



Screening Target COCs from PCL Development

Overview

Objective: To describe a stepwise process to determine if protective concentration levels need to be developed for target chemicals of concern.

Audience: The regulated community and environmental professionals.

References:

- The Texas Risk Reduction Program (TRRP) rule, together with conforming changes to related rules, is contained in Title 30, Texas Administrative Code, Chapter 350 (30 TAC 350).
- Find links for the TRRP rule and preamble, Tier 1 PCL tables, and other TRRP information at <www.tceq.texas.gov/remediation/trrp>.
- TRRP guidance documents undergo periodic revision and development. Links to current versions are at <www.tceq.texas.gov/remediation/trrp/guidance.html>.

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1 Introduction

The Texas Risk Reduction Program has set forth a process for addressing target chemicals of concern (COCs) released into the environment. Target COCs are chemicals known or reasonably anticipated to be associated with historical or current activities conducted at the on-site property. After determining the target COCs for an affected or potentially affected property, conduct a property assessment to document the concentrations and locations of the target COCs in the environmental media.

Consider the impact of the planned response action when using the Tier 1 protective concentration levels (PCLs), and evaluate the net benefit to be gained from screening any of the COCs from PCL development in the environmental medium. For example, if the response you are planning will address all of the COCs in the environmental medium, no benefit will be gained from screening any of those COCs before your response action. If the potential benefit warrants COC screening, use this guidance to screen the analytical data for each COC in each environmental medium against the provisions set forth in 30 TAC 350.71(k).

For COCs not meeting any of the provisions, establish PCLs for the COC for the environmental medium and identify the critical PCL for the COC. If the critical PCL is exceeded, conduct a response action to achieve the requirements of Remedy Standard A or B. Refer to 30 TAC 350.31-350.37 (Subchapter B) and Application of Remedy

Standards A and B, in TCEQ publication no. RG-366/TRRP-28, for an introduction to the remedy standards. If the COC meets any provision of 30 TAC 350.71(k), do not establish PCLs for the COC for that environmental medium.

1.1 Screening Process: Overview

When the affected property assessment is complete, COCs can be screened from PCL development using the provisions in 30 TAC 350.71(k). As illustrated in Figure 1, screening COCs from PCL development is an optional, but important, step in the TRRP assessment. The screening process involves identifying the target COCs, i.e., chemicals known or reasonably anticipated to be associated with the historical or current activities conducted at the on-site property or detected in one or more of the environmental media sampled, and evaluating the analytical results for each COC against the provisions in 30 TAC 350.71(k) to determine if a PCL needs to be developed for the COC. Use the guidance in *Selecting Target Chemicals of Concern* (RG-366/TRRP-10) to identify the target COCs for the property assessed. Determine the human and ecological assessment levels for each COC in each environmental medium.

Note: If the Tier 1 Ecological Exclusion Criteria Checklist in 30 TAC 350.77 indicates the need for a Tier 2 or 3 ecological risk assessment, consult *Guidance for Conducting Ecological Risk Assessments at Remediation Sites in Texas* (RG-263). The RG-263 guidance specifically discusses the required procedures and the available options for the ecological assessment. After planning is complete, conduct the property assessment using the guidance in *Affected Property Assessment Requirements* (RG-366/TRRP-12). Define the extent of each target COC in each medium to the residential assessment level for each COC, and then use the screening process in 30 TAC 350.71(k) to determine if a COC can be screened from PCL development.

The term “residential” modifies the term “assessment level” to limit human health exposure pathway considerations to residential land use assumptions. Factor in ecological considerations when establishing the residential assessment level, as discussed in *Affected Property Assessment Requirements* (RG-366/TRRP-12). Commercial/industrial land-use assumptions, as defined in 30 TAC 350.4(A)(13), cannot be used when screening COCs.

This publication discusses the conceptual design of 30 TAC 350.71(k) and describes a stepwise process for using these provisions to identify the target COCs eligible for screening from PCL development. The steps parallel the order of the rule provisions, i.e., 30 TAC 350.71(k)(1), then (2), then (3), and finally (4). However, use the applicable provisions in any order to evaluate the COC during the screening process. Also, evaluate the COC under **all** applicable conditions before concluding PCLs are needed for the COC. For example, a detected COC might be eligible for screening under one or more of the conditions of 30 TAC 350.71(k)(2)(A), (B), (C), (D), or (E). **Note:** Once a

COC meets one of the screening conditions for an environmental medium, no further evaluation is needed for that COC in that medium.

Document the results of the screening process in the Affected Property Assessment Report (APAR). If all of the COCs in all sampled environmental media are screened from PCL development, submit an APAR to document that outcome. **Note:** As illustrated in the example *Continued COC Monitoring* in Section 3.1, the TCEQ may still require monitoring for COCs screened from PCL development, when warranted. Therefore, when screening a COC from PCL development, evaluate whether continued monitoring for the COC in the medium is warranted. Document the outcome of that evaluation in the APAR.

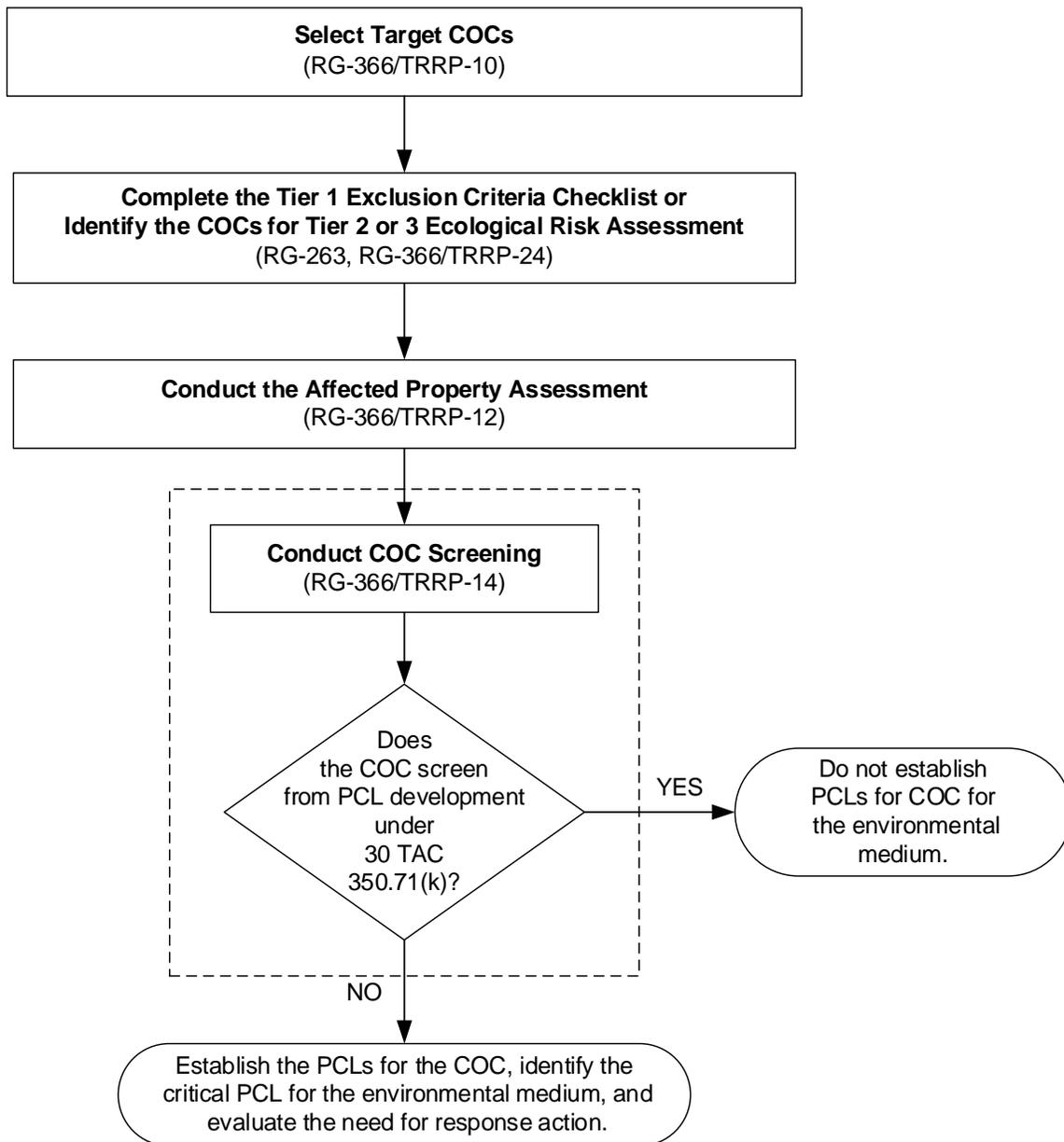


Figure 1. COC screening as part of the TRRP assessment.

1.2 Screening Criteria

Many different issues, ranging from how the target COCs were determined to how the affected property assessment was conducted, must be considered when interpreting the assessment data. These considerations should take all of the following into account

- Data gaps in the current or historical process, or operational, knowledge of chemicals handled at the facility.
- Sampling and analytical strategies used to identify the target COCs and to conduct the assessment.
- Potential conflicts between the level of required analytical performance and the actual performance.
- Potential for analytical or field errors, such as laboratory or field contamination during sampling or sample handling.
- Off-site release sources.
- Background concentrations.

The provisions in 30 TAC 350.71(k) address these considerations by establishing the framework and conditions for determining if PCL development is warranted for the COC. The provisions create a consistent and defensible mechanism for distinguishing the target COCs that truly warrant PCL development among all the COCs for which analytical data were generated. Specifically, the provisions screen from PCL development those COCs that meet one of the following conditions:

- Considered to be analytical or sampling artifacts (unless specifically prohibited by the program area requirements).
- Attributable to releases not associated with activities conducted at the on-site property (unless specifically prohibited by the program area requirements).
- Having a maximum concentration below the natural or anthropogenic background concentration.
- Not present at concentrations greater than the residential assessment level.

