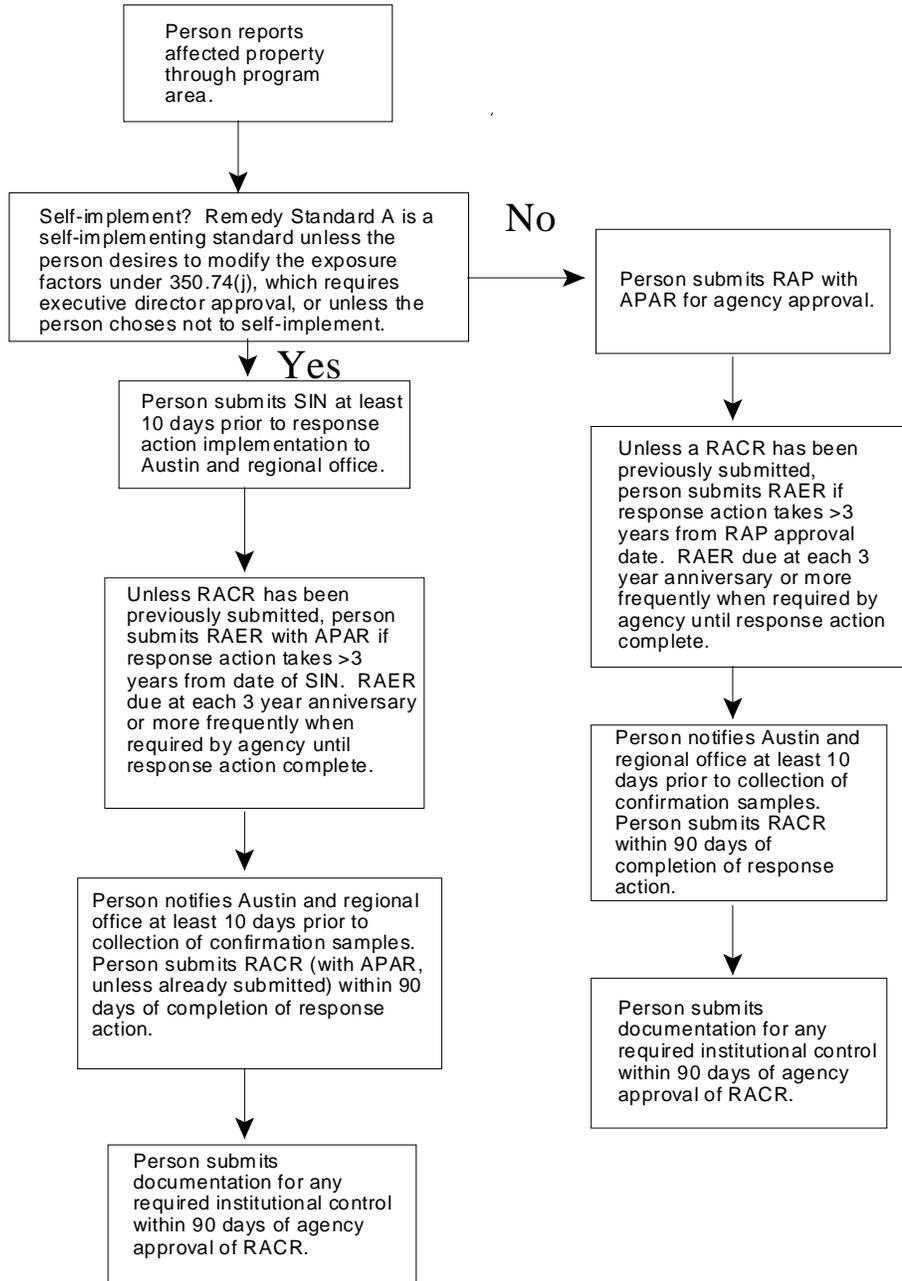
(1) The person shall conduct an affected property assessment, classify groundwater, determine land use, and notify affected property owners in accordance with this subchapter and Subchapter C of this chapter (relating to Affected Property Assessment).

(2) The person shall determine critical protective concentration levels in accordance with Subchapter D of this chapter (relating to Development of Protective Concentration Levels) for the appropriate environmental media.

