

# Root River at Grange 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: 12700  $\mu\text{S}/\text{cm}$  on 2/27/2011
- Mean: 3320  $\mu\text{S}/\text{cm}$

**Chloride (Cl<sup>-</sup>) summary:**

- 6 samples collected
- Minimum: 78.1 mg/L 9/28/2011
- Maximum: 4130 mg/L 2/27/2011
- Mean: 1370 mg/L

**Specific conductance ranges at which to collect grab samples in 2012 for this site (collect 3):**

- Mid-level: 2000-4000  $\mu\text{S}/\text{cm}$
- High-level: >400  $\mu\text{S}/\text{cm}$  **AND** >12000  $\mu\text{S}/\text{cm}$

**EPA Acute and Chronic Exceedences for Chloride<sup>1</sup>:**

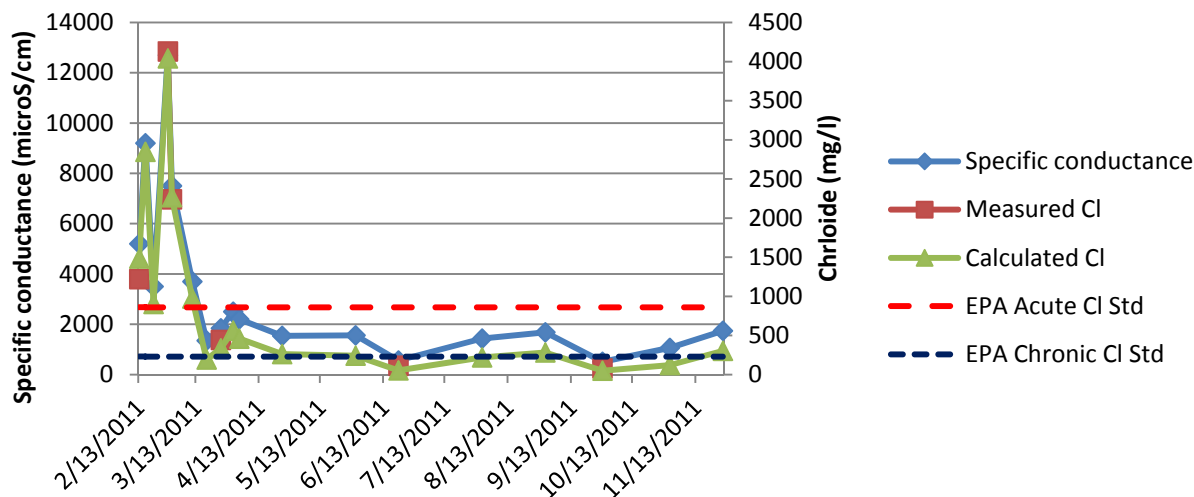
The EPA acute chloride standard of 860 mg/L was exceeded six times at this site:

- 902 mg/L on 2/20/2011 (calculated)<sup>2</sup>
- 971 mg/L on 3/11/2011 (calculated)
- 1220 mg/L on 2/13/2011 (measured)
- 2240 mg/L on 3/1/2011 (measured)
- 2847 mg/L on 2/16/2011 (calculated)
- 4130 mg/L on 2/27/2011 (measured)

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

- 241 mg/L on 5/30/2011 (calculated)
- 261 mg/L on 4/24/2011 (calculated)
- 282 mg/L on 8/31/2011 (calculated)
- 302 mg/L on 11/26/2011 (calculated)
- 442 mg/L on 3/25/2011 (measured)
- 459 mg/L on 4/3/2011 (calculated)
- 562 mg/L on 3/31/2011 (calculated)

**Results Over Time<sup>2</sup>:**



<sup>1</sup> 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.

<sup>2</sup> 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  $\text{SC}$  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.