Michigan’s Experience with Air Toxics in Schools
[the good, the bad, and the ugly]

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THREE QUOTES

- Harmony seldom makes a headline.
  - Silas Bent (1882-1945)

- So near is falsehood to truth that a wise man would do well not to trust himself on the narrow edge.
  - Cicero (106 BC - 43 BC)

- The perfect is the enemy of the good.
  - Voltaire (1694-1778)
THE
GOOD
Aligning Our Clean Air Efforts

- Sharing air toxics information with public is vital. The media must take care not to portray complex issues in a way that confuses/misleads the general public.

- Air toxics concerns can be Environmental Justice (EJ) issues. Note improvements have occurred.

- EPA management currently driven by focus on policy. Good policy is not necessarily the same as good science.

- Michigan communicates quality assured air toxics data to residents. Our air agency works to improve public communication efforts despite huge reductions in staff and funding.
The media’s job is to interest the public in the public interest.

– John Dewey
EPA's Mission:

The mission of EPA is to protect human health and to safeguard the natural environment -- air, water and land -- upon which life depends.

Seven Priorities
1. Climate change action
2. Improve Air Quality
3. Assure the Safety of Chemicals
4. Clean up Communities
5. Protect America’s Waters
6. Environmentalism and EJ
7. Build strong State and Tribal Partnerships
DNRE Air Division’s Mission:

- Meet & maintain air standards
- Limit emissions of hazardous and toxic air pollutants
- Keep the public informed about air quality conditions

Work with business and the public to identify and reduce outdoor air pollution problems.

www.michigan.gov/deqair
Environmental Justice:

Michigan definition of Environmental Justice:
“The fair, non-discriminatory treatment and meaningful involvement of Michigan residents regarding the development, implementation, and enforcement of environmental laws, regulations, and policies by the state.”

EPA definition of Environmental Justice: “The fair treatment of people of all races and incomes with respect to development, implementation, and enforcement of environmental laws, regulations, and policies.”

*definitions are essentially the same*
Keep in mind ...

- Air agencies **must** follow federal laws, guidelines, protocol & accepted scientific procedures for air monitoring.
- Air agency staff are experienced.
- The monitoring process is transparent, QA-QC’d, and open to scientific review.
- EPA, Environmental Groups and the Media place unrealistic expectations on air agencies considering limited budgets and overwhelming workload.
Detroit is well studied ...

SE Michigan is extensively studied. Government and academic air monitoring & air toxics studies are being conducted regarding both outdoor and indoor air.

Over 40 studies help evaluate air quality. Scientifically designed studies help determine where the greatest risk exists.

DNRE, EPA, academia and others work closely with local communities to communicate air monitor/toxics information.

Air monitor vest from EPA’s DEARS study

Detroit Air Toxic Initiative Summaries in English, Spanish and Arabic
THE
BAD
Initial USA Today articles:

‘The Smokestack Effect: Toxic Air and America’s Schools’

Began in Dec 2008

The result – it generated fear
<table>
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<tr>
<th>USA Today articles ... so far</th>
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<tr>
<td>‘<em>The Smokestack Effect: Toxic Air and America's Schools</em>’</td>
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<td>1. Schools near industry face chemical peril 12-7-2008; rev 12-10-2008</td>
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<td>2. 'Weird' smell set off investigation at Ohio school 12-7-2008; rev 12-8-2008</td>
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<td>3. No one knows what level of chemicals harms children 12-7-2008; rev 12-8-2008</td>
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<td>5. What USA today monitors found</td>
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<td>6. Officials vow air near schools will be tested for toxics 12-9-2008; rev 12-10-2008</td>
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<td>7. Cooperation helped Louisville pull off a cleanup coup 12-16-2008; rev 12-17-2008</td>
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<td>8. Young students often most vulnerable to toxic air 12-21-2008; rev 12-22-2008</td>
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<td>9. Possible air hazards rarely considered in plans for schools 12-29-2008; rev 12-30-2008</td>
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<td>10. EPA nominee pledges to address toxic hot spots around schools 1-14-2009; rev 1-14-2009</td>
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<td>11. EPA nominee pledges to use science 1-14-2009; rev 1-15-2009</td>
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<td>12. EPA: Air tests near schools a priority 3-1-2009; rev 3-5-2009</td>
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<td>13. States' tests of air questioned 3-4-2009; rev 3-5-2009</td>
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<td>14. EPA announces schools for air quality checks 3-30-2009; rev 3-31-2009</td>
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<td>15. Schools glad to have EPA sample air 3-30-2009; rev 3-31-2009</td>
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<td>16. EPA to review system gauging air emissions 4-16-2009; rev 4-16-2009</td>
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<td>17. Toxic 'carbon tet' lingers in air near schools 5-19-2009; rev 5-20-2009</td>
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<td>18. EPA study: 2.2M live in areas where air poses cancer risk 6-23-2009; rev 7-26-2009</td>
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<td>20. <strong>Chemical found in air outside 15 schools</strong> 9-30-2009; rev 10-1-2009</td>
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<td>23. EPA vows to do all it can for school's air 1-22-2010</td>
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While all the USA Today articles generated public concern, this one alarmed a SE MI community.
"Chemical Found In Air Outside 15 Schools"