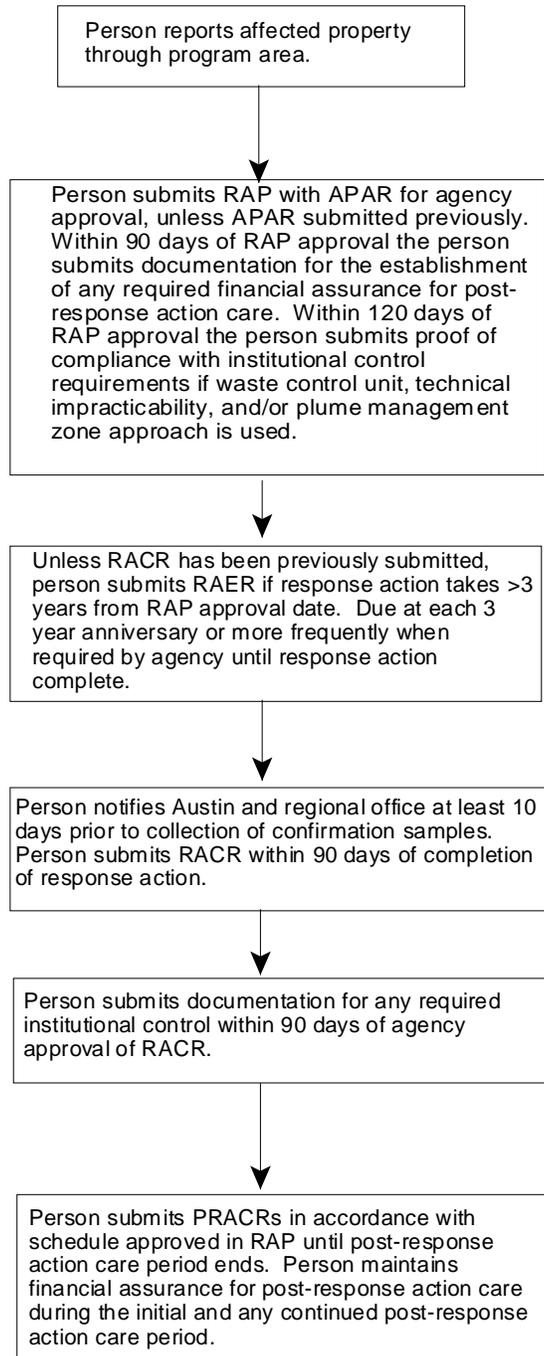
(3) The person shall develop a response action capable of attaining the response objectives under Remedy Standard A or B in accordance with Subchapter B of this chapter (relating to Remedy Standards).

(4) The person shall develop and submit the reports required in Subchapter B of this chapter (relating to Remedy Standards) which contain the information specified for each report in Subchapter E of this chapter (relating to Reports). The sequencing of report submission is illustrated in the following figure.

### Remedy Standard A Reporting



## Remedy Standard B Reporting



(5) The person shall implement the response action, document conformance with the response objectives, and if required, file institutional controls, perform post-response action care, and establish financial assurance in accordance with Subchapter B of this chapter (relating to Remedy Standards).

Adopted February 21, 2007

Effective March 19, 2007

#### **§350.4. Definitions and Acronyms.**

(a) Definitions.

(1) Affected property--The entire area (i.e., on-site and off-site; including all environmental media) which contains releases of chemicals of concern at concentrations equal to or greater than the assessment level applicable for residential land use and groundwater classification.

(2) Alternate point of exposure--A location other than the prescribed point of exposure where an individual human or population will be assumed to have a reasonable potential to come into contact with chemicals of concern based on property-specific considerations.

(3) Assessment level--A critical protective concentration level for a chemical of concern used for affected property assessments where the human health protective concentration level is established under a Tier 1 evaluation as described in §350.75(b) of this title (relating to Tiered Human Health Protective Concentration Level Evaluation), except for the protective concentration level for the soil-to-groundwater exposure pathway which may be established under Tier 1, 2, or 3 as described in §350.75(i)(7) of this title, and ecological protective concentration levels which are developed, when necessary, under Tier 2 and/or 3 in accordance with §350.77(c) and/or (d), respectively, of this title (relating to Ecological Risk Assessment and Development of Ecological Protective Concentration Levels).

(4) Attenuation action level--The maximum concentration of a chemical of concern which can be present at an attenuation monitoring point and not exceed the applicable critical protective concentration level at the points of exposure over time.

(5) Attenuation monitoring point--A location within the migration pathway of a chemical of concern which is used to verify that the critical PCL will not be exceeded at the points of exposure.

