TCEQ REGULATORY GUIDANCE
Remediation Division
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Comparison of 30 TAC 335 and 30 TAC 350: Points to Consider in Making the Shift

Overview of This Publication

Objectives:	This guidance document summarizes the primary differences between the Risk Reduction Rule and the Texas Risk Reduction Program Rule.
Audience:	Regulated Community, and Environmental Professionals
References:	The regulatory citation for the Texas Risk Reduction Program (TRRP) rule is Title 30 Texas Administrative Code (TAC) Chapter 350. The regulatory citation for the Risk Reduction Rule (RRR) is Title 30 Texas Administrative Code (TAC) Chapter 335. The TRRP rule, together with conforming changes to related rules, is contained in 30 TAC Chapter 350, and was initially published in the September 17, 1999 Texas Register (24 TexReg 7413-7944). The rule was amended in 2007 (effective March 19, 2007; 32 TexReg 1526-1579). Find links for the TRRP rule and preamble, Tier 1 PCL tables, and other TRRP information at: <www.tceq.state.tx.us/remediation/trrp/> TRRP guidance documents undergo periodic revision and are subject to change. Referenced TRRP guidance documents may be in development. Links to current versions are at: <www.tceq.state.tx.us/remediation/trrp/guidance.html.>
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Introduction

The purpose of this document is to summarize the primary differences between the Risk Reduction Rule (RRR) and the Texas Risk Reduction Program (TRRP) rule. The RRR is located in Subchapters A and S of Chapter 335 (30 TAC 335) and is sometimes referred to as the "old rule" or the "1993 rule." On the other hand, the TRRP rule is located in Chapter 350 (30 TAC 350) and is often referred to as the "new rule" or the "1999 rule."

Our purposes in preparing this document are twofold: First, we summarize points you should consider if the rules allow you to choose between continuing under the RRR—also known as "grandfathering"—and shifting to the TRRP rule. Second, as we compare and contrast the TRRP rule to the rule you already know (the RRR), this document will help you understand the TRRP rule better. Understanding of anything

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new, like TRRP, can generally be made easier by comparing it with something familiar, like the RRR.

For more information regarding the applicability of TRRP and the circumstances for grandfathering, please see *TRRP Applicability and Grandfathering* (RG-366/TRRP-2). The rule states these circumstances in 30 TAC 350.2(m). Depending upon the circumstances at a particular site prior to May 1, 2000, a person who started a response action under the RRR may qualify to continue under those previous commission rules subject to the limitations specified in 30 TAC 350.2(m)(1-4). Knowledge of both rules is necessary in order for a person to make an informed decision regarding which rule to use. This document is not an exhaustive discussion of all of the differences between the RRR and TRRP rules. It is intended, however, to provide sufficient detail to identify and characterize important changes so that you may quickly get a feel for what the implications of TRRP may be. However, to be most successful in making this determination, we recommend that, where appropriate, you seek the services of an environmental professional who is knowledgeable about the requirements of both the RRR and TRRP rules.

Table 1. Important Differences between RRR and TRRP

Topic	***RRR (30 TAC 335)***	TRRP (30 TAC 350)
Site Assessment	• You must investigate and characterize the horizontal and vertical extent of contaminants to background levels. • Investigation to background is necessary to determine if any land area requires deed certification. (See §§335.554(g), 335.560, and 335.566)	• Rule provides more specific instructions and quality assurance requirements. • You must assess soil laterally to the residential assessment level, as defined at §350.4(a)(3). • For on-site commercial/industrial properties, you may use commercial/industrial levels to focus on-site assessment. However, you must still determine whether the affected property extends off-site at greater than the residential assessment level. • Typically you must assess soils vertically to the higher of background or the method quantitation limit. (See §350.51)
Notification of Analytical Results	Rule does not require notification of landowners or other parties of analytical results.	You must provide analytical results to: • owners of sampled properties; • owners of properties affected above residential assessment levels; • easement holders for property affected above Tier 1 human health protective concentration levels (PCLs); and • persons exposed above Tier 1 human health PCLs. (See §350.55)

