



Wingra Watershed Plan
 City of Madison and Friends of Lake Wingra
 March 21, 2013 3 P.M.
 Strand Associates, Inc.[®]
 Issue Team Meeting No. 1–Chlorides

Meeting Location: Strand Associates, Inc. [®]	Job No.: 1020-065
Meeting Purpose: Issue Team Meeting No. 1-Chlorides	

Meeting Handouts:	
Meeting Agenda	

Invitee	Representing	Present	Absent
Genesis Steinhorst	City of Madison	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sue Ellingson, Alderperson	City of Madison	<input checked="" type="checkbox"/>	<input type="checkbox"/>
George Dreckman	City of Madison	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Steve Arnold	Friends of Lake Wingra	<input checked="" type="checkbox"/>	<input type="checkbox"/>
David Liebl	Friends of Lake Wingra	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Jim Lorman	Friends of Lake Wingra	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Roger Bannerman	Wisconsin Department of Natural Resources (WDNR)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Bob Stoffs	Madison Gas and Electric (MG&E)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Don Peterson	Madison Gas and Electric (MG&E)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Dave Benforado	Madison Gas and Electric (MG&E)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Kathy Lake	Madison Metropolitan Sewerage District (MMSD)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Ralph Erickson	Madison Metropolitan Sewerage District (MMSD)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Steve Kamps	Barnes, Inc.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Jim Montgomery	Barnes, Inc.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Bret Shaw	University of Wisconsin–Madison	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Tom Lynch	Strand Associates, Inc. [®]	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Jon Lindert	Strand Associates, Inc. [®]	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Discussion:	Action:
<ol style="list-style-type: none"> 1. <u>Wingra Watershed Plan Chloride Reduction Goals</u> Jon presented five PowerPoint slides discussing the chloride reduction goals of the Wingra Watershed Plan. The plan includes identifying strategies to work toward the goal of a Lake Wingra chloride concentration of 40 milligrams per liter (mg/L) as described in the document <i>Lake Wingra: A Vision for the Future</i>. Despite significant efforts to reduce road salt usage by the City of Madison, chloride levels in Lake Wingra continue to climb. 2. <u>City of Madison Strategies</u> George provided commentary on the City of Madison’s chloride reduction efforts. <ol style="list-style-type: none"> a. <i>Anti-icing</i>: The City applies a salt-brine along major streets when conditions dictate their beneficial use. These efforts seem to be working. The City has tried beet juice but has significant concerns relative to oxygen demand of the beet juice once it reaches waterbodies. 	

Discussion:

- b. *De-icing*: The City has two main methods of deicing. After plowing, the City either applies salt (along major streets referred to as the salt route) or applies sand mixed with 5 percent salt (in residential areas). Use of anti-icing agents has slightly reduced the deicer usage. Salt is not used once the temperature drops below 12 degrees Fahrenheit.
- c. *Road Salt Application Rate*: George said the City applies salt at approximately a 300 lb/lane mile rate. It was mentioned that Dane County applies salt at between a 600-1200 lb/lane mile rate.
- d. *Budget*: The City’s procedures are not linked to a budget, per se, but rather are dictated by the appropriate techniques and procedures to manage the specific storm.
- e. *Road Salt Report 2012*: The City has been tracking its road salt usage in an annual road salt report.
- f. *Other Salt Reduction Options*
 - (1) *Lowered Driving Public Expectations*: It was discussed that to get true reductions in salt usage, the driving public’s expectations for street conditions must be lowered. This lowered expectation must be coupled with slower vehicle speeds. Signs, such as those in the Arboretum, may be effective in conveying the message and beginning to alter the driving public’s expectations.
 - (2) *Incrementally Less Salt Application*: Roger thought that incrementally decreasing salt application rates may have the effect of slowly lowering the driving public’s expectations.
 - (3) *Street Sweeping*: Spring sweeping helps to pick up some of the salt.
 - (4) *Cost to the Environment*: It was agreed that the cost to the environment must be used in evaluating the trade-offs of salt usage.
 - (5) *Beltline*: Because of WisDOT’s safety-based bare pavement policy on the Beltline, it is unlikely to expect lowered salt application rates

3. MG&E’s Cogen Permit and Odana Golf Course Infiltration Project

Don Peterson of MG&E provided the following information:

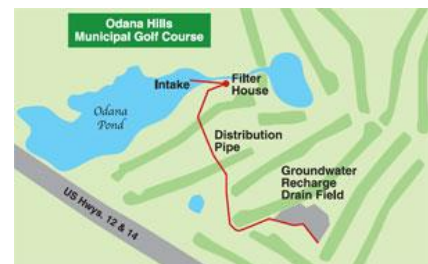
- a. *Cogen Facility*: This facility draws water from Lake Mendota for use in cooling towers on the UW-Madison campus. The facility’s permit requires that the withdrawal of water be offset by pumping groundwater into the Yahara River during low flow periods. Likewise, the groundwater withdrawal used for supplementing Yahara River flows must be offset by infiltrating water at the Odana Golf Course infiltration facility located near the top of the hill along the Beltline.