(6) Background--A population of concentrations characterized from samples in an environmental medium containing a chemical of concern that is naturally occurring (i.e., the concentration is not due to a release of chemicals of concern from human activities) or anthropogenic (i.e., the presence of a chemical of concern in the environment which is due to human activities, but is not the result of site-specific use or release of waste or products, or industrial activity). Examples of anthropogenic sources include non-site specific sources such as lead from automobile emissions, arsenic from use of defoliants, and polynuclear aromatic hydrocarbons resulting from combustion of hydrocarbons. There are some commonalities regardless of the activity; specifically, the chemicals of concern have resulted from the use of a product in its intended manner and may be present at generally low levels over large areas (tens of square miles up to hundreds of square miles). Background is required for use in a statistical model appropriate for testing the hypothesis that the background area characterized by these kinds of models has the same concentrations of the chemical of concern as the affected property.

The background area characterized is as "close" as possible to the affected property, in either space or time, as required.

(7) Bedrock--The solid rock (i.e., consolidated, coherent, and relatively hard naturally formed material that cannot normally be excavated by manual methods alone) that underlies gravel, soil or other surficial material.

(8) Bioaccumulative chemical of concern--A chemical of concern which has the tendency to accumulate in the tissues of an organism as a result of food consumption or dietary exposure and/or direct exposure (e.g., gills and epithelial tissue) to an environmental medium.

(9) Carcinogen--A chemical of concern which causes an increased incidence of benign or malignant neoplasms, or substantially decreases the time to develop neoplasms, in animals or humans (a chemical of concern can act as both a carcinogen and a noncarcinogen).

(10) Carcinogenic risk level--The probability of development of a neoplasm due to continuous lifetime exposure to a single carcinogen acting through an individual or combined exposure pathway.

(11) Chemical of concern--Any chemical that has the potential to adversely affect ecological or human receptors due to its concentration, distribution, and mode of toxicity. Depending on the program area, chemicals of concern may include the following: solid waste, industrial solid waste, municipal solid waste, and hazardous waste as defined in the Texas Health and Safety Code, §361.003, as amended; hazardous constituents as listed in 40 Code of Federal Regulations Part 261, Appendix VIII, as amended; constituents on the groundwater monitoring list in 40 Code of Federal Regulations Part 264, Appendix IX, as amended; constituents as listed in 40 Code of Federal Regulations Part 258 Appendices I and II, as amended; pollutant as defined in Texas Water Code, §26.001, as amended; hazardous substance as defined in the Texas Health and Safety Code, §361.003, as amended, and Texas Water Code, §26.263, as amended; other substances as defined in Texas Water Code, §26.039(a), as amended; and daughter products of the aforementioned constituents.

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

(13) Commercial/industrial land use--Any real property or portions of a property not used for human habitation or for other purposes with a similar potential for human exposure as defined for residential land. Examples of commercial/industrial land use include manufacturing; industrial research and development; utilities; commercial warehouse operations; lumber yards; retail gas stations; auto service stations; auto dealerships; equipment repair and service stations; professional offices (lawyers, architects, engineers, real estate, insurance, etc.); medical/dental offices and clinics (not including hospitals); financial institutions; office buildings; any retail business whose principal activity is the sale of food or merchandise; personal service establishments (health clubs, barber/beauty salons, mortuaries, photographic studios, etc.); churches (not including churches providing day care or school services other than during normal worship services); motels/hotels (not including those which allow residence); agricultural lands; and portions of government-owned land (local, state, or federal) that have commercial/industrial activities occurring. Land use activities consistent with this classification have the North American Industrial Classification System code numbers 11 - 21 inclusive; 22 except 22131; 23 -

56 inclusive; 61 except 61111, 61121, and 61131; 62 except 62211, 62221, 62231, 62311, 62322, 623311, 623312, 62399, and 62441; 71 except 71219; 72 except 721211 and 72131; 81 except 814; and 92 excluding 92214.

(14) Community--An assemblage of plant and animal populations occupying the same habitat in which the various species interact via spatial and trophic relationships (e.g., a desert community or a pond community).

(15) Compensatory ecological restoration--The creation of ecological services by or through restoration or the setting aside of, preferably, a comparable type of habitat as that which is impacted to offset residual ecological risk at an affected property. A net environmental benefits analysis or similar evaluation of ecological services may be used in the determination of the appropriate level of compensation.

(16) Complete exposure pathway--An exposure pathway where a human or ecological receptor is exposed to a chemical of concern via an exposure route (e.g., incidental soil ingestion, inhalation of volatiles and particulates, consumption of prey, etc.).

(17) Construction zone--The typical depth of construction within soil for an affected property considering the planned or historical installation of subsurface utilities, foundations, basements, or other such subsurface structures within the vicinity of the affected property not to extend below the top of bedrock.

(18) Control--To apply physical or institutional controls to prevent exposure to chemicals of concern. Control measures must be combined with appropriate maintenance, monitoring, and any necessary further response action to be protective of human health and the environment.

