

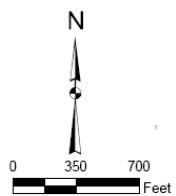
# Water Well Sampling Results Briefing

September 26, 2005



# Overview

- City wells #1, #4, #5, #6, #7 and #8 were sampled.
- 15 private water wells were sampled.



**LEGEND**

 CITY WELL

**NOTES:**

1. BASE MAP PROVIDED BY WESTON SOLUTIONS OF MICHIGAN, INC.
2. LAND SURVEY ELEVATIONS WERE REFERENCED TO NAVD OF 1988 FEET MSL. THE HORIZONTAL LOCATIONS WERE REFERENCED TO THE MICHIGAN STATE PLANE COORDINATE SYSTEM NAD83, INTERNATIONAL FEET - SOUTH (2113) ZONE.
3. SMI - SOURCE MIGRATION INVESTIGATION

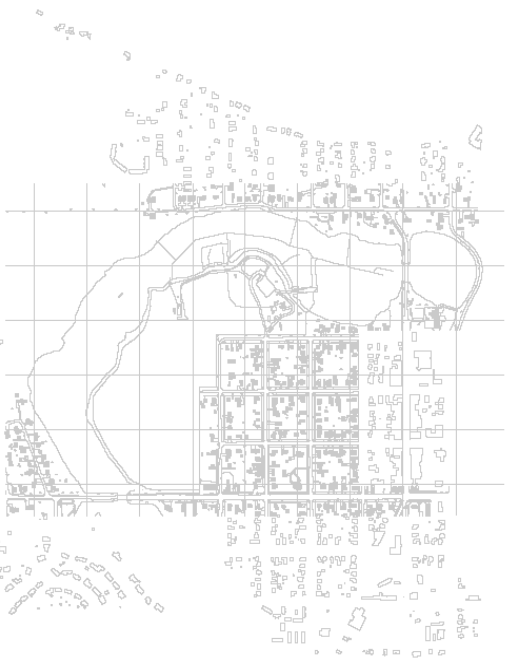
**FIGURE 1-3**  
**CITY WELL LOCATIONS**  
 SMI DATA EVALUATION REPORT  
 VELSICOL / PINE RIVER SITE  
 ST. LOUIS, MICHIGAN



- 04CB10-13, 05CB25-15
- 05CB25-06, 05CB25-07
- 05CB25-05
- 05CB03-74, 05CB10-16

- 04CB10-09, 05CB25-11, 05CB25-12
- 05CB03-71 ●
- 05CB03-70
- 05CB25-10
- 04CB10-10, 05CB25-04
- 05CB03-72

- 05CB25-03, 05CB25-02
- 05CB03-73, 05CB10-05
- 05CB10-01, 05CB25-02
- 05CB10-14, 05CB25-14
- 05CB10-03, 05CB10-04, 05CB25-01



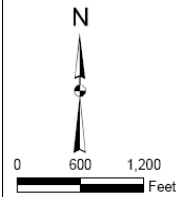
**LEGEND**

● RESIDENTIAL WELL

**NOTES:**

1. BASE MAP PROVIDED BY WESTON SOLUTIONS OF MICHIGAN, INC.
2. LAND SURVEY ELEVATIONS WERE REFERENCED TO NAVD OF 1988 FEET MSL. THE HORIZONTAL LOCATIONS WERE REFERENCED TO THE MICHIGAN STATE PLANE COORDINATE SYSTEM NAD83, INTERNATIONAL FEET - SOUTH (2113) ZONE.
3. SMI - SOURCE MIGRATION INVESTIGATION

**FIGURE 2-4**  
**RESIDENTIAL WELL LOCATIONS**  
 SMI DATA EVALUATION REPORT  
 VELSICOL / PINE RIVER SITE  
 ST. LOUIS, MICHIGAN

