Southwest Clean Air Agency

St. Helens Elementary Monitoring Meeting
March 15, 2011

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About SWCAA

Southwest Clean Air Agency

Serving Clark, Cowlitz, Wahkiakum, Lewis and Skamania Counties

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SWCAA
Programs & Services

- Public Information & Education
- Outdoor Air Quality Complaint Response & Enforcement
- Outdoor Burning
- Wood Stoves
- Asbestos
- Industry Compliance* - includes business assistance, air operating permits, enforcement

*except pulp and paper

Outline

- Compare school results to other air toxics monitoring
- Historical particulate monitoring in Longview
- Air Toxics sources in the Longview/Kelso area

Monitoring in Longview

- School Air Toxics (SAT) Study – St. Helens Elementary - 2009 – shorter term (~10 samples, ~2 months)
- Longview Air Toxics (LAT) Study – Longview City Shops - May 2004 to May 2005
- Particulate Matter – Olympic School – presenting 15 years of history
  - can see current and three day history for $PM_{2.5}$ on our website at http://www.swcleanair.org/airqualindex.html

Longview Air Toxics Study (LAT)

- Results: similar to other urban areas of the state
- Those air toxics that were above health screening levels were
  - ***Acetaldehyde***
  - ***Arsenic***
  - ***Benzene***
  - ***Formaldehyde***
  - ***Manganese***

Study results available on our website:
http://www.swcleanair.org/toxics.html

Compare Air Toxics Studies

- Compared SAT to LAT samples taken during same time period
  - September through November 2004
  - September through November 2009
- Compare both studies to National Air Toxics Trends Station (NATTS) Network
- NATTS Sites chosen so as **not** to be impacted by specific, nearby sources
- In SAT study- location chosen close to industrial site *specifically* to evaluate the potential impact from nearby source

Comparing air toxics studies

Pollutant	***NATTs*, arithmetic mean, µg/m³***	***LAT (Sept-Nov 2004), average, µg/m³***	***SAT (Sept-Nov 2009) average, µg/m³***
Acetaldehyde	1.87	0.88	1.58
Formaldehyde	3.09	0.81	1.62
Manganese	10.39	4.45	5.03
Nickel	2.05	1.06	1.33
Benzene	1.03	0.98	1.02