(19) Critical protective concentration level--The lowest protective concentration level for a chemical of concern within a source medium determined from all of the applicable human health exposure pathways as described in §350.71 of this title (relating to General Requirements), and when necessary, protective concentration levels for applicable ecological exposure pathways as required in §350.77 of this title (relating to Ecological Risk Assessment and Development of Ecological Protective Concentration Levels).

(20) Cumulative carcinogenic risk--The aggregate risk due to exposure of an individual human receptor to multiple carcinogens originating from a single affected property and acting through an individual or combined exposure pathway.

(21) Decontaminate--Application or occurrence of a permanent and irreversible treatment process to a waste or environmental medium so that the threat of release of chemicals of concern at concentrations above the critical protective concentration levels is eliminated.

(22) Deed notice--An instrument filed in the real property records of the county where the affected property is located that is intended to provide to owners, prospective buyers and others notice and information regarding, but which does not, by itself, restrict use of the affected property.

(23) *De minimus* --The description of an area of affected property comprised of one acre or less where the ecological risk is considered to be insignificant because of the small extent of contamination, the absence of protected species, the availability of similar unimpacted habitat nearby, and the lack of adjacent sensitive environmental areas.

(24) Ecological benchmark--A state standard, federal guideline, or other exposure level for a chemical of concern in water, sediment, or soil that represents a protective threshold from adverse ecological effects. An ecological benchmark may also be a toxicity reference value that is established by the person based on scientific studies in the literature.

(25) Ecological hazard index--The sum of individual ecological hazard quotients of COCs within a class of compounds that exert ecological effects which have the same toxicological mechanism or endpoint (e.g., PAHs, PCBs).

(26) Ecological hazard quotient--The ratio of an exposure level to a chemical of concern to a toxicity value selected for the risk assessment for that chemical of concern (e.g., a no observed adverse effects level).

(27) Ecological protective concentration level--The concentration of a chemical of concern at the point of exposure within an exposure medium (e.g., soil, sediment, groundwater, or surface water) which is determined in accordance with §350.77(c) or (d) of this title (relating to Ecological Risk Assessment and Development of Ecological Protective Concentration Levels) to be protective for ecological receptors. These concentration levels are primarily intended to be protective for more mobile or wide-ranging ecological receptors and, where appropriate, benthic invertebrate communities within the waters in the state. These concentration levels are not intended to be directly protective of receptors with limited mobility or range (e.g., plants, soil invertebrates, and small rodents), particularly those residing within active areas of a facility, unless these receptors are threatened/endangered species or unless impacts to these receptors result in disruption of the ecosystem or other unacceptable consequences for the more mobile or wide-ranging receptors (e.g., impacts to an off-site grassland habitat eliminate rodents which causes a desirable owl population to leave the area).

(28) Ecological risk assessment--The process that evaluates the likelihood that adverse ecological effects may occur or are occurring as a result of exposure to one or more stressors; however, as used in this context, only chemical stressors (i.e., COCs) are evaluated.

(29) Ecological services--The physical, chemical, or biological functions of natural resources that one natural resource provides for another or to the public. Examples include provision of food, protection from predation, and nesting habitat, among others.

(30) Ecological services analysis--A measurement of the potential change in ecological services based on considerations which may include, but are not limited to: the percent change in ecological services at the affected property that are attributable to COCs and/or potential response actions; the spatial extent of the affected property; and the recovery period.

(31) Environmental medium--A material found in the natural environment such as soil (including non-waste fill materials), groundwater, air, surface water, and sediments, or a mixture of such

materials with liquids, sludges, gases, or solids, including hazardous waste which is inseparable by simple mechanical removal processes, and is made up primarily of natural environmental material.

(32) Exclusion criteria--Those conditions at an affected property which preclude the need to establish a protective concentration level for an ecological exposure pathway because the exposure pathway between the chemical of concern and the ecological receptors is not complete or is insignificant.

(33) Exposure area--The smallest property surface area within which it is believed that exposure to chemicals of concern in soil or air by a receptor would be limited under reasonably anticipated current or future use scenarios.

(34) Exposure medium--The environmental medium or biologic tissue in which or by which exposure to chemicals of concern by ecological or human receptors occurs.

(35) Exposure pathway--The course that a chemical of concern takes from a source area to ecological or human receptors and includes a source area, a point of exposure, and an exposure route (e.g., ingestion), as well as a transport mechanism if the point of exposure is different from the source area.

(36) Facility--The installation associated with the affected property where the release of chemicals of concern occurred.