Topic	***RRR (30 TAC 335)***	TRRP (30 TAC 350)
Land Use Classification	• For Standard 1, land use is not pertinent since cleanup is based upon background. • For Standard 2, land use is based upon definitions for "residential" and "non-residential" property. • For Standard 3, land use is presumed to be residential unless a different land use can be demonstrated considering past, present, and probable future use. (See §§335.551, 335.557, and 335.553(b)(2))	• You compare the current land use to the definitions for "residential" and "commercial/industrial" land use. • You use the same land use classification process for Remedy Standards A and B. (See §350.53)
Groundwater Classification	• Standard 2 specifies that a current or potential source of drinking water will have a naturally occurring background total dissolved solids concentration of less than 10,000 mg/l. • Standard 3 uses the same total dissolved solids criterion for defining a current or potential source of drinking water, but also requires a geologic zone to be sufficiently permeable to transmit water to a pumping well in usable quantities. • Groundwater classification is not used as a basis for allowing exposure prevention approaches. (See §§335.559(d)(3) and 335.563(h)(1))	• A detailed classification system for Class 1, 2, and 3 groundwater is provided and is applicable to both Remedy Standards A and B. • Class 1 and 2 groundwater would be a current or potential source of drinking water as that term is used under RRR. • Groundwater response objectives are closely tied to the groundwater class. • A pollution cleanup approach is required for Class 1 groundwater. • A plume management zone, that is, an exposure prevention approach, may be authorized for affected Class 2 or 3 groundwater. (See §350.52)
Ecological Receptors	• More stringent cleanup levels than human health values will be required, if necessary, to protect ecological receptors. • There is no detailed process provided in the rule as to how and when to perform this evaluation. However, Ecological Risk Assessment guidance is provided which is the same as for the TRRP ecological risk assessment program. (See §§335.556(b) and 335.563(j))	• The rule defines a three-tiered approach for evaluating risk to ecological receptors which consists of: ◦ Tier 1 – exclusion criteria checklist; ◦ Tier 2 – screening-level ecological risk assessment; and ◦ Tier 3 – site-specific ecological risk assessment. • You only need to proceed as far through the tiers as is necessary to evaluate ecological risk at a particular affected property. (See §350.77)
Background	• Standard 1 is attained when all contaminants have been removed/decontaminated to background. • Background is always a site-specific determination. (See §335.554)	• Remedy Standards A and B are risk-based and are not based upon the attainment of background. • Background may become the PCL if it is greater than the risk-based PCL. • Background is not necessarily site-specific, as Texas-specific soil background concentrations for metals are provided in Figure: 30 TAC 350.51(m). (See §§350.4(a)(6) and 350.51(m))

Topic	***RRR (30 TAC 335)***	TRRP (30 TAC 350)
Regulatory Approach	• Standards 1, 2, and 3 each has a specific process for determining cleanup levels which cannot be used with the other standards. • The cleanup level determination processes are: ◦ Standard 1 – background-based ◦ Standard 2 – specified process and input factors ◦ Standard 3 – site-specific calculations based on guidance (See §§335.554, 335.556, and 335.563)	• PCLs for both Remedy Standards A and B are determined with the same three-tiered process. • The three-tiered TRRP process builds in a step-wise increase in the use of site-specific information. • You decide whether to use: ◦ Tier 1 – generic values; ◦ Tier 2 – site-specific, TCEQ models; and/or ◦ Tier 3 – site-specific, user models. (See §350.75)
Institutional Controls Above Background	Standards 2 and 3 require an institutional control, that is, deed certification, whenever a contaminant remains above background. (See §335.560 and 335.566)	• Sites restored for residential land use under Remedy Standard A using risk-based PCLs do not require an institutional control. • Standard A commercial/industrial response actions as well as all response actions taken under Remedy Standard B require institutional controls. (See §350.31(g))
Landowner Consent To Institutional Control	While the rule does not expressly require you to obtain a landowner's consent prior to filing an institutional control, the TCEQ will not approve an institutional control without such landowner's consent.	With limited exceptions explained in §350.111, you must obtain written landowner consent prior to filing a deed notice or Voluntary Cleanup Program certificate of completion in the real property records. (See §350.111(c) and (e))
Use of Institutional Controls	Deed certification is the last step in demonstrating to the agency that Standard 2 or 3 has been attained. (See §§335.560 and 335.566)	• Institutional controls are used for several purposes in addition to noting the completion of a response action. • Example uses of institutional controls include: ◦ notice of the existence and location of a plume management zone (See §350.33(f)(4)(C)); ◦ notice when occupational exposure criteria are used as $^{Air}RBEL_{Inh}$ for commercial/industrial land use (See §350.74(b)); ◦ notice when a soil exposure area larger than standard size has been approved (See §350.51(l)); and ◦ notice that a long-term response action is being conducted at an affected property (See §350.31(h)). (See §350.111)
Baseline Risk Assessment	For Standard 3, you must prepare a baseline risk assessment which describes the potential adverse effects under both current and future conditions caused by the release of contamination in the absence of any action to control the release. (See §335.553(b)(2))	• Baseline risk assessments are not required. • PCLs are back-calculated by determining what concentration of a contaminant could remain at the source and still yield protective concentrations at the point of exposure.