LAT = Longview Toxics study, SAT = School Air Toxics study

*28 NATTS sites, 2004-2008

Comparisons

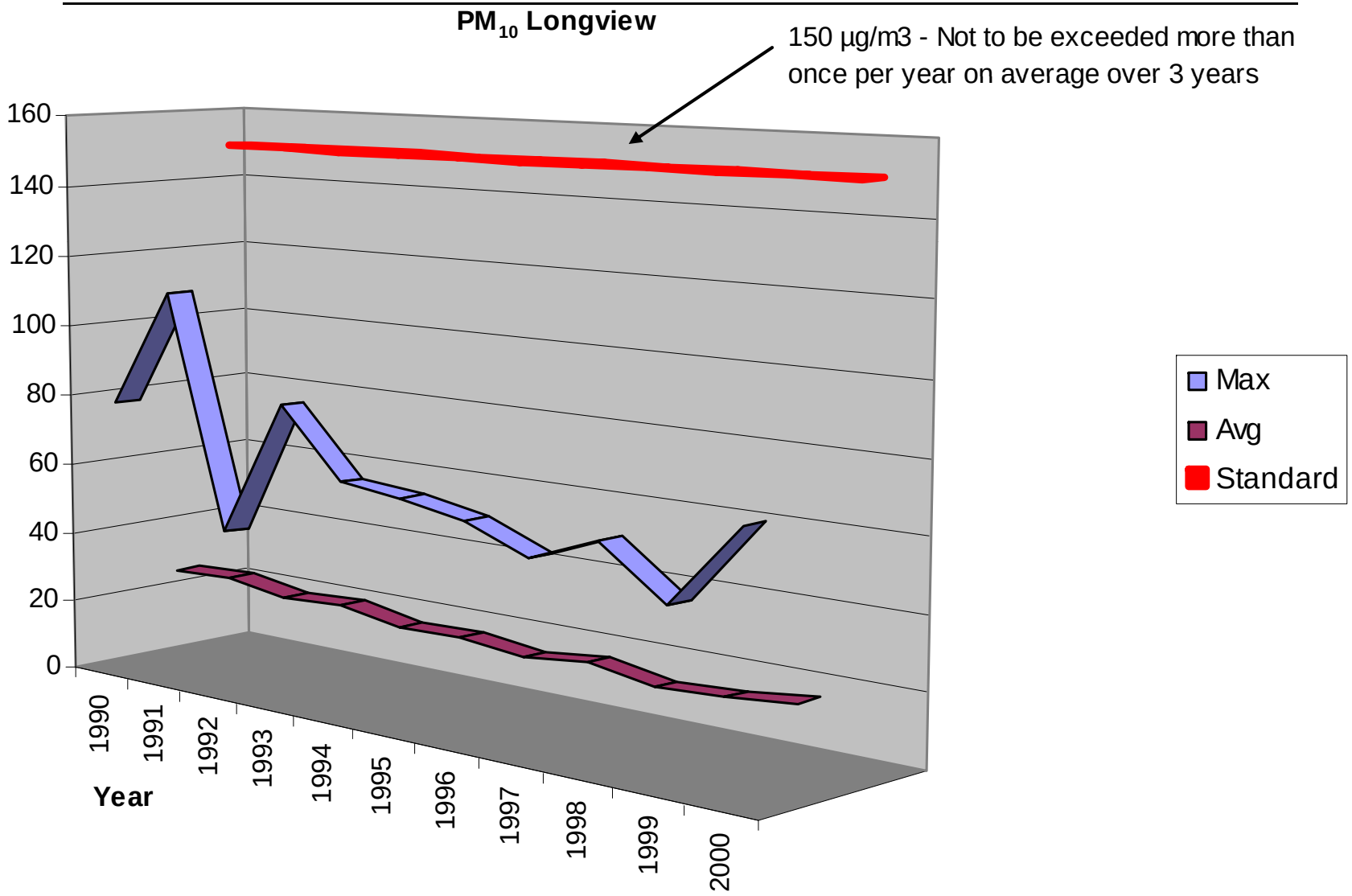
- Both LAT and SAT study results near or below NATTS sites
- *(keep in mind we are comparing four year average to a ten week and a one year study)*

Particulate Matter Monitoring in Longview

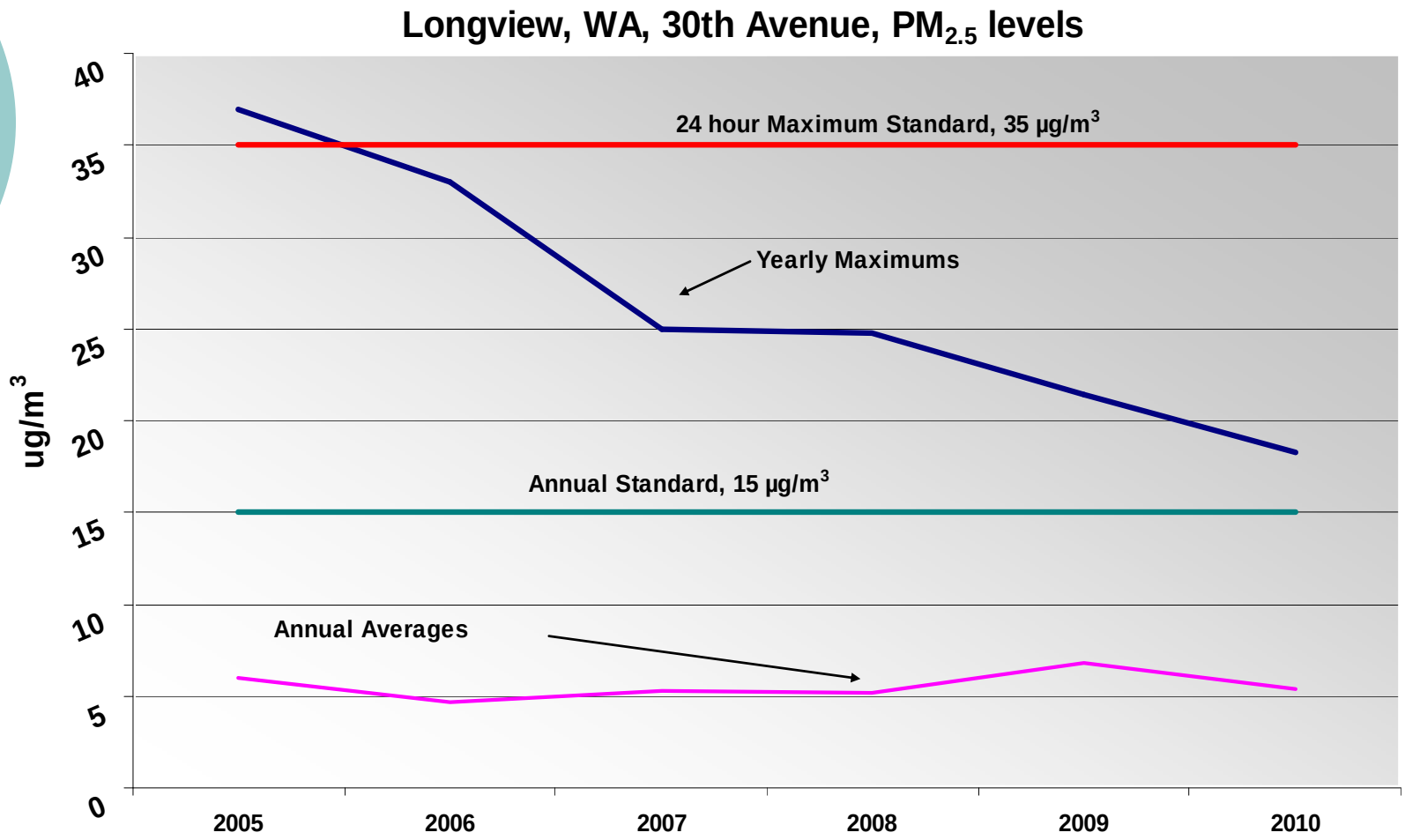
- PM_{10} = Particulate Matter 10 microns or less
- $PM_{2.5}$ = Particulate Matter 2.5 microns or less
  - Note: Smaller particles can go deeper into the lungs

