HUMAN EI

Objectives

Participants will:

- Become familiar with the new EI guidance via discussions, scenarios, and regional experiences
- Use the new EI guidance on real-world case study

Current Human Exposures Under Control EI

Key components:

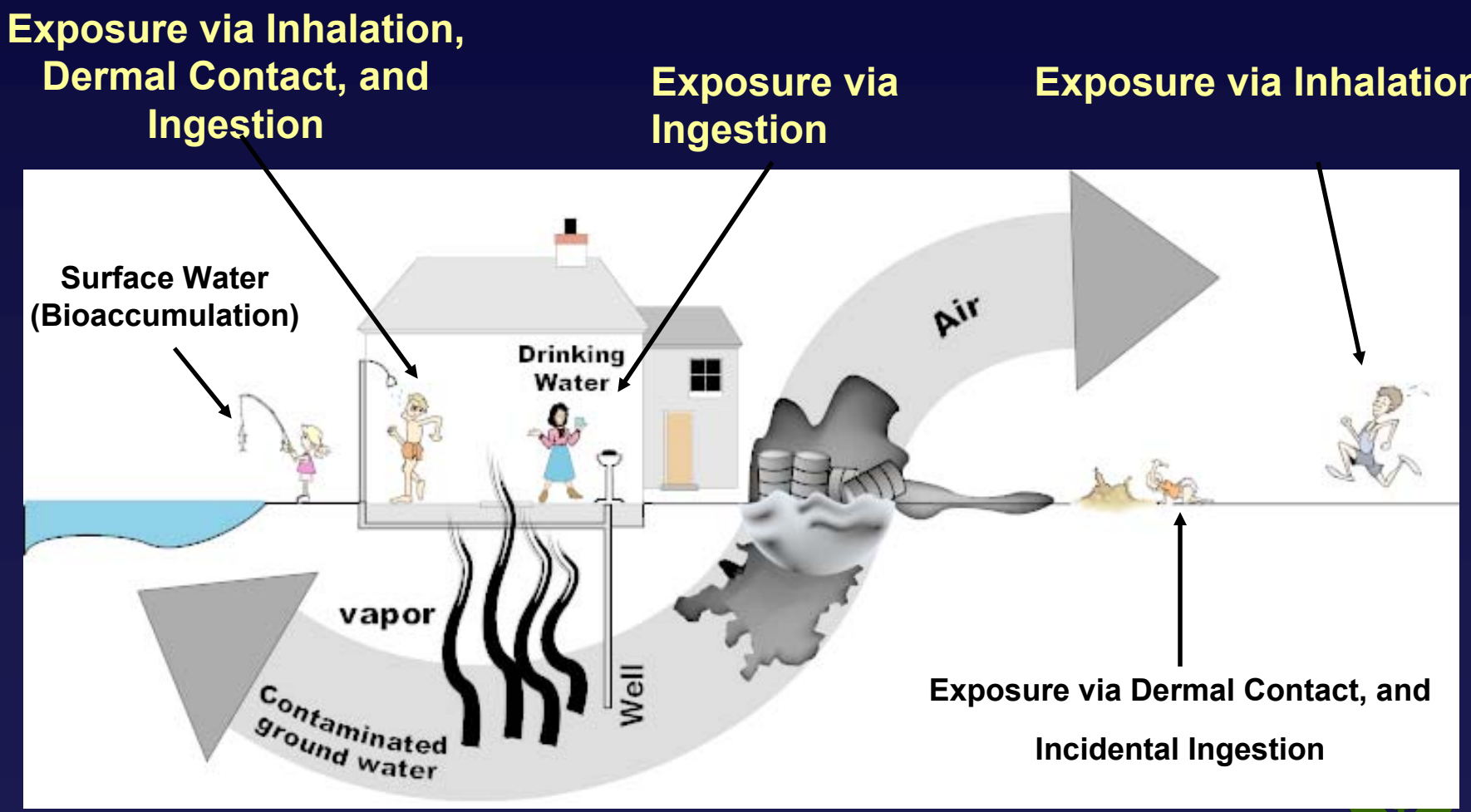
- Intended to be realistic, risk-based evaluation
- Based on actual, “current” land use, not hypothetical or future land uses
- Looks at complete exposure pathways resulting in human exposure to levels of contaminants giving rise to unacceptable risk
- No ecological risk evaluated (eco-risk EI possible in future)

Current Human Exposures Under Control EI (Cont.)

