

TRRP Q&A
March 2004 Update

§350.2(m)(2) Applicability

Q. I have been pursuing cleanup under Standard 3 of the Risk Reduction rules as allowed by the grandfathering provisions of §350.2(m)(2). Under what circumstances would the TCEQ revoke my grandfathered status and require me to switch to the TRRP rule?

A. To retain grandfathered status for use of Risk Reduction Standard 3 of the Risk Reduction rule (30 TAC Chapter 335, Subchapters A and S), you must have submitted a remedial investigation report prior to May 1, 2001, in accordance with §350.2(m)(2) of the Texas Risk Reduction Program (TRRP) rule. The remedial investigation report must fully comply with §335.553(b)(1) of the Risk Reduction rule. The TRRP rule does not provide for the TCEQ to grant a deadline extension or to otherwise waive that rule requirement. However, the preamble to the final TRRP rule provides some guidance on TCEQ expectations regarding this requirement. Pertinent text of the September 17, 1999 edition of the *Texas Register* (24 *TexReg* 7503) is reproduced below. Also included is a series of questions addressing different scenarios to help clarify this requirement.

1. *What happens if I never submitted an investigation report before May 1, 2001?*

Unless required by an order or permit to conduct the closure or remediation in accordance with the Risk Reduction rule, you must comply with §350.2(m)(2) to preserve grandfathered status. Failure to turn in the required report prior to May 1, 2001 precludes grandfathered status for failure to comply with §350.2(m)(2). If no investigation report has been submitted prior to May 1, 2001, then there is no potential for retaining grandfathered status. Note: See TCEQ guidance document *TRRP Applicability and Grandfathering* (RG-366/TRRP-2) http://www.tnrc.state.tx.us/admin/topdoc/rg/366_trrp_02.pdf for explanation of the grandfathered status established by order or permit.

2. *If I have turned in my report prior to May 1, 2001, but the TCEQ has not reviewed it prior to the deadline, can I get an extension to the deadline?*

There is no provision in the TRRP rule for an outright extension to the deadline prior to review of the investigation report by agency staff. Such extensions will not be given because they are not necessary. Upon its review, the report will be evaluated with regard to its substantial completeness and whether it is appropriate to allow you to respond to an NOD to retain grandfathered status. Note that the preamble states "...the TCEQ review letter will be sent in as timely a manner as possible. Not receiving such a letter prior to the one year deadline does not affect a person's status." In this example the requirement to submit the investigation report prior to the deadline has been met. As with the situations in Questions 3 and 4, your status is not affected until the agency completes its review, even if the review process begins after May 1, 2001.

3. *What if I did submit an investigation report prior to May 1, 2001, but the extent of the contamination is not defined? Asked another way, if I make a good faith effort to delineate the contamination, but receive a Notice of Deficiency (NOD) after May 1, 2001, will I be given the opportunity to perform additional delineation or will I be directed into TRRP?*

To satisfy §350.2(m)(2), you must submit an investigation report prior to May 1, 2001 that will fully comply with §335.553(b)(1). Defining the extent of contaminants is just one of the requirements. According to the preamble (reproduced below), the TCEQ will afford you at least one opportunity to respond to deficiencies in the report. This approach is consistent with normal agency practice for reviewing reports. However, the amount of additional delineation that will be acceptable will be a case-specific determination. The intent is to enable facilities with complete or nearly complete investigation reports to provide some small amount of additional information that is lacking. The intent is not to extend grandfathered status to facilities where the remedial investigation report is substantially incomplete.

4. If the TCEQ sent me an NOD asking for more investigation in response to an investigation report submitted before May 1, 2001, what if the deadline for responding to the NOD (usually 60 to 90 days) extends beyond the May 1, 2001 grandfathering date?

As noted in the preceding response, issuance of an NOD for small amounts of additional information is allowable without jeopardizing your grandfathered status. The May 1, 2001 date is the deadline prior to which you must have submitted the investigation report. There is not a deadline specified in the TRRP rule for completion of the agency review and response process, however, the agency management has set deadlines by which the programs must complete reviews of documents. So for this scenario, grandfathered status can be preserved unless the reviewing program ultimately determines that the performance standard has not been met.

5. I submitted an investigation report before May 1, 2001, and the TCEQ sent an NOD asking for more investigation. I have been challenging the requested investigation actions for some time, and now the deadline has passed. What could happen now?

Concerning deadlines, the same comments as the preceding questions will apply here. If the report was not substantially complete, then the deadline has lapsed. The reviewing program should follow the normal practice for dealing with disputed issues. If after a reasonable period of negotiation without resolution and it is clear that the TCEQ remains firm on the requested additional work, the reviewing program should consider the deadline to have lapsed and grandfathered status will be lost. The intent of grandfathering actions is to allow facilities that have already made sufficient progress (i.e., completed the investigation) to continue under previous rules so as not to delay timely and efficient remediation. Of course, referral for enforcement, rejection from the Voluntary Cleanup Program, etc., are additional options for the reviewing program to consider.

6. I submitted an investigation report before May 1, 2001, and the TCEQ sent an NOD asking for investigation that includes off-site areas. I've encountered delays in getting off-site access that have extended beyond May 1, 2001. How does that affect my grandfathered status?

Again, concerning deadlines, the same comments as the preceding questions will apply here. The lack of access to off-site property is a deficiency of the investigation report. The reviewing program should evaluate the deficiency on a case-specific basis, considering such factors as the probable extent and severity of the off-site portion of the release. If you are close to compliance, the TCEQ can allow a reasonable time to respond to the NOD. If, on the other hand, existing data indicate the off-site portion of the release is likely to be large or more severe relative to the on-site portion such that the investigation is substantially incomplete, you will be directed to comply with TRRP.

7. I have submitted an investigation report before May 1, 2001, and received an NOD asking for more delineation. In response to the NOD I have submitted an investigation report addendum with additional investigation results. The TCEQ sent another NOD because the new data still does not demonstrate that the contamination is defined. What happens if this situation continues into another round of NOD and report addendum?

Note that the preamble indicates the TCEQ will allow at least one opportunity to respond to Notices of Deficiencies. If you are very close to compliance after the first NOD response, the intent here is to allow you to finish the investigation. Also recall that the intent of grandfathering is to allow investigations that are substantially complete but lacking some information to be finished. This intent was published in the final TRRP rule preamble on September 17, 1999. You had more than 18 months to prepare for that deadline. An investigation report that requires multiple addendums after May 1, 2001, probably was not sufficiently complete as of the deadline to meet the intent let alone the letter of §350.2(m)(2). In this scenario, you likely will be directed to comply with TRRP.

8. I have delineated the contamination on-site by the May 1, 2001 deadline but I noticed a spike in concentrations in a perimeter well due to increased rainfall or drought after May 1, 2001. Can I perform the additional delineation under the Risk Reduction rules or will I automatically be transferred to TRRP?

If the investigation was considered to have been completed before May 1, 2001, based on the data available at that time, then the grandfathering deadline has been met. You can perform the additional delineation under the Risk Reduction rule. If the release had been adequately investigated and reported to preserve grandfathered status, you are directed by §335.8(b) to achieve one or more risk reduction standards. The complete assessment information is needed to prepare an adequate baseline risk assessment or corrective measure study (§335.553(b)(2) and (3), respectively). The new information can be included in one of these reports. After attainment of a risk reduction standard, you are then directed by §335.8(b)(5) to respond on a continuing basis in the event of a substantial change in circumstances. However, if the situation in this example occurs after the risk reduction standard is attained, the spike in concentrations would be evaluated to determine if it constitutes a substantial change. If so, the closure or remediation would be reopened under the TRRP rule to determine if additional response actions are needed.

9. I am monitoring groundwater according to a Risk Reduction Standard No. 3 Alternate Concentration Limit (ACL). The contaminant plume begins to grow after the May 1, 2001 deadline, and additional delineation is required. Can I perform it under the Risk Reduction rules?

If the investigation was considered to have been completed before May 1, 2001, then yes the site may remain under the Risk Reduction rule. In this particular scenario, the ACL represents a concentration that if exceeded is intended to trigger a response, be it additional extent determination, start up of a groundwater recovery system, placement of physical controls or other contingent actions approved as part of the Risk Reduction Standard 3 closure or remediation. You can perform the additional delineation under the Risk Reduction rule in response to §335.8(b)(5) so long as it is part of the approved contingent actions. Note, however, that if the ACL has been exceeded because of a new release from elsewhere at the facility or a subsequent release from the original source that was the subject of the Standard 3 closure or remediation, you must address the resulting commingled releases under TRRP.

10. *If I choose to install additional wells in the interior of the plume, even though the lateral extent of contamination has been defined, will this affect my grandfathered status under the Risk Reduction rules?*

As with the two previous questions, if the investigation report is complete as of the deadline, then your grandfathered status is secured and additional wells can be installed. Additionally, wells can be installed as part of a remedy (e.g., monitor wells or recovery wells) without affecting the grandfathered status. On the other hand, if the wells are needed to satisfy the other requirements of §335.553(b)(1), such as nature, direction, rate of movement, volume, composition and concentration of contaminants, then the requirements for maintaining grandfathered status have not been met. As discussed elsewhere, however, you may be able to install these additional wells in response to an NOD and still retain grandfathered status.

11. *My efforts to delineate an offsite release have been hampered by delays while gaining access to the offsite property. Is it possible to get an extension to the deadline?*

You should have submitted what information was available as of the deadline date. Your investigation report will then be evaluated in the manner described in Question 6. Provided that the outcome of the review warrants an NOD, the TCEQ will also consider certain limiting circumstances in developing a reasonable time frame for response to an NOD, such as litigation or bankruptcy proceedings wherein you could not have negotiated access agreements directly with the off-site property owners.

Excerpt from Preamble (24 TexReg 7503)

Regarding §350.2(m)(2) as it relates to risk reduction Standard 3 projects, the commission has revised this paragraph to establish the grandfathering criterion as submission of the final remedial investigation report that satisfies §335.553(b)(1), and has also added a time frame of one year from the implementation date (May 1, 2000) of this rule by which time persons must submit the final remedial investigation report to qualify for this status. This transition period will enable persons with investigations nearly complete to finish them. It also affords the person an opportunity to evaluate more fully the ramifications of converting to this chapter or remaining under Chapter 335. This will also more closely parallel the approach for Standards 1 and 2. No specific request must be made for grandfathered status. The TCEQ will affirm the grandfathered status in a letter issued to the person as reviews are completed acknowledging that the final remedial investigation report satisfies the requirements of §335.553(b)(1). Given the extent of information provided in a typical final remedial investigation report, the TCEQ review letter will be sent in as timely a manner as possible. Not receiving such a letter prior to the one year deadline does not affect a person's status. In keeping with the TCEQ's normal practice, the person will be afforded at least one opportunity to respond to deficiencies in the report before a directive to comply with this chapter would be issued. Since Standard 3 projects are not subject to self-implementation, the person should not automatically proceed to the next step without first determining its status. The commission notes that under the current Risk Reduction rule the three reports of §335.553(b) can be combined into one submittal for review and approval. This can be done, for example, for a no further action proposal under Standard 3 by combining the remedial investigation report with the baseline risk assessment and corrective measure study. If in the TCEQ's review of a combined report, the investigation is found to be satisfactory, even after a response to a notice of deficiencies, the rest of the combined report will be reviewed under Chapter 335. If the investigation report after the response to a notice of deficiencies is still found to be unacceptable, the TCEQ will direct the person to conform to this chapter for all aspects of the no further action proposal.

