



How Are Potential Risks to Human Health Assessed?

◆ Human Health Risk Assessment is an important part of the Superfund process

- Determines the *potential* for cancer and non-cancer health effects, according to EPA guidelines
- Decision-making tool used by EPA and EQB to set cleanup goals
- Does *not* determine if *actual* adverse health effects have occurred, or will occur

1. Collect and evaluate sampling data

- From soil, groundwater, sediments and surface water
- Identify chemicals of potential concern at each site

2. Exposure Assessment

- *How* could people be exposed to chemicals? *Potential exposure pathways* include:
 - Ingestion (drinking water, swallowing dirt on food)
 - Inhalation (breathing dust or vapors)
 - Skin contact
- *When*: how often and for how long
- *Who* could be exposed to chemicals at these sites?
 - People or wildlife that could be exposed are the "*potential receptors*"
 - Depends on how the land and water are used
 - Workers, visitors, and trespassers are the potential receptors now
 - Future unrestricted land use will be evaluated
- People have to be *exposed* to chemicals for a health risk to occur (*complete exposure pathway*)

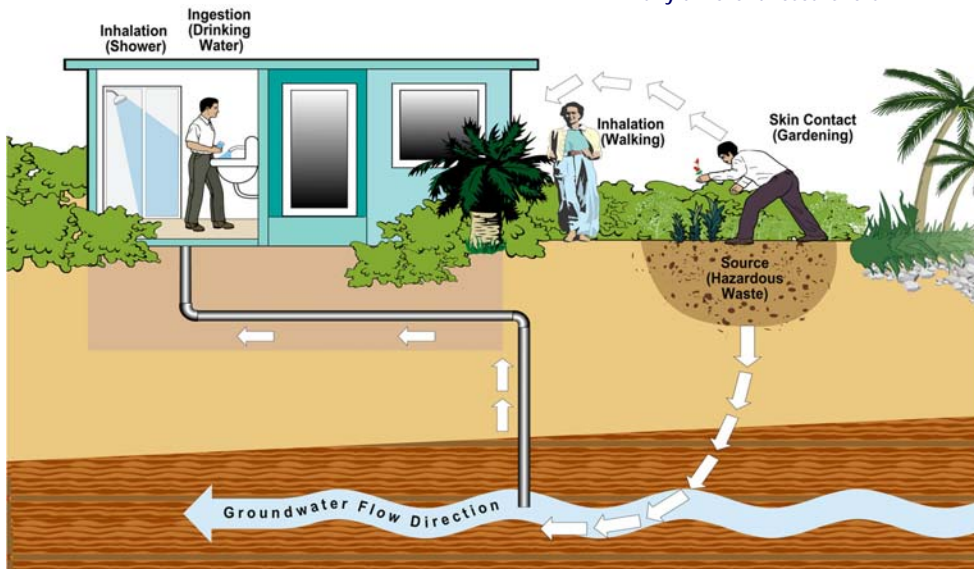
4. Risk Characterization

- Combines results of Exposure Assessment and Toxicity Assessment
- What is the likelihood that adverse health effects could occur in people who are exposed to chemicals at a site?
- Risks are added up across all chemicals and all pathways
- Overall risk for each *potential receptor* is compared to acceptable levels defined by EPA

Four Steps in the Process:

3. Toxicity Assessment

- For each chemical, EPA provides standards for calculating cancer risks and estimating non-cancer health hazards
- Standards are based on independent studies by many different researchers



◆ Ecological Risk Assessment is a similar process

- Looks at pathways and effects on wildlife



SOURCE

COMPLETE EXPOSURE PATHWAY

RECEPTORS

