

#### U.S. EPA "State of VI\* Science" Workshop Reliable Ongoing Human Exposure Protection to Vapor Intrusion Using Cleanup as the Simplest Approach

## Wrap Up & Closing Thoughts

Henry Schuver, DrPH (epidemiology), MS (geology) US EPA, Office of Resource Conservation and Recovery, Cleanup Programs Branch, Washington D.C.

Presentation archived at <u>https://iavi.rti.org/</u>

40<sup>th</sup> Annual Conference on Soil, Water, Energy, and Air, A Hybrid Conference, October 22<sup>nd</sup>, 2024

**<u>Disclaimer</u>**: The views expressed in this presentation are those of the author and do not necessarily represent the views or policies of the U.S. EPA. \*chlorinated Vapor Intrusion (cVI)

#### Prologue Are we ready to do something *more effective* for cVI?\*

We've tried a lot of less effective things for >25 years

- That 'more effective' is:
- Protect all people\*\* from cVI exposures
  - Can Sampling = Equivalent to having a completed cleanup
  - *High confidence* of No Unacceptable exposures
    - Proposal: by keeping (haz.) waste a Safe Distance away for Occupied Bldgs.

### • Until a complete cleanup\*\*\* is achieved

\*chlorinated Vapor Intrusion (hereafter just VI)

**\*\*Nearby** vapor contamination subject to our authority for cleanup

**\*\*\***Of vapor contaminated **soil gas media (before it becomes indoor air)** & all sources of it

# We'd all like to find a building 'screens out' of concern for

- We should get Control of contamination in Soil Gas
  - Not just let if wander around under natural forces
    - towards bldgs./wells
- Imagine if we could take a bldg. that screens in
  - &
- Pull the contaminated soil gas away from underneath that bldg.
  - So, it screens out

### Chris Lutes – Economic Analysis shows

- Exposure Assessment per Building \$20,000 \$60,000
  - Provides NO exposure reductions (yet) just ID of a (new) problem
- How many bldgs.' exposure could be removed if we spent \$20-60k
  - To control & pull contamination in Soil Gas from underneath the building
- How much quicker could we be confident of Exposures Under Control?
  - Readily apparent, progress in ultimate cleanup +++

# Conceptual Model Scenarios for the Vapor Intrusion Pathway (USEPA, 2012)

https://www.epa.gov/vaporintrusion/conceptual-modelscenarios-vapor-intrusion-pathway



#### Source Lateral Distance Deep Groundwater

 A 20 m (66 ft) lateral distance separation results in decrease in α by two orders of magnitude

Note: High vapor conc. can be significantly reduced (with confidence by dispersion and dilution) over a reasonable separation distance between the contamination & receptor building.



#### Lower Permeability at Ground Surface



separation distances between the contamination & receptor building are the same, e.g., here where the ground surface has an impermeable cover/cap that is not allowing the vapors to flux into outdoor air.

Note: Not all

# Control of Contaminated Soil Gas can be Prevention of Exposure and Progressing the Cleanup!

PLEASE Think About It