

# Sensible Lead Monitoring

## Alternatives to the Proposed Rule

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NACAA Monitoring Steering Committee Meeting  
Essex Junction, VT June 19-20, 2008

## Indicator:

The concept of choosing a single specific “indicator” for Lead should be revised.

*“In considering these issues concerning the appropriate indicator, EPA takes note of previous Agency conclusions that the health evidence indicates that Pb in all particle size fractions, not just respirable Pb, contributes to Pb in blood and to associated health effects.” CFR 2E1 Pg 29231.*

There is precedence for the existence of simultaneous health related NAAQS for both PM-10, PM-2.5 and in many States TSP as well. The NAAQS for each of these particle sizes should have a health based Pb standard associated with the gravimetric standard.

If the health community cannot determine a specific standard for each size fraction then the same Pb concentration standard could be used for each particle size fraction.

## Network Design (1):

The Pb monitoring network is being designed as a source oriented network that includes a smaller public exposure component for the largest urban areas.

The issue with Pb sources is that they can release Pb in particles that are very large such as from a smelter or very small such as from a ceramics manufacturer. The monitoring network needs the flexibility to monitor specific Pb source categories with appropriate particle monitors.

For Pb sources that can emit particles larger than PM-10, the monitoring network must be able to capture the near source worst case exposure to neighboring residents. The emissions from these sources tend to vary tremendously due to the variable nature of the processes which create the particles as well as due to the strong depositional losses and variability due to meteorology.

## Network Design (2):

1. For source categories that potentially produce particles  $>$  than PM-10
  - Use TSP (high or low vol) and locate monitor at expected maximum impact (geographical area)
  - Collect sample at 1/3 if data is  $>$  50% of standard
  - Collect sample at 1/6 if data is  $<$  50% of standard  
(if data is highly variable, allow RA to retain 1/3 day collection)
  
2. For source categories that potentially produce particles  $<$  than PM-10
  - Use PM-10 (high or low vol) and locate monitor at expected maximum impact to a population. The longer travel distances for PM-10 allow the monitors to be placed at sites further from the sources and closer to representative impacted populations.
  - Collect sample at 1/6 if data is  $<$  50% of standard
  - Switch to TSP at 1/3 if data is  $>$  50% of standard

### Network Design (3):

3. Use PM-10 (1/6) in the urban population exposure monitor locations.

If the data is reasonably consistent from measurement to measurement (low standard deviation) the site is not being significantly impacted by large particles.

Consistent concentration data is important because it provides the opportunity to reduce sampling frequency without endangering public welfare.

Summary: This a sensible approach to Lead Monitoring that:

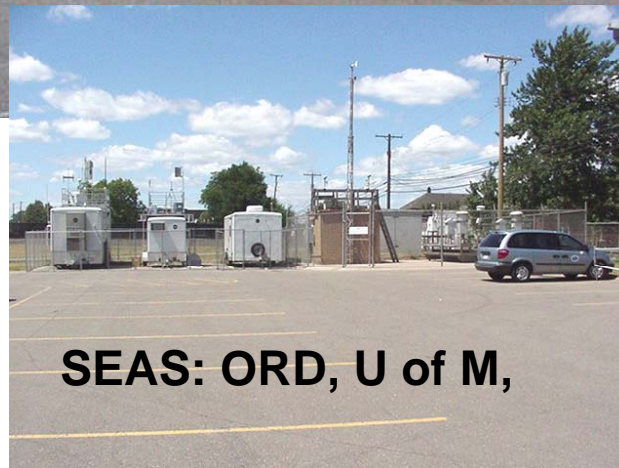
- Provides appropriate monitoring (size and frequency) where it is needed (Use source category information to select TSP or PM-10)
- Minimizes low concentration “maintenance” monitoring of well controlled sources.
- Permits data from other monitoring programs (NATTs and NCore) to be used in Pb attainment. This is sensible and efficient.
- Eliminates the use of scaling factors. I doubt these would hold up well in future litigation.
- Eliminates potential loophole if indicator is restricted to PM-10
- This approach should provide the data the health community needs. The only loss is the > PM-10 data in the areas with the lowest concentrations.
- Allows for the continued use of existing TSP and PM-10 samplers and lab methods. (PM-10 data should be roughly adjusted to local conditions)