1.2.1 COC Exclusion under 30 TAC 350.71(k)(1)

This provision removes COCs from PCL development when all detected and nondetected results for the COC are below the residential assessment levels.

1.2.2 COC Exclusion under 30 TAC 350.71(k)(2)

This provision removes COCs from PCL development when they meet one of the following conditions.

- Infrequent detection suggests the presence of the COC is an analytical or sampling artifact.

- Based on laboratory or field blank sample data, the data usability reviewer concludes the presence of the COC is most likely attributable to laboratory or field contamination or cross-contamination during sampling or sample handling.
- Detected concentrations are within the natural or anthropogenic background levels.
- On-site data indicate the release of the COC was most likely not a result of on-site activities.

1.2.3 COC Exclusion under 30 TAC 350.71(k)(3)

This provision removes from PCL development the COCs known to be, or reasonably anticipated to be, associated with activities at the on-site property that were never detected in any sample from the environmental medium and the sample detection limits are less than the residential assessment level.

1.2.4 COC Exclusion under 30 TAC 350.71(k)(4)

This provision removes from PCL development the COCs not known or not reasonably anticipated to be associated with on-site activities and never detected in any sample from the environmental medium.

1.3 Important Terms and Concepts

1.3.1 Analytical Limit Terms

MDL (method detection limit). The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined for each COC from the analysis of a sample of a given matrix type containing the COC. 30 TAC 350.4(a)(53). The MDL definition was redefined by USEPA in 40 CFR Part 136, Appendix B – Revision 2 (December 2016) as the minimum measured concentration of a substance that can be reported with 99% confidence that the measured concentration is distinguishable from method blank results.

MQL (method quantitation limit). The lowest non-zero concentration standard in the laboratory's initial calibration curve and is based on the final volume of extract (or sample) used by the laboratory. 30 TAC 350.4(a)(54). The MQL is the lowest concentration to which the laboratory can quantify a measurement with known accuracy and precision in a laboratory-fortified sample.

SDL (sample detection limit). The method detection limit, as defined in 30 TAC 350.4, adjusted to reflect sample-specific actions, such as dilution or use of smaller aliquot sizes than prescribed in the analytical method, and to take into account sample characteristics, sample preparation, and analytical adjustments. The term, as used in the rule, is analogous to the sample-specific detection limit. 30 TAC 350.4(a)(78). The SDL is the lowest concentration at which a COC could be detected in the

environmental sample. Sample characteristics accounted for in the SDL may include percent moisture, cleanup and preparation procedures, and laboratory adjustments.

1.3.2 COC Screening Group Terms

Detected analytical result. The concentration at which the laboratory could measure or estimate a COC present in an environmental sample.

Nondetected analytical result. The result reported by the laboratory when a COC is not detected in a sample analyzed. The laboratory reports a nondetected result as less than the value of the SDL, e.g., < 2.0 mg/L or 2.0 mg/L U, when the COC is not detected in an environmental sample.

Detected COC. A COC present in some or all of the environmental samples. For detected COCs, the sampled population will be all detected results or be a mix of detected results in some samples and nondetected results in other samples from the environmental medium.

Nondetected COC. A COC not detected in any sample from the environmental medium. Sample results for nondetected COCs will be reported as less than the value of the SDL, e.g., < 2.0 mg/L.

For more information on the COC screening group terms, see *Reporting and Review of COC Concentration Data* (RG-366/TRRP-13).

1.3.3 Assessment Terms

Environmental medium (plural, **media**). A material found in the natural environment such as soil, groundwater, air, surface water, and sediments, or a mixture of such materials with liquids, sludges, gases, or solids, including hazardous waste which is inseparable by simple mechanical removal processes, and is made up primarily of natural environmental material.30 TAC 350.4(a)(31). The environmental medium is the way exposure to COCs by ecological or human receptors occurs.

Exposure pathway. The course a chemical of concern takes from a source area to ecological or human receptors. The exposure pathway includes a source area, a point of exposure, an exposure route (i.e., inhalation, ingestion, or direct contact), and a transport mechanism if the point of exposure is different from the source area. Table B in the TRRP guidance Tier 1 PCL Tables (RG-366/TRRP 23) presents the TCEQ exposure pathways addressed in the Tier 1 PCL Tables. 30 TAC 350.4(a)(35).

On-site property. All environmental media within the legal boundaries of a property owned or leased by a person who has filed a self-implementation notice or a response action plan for that property or who has become subject to such action for that property via agency TCEQ program area. 30 TAC 350.4(a)(60).

Response action. Any activity taken to comply with TRRP to remove, decontaminate, or control (i.e., physical controls and institutional controls) COCs in excess of critical PCLs in environmental media, including actions taken in response to releases to

environmental media from a waste management unit before, during, or after closure. 30 TAC 350.4(a)(75).

2 Steps in the Screening Process

Once the target COCs have been delineated to the residential assessment levels and after the data usability reviewer has reviewed the data, evaluate the analytical results for the target COCs in each environmental medium using all applicable screening provisions. For screening COCs from PCL development, the environmental media are:

- surface soils
- subsurface soils
- groundwater
- surface water
- sediments
- air

Regardless of current land use, apply the residential assessment levels and residential land use assumptions during the screening process. Refer to Section 3.2, “Residential Soil Zones,” for guidance on comparing soil COC concentrations to residential assessment levels. As illustrated in Figure 2.0, the following four-step procedure can be used to sort COCs before initiating the screening process under 30 TAC 350.71(k).

Step 1.

Assign each sample to the environmental medium the sample is intended to represent based on the applicable human exposure pathways. **Note:** If the Tier 1 ecological exclusion criteria in 30 TAC 350.77 are not met, each sample must also be assigned to the ecologically relevant environmental medium the sample is intended to represent based on the ecological exposure pathways.

Step 2.

Segregate the COCs for each environmental medium into detected COCs and nondetected COCs.

Step 3.

For each environmental medium, group the COCs into one of these categories:

1. Detected COCs:
 - a. All measured concentrations and SDLs less than the residential assessment level. (Group 1)
 - b. One or more measured concentrations or SDLs greater than the residential assessment level. (Group 2)
2. Nondetected COCs:

- a. COC is known or reasonably anticipated to be associated with activities conducted at the on-site property (Group 3)
- b. COC is **not** known or reasonably anticipated to be associated with activities conducted at the on-site. (Group 4)

These first three steps sort each COC into one of the following groups:

Group I: the COC is detected in at least one sample from the environmental medium, but all the detected concentrations and SDLs are less than the residential assessment level in that medium.

Group II: the COC is detected in at least one sample from the environmental medium, and one or more of the detected concentrations or SDLs exceeds the residential assessment level in that medium.

Group III: The COC is known or reasonably anticipated to be associated with historical or current activities conducted at the on-site property, but the COC is not detected in any sample in the environmental medium, and all SDLs for the COC are less than the residential assessment level for the environmental medium.

Group IV: the COC is **not** known or **not** reasonably anticipated to be associated with historical or current activities conducted at the on-site property and is not detected in any sample in the environmental medium.

Step 4.

Evaluate each COC in each environmental medium using the screening provision applicable to the group into which the COC was segregated. If the conditions in the provision are met, the COC can be screened from PCL development for the environmental medium evaluated. If the conditions are not met, evaluate the COC under other applicable provisions before concluding the COC requires PCL development. Table 1 defines the:

- COC groups.
- Initial rule provision for each group.
- Section of text in this guide outlining the screening process using that provision.
- Conditions the COC must meet to be screened from PCL development under that provision.

Notes:

1. See the definition of “background” in 30 TAC 350.4(a)(6) for more details to consider when using naturally occurring and anthropogenic background for the purposes of TRRP.

2. During screening, the detected concentrations and the SDLs (for the nondetected results) of the COC for the environmental medium are compared to the residential assessment level.
3. If the residential assessment level is less than the naturally occurring or anthropogenic background concentration, the representative background concentration becomes the residential assessment level.
4. If the MQL of the standard available analytical method having the lowest MQL is greater than the residential assessment level, the MQL of that analytical method becomes the assessment level.