Action:

Genesis will email the Salt Route GIS shapefile to Strand.

Strand will confirm road salt application rates with the City of Madison, Town of Madison, City of Fitchburg, and Dane County.

Note: Kathy Lake took this picture of a “Low Salt Usage” sign in the Arboretum after the meeting.



Discussion:	Action:
<p>b. <i>Odana Infiltration Facility</i>: This facility was operable in 2006 and is designed to recharge up to 80 million gallons per year (MGPY) of groundwater. Water from the Odana Ponds is pumped to the facility. The highest the facility has operated at is 71 MGPY in 2008. The highest groundwater pumping to the Yahara River was 154 MGPY in 2012. To date, the COGEN facility has withdrawn 221 MG and the infiltration facility has infiltrated 305 MG.</p> <p>c. <i>Chloride Issues</i>: The infiltration facility pumps continuously until the chloride levels of the water exceed the Preventive Action Limit (PAL) of 125 mg/L. The chloride level is monitored in real time by conductivity readings and the measurements are taken after the filter. The chloride concentration in the Odana Ponds drops off quickly with spring rains. Test wells also exist at the infiltration facility to monitor levels beneath the infiltration beds.</p>	
<p>4. <u>MMSD's Chloride Issues and Plans</u> Ralph and Kathy presented nine PowerPoint slides as follows:</p> <p>a. Environmental Impacts</p> <ol style="list-style-type: none"> (1) WWTP chloride discharge has steadily increased with a high of 400 mg/L during a 2013 snow melt. (2) EPA Chronic Toxicity Limit = 230 mg/L. (3) WI Water Quality Standard = 395 mg/L. (4) Ecosystem and Drinking Water Impacts. <p>b. Chloride Sources</p> <ol style="list-style-type: none"> (1) Water Softener Regeneration: Ongoing contribution of approximately 1 pound of salt per day per household. (2) Industrial Usage: Oscar Mayer is a large contributor. (3) Deicing Salt: Deicing salt from snow melt events accounts for 3 to 8 percent of the chloride inflow. (4) WWTP weekly inflow of chlorides is one million pounds. <p>c. Possible Mitigation</p> <ol style="list-style-type: none"> (1) Monitoring–MMSD is currently monitoring slat concentrations at a sanitary sewer in the Wingra Watershed (east of the zoo) and one near West Towne Mall. Data collection and evaluation will be expanded. (2) Water Softener Optimization Pilot Study–MMSD is proceeding with a paired watershed study to determine the effect of replacing old water softeners with newer technology water softeners that use less salt. New softeners (concentrators, evaporators, and no salt softeners) are in development but are not yet technologically feasible. There is one study area in the Wingra Watershed and one study area by Spring Harbor near Lake Mendota. Monitoring of the sanitary sewer 	

Discussion:	Action:
<p>from these areas will be completed. Timeline is homeowner survey in summer 2013 and monitoring from August through November 2013.</p> <ul style="list-style-type: none"> (3) Regulatory and Policy Alternatives– New Hampshire has a private applicator certification that, if trained, the private applicator has some level of protection (reduced liability) against lawsuits stemming from reduced deicing usage. (4) Industrial User Pretreatment. (5) Information and Education Initiatives. (6) Deicing Salt Reduction (households, municipal streets, private applicators). (7) Treatment at WWTP with Reverse Osmosis (expensive). 	
<p>5. <u>Private Applicator Perspective</u> Steve shared the following information:</p> <ul style="list-style-type: none"> a. <i>Anti-icing Pre-application</i>: He has not traditionally used these, but is looking into its use for private properties. b. <i>Deicing</i>: He uses 100 percent road/rock salt. c. <i>Road Salt Application Rate</i>: No rates were mentioned. Steve said lower salt rates are used in later-winter as the sun angle increases. d. <i>Training</i>: Barnes, Inc. participated in the salt application training that the City of Madison sponsored a few years ago. e. <i>Factors Affecting Salt Usage</i>: Steve said public education is huge in terms of public acceptance of lowered salt usage. Also, private applicators are in court every year because of slip and fall incidents and thus are reluctant to reduce salt usage. Steve was not aware of an acceptable salt application rate stemming from these lawsuits. Many private applicator contracts are written based on the amount of salt used, which would work against salt reduction efforts. f. <i>Potential Pilot Projects</i> <ul style="list-style-type: none"> (1) Salt Usage Tracking–Roger asked if there would be resistance from private applicators to have voluntary or required tracking/reporting of application rates and total salt usage each winter. Steve said that Barnes would be willing to participate in this and that Barnes tracks this information already. Barnes does not have a lot of data in the Wingra Watershed. Steve said other applicators would probably be resistant to tracking salt usage because it requires extra effort. (2) State or County Program–Similar to the New Hampshire program described above, the state or country could require training of private applicators, which would reduce their liability when implementing a reduced salt application program. 	<p>Strand will confirm road salt application rates with Steve for commercial, institutional, multi-family, and possibly residential application rates and yearly totals</p>

