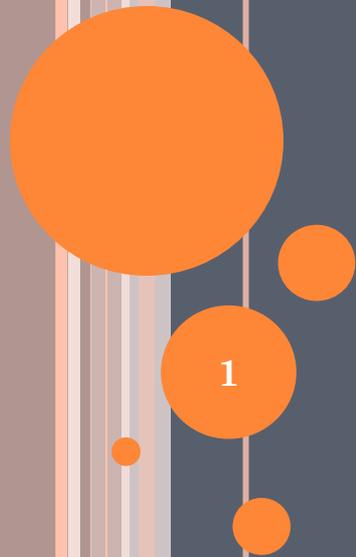


# SITE CHARACTERIZATION

A first step in Risk Assessment



# WHY IS RISK ASSESSMENT IMPORTANT TO YOU?

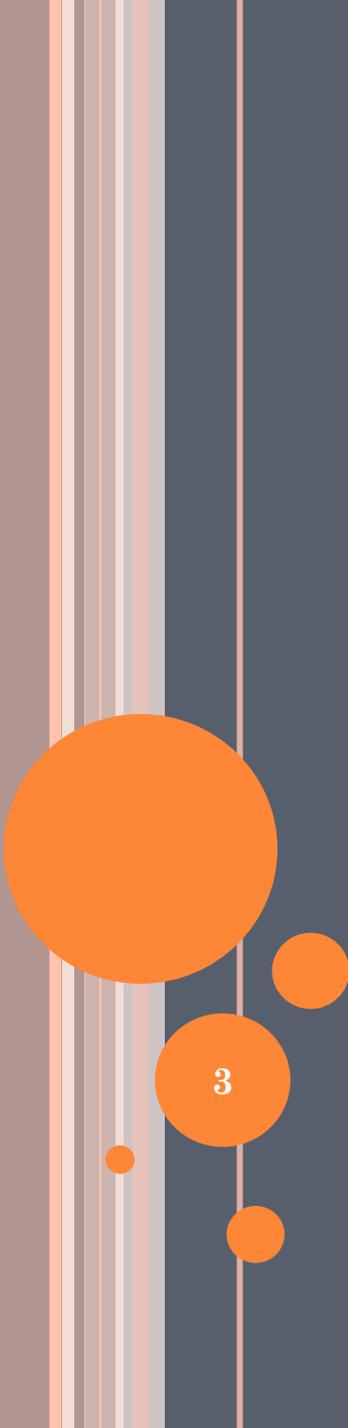
\$

**Liability.. You too can own a  
superfund site!**

**Public health.. Which could mean  
yours**

**NOTE!**

**RISK ASSESSMENT IS PART OF  
A LARGER DECISIONS MAKING  
PROCESS!**



3

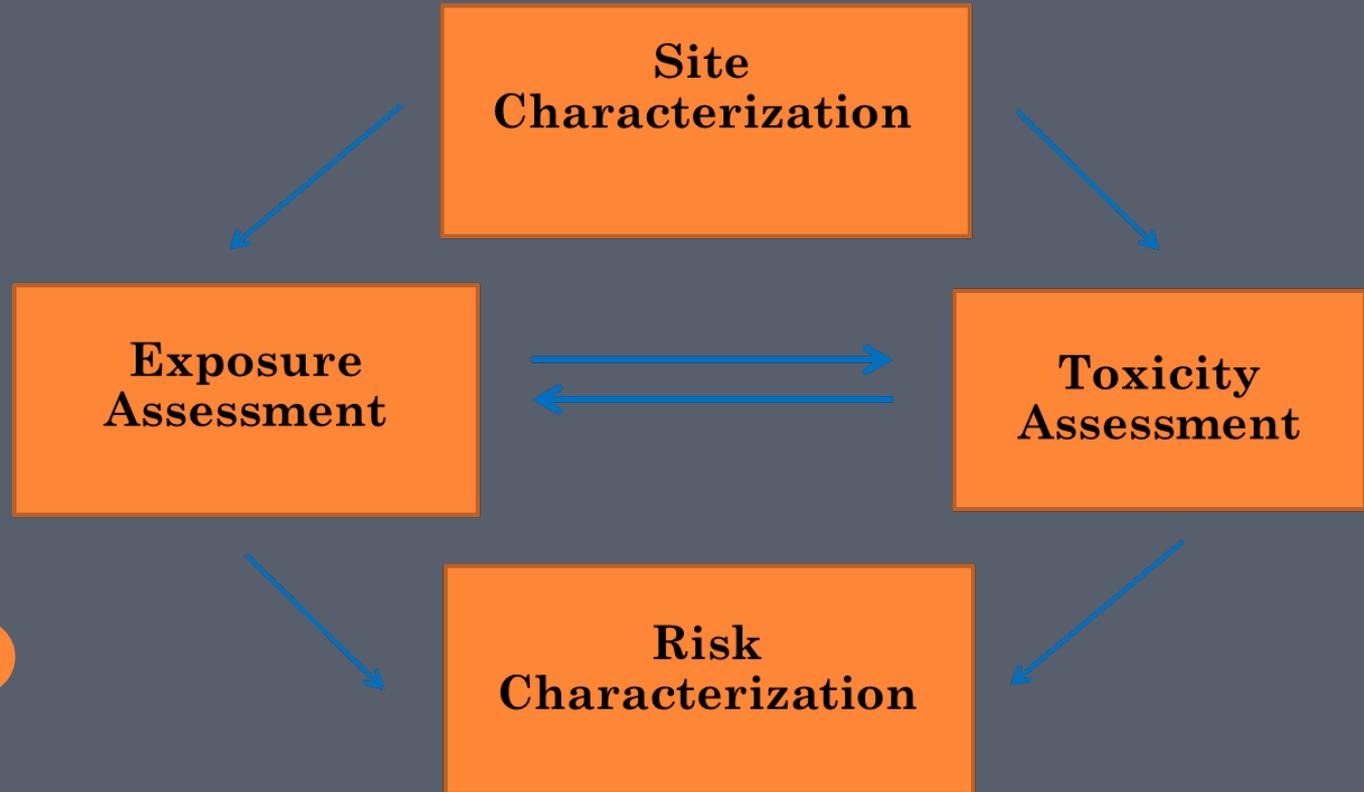
# Why are risk assessments completed?

- Characterize current and potential threats to human health
- Identify which media need to be treated
- Develop cleanup criteria
- Select remedial actions (which may include no action)
- Provide risk managers (decision makers) with understanding of actual and potential health risk associated with the releases

# Why are risk assessments completed?

- How much will my cleanup cost?
- Should I purchase this property?
- Who may be harmed by contamination?
- Does this project seem reasonable?
- What environmental decisions can I make about this property?

# Risk Assessment Basic Paradigm



# SITE CHARACTERIZATION GOALS

- Sometimes referred to **Data Collection and Evaluation/analysis**
- Gather available information
- Collect data based on some sort of sampling and analysis plan
- Determine nature and extent of contamination
- Different programs have variations on the nature and extent of contamination and “site” or property
- Superfund/Remedial Response sites, full nature and extent
- VAP focuses more on releases/history and identified areas
- **List of Chemicals and actual or potential receptors**

# PLANNING/SCOPING THE ASSESSMENT

- Work plan (RI work plan for CERCLA sites)
- Other planning document

# CONCEPTUAL SITE MODEL (CSM)

**Visual representation of the risk assessment**

**Iterative**

**Critical tool for planning and implementing the assessment**

**Plan where data are needed, what data will be collected, what detection limits are needed and how those data will be used...**

9

**Which media, where, what receptors, how exposed?**

# HOW DOES THE CSM STRUCTURE THE RISK ASSESSMENTS?

What exposure scenarios (*e.g.*, residential, recreational, commercial)

Current and future risks (reuse plan, professional judgment)