Some commentors recommended the criterion for grandfathering merely be the initiation of a remedial investigation, or even the submission of a work plan that contemplates compliance with Standard 3. The commission disagrees with the recommendations. Investigations in progress are often adjusted in response to unexpected conditions or new data acquisition objectives. They are also performed in phases to allow for evaluation or oversight. Since the extent of the release is to be investigated to background limits under the current Risk Reduction rule, the first objective is often to find the edge of a plume. Accomplishing this should be sufficient for PCL-based assessments under this rule. The commission notes that transition to TRRP during the investigation stage will be less disruptive to projects trying to achieve timely and efficient remediation than if it were required at later stages of the corrective action process.

Some variations to the conventional RCRA corrective action process need clarification with regard to grandfathered status. Some remedial investigations have been performed in phases. Phase 1 typically is designed to determine if a release has occurred from a SWMU. Subsequent phases then determine the extent of the release in a "step-out" fashion away from the SWMU. Often, results of these phases have been submitted to the TCEQ as separate reports. This approach, while providing a high degree of oversight, has protracted the corrective action process. Streamlining initiatives were put into place by 1996 to compress this process by eliminating intermediate work plans and reports. The commission does not intend to give grandfathered status to phased investigations if the requirements for final remedial investigations are not achieved and reported to the TCEQ by May 1, 2001. Another approach often employed at facilities performing corrective action for multiple SWMUs is the grouping of a subset of SWMUs into distinct projects that progress on different schedules. The grandfathered status will be applied on a SWMU-by-SWMU or project-by-project basis. The status of a single SWMU does not extend to the entire facility. For example, if a facility had ten SWMUs but had completed the remedial investigation on only one SWMU, only that one SWMU would be grandfathered. Similarly, if three SWMUs had been grouped together as a project and the remedial investigation was complete for that project but not others, only that project would be grandfathered. The remaining SWMUs or projects at the facility would not receive grandfathered status.

§350.2(m) Applicability

Although several deadlines in §350.2(m) have already passed to establish grandfathered status for continued use of the Risk Reduction Rules of Chapter 335, the following series of questions anticipate the May 1, 2005 deadline for completion of Risk Reduction Standard 1 or 2 actions. Also, numerous documents have been submitted in response to the lapsed deadlines and are pending review. This guidance will aid users and staff reviewers in determining compliance with those deadlines. The following responses are intended to address actions not covered by a permit or order.

Q1. Does the Notice of Intent or VCP application require the person to make a commitment to a particular grandfathered RRR standards or is it just a RRR vs TRRP decision?

A. By various mechanisms, the person had to provide notice to the agency prior to May 1, 2000, of the person's intent with regard to continuing actions started under previous rules. Prior to the TRRP implementation date, the notice of any act of closure or remediation under the risk reduction rules was required by §335.8(c)(1). That rule specified that the person indicate as part of the initial notice which risk reduction standard(s) is to be attained. The rule implies that more than one standard could be reported in a single notice to the agency to address multiple actions at the facility or area, or even for attaining different standards for different media at a single location. For purposes of establishing grandfathered status, the deadlines and types of reports specified in §350.2(m) depend on the person's stated intent to attain Risk Reduction Standard 1 or 2 (handled together because of self-implementation) as opposed to Risk Reduction Standard 3. So whether the notice required by §335.8(c)(1) was sent to the agency in a letter, a VCP application or a Notice of Intent form, the requirements for retaining grandfathered status depend on the risk reduction standard to be attained. As discussed in the following questions, the person has some limited options if he changes the remediation objective from one standard to another after May, 2000.

Q2. Can a person who has properly established grandfathered status for a closure or remediation under Risk Reduction Standard 1 or 2 switch to Risk Reduction Standard 3 at some later date?

A. The window of opportunity to switch from Risk Reduction Standard 1 or 2 to Risk Reduction Standard 3 was closed as of May 1, 2001, the date by which the final remedial investigation report should have been submitted to satisfy §335.553(b)(1).

Q3. If the person can make the switch from Risk Reduction Standard 2 to Risk Reduction Standard 3, then can they make that switch any time between now and May 2005?

A. Conceivably, yes, if the condition of Question 2 was met. It is advisable to make the switch sooner than later. One of the concepts of grandfathered status was that progress toward risk reduction would continue to be made under previous rules. If it is evident that continued efforts with a particular remedy will not achieve Risk Reduction Standard 2 by May 1, 2005, the person can either change technologies (e.g., apply a more aggressive treatment technique) or change objectives. The staff will be alert to persons who have not demonstrated progress toward risk reduction under Risk Reduction Standard 2 and then late in the game elect to switch to Risk Reduction Standard 3. Relevant text from the adoption preamble (24 *TexReg* 7502, Sept. 17, 1999) is presented below.

“... The commission is imposing some limits on time or performance for response actions to remain under Chapter 335 for another reason. The commission does not intend to maintain indefinitely two sets of risk reduction regulations. This situation would be contrary to the commission’s guiding principle of eliminating whenever possible unnecessary, inefficient, or redundant regulations and processes. The commission will accept projects completed under Chapter 335 as being protective of human health and the environment, unless a substantial change in circumstances determines otherwise, and will allow partially completed projects to continue under Chapter 335 to the extent described herein. The commission is therefore promulgating a grandfathering provision that strikes a balance between maintaining progress toward risk reduction at release sites and eliminating redundant regulations.”

Q4. Can the person make the switch after May 1, 2005?

A. No. The intent of the TRRP rule, as discussed in the preamble, is to terminate grandfathered status for Risk Reduction Standard 1 or 2 projects that fail to attain the intended standard by May 1, 2005. Such projects would then have to comply with the TRRP rule. Relevant text from the adoption preamble (*24 TexReg 7502*, Sept. 17, 1999) is presented below.

The other requirement to secure grandfathered status is the completion of the response action within five years of the implementation date (May 1, 2000) of this rule. This can be demonstrated by submission of a final report that addresses the information requirements of §335.553(a). Implementation experience has shown that many Standard 1 and 2 actions have been completed in far less than five years. Commentors questioned this requirement by noting that natural attenuation remedies will generally take longer than five years and should not be forced into the TRRP rule on this arbitrary basis. The commission is requiring this cutoff because the TRRP rule addresses some implementation issues for long-term remedies such as monitored natural attenuation that the Chapter 335 rules do not, namely notification and status reports. Remedies continuing after the five year cutoff will enter the TRRP process with response action effectiveness reporting and an affected property assessment report if an equivalent report had not been submitted under §335.553. Notification requirements of §350.55 could also apply.

§350.4 Definitions and Acronyms

Q. A company operates a network of transportation facilities. As part of their business they have dormitories on-site for truck drivers that may need to sleep at the facility. But they do not provide residential (i.e. long term dwellings for families) accommodations on-site. Is this considered commercial/industrial land use much like a hotel/motel situation?

A. Motels/hotels are only residential when they actually have someone, such as the manager, living there, and then, it is possible that only a portion of the property would be required to be residential. Based on the scenario provided, it would be considered commercial/industrial land use. For scenarios, see guidance document *Land Use Classification* (RG-366/TRRP-7).

§350.31 General Requirements for Remedy Standards

Q. A company wants to put five feet of clean fill on top of lead contaminated soil. This will resolve the direct exposure issues. They have to add the soil to bring the site up to

grade for building codes and it will also be paved. Can this be considered a Remedy Standard A or must this be a Remedy Standard B? The soil must stay in place per the building code therefore they are indicating that Remedy Standard A makes sense, as there is no cap to maintain.

A. In short, conditions as documented in the APAR will determine what soil interval is considered to be surface soil. The situation could be viewed as Remedy Standard A if the clean fill was placed on that site prior to the assessment. For TRRP purposes, the surface soil interval would consist of the clean fill. On the other hand, if the clean fill is placed after the TRRP assessment is done, Remedy Standard B would apply. The clean fill would be a control measure. The kinds and amount of post-response action care could be minimal in this scenario.

§350.32(a) Remedy Standard A

Situation: The facility had a waste pile that was used for the storage of construction debris and nonhazardous slag material. Most of the waste has been removed, but the concentrations of chromium and lead in the surface soils exceed the $^{Tot}Soil_{Comb}$ PCLs. The area is vegetated. The facility proposed a remedy consisting of placing 4 inches of clean soil on top of the area and vegetating the soil.

Q. Would this be considered an acceptable remedy under TRRP, even though this was not allowed under the Risk Reduction Rules for Risk Reduction Standard 2 (§335.559(g)), and it does not seem like a permanent remedy? If not, what specific requirement in the TRRP rule would not allow this approach?

A. This proposed remedy is not acceptable for Remedy Standard A because the PCL exceedence zone still exists. COC concentrations have not been reduced by removal or decontamination to acceptable levels as required by §350.32(a). The soil layer would not satisfy the requirement for a permanent remedy as required by §350.32(b).

This proposed remedy would have to satisfy the requirements of Remedy Standard B. See in particular the requirements in §350.33(a) and 33(e)(2)(A)-(C). The layer of soil would serve as a physical control that prevents exposure by blocking the soil ingestion, inhalation and dermal pathways. Because the question posed is specific to chromium and lead, which are not volatile COCs, prevention of inhalation of volatile emissions would not be a performance standard for the soil cap, but prevention of inhalation of particulate emissions would be an applicable performance standard. If the COCs were volatile then this soil cap would likely not be sufficient. Commercial/industrial land use is assumed, so the vegetable ingestion pathway is not applicable. The soil layer would also have to address the soil-to-groundwater pathway by preventing downward migration of COCs to groundwater in excess of groundwater PCLs. As with any remedy, any other pathways that are complete or reasonably anticipated to be complete must also be addressed.

This proposed remedy, being a physical control, will require post response action care (PRAC) and possibly financial assurance. Given the thin layer of soil, the control could easily be breached by surface use or erosion. Some use restrictions might be necessary as part of the required institutional control, as well. The facility would have to make all these demonstrations in the response action plan, as well as satisfy all other applicable requirements, and receive TCEQ approval before implementing the proposed remedy.

Other considerations.

1) How deep is the PCLE zone? If the COCs are very shallow, might the facility evaluate the option of removing some inches of soil to meet Remedy Standard A versus importing 4 inches, coupled with long-term post response action care and continued exposure to regulation.

2) If the chromium concentration exceeds the $TotSoil_{Comb}$ PCL (95,000 mg/kg for 0.5 acre source area) in surface soils, it is possible that the soil would exceed the TCLP concentration and hence should be classified as a characteristic hazardous waste. If the soils are TC hazardous, the response action is subject to additional RCRA requirements.

§350.33(b) Remedy Standard B

Q. If there is a Class 1 drinking water aquifer that has been impacted with chlorinated solvents, is it possible to use natural attenuation as a response action?

A. The concept of monitored natural attenuation is a potential remedial solution. However, because this is Class 1 groundwater, you need to look at §350.33(b) which specifically states that COC removal or decontamination is required for Class 1 groundwater. Therefore, MNA would be acceptable as a sole remedy only to the extent it can be demonstrated that the critical PCLs will be met throughout the PCLE zone within a reasonable time frame. A declining PCLE zone or a combination of COC concentration data, with secondary or other lines of evidence as discussed in TRRP 33 would be needed.