- Particulate Matter Data trends
  - Olympic School
    - PM_{10} data 1990-2000
    - $PM_{2.5}$ data 2005-2010

Particulate Matter, 1990-2000



$PM_{2.5}$ Monitoring, 2005-2010



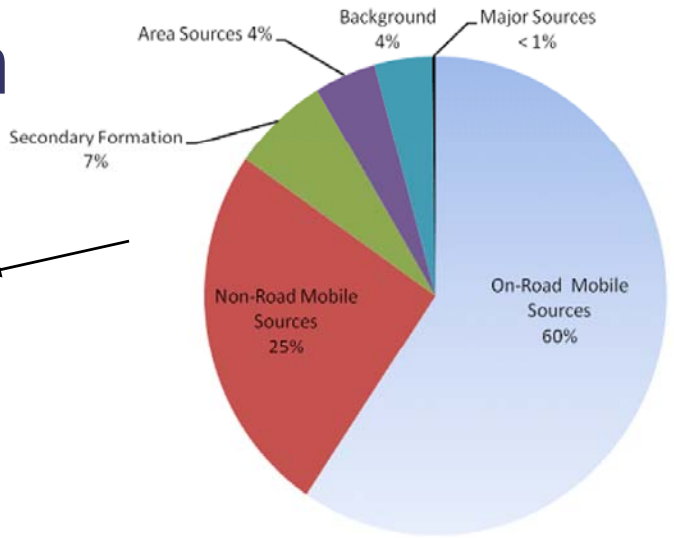
Annual standard = annual 3 year average

24 hour standard = 3 year average, 98th percentile of 24-hour averages

Particulate Matter, Longview

- *Note: an exceedance is not a violation because the annual standard is based on a three year average of monitoring values*
- *No violation of particulate matter standards in Longview*
- See supplemental information sheet for more background

Source Type & Contribution to Health Risk, %



Ecology publication number: 09-02-014 – 2002
NATA Data, page 4

- On-road Mobile Sources: Cars and trucks (**60%**)
- Area sources: (4%)
  - Woodstoves, outdoor burning
  - Small businesses (gas stations, etc.)
- Nonroad engines: construction, mining, trains, planes (25 %)
- Background estimate: natural and distant sources (4%)
- Secondary Formation: (7%)
- Major Industrial sources: (<1%)

Cars, trucks emitting less; fuels cleaner

- New fuel standards will reduce risk
  - Reduced levels of benzene required in gasoline by 2012
    - (Mobile Source Air Toxics final rule 2/2007)
  - Newer cars have on board vapor recovery
  - Less sulfur allowed in diesel fuel
    - Reduces both SO_2 and particulate matter
- Proposed car emission standards (CAFE) results in cars emitting even less pollution