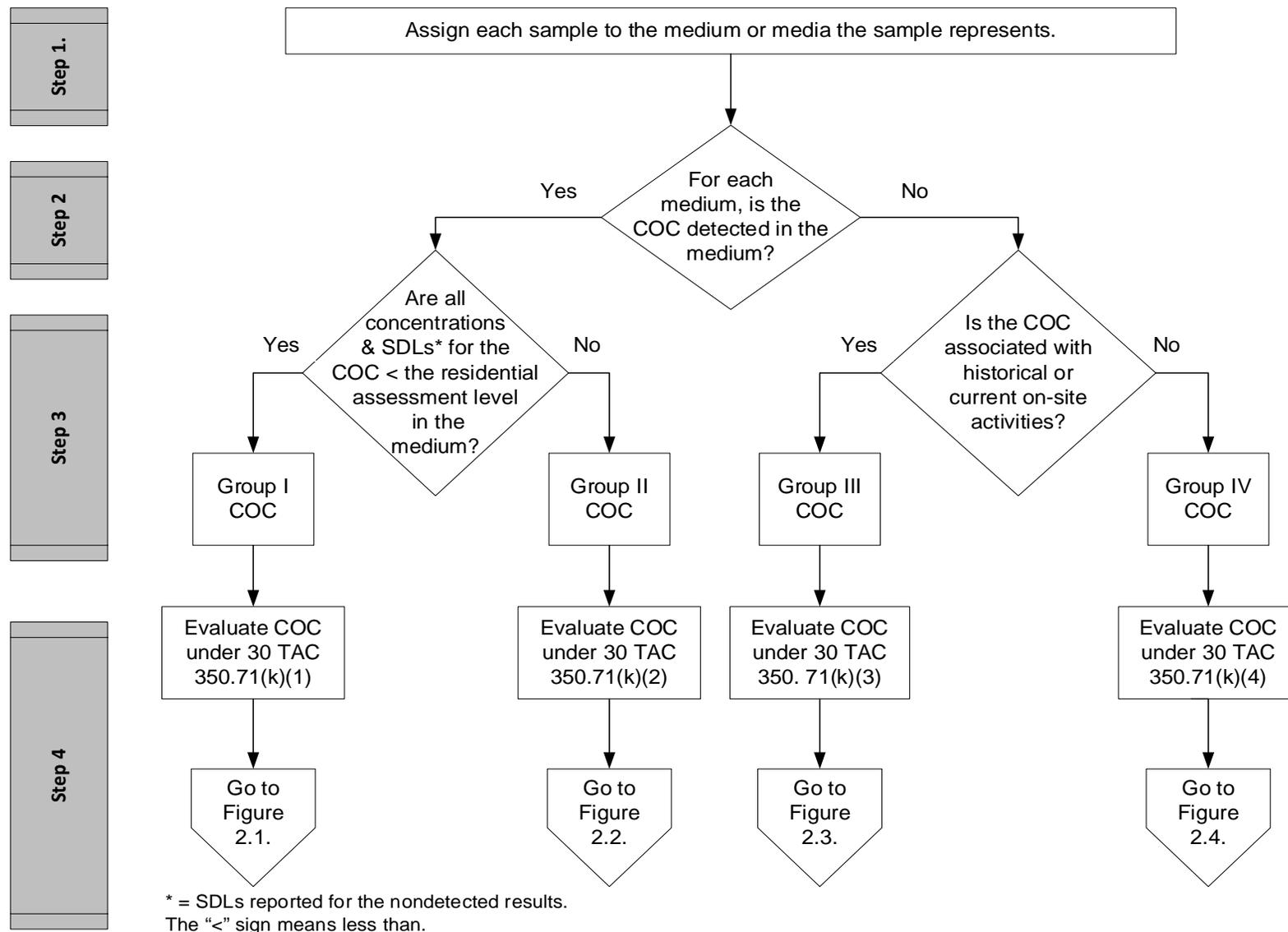


Figure 2.0. The screening process using 30 TAC 350.71(k).

Table 1. Conditions for COC screening.

Detected or Undetected	COC Group	Rule Citation	Section in this Guide	Conditions to Meet
Detected COCs	Group I	350.71(k)(1)	Section 2.1	<ul style="list-style-type: none"> • COC is detected in at least one sample in the environmental medium, but all detected concentrations and SDLs are less than the residential assessment level. • In all other environmental media sampled, the detected concentrations and SDLs for the COC are less than the residential assessment level.
Detected COCs	Group II	350.71(k)(2)	Section 2.2	<ul style="list-style-type: none"> • COC is detected in at least one sample in the environmental medium and all non-detected results for the COC are less than the residential assessment level in the environmental medium being evaluated, and • Analytical data demonstrate one of the following conditions is met: <ul style="list-style-type: none"> ○ The COC is detected in less than 5% of 20 or more samples in the environmental medium and the TCEQ concurs no PCL is needed for the COC; or ○ The COC is present in an associated blank sample at concentrations similar to the concentrations detected in environmental samples and the COC is not anticipated to be present; or ○ The COC does not exceed the background concentration; or ○ The release of the COC did not result from current or historical activities conducted at the on-site property.
Nondetected COCs	Group III	350.71(k)(3)	Section 2.3	<ul style="list-style-type: none"> • COC is known or reasonably anticipated to be associated with current or historical on-site activities but is not detected in any sample in the environmental medium. • All SDLs for the COC are less than the residential assessment level.
Nondetected COCs	Group IV	350.71(k)(4)	Section 2.4	<ul style="list-style-type: none"> • COC is not known or is not reasonably anticipated to be associated with current or historical on-site activities. • COC is not detected in any sample in the environmental medium.

2.1 Screening Detected COCs under 30 TAC 350.71(k)(1)

Use this provision when the COC is detected in at least one sample in the environmental medium, and all detected concentrations and SDLs for the COC are less than the applicable residential assessment level in that medium and in **all** other sampled environmental media. As presented in Figure 2.1, no PCL needs to be established for the COC if all detected concentrations and SDLs for the COC in all of the sampled environmental media are less than the residential assessment level, i.e., the COC is a Group I COC for each medium sampled. This is the only provision requiring that the COC concentrations and the SDLs (for the nondetected results) meet the residential assessment level in **all** sampled environmental media. If the COC cannot be screened under this provision, evaluate the COC for the medium using the conditions in 30 TAC 350.71(k)(2) before concluding PCL development is needed for the COC.

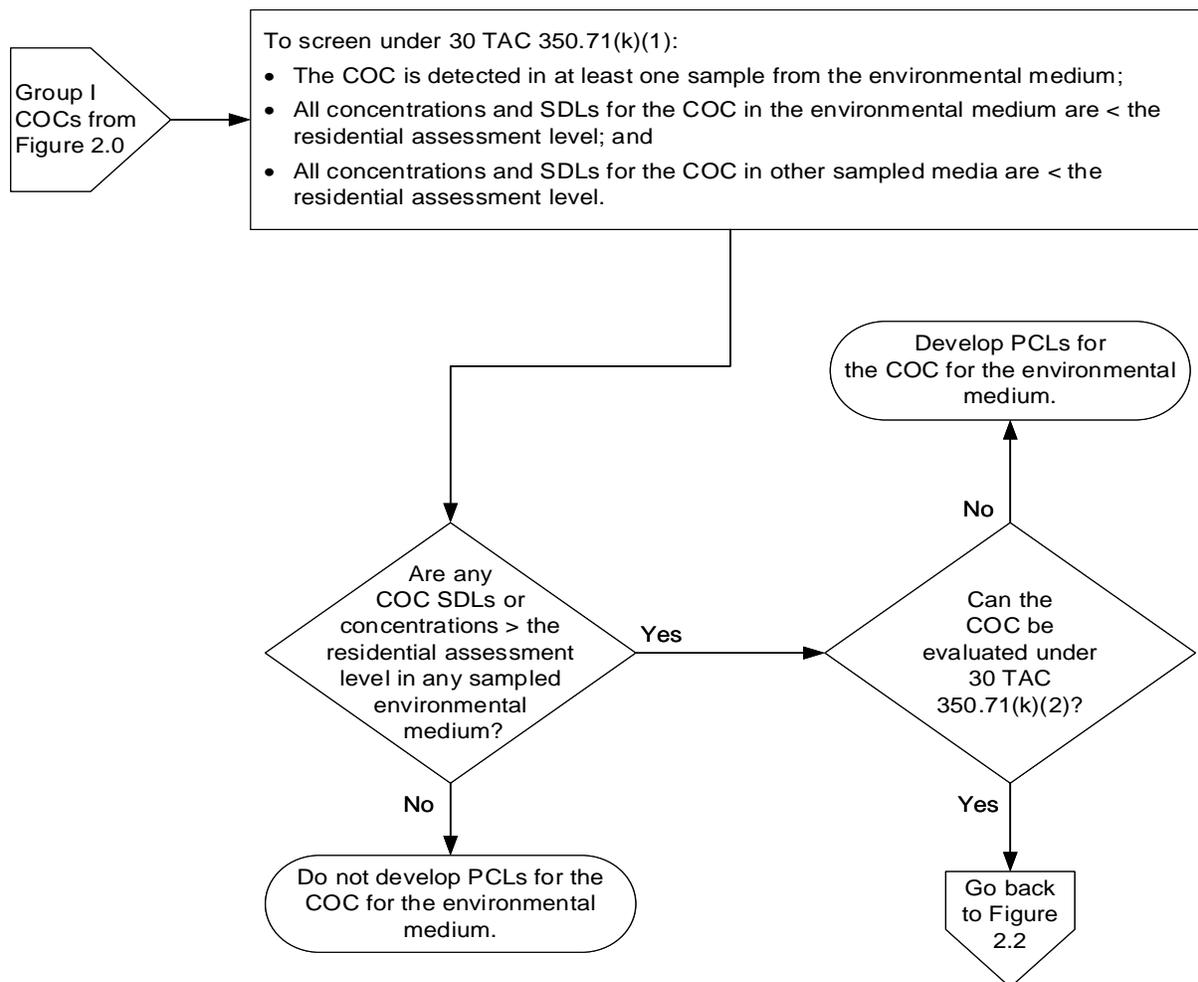


Figure 2.1. Screening under 30 TAC 350.71(k)(1).

2.2 Screening Detected COCs under 30 TAC 350.71(k)(2)

Use this rule provision when the COC:

- is detected in one or more samples from the medium **and** one or more of the detected concentrations or SDLs is **greater than** the residential assessment level, i.e., a Group II COC, **or**
- cannot be screened from PCL development under the provisions in 30 TAC 350.71(k)(1).

For successful screening from PCL development, the COC must meet one of the conditions in 30 TAC 350.71(k)(2), **and** the SDLs of the nondetected results for the COC must be less than the residential assessment level.

Evaluate the COCs medium by medium. A COC can be screened from PCL development for one medium even though development of PCLs for the same COC in a different medium may be required. For example, a COC detected in groundwater may meet one of the conditions in 350.71(k)(2) and be screened from groundwater PCL development. The same COC may be detected in surface soils and not meet the screening conditions specified in 350.71(k)(1) or 350.71(k)(2). Therefore, development of surface-soil PCLs (i.e., $^{Tot}Soil_{Comb}$ and $^{GW}Soil$) will be required for the COC.