Where contamination is or may be

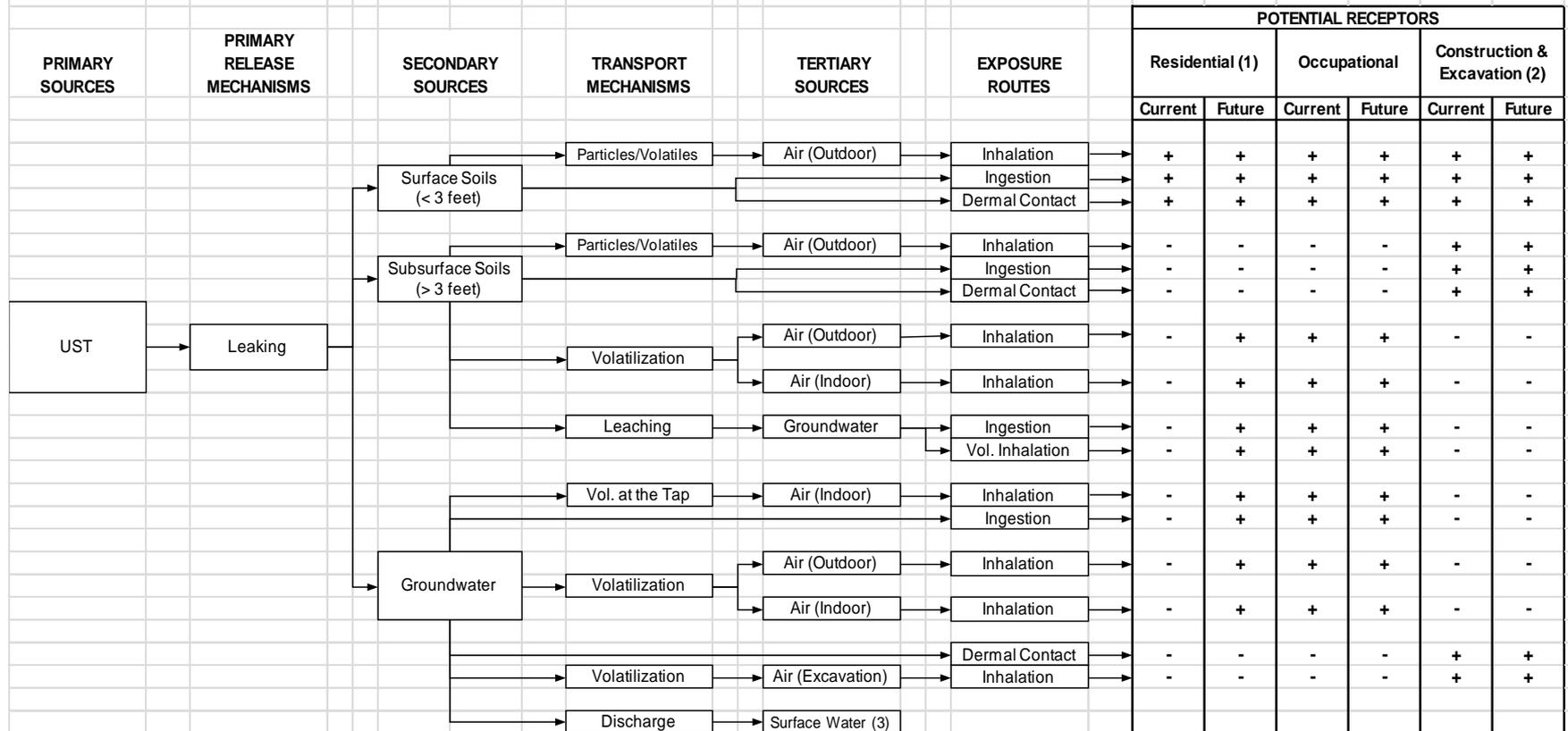
Who is exposed (which receptors)

Which exposure media (*e.g.*, soil, ground water, sediment) (where located)

How exposed (exposure route) (*e.g.*, inhalation, ingestion, direct contact)

# EXAMPLE CSM

This figure can be modified for use on specific sites.