# Lead NAAQS: What Does the Monitoring Data Say?

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NMSC Meeting  
6/19/08-6/20/08  
Burlington VT

**Dearborn, MI  
261630033  
Source Influenced**

**Salina School**



**SEAS: ORD, U of M,**



**MDEQ**

**U WI**

**Met One Coarse**

Figure 1: Lead PM10 and TSP Precision as a Function of Lead Concentration

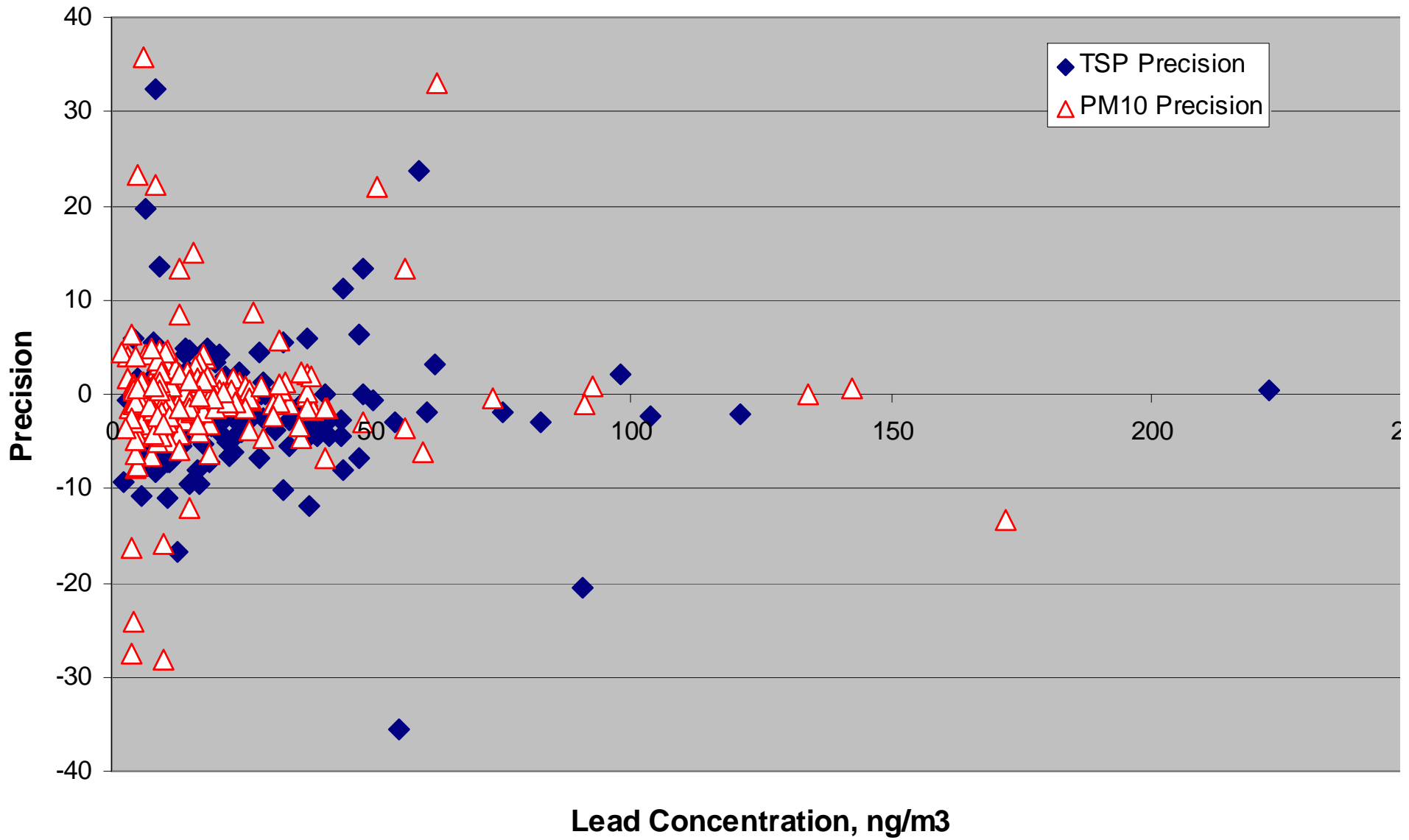
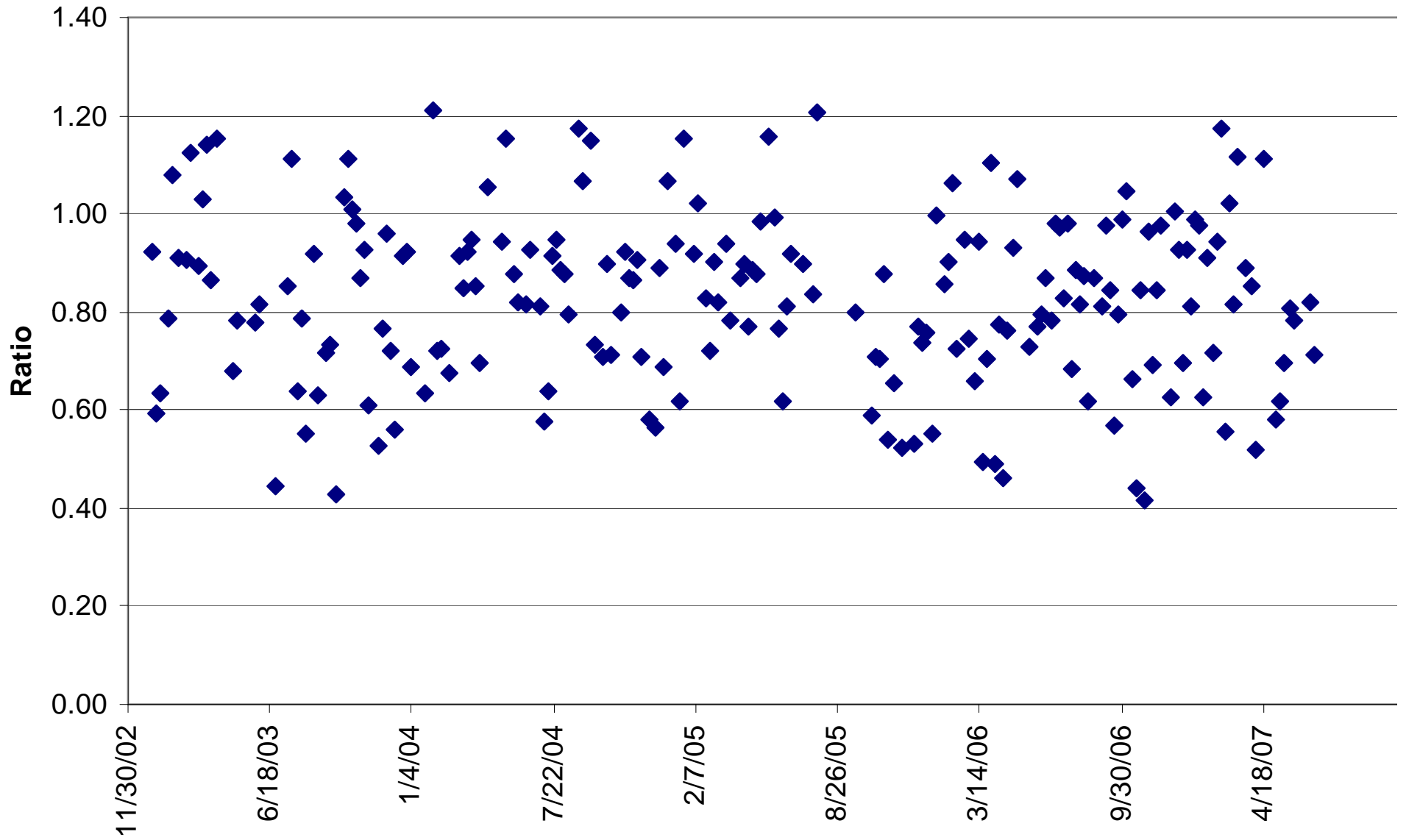