Notes:

1. The COC in the environmental medium can be evaluated using any of the provisions in 350.71(k)(2). For example, a COC might not be screened from PCL development based on 350.71(k)(2)(A), but upon evaluation under 350.71(k)(2)(D), the COC will be screened.
2. Figure 2.2 presents the available options and the 350.71(k)(2) provisions. Figures 2.2A through 2.2E, and the associated text, present the detailed steps for each option to determine whether the COC meets the specific rule conditions in the environmental medium being evaluated.

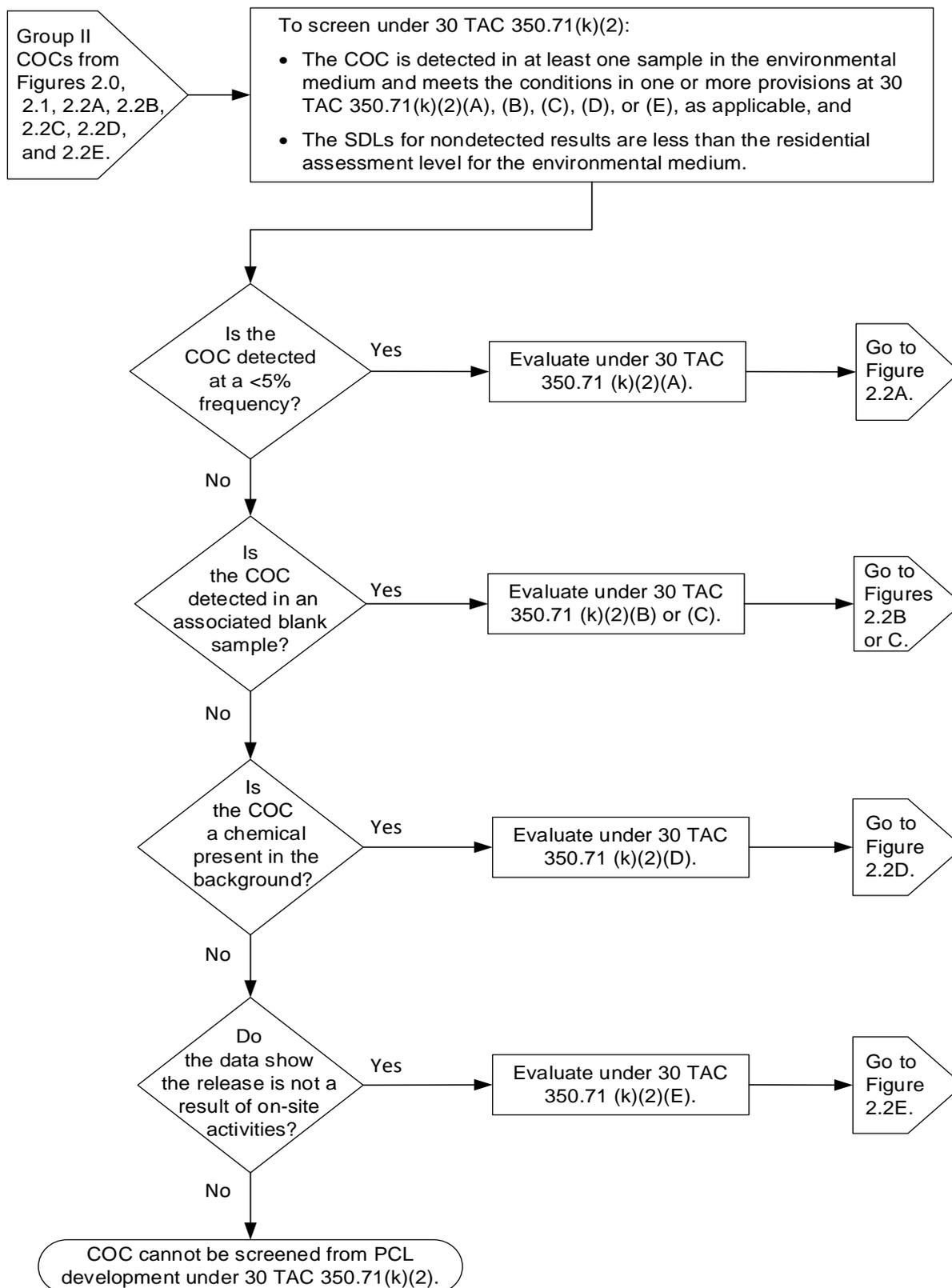


Figure 2.2. Screening under 30 TAC 350.71(k)(2).

2.2.1 Screening Detected COCs under 30 TAC 350.71(k)(2)(A)

This provision is commonly referred to as the “frequency of detection” provision for screening COCs from PCL development. Figure 2.2A outlines the steps to determine if the COC in the environmental medium meets all conditions in 30 TAC 350.71(k)(2)(A), including clauses (i), (ii) and (iii).

Use this provision when the COC is detected in at least one sample in the environmental medium being evaluated, all nondetected results are less than the residential assessment level in the environmental medium being evaluated, and:

- Twenty or more samples are collected from the environmental medium and analyzed for the COC, and
- The COC is detected in less than 5 percent of the samples analyzed for the COC, and
- The TCEQ agrees a PCL is not warranted for the COC.

Notes:

1. If attempting to screen a COC detected in the groundwater or soil and the COC is known or reasonably anticipated to be associated with current or historical activities conducted at the on-site property, give particular attention to each of the factors listed in the clause (iii) condition. Provide the technically defensible justification used to conclude the COC can be screened, and specifically identify and discuss any uncertainty associated with that conclusion. If no uncertainty is identified, make a statement to that effect. The TCEQ will critically review that demonstration.
2. One of the primary missions of the TCEQ is to protect groundwater resources. As expressed at 30 TAC 350.37, in the absence of a groundwater protective concentration level exceedance (PCLE) zone within Class 1, 2, or 3 groundwater, the on-site point of exposure (POE) for the groundwater ingestion pathway is throughout the uppermost groundwater-bearing unit. This provision was designed primarily to deal with analytical artifacts, such as COCs not attributable to the site but reported as detected in the laboratory reports. Therefore, unless the COC can be screened by some other provision, the TCEQ will be hesitant to agree a COC can screen from PCL development when the COC is known or reasonably anticipated to be associated with current or historical activities conducted at the on-site property and detected in groundwater or soils.
3. Calculate the frequency of detection by dividing the total number of times the COC is detected in the environmental medium by the total number of representative samples collected from the medium and analyzed for the COC.

The formula for calculating the frequency of detections is:

$$\% \text{ Frequency of detections} = \frac{X_D(100)}{X_T}$$

where: X_D is the number of detected results for the COC in the environmental medium.

X_T is the total number of samples collected from the environmental medium and analyzed for the COC.

4. Under clause (iii), the TCEQ may require the development of PCLs for a COC meeting the conditions in clauses (i) and (ii), based upon the:
 - Concentration and distribution of the COC in the environmental media.
 - Completeness in the information regarding the source or potential source of the COC at the on-site property.
 - Any exposure pathway complete or reasonably anticipated to be complete.
 - Completeness in the knowledge of on-site operations.
 - Toxicity, fate and transport characteristics of the COC and of the on-site property.
 - Degradation or companion relationship of the COC to other COCs.
5. Develop PCLs for the COC in the environmental medium if the:
 - COC is detected in fewer than 5% of the samples analyzed for the COC in the environmental medium, but one or more of the SDLs for the COC is greater than the residential assessment level; or
 - SDLs for the nondetected results are less than the residential assessment level, but the COC is detected in 5% or more of the samples from the environmental medium; or
 - As discussed in Note 4, the COC in the environmental medium warrants development of a PCL.
6. Do not develop PCLs for the COC in the environmental medium if both the:
 - COC is detected in fewer than 5% of the 20 or more samples analyzed for the COC and the SDLs are less than the residential assessment level COC, and
 - The COC in the environmental medium does not warrant development of a PCL.
7. To document a COC can be successfully screened from PCL development under this provision, the APAR must include:
 - A map of the sample locations with concentration distributions to demonstrate that the sampled locations represent environmental conditions of the on-site property.
 - Justification and supporting data for concluding that every source of COCs at the on-site property is fully identified and characterized.

- Justification for concluding the information regarding the types and locations of activities associated with the property are known or defined.
- Toxicity, fate, and transport assumptions used to conclude PCLs are not warranted for the COC.
- Anticipated chemicals resulting from chemical (e.g., ultraviolet) or biochemical (e.g., metabolic) degradation if the COC were left in place.
- Rationale and assumptions used to conclude that the COC does not warrant the development of PCLs, and the uncertainty associated with that conclusion.