Excerpts: “... chemical that once was weaponized, acrolein, can exacerbate asthma and irritate the eyes and throat. It is a byproduct of burning gasoline, wood and cigarettes, but the EPA has not yet determined the specific sources …”

“The highest level was recorded in August at Spain Elementary School in Detroit. On Wednesday, the 830 students at Spain were paying homage to the late Michael Jackson when Principal Ronald Alexander heard about the monitoring results. "We've had a very marvelous day today, but this is a concern," he said of the acrolein levels.”
Our Reaction to the article ... Utter Frustration!

Acrolein information reported for Detroit was **wrong**! EPA equipment had failed QA; however, collocated data from AVOC sampler [analyzed by the same lab] showed actual values to be well below the level of concern.

SO ... the community around Spain School was unnecessarily upset by releasing data that hadn’t been fully QA/QC’d [and which had earlier been identified as ‘suspect’ by DNRE staff].

The environmental **injustice** here is that for six months there have been no subsequent news items to dispel the local community concerns regarding acrolein levels.
Our problem with the article regarding acrolein ...

- Data released by EPA to USA Today was bad – and still has not been corrected.
- USA Today didn’t mention air improvements to local air quality. Trends indicate:
  1. Air emissions greatly reduced. Vehicles are cleaner & dirty ol’ industries got cleaned up ... or shut down.
  2. Power plants and industries in area have invested hundreds of millions of dollars for controls.
Our problem with USA Today series reporting is overall style & conclusions

- The media (much like some environmental organizations) did **not** report air data in the manner prescribed by federal air rules. Monitoring technology used by USA Today does not conform to the specifications established in the *Technical Assistance Document* for the National Air Toxics Trend Network. Specifically …
  - Model results were misrepresented.
  - Models ignored other air emissions.
  - Implied 'ranking equals risk'.

- Models must be used correctly and be directly related to actual data.

- Fit the tool to the task; **how** a tool is used is r-e-a-l-l-y important.
Comparative exposure risk not evaluated. For example, in regard to benzene, no info or comparison of relative risks from other toxic emissions were considered.

Those identifying risk were never identified. MDNRE found it difficult to respond to claims by “Dr. X”, the unidentified (expert?) scientist and his mysterious calculation methods.

Journalism needs a “bad guy”. Unfortunately, if it bleeds, it leads. It’s easy to target the state or local air agency as being “unresponsive”.
Public confusion ...

- Public just wants to know, “Is my air dirty?” and they have not been getting complete and honest answers.

- General public doesn’t understand that ranking alone doesn’t signify bad air. Three locations can meet every air health standard … and one will always have the “worst” air.

- Implication is all it takes to “stir the pot”. Once riled, the public won’t believe the truth.
Public confusion ...

When measuring environmental air toxics, it isn’t always clear who the responsible “culprit” is. Emissions that impact a community come from a myriad of sources ... and the worst polluter isn’t always a smokestack industry.
the UGLY
... and beyond
What we’re really seeing at two Schools in MI ...

‘Our job is to protect the American public where they live, work and play – and that certainly includes protecting schoolchildren where they learn.’ Administrator Lisa P. Jackson

As part of a new air toxics monitoring initiative, EPA, state and local air pollution control agencies will monitor the outdoor air around schools for pollutants known as toxic air pollutants, or air toxics. The Clean Air Act includes a list of 187 of these pollutants. Air toxics are of potential concern because exposure to high levels of these pollutants over many decades could result in long-term health effects.

EPA selected schools after evaluating a number of factors including results from an EPA computer modeling analysis, the mix of pollution sources near the schools, results from an analysis conducted for a recent newspaper series on air toxics at schools, and information from state and local air pollution agencies.

EPA and our partners at state and local air pollution control agencies will:

- collect samples of outdoor air near selected schools over 50 days,
- analyze those samples for air toxics of potential concern,
- report on levels of air toxics found and their potential for long-term health impacts,
- evaluate actions that may be needed to reduce levels of pollutants of concern, and
- take action as needed to ensure that nearby industries are in compliance with clean air regulations.

Part of EPA’s mission is to reduce the amount of toxic air pollutants in the air we breathe. For several decades we have issued rules and regulations that have cut emissions of these compounds from automobiles, trucks, buses, and a wide array of industries ranging from large facilities like chemical plants, refineries, paper plants, and factories, to smaller facilities like gasoline stations and dry cleaners.

From 1990 to 2005, emissions of air toxics in the United States declined 41 percent, as a result of federal and state regulations, and local emission reduction programs. However, levels of different air toxics 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. This study will help us better understand the air around selected schools throughout the country.

