Inside:

From Main to Mouth
Member Update
Industry news

MN AWWA 2013
Membership Directory & Buyers’ Guide
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Tank Type: Bolted Steel Standpipe
Storage Capacity: 400,000 Gallons
Location: Dennison, MN
33 Years Young

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Paul Gillispie
Water Superintendent
City of Dennison, MN

Installed: 1984
Tank Type: Bolted Steel Standpipe
Storage Capacity: 275,400 Gallons
Location: Starbuck, MN
29 Years Young

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Community Superintendent
City of Starbuck, MN

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Disclaimer
The ideas, opinions, concepts, procedures, etc. expressed in this publication are those of the individual authors and not necessarily those of the MNAWWA section, its officers, general membership, or the editor. The mention of trade names for commercial products does not represent or imply the approval or endorsement of AWWA. This magazine is presented solely for informational purposes.
As we