

Oak Creek at South Milwaukee

Road Salt Monitoring Data Summary

February –December 2011



Photo courtesy of Jim Beecher

Volunteers: Ted Bosch

Specific conductance summary:

- 20 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: 2315 $\mu\text{S}/\text{cm}$

Chloride (Cl⁻) summary:

- 6 samples collected
- Minimum: 210 mg/L 9/7/2011
- Maximum: 1060 mg/L 2/12/2011
- Mean: 551 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:

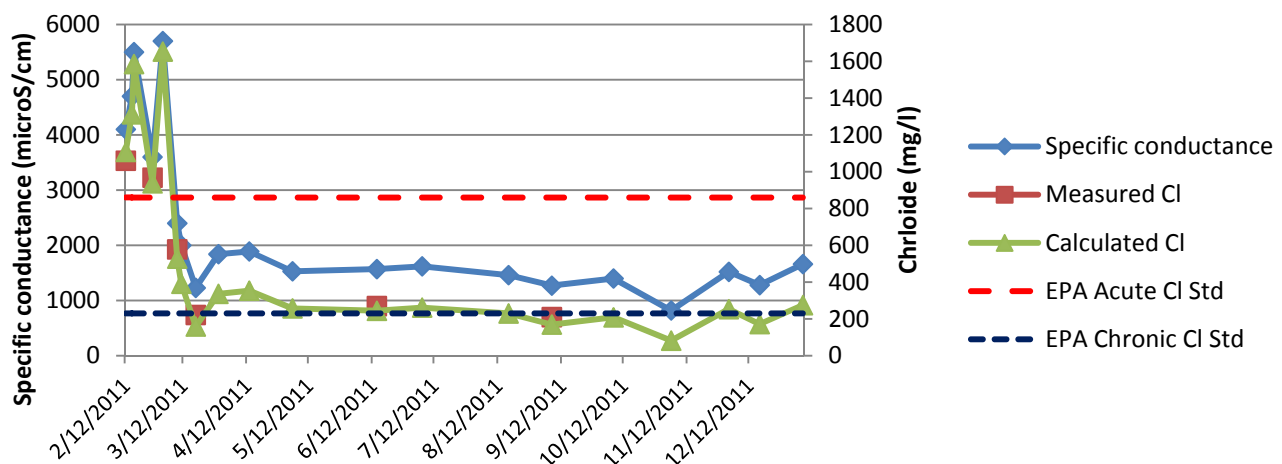
The EPA acute chloride standard of 860 mg/L was exceeded five times at this site:

- 968 mg/L on 2/17/2011 (measured)
- 1060 mg/L on 2/12/2011 (measured)
- 1312 mg/L on 2/15/2011 (calculated)²
- 1585 mg/L on 2/16/2011 (calculated)
- 1653 mg/L on 3/2/2011 (calculated)

In addition, the EPA chronic chloride standard of 230 mg/L was met or exceeded nine times:

- 230 mg/L on 8/17/2011 (calculated)
- 253 mg/L on 12/2/2011 (calculated)
- 257 mg/L on 5/4/2011 (calculated)
- 262 mg/L on 7/6/2011 (calculated)
- 270 mg/L on 6/14/2011 (measured)
- 337 mg/L on 3/29/2011 (calculated)
- 354 mg/L on 4/13/2011 (calculated)
- 391 mg/L on 3/11/2011 (calculated)
- 578 mg/L on 3/9/2011 (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 $\text{SC} \leq 1540 \mu\text{S}/\text{cm}$ 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.