

Kinnickinnic River at 11th St

Road Salt Monitoring Data Summary

February – December 2011



Photo courtesy of Jim Beecher

Volunteers: Cheryl Nenn and Joe Rath

Specific conductance summary:

- 6 measurements taken
- Minimum: 1740 $\mu\text{S}/\text{cm}$ on 6/28/2011
- Maximum: 6300 $\mu\text{S}/\text{cm}$ on 3/1/2011
- Mean: 4073 $\mu\text{S}/\text{cm}$

Chloride (Cl⁻) summary:

- 7 samples collected
- Minimum: 307 mg/L 10/7/2011
- Maximum: 2080 mg/L 2/14/2011
- Mean: 828 mg/L

Specific conductance ranges at which to collect grab samples in 2012 for this site:

- Mid-level: 2000-4000 $\mu\text{S}/\text{cm}$
- High-level: >4000 $\mu\text{S}/\text{cm}$

EPA Acute and Chronic Exceedences for Chloride¹:

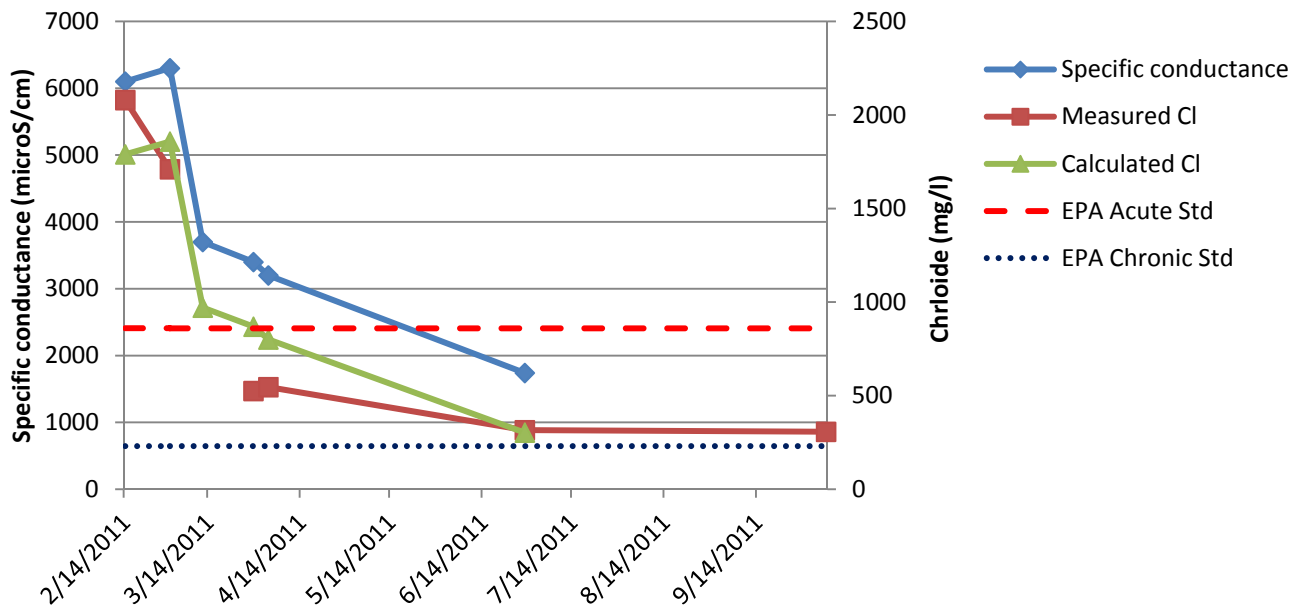
The EPA acute chloride standard of 860 mg/L was exceeded three times at this site:

- 1710 mg/L on 3/1/2011 (measured)
- 2080 mg/L on 2/14/2011 (measured)
- 971 mg/L on 3/12/2011 (calculated)²

In addition, the EPA chronic chloride standard of 230 mg/L was exceeded four times at this site:

- 525 mg/L on 3/29/2011 (measured)
- 546 mg/L on 4/3/2011 (measured)
- 316 mg/L on 6/28/2011 (measured)
- 307 mg/L on 10/7/2011 (measured)

Results Over Time²:



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 Calculated chloride: When $\text{SC} > 1540 \mu\text{S}/\text{cm}$ was $\text{Cl} = 0.3441 * \text{SC} - 291$, $\text{adjR}^2 = 0.98$; 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.