




RELEASE CHARACTERIZATION

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RELEASE CHARACTERIZATION GUIDANCE (RCG)

Provides a framework for characterizing a discovered release and using the conceptual site modeling (CSM) process to evaluate the source of the release, the nature and distribution of related contaminants in the environment, and potential receptors.

Environmental professionals should use their professional judgment to determine the appropriate level of effort necessary to characterize the release and document the CSM.



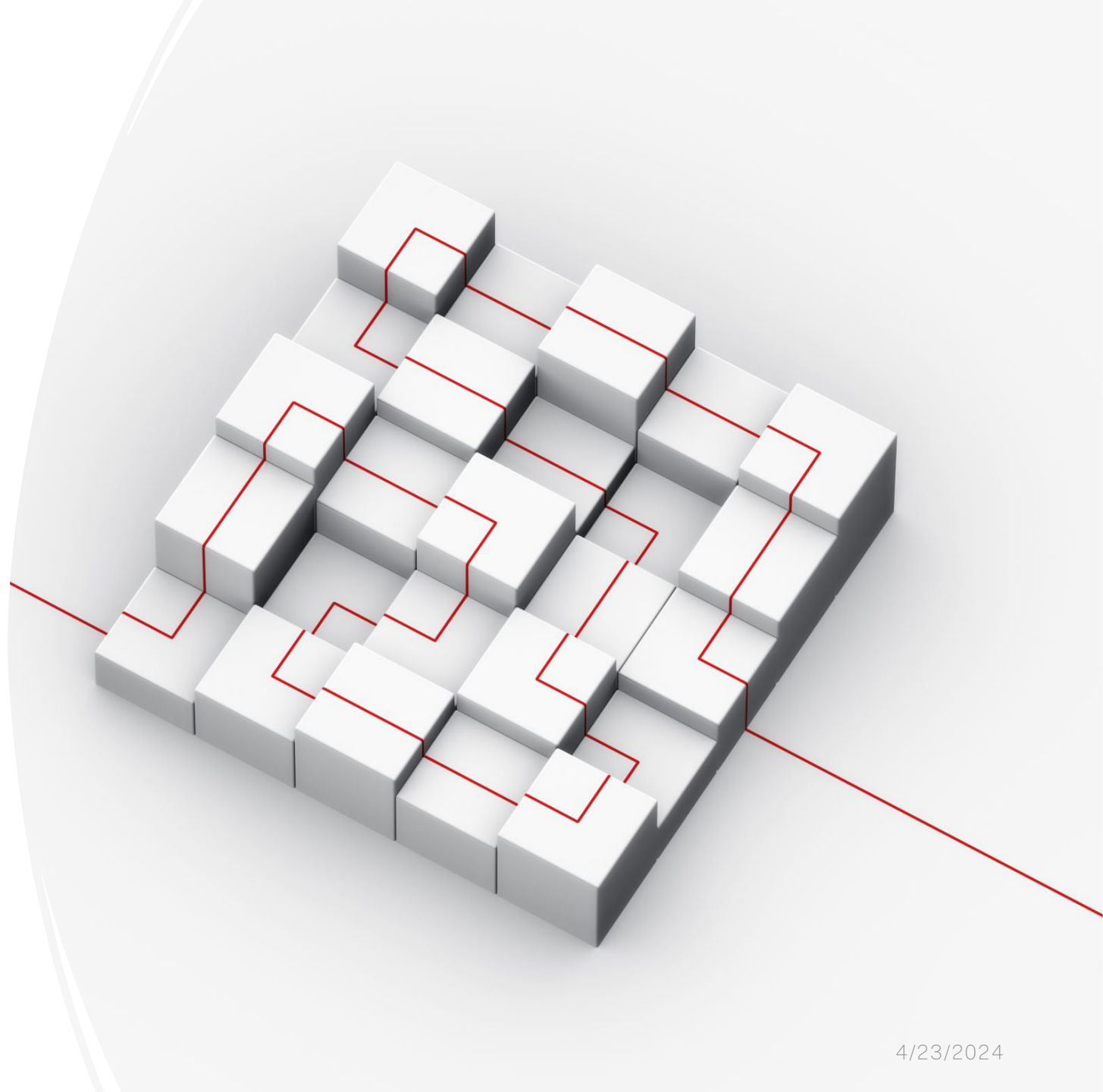
The RCG is
Applicable to:

Emergent
reportable releases
(ERR)

Existing releases

CONCEPTUAL SITE MODEL (CSM)

“a representation in three dimensions of environmental conditions at **a release area** that is developed through a multi-phased investigative approach which validates such representation with information about, including, but not limited to, a substance’s release, fate and transport, and pathway to human and environmental receptors”



HOW DOES THE CSM WORK IN PRACTICE?