(37) Facility Operations Area--One or more areas (lateral and vertical extent) of an operational chemical or petroleum manufacturing plant with North American Industrial Classification System code numbers 325 or 324, respectively, with a hazardous waste permit or commission corrective action order within which response actions to multiple releases of COCs can be consolidated for purposes of compliance with this chapter on an area-wide basis by using interim or permanent response actions. The lateral extent of the facility operations area is limited to the contiguous area actively used for the development, manufacture, process, transfer, storage, and management of chemical or refinery products, hazardous materials, substances and wastes subject to Resource Conservation and Recovery Act regulation, and includes ancillary components such as, but not necessarily limited to, power plants and cooling units.

(38) Feeding guilds--Groups of ecological receptors used to represent the variety of species that may be exposed to chemicals of concern at the affected property. The feeding guilds are generally based on function within an ecosystem, potential for exposure, and physiological and taxonomic similarity. Examples include carnivorous mammals, carnivorous birds, and piscivorous birds.

(39) Functioning cap--A low permeability layer or other approved cover meeting its design specifications to minimize water infiltration and chemical of concern migration, and prevent ecological or human receptor exposure to chemicals of concern, and whose design requirements are routinely maintained.

(40) Groundwater-bearing unit--A saturated geologic formation, group of formations, or part of a formation which has a hydraulic conductivity equal to or greater than  $1 \times 10^{-5}$  centimeters/second.

(41) Groundwater production zone--The groundwater-bearing unit(s) which contributes water to a well. For example, if a well penetrates four distinct groundwater-bearing units isolated by competent aquitards, but the well is screened in only two of the units and has a competent annular seal to isolate the other two units, then the groundwater production zone consists of only the two units that contribute water to the well.

(42) Groundwater protective concentration level exceedence zone--A protective concentration level exceedence zone within a groundwater-bearing unit.

(43) Hazard index--The sum of two or more hazard quotients for multiple noncarcinogens originating from a single affected property.

(44) Hazard quotient--The ratio of the level of exposure of a noncarcinogen acting through an individual or combined exposure pathway over a specified time period to a reference dose for the noncarcinogen derived for a similar exposure period.

(45) Implementation Procedures--The most current version of *Procedures to Implement the Texas Surface Water Quality Standards*, as amended.

(46) Innocent Owner or Operator--Those persons so designated in accordance with Texas Health and Safety Code, Chapter 361, Subchapter V, Immunity From Liability of Innocent Owner or Operator, as amended.

(47) Institutional control--A legal instrument placed in the property records in the form of a deed notice, Voluntary Cleanup Program Certificate of Completion (VCP Certificate of Completion), or restrictive covenant which indicates the limitations on or the conditions governing use of the property which ensures protection of human health and the environment or equivalent zoning and governmental ordinances.

(48) Judgmental sample--An investigative sample of an environmental medium which is purposefully located based upon property-specific information.

(49) Laboratory Control Sample--A spiked blank sample analyzed by the laboratory to assess laboratory ability to successfully recover chemicals of concern from a control matrix.

(50) Landscaped area--An area of ornamental, introduced, commercially installed, or manicured vegetation which is routinely maintained.

(51) Long-term effectiveness--The ability of a remedy to maintain the required level of protection of human health and the environment over time.

(52) Lower explosive limit--The lowest concentration of a vapor or gas in air that will produce a flash of fire when an ignition source (heat, arc, or flame) is present.

(53) Method detection limit--The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined for each COC from the analysis of a sample of a given matrix type containing the COC.

(54) Method quantitation limit--The lowest non-zero concentration standard in the laboratory's initial calibration curve and is based on the final volume of extract (or sample) used by the laboratory.

(55) Monitored natural attenuation--The use of natural attenuation within the context of a carefully controlled and monitored response action to achieve protective concentration levels at the point of exposure.

(56) Natural attenuation--The reduction in mass or concentration of a chemical of concern over time or distance from the source of a chemical of concern due to naturally occurring physical, chemical, and biological processes, such as: biodegradation, dispersion, dilution, adsorption, and volatilization.

(57) Natural attenuation factor--The numerical value which represents the natural attenuation (i.e., reduction) in chemical of concern concentrations during transport from the source area to the point of exposure. The natural attenuation factor is the concentration at the source area divided by the concentration at the point of exposure. The natural attenuation factor is always greater than or equal to one for the purposes of this rule.

(58) Natural Resource Trustees--The federal agencies as designated by the President and the state agencies as designated by the Governor pursuant to the National Contingency Plan, Oil Pollution Act, and CERCLA §107(f)(2)(A) and (B) to act on behalf of the public as trustees of natural resources (e.g., water, air, land, wildlife). The Trustees include TCEQ, Texas Parks and Wildlife Department, Texas General Land Office, National Oceanic and Atmospheric Administration, and the Department of the Interior.