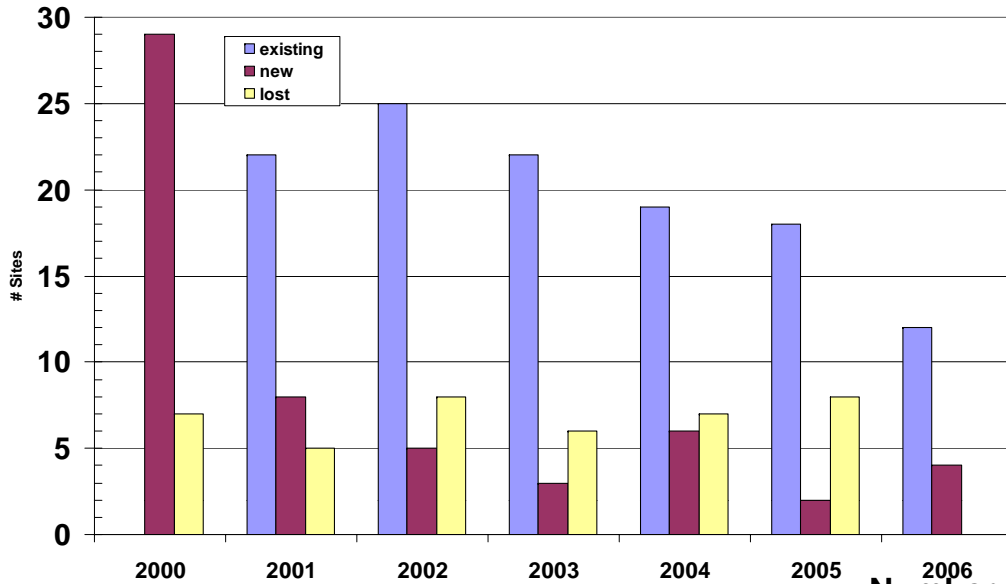
Figure 2: Ratio of PM10 to TSP Lead Dearborn 2003 - 2007