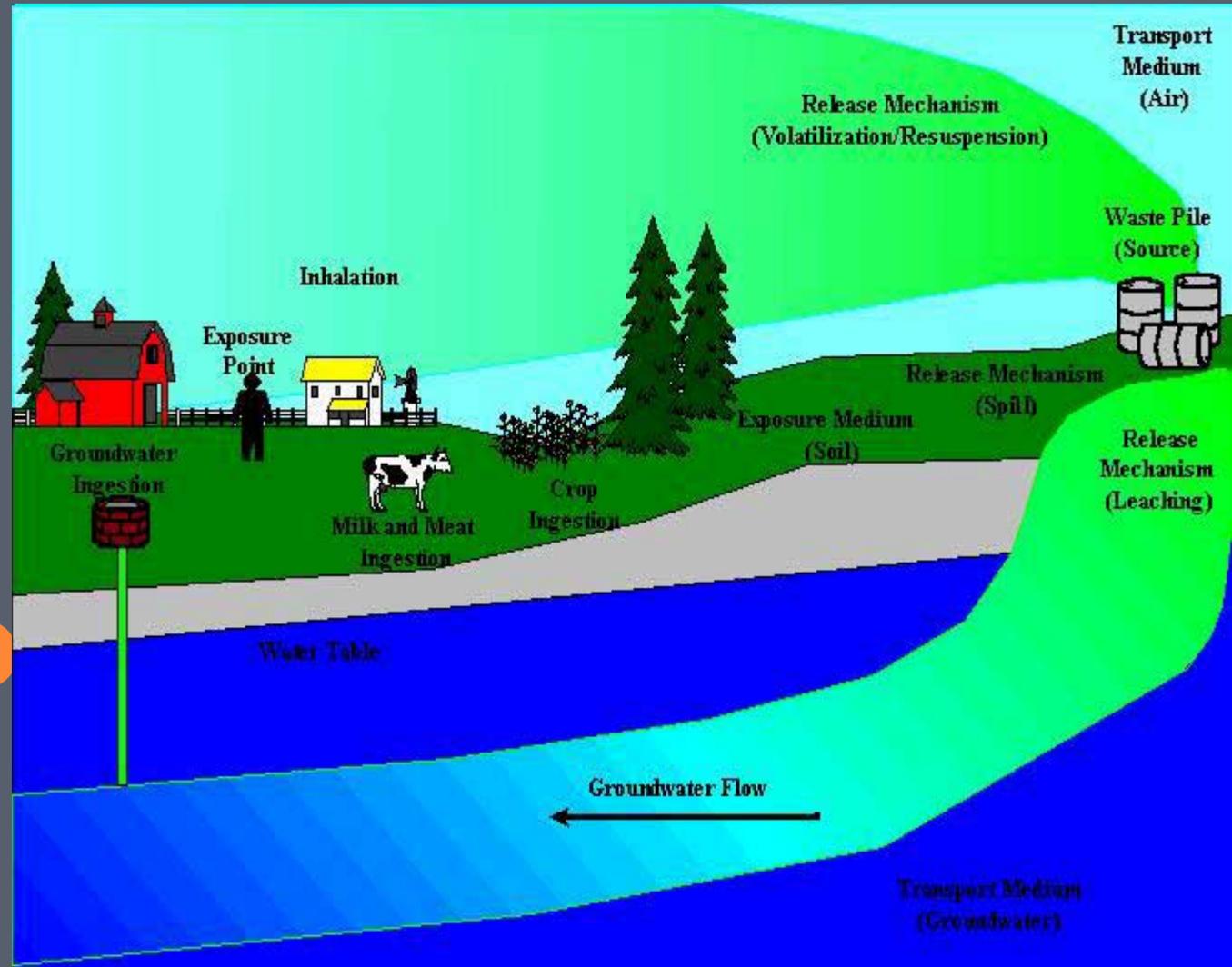


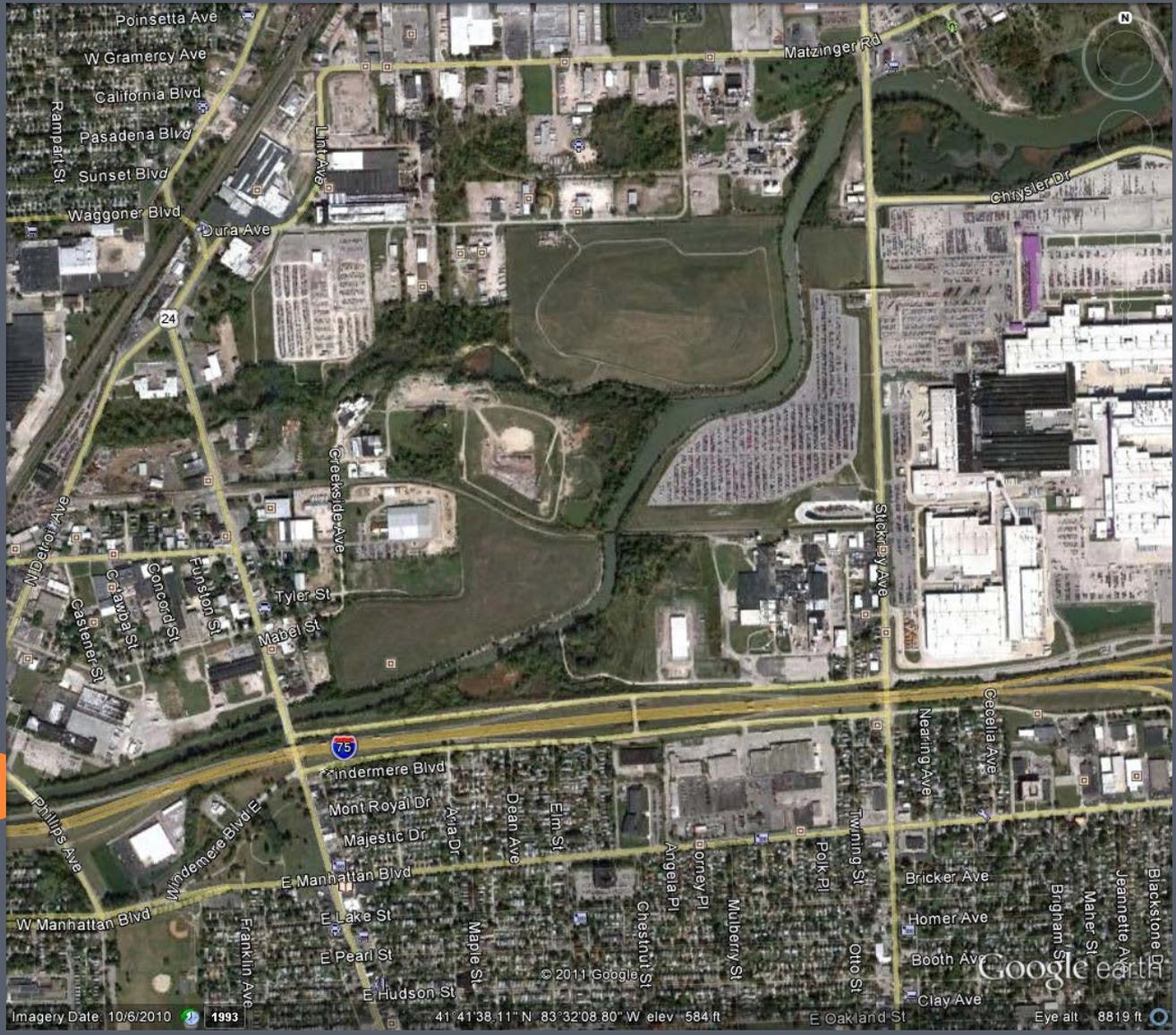
**Notes:**

- + This route is a primary source of exposure.
- There is no exposure by this route.
- (1) Specify if urban residential or single-family residential. Include separate columns for these exposure scenarios if necessary.
- (2) Include separate columns for these two exposure scenarios if necessary.
- (3) Surface water contamination is not covered in the Table of RBCs and should be discussed with the Department.



# PICTORIAL CSM





# DATA COLLECTION AND ANALYSIS

**Chemical concentrations in the various media at your location**

Source  
Media

- **Soil (shallow and deep)**
- **Sediment**
- **Surface water**
- **Ground water**
- **Subsurface gas/Indoor air**

