

Root River at Grange Ave

Road Salt Monitoring Data Summary

February 2011–December 2012



Photo courtesy of Jim Beecher

Volunteer: Kevin Hensiak

Specific conductance summary:

- 31 measurements taken
- Minimum: 510 $\mu\text{S}/\text{cm}$ on 9/28/2011
- Maximum: 12700 $\mu\text{S}/\text{cm}$ on 2/27/2011
- Mean: 2990 $\mu\text{S}/\text{cm}$

Chloride (Cl⁻) summary:

- 9 samples collected
- Minimum: 78.1 mg/L on 9/28/2011
- Maximum: 4130 mg/L on 2/27/2011
- Mean: 1299 mg/L

EPA Acute and Chronic Exceedences for Chloride¹:

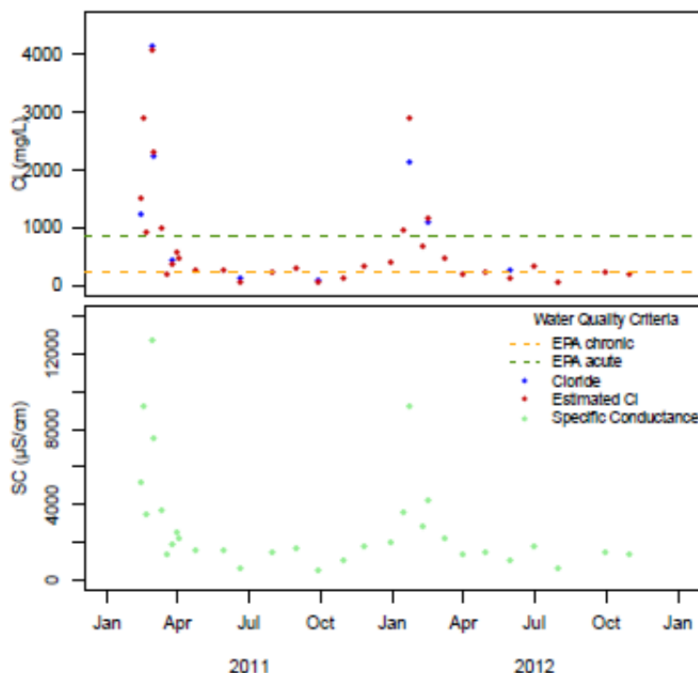
The EPA acute chloride standard of 860 mg/L was exceeded six times in 2011² at this site, plus an additional three times in 2012:

- 948 mg/L on 1/15/2012 (calculated)³
- 1100 mg/L on 2/16/2012 (measured)
- 2130 mg/L on 1/23/2012 (measured)

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

- 230 mg/L on 4/29/2012 (calculated)
- 240 mg/L on 5/31/2012 (measured)
- 318 mg/L on 6/30/2012 (calculated)
- 466 mg/L on 3/8/2012 (calculated)
- 673 mg/L on 2/9/2012 (calculated)

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