# Instability of EI Metric

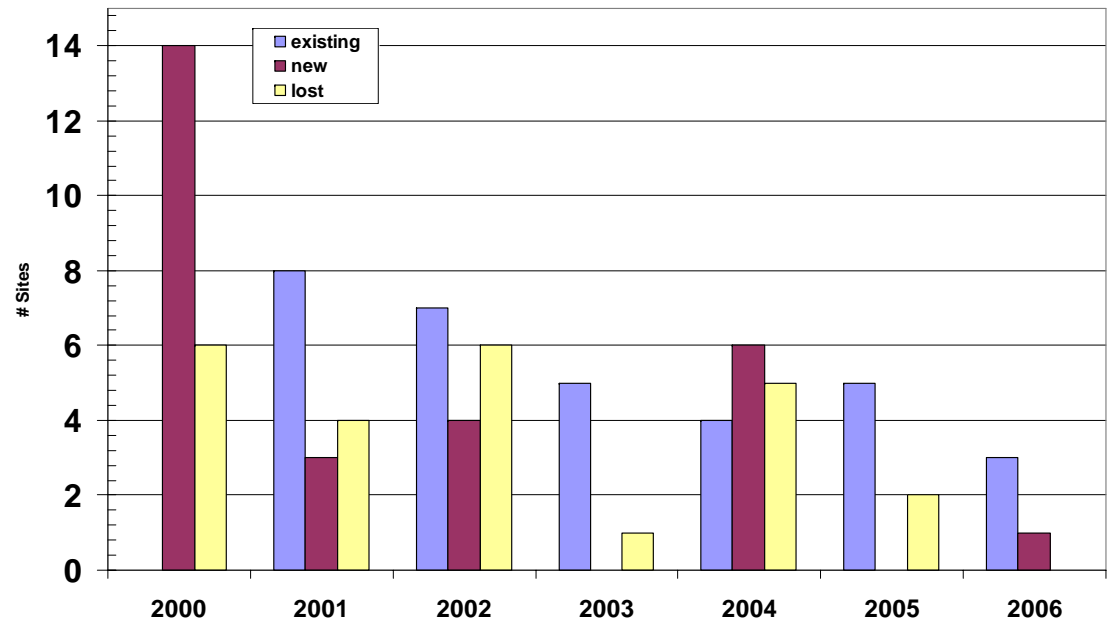
- Changes in EI factors
- How to deal with facilities near the threshold? Instability in design of ambient network.
- How to pay for changes to network?
- Establish a contingency fund for all parameters requiring changes in operations? i.e. daily PM2.5