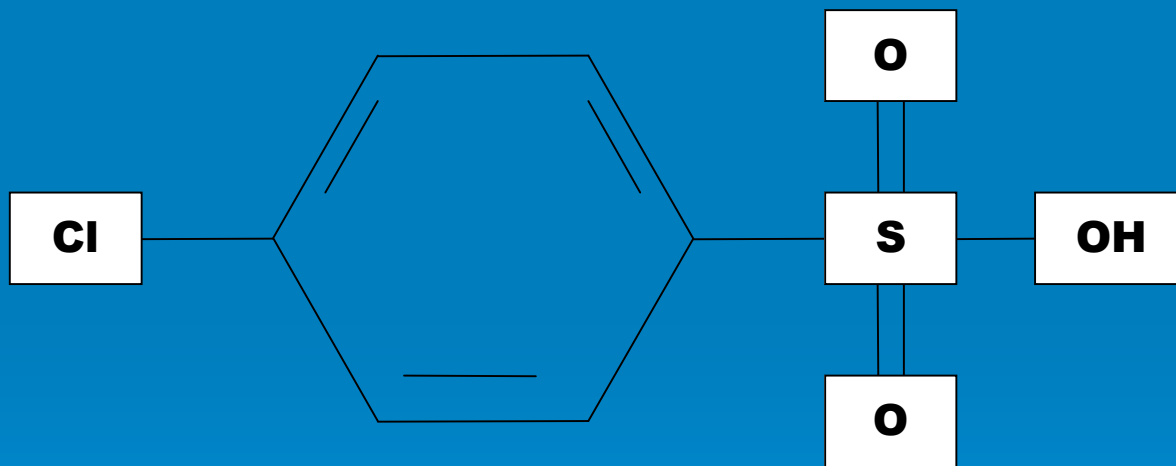


# Overview (Cont.)

- There were no detections of site VOCs, SVOCs or DDT compounds
- Chloromethane was detected at low levels in 4 private wells (suspected disinfection residual).
- para-Chlorobenzene Sulfonic Acid (p-CBSA) was detected in 3 city wells, but not in private wells.
- Greatest p-CBSA level found is **140** times lower than current health-based criteria.

# What is p-CBSA?

- By-product of DDT manufacturing



# Why Discuss p-CBSA?

- Unique chemical properties make it useful as an indicator of contaminant movement in groundwater.
- Confirmed detections in three St. Louis water supply wells at levels below health based criteria:
  - #1      97  $\mu\text{g/L}$  (micrograms per liter)
  - #4      180  $\mu\text{g/L}$
  - #7      32  $\mu\text{g/L}$

# Perspective on p-CBSA

- Not a hazardous substance under CERCLA
- Two Superfund Sites in California
  - Montrose / Del Amo Superfund Site
  - Stringfellow Acid Pits Superfund Site
- Highly mobile in groundwater
- Resistant to natural degradation
- No official regulatory standards
- Five studies indicate low toxicity



# California Precedent

- Non-promulgated provisional standard of 25,000  $\mu\text{g/L}$ 
  - Based on:
    - short-term animal toxicological studies
    - residential drinking water risk assumptions
    - safety factor of 1000X for uncertainties
  - Used at Montrose site as re-injection standard
  - Groundwater not currently used as drinking water
  - But water supply wells located down-gradient.

# Assessment of St. Louis Wells

<i>Relative Vulnerability</i>	<i>Distance from Site</i>	<i>Intake Depth</i>	<i>p-CBSA (<math>\mu\text{g/L}</math>)</i>	<i>Wells</i>
Highest	1/4 mile	Deep	97	#1
			180	#4
Higher	1/2 mile	Shallow	32	#7
Lower	2/3 mile	Shallow	<1	#6
Lowest	7/8 mile	Deep	<1	#5
			<1	#8

# Conclusions

- Three of St. Louis's water supply wells (#1, #4 and #7) have levels of p-CBSA ranging up to 180  $\mu\text{g/L}$ .
- This compares to 25,000  $\mu\text{g/L}$  as the best available health-based criterion.
- Highest levels of p-CBSA found are 140 times lower than current health-based criteria.
- Existing health data indicate low toxicity for p-CBSA.

# Next Steps

- EPA planning to install sentry wells up-gradient of water supply wells to monitor p-CBSA and potential migration of site contaminants.
  - Coordinate with City on distribution system considerations.
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