

John Schmeltzer
Waste Management and Prevention
Division
Montpelier, Vermont
(802) 828-1138



• The Sites Management
Section (SMS) oversees the
investigation and cleanup of
properties where a release of
a hazardous material has
contaminated the
environment, including soils,
groundwater, drinking water,
surface water, and indoor air.



- Primarily all petroleum and toxic, corrosive, or other chemicals listed on applicable federal and state lists (CERCLA and Haz Waste Regulations)
- In Vermont- Haz materials does NOT include herbicides and pesticides if applied consistent with good practice (following applicable laws/rules and manufacturer's instructions



- Notification of a release as part of Environmental Investigation of a property (These investigation typically done prior to property transaction or refinancing-due diligence)
- Identification of a release from complaints, enforcement actions, or ongoing monitoring required by permitting
- Removal of gasoline, fuel oil, or waste oil tanks Underground and above ground tanks
- Spills that can't be cleanup up during the initial response
- A person tests their well and finds contaminants



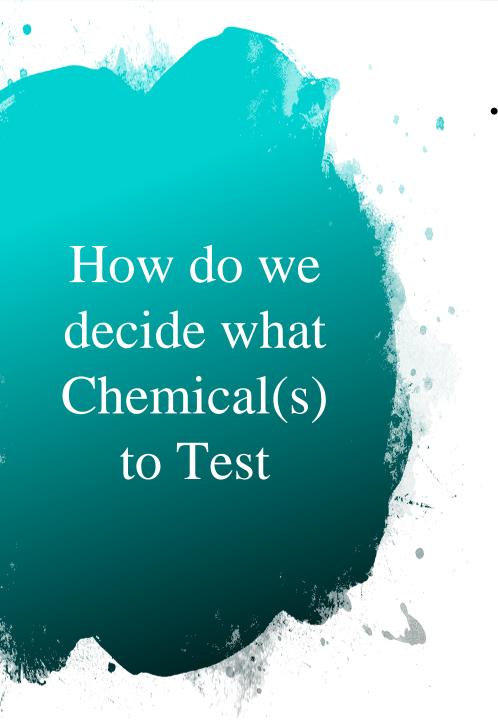
It can be anywhere but here are the usual suspects...

- Major Spills-gasoline tankers
- Gas Stations and garages (past and present)
- Dry Cleaners or other businesses that use chemicals (past and present)
- Industrial facilities (past and present)
- Old landfills/dump sites

Program recommends that, at a minimum, a Phase I Investigation is done for a property transaction, particularly for properties that have had prior commercial and industrial uses



- Approximately 4700 sites
- A site is assigned if there is a release of a hazardous material that requires further investigation and/or corrective action
- 1235 active sites- majority are petroleum-related (gasoline and fuel oil sites)
- Other contaminants-metals, chlorinated solvents, Per- and polyfluoroalkyl substances (PFAS), and many more



- Based on Conceptual Site
  Model -written or illustrative
  representation of the processes
  of how contamination moves in
  the environment to sensitive
  receptors
  - Identify Sources and potential types of chemicals released
  - What kind of chemicals used at the facility
  - Identify Potential Receptors to be tested (e.g. Drinking Water Wells)
  - Not practical to Test for everything



- If CMS and site investigation suggests that a water supply wells is vulnerable. If so, sample for contaminants of concern.
- Depending on the circumstances at the request of a well owner (sheen in water, water smells of gasoline, etc.)



- Volatile Organic Compounds (VOCs)-Petroleum related including Methyl Tertiary Butyl Ether (MTBE), benzene, trimethylbenzenes, naphthalene, etc.
- VOCs-Chlorinated Solvents (TCE, PCE, TCA)
- For drinking water EPA
   Method 524.2 will capture all
   these compounds



## To name a few

- Metals (lead, chromium, arsenic and other metals
- 1,4 Dioxane
- Polycyclic aromatic hydrocarbons (PAHs) and other semi-Volatile organic compounds
- Per- and Polyfluoralkyl Substances (PFAS)

CSM will dictate what chemicals to test

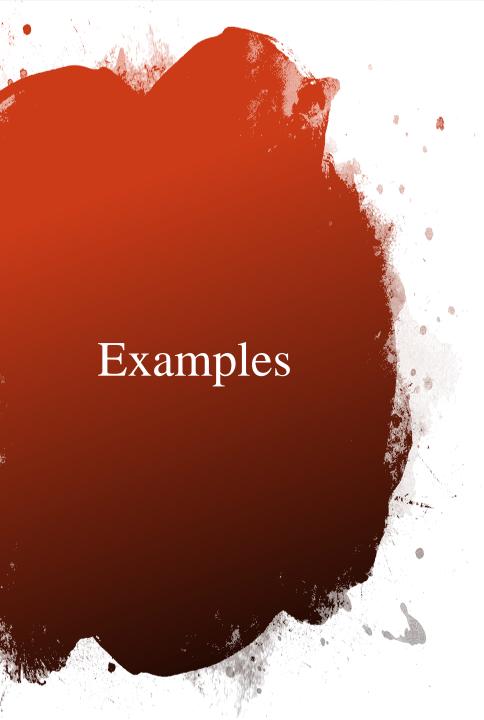


## Compare to applicable standards and advisories

- Groundwater Enforcement Standards
- Vermont Health Advisories
- Vermont Action Limits
- If below standards continue ongoing monitoring until sufficient data collected over time to ensure chemical will not exceed applicable level



- Bottled water
- Install a Treatment System either a point-of-entry treatment (POET) system or a point-of-use (POU) system.
- For most organic compounds, granular activated carbon is the most common treatment method but there others (resins, reverse osmosis to name a few)
- Ongoing monitoring and maintenance of treatment system to ensure system is operating correctly
- Continued monitoring of water supply well
- Corrective Action to address the source and provide a long-term remedy (waterlines)



• Currently approximately 20 POETS maintained at sites contaminated with gasoline or chlorinated sites. I have a water supply well that has a POET for over 20 years (Standards low and hard to remove all contaminants)

## Bennington PFOA response

- POETs (sampling and O&M)
- Waterlines
- Replacement Wells
- Ongoing monitoring wells below standard in site boundaries



- CSM and subsequent data dictates when a private well is sampled and what chemicals are tested (Use context clues)
- Monitoring over time important to determine contaminant concentration trends
- Treatment contingent on chemical
- Unfortunately, water supply impacts are persistent because standards and advisory levels are low and even with corrective action removing all the source is challenging and takes time