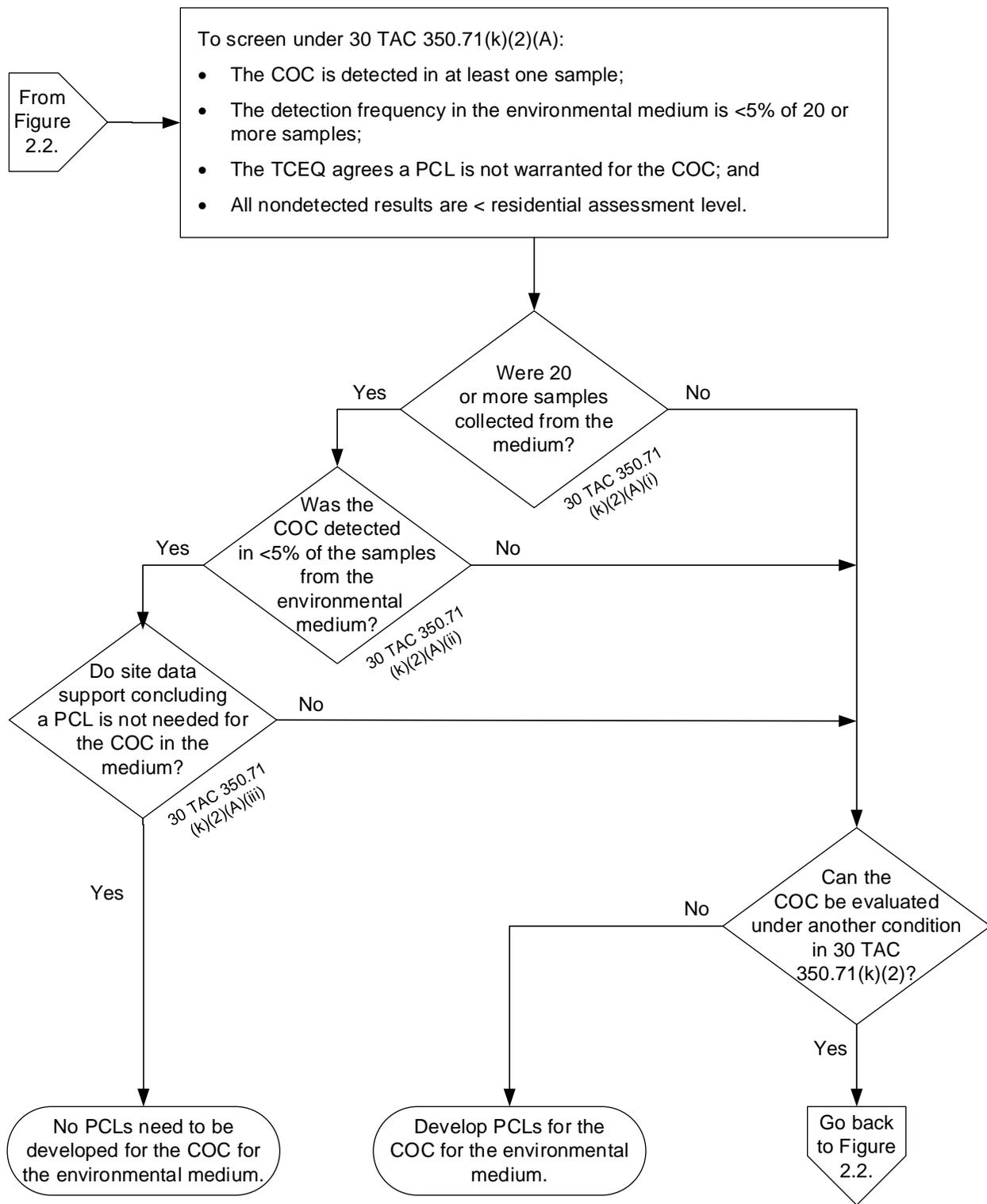


Figure 2.2A. Detailed screening steps under 30 TAC 350.71(k)(2)(A).

2.2.2 Screening Detected COCs Under 30 TAC 350.71(k)(2)(B)

This provision applies only to the common laboratory contaminants listed in Table 2. For this screening provision to apply, the COC must be detected in an associated blank sample. Figure 2.2B outlines the steps for determining if a COC can be screened under this provision.

Note: Even if the COC is a common laboratory contaminant, the COC **cannot** be screened under this provision if the COC is in any way associated with current or historical activities conducted at the on-site property, including as a chemical companion or degradation product.

Table 2. Common Laboratory Contaminants

Contaminant	CAS #
Acetone	67-64-1
2-Butanone (MEK)	78-93-3
Methylene chloride	75-09-2
Toluene	108-88-3
Bis (2-ethylhexyl) phthalate	117-81-7
Butyl benzyl phthalate	85-68-7
Diethyl phthalate	84-66-2
Dimethyl phthalate	131-11-3
Di-n-butyl phthalate	84-74-2
Di-n-octyl phthalate	117-84-0

Following the guidance in *Review and Reporting of COC Concentration Data* (RG-366/TRRP-13), the data usability reviewer will have applied the “ten times” factor to the data as allowed under this screening provision and will have qualified the data in the data summary tables accordingly. When evaluating a COC under this screening provision, use the data summary tables to determine if the COC is detected in any sample from the environmental medium. If all the data entries in the data summary table for the COC are assigned a “U” or a “less than” value, e.g., <2.0 ug/L, then the COC is not detected based on the data usability review.

Develop PCLs for the COC if:

- the data summary table documents the COC is detected in the environmental medium after the data usability review has been completed; or

- one or more of the SDLs is greater than the residential assessment level.

Do not develop PCLs for the COC if:

- the data summary table documents the COC is not detected in the environmental medium after the data usability review has been completed, and
- the SDLs are less than the residential assessment level.

Note: If any of the identified common laboratory contaminants are COCs known or suspected to be associated with the property, evaluate the laboratory's historical performance for the COC in blank samples and discuss the COC(s) with the laboratory before submitting environmental samples to that laboratory. The laboratory should not be expected to have all blank samples completely free of these chemicals, but an evaluation of the extent to which the laboratory is successful in keeping the blank samples as free as possible from laboratory contamination may be helpful.

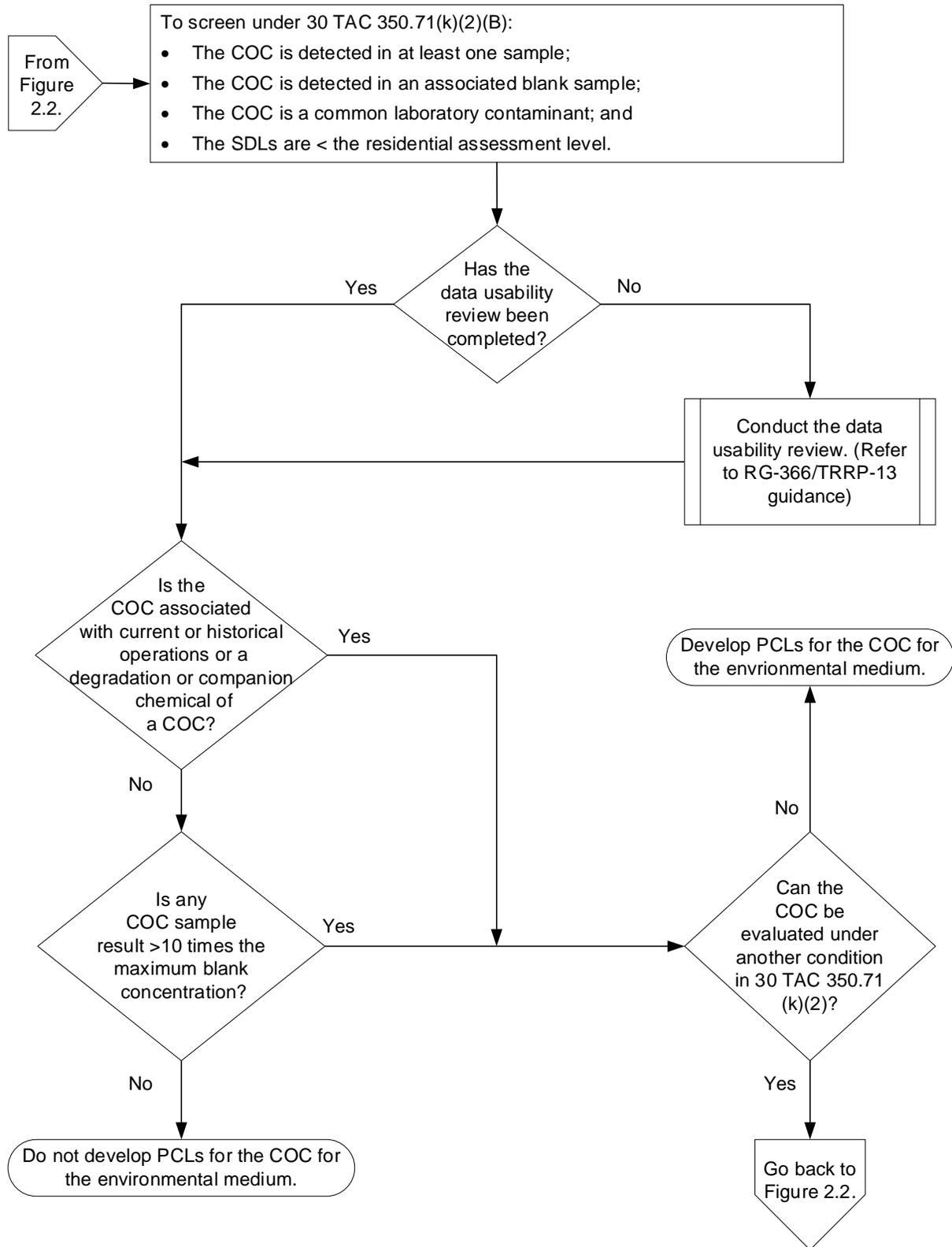


Figure 2.2B. Detailed screening steps under 30 TAC 350.71(k)(2)(B).

2.2.3 Screening Detected COCs under 30 TAC 350.71(k)(2)(C)

Use this provision when the detected COC is found in one or more associated blank samples, but the COC is not one of the common laboratory contaminants listed in Table 2.

Note: If the COC is known or suspected to be associated with current or historical activities conducted at the on-site property, including as a chemical companion or degradation product, the COC **cannot** be screened from PCL development using this rule provision. If the COC is not suspected of being associated with the property in any way and is detected in an associated blank sample, Figure 2.2C outlines the steps for determining if the COC can be screened under this provision.

Following the guidance in *Review and Reporting of COC Concentration Data* (RG-366/TRRP-13), the data usability reviewer will have applied the “five times” factor to the data as allowed under this screening provision and will have qualified the data in the data summary tables accordingly. When evaluating a COC under this screening provision, use the data summary tables to determine if the COC is detected in any sample from the environmental medium. If all the data entries in the data summary table for the COC are assigned a “U” or a “less than” value, e.g., <2.0 ug/L, then the COC is not detected based on the data usability review.