**Number of Lead Sources Requiring Monitors: 200 Kg/Yr Emissions Threshold**



**Instability of Network**

**Number of Lead Sources Requiring Monitors: 600 Kg/Yr Emissions Threshold**



# Scenario #1: > 200 kg: \$1.1 M

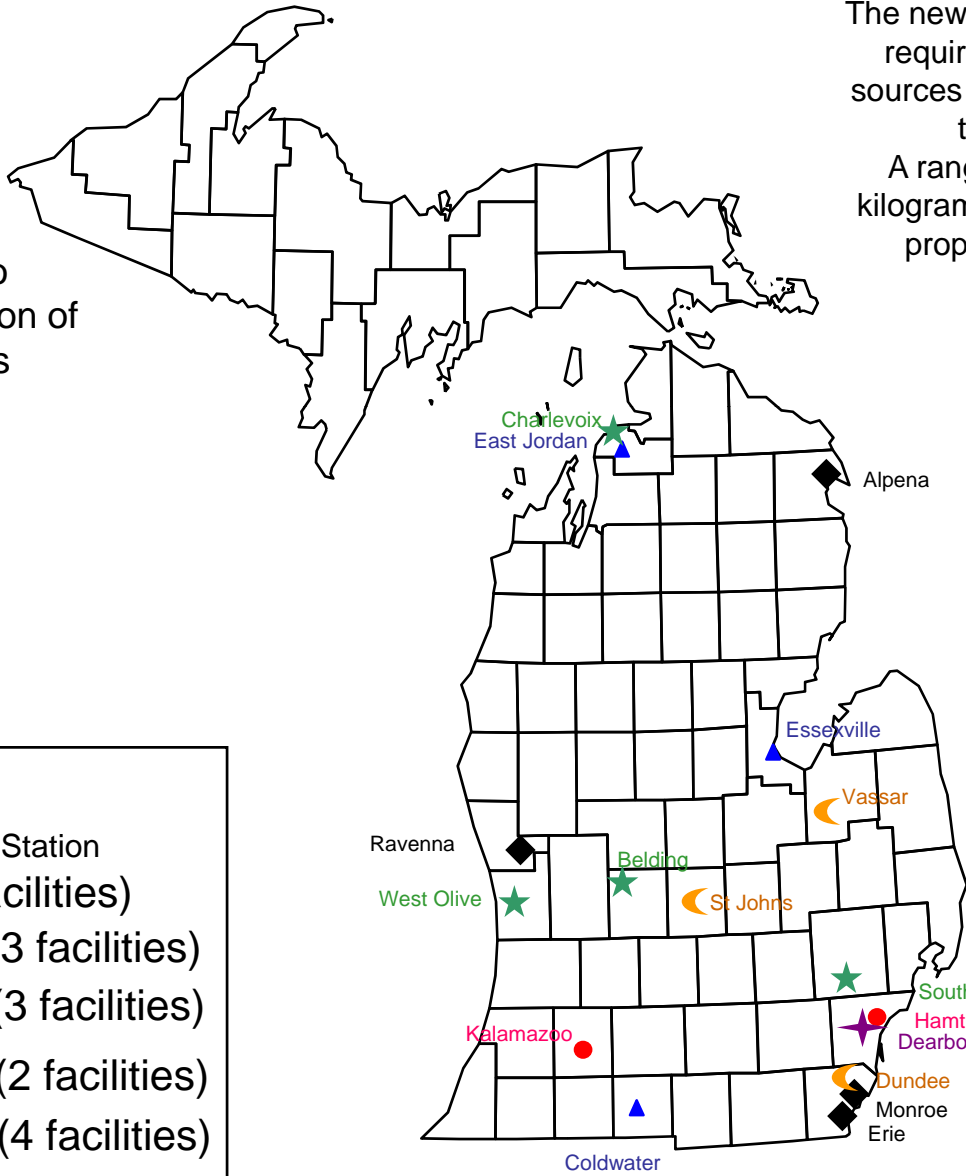
This map was created to summarize the distribution of possible monitoring sites across Michigan.

The new lead NAAQS may require monitors near sources exceeding certain thresholds.  
A range of 200 – 600 kilograms is suggested in proposed NAAQS.

MDEQ EI Data  
Updated 5-19-08

**KEY:**

- ★ = NATTS Monitoring Station
- ★ = > 600 kg (4 facilities)
- ▲ = 501 – 600 kg (3 facilities)
- ☾ = 401 – 500 kg (3 facilities)
- = 301 – 400 kg (2 facilities)
- ◆ = 200 – 300 kg (4 facilities)



CSAs with more than 1 million people also require monitoring sites. Dearborn could fulfill Detroit's requirement.