This web site provides information on this initiative, the schools where we plan to begin monitoring, background information on air toxics, and links to other programs EPA has in place to protect communities and school environments. When monitoring results are available, likely starting in summer 2009 for some schools, EPA will post them on this site.

**About the Project** - Fact sheet summarizing the key components of this initiative

**Basic Information** - Background on EPA’s assessment of outdoor air near schools

**Map of Schools** - Identifies the locations of the schools where outdoor air will be monitored

**List of Schools** - School names, locations, and pollutants to be monitored in tabular form

**Monitored Pollutants** - Information about pollutants EPA will monitor in outdoor air

**Children’s Health Issues** - Information of air quality, children’s health, and programs EPA sponsors for schools and children

**What You Can Do** - Actions you can take to reduce air pollution
Air Toxics Monitoring @ 2 Michigan Schools

Two sites established:

**MUSKEGON**
Lincoln Park Elementary

**DETROIT**
Spain Elementary
DETROIT: Spain Elementary

Results of valid samples: All monitored toxic air pollutants are WELL below the level of concern.

- Key Pollutant **1,3-Butadiene** (Micrograms/cubic meter) **Sample Screening Level:** 20
  Samples 1-10: 0.051; 0.073; 0.053; 0.040; 0.038; 0.035; **0.075**; 0.11; 0.075; 0.16

- Key Pollutant **Benzene** (Micrograms/cubic meter) **Sample Screening Level:** 30
  Samples 1-10: 0.627; 0.540; 0.540; 0.607; 0.352; 0.336; 0.617; 0.649; **0.674**; 1.30

**NOTE:** According to USA Today, Spain is ranked in USA Today’s 21st percentile and was reported as having the highest acrolein levels in the nation!

Acrolein data is absent from the Spain School webpage … the bad data value of 9.31 µg/m3 released to and by USA TODAY was deleted due to QA; collocated valid data clearly illustrates levels that day were well below the 7 µg/m3 “level of concern” The collocated data from the AVOCs monitor on that date: **1.38 µg/m3**

Air Monitoring staff experts react to erroneous news articles ✰
Results of valid samples: All monitored toxic air pollutants are WELL below the level of concern.

- Key Pollutant Chromium (Nanograms/cubic meter) Sample Screening Level: 580
  Samples 1-18: 0.0160; 0.0269; 0.0971; ND; 0.057; --; 0.0384; 0.0097; 0.0346; 0.0104; 1.58; 0.592; 0.0839; ND; --; 0.0147; 0.105; 0.0264

- Key Pollutant Cobalt (Nanograms/cubic meter) Sample Screening Level: 100
  Samples 1-15: --; --; 0.27; --; 1.11; 0.33; 0.06; 0.02; 1.87; 2.02; 2.28; 0.11; --; --; 0.04

- Key Pollutant Nickel (Nanograms/cubic meter) Sample Screening Level: 200
  Samples 1-15: --; --; 0.47; --; 4.14; 1.30; 0.47; 0.22; 10.9; 12.6; 2.35; 0.99; --; --; 0.10

- Pollutant Manganese (Nanoograms/cubic meter) Sample Screening Level: 500
  Samples 1-10: 1.04; -- ; 9.39; 22.9; 60.6; 2.83; 34.3; 2.88; 1.76 ; 7.11 ; -- ;-- ; 5.06

NOTE: According to USA Today, Lincoln is ranked in 1st percentile and ‘supposed’ to be one of the nations worst schools!  
Data collected does not support that assessment.
"Perception may be Reality", but ... Credibility is Everything!

We in Michigan’s DNRE Air Quality Division provide monitoring data that is: Real ... Accurate ... Quality Assured.

Nevertheless, who does the public believe?

PERHAPS THE REAL QUESTION IS:

Has the inaccurate representation of air quality in our communities created a “boy who cried wolf” situation? Will the public believe any of us to be credible when a “genuine” air toxics issue surfaces?
Working together toward a clearer future
Tips for reporting air quality information ...

- **Only** report data from scientifically accurate & transparent efforts. Good research can withstand peer review.
  - Use EPA (state/local agency) data and models correctly.
  - Use comparable monitoring tools.
  - Provide balance – recognize limitations of evaluation tools.

- **Report “good news”; air quality improvements too.**
  - Don’t report old data when newer information is available.

- **Don't be afraid to admit that quick fixes are often 'not'.**
  - Snapshots can blur the picture
  - Some types of monitoring takes time … do it right!

- **Talk/Work with state & local air agencies early on.**
  - Be objective
  - Conclusions should not be made prior to interaction.
  - Knowledgeable staff input adds integrity to reporting.
We all want better air - especially for our children. Science remains the best driver of message & actions.

Air agencies have limited resources during these tough economic times. Staff time used to “correct” misinformation, delays improvements.

We ALL need to work together toward the universal goal of clean air … which must be achieved within the framework of established scientific principles.

A witty saying proves nothing.

- Voltaire (1694-1778)
Do your share to clean the air … because MIair is Your air!