§350.33(f)(4) Remedy Standard B

Q. The TRRP rule specifies that PMZs are only applicable to Class 2 or 3 groundwater. But in reading the TRRP Guidance *Soil and Groundwater Response Objectives (RG-366/TRRP-29)* there's discussion about technical impracticability (TI) which seems to confuse the matter regarding Class 1 groundwater.

If TI is proven or shown to be acceptable, would a PMZ be allowed for a Class 1 aquifer? Or is a PMZ not allowed under any circumstances for a Class 1 aquifer?

A. A plume management zone (PMZ) authorized in response to paragraph §350.33(f)(3) regarding technical impracticability must be distinguished from a PMZ authorized in response to paragraph §350.33(f)(4) regarding plume management zones.

A PMZ cannot be established for Class 1 groundwater pursuant to paragraph §350.33(f)(4). PMZs may only be established under this paragraph for Class 2 or 3 groundwater-bearing units which already contain a groundwater protective concentration level exceedence (PCLE) zone.

However, a person may make a technical impracticability (TI) demonstration under paragraph §350.33(f)(3) for Class 1, 2, or 3 groundwater. If the TI demonstration is approved, the area outside of an approved TI zone must be restored to the critical groundwater PCLs and the groundwater PCLE zone must not be allowed to expand. The person must also establish a PMZ which covers the approved TI zone and must also prevent expansion of this zone.

A PMZ associated with a TI demonstration under paragraph §350.33(f)(3) is the only circumstance when a PMZ could be used with Class 1 groundwater. The TCEQ guidance

document titled *Soil and Groundwater Response Objectives* (RG-366/TRRP-29) describes the process for demonstrating that a technical impracticability approach is appropriate. And finally, a PMZ approved under paragraph §350.33(f)(3) would be a "no growth" PMZ and fundamentally different from the PMZs authorized under paragraph §350.33(f)(4) which allow some degree of groundwater PCLE zone growth.

Q. We have a question regarding financial assurance with a Plume Management Zone under Remedy Standard B. In §350.33(f), it says that a person who uses . . . modified groundwater response approaches which utilizes physical control(s) shall provide financial assurance. In (f)(4)(F)(ii), with removal and/or decontamination, it says no financial assurance is required. But, (f)(4)(F)(iii) states that a person who uses controls must provide financial assurance, and does not specify that only a physical control requires financial assurance.

In the case I am thinking of, the person wants to use a plume management zone, with natural attenuation only. They will be conducting long term monitoring, and may have to do active response if they exceed their attenuation action levels. They will have an institutional control for groundwater. Does this mean, under (f)(4)(F)(iii), they must provide financial assurance?"

A. Appropriate financial assurance for post-response action care will be required for any plume management zone response action which involves a physical control (e.g., hydraulic containment by pumping, slurry wall, etc.). The financial assurance would only be for the operation and maintenance of the physical control. Financial assurance will not be required for any plume management zone response action which does not involve a physical control. In other words, if the PCLE zone is "naturally" managed within the plume management zone such that a physical control is unwarranted, then there is no financial assurance requirement.

§350.33(f)(4) Remedy Standard B

Q. How do I set the attenuation action level for the source area wells? At two places in TRRP, it says that Class 2 PMZs should ensure that leachate from soil should not increase the groundwater concentrations in the source area above the concentration "at the time of RAP submittal." This site has a fair amount of historical groundwater monitoring data, and the concentration has generally decreased over time. The source area cis-1,2-DCE concentration was 2.9 ppm in the last event in 5/2001, but the previous site maximum was 7.6 ppm. They have calculated the attenuation action levels from the 7.6 ppm. Are they allowed to let the source area concentration increase to the previous maximum, or the current level? In other words, what is the concentration "at the time of RAP submittal"--all the historical data or the most recent data? I know that the AALs should incorporate seasonal variability (according to the guidance TRRP-33), but is there a defined procedure for this? For example, should we use the average, average plus one standard deviation, maximum, or a different statistical method?

A. The maximum level should be reflective of site conditions at the time of RAP submittal. They cannot just adopt the historical high concentration. If there is variability, then they can do some averaging over the last several sampling events, but they should consider the trend of the data

when determining which data to average over. They need to be best reflective of site conditions at time of RAP submittal.

Q. How is "exceeding the AAL (attenuation action level)" defined? In §350.33(f)(4)(D)(iii), the rule says that if concentrations exceed the AAL, then an active response action is necessary. This site has proposed that "exceeding the AAL" is more than 25% over the AAL during 3 consecutive monthly sampling events (monthly sampling triggered by AAL Exceedence). This doesn't seem acceptable for the source area, especially since the AAL is set at the historical site maximum concentration, but does seem more reasonable for AMPs (attenuation monitoring points) further down the plume. Has anyone else determined a definition for "exceeding the AAL"? Is it based on a percentage, or absolute Exceedence to the ppb level?

A. TCEQ guidance will probably be based on absolute Exceedence. If they exceed, they should go back out and confirm, then they can wait on action until a subsequent regularly scheduled sampling event. If that subsequent event exceeds, then they need to take action. When there are two consecutive regularly scheduled events that exceed, they need to take action. We do expect oscillations, but if they are seeing concentrations remaining above the attenuation action levels, or steady increasing trends then they have to either go to active remediation or reset the attenuation action levels with a better analysis of site conditions and have those new levels approved by TCEQ. If the attenuation action levels are exceeded significantly on the initial event (e.g., maybe >5x attenuation action level), then they need to take immediate action if the confirmation sample shows the similar results or worse.

§350.33(f)(4), §350.37, §350.75, and §350.75(l)(4) PCLs, POEs and PMZs.

Q. Are the standards for groundwater exclusive of the groundwater to surface water standards? More specifically, a site is proposing to meet the appropriate groundwater-to-surface water PCLs. They do not propose to meet the Class 3 groundwater PCLs. The groundwater-to-surface water PCLs are lower than the Class 3 PCLs for this site. Do they need to address the Class 3 groundwater PCLs? Is it legitimate to address the Class 3 groundwater standards via institutional controls while having remediation goals aimed at satisfying groundwater to surface water PCLs?

A. In this scenario where you have Class 3 groundwater and groundwater COCs discharging to surface water, both PCLs apply, but they apply at different POEs (points of exposure). The groundwater-to-surface water PCLs apply only at groundwater-to-surface water POEs, which are groundwater monitoring wells established as close as possible to the zone where groundwater discharges to the surface water. The Class 3 PCL also applies there, and the lower of the two values is the critical PCL for that POE. The groundwater-to-surface water PCL does not apply upgrading of the groundwater-to-surface water POEs. Refer to Figure 7-2 of TRRP-24 and the text discussion for that figure for additional information.

If the person is setting a PMZ for the Class 3 groundwater PCL Exceedence, and that groundwater PCLE zone flows into the surface water body, then only the ^{SW}GW PCL applies at the ^{SW}GW POE. ^{GW}GW_{Class 3} does not apply at the ^{SW}GW POE. On the other hand, if a PMZ is not to be used, then the lower of ^{GW}GW_{Class 3} or ^{SW}GW has to be met at the ^{SW}GW POE because ^{GW}GW_{Class 3} cannot be exceeded at any location in the groundwater.

Yes, institutional controls (PMZ) may be used for ^{GW}GW_{Class 3} and another remedy specifically designed to clean the groundwater such that ^{SW}GW is not exceeded at the ^{SW}GW POE. This approach is fully legitimate under TRRP. In lieu of cleaning the groundwater, they could control the groundwater such that ^{SW}GW is not exceeded at the ^{SW}GW POE. If ^{SW}GW is not exceeded, but ^{GW}GW_{Class 3} is exceeded, then the PMZ alone could work.

§350.36 Relocation of Soils Containing Chemicals of Concern for Reuse Purposes

Q. The site is underlain by Class 3 groundwater zone. The levels of COCs on site all fall below the PCL for groundwater and soil. Therefore, the property is not an affected property, so any soils removed from the property are not subject to the reuse rules. However, hypothetically one of the destinations for the soils is underlain by Class 2 groundwater. This appears to be a problem since they won't meet the critical PCL at the new location. Are they limited to taking soils to locations with Class 3 groundwater or can they take the soils anywhere?

A. No, they would not be limited, in this instance, to taking soils to locations with Class 3 groundwater. Subsection 350.36(a) states in part that "A person must comply with this section when relocating soil for reuse purposes from an affected property (on-site or off-site) which is undergoing or has completed a response action under Remedy Standard A or B and the soils contain COCs in excess of naturally occurring background concentrations." The soil reuse requirements presented in §350.35 are not applicable to the situation described in this question. This conclusion is based on the circumstance that there is no affected property and that no response action is to be completed under Remedy Standard A or B. Subsections 350.36(b) and (c) describe use of the critical soil PCLs for the new location in order to determine the soil reuse requirements under Remedy Standard A or B, respectively. However, these subsections have no effect on this example since §350.36 in its entirety does not apply.

Just because §350.36 may not be applicable in the given situation, does not mean that the planned soil re-use is unregulated. There may be other state or federal regulations that can be used by program areas to prohibit, control actions, or require certain demonstrations to be made to regulate what may be inappropriate actions (e.g., land disposal restrictions, Texas Water Code 26.121).

Q. Is a full TRRP evaluation necessary for the "new" location including an APAR? If the soils will be placed under a Remedy Standard B approach it appears there will need to be periodic RAERs created for the new location. The rule talks about developing critical PCLs for the new location so I presume the answer is yes on the need for an APAR.

A. No, a full TRRP evaluation, including an APAR, would not be necessary in order for the new location to be used for soil reuse. Under Remedy Standard A, as presented at §350.36(b)(5), soil reuse outside of the real estate boundaries containing the affected property requires the prior approval of the TCEQ. All soil reuse under Remedy Standard B, as described at §350.36(c)(5), requires the TCEQ's prior approval. The requirements for soil reuse are described at §350.36(b)(1)-(5) and §350.36(c)(1)-(7) for Remedy Standards A and B, respectively. The information submitted should be relevant to demonstrating attainment of one of these requirements. For example, much of the information submitted for Remedy Standard A will relate to the requirement stated in §350.36(b)(3) that the soil reuse activity must allow the requirements for Remedy Standard A response actions as described at §350.32(a) to be met at

the new location. This information could be submitted separately or could be submitted as part of a TRRP report. Based on this information, the TCEQ will provide its prior approval for a soil reuse action where such a response is appropriate.

Q. Will I need to be prepared to issue a closure letter of sorts for the new location once the soil is placed, to indicate that all TRRP requirements have been met?

A. Section 350.36(e) states that "Within 90 days of completing a soil relocation action under this section, the person shall complete the applicable portions of a RACR as described in §350.95 of this title (relating to Response Action Completion Report) and make it available for inspection or submittal upon request of the executive director." Thus, there is no requirement that the response action completion report be submitted for review or that the program area provide a closure letter. This is left for the program area to decide. Note that if an institutional control is required, then proof of compliance must be submitted within 90 days of completing the response action. Also, as specified at §350.36(d) and §350.95(d), when soils containing COCs above naturally-occurring levels are to be relocated for reuse on property not owned by the person, then the person shall obtain the written consent of the landowner and provide documentation of such consent in the RACR.