A CSM is:

- A means for communicating the most current understanding of the release area being investigated/remediated.
- An evolving description that ties together a release, fate and transport mechanisms, migration pathways, and potential receptors.
- Used to identify data gaps and make decisions about the next steps in the characterization/remediation process.

CSM Definition

*“a representation in three dimensions of environmental conditions at a **release area** that is developed through a multi-phased investigative approach which validates such representation with information about, including, but not limited to, a substance’s release, fate and transport, and pathway to human and environmental receptors”*

CSM PROCESS AND DOCUMENTATION

Conceptual Site Modeling Process

- Determine what you already know and what information you need
- Design investigation and set data quality objectives
- Identify and resolve significant data gaps
- Refine the CSM after each step

CSM Documentation

- Present a clear narrative (who, what, where, when, how) – level of detail will depend on the release
- Use visual elements to relay information (photos, figures, tables, graphs)
- Provide adequate backup to support key points in the narrative (lab reports, boring logs, calculations, etc.)

ERRs

The characterization of ERRs will often be a condensed version of the CSM process, possibly occurring within hours of the release.

RELEASE CHARACTERIZATION

Release characterization is the process of collecting sufficient data to define the nature, magnitude, and three-dimensional extent of a release and effects over time.

Full characterization results in a validated CSM, in which no significant data gaps remain.



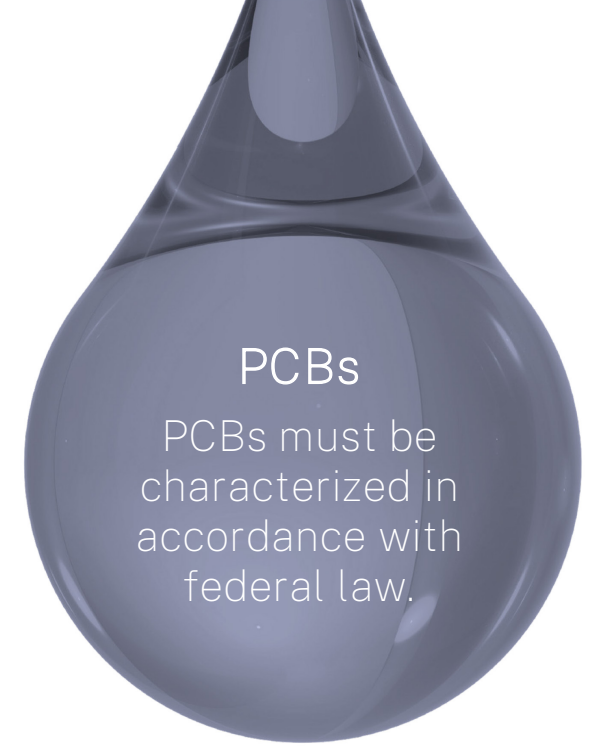
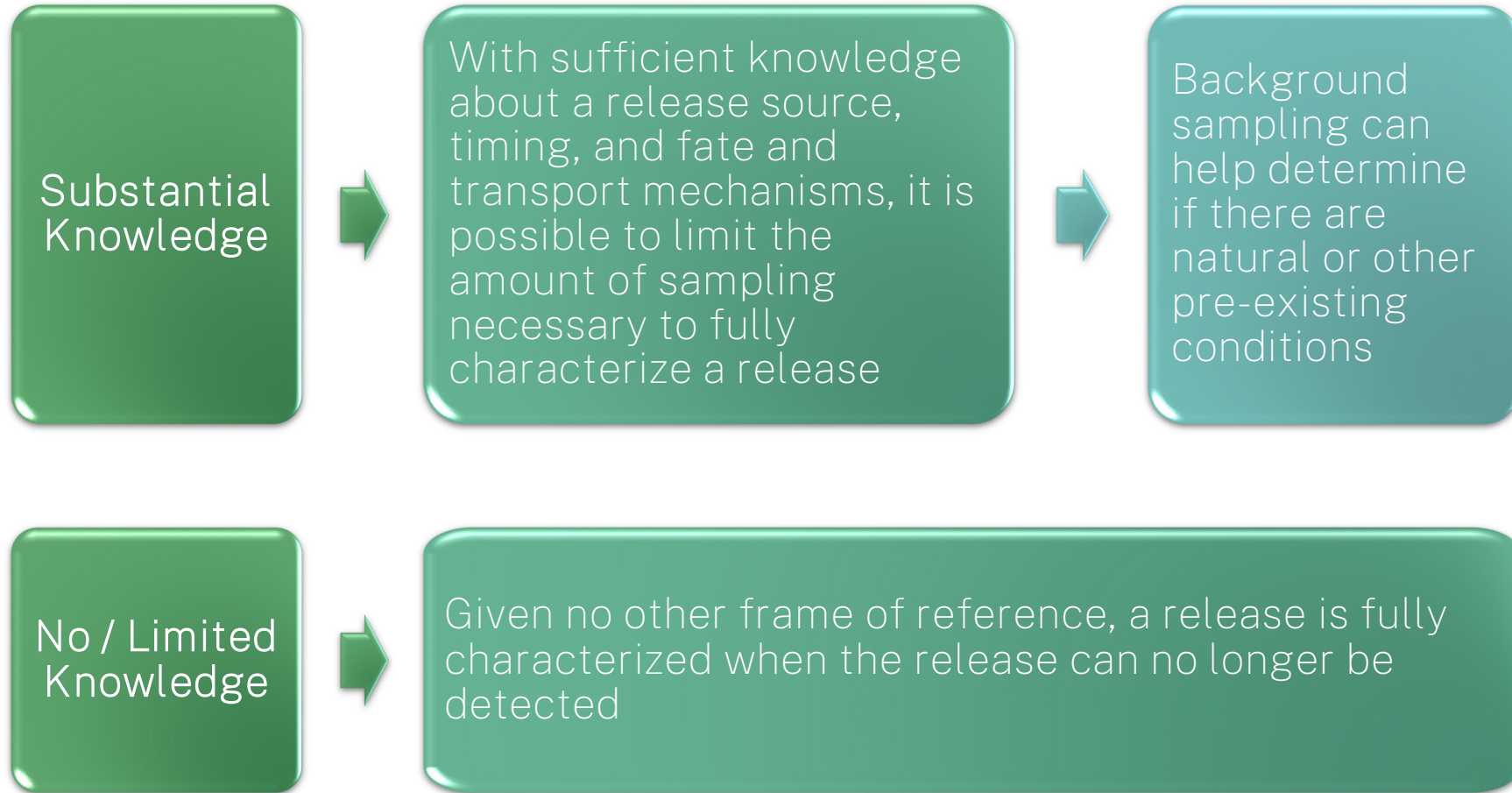
CHARACTERIZATION OBJECTIVES