# SCREENING STEP

- Has there been a release?
- Qualitative estimate on “how bad” is the contamination
- Focus investigation on “driver” compounds

# Screening Values:

Risk based values (*e.g.*, Regional Screening Levels (RSLs, formerly PRGs)

Background (*e.g.*, Lead, As, PAHs )

# RECEPTORS... PEOPLE

Present and future

Residential?

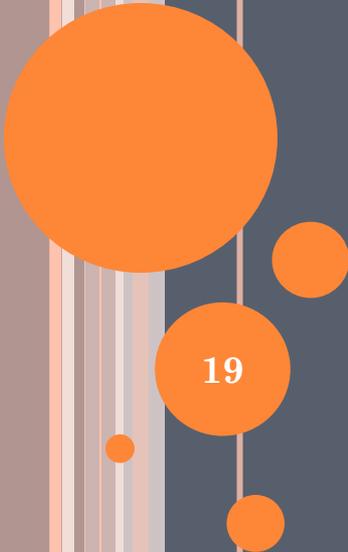
Commercial/industrial?

Recreational?

17

Future use analysis (*e.g.*, Superfund)





# RESULTS OF SITE CHARACTERIZATION

## Understanding of the Contaminants

- What are they and their concentrations?
- Where are they located?
- Which media are of concern?

## Identify Potential Receptors

- Residential?
- Commercial/Industrial?
- Recreational?
- Current, future or both?

Next Step: Exposure Assessment!

QUESTIONS?