Q. §350.36(c)(5) refers to prior approval of soil reused under Remedy Standard B. Is this remedy standard referring to the source location or new location of the soils? It seems to me that the focus is on the new location.

A. Paragraph 350.36(c)(5) requires the person to receive the TCEQ's prior approval whenever soils are to be relocated for reuse at a new location and the response is to be conducted in accordance with Remedy Standard B. The soil reuse that requires prior approval in this paragraph is the activity at the new location. Thus, it makes no difference if a response action at the generating location is being performed in accordance with Remedy Standard A or B. If soil reuse activity at the new location is being performed to attain Remedy Standard B, then the TCEQ's prior approval is required.

§350.51(b) Affected Property Assessment

Q. If an affected property includes an intermittent stream that is dry more often than wet, should I evaluate the media in the stream bottom as soil or sediment?

A. Consider that an intermittent stream is defined as one that has a period of zero flow for at least one week during most years. Where flow records are available, a stream with a seven-day, two-year low flow of less than 0.1 cubic feet per second is considered intermittent.

Ecological exposure pathways: Consider that a terrestrial receptor (e.g., rabbit, fox) may forage along the dry stream bottom during arid times, and that an aquatic receptor (e.g., muskrat, raccoon) may forage within the stream during times that the stream contains water. The agency recommends (see 2001 Ecological Risk Assessment Guidance) that you evaluate exposure from both the dry stream bottom, and from sediment associated with intermittent streams. Hence, you should evaluate exposure to land-based ecological receptors when the stream bottom is dry, and should perform normal sediment evaluations for times when the stream bottom is wet. You can adjust the exposure duration for a particular receptor to reflect the usual

dry/wet cycles for the water body in question. You may choose to evaluate one scenario or the other based on site-specific considerations. In this case, you should discuss the rationale for not quantitatively evaluating the remaining scenario in the uncertainty analysis of the Tier 2 or Tier 3 Ecological Risk Assessment. Typical exposure routes evaluated would be: 1) direct ingestion of soil/sediment; 2) transfer of COCs from soil/sediment to plants to herbivorous receptors and thence to carnivorous receptors; and 3) transfer of COCs from soil/sediment to invertebrates and then to invertivorous receptors and thence to carnivorous receptors. Unless perennial pools are present in the intermittent stream, persons would not need to evaluate the transfer of sediment COCs to fish (or other receptors that prey on fish), since an intermittent stream does not meet the definition of a sustainable fishery.

Human Health exposure pathways: Where the stream is dry most of the year, you should evaluate the media as soil and incorporate the data into the exposure point concentration determination for soil. The decision to apply residential or commercial/industrial soil PCLs should be based primarily on the land use adjacent to the water body. Otherwise, you should consider the media as sediment and evaluate the contact recreation pathway using the Tier 1 sediment PCLs provided along with the TRRP-24 guidance (*Determining PCLs for Surface Water and Sediment*). Since an intermittent stream does not meet the definition of a sustainable fishery, it would not be necessary to evaluate the transfer of sediment COCs to fish that could be consumed by humans.

§350.51(c) Affected Property Assessment

Q. When the TRRP and APAR refer to horizontal assessment levels for soils and using any tier for the ^{GW}Soil_{ing} pathway, I assume you can use for example, calculated Tier 2 numbers for surface soils and Tier 1 numbers for subsurface? There seems no reason why this would not be possible?

A. The overall concept is to determine ^{GW}Soil at the same tier for both soil intervals (surface and subsurface) since the total soil column must be protective of the underlying groundwater. For this pathway, the distinction between surface and subsurface soil has no significance. If you go to the effort to develop Tier 2 ^{GW}Soil PCL for a particular COC, apply it to the entire soil column, ground surface to top of groundwater-bearing unit, which is modeled as an integral medium.

Q. Is there any option for not assuming the ^{GW}Soil_{ing} pathway is complete or reasonably anticipated to be complete when figuring your horizontal assessment levels in soil? I think the only time would be when you have a documented confining layer?

A. The first option is to show with other lines of evidence that soil is protective of groundwater quality. Some examples of evidence are found in §350.75(i)(7)(c). To use this option in your example situation, you will have to show that the confining layer won't let the COCs pass through to the underlying groundwater bearing unit. The most convincing data would be actual testing of the groundwater for COCs; short of that, be able to justify your case. The second option, if you are willing to go the Remedy Standard B approach, is to use a competent existing physical control. See §350.71(c)(5) and §350.71(d).

§350.51(c) Affected Property Assessment

Q. Suppose a site has a large SWMU (taking up say, the southern portion of the facility) which needed delineating for TRRP, and three sides of it were at the facility boundary but one was internal to the facility. TRRP requires delineation horizontally to residential assessment levels at the affected property boundary - so how about doing that for the three "edges" of the SWMU which coincided with the facility boundary (assuming the impact has not gone off-site), but the one edge which was "internal" so to speak - could that be delineated horizontally to industrial assessment levels?

When the facility eventually closes, it will all be assessed and deed recorded/remediated etc, so would that be a method to achieving cleanup in a manner which addresses active facilities (which do not qualify for Facility Operations Area)? If not, why not?

A. Regarding the interior SWMU edge, yes, TRRP allows assessment to C/I levels for interior areas as an option to the residential assessment level. See §350.51(c). Essentially, you are defining the C/I PCLE zone for soil by using this option. However, this option applies only to soils and the person must still show that COCs have not migrated off-site in excess of the residential based assessment levels. So somewhere between the interior SWMU edge and the facility property boundary, the person has to show that residential assessment levels aren't exceeded. This can be proved with a few additional samples - the exact interior residential assessment contour doesn't have to be defined as precisely as the C/I contour. Bear in mind that the farther away you take the confirmatory residential based samples, the greater likelihood of detecting other releases that will be assumed to be from the original SWMU. Also, this creates a larger area subject to deed notice.

Regarding deferred remedies, any requirement regarding the timing of submitting the assessment results and the initiation of a remedy is typically a program-area determination via other rule, permit, order or directive. TRRP only requires that remedy standards be attained within a time frame that is reasonable given the particular circumstances of an affected property [Remedy Standard A - §350.32(a); Remedy Standard B - §350.33(b)(2)]. The term "SWMU" suggests that the HSWA corrective action process is the controlling program. An interim measure or stabilization could be used to defer a final remedy (i.e., attaining Standard A or B) for a while. Going beyond the SWMU to the whole facility, a "FOA-like" facility-wide approach would have to meet the various requirements of the corrective action program. It is unlikely that the agency and EPA will accept a FOA-like approach with long-term deferral of remedies without the other obligations of a FOA.

§350.51(d) Affected Property Assessment

Q. I have a site where I am not doing a groundwater assessment, so I am doing vertical assessment to background/MQL in the soil. Do I have to compare each individual deep sample to the assessment level, or can I compare the deep mean of an exposure area to the assessment level?

A. Assessment is a sample by sample comparison. The average concentration doesn't answer an extent question. Now, not every boring has to have the vertical extent defined in it. The vertical extent may be sufficiently defined in key borings. So, you can look across the borings to

see if you have confidence that through the process of the assessment you have a firm answer to the question of whether groundwater is impacted.

§350.51(d)(1) Affected Property Assessment

Q. The TRRP Tier 1 PCL tables have a column for the secondary MCL. If this is lower than any of the PCLs (and it's an applicable pathway), do I use it as the PCL in assessment? I am not sampling groundwater; I am delineating the vertical extent of the COCs in soil to the MQL or Texas-specific background (§350.51(d)(1)). I am using PCLs (or secondary MCLs) to delineate the horizontal extent of the COCs in soil (§350.51(c)). §350.74(f)(3) seems to say I should use the MCLs as groundwater PCLs if the COCs are present in the groundwater. I don't know if they're present in the groundwater, and I'm concerned with soil at this point.

A. Yes, you are correct. Secondary MCLs apply when the COCs are present in the groundwater. So if your vertical delineation confirms groundwater is not affected, don't use the secondary MCLs as a basis for the ^{GW}Soil_{ing}.

§350.51(d)(2) Affected Property Assessment

Q. What is the effect of designating all of the soil that overlies an uppermost groundwater-bearing unit as a PCLE zone? Also, why would a person choose to make such a designation?

A. §350.51(d)(2) indicates that if the person has already determined that the groundwater is impacted, then the person may declare the entire soil column to the top of the lowest impacted groundwater-bearing unit as a soil PCLE zone.

The proper use of this provision must be determined on a site-specific basis. For instance, assume that the stratigraphy at an affected property consists of an upper clay, then an upper groundwater-bearing unit, then a lower clay, and finally a lower groundwater-bearing unit. It would be acceptable to designate a PCLE zone in the upper clay based upon an assessment of the soil source area and the presence of a PCLE zone in the upper groundwater-bearing unit. The effect of this designation would be that the person does not have to drill borings and collect samples for the specific purpose of defining the vertical extent of COC penetration into the upper clay. However, the person would have to apply a remedy to the entire thickness of the PCLE zone in the upper clay. Also, such a designation could be particularly beneficial in order to prevent the disruption of an existing cap. Further, such a designation could be useful when the person plans to remove or decontaminate such soils for other reasons, as in the case of excavating soil while constructing a building foundation.

As stated previously, the person must define the vertical extent of the affected property in some fashion. Since the upper groundwater unit in this example contains COCs in excess of the assessment level, the person must either: determine the vertical limit of COC penetration into the lower clay using the criteria specified in §350.51(d)(1); or, demonstrate that deeper assessment is not required because the site meets the requirements of §350.75(i)(7)(c). The person shall also define the vertical extent of COCs in the lower groundwater-bearing unit unless the person demonstrates that vertical migration to this unit is not possible.

§350.51(m) Texas-specific median background concentrations

Q. While evaluating shallow soils at a site, the maximum thallium concentration detected was 11 mg/Kg, which is above the Tier 1 residential total-soil-combined value of 6.3 mg/Kg and the groundwater protection value of 1.7 mg/Kg. However, the Texas specific background concentration (TSBC) is 9.3 mg/Kg, which is above the ^{Tot}Soil_{Comb} value. In this situation, does the Texas specific background concentration value take precedence over the PCL value? Also, the Tier 1 tables reference thallium as "thallium and compounds(as thallium chloride)". Are the PCL values directly comparable to the reported total thallium (metal) concentrations?

A. In general, yes, you may use the Texas specific background concentration in place of a PCL if the TSBC is greater. With regard to thallium, the table in §350.51(m) contains an error. The Texas-specific median for thorium was mistakenly placed in the rule for thallium. Thallium background is typically in the range of 0.5-3 ppm, with a median value probably less than 1 ppm. This error will be fixed the next time there is a rule revision/change. In the meantime, do not use 9.3 ppm as a generic estimate of typical background for thallium.

You may want to collect site-specific background to see what thallium levels are around the affected property. Also, you may want to check with your lab to ensure that the thallium results are real. We have had problems in the past with false positives for thallium due to analytical interferences.

In regard to your question about the total thallium results, it is appropriate to compare that result with the specific metal salt listed on the TRRP tables.

§350.51(m) Affected Property Assessment

Q. Can you mix Texas-specific backgrounds as published and site-specific background if one is higher than the other?

A. Yes. You may use the higher of the two values for a given COC. You do not have to use all Texas-specific backgrounds or all site-specific values for a group of COCs.