Develop PCLs for the COC if:

- the data summary table documents the COC is detected in the environmental medium after the data usability review has been completed; or
- one or more of the SDLs for nondetected results is greater than the residential assessment level.

Do not develop PCLs for the COC if the:

- data summary table documents the COC is not detected in the environmental medium after the data usability review has been completed, and
- SDLs are less than the residential assessment level.

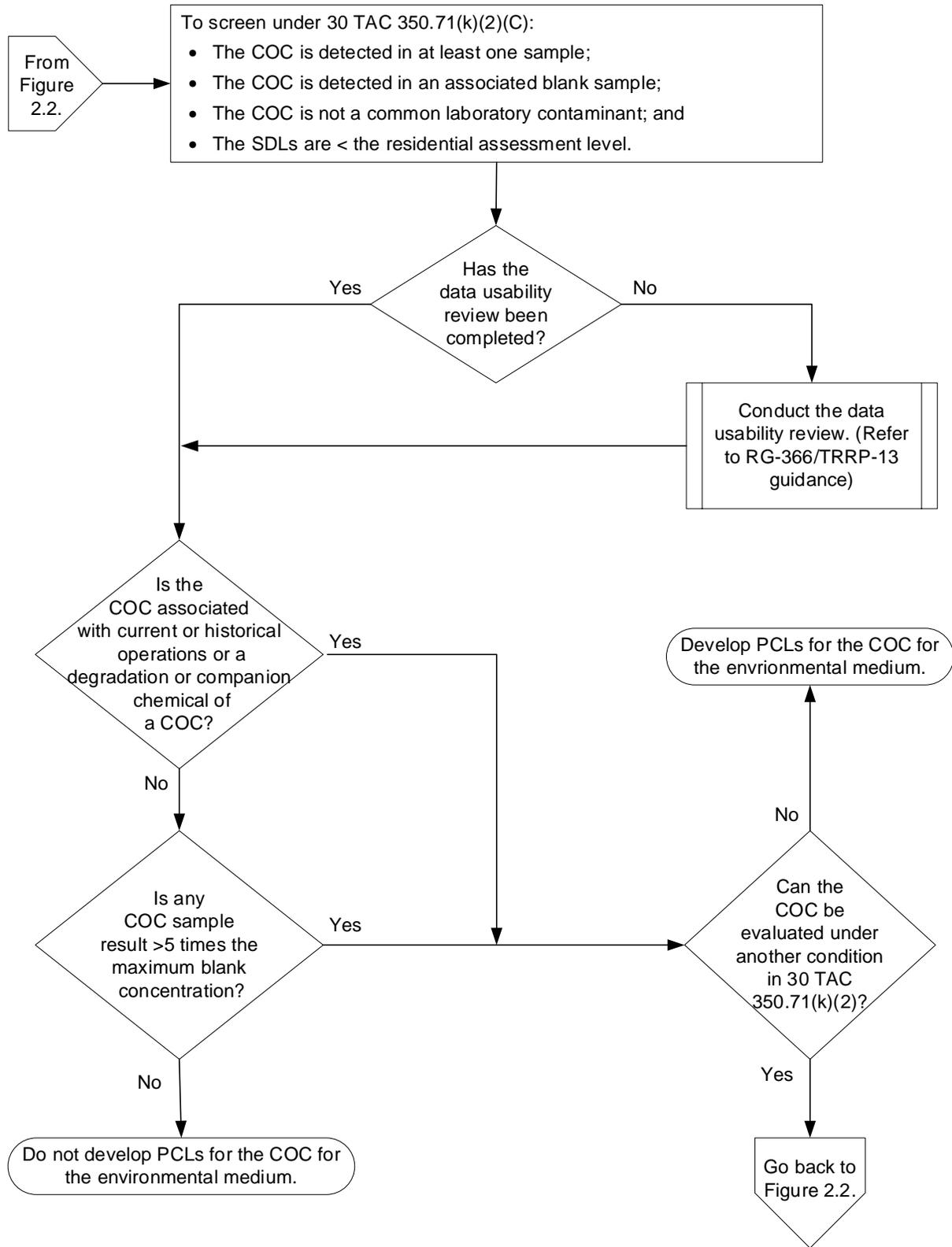


Figure 2.2C. Detailed screening steps under 30 TAC 350.71(k)(2)(C).

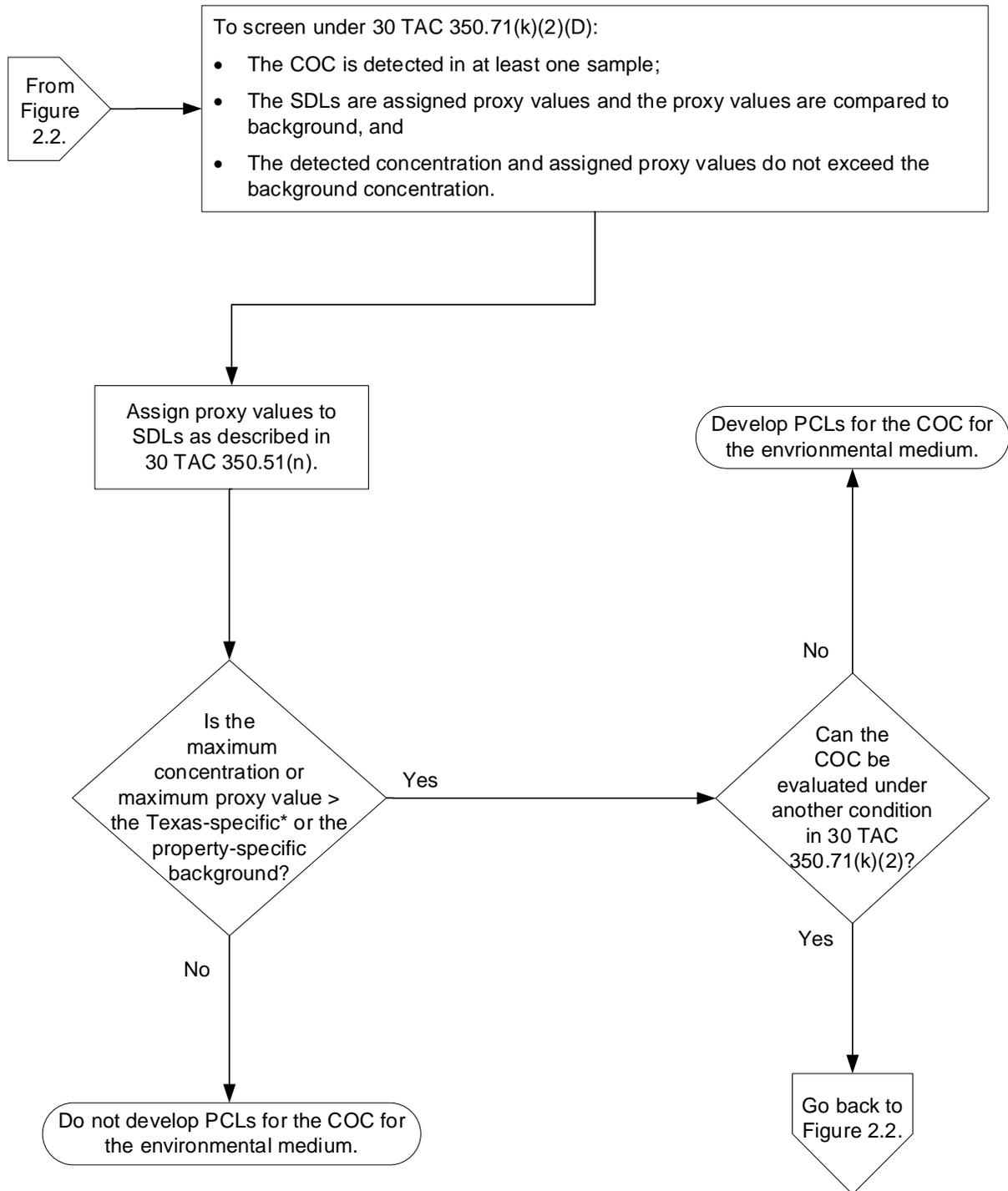
2.2.4 Screening Detected COCs Under 30 TAC 350.71(k)(2)(D)

Use this provision when the detected COC is a component present in the environmental background. Refer to the definition of “background” in the TRRP rule (30 TAC 350.4(a)(6)) for more detail regarding the use of a naturally occurring or anthropogenic background. Figure 2.2D outlines the steps for determining if the COC can be screened under this provision.

Note: Under this provision, proxy values are assigned to the nondetected results prior to evaluation. Under 30 TAC 350.51(n), a proxy value is assigned for nondetected results based on the distribution data for the COC. If the nearby concentrations indicate the COC is likely to be present at concentrations near to but below the SDL, assign the proxy value equal to the SDL. If the nearby data indicate the COC is expected to be at concentrations much lower than the SDL, professional judgment can be used to assign one-half the SDL as a proxy value.

Develop PCLs for the COC in the environmental medium if the maximum detected result or the maximum proxy value for the COC exceeds the established background concentrations.

Do not develop PCLs for the COC in the environmental medium if no detected result and no proxy value exceeds the established background concentration. **Note:** The data set will not contain any SDLs, i.e., less than values or “U” qualified values, once the proxy values are assigned to the SDLs for the COC.



* Default published background values available only for select metals in soils. See Figure 30 TAC 350.51(m).

Figure 2.2D. Detailed screening steps under 30 TAC 350.71(k)(2)(D).