(59) Off-site property (off-site)--All environmental media which is outside of the legal boundaries of the on-site property.

(60) On-site property (on-site)--All environmental media within the legal boundaries of a property owned or leased by a person who has filed a self-implementation notice or a response action plan for that property or who has become subject to such action through one of the agency's program areas for that property.

(61) Permanence/permanent/permanently--The property of a response action which is capable of enduring indefinitely without posing the threat of any future release of chemicals of concern above the critical protective concentration levels established for the property.

(62) Person--An individual, corporation, organization, government or governmental subdivision or agency, business trust, partnership, association, or any other legal entity.

(63) Physical barrier--Any structure or system, natural or manmade, that prevents exposure or prevents migration of chemicals of concern to the points of exposure.

(64) Physical control--A structure or hydraulic containment action which prevents exposure to and/or migration of chemicals of concern when combined with appropriate post-response

action care to protect human health and the environment. Examples of physical controls are caps, slurry walls, sheet piling, hydraulic containment wells, and interceptor trenches, but typically not fences.

(65) Plume management zone--The area of the groundwater protective concentration level exceedence zone at the time of response action plan submittal, plus any additional area allowed in accordance with §350.33(f)(4) of this title (relating to Remedy Standard B).

(66) Point of exposure--The location within an environmental medium where a receptor will be assumed to have a reasonable potential to come into contact with chemicals of concern. The point of exposure may be a discrete point, plane, or an area within or beyond some location.

(67) Prescribed points of exposure--The prescribed on-site and off-site locations within an environmental medium where an individual human or population will be assumed to come into contact with chemicals of concern from an affected property.

(68) Protective concentration level--The concentration of a chemical of concern which can remain within the source medium and not result in levels which exceed the applicable human health risk-based exposure limit or ecological protective concentration level at the point of exposure for that exposure pathway.

(69) Protective concentration level exceedence zone--The lateral and vertical extent of all wastes and environmental media which contain chemicals of concern at concentrations greater than the critical protective concentration level determined for that medium, as well as, hazardous waste. A protective concentration level exceedence zone can be thought of as the volume of waste and environmental media which must be removed, decontaminated, and/or controlled in some fashion to adequately protect human health and the environment.

(70) Reasonably anticipated to be completed exposure pathway--A situation with a credible chance of occurrence in which an ecological or human receptor may become exposed to a chemical of concern (i.e., complete exposure pathway) without consideration of circumstances which are extreme or improbable based on property characteristics.

(71) Release--Any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment, with the exception of:

(A) A release that results in an exposure to a person solely within a workplace, concerning a claim that the person may assert against the person's employer;

(B) An emission from the engine exhaust of a motor vehicle, rolling stock, aircraft, vessel, or pipeline pumping station engine;

(C) A release of source, by-product, or special nuclear material from a nuclear incident, as those terms are defined by the Atomic Energy Act of 1954, as amended (42 U.S.C. §2011 *et seq.*), if the release is subject to requirements concerning financial protection established by the Nuclear Regulatory Commission under §170 of that Act;

(D) For the purposes of the environmental response law §104, as amended, or other response action, a release of source, by-product, or special nuclear material from a processing site designated under §102(a)(1) or §302(a) of the Uranium Mill Tailings Radiation Control Act of 1978 (42 U.S.C. §7912 and §7942), as amended; and

(E) The normal application of fertilizer.

(72) Remediation--The act of eliminating or reducing the concentration of chemicals of concern in environmental media.

(73) Remove--To take waste or environmental media away from the affected property to another location for storage, processing or disposal in accordance with all applicable requirements. Removal is an irreversible process that results in permanent risk reduction at an affected property.

(74) Residential land use--Property used for dwellings such as single family houses and multi-family apartments, children's homes, nursing homes, and residential portions of government-owned lands (local, state, or federal). Because of the similarity of exposure potential and the sensitive nature of the potentially exposed population, day care facilities, educational facilities, hospitals, and parks (local, state or federal) shall also be considered residential.

(75) Response action--Any activity taken to comply with these regulations to remove, decontaminate and/or control (i.e., physical controls and institutional controls) chemicals of concern in excess of critical PCLs in environmental media, including actions taken in response to releases to environmental media from a waste management unit before, during, or after closure.

(76) Restrictive covenant--An instrument filed in the real property records of the county where the affected property is located which ensures that the restrictions will be legally enforceable by the executive director when the person owning the property is an innocent landowner.

