# RISK ASSESSMENT Report Review

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# HOW DO I MAKE SURE I GET A "GOOD" RISK ASSESSMENT?

# Define “Good”

- Representative of site conditions
- Relevant current and future land use
- Realistic and relevant exposure routes
- Reasonable exposure parameters
- Exposure point concentrations representative of exposure domain

# Risk Assessor Involvement

- **Ideally**, get the risk assessor involved while developing the initial sampling plan
- **Definitely**, get the risk assessor involved in the scoping process

# SCOPING

- Determine data needs for risk assessment
  - Modeling parameters
  - Type and location of background samples
  - Preliminary identification of exposure routes
  - Alternate land use
  - Sampling strategies for risk assessment
    - Surface soil
    - Detection limits

# SCOPING (cont.)

"Ensure that the risk assessor reviews and approves the sampling and analysis plan."

RAGS Part A

# DURING SAMPLING

- Provide risk assessor with any preliminary sampling results to determine if sampling needs to be refocused
- Develop a good relationship with risk assessor because you are going to be spending a lot of time together

# DURING PERFORMANCE OF RISK ASSESSMENT

- Develop the COC list (Table 3 RAGS D)
  - confirm appropriate to exclude
- Confirm alternate future land use
- Understand basis for selection of pathways and exposed populations (Table 1 RAGS D)

# DURING PERFORMANCE OF RISK ASSESSMENT

- Facilitate discussions with agency
  - Need for major modeling
  - Site-specific exposure assumptions
  - Non-EPA-derived toxicity values
  - Appropriate level of detail for uncertainty analysis
  - Degree to which uncertainty will be quantified

- Discuss combination of pathway risks and hazard indices
  - *information that **supports** combining pathways*

# HOW TO REVIEW A RISK ASSESSMENT

*OR*

## HOW TO TELL IF THE TREES DIED IN VAIN

# Basics

- Scope of risk assessment activities consistent with complexity of the site
- Adequate site history to support COC selection
- Figures to show site location relative to receptors
- Figures showing sample locations
- Rely on RAGS D tables to guide review

# Data Collection and Evaluation

- Conceptual Site Model
- DQO statement
- Site characteristics to support modeling
- Background samples
- Appropriate areas sampled relevant to exposure areas
- Appropriate sampling depth

# Data Collection and Evaluation

- Hotspot sampling (visual or screening identification)
- QA/QC data provided

# Data Evaluation

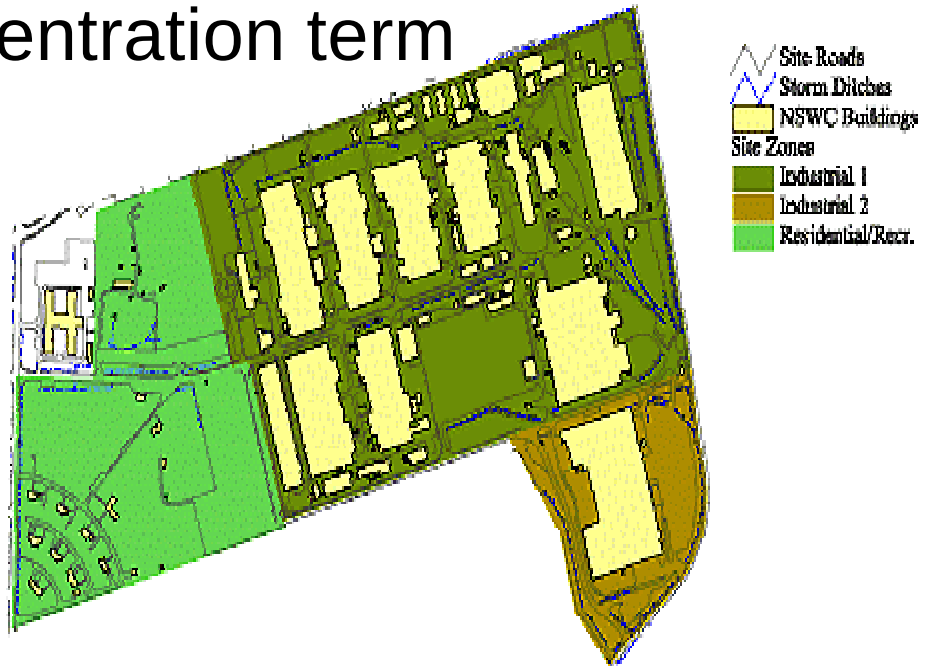
- Rationale for COC selection - RAGS D Table 2
- Appropriate detection limits
- Data qualifiers reported in summary tables
- Quantity of data with qualifiers

# Exposure Assessment

- RME defined
- Current and future land uses considered
- Potential sensitive subpopulations
- Contaminant release mechanisms and migration pathways
- Site-specific characteristics (Runway)

# Exposure Assessment

- Spatial relationship of hotspots to areas of high exposure potential
- Calculation of concentration term
- Site-specific values
- Default values



# Toxicity Assessment

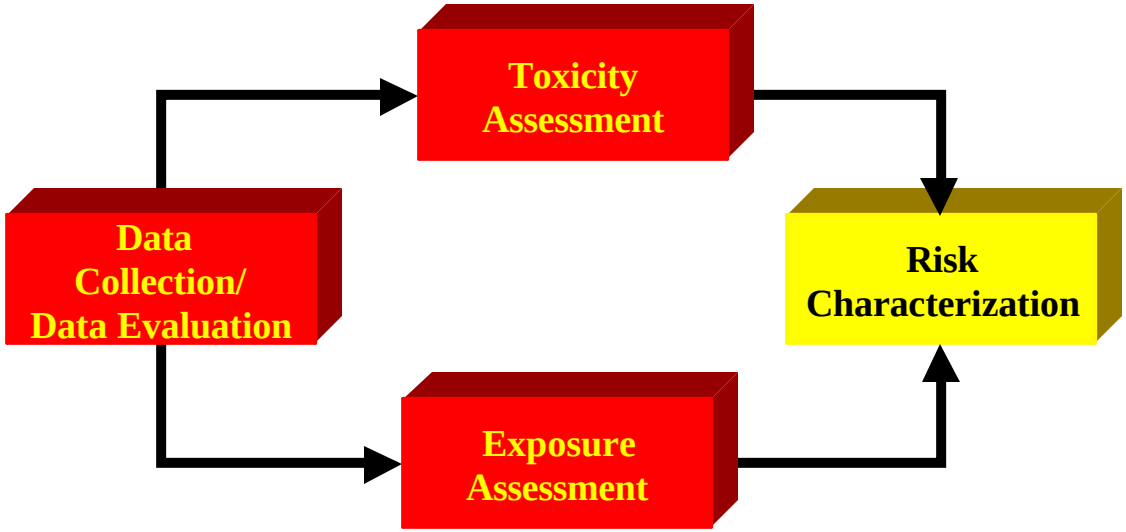
- Appropriate route-to-route extrapolations
- Toxicity values reflect exposure duration (sub chronic, chronic)
- Toxicity values obtained from or consistent with IRIS
- IEUBK for childhood lead exposure
- Adult guidance for lead in older children and adults

# Risk Characterization

- Evaluate the approach and rationale for summing risks across exposure pathways and chemicals
- Verify calculations
  - at least one calculation for carcinogens and one for non-carcinogens to assure spreadsheet correct

# Risk Characterization

- Sources of uncertainty identified
- Qualitative and/or quantitative assessment of uncertainty



# Common Sense

- If an exposure scenario sounds really strange - it probably is
- Don’t assume that the spreadsheet is always right - if the risk for your site seems higher or lower than you expected, verify the inputs and math

# Common Sense

- Use site-specific information whenever available
  - Helps assure that the risks are truly representative of the site
  - Assists in risk communication (the public likes to know that actual site information was used to calculate risks)

# Trust your instincts

Ask questions of your contractors and the regulators.

Risk assessment is a formal process with rules – be creative while following the rules.

# Questions?

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