2.2.5 Screening Detected COCs under 30 TAC 350.71(k)(2)(E)

Use this provision when the COC is detected in the environmental medium, but the release of that COC is not the result of current or historical activities conducted at the on-site property, and the specific Remediation Division program area (e.g., Voluntary Cleanup, Superfund, Corrective Action, Dry Cleaner) does not require the COC to be addressed.

Figure 2.2E outlines the steps to determine if the COC can be screened using this provision. To demonstrate that these conditions have been met, discuss the specific data and sample points used to conclude that no release of that COC has occurred, and justify that conclusion based on:

- the concentration and distribution of the COC in the environmental medium;
- the source area;
- consideration of chemical companion and degradation products; and
- knowledge of on-site historical operations.

Keep in mind, in some situations, the Voluntary Cleanup Program and the Superfund Program may not allow the COC to be screened from PCL development even though the COC did not originate from the property under investigation.

Develop PCLs if the available data and information fail to demonstrate the release of the COC is not the result of activities conducted at the on-site property.

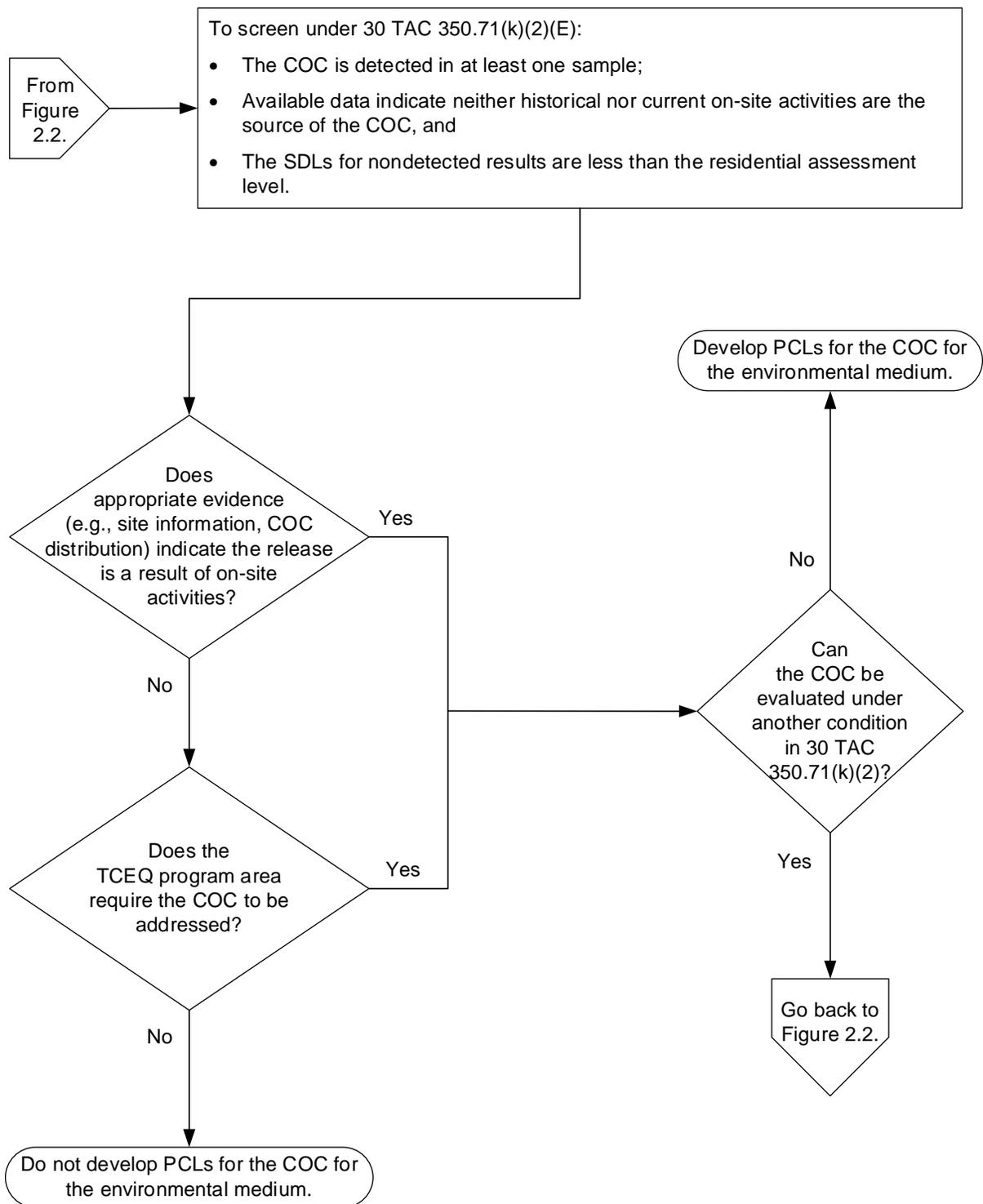


Figure 2.2E. Detailed screening steps under 30 TAC 350.71(k)(2)(E).

2.3 Screening COCs under 30 TAC 350.71(k)(3)

This provision is applicable to COCs not detected in any sample from an environmental medium but the COC is known or reasonably anticipated to be associated with historical or current activities conducted at the on-site property. Figure 2.3 outlines the steps to determine if the COC can be screened using this provision.

In laying out this provision, the agency anticipated the assessment data would include results from broad-spectrum analytical methods, such as SW-846 Methods 8260 and 8270. Since the broad-spectrum methods analyze for many chemicals, the assessment data will include detected and nondetected results for target COCs as well as for the other chemicals amenable to that type of analysis, i.e., analytical artifacts or chemicals not associated with the on-site property under assessment. Therefore, this provision only requires evaluation of a COC not detected in any sample from an environmental medium when the COC is known or reasonably anticipated to be associated with the on-site property, including chemical companion or degradation products. The nondetected results for the target COC must meet this provision whether a broad-spectrum method is used or not (all SDLs for the target COC must be less than the residential assessment level for the environmental medium).

Develop PCLs for a target COC **only** if any SDL is greater than the residential assessment level.

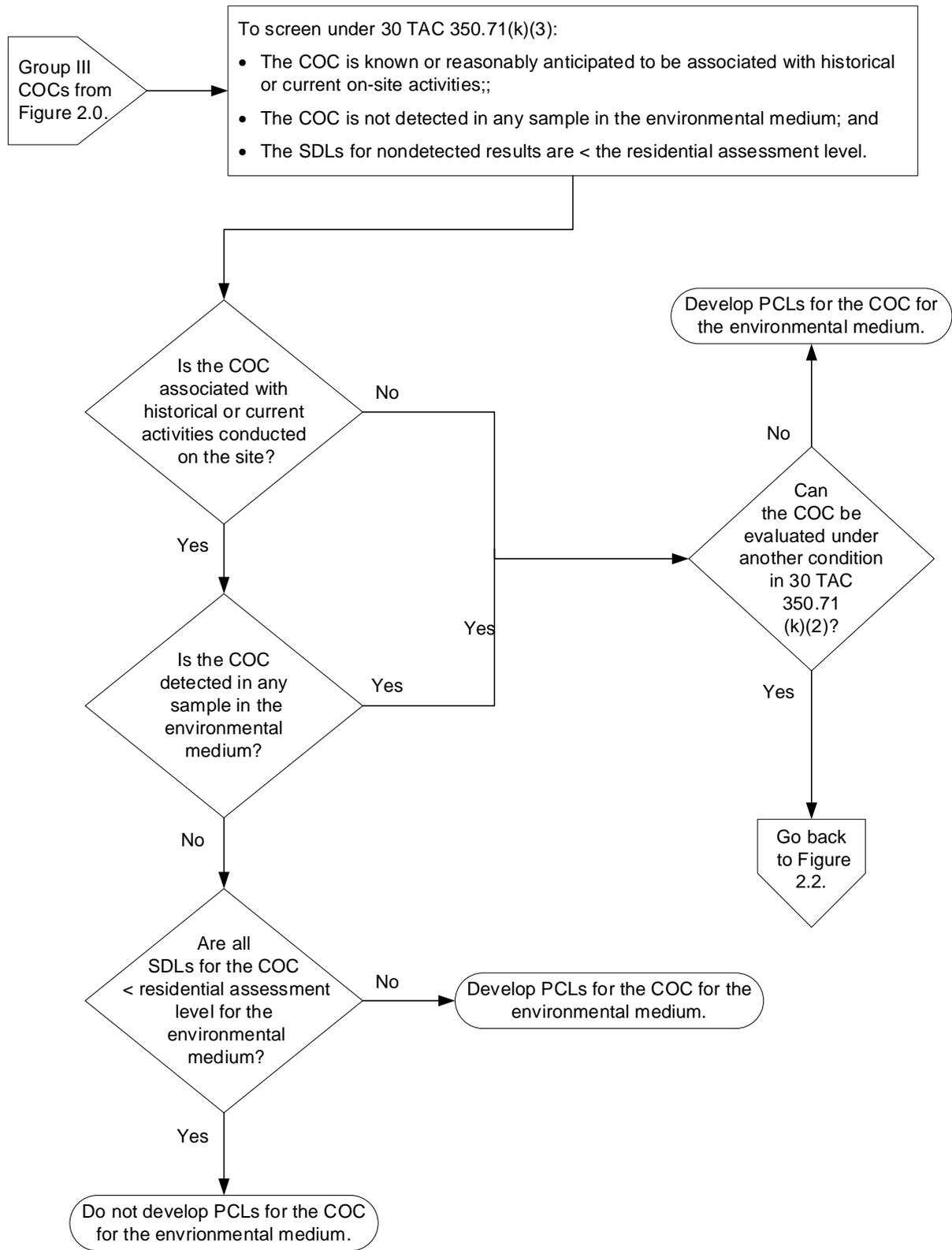


Figure 2.3. Detailed screening steps under 30 TAC 350.71(k)(3).