## Scenario #2: > 600 kg: \$137,000

This map was created to summarize the distribution of possible monitoring sites across Michigan.

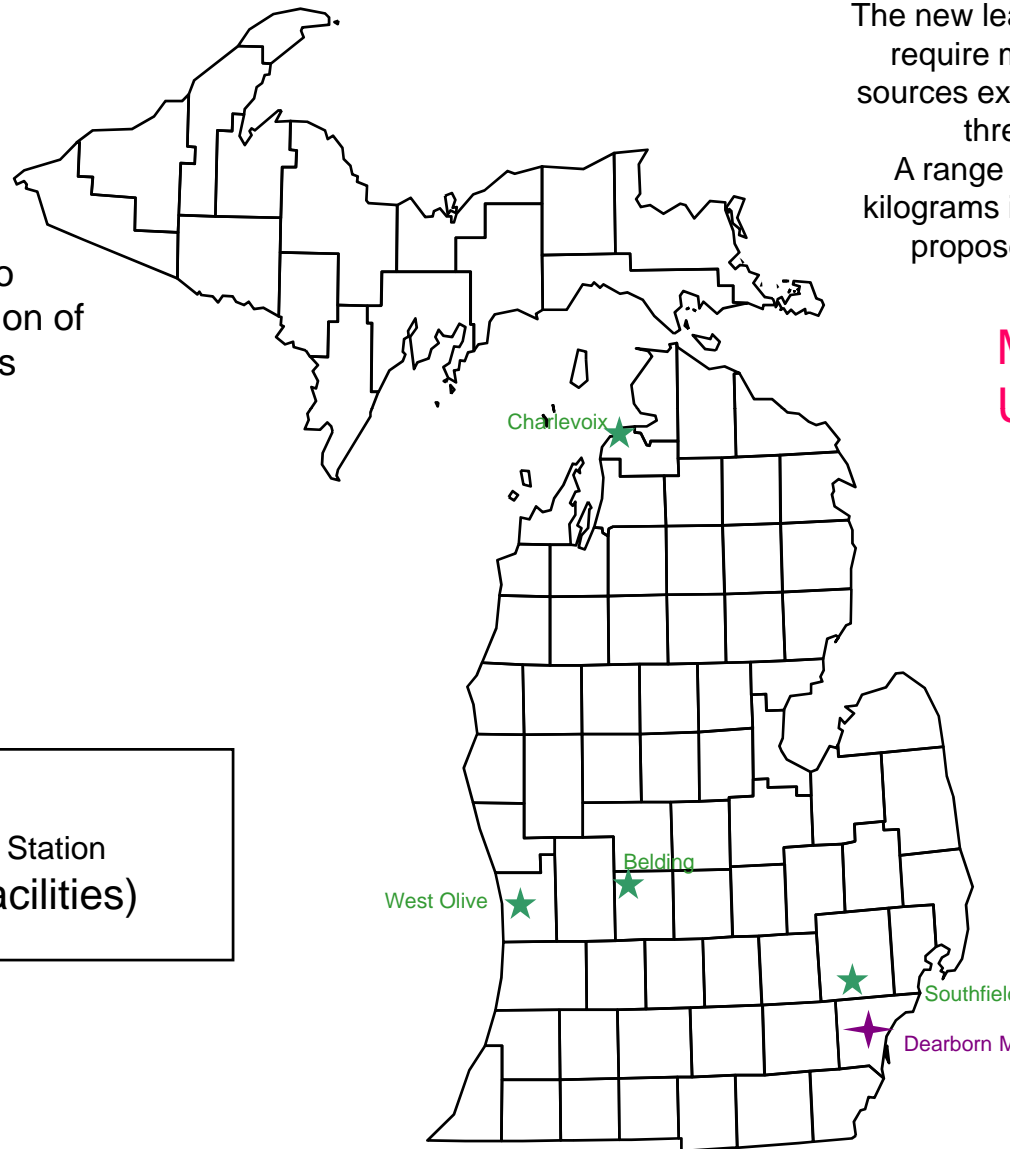
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