Discussion:	Action:
<p>g. Other Discussin Steve was asked if it would be helpful to have ordinances limiting the amount of salt applied. He said it would, because in a lawsuit they try and show they were not negligent. Others stated it may be difficult to pass a salt application ordinance in Dane County. Others maintained it was worth pursuing.</p>	
<p>6. <u>Possible Synergies Between Programs and Other Ideas</u></p> <p>a. <i>Public Information and Education for Lowered Winter Driving Expectations</i>–The City of Madison, MG&E, and MMSD all have vested interest in chloride reductions and a collaborative effort would be beneficial to the greater cause. Ideas discussed included low salt zones signage, social marketing and social media campaigns to alter expectations. This in turn could affect driving habits and reduced homeowner salt usage (road salt and water softener replacement/optimization). It was discussed that these efforts would be most effective in January, in the midst of winter.</p> <p>b. <i>Municipal Streets Salt Usage Reduction</i>–There is potential to reduce salt usage coinciding with Public Information and Education efforts that lower winter driving expectations and alter driving habits. Madison’s annual Road Salt Report is important to convey Madison’s efforts at road salt reduction.</p> <p>c. <i>Private Applicator Salt Usage Reduction</i>–A pilot project could be initiated that would require private applicators to track their salt application rate and overall salt usage during the winter using a normal application and a reduced salt usage application rate. A Private Applicator Salt Application Rate Handout could be developed.</p> <p>d. <i>Homeowner Salt Usage Reduction</i>–A Homeowner Salt Application Rate Handout could be developed from existing information. Public information and education efforts would be important.</p> <p>e. <i>MG&E’s Monitoring of Odana Pond</i>–Any salt application reduction efforts could be monitored in the Odana Pond watershed for effectiveness.</p> <p>f. <i>Porous Pavement</i>–Roger said expanding the usage of porous pavement in parking lots and other appropriate locations could lead to less areas that need salt. Pourous pavement performs well in the winter and road salt typically is not needed nor recommended.</p> <p>g. <i>Regulation of Salt Usage</i>– The City of Madison or county could pass an ordinance requiring application of salt according to certain guidelines and standards. In New Hampshire, there is a program that limits the liability for</p>	<p>Discuss the possible synergies and other ideas at the next Wingra Watershed Steering Team Meeting.</p> <p>Gain a better understanding of the City’s operations by creating a figure showing the City’s Salt Routes.</p> <p>Correspond with the County to understand its road salt usage procedures and rates.</p> <p>Eventually, develop clear guidelines for salt usage for municipal, homeowner, and private applicators.</p> <p>Further investigate New Hampshire’s private applicator training program for salt usage reduction and related liability issues.</p>



Discussion:	Action:
<p>trained private applicators that are implementing a reduced salt application program.</p>	
<p>7. <u>Next Steps</u> Many thought there was potential to leverage the effort of multiple entities in the Odana Pond watershed. To see if the Odana Pond could be the focus of a pilot project, the following actions will be made.</p> <ol style="list-style-type: none"> a. Determine the relative salt contribution to the pond from: the Beltline, City salt routes, commercial properties, and private residences. b. Develop an understanding of the salt reduction measures proposed in the New Hampshire study. c. Explore if application guidelines could have a measureable impact on chloride levels. 	
<p>8. <u>Upcoming Schedule and Next Meeting</u> All participants will be notified via e-mail should another Issue Team meeting be scheduled. Otherwise, the information discussed at this meeting and summarized in this meeting summary will be considered by the steering team and incorporated into the Wingra Watershed Plan as appropriate.</p>	

Prepared and respectfully submitted by Jon Lindert.

c/enc: All Participants