2.4 Screening COCs under 30 TAC 350.71(k)(4)

This provision is applicable to COCs not known or reasonably anticipated to be associated with historical or current activities conducted at the on-site property and are not detected in any samples from an environmental medium. If both conditions of this provision are met, do not develop a PCL for the COC. Figure 2.4 outlines the steps to determine if the COC can be screened using this provision.

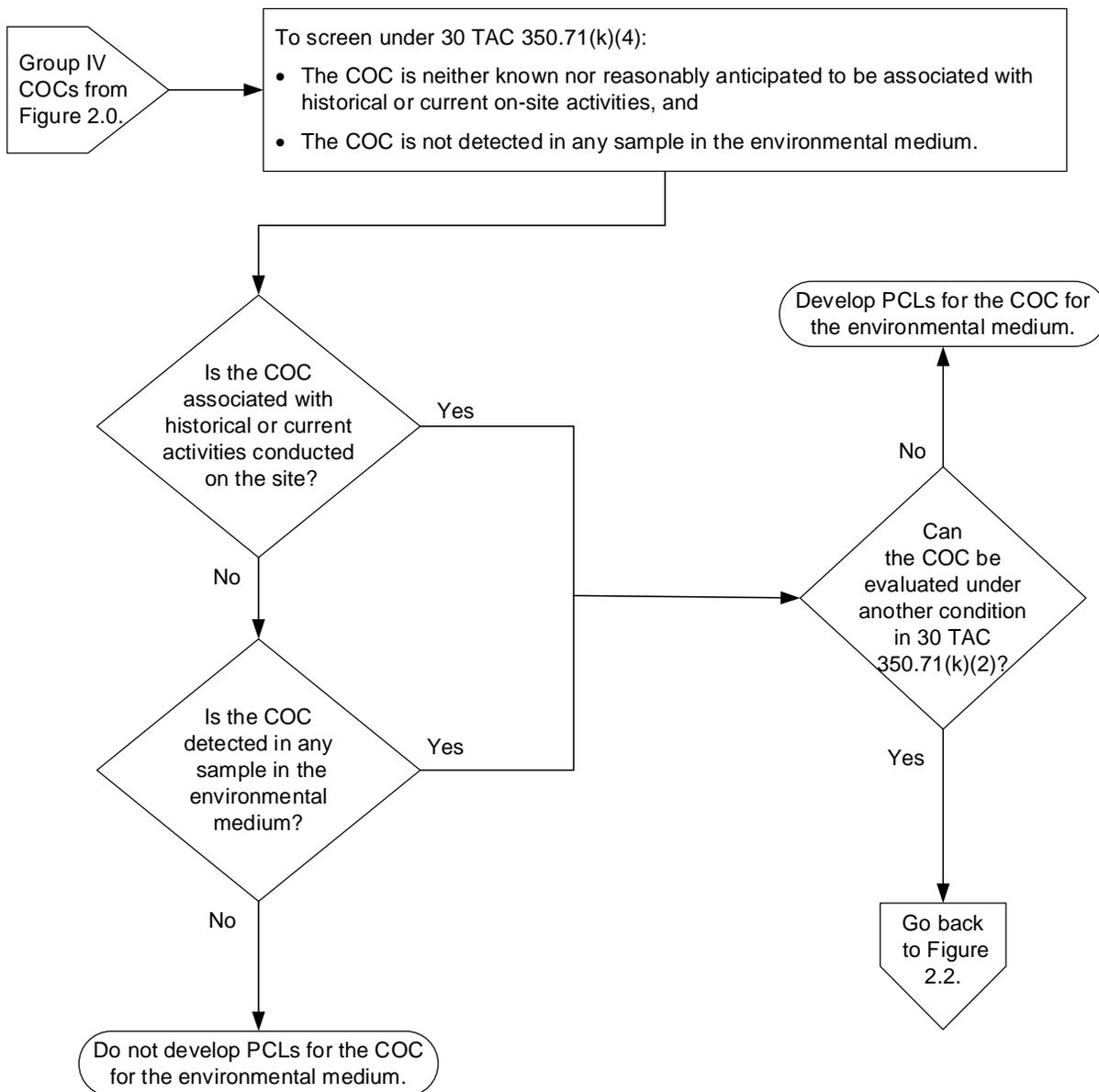


Figure 2.4. Detailed screening steps under 30 TAC 350.71(k)(4).

3 Example Scenarios

3.1 Continued COC Monitoring

Continued monitoring of a COC may be required under certain circumstances. For example, at a site undergoing assessment, the target COCs are:

- tetrachloroethene or perchloroethylene (PCE)
- trichloroethene (TCE)
- *cis*-1,2-dichloroethene (degradation product of PCE and TCE)
- *trans*-1,2-dichloroethene (degradation product of PCE and TCE)
- vinyl chloride (degradation product of PCE and TCE)
- 1,4-dioxane (companion chemical)

Using the assessment data, vinyl chloride and 1,4-dioxane screen from PCL development, but PCLs need to be developed for tetrachloroethene, trichloroethene, and the 1,2-dichloroethenes. In this example, vinyl chloride is screened from PCL development under 30 TAC 350.71(k)(3) because currently it is not detected in the groundwater and all of the SDLs are less than the groundwater residential assessment level for vinyl chloride. The 1,4-dioxane was detected in the groundwater but can be screened from PCL development under 30 TAC 350.71(k)(1) because all of the detected results and the SDLs in the groundwater and all other sampled media are less than residential assessment levels for 1,4-dioxane. Even though no PCLs are needed for the vinyl chloride, continued monitoring for vinyl chloride may be necessary, because—until successfully remediated—the parent COCs tetrachloroethene, trichloroethene, and the dichloroethenes are potential sources of vinyl chloride in the groundwater. Even though it is detected in the groundwater, the 1,4-dioxane does not warrant continued monitoring, because—as a stabilizer used in chlorinated solvents—it is a companion chemical. Its concentration over time will not increase due to the chemical or microbial degradation of the other COCs in the groundwater, and the assessment data demonstrate the surface and subsurface soils are protective of groundwater for 1,4-dioxane.

Another example when monitoring of a COC may be required is as follows: benzene is detected in soil greater than the residential assessment level and cannot be screened from PCL development using 30 TAC 350.71(k)(2). Soil PCLs must be developed for benzene. At the same time and at the same property, benzene is not detected in the groundwater, and benzene in the groundwater can be screened from PCL development under 30 TAC 350.71(k)(3), because all of the SDLs are less than the groundwater residential assessment level for benzene at this time. Considering the potential for exposure to the groundwater based on property conditions, continued monitoring of the groundwater for benzene might be required to verify the effectiveness of the soil response action and to ensure benzene did not migrate to the groundwater at unacceptable levels before completion of the response action.

3.2 Residential Soil Zones

As stated in Section 2.0, regardless of current land use, apply the residential assessment levels and land-use assumptions during the screening process. Consider the depth of soil samples when comparing COC concentrations and nondetected results (i.e., SDLs) in the environmental medium to the residential assessment level.

When considering human health exposure:

- surface soils are from zero to 15 feet deep or to bedrock or to the top of a groundwater-bearing unit, whichever is encountered first, and
- subsurface soils are between the base of surface soil and the top of the first groundwater-bearing unit.

When considering ecological exposure:

- surface soils are soils from zero to six inches deep, and
- subsurface soils are soils between six inches and five feet deep.

For example, even when the current land use is commercial/industrial, compare soil samples collected at 13 feet to the surface soil residential assessment levels to determine if a PCL is needed for human health considerations. If the assessment must address ecological concerns, this soil sample collected at 13 feet would not be considered in the ecological assessment, because it is at a depth greater than 5 feet.

Use the current land use assumptions when establishing PCLs for the COC in the environmental medium. Then, compare the soil concentrations to the critical PCL applicable to the depth from which the sample was collected to determine if PCL exceedance zones exist in the soil for the COC. For example, if the current site land use is commercial/industrial, use commercial/industrial land-assumptions to develop the PCLs for the COC. Once those PCLs are established and the critical PCL is identified for each medium, compare the assessment data to the critical PCL to determine if a response action is needed in the medium for the COC. Referring to the example where the assessment soil sample was collected at 13 feet and because commercial/industrial subsurface soils are all soils at depths greater than 5 feet, compare the concentration of the COC in that sample to the critical commercial/industrial PCL established for subsurface soils to determine if a response action is needed.

3.3 Appropriate Analytical Method under 30 TAC 350.71(k)(3)

The person in this example compiles the available current and historical information and identifies the chlorinated benzenes, i.e., mono- through hexa-chlorinated benzenes, as target COCs. The TCEQ requires an initial use of broad-spectrum analytical methods, e.g., SW-846 Methods 8260 and 8270 for volatile organic chemicals and semi-volatile organic chemicals, respectively, to confirm the accuracy of the initial COC list. No semi-volatile or volatile organic chemicals, other than the chlorinated benzenes, were detected using the broad chemical scan methods. The

person determined none of the nondetected chemicals were in any way associated with the property. The analytical method was appropriate for the intended use of confirming the accuracy of the initial COC list. Therefore, even though the MQs for some of those nondetected chemicals are greater than the respective residential assessment levels, the analytical method was appropriate for the intended use of the data. However, if the MQ of the broad-spectrum method is greater than the residential assessment level for any of the chlorinated benzenes identified as COCs for the property, that method cannot be used to demonstrate the extent of those chlorinated benzenes in the environmental medium and cannot be used to demonstrate that those chlorinated benzenes can be screened from PCL development. This constraint on which analytical method should be used is based on 30 TAC 350.54(e)(3), requiring use of an analytical method capable of achieving an MQ below the level of required performance, such as the residential assessment level, for the target COCs.