Nonroad engines: ULSD* now required

- Nonroad engines: construction, mining equipment, rolling stock
- Represents 25% of cancer risk
- Nonroad engines required to use ULSD* (15 ppm sulfur) starting in June 2010 (note: less sulfur, less particulate)
- Phase in complete by October 2010

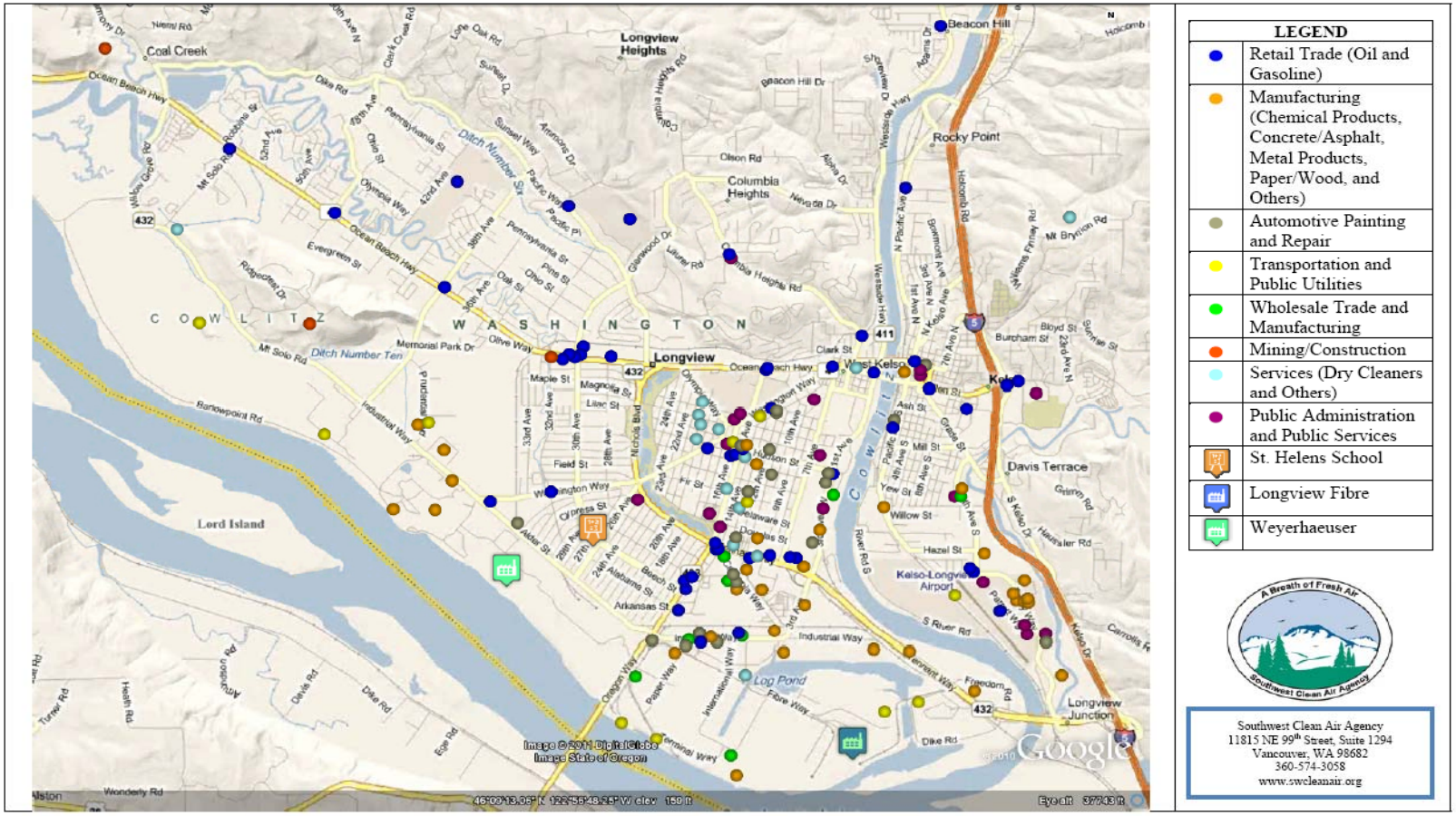
*Ultra Low Sulfur Diesel

Air Toxics Sources in Longview/Kelso

- SWCAA regulated sources
  - Small businesses
    - Autobody shops, dry cleaners, machine shops
  - Gas stations, machine, fabrication shops
  - Manufacturing
    - Wood products, Concrete, Chemicals, Foundries,
  - Transportation/Public Utilities Public works
    - Wastewater treatment, power generation, Port of Longview
  - Generators, Boilers
    - Office buildings, apartments, school districts, government
- Does not show cars, trucks or woodstoves