Topic	***RRR (30 TAC 335)***	TRRP (30 TAC 350)
Values For Exposure Factors	• Standard 2 is based on generic exposure factors which cannot be modified. • For Standard 3: ◦ you are required to use standard *residential* exposure factors unless you document that site-specific data warrant deviation from the standard exposure factors; and ◦ guidance recommends that some of the exposure factors not be changed. (See §§335.567 and 335.563(e))	• §350.74(j) identifies those default exposure factors which may and may not be changed. • §350.74(j)(2) establishes a special process, for commercial/industrial land use only, for changing default values for averaging time for noncarcinogens, exposure duration, and exposure frequency.
Relevant Exposure Pathways	• Standard 2 provides equations for a limited number of exposure pathways and states that cleanup levels for other exposure pathways must be determined, if necessary. • Standard 3 identifies the environmental media of potential concern but provides much less detail regarding exposure pathways. • Procedures for additional pathways/scenarios are provided in guidance. (See §§335.556(b), 335.567, and 335.563)	• §350.71(c) specifies those human health exposure pathways for which you must develop PCLs when the exposure pathways are complete or reasonably anticipated to be completed based on the criteria provided. • You shall also evaluate other potentially applicable exposure pathways and develop PCLs for any that are complete or reasonably anticipated to be completed.
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Remedy Approval Process	• For Standards 1 and 2, you may self-implement a remedy. Agency approval follows completion of the remedy. • For Standard 3: ◦ prior approval of the response action by the agency is required; and ◦ you must prepare a *corrective measure study* which recommends *the* remedy which *best* achieves the requirements for remedies. (See §§335.8(c) and 335.553(b)(3))	• For Remedy Standard A, you may self-implement a remedy. Agency approval follows completion of the remedy. • For Remedy Standard B: ◦ prior agency approval of the response action is required; however, ◦ you must only demonstrate in the response action plan that the proposed response action will attain the performance objectives. • No corrective measure study is required. (See §§350.32(d) and 350.33(d))
Cost Consideration	For a Standard 3 remedy, you must: • consider capital costs, operation and maintenance costs, and the net present value of operation and maintenance costs as remedy evaluation factors; and • select a *cost-effective* remedy that achieves the best balance between long-term effectiveness and cost for alternative remedies. (See §§335.561(c) and 335.562(g))	For both Remedy Standards A and B: • the consideration of cost is left entirely to you, unless an alternate approach is required by a specific program, such as for the State Superfund program. (See §§350.4(a)(62) and 350.31(j))
Exposure Prevention Response Actions	• Standards 1 and 2 are “pollution cleanup” not “exposure prevention” remedy standards. • For Standard 3, a remedy must be “permanent or, if that is not practicable, achieve the highest degree of long-term effectiveness possible.” • These requirements strongly favor “pollution cleanup” remedies. (See §335.561(b))	• Remedy Standard A requires “pollution cleanup” response actions. • For Remedy Standard B, any “pollution cleanup” or “exposure prevention” response action, which can attain the relevant performance standards within a reasonable timeframe, would be acceptable. These requirements provide greater flexibility to use “exposure prevention” response actions.

