



---

# Area-Wide Soil Contamination Project

Prepared for  
MTCA Science Advisory Board  
January 12, 2004

# Background

- Early efforts to address arsenic and lead soil contamination
- MTCA Policy Advisory Committee recommended steps to address issue
- Legislature appropriated funds to develop a multi-agency strategy
- Task Force chartered by the four Agencies



# Why was the Project Initiated?

- Many areas where children play have arsenic & lead in soils that exceed state standards for protecting human health
- People are concerned and are seeking information and solutions
  - Children's health
  - Own health
  - Property
- Numerous challenges associated with responding to people's concerns



# Task Force Charter

- Task Force Charge
  - Nature and Extent of Soil Contamination
  - Protective Measures
  - Institutional Frameworks
  - Funding
- Issues Beyond the Scope of the Task Force Charge
  - Current agricultural operations
  - Ground water
  - Cleanup standards



# Views of the Task Force That Shaped Their Recommendations

---

- Reported Levels Perceived as Low Health Risk
- Responses Have the Potential to Disrupt Local Economies/Widespread Soil Removal Viewed as Unreasonable
- Prudent to Take Steps to Reduce the Potential for Exposure for Children and Others
- Integration with Ongoing Activities and Local Processes
- Competing Priorities/No Unfunded Mandates



# Characteristics of Area-Wide Soil Contamination

- Distinguished from areas where smelters were located, properties adjacent to smelters, and where lead arsenate pesticides were mixed
- Generally have arsenic & lead levels higher than naturally occurring and state soil cleanup levels
- Area-wide soil contamination
  - Low-to-moderate levels
  - Widespread areas associated with historic smelter emissions, use of lead arsenate pesticides and use of lead gasoline



# Range of Arsenic Soil Levels

- Smelter Plume Areas
    - Plant Sites: ~ 500 to 75,000 ppm
    - Plume Areas: ~ 2 to 3,000 ppm
  - Orchard Areas
    - ~ Non-Detect to 640 ppm\*
- \* Higher levels have been reported in samples collected from former mixing areas

*Notes: levels are approximate, ppm = parts per million*

# Range of Lead Soil Levels

- Smelter Plume Areas
    - Plant Sites: ~ 1300 to 22,000 ppm
    - Plume Areas: ~ 2 to 4,000 ppm
  - Orchard Areas
    - ~ Non-Detect to 1,000 ppm\*
- \* Higher levels have been reported in samples collected from former mixing areas

*Notes: levels are approximate, ppm = parts per million*

Area-Wide  
Soil  
Contamination



# Task Force Recommendations

---

- Implement Protective Measures that are Integrated with Other Actions
- Implement Protective Measures Using Local Processes
- Conduct Additional Studies to Support Implementation
- Institutional Changes to Support Implementation of Recommendations



# Protective Measures Integrated with Other Activities

High

- Traditional Cleanup Processes and Measures (e.g. removal & containment)
- Institutional Controls and Periodic Review

Low-to-  
Moderate

- Broad-Based Education and Awareness Building
  - Individual Protection Measures
  - Simple Containment Measures
- Containment measures integrated with new construction/renovations
- Periodic Program Review

LOW

- No Further Actions

# Implement Protective Measures Using Local Processes

- Integration With Other Existing Processes
  - School Construction and Operations
  - Land Use Planning and Permitting
  - Child Care Licensing/Assistance (DSHS & local health)
  - Real Estate Transactions/Disclosure
- Potential Roles for Local Health Departments
  - Public Education (integrated with other programs)
  - Identify Areas of Concern/Mapping
  - Child Use Area Sampling and Assistance
  - Blood Lead Monitoring
- Changes to MTCA
  - Area-wide zones
  - Enforcement forbearance



# Additional Studies

- Ecological risks
- Mapping areas of concern
- Effectiveness of public education programs
- Health and exposure studies
- Roadside lead concentrations



# Agency Implementation of the Task Force Recommendations

- Improve public awareness and understanding of area-wide soil contamination concerns & solutions;
- Collect and evaluate information needed to support decisions about reducing the potential for exposure to arsenic and lead in soils;
- Reduce the potential for exposure to arsenic and lead in soils at developed properties (e.g. schools, homes, etc.);
- Reduce the potential for exposure to arsenic and lead in soils at properties under development;
- Improve institutional capabilities for responding to area-wide soil contamination.



# Issues That Might Benefit From Science Advisory Board Review

---

- Planned Discussions:
  - Working Definition of Moderate Levels of Lead and Arsenic
  - Ecological Risks
- Other Possible Topics
  - Measuring the Effectiveness of Public Education Programs
  - Roadside Lead Studies
  - Health and Exposure Studies

