

Root River at Layton Ave

Road Salt Monitoring Data Summary

February –December 2011



Photo courtesy of Jim Beecher

Volunteer: Kevin Hensiak

Specific conductance summary:

- 18 measurements taken
- Minimum: 510 $\mu\text{S}/\text{cm}$ on 9/28/2011
- Maximum: 7900 $\mu\text{S}/\text{cm}$ on 2/27/2011
- Mean: 2989 $\mu\text{S}/\text{cm}$

Chloride (Cl^-) summary:

- 6 samples collected
- Minimum: 73.8 mg/L 9/28/2011
- Maximum: 2360 mg/L 2/27/2011
- Mean: 1102 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:

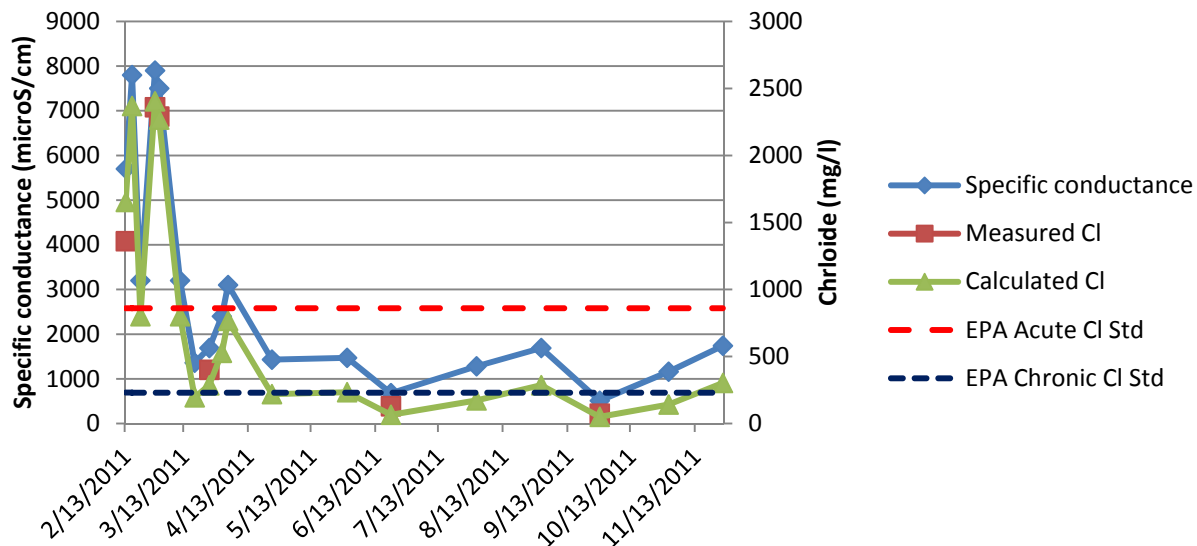
The EPA acute chloride standard of 860 mg/L was exceeded four times at this site:

- 1360 mg/L on 2/13/2011 (measured)
- 2360 mg/L on 2/27/2011 (measured)
- 2290 mg/L on 3/1/2011 (measured)
- 2370 mg/L on 2/16/2011 (calculated)²

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

- 801 mg/L on 2/20/2011 (calculated)
- 801 mg/L on 3/11/2011 (calculated)
- 401 mg/L on 3/25/2011 (measured)
- 527 mg/L on 3/31/2011 (calculated)
- 766 mg/L on 4/3/2011 (calculated)
- 233 mg/L on 5/30/2011 (calculated)
- 285 mg/L on 8/31/2011 (calculated)

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.