



A Young Family's Exposure to TCE
Case Example Using ATSDR
Internet Resources

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Module Goals

After completing this module, participants should:

- 1. Feel comfortable navigating the main aspects of ATSDR's Internet site**
- 2. Know how to apply information from the website to real-world children's environmental health concerns**

A Quick ATSDR Primer

- **We're a non-regulatory, federal environmental public health "Information Agency"**
 - Chemical-specific documents (e.g., Toxicological Profiles, TOXFAQs)
 - Site-specific documents (Health Consultations, Public Health Assessments)
- **Created by the CERCLA legislation or "Superfund"**

It Always Starts with a Monday Morning Phone Call

- **A mother calls your office**
- **TCE detected in family's drinking water**
- **Is the health of her 1 year old daughter and 3 year old son at risk?**

Where Can You Look for Immediate Information?

Some sites on the Internet can give you a head start even while you are still on the phone

- **ATSDR TOXFAQs**
- **Bookmark for quick future reference**

ATSDR's Website

- *Go to:*
www.atsdr.cdc.gov

More on the Situation

- **Parent tells you her neighborhood is near a hazardous waste site**
- **Parent reports her children have experienced “unusual” number of headaches and unexplained rashes over the past few years**

Where Can You Find Out More?

- **Is the threat being addressed?**
- **Actual chemical concentrations involved?**

Searching ATSDR's HAZDAT

- **Scientific and administrative database, which contains hazmat sites/releases and public health effects**
- **Three kinds of queries:**
 - “Site Activity”
 - “Site Activity – Sensitive State Map”
 - “Site Contaminant”

ATSDR's HAZDAT

- *Go to:*
www.atsdr.cdc.gov/hazdat.html

What's the Actual Exposure?

- **EPA cleaning up local TCE plume**
- **Bottled water provided recently**
- **TCE contamination ~~is~~ 5 years**
- **Private well sample:**
 - **TCE = 7000 ug/L or ppb (7 mg/L or ppm)**

Is There a Health Threat?

- **ATSDR Minimal Risk Levels (MRLs) can be a starting point for non-cancer health effects**
 - Substance specific
 - Pathway specific
 - Acute, intermediate, and chronic durations
 - Screening levels only
 - Not clean-up or action levels

MRL Definition

“Estimates of the daily human exposure to a hazardous substance that is likely to be without appreciable risk of adverse noncancer health effects over a specified duration of exposure”

MRLs on the Internet

- *Go to:*
www.atsdr.cdc.gov/mrls.html
- **Table includes, by chemical:
Duration, Route, MRL, Factors,
Endpoint, Final Date, and CAS Number**

TCE MRLs (Final 9/97)

- **INHALATION:**
Acute = 2 ppm (factors 30), neurological endpoint
Intermediate = 0.1 ppm (factors 300), neurological endpoint
- **ORAL:**
Acute 0.2 mg/kg/day (factors 300), developmental endpoint

Site-Specific Calculation

- **Could estimate that children had a total dose of ~21 ppm in drinking water for several years (combined oral, inhalation, and dermal exposures)**

$$\frac{\text{Acute oral MRL (0.2 mg/kg/day) x BW (10 kg)}}{1 \text{ L/day}}$$

= 2 mg/L or 2 ppm for a child acute oral exposure (less than 14 days)

What Does This Mean?

- **To take this a step further, you can review the weight of evidence in the literature (e.g., as summarized in the ATSDR Toxicological Profile for TCE)**
 - *Go to:*
<http://www.atsdr.cdc.gov/toxprofiles/tp19.html>
- **My opinion -- level in home well may still be of concern**

Possible Recommendations

- **Bottled water currently removes ingestion pathway**
- **Advise parent about carbon filtration options to reduce air and dermal pathways**
- **Inform EPA about your conclusions**

Medical Consultation?

- **Parent interested in medical consultation with children's pediatrician**
- **ATSDR Office of Child Health's webpage**
 - **Health Promotion and Education Activities**
 - **Links to regional Pediatric Environmental Health Specialty Units**

Pediatric Environmental Health Specialty Units

- *Go to:*
www.atsdr.cdc.gov/child/ochchildhlth.html#dt
- *Or:*
www.aoec.org

Additional Follow Up

- **Consider providing parent hard copies or links for the information you have discussed together**
- **Technical information is often difficult to digest all at once**