§350.52 Groundwater Classification

Q. If a well on a site is pumped for several months and shows less than 150 gallons per day on average, but can make greater than 150 gallons per day for a few days early in the pumping cycle, can the person make the claim it is Class 3?

A. Yes. All it takes is one day of producing less than 150 gallons per day. Of course this response assumes that all caveats about well development and design, etc., are satisfied.

Q. Also, if the site is in fractured rock where some wells make greater than 150 gallons per day while other do not, I assume that the data from these separate wells cannot be averaged. This would be unlike an alluvial setting where all the wells are completed in the same saturated zone and provided there were no significant changes in the geology of the saturated zone, the yield from the wells could be averaged.

A. Correct. The person should separate the tests based on fractured and unfractured zones. Sustainability may be of issue with the fracture rock depending on how extensive it is. The fractured zones could have a very high production rate, but for a short period.

§350.52 Groundwater Resource Classification

Q. Am I correct to assume, if I wish to conduct only one survey that will meet both §350.51(l), and §350.52, I should search for all wells within ½ mile of my property line in all directions, and then determine whether my groundwater-bearing unit is in the production zone of any of the wells I find?

A. There are two surveys that must be conducted according to the TRRP rule. One is a field survey to locate all potential receptors within 500 feet beyond the boundary of the affected property (all affected media). The other is a records search to identify all water wells and surface water bodies within one-half mile of the affected groundwater. Note that both surveys are conducted within the specified distance of the affected media, not the property line. Refer to §350.4(a)(1) for the definition of affected property. Also note that the one-half mile survey serves the purpose for both receptor identification and groundwater classification, so yes, the same one-half mile survey could be applied for §350.52(1)(A) and (2)(A).

Q. The APAR form instructions on Worksheets, Attachments, and Appendices (Section 3 -Receptor Survey, Worksheet 3.1 -Water Well Survey) seems to set the water well survey requirements according to whether the groundwater is contaminated. Am I right in assuming that if the groundwater is not contaminated, and is classified as Class 1 or Class 2 based only on water quality and yield [(350.52(1)(B or C)) or (350.52(2)(B))] then no water well search is required (and that it is not necessary to do a field survey to at least 500 feet beyond the property line)?

A. No. You cannot classify the groundwater as Class 2 or 3 unless you have conducted the surveys because you could not discount the criteria of §350.52(1)(A). If the groundwater is not affected above the residential assessment level and you want to assume that the groundwater is Class 1, the one-half mile records survey is not required. The 500-foot field survey is always required. The property line is not a factor, see the response to the next question.

Q. Am I right in assuming that if the groundwater is contaminated, and the class is not based on a well survey, the water well records search extends for 0.5 mile in all directions from the delineated plume (including in the upgrading direction) and a field survey is required to at least 500 feet beyond the property line?

A. No. Neither the 500-foot field survey nor the one-half mile records survey are conducted from the property line. Rather, 500 feet from the affected property and one-half mile from the limits of groundwater in excess of the residential assessment level.

Q. Am I right in assuming that if the groundwater is contaminated but the delineated plume ends within 0.5 mile inside the property line, then a field survey to at least 500 feet beyond the property line is still required?

A. No. Property lines are not used to determine the distances for conducting the surveys.

§350.53 Land Use Classification

Q. Are cemeteries residential? NAICS codes control. Do they fall in the commercial/industrial ranges?

A. For TRRP, cemeteries are commercial/industrial. The NAICS code is 812220, which is covered by the "81 inclusive" description in the commercial/industrial land use definition in TRRP. The general description for 812220 Cemeteries and Crematories is "This industry comprises establishments primarily engaged in operating sites or structures reserved for the interment of human or animal remains and/or cremating the dead." The NAICS code includes animal cemeteries (6553); cemetery management services (6531); cemeteries (6553); cemetery associations (i.e., operators)(6553); crematories (except combined with funeral homes)(7261); mausoleums (6553); memorial gardens (i.e., burial places)(6553); pet cemeteries (6553). The old SIC codes are listed in parentheses after the descriptions. Note that some of the SIC codes are different, but all the SIC codes are covered by the risk reduction rule (Chapter 335) definition of non-residential.

§350.53 Land Use Classification

Q. What is the appropriate land use classification for open tracts of land that don't seem to exactly match the classifications for commercial/industrial or residential yet still have some amount of human activity, such as parks, golf courses and nature preserves?

A. In general, any land use classification is made by comparing the current use to the definitions for commercial/industrial or residential land use in §350.4(a) and making the call. In the case of parks, the definition for residential land use specifically cites parks, along with day care facilities, educational facilities and hospitals for inclusion in this land use because of the similarity to residential exposure potential and the sensitive nature of the potentially exposed population. Golf courses and country clubs are classified as commercial/industrial. The commercial/industrial land use definition makes use of the North American Industry Classification System (NAICS) codes (see next question for more details). The particular NAICS code for this example, 71391, is part of the broader category of Code 71 - Arts, Entertainment and Recreation which is defined as commercial/industrial. Note, however, that in locations where the golf course is contained within a park, the total acreage (park with golf course) will be considered to be residential. Nature preserves and other similar institutions with NAICS code 71219 such as bird sanctuaries, etc., are considered residential even though this land use activity falls in the same general category as golf courses. This is the only code which is specifically excluded from Code 71, therefore nature preserves are classified as residential. Bear in mind that if an affected property extends into a golf course (or any other property that is classified as commercial/industrial), the person must regard the off-site release as residential unless the owner agrees to the filing of an institutional control reflecting commercial/industrial land use.

Q. Since the definition for commercial/industrial land use relies on North American Industrial Classification System (NAICS) codes, how can I find out if a particular activity is covered by a code number included in the definition or if it is excluded from the commercial/industrial classification?

A. The North American Industrial Classification System (NAICS) provides code numbers for almost all activities of industry and commerce. The code numbers start at 11 and go through 92

to define 24 major headings. The more digits there are in the code, the more specific is the classification. Affected property that has land use activities described by the NAICS codes will meet the definition for commercial/industrial land use (§350.4(a)(13)), unless a specific NAICS code is excluded from the definition. For the convenience of the user, the excluded NAICS codes and descriptions are provided below. These particular activities will result in a residential land use classification.

22131 Water supply and irrigation systems
61111 Elementary and secondary schools
61121 Junior colleges
61131 Colleges, universities and professional schools
62211 General medical and surgical hospitals
62221 Psychiatric and substance abuse hospitals
62231 Specialty (except psychiatric and substance abuse) hospitals
62311 Nursing care facilities
62322 Residential mental health and substance abuse facilities
623311 Continuing care retirement communities
623312 Homes for the elderly
62399 Other residential care facilities
62441 Child day care services
71219 Nature parks and other similar institutions
721211 Recreational vehicle parks and campgrounds
72131 Rooming and boarding houses
92214 Correctional institutions

The U.S. Census Bureau maintains the definitive website on NAICS codes at this address:
<http://www.census.gov/epcd/www/naics.html>

§350.54 Data Acquisition and Reporting Requirements

Q. A site has Varsol impacts to soil. The person analyzed for TPH by method 1005 and got non-detect. However, he noticed free product collecting in the geoprobe boring. Varsol is a brand of mineral spirits classified as a light petroleum distillate. Also, another site has found the Varsol contains naphtha. I have a few questions:

1. The other site did analysis for VOCs by EPA method SW-846. Is this the same as Method 8260? The term "VOC by EPA Method SW-846" can mean one of several VOC methods in the SW-846 methods manual. Assuming the term is referencing Method 8260 is not a bad assumption, but remember it is an assumption until we get it verified.

2. Is naphtha the same as naphthalene? No, naphtha is not the same as naphthalene. Naphthalene is a single 10 carbon aromatic chemical. It looks like two benzene rings fused together via two adjacent carbons. Naphtha is a mixture of petroleum hydrocarbons (collected from a narrow distillation range during the refining process) and would be found in the higher end of the gasoline range using TCEQ Method 1005. As defined by Hawley's Chemical Dictionary, Varsol is the trade name for an Exxon product containing straight-chain aliphatic hydrocarbons and conforms to the commercial standard for Stoddard solvent. Stoddard solvent has a boiling point range between 175 and 210 degrees C.

3. Is it appropriate to analyze for Varsol by method 1005? Yes, it is appropriate to analyze Varsol by Method 1005. If the Varsol is as defined by Hawley's, i.e., straight chain aliphatics, the analytical responses will be observed around and between C10 and C15 and will look very much like the standards used as markers, i.e., the n-Cx marker standards.

4. It is starting to sound like I should analyze for VOC's also. What do you think about analyzing for SVOC's? Analyzing for VOC's using Method 8260 will not get you much additional data. You might try running SW-846 Method 8015 for a comparison to your Method 1005 data, but Varsol should be measurable using Method 1005 when you have free product present.

§350.71(b)(5) Development of Protective Concentration Levels

Q. Would the ^{GW}Soil PCL apply in situations where the saturated zone is not, by definition, a groundwater-bearing unit? Based on the definitions of ^{GW}Soil as the soil-to-groundwater PCL for Class 1 or 2 groundwater and ^{GW}Soil_{Class3} for Class 3 groundwater, it would seem the ^{GW}Soil would not apply.

If ^{GW}Soil PCL is not considered, the applicable pathways would include, at a minimum: Surface Soil: ^{Tot}Soil_{Comb} and ^{Air}GW-Soil_{Inh-V}, and Subsurface soil: ^{Air}Soil_{Inh-V} and ^{Air}GW-Soil_{Inh-V}.

A. On the contrary, §350.71(b)(5) requires the person to consider the leaching of COCs in surface and subsurface soils to groundwater to be a complete or reasonably anticipated to be completed exposure pathway. The person is required to develop PCLs for this and all other human health exposure pathways which are complete or reasonably anticipated to be completed. The person can, however base these PCLs on Tier 1, 2, or 3 as described in §350.75 which will provide an appropriate degree of flexibility.

§350.71(k) COC Screening

Q. In performing COC screening, it seems to me that PCLs / Assessment Levels used for COC screening are NOT adjusted for cumulative effects, based on §350.72(b). The implication is that only once COCs have been screened in accordance with §350.71(k) does the person then adjust PCLs (and, by extension assessment levels) for cumulative effects if more than 10 carcinogenic or more than 10 systemic toxicant COCs are identified. Am I correct in this interpretation?

A. Please refer to the guidance document Risk Levels, Hazard Indices, and Cumulative Adjustments (RG-366/TRRP-18) for information on cumulative adjustments and assessment levels.

§350.71(k) COC Screening

The person has completed the assessment in soils and groundwater for the affected property. For a COC, the person has several detections in soil, but all detected and non-detected results, i.e., detected values and sample quantitation limits, respectively, are less than the relevant assessment level for soils. For the same COC in groundwater, the person has one detected result and 39 non-detected results. The detected value in groundwater is greater than the assessment level, but all of the sample quantitation limits are less than the assessment level.

The questions, followed by the relevant answer, are

Q. Has the person met the requirements in §350.71(k)(2)(A) thereby demonstrating that a groundwater PCL does not need to be established for the COC?

A. Yes. The rationale is - For groundwater, the requirements in §350.71(k)(2) are met. More specifically, the person has met the requirements in §350.71(k)(2)(A)(i through iii), including the overarching requirements of §350.71(k)(3), i.e., §350.71(k)(3)(A), for the non-detected results. Therefore, no PCL needs to be established for the COC in groundwater. However, the COC may need to be included during all, or some, monitoring activities throughout the life of the project to demonstrate these screening conditions remain valid.

