Toxic Chemicals and Toxic Chemical Management in Washington

Carol Kraege, Washington Department of Ecology

Toxic Reduction Strategies Workgroup Meeting

September 28, 2012

Toxic Chemicals and Toxic Chemical Management in Washington

- What Do We Know About Toxics in WA?
  - Chemicals in Our Environment
  - Toxic Release Inventory (TRI) Data
  - Other Sources of Environmental Data
  - Human Health Exposure to Toxics

- How Do We Currently Approach Toxics in WA?
  - Cleanup Programs
  - Management Programs
  - Prevention Programs

What Do We Know About Toxics In Washington?

Chemicals in our Environment

- **Over 84,000 chemical substances** are in EPA's Toxic Substances Control Act (TSCA) Inventory

  But:

  - We lack data on human health and environmental risks for many chemicals
  - We know little about what chemicals are in products
  - TSCA does not require manufacturers to provide data about chemicals' safety

Toxic Release Inventory (TRI) Data

- TRI emissions reports to EPA provide data about large-volume point-source toxic releases
- **18.4 million pounds of toxic chemicals** were released at Washington facilities in 2010
- Most of those chemicals were released to air and land
- **Most prominent TRI releases:**
  - Lead
  - Methanol
  - Barium compounds
  - Hydrochloric acid (acid aerosols)
  - Nitrate compounds

Toxic Release Inventory (TRI) Data

PBT Chemical Releases in Washington by Chemical, 2010

Chemical	On- and Off-Site Disposal or Releases (Pounds)*
Lead	4,373,934
Lead Compounds	185,917
Polychlorinated Biphenyls (PCBs)	61,400
Polycyclic Aromatic Compounds	38,330
Mercury Compounds	717
Benzo(g,h,i)perylene	565
Mercury	40
Tetrabromobisphenol A	12
Dioxin and Dioxin-like Compounds	373 grams
Total	**4,660,917**

*Releases for dioxin and dioxin-like compounds are reported in grams rather than pounds.

Source: U.S. EPA, *TRI Explorer,* 2010 data update as of March 2012, downloaded August 2012, www.epa.gov/tri/.

Other Sources of Environmental Data

Puget Sound Toxics Loading Study:

- Focused on 17 toxic chemicals
- Vast majority of toxics come from non-point sources
- Primary pathway to Puget Sound is stormwater runoff

Ecology's Environmental Information Management (EIM) System:

- Over 12.5 million environmental records, including toxics
- Data is available on air, groundwater, stream habitat, soil, sediment, aquatic animals, and plants

Human Health Exposures to Toxics

CDC's human health exposure studies show that **many toxics are widely present in human tissues.** Examples include:

- BPA, found in plastics
- MTBE, a gasoline additive
- A type of PBDE, a fire retardant
- Perchlorate, used to make explosives
- Perfluororooctanoic acid (PFOA), present in non-stick cookware

For most substances, it is not yet known whether exposure levels represent a health concern

Washington Environmental Biomonitoring Survey (WEBS)

- Washington DOH is measuring chemicals in blood, urine, and other tissues of WA residents
- Testing in the first two years included:
  - Arsenic
  - Pyrethroid and organophosphate pesticide metabolites
  - Other metals
- Results from the first two years are expected in 2012

Key Data Gaps Remain

Little is known about a large number of chemical substances, including:

- Human health impacts
- Levels of exposure
- Extent and nature of chemical uses

How Do We Currently Approach Toxics In Washington?

Cleanup Programs- MTCA

- Since 1980: **cleaned up about 5,300 sites out of 11,000** that have been identified
- **300 new sites identified every year**

- Ecology estimates **almost $2B would be needed over the next 10 years** to cleanup publicly owned or orphaned sites

Cleanup Programs- CWA

- **1,767 water body segments** identified as impaired due to toxic chemicals (water and sediment)

- **32%** of these are being addressed through preparation and implementation of Total Maximum Daily Load (TMDL)

Management Programs

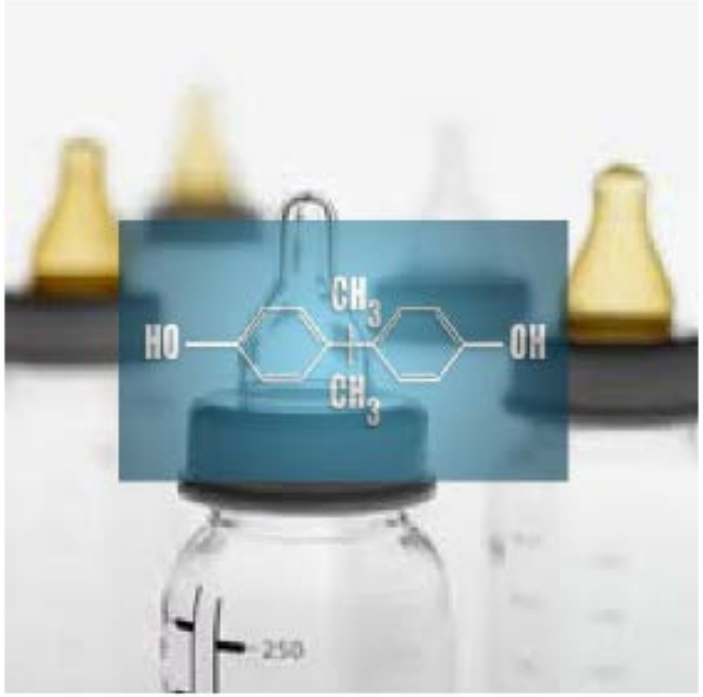
- Permits:
  - Water (surface and storm)
  - Air
  - Hazardous Waste
- Technical Assistance
- Best Management Practices
- Education and Outreach

Prevention Programs

- Pollution Prevention
- Local Source Control
- Wood stove grant program
- Diesel emission reduction grants
- Spill Prevention

Prevention Programs, Continued

- Persistent Bioaccumulative and Toxic Rule
- Children's Safe Products Act
- Chemical Bans
- Alternatives Assessment Guidance
- Education and Outreach



Questions and Discussion