Key components (continued):

- All media need to be considered (soil, sediment, water, air).
- A number of potential exposure pathways need to be considered if realistic (e.g., actual groundwater use to be considered).
- A number of potential exposure scenarios need to be considered if realistic (consistent with current actual land use).

Some Principal Pathways to be Considered for "Current Human Exposures Under Control"



Human Exposures EI Evaluation and Documentation Guidance

Tiered five-step screening process:

- has all relevant data been evaluated?
- any media contaminated above appropriate risk-based levels ("contamination")?
- are there complete pathways between humans and "contamination"?
- are exposures expected to be significant?
- have exposures been demonstrated (e.g., quantitatively) to be acceptable?

Exposure Controls for Human Exposures EI

The objective is to reduce 1) concentrations, or 2) exposures (e.g., cut the pathways):

- It is not necessary to investigate all areas if there are exposure controls in place that adequately limit, control, or prevent exposures to the concentrations likely or possibly present
- Optional pathway evaluation worksheet and example controls (early draft available)

Current Human Exposures Under Control EI

Risk:

- Is the probability of an undesirable effect
- For environmental risk, it is the product of contaminant concentrations and exposures (i.e., = Conc. x Exposure) [& Toxicity]
- Can be reduced by controlling either concentrations or exposures
- Acceptability is a societal value judgment
  - Voluntary – Involuntary
  - Benefits – No benefits
  - Well-known – Not familiar
  - Warnings – No warnings

Current Human Exposures Under Control EI

Summary and key communication points:

- Three possible answers (“YE,” “NO,” & “IN”)
- “YE”(s)* exposures are “Under Control”
- A “NO” answer means that Current Human Exposures are Not Under Control
  - we are aware that unacceptable human exposures are currently occurring
  - these conditions should be addressed as soon as possible
- “IN”sufficient data to make a determination

In-depth Review of HUMAN EI

- Current Human Exposures Under Control
- RCRIS code CA725
- Background/Cover memo
- Flowchart
- Questions - slightly abbreviated in slides
- Response criteria - abbreviated in notes
- Full text in 2/5/99 Guidance

HUMAN EI - Question 1

Has all available relevant/significant information on known and reasonably suspected releases

- subject to RCRA Corrective Action (e.g., SWMU, RU, AOC)
- been considered in this EI determination?

A “no brainer” gentle reminder

HUMAN EI - Question 2

Are media (groundwater, soil, surface water, sediments, or air)

- known or reasonably suspected to be "contaminated"?
- above appropriately protective risk-based "levels" (applicable promulgated standards, as well as other appropriate standards, guidelines, or criteria)?
- from releases subject to RCRA Corrective Action (from SWMUs, RUs, or AOCs)?

HUMAN EI - Question 3

Are there “complete pathways” between “contamination” (“Above Levels of Concern” ALC) and human receptors *

- such that exposures can be reasonably expected?
- under the current land- and groundwater-use conditions?

HUMAN EI - Question 4

Can the exposures reasonably be expected to be significant, i.e., magnitude (intensity, frequency and/or duration)?

- An opportunity to use professional qualitative judgment and not require a Quantitative Risk Assessment for every complete pathway
- Most difficult portion of Human EI
- If there is any question consult a Risk Assessment specialist

HUMAN EI - Question 4 (Cont.)

Suggested:

- Semi-quantitative tool for assessing combination of concentrations and exposure magnitudes
- See-Saw Analogy
  - As concentrations go up (above “levels”), exposures had better go down (<< in “levels”)

HUMAN EI - Question 5

- Have the “significant” exposures (identified in Question 4) been shown to be within acceptable limits (i.e., is there a Quantitative Risk Assessment (QRA) demonstrating their acceptability)?
- What exposure limitations/controls are assumed in the QRA?
- What confidence is there in these, and what notification procedures for changes?

HUMAN EI - Question 6

- Check the appropriate RCRIS status codes for Human Exposures EI event code CA 725,
- Obtain supervisor (or appropriate manager) signature and date on the EI determination
- Attach
  - appropriate supporting documentation
  - a map of the facility.