Q. Does §350.71(k)(1) require that the person establish soil PCLs for the COC?

A. Yes. The rationale is - for soil, the requirements of §350.71(k)(1) are not met, because the COC is detected in another medium, i.e., groundwater, at concentrations exceeding the residential assessment level. Therefore, a PCL must be established for the COC in soil.

§350.71(k) Screening COCs

Q. Does the COC screening procedure described in §350.71(k)(1) take ecological receptors into account?

A. Yes. As described in the first sentence of §350.71(k), for both human health and ecological PCL evaluations, the person shall establish PCLs for each individual COC unless the conditions of paragraphs (1), (2), or (3) of this subsection are met. This screening provision is also subject to the possibility that use of paragraphs (1), (2), or (3) may be prohibited by an individual program area.

§350.71(k)(1) states that PCLs do not need to be established for a COC in a particular medium if the COC is detected in at least one sample and all detected concentrations of the COC are less than the residential assessment level in the environmental medium being evaluated as well as in all other environmental media from which samples were collected.

The definition for assessment level is presented at §350.4(a)(3). In short, an assessment level is a critical PCL for a COC where the human health PCL is established under a Tier 1 evaluation except for the soil-to-groundwater exposure pathway and where the ecological PCLs are developed, when necessary, under Tier 2 and/or 3. So the lower concentration of either the human health or ecological PCL is used as the assessment level.

The statement in §350.71(k)(1) that the COC concentrations must be compared to the residential assessment levels means that residential land use must be assumed when calculating the human health PCLs used in determining the assessment levels. The reference to residential assessment levels does not negate the requirement to determine ecological PCLs, when necessary, when determining the assessment level.

§350.71(k) Screening COCs

Q. Investigation sampling results indicated that methylene chloride was detected with concentrations exceeding the applicable critical Tier 1 PCL. The maximum result of methylene chloride was 0.0152 mg/kg which was greater than 0.013 (the applicable Tier 1 PCL). Based on the TRRP regulation §350.71(k)(2)(B), if the COC is a common laboratory contaminant and the concentration of COC is less than ten times the maximum amount in any associated blank, the COC can be screened from further PCL development. The results of associated method blank indicated that methylene chloride was not detected, and therefore no result was reported. Please guide us how we can apply §350.71(k)(2)(b) criteria to this specific case.

A. Based on the information, the site sample results included detections of methylene chloride (MeCl), but the associated method blank had no detections for MeCl. MeCl is a common laboratory contaminant and can be evaluated in the absence of detections in the method blank if the following information is submitted to TCEQ:

1. A signed statement from the person documenting MeCl is not a chemical of concern (COC) at the affected property and was never used, stored, handled, or disposed at the affected property. The official should take into account the common uses of MeCl which include as a solvent for oils, fats, waxes, resins, bitumen, rubber and cellulose acetate and as a paint stripper and degreaser. It is used in paint removers, in propellant mixtures for aerosol containers, as a solvent for plastics, as a degreasing agent, as an extracting agent and as a blowing agent in polyurethane foams.
2. A statement by the manager of the laboratory documenting historical levels of MeCl contamination in any laboratory blanks, e.g., method, instrument, or reagent blank, analyzed around the time the samples in question were analyzed.

If the person can document MeCl is not a COC and the laboratory documents historical levels of MeCl contamination in the laboratory, then the maximum result of MeCl in an associated blank should be used to evaluate the data, or if MeCl is not detected in those blanks, the mean of the historical levels of MeCl contamination can be used to evaluate the MeCl data at this affected property.

If the person indicates MeCl is a COC, then a PCL will need to be developed regardless of the presence of laboratory MeCl contamination.

§350.72(b) Carcinogenic Risk Levels and Hazard Indices for Human Health Exposure Pathways

Q. A site that 21 COCs with noncarcinogenic effects. Four of the COCs are metals (Ba, Cr, Pb and Hg) for which the Texas-Specific Background values are used in place of the Tier 1 PCLs. Must the Texas-Specific Background values for metals also be lowered? For example, lead background value of 15 mg/kg would be reduced by 10/21 or 0.476, so the adjusted PCL would be $0.476 \times 15 = 7.1$ mg/kg.

A. PCLs based on site-specific or Texas-Specific background do not need to be included in the cumulative assessment, as they're not risk-based and the person is not required to go below those levels. Although you appear to be adjusting the PCLs evenly, be aware that you can adjust them however you'd like (evenly or just adjust certain PCLs).

§350.73(e) Chemical/Physical Parameters

Q. I am using the data from the agency's web page from Chapter 350, Figure 30TAC §350.73(e). I could not determine at what temperature the vapor pressure data was obtained. Was it at 20° or 25° C (for all compounds)?.

A. The source of the vapor pressures (Vps) published in the rule were obtained from literature searches, and the Vp selected was the Vp at the temperature closest to 20° C. The source of Vps added to the figure after the rule was promulgated were calculated or estimated at 20 degrees C with few exceptions.

Figure §350.73(e)(1)(A) Soil-Water Distribution Coefficients (K_d) for Aluminum and Lead

Q. For lead and aluminum you can look up K_d in Figure §350.73(e)(1)(A) for the combination of the site-specific pH range and the site-specific soil type (based on the total weight percent of clay, organic matter, iron and aluminum oxyhydroxide).

Does this requirement contemplate that we have geologists determine soil type (sandy, loamy or clayey) based on field observations or that we make a measurement of weight clay, organic matter, and iron and aluminum oxyhydroxides and calculate their percentage of total soil weight?

A. The site specific soil type can be determined in the field by a competent person. However, if there is concern regarding an accurate field description, the TCEQ can direct you to have the sample subjected to a more definitive (lab) description.

Figure §350.74(a) RBEL Equations

Q. Under TRRP is there any room for consideration of alternative exposure factors for a resident's exposure to routine recreational use of park land?

A. No. The TRRP rule is specific about keeping exposure factors for residential land use fixed at the values listed in the Figure 350.74(a). The basis for all the "Nos" listed in the column "Change to Default Exposure Factor Allowed?" for residential land use is found in the rule at §350.74(j)(3). In contrast, the rule at §350.74(j)(2) sets out a process for changing some of the basic exposure assumptions (averaging time, exposure duration, exposure frequency) for

commercial/industrial land use, but it is not an easy process. Because the definition for residential land use includes parks, you are effectively locked in to the values listed in the residential RBEL table. Since the land use definitions are absolute, in the sense that the land use is one or the other, there is no variation that can be made with TRRP for different exposure assumptions for parks.

§350.74(f)(3) Groundwater Ingestion RBEL

Q. If a groundwater does not meet §350.74(f)(3)(A),(B) or (C), does this mean we do not have to use the secondary MCL as the PCL for assessment?

A. That's correct, notwithstanding a need to trigger a response to an aesthetics impact where it turns out the secondary MCL would mitigate the aesthetics impact (§350.74(l)). The §350.74(f)(3) provisions can be used to interpret "aesthetic impacts" for groundwater for typical purposes of §350.74(l), with regard to secondary MCLs. If you don't have the §350.74(f)(3) conditions for groundwater, then secondary MCLs would typically not be coming up under §350.74(l). An exception may be where groundwater is discharging to a surface water classified for human ingestion. In this exception case, secondary MCLs might still come up for groundwater via §350.74(l) to protect the surface water under the conditions of §350.74(h).

§350.74(j)(2) Variance to Default RBEL Exposure Factors

Q. If a COC has a federal Maximum Contaminant Level (MCL) or drinking water action level, can the person modify the groundwater ingestion RBEL, hence the PCL, to reflect commercial/industrial exposure assumptions by using the variance procedure of §350.74(j)(2)?

A. No. The TRRP rule regards MCLs as federally promulgated regulatory standards that can not be modified. The variance procedure of §350.74(j)(2) is available only for COCs for which RBEL equations apply. §350.74(a) in general directs the person to use the RBEL equations for the various exposure pathways, but §350.74(f) in addressing groundwater ingestion further specifies that the person will use the lower of the primary or secondary MCL, if available, instead of the RBEL equation. These requirements are restated in the RBEL-4 equation presented in Figure 30 TAC §350.74(a). Therefore, since the groundwater ingestion RBEL for a COC with an MCL is not based on the RBEL-4 equation, the variance procedure of §350.74(j)(2) does not apply to that COC. One can readily see the use of MCLs as standards in Table 3 of the Tier 1 PCL Lookup Tables. COCs with MCLs have the same ^{GW}GW_{ing} PCL (the MCL) regardless of residential or commercial/industrial land use classification.

§350.75 Tiered Human Health Protective Concentration Level Evaluation

Q. Regarding drinking water standards for cyclohexanone, would the drinking water standard be the same as one of your clean up standards or do you have a separate one? There have recently been questions raised regarding smell of the chemical and potability of water especially after the chlorination process.

A. Cyclohexanone is not regulated in drinking water nor does it have a secondary standard. The TCEQ has run over 43,000 VOC analyses and if it can be tentatively identified, we have not seen it. It has only shown up at one water system using an oil and grease method.

The TRRP rule procedures calculate a residential water ingestion-based protective concentration level of 120 mg/L and a residential inhalation (volatilization from groundwater-to-air)-based protective concentration level of 200,000 mg/L. These PCLs are TRRP clean up levels; there is not a special one for this compound.

§350.75(b) Tier 1 PCLs

Q. The Tier 1 table $^{Tot}Soil_{Comb}$ and $^{GW}Soil_{Ing}$ residential PCLs for total chromium are 30,000 and 2400 mg/kg, respectively. My question concerns the rule-of-thumb of dividing by 20 to estimate the Toxicity Characteristic Leaching Procedure (TCLP) equivalency in mg/L. In this case, the 30,000 mg/kg equates to 1500 mg/L, and the 2400 mg/kg equates to 120 mg/L. Both values greatly exceed the regulatory limit of 5 mg/L for a waste characteristically hazardous for chromium. Why are the PCLs so high? Am I correct to assume that soil with a total chromium TCLP analysis of 5 mg/L or greater would require remediation under TRRP?

A. The results of a TCLP analysis yields a result in units of mg/L for the analyte in leachate. This result can not be compared directly to the $^{Tot}Soil_{Comb}$ PCL, which is in units of mg/kg for the analyte in soil. There is a "rule of thumb" approach that has been used for waste classification purposes that might have some utility to your situation. By multiplying the regulatory limit for Toxicity Characteristic by 20 and changing units to mg/kg, the person can estimate when it is likely that a waste could be TC hazardous based on a total analysis and then follow up with a TCLP to actually determine if the waste is hazardous. For example, the TC limit for benzene is 0.5 mg/L (see 40CFR 261.24), 20 times this amount results in 100 mg/kg as a total concentration that could result in a TC hazardous waste determination, assuming all the benzene leaches out of the solid matrix into the leachate. If the matrix retains some benzene, the material won't be TC hazardous. So, if you know the total concentration, you can decide when to test for TC and when not to.