- Understand site conditions that control the migration of substances at the release area
- Define 3D extent and distribution of substances associated with the release
- Determine how COCs may change with time
- Identify receptors (including ecological receptors) and how the current or future extent of COCs may affect human health or the environment

ERRs

ERRs are expected to be removed to the maximum extent practicable, and characterization will typically occur concurrent with cleanup

APPROPRIATE DEGREE OF CHARACTERIZATION



MULTIPLE LINES OF EVIDENCE

Use supporting lines of evidence to demonstrate that the CSM is sufficient to achieve project goals and regulatory objectives

- The source is known and/or clearly defined with concentrations decreasing away from the point of release
- The release mechanism is known
- Migration pathway(s) are well understood
- Environmental setting into which the release occurred is well understood
- Potential receptors are known and protected
- Data gaps are not significant



FULL CHARACTERIZATION

- Defined term in draft regulations that relates to the degree of characterization needed close a release
- Definition will be modified based on Working Group comments:
- “Full characterization” means characterization of a release such that the horizontal and vertical extent of such release is delineated to the points at which it is no longer detected *or that the extent of such release has otherwise been determined in a manner consistent with prevailing standards and guidelines provided such standards and guidelines shall not specify delineation to the point at which a release is no longer detected for all releases or in all circumstances*



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MINIMUM DQOs

Data quality objectives for an investigation should include, at a minimum:

- Protection of potential receptors
- Collection of sufficient data to demonstrate that the concentrations of all COCs for the release are decreasing away from the point of release in three dimensions
- Collection of sufficient data to demonstrate that there are no exceedances associated with the release beyond the sampling envelope
- Laboratory reporting limits are sufficient to support an evaluation of receptor risk



OTHER TOPICS COVERED IN THE RCG

- Investigation design and implementation
- How background affects data interpretation
- Release mechanisms and source area evaluation
- Considerations for characterizing various media



A stylized landscape illustration. At the top right, a yellow sun is partially visible. Below it, a large green hill with a dark blue outline dominates the middle. To the left, a smaller, lighter green hill is partially visible. At the bottom, a blue area represents water, also outlined in dark blue. The text "Thank You" is centered on the green hill.

Thank You