Topic	*RRR (30 TAC 335)*	TRRP (30 TAC 350)
Groundwater Exposure Prevention Approach	For Standard 3: • a groundwater exposure prevention approach is built into the concept of an alternate concentration limit (ACL), as presented at §335.563(h)(2); • ACLs are restricted to commercial/industrial land use and groundwater plume expansion is not allowed; • approval of the ACL is not tied to groundwater classification; and • minimal criteria are provided by which to determine whether to grant approval of such an option.	For Remedy Standard B: • a groundwater exposure prevention approach is built into the concept of a plume management zone (PMZ), as defined in §350.33(f)(4); • a PMZ may be used with either commercial/industrial or residential land use; • limited plume expansion may be allowed in a PMZ; • PMZs are restricted to affected Class 2 and 3 groundwater; and • the groundwater classification system and criteria are provided for evaluating whether such an alternative is appropriate for a site.
Financial Assurance	The rule does not require you to provide financial assurance for post-closure care.	For Remedy Standard B: • you must provide financial assurance as specified at §350.33(l) for post-response action care whenever physical control measures are used to address soil or groundwater protective concentration level exceedence zones; and • criteria are provided at §350.33(i) for determining when you can terminate post-response action care and cancel the associated financial assurance.

What Else Is Different About TRRP?

Revised Methods for Determining Cleanup Levels

- The equations to determine cleanup levels are different in TRRP than the RRR. (See Figure 30 TAC §350.75(b)(1).)
- To evaluate the risk presented by the inhalation of carcinogenic chemicals of concern, under TRRP, the inhalation unit risk factor (URF) was used rather than the inhalation cancer slope factor (SF_i). And for noncarcinogens, the reference concentration (RfC) was used rather than the inhalation chronic reference dose (RfD_i). However, the URF and RfC are used for the RRR in guidance for Standard 3.
- Where relevant for chemicals of concern, TRRP specifies by equation, for the first time in the rule itself, the manner in which above ground and below-ground vegetables will be considered when determining surface soil cleanup levels (PCLs).
- For TRRP, a surface soil PCL is determined based upon the combined exposure from inhalation (Inh); ingestion (Ing); dermal contact; and, for residential land use, vegetable ingestion. (See Figure: 30 TAC §350.75(b)(1).)
- You may not be required to establish a soil leachate-to-groundwater PCL if a demonstration can be made with appropriate soil and

groundwater monitoring data that the soils will attain the required response objectives. (See §350.75(i)(7)(C).)

- The PCL equation for the soil-to-groundwater exposure pathway that is used in TRRP is more technically appropriate than the 100 times multiplication factor used in the RRR.
- The TRRP rule discusses in detail (See §350.75(i)(4).) how PCLs based upon groundwater discharge and dilution in surface water shall be determined.

Revised Definitions

- The definitions of surface and subsurface soils are different under TRRP than the RRR. In general, under TRRP, surface soils are the upper 15 feet of soil for residential land use and the upper 5 feet of soil for commercial/industrial land use.
- The TRRP rule contains a definition for groundwater-bearing unit "as a saturated geologic formation, group of formations, or part of a formation which has a hydraulic conductivity equal to or greater than 1×10^{-5} centimeters/second." Groundwater resource classification applies only to groundwater-bearing units.

New Approach: "Facility Operations Area"

- Subchapter G of TRRP describes a facility operations area (FOA), or site-wide approach, to address multiple sources of chemicals of concern within an operational and permitted chemical or petroleum manufacturing plant. The FOA approach allows facilities to prioritize interim cleanups and to defer final cleanups for the operational life of the facility.

New QA/QC Requirements

- The performance-based quality assurance/quality control requirements for data acquisition and reporting are established in §350.54 of TRRP.

Revised Remedy Requirements

- Under TRRP the point of exposure for a plume management zone can be dependent upon whether a property is subject to zoning or a governmental ordinance which is equivalent to the deed notice or restrictive covenant that otherwise would have been required. (See §350.37(l)(3) and (4).)
- TRRP at §350.36 describes the requirements which apply when a person relocates soils for reuse purposes from an affected property which is undergoing or has completed a response action and the soils contain chemicals of concern above background.
- The TRRP rule does not specify a particular statistical procedure which has to be used to determine whether a response action is required or

whether a remedy standard has been attained. Rather, any statistical procedure can be used which is capable of meeting the performance requirements specified in §350.79(2).

Revision to No Further Action Determinations

- Under TRRP Remedy Standard B, persons will initially receive a conditional "no further action" letter. This letter will indicate that the person has conditionally completed response actions at a property but must perform post-response action care obligations throughout any initial and any continuing post-response action care period. A final no further action letter will be issued subsequent to termination of the post-response action care period by the executive director. (See §350.34.)