



Draft TCE Toxicity Values for Risk Assessment and the Vapor Intrusion Pathway

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Context of TCE Toxicity

- TCE is very prevalent at hazardous waste sites
- EPA reassessment of TCE toxicity will not be completed for several years
- Regions left to make independent decisions resulting in inconsistency across the country



Current EPA Practices

- Maximum Contaminant Level (MCL) of 5 ppb is risk management standard for potential drinking water sources.
Guidance will not effect groundwater MCL
- No similar EPA standard for vapor intrusion pathway
- Chemical toxicity hierarchy when no EPA values for risk assessment



OSWER Chemical Toxicity Hierarchy

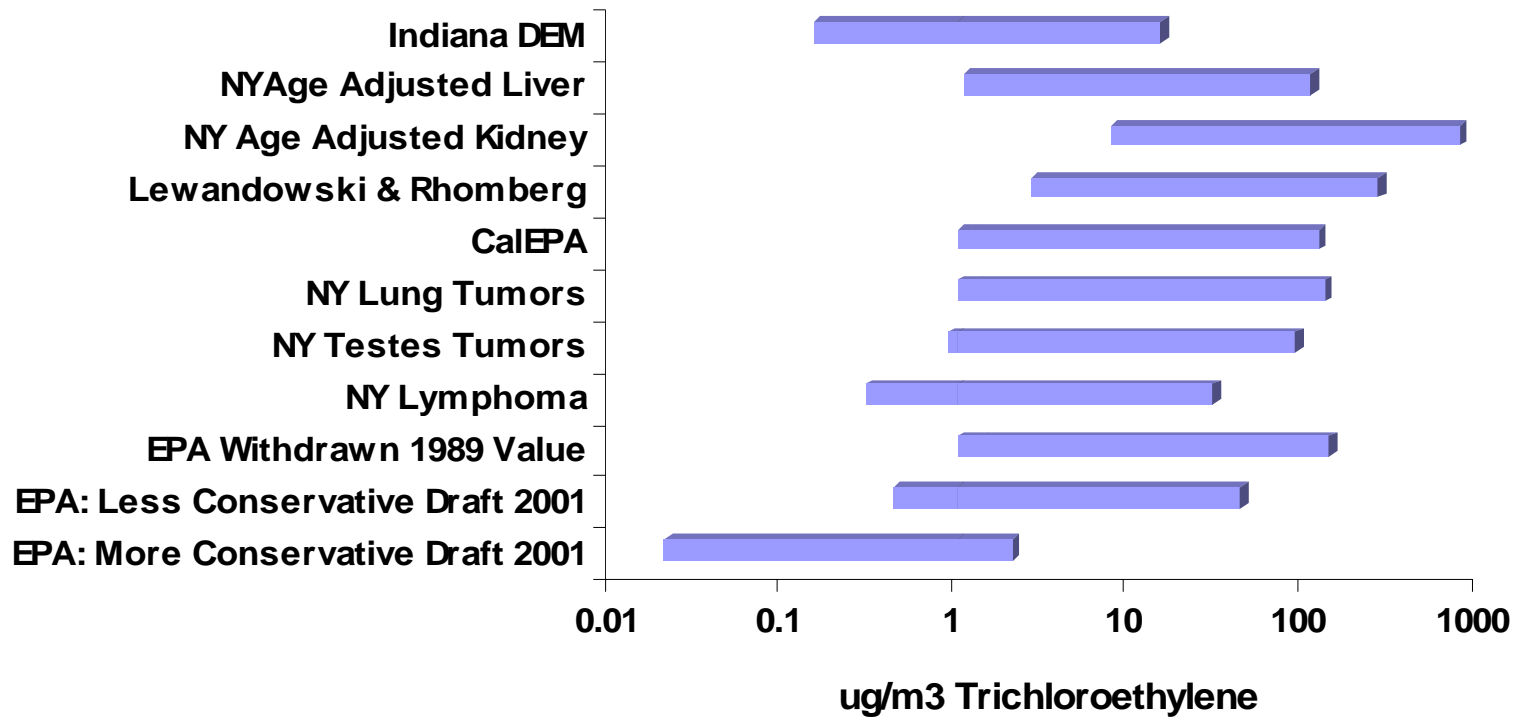
- Tier 1: IRIS values, where available
- Tier 2: Preliminary Peer-Reviewed Toxicity Values, if developed
- Tier 3: Other peer-reviewed, publicly available values developed with similar methodology to IRIS and PPRTVs



Evaluation of Tier 3 Sources

- Primarily focused on California EPA and New York State Dept of Health
- Others considered but were not as consistent with the criteria recommended in the ECOS paper

1E-06 to 1E-04 Risk-Based TCE Indoor Air Concentrations





Preliminary Approach

- Use of Cal EPA inhalation unit risk value of $2.0 \text{ E-}6(\text{ug}/\text{m}^3)^{-1}$. Cancer risk of 1×10^{-6} is approximately $1 \text{ ug}/\text{m}^3$ in indoor air
- Manage risks within a concentration range of 1 to $10 \text{ ug}/\text{m}^3$ because of other non-cancer endpoints and new studies



Preliminary Approach (con't.)

- Use Cal EPA oral cancer slope factor of $0.013 \text{ (mg/kg-day)}^{-1}$ for risk assessment
- Continue to use MCL of 5 ug/L for risk management of potential drinking water



Vapor Intrusion (VI) Approach

- Use multiple lines of evidence to evaluate VI, which may include data on: 1) site history and geology, 2) ground water, 3) soil gas, 4) sub-slab soil gas, 5) crawlspace data, 6) indoor air, 7) outdoor air, 8) tracer compounds, 9) chemical ratios, 10) modeled concentrations, 11) chemical use.



VI Approach (con't.)

- Indoor air samples are useful where other data suggest a potential VI problem
- May be more expeditious to collect indoor air data in parallel with sub-slab soil gas or ground water data
- May be more efficient to mitigate before construction for new development



Next Steps

- Inter-Agency review and discussion:
OMB, DOD, NASA
- State Agency review
- Peer-Review
- Revise document as necessary
- Issue final document



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