Using Tier 1 residential PCLs at 0.5 acre source area, there are 5 of the 40 TC chemicals (chlordane (gamma); Chromium (III); Endrin; Heptachlor; and Toxaphene) with PCLs that exceed the 20x predictor, so a TCLP test is recommended to determine if the soil remaining in place, even though less than Tier 1, might still exceed the TC limits in actual leachate and hence be TC hazardous waste. For purposes of Remedy Standard A, TC hazardous waste must be removed or decontaminated in accordance with §350.32(a)(2).

In your case, you are starting with TCLP results and want to know if the results (mg/L) will meet the PCLs (mg/kg). TCLP results can be used in demonstrations for meeting $^{GW}Soil$ or §350.75(i)(7)(c). The utility of TCLP for $^{Tot}Soil_{Comb}$ is limited to the predictor approach described above where you would apply the 20x multiplier to the TCLP results, change units and compare to PCLs to decide which samples need confirmation with a total soil analysis. The hazard with this approach is that the assumption of complete transfer of the TC chemical from the soil to the leachate is likely not valid, such that the real total concentration will be greater than the predicted total concentration and could exceed the $^{Tot}Soil_{Comb}$ PCL. 23 of the 40 TC chemicals have a $^{Tot}Soil_{Comb}$ PCL that is greater than the 20x predicted concentration based on the TC regulatory limit in 40 CFR 261.24. So even if you showed that the soil was not TC hazardous, you will likely still have to do some total analyses to confirm that $^{Tot}Soil_{Comb}$ is not exceeded. At most, the predictor approach might help you decide which samples to run for totals but don't rely upon it for demonstrating compliance with $^{Tot}Soil_{Comb}$ PCLs.

§350.75(b) Tier 1 PCLs

Q. Why are there two values in the Tier 1 PCL tables for mercury?

A. The Tier 1 PCL tables list mercury PCLs for two different pH levels (pH 4.9) and (pH 6.8). Persons should use the 4.9-based PCLs unless there is a site-specific basis (i.e., appropriate literature reference for the impacted soil, or site-specific pH measurement) for assuming the pH is 6.8 or greater. If the pH is 6.8 or greater, then the person can use the 6.8-based PCL. Under Tier 2 or 3, the person can use a site-specific pH-based K_d in accordance with 350.73(e)(1) and Figure: 30 TAC 350.73(e)(1)(c) to calculate mercury PCLs reflective of site-specific pH conditions.

§350.75(b) Tier 1 PCLs

Q. One of the PCLs included in the TRRP tables is the $^{Air}GW\text{-}Soil_{Inh-V}$; however, I've never seen the equation used to calculate this PCL. Is it buried within the text or in a different guidance document?

A. The pathway you're referring to is the groundwater protection value for the groundwater-volatilization-to-ambient-air pathway. The LDF and K_{sw} are applied to groundwater value generated using the VF_{wamb} equation, just as they are applied to the groundwater ingestion PCL in the $^{GW}Soil$ equation (Figure 350.75(b)(1)). It is just a soil-to-groundwater pathway. Therefore, it is the same $^{GW}Soil$ equation, but instead of back-calculating from the groundwater PCLs: $^{GW}GW_{Ing}$ or $^{GW}GW_{Class\ 3}$, you back-calculate from $^{Air}GW_{Inh-V}$ at the groundwater PCL.

§350.75(b)(2) Source Areas Sizes

Q. I have a question about how to define a "source area" according to TRRP. Many properties are affected above PCLs and comprise more than 0.5 acre, however I thought that you can divide up the property by the source (i.e. spill from oil tanks in one area, LPST in another and so on) to keep your property under the less stringent 0.5 acre PCL standards. Is this true? Also what circumstance would be required to define a 30 acre source area? Say you have a leaking underground pipe that leaks for years, so contaminants have spread more than 0.5 acres, but is the source still the actual place the leak occurred? Also how do you define the source area if groundwater is impacted?

A. Source area is the mass of contaminant in an environmental medium that is leaching, sourcing, volatilizing COCs to the point of exposure at an unprotective concentration. It is not the pipe or tank that originally leaked. Source area size is only applicable to exposure pathways where there is a NAF term in the equation ($^{GW}Soil$, $^{Air}Soil_{Inh-VP}$, etc). Each COC may have a unique source area size. There may be several distinct source areas at a given affected property.

§350.75(b)(2) is the critical reference. Start the process by mapping out the area that exceeds the assessment level. If that area is less than or equal to 0.5 acre, use 0.5 acre PCLs for Tier 1. If that area is greater than 0.5 acres, but less than or equal to 30 acres, use the 30 acres PCLs for Tier 1. If that area is greater than 30 acres, go to Tier 2 and determine source area size on a more site-specific basis. The following paragraphs elaborate upon source area size.

The rule at §350.75(b)(2) was written to standardize the interpretation of “source area” for Tier 1 in order to facilitate the application of 0.5 acre vs 30 acre Tier 1 PCLs. PCLs which involve the transport of the COC as part of the exposure pathway have a value for NAF that is ≥ 1 ($PCL = RBEL \times NAF$). The particular value for the NAF is dependent on the size of the source area. All things being equal, the larger the source area, the greater the mass of contaminant transported to the POE, and therefore, the smaller the PCL that is necessitated. The size of the source area for each COC for each affected property is different, reflecting the volume of the COC release, the nature and mechanism of the release, and the hydrogeologic properties of the affected property. The definition of source area that is in the rule is provided below for reference. From the definition, it is apparent that the source area is intended to be determined site-specifically. However, as stated earlier, in order to standardize and expedite things for Tier 1 (for Tier 1 only), the method in which source area size is determined is specified in the above-reference rule.

To determine the Tier 1 PCL appropriate for the source area size, the person is directed in §350.75(b)(2) to first determine the size of the area that exceeds the 0.5 acre-based assessment level applicable for the COC and exposure pathway. This is done by determining the surface area of the area exceeding the Tier 1, 0.5 acre-based PCL. If the surface area for a COC and exposure pathway is \leq to 0.5 acres, then 0.5 acre PCL can be used. If the surface area is > 0.5 but \leq to 30 acres, then the 30 acre-based Tier 1 PCL can be used. For source areas > 30 acres, Tier 2 or 3 must be used to establish the PCL so that the source area can be determined site-specifically. If the assessment was based on 0.5 acre assessment level, and it turns out that the surface area is greater than 0.5 acres (but less than 30 acres), then the 30 acre PCL must be applied. In this instance, re-mobilization may be necessitated if the assessment did not capture the area that exceeded the 30 acre PCL assessment level.

For example, the 0.5 acre residential assessment level for naphthalene for surface soil is 31 mg/kg, and if the surface area for the area exceeding that COC concentration is > 0.5 acres (Figure 1), then the Tier 1 PCL must be based on the 30 acres. Therefore, the assessment level must be revised based on 30 acres. The 30 acre Tier 1 residential surface soil PCL is 16 mg/kg. If the assessment did not define the extent of COCs in excess of 16 mg/kg, such as is the case in Figure 1, then additional assessment would be required.

Because the approach is iterative, remobilization may be common. Therefore, persons may just commonly assess to 30 acre-based assessment levels in order to minimize potential for remobilization.

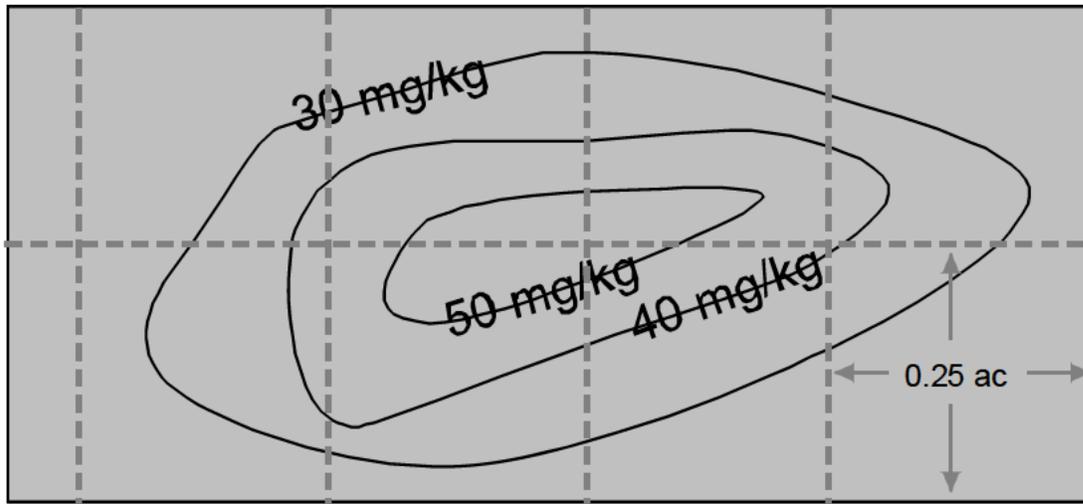


Figure 1. Assessment completed targeted for naphthalene assessment level of 31 mg/kg.

§350.75(c) Tier 2 PCLs

Q. Is there a cutoff value for the dimensionless Henry's Law constant value for which you do not need to develop an inhalation pathway PCL? I see that the Tier 1 tables do not have inhalation pathway PCLs for many chemicals. I can not find a citation in TRRP for where the line is drawn.

A. No lines were drawn except for the vegetable pathway. We listed a Henry's Law value if we could determine one. The tabulated PCL for the inhalation pathway may be missing because of missing chemical property data and/or toxicity data.

§350.75(c) Tier 2 PCLs

Q. I am working on a TRRP site where lead is the COC and Tier 2 calculations were used to establish a site specific PCL. However, it is unclear to me if the size of the affected property has been determined correctly.

1. Can default values utilized in the December 1996 concept paper be utilized in Tier 2 calculations? For example, the values 2500 and 4500 were used for U_{gw} and W_s respectively in the concept paper and the person also utilized these numbers in the Tier 2 calculations. Is this appropriate?

2. During initial calculations the site specific W_s was determined to be 400 feet, based on the area of property which contained lead in soil above 15 ppm (Texas Specific Background). Utilizing 400 feet for W_s the person calculated a lead PCL of 140 ppm. The person then determined the area of the property which contained lead above 140 ppm and established a new W_s of 288 feet. Using the new W_s the lead PCL was recalculated to be 276 ppm. Is this an appropriate way to establish a site specific W_s and PCL?

A. With regard to the two questions, the short answer is no and no. The person needs to use a site specific U_{gw} and W_s . However we have been allowing them to use the Tier 1 LDF values if within those respective source area sizes (0.5 vs 30 acres).

It is acceptable to base W_s on >15 ppm (assuming site-specific background has not been determined to be higher), however, they can't do the iterative process as they did. In fact if they ran their concept again, they PCL would increase again. To reiterate: don't recalculate based on an adjusted W_s , or L1 for that matter.

§350.75(c) Tier 2 PCLs

Q. In the Tier 2 ^{GW}Soil PCL calculation, can the Tier 1 LDF default value (20 for 0.5-acre source, and 10 for 30-acre source) be used along with site-specific L1, L2, and K_{sw} values? Or must a site-specific LDF always be calculated in Tier 2?

A. You can use the Tier 1 LDFs for Tier 2 purposes. You do not need to develop site specific LDFs in every application of Tier 2.

§350.75(i)(7)(c) Pathway Specific PCL Considerations

Q. A site has lead in the soil above Tier 1 and Tier 2 groundwater protective levels. However the lead has been sitting in the soil 45 to 50 years at a minimum. The groundwater is clean for lead. Is this sufficient evidence to document that the ^{GW}Soil PCL is not necessary per §350.75(i)(7)(c)?