(77) Risk-based exposure limit--The concentration of a chemical of concern at the point of exposure within an exposure medium (e.g., soil, sediment, vegetables, groundwater, surface water, or air) which is protective for human health. Risk-based exposure limits are the fundamental risk-based values which are initially determined and used in the development of protective concentration levels. Risk-based exposure limits do not account for cumulative effects from exposure to multiple chemicals of concern, combined exposure pathways, and cross-media or lateral transport of chemicals of concern within environmental media.

(78) Sample detection limit--The method detection limit, as defined in this section, adjusted to reflect sample-specific actions, such as dilution or use of smaller aliquot sizes than prescribed in the analytical method, and to take into account sample characteristics, sample preparation, and analytical adjustments. The term, as used in this rule, is analogous to the sample-specific detection limit.

(79) Sediment--Non-suspended particulate material lying below surface waters such as bays, the ocean, rivers, streams, lakes, ponds, or other similar surface water body (including intermittent streams). Dredged sediments which have been removed from below surface water bodies and placed on land shall be considered soils.

(80) Selected ecological receptors--Species that are to be carried through the ecological risk assessment as representatives of the different feeding guilds and communities that are being evaluated. These species may not actually occur at the affected property, but may be used to represent those within the feeding guild or community that may feed on the affected property.

(81) Sensitive environmental areas--Areas that provide unique and often protected habitat for wildlife species. These areas are typically used during critical life stages such as breeding, hatching, rearing of young, and overwintering. Examples include critical habitat for threatened and endangered species, wilderness areas, parks, and wildlife refuges.

(82) Soil protective concentration level exceedence zone--A protective concentration level exceedence zone within the surface soil or subsurface soil which may extend down to a groundwater-bearing unit(s). These protective concentration level exceedence zones may also be present below or between groundwater-bearing units.

(83) Source area--The volume of a chemical of concern in environmental media (e.g., soil or groundwater) which is leaching, dissolving or emitting chemicals of concern. Of primary regulatory concern are the source areas that are leaching, dissolving or emitting chemicals of concern at unprotective concentrations under natural conditions, and not in consideration of any physical controls (e.g., slurry walls, caps), that will result in protective concentrations being exceeded at the point of exposure. The source area need not be the horizontal and vertical extent of the protective concentration level exceedence zone when cross-media or lateral chemical of concern transport is required for a point of exposure to be reached. Generally, a source area is located in the vicinity of or below primary release sources (e.g., tanks, pipelines, drums, lagoons, landfills, etc.).

(84) Source medium--An environmental medium containing chemicals of concern which must be removed, decontaminated and/or controlled in order to protect human health and the environment. The source medium may be the exposure medium for some exposure pathways.

(85) Stressor--Any physical, chemical, or biological entity that can induce an adverse response; however, as used in this context, only chemical entities apply.

(86) Subsurface soil--For human health exposure pathways, the portion of the soil zone between the base of surface soil and the top of the groundwater-bearing unit(s). For ecological exposure pathways, the portion of the soil zone between 0.5 feet and 5 feet in depth.

(87) Surface cover--A layer of artificially placed utility material (e.g., shell, gravel).

(88) Surface soil--For human health exposure pathways, the soil zone extending from ground surface to 15 feet in depth for residential land use and from ground surface to 5 feet in depth for commercial/industrial land use; or to the top of the uppermost groundwater-bearing unit or bedrock, whichever is less in depth. For ecological exposure pathways, the soil zone extending from ground surface to 0.5 feet in depth.

(89) Surface water--Any water meeting the definition of surface water in the state as defined in §307.3 of this title (relating to Definitions and Abbreviations), as amended.

(90) Toxicity reference value--An exposure level from a valid scientific study that represents a conservative threshold for adverse ecological effects.

(91) Waste control unit--A municipal or industrial solid waste landfill, including those Resource Conservation and Recovery Act regulated units closed as landfills, with a liner system (i.e., synthetic or clay) and an engineered cap, that have been closed pursuant to an approved closure plan, previous regulations, or will be implemented pursuant to an approved response action plan.

(b) Acronyms.

- (1) APAR--Affected property assessment report;
- (2) COC--Chemical of concern;
- (3) FOA--Facility Operations Area;
- (4)  $K_d$ --Soil-water partition coefficient;
- (5)  $K_{oc}$ --Octanol-water partition coefficient;
- (6) LOAEL--Lowest observed adverse effect level;
- (7) MCL--Maximum contaminant level;
- (8) NAPLs--Nonaqueous phase liquids;
- (9) NOAEL--No observed adverse effect level;
- (10) PCL--Protective concentration level;
- (11) PCLE zone--Protective concentration level exceedence zone;
- (12) POE--Point of exposure;
- (13) PRACR--Post-response action care report;
- (14) RACR--Response action completion report;
- (15) RAER--Response action effectiveness report;
- (16) RAP--Response action plan;
- (17) RBEL--Risk-based exposure limit;
- (18) SIN--Self-implementation notice;
- (19) TAC--Texas Administrative Code;

- (20) TCEQ--Texas Commission on Environmental Quality;
- (21) TPDES--Texas Pollutant Discharge Elimination System; and
- (22) U.S. EPA--United States Environmental Protection Agency.

