

Oak Creek at South Milwaukee

Road Salt Monitoring Data Summary

February 2011 – December 2012



Photo from Jim Beecher

Volunteer: Ted Bosch

Specific conductance summary:

- 36 measurements taken
- Minimum: 820 $\mu\text{S}/\text{cm}$ on 11/4/2011
- Maximum: 5700 $\mu\text{S}/\text{cm}$ on 3/2/2011
- Mean: 2221 $\mu\text{S}/\text{cm}$

Chloride (Cl⁻) summary:

- 9 samples collected
- Minimum: 210 mg/L on 9/7/2011
- Maximum: 1060 mg/L on 2/12/2011
- Mean: 585 mg/L

EPA Acute and Chronic Exceedences for Chloride¹:

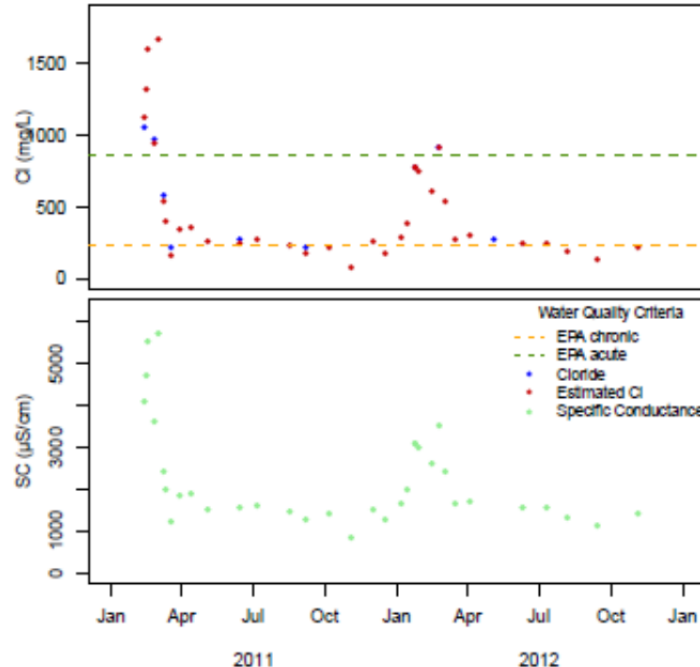
The EPA acute chloride standard of 860 mg/L was exceeded five times in 2011², plus once in 2012:

- 909 mg/L on 2/24/2012 (measured)

In addition, the EPA chronic chloride standard of 230 mg/L was met or exceeded nine times in 2011² at this site, plus an additional twelve times in 2012:

- | | |
|---|---------------------------------------|
| ○ 242 mg/L on 7/11/2012 (calculated) ³ | ○ 318 mg/L on 12/21/2012 (calculated) |
| ○ 249 mg/L on 6/10/2012 (calculated) | ○ 387 mg/L on 1/14/2012 (calculated) |
| ○ 266 mg/L on 5/4/2012 (measured) | ○ 535 mg/L on 3/3/2012 (calculated) |
| ○ 277 mg/L on 3/16/2012 (calculated) | ○ 604 mg/L on 2/15/2012 (calculated) |
| ○ 280 mg/L on 1/7/2012 (calculated) | ○ 741 mg/L on 1/29/2012 (calculated) |
| ○ 294 mg/L on 4/4/2012 (calculated) | ○ 782 mg/L on 1/25/2012 (measured) |

Results Over Time³:



¹ Acute standard: The one-hour average should not exceed 860 mg/L more than once every three years. Chronic standard: The four day average should not exceed 230 mg/L more than once every three years. Source: EPA. 1988. Ambient Water Quality Criteria for Chloride. EPA 440/6-88-001.

² <http://watermonitoring.uwex.edu/level3/UrbanRoadSaltReports.html>

³ Calculated chloride: When $SC > 1540 \mu\text{S}/\text{cm}$ was $Cl = 0.3441 * SC - 291$, $\text{adj}R^2 = 0.98$; when $SC \leq 1540 \mu\text{S}/\text{cm}$ was $Cl = 1.044 * (\exp(0.001609 * SC + 3.046))$, $\text{adj}R^2 = 0.65$. Equations based on data from both Madison and Milwaukee.