A. Assuming the groundwater sample was properly collected and the analytical method was sensitive enough, this information may be sufficient to make the demonstration. An additional piece of pertinent information is the thickness of lead affected soil and the depth to groundwater. Are there other indications of the immobility of the lead?

Q. At another site the depth of lead affected soil above Tier 1 and Tier 2 is 1-5 ft. The groundwater fluctuates between 1-6 ft. The lead affected soil has been sitting in the groundwater since the early 1950s. Is this sufficient evidence to document that the ^{GW}Soil PCL is not necessary per §350.75(i)(7)(c)?

A. Presuming samples are appropriately collected and analyzed and there is no groundwater impact, this appears to be sufficient documentation for §350.75(i)(7)(c).

§350.76(g) Total Petroleum Hydrocarbons

Q. I am trying to determine Tier 1 PCLs for TPH, and have been given limited data.

Laboratory analytical results from a soil sample indicate that TPH Texas Method 1005 yielded a >C12 to C28 concentration of 500 mg/kg, and a >C28 to C35 concentration of 300 mg/kg. With the supplied data, can a Tier 1 PCL be determined for TPH? Does the TCEQ list a generic PCL for these carbon ranges?

A. Referring to Step 4 in the TCEQ guidance document *Development of Human Health PCLs for Total Petroleum Hydrocarbon Mixtures* (RG-366/TRRP-27), the results from TCEQ Method 1005 analyses can be used for screening as follows:

Compare the TCEQ Method 1005 concentration measurement for the C6 to C12 range to the Tier 1 PCL for the aromatic >C8 - C10 boiling point range that is appropriate for the exposure pathway applicable to the affected medium as defined in 350.71(c).

Compare the TCEQ Method 1005 concentration measurement for the C12 to C28 (or if applicable, C35) range to the Tier 1 PCL for the aromatic >C12 - C16 boiling point range that is appropriate for the exposure pathway applicable to the affected medium as defined in 350.71(c). The development of a PCL for the TPH mixture is only warranted if the TCEQ Method 1005 results exceed the >C8 - C10 or the >C12 - C16 boiling point range Tier 1 PCLs. If either of these Tier 1 PCLs are exceeded, the guidance lists several alternatives. If neither of these PCLs are exceeded, then no further action is needed.

Q. The TRRP-27 guidance contains an example (Table 5) in which mass fractions are calculated using the sum of the TX1006 fractions as the concentration of TPH. However, elsewhere in the document, the TRRP-27 indicates that TX1005 is used to measure the concentration of TPH, and TX1006 is used for the individual fractions. Thus, it is not clear if TCEQ expects persons to use TX1005 totals or a sum of TX1006 fractions in the evaluation of mass fractions. Can you direct me to a paragraph in TRRP-27 that identifies the expected approach?

Also, the TCEQ Method 1006 guidance document states (on Pg 2 of 21) that the "TCEQ Method 1005 should be used for purposes of determining concentrations of TPH for evaluating risk and/or determining the composition of TPH. TCEQ Method 1006 can be used on selected samples to determine the mass of TPH within defined boiling point ranges in aliphatic and aromatic fractions of the TPH." This suggests that TX1005 TPH should be used as the TPH concentration in the evaluation of mass fractions. Does TCEQ recommend that persons use TX1005 TPH concentrations in the calculation of TPH mixture PCLs?

A. Figures 2 and 3 in the TRRP-27 guidance provide an overview of the PCL development process and describe the general applicability of the methods used. Referring to Figure 2 and beginning with Box 1, all samples should be analyzed by TCEQ Method 1005. Moving to Box 2, the chromatographic patterns for all the samples should be compared to see if more than one source of TPH is present at the site. For example, if gasoline has been released in one area and diesel released in another area, the chromatograms will be distinctly different (the chromatograms from the diesel area will indicate significant mass in the C12 to C28 range with little or no mass in the C6 to C12 range, and the chromatograms from the gasoline area will present an apparent opposite pattern) and will indicate at least two sources of TPH are present. Boxes 3, 4, 5, and 6 direct the person to use TCEQ Method 1006 to determine the mass fraction in each boiling point range for the aliphatic and aromatic fractions. These mass fractions are used to calculate site-specific TPH PCLs. Box 7 describes how TCEQ Method 1005 data are to be compared to the critical PCL to determine any PCL exceedence zones, i.e., once the PCL has been calculated using the TCEQ Method 1006 data and the critical PCL determined, the TCEQ Method 1005 data are compared to the critical PCL. Continuing with the example, the TCEQ Method 1005 data indicate two sources, i.e., a gasoline source and a diesel source. For each source area, the person should perform a TCEQ Method 1006 analysis on the sample having the highest TCEQ Method 1005 results. From the TCEQ Method 1006 results, the person should calculate PCLs for each source area. Once the PCLs have been calculated and

the critical PCL determined, the person should compare all of the TCEQ Method 1005 data for each source area to the critical PCL for that source. In other words, TCEQ Method 1005 data are used to two purposes: one is to qualitatively determine whether one or more sources are contributing, or contributed, to the TPH release, and two is to quantitatively measure the amount of TPH present in a medium to determine if the site-specific critical TPH PCL (calculated using TCEQ Method 1006 data) has been exceeded. The TCEQ Method 1006 data are used for only one purpose: to quantitatively measure the mass in each boiling point range in the aromatic and aliphatic fractions in the TPH for calculating site-specific PCLs.

To directly answer your last question, the TCEQ recommends the person use TCEQ Method 1006 for calculating the PCLs for TPH. Once the PCLs have been calculated and the critical PCL determined, the TCEQ Method 1005 data should be compared to the critical PCL to determine the PCL exceedence zone(s).

§350.77(b) Ecological Risk Assessment and Development of Ecological Protective Concentration Levels

Q. I am completing an APAR, and have a question regarding the affected area in an ecological risk assessment (screening questionnaire). If the soil is not impacted, but groundwater is at depths exceeding 10 feet, do I use the area of the apparent groundwater plume or is the ecological risk really the impacted surface area (in this case, none)?

A. According to the way "affected property" is defined in the Texas Risk Reduction Program (TRRP) rule and addressed in the Affected Property Assessment Report (APAR), the soil surface above the groundwater plume is used to describe the area of the plume, even if that soil is not impacted. Do not be concerned that this is a misrepresentation of the actual affected property. When you address the protective concentration level Exceedence (PCLE) zone in the APAR, you will be able to delineate the groundwater plume from the covering soil. Therefore, when answering Part I, #1 of the exclusion criteria checklist, even if the only impacted media is groundwater, you will need to use the land acreage above the plume to describe the size of the affected property. In #2, you will be able to indicate that groundwater is the only medium containing COCs.

Generally, groundwater itself does not usually pose a risk to ecological receptors until it discharges to surface water (with the exception of cave-dwelling receptors). If the groundwater does not discharge to surface water at your site (i.e., you answer "no" to Subpart A, #1 of the checklist), it sounds as though you can exit the ERA process by answering "yes" to either #2 or #3 and by completing Part III. If, however, the impacted groundwater does discharge to a surface water body that is not excluded in #1, further ecological evaluation will be necessary. However, the remainder of the checklist should provide you with the means to demonstrate that there is no impacted soil.

§350.92 Self-Implementation Notice

Q. How should staff respond if the TCEQ program area receives a SIN proposing a remedy that is obviously ineffective for the circumstances and the remediation time frames are unrealistic? Since we don't approve SINs, would we be able to say that

doesn't sound reasonable, try another remedy, or do we have to wait until the Response Action Completion Report much later to cite a deficiency or violation?

A. In preparing the rule and TRRP-28, we anticipated that the program areas would perform at least a minimum level of review to ascertain whether a SIN letter/report contains all of the information that is specified in §350.92. In addition, we also anticipated that the program areas should perform a screening level review of SINs to identify any self-implemented response actions that clearly are not capable of achieving the Remedy Standard A response objectives within a reasonable time frame.

The information in the SIN must be sufficiently detailed for the person to demonstrate that the proposed remedy is capable of achieving the Remedy Standard A response objectives within a reasonable time frame. Also, as stated at §350.32(a)(3), "the executive director may require a demonstration of the appropriateness of a remedy in the context of the above-mentioned criteria for a remedy, regardless of the status of self-implementation . . ." The person is not required to wait upon TCEQ approval before proceeding, but if the TCEQ determines that the response action is not appropriate then the TCEQ may require the proposed remedy to be modified or an alternate remedy to be performed. See TRRP-28 for guidance on this. As a result, the TCEQ has the authority to review self-implemented Remedy Standard A responses and to require alternative remedies to be performed.

In summary, our program areas should review SINs to make sure that the information specified in §350.92 has been provided. We should also make a preliminary determination, based upon the information provided, whether the proposed remedy will likely be capable of attaining Remedy Standard A response objectives within a reasonable time frame. If the answer is "No" then we should start requesting additional information and perhaps request they evaluate alternative remedies. If the answer is "Yes", then we could enter the project into our database and await receipt of the RACR or the (first) RAER.

If the proposed remedy is clearly inadequate, then we want to reject it at the SIN stage rather than waiting until submission of the first or subsequent RAERs. On the other hand, if we have only a low to moderate level of concern regarding the effectiveness of a proposed response, then it may, depending upon site-specific considerations, be better to let the project proceed on to the RAER stage. We don't want to ask so many questions regarding small issues that we destroy the effectiveness of self-implemented actions. On the other hand, we do not want to let clearly inadequate proposed projects slip past the SIN review. These are the broad criteria but the actual judgment of how closely we review the SIN for a particular Remedy Standard A self-implemented action will have to be made on a site-specific basis.

§350.111(a) Use of Institutional Controls

Q. In the case where there are off-site affected properties, such as a groundwater plume situation, is a survey of all affected properties required to satisfy the requirements of this section, or, can I use existing surveys which have been sealed by a registered surveyor?

A. No, a new survey does not have to be completed just to satisfy TRRP institutional control (IC) requirements. If a previous survey exists that was completed by a registered surveyor and it is still accurate, then the existing survey is acceptable for TRRP purposes.

The person has an option to zero in a survey to exactly match the area needing the IC, or it can cover a larger footprint. Obviously, ICs that restrict use could preclude certain site uses for areas unaffected by the release in the situation where the survey covers a larger area. If that condition is acceptable to the person, it will satisfy TRRP as well. Each individual deed will have to have a survey for its particular filing. So if the residential tracts have their surveys, you can just rely on them for the survey for that property IC.

§350.131 Facility Operations Area

Q. Is the Facility Operations Area (FOA) option of TRRP available to interim status hazardous waste facilities or is it only available to permitted hazardous waste facilities?

A. According to §350.131, the FOA is limited to operating chemical or petroleum manufacturing plants that are required to perform corrective action pursuant to a hazardous waste permit or a corrective action order. RCRA facilities that don't have such a permit will have to get a corrective action order. Conceptually, then, an interim status RCRA facility that has the obligation to conduct corrective action (as in HWSA corrective action - release from SWMUs) could request a FOA to be authorized by means of a corrective action order. The RCRA facility's status, as to permit or corrective action order, is only one of several qualifying criteria for FOA authorization. All of the qualifying criteria of §350.134 must be met before a facility can be authorized to utilize the FOA option.