(c) Risk-based exposure limit nomenclature. A nomenclature is used in Subchapter D of this chapter (relating to the Development of Protective Concentration Levels) to refer to specific RBELs. The RBEL nomenclature reflects the exposure medium and the exposure route. The exposure medium appears first in superscript text, followed by RBEL in regular text and lastly the exposure route in subscript text. For example  $^{Soil}RBEL_{Ing}$  is a RBEL where soil is the exposure medium and ingestion is the exposure route.

- (1)  $^{Air}RBEL_{Inh}$ --air inhalation RBEL;
- (2)  $^{Soil}RBEL_{Derm}$ --dermal contact with soil RBEL;
- (3)  $^{Soil}RBEL_{Ing}$ --ingestion of soil RBEL;
- (4)  $^{GW}RBEL_{Ing}$ --ingestion of groundwater RBEL;
- (5)  $^{GW}RBEL_{Class\ 3}$ --class 3 groundwater RBEL;
- (6)  $^{SW}RBEL$ --surface water RBEL;
- (7)  $^{AbgVeg}RBEL_{Ing}$ --ingestion of aboveground vegetables RBEL; and
- (8)  $^{BgVeg}RBEL_{Ing}$ --ingestion of below-ground vegetables RBEL.

(d) Protective concentration level nomenclature. A nomenclature is used in Subchapter D of this chapter (relating to the Development of Protective Concentration Levels) to refer to specific PCLs. The PCL nomenclature reflects the exposure medium, source medium and the exposure route. The exposure medium appears first in superscript text, followed by the source medium in regular text and lastly the exposure route in subscript text. For example,  $^{GW}GW_{Ing}$  is a PCL where groundwater is the source medium (GW), groundwater is the exposure medium ( $^{GW}$ ), and ingestion is the exposure route ( $_{Ing}$ ). Cross-media transfer is indicated when exposure occurs in a different medium than the source medium. For example,  $^{Air}Soil_{Inh-v}$  is a PCL where soil is the source medium and air is the exposure medium.

- (1)  $^{GW}GW_{Ing}$ --PCL for groundwater ingestion;
- (2)  $^{GW}GW_{Class\ 3}$ --PCL for class 3 groundwater;
- (3)  $^{Air}GW_{Inh-v}$ --PCL for inhalation of volatiles from groundwater;
- (4)  $^{SW}GW$ --PCL for groundwater discharge to surface water;

- (5) <sup>Tot</sup> Soil<sub>Comb</sub> --surface soil PCL for combined soil ingestion, dermal contact, inhalation of volatiles and particulates, and for residential land use, ingestion of aboveground and below-ground vegetables;
- (6) <sup>Air</sup> Soil<sub>Inh-VP</sub> --PCL for inhalation of volatiles and particulates from surface soil;
- (7) <sup>Soil</sup> Soil<sub>Derm</sub> --PCL for dermal contact with surface soil;
- (8) <sup>Soil</sup> Soil<sub>Ing</sub> --PCL for ingestion of surface soil;
- (9) <sup>Veg</sup> Soil<sub>Ing-Inorg</sub> --surface soil PCL for ingestion of inorganic COCs in vegetables;
- (10) <sup>Veg</sup> Soil<sub>Ing-Org</sub> --surface soil PCL for ingestion of organic COCs in vegetables;
- (11) <sup>GW</sup> Soil --PCL for surface and subsurface soil to protect groundwater;
- (12) <sup>Air</sup> Soil<sub>Inh-V</sub> --PCL for inhalation of volatiles from subsurface soil;
- (13) <sup>Air</sup> Air<sub>Inh</sub> --air PCL for inhalation; and
- (14) <sup>SW</sup> SW --surface water PCL.

Adopted February 25, 2009

Effective March 19, 2009

**§350.5. Severability.**

The provisions of this chapter are intended to be severable and are deemed severable and, should any provision of this chapter be rendered unenforceable by a court of competent jurisdiction or other appropriate authority, the remaining provisions shall remain valid and enforceable.

Adopted September 2, 1999

Effective September 23, 1999