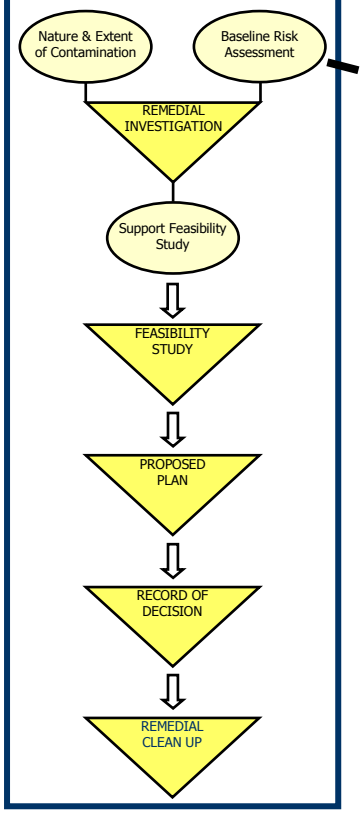
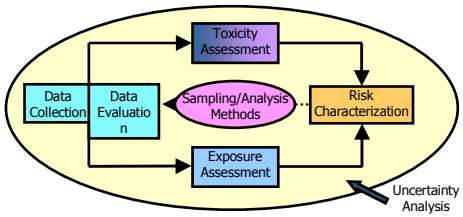
OVERVIEW OF RISK ASSESSMENT APPROACH FOR LIBBY OPERABLE UNIT 4

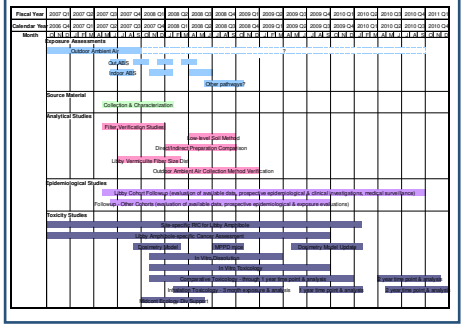
Superfund Remedial Process Long-term Protective Actions



Baseline Human Health Risk Assessment



Libby Technical Studies Timeline



Toxicity Assessment Support Studies

SOURCE MATERIAL COLLECTION & CHARACTERIZATION

TOXICOLOGICAL STUDIES

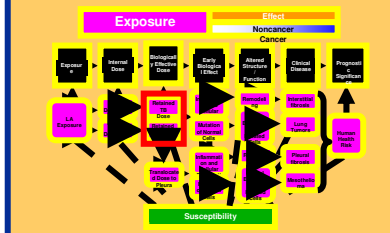
- Libby Amphibole RfC Development
- Libby Amphibole Cancer Assessment
- NHEERL Dosimetry Model
- NHEERL In Vitro Dissolution Assays
- NHEERL In Vitro Toxicity Endpoints
- NHEERL Comparative Toxicology in Mice and Rats
- NHEERL Inhalation Toxicology in Rats

EPIDEMIOLOGICAL STUDIES

- New Epidemiologic Information from Libby Montana Cohort
- New Epidemiologic Information from Other Cohorts

Risk Characterization

1) Draft Conceptual Mode of Action Schematic for Libby Amphibole Asbestos

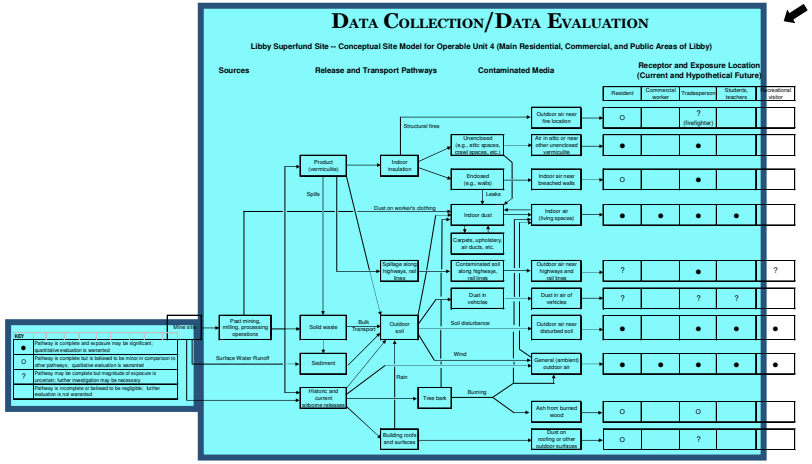


Sampling & Analysis Studies

- Filter Verification Study
- Low-Level Soil Method Development
- Comparison of Direct & Indirect Preparations
- Libby Vermiculite Fiber Size Distribution Evaluation
- Ambient Air Collection Method Verification

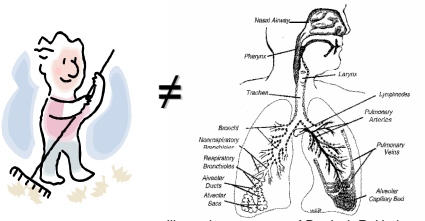
Data Collection/Data Evaluation

Libby Superfund Site -- Conceptual Site Model for Operable Unit 4 (Main Residential, Commercial, and Public Areas of Libby)



Exposure Assessment

- Outdoor Ambient Air Monitoring Program
- Indoor and Outdoor Activity-based Sampling
- Other pathways



Illustrations courtesy of Dr. Jack R. Harkema, Professor of Comparative Pathology, Michigan State University.

- External exposure is not equivalent to internal dose.
- Dosimetry model is based on understanding of biological mechanisms to describe internal dose.
- Model can be applied for more accurate analysis of adverse response(s) to inhalation of Libby Amphibole asbestos.
- Use of model reduces uncertainty and improves risk assessment.

2) OSWER Alternative Approach for Estimating Potency Factors for Lung Cancer and Mesothelioma following Inhalation of Asbestos

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