Sources of Air Toxics, Longview/ Kelso

Toxic Air Pollutant (TAP) Sources by Category (2008), Longview/Kelso, Washington



See maps on wall

2008 TAPs from Cowlitz County Gas Stations

- Summed emissions from Gas stations, (from delivery and pumping of gas)
  - TAPs - 64 tons

Emissions related but not equal to concentrations

Emissions + dispersion (*weather and topography)* + *proximity* = concentrations at ground level

- In general, *dispersion of pollutants increases with distance from the source*
- Dilution also takes place
- Cold, clear winter days and nights with stagnant conditions are days with highest concentrations (inversion risk)
- Hot, summer days with no wind also can have poor air quality (inversion risk)

Industrial Sources

- Major Industrial Sources are not the largest source of air toxics risk *anymore* (only 1% of air toxics risk)
- WA Dept of Ecology contacts:
  - Longview Fibre –Marc Heffner– 360-401-6773
  - Weyerhaeuser – Mark Crooks - 360-407-6934

Other efforts to reduce risk from air toxics in diesel particulate in Cowlitz Co.

- Diesel Retrofits
  - School Buses, Longview/Kelso (2003-2009)> 50 DOCs, >30 CCVs, 12 DMFs*
  - School Bus Replacement Grant (2009), Longview $60,000
  - Local Governments
    - City of Longview – maintenance fleet
    - Cowlitz 2 Fire and Rescue
    - Community Urban Bus System (CUBS)
    - City of Kelso
    - WS DOT Kelso

*CCVs= Crankcase Ventilation Systems

DOC – Diesel Oxidation Catalysts

DMF = Diesel Multistage Filters

Community Programs

- Anti idling programs
  - Schools
    - Signs posted St. Helens Elementary Spring 2009
    - Signs posted at Longview, Castle Rock and Toutle Lake School Districts
  - Cowlitz Community Health Workgroup - Healthy Homes Program
    - *Focusing on anti idling*
      - Contact: Amber Rosewood – 360-414-5581
      - Get involved!

What can I do to reduce risk from air toxics?

- At home or work:
  - Read the label and buy local
  - Use products wisely
  - Go to environmentally friendly businesses
  - Talk to others
  - Be a knowledgeable consumer (know true transportation, manufacturing costs, chemical content of products you buy)
  - Minimize or eliminate wood burning
  - Keep stored gasoline and chemicals tightly sealed, away from living areas

What can I do to reduce risk?

- In your car:
  - Buy a fuel-efficient car with onboard vapor recovery (reduces emissions from engine and fuel pumping)
  - Do not overfill your gas tank (releases toxic vapors)
  - Drive less or combine trips (reduces emissions from engines)
  - Limit idling (reduces emissions)
  - Keep tuned-up (improves mileage)
  - Keep tires properly inflated (improves mileage)

Toxics levels declining nationwide, concentrations can vary widely locally

- EPA, website*
- *From 1990 to 2005, emissions of air toxics in the United States declined 41 percent, as a result of federal and state regulations, along with local emission reduction programs. Levels of air toxics, however, can vary widely from place to place depending upon a number of factors including the amount and types of industry nearby, proximity to heavily traveled or congested roadways, and weather patterns.*

*http://www.epa.gov/schoolair/about.html

Conclusions

- Values from the two Longview studies were similar or lower than national monitoring site averages
- The good news is that the levels at the school were not as high as the models predicted or as bad as was feared after the USA Today article was published in December 2008
- SWCAA, Ecology and EPA will continue to work towards reducing air toxics

Questions?

- Thank you
- Acknowledgements: thanks to
  - Longview School District, Southwest Clean Air Agency, Environmental Protection Agency, Washington Department of Ecology, Cowlitz County Department of Health and the Ethnic Support Council

DEPARTMENT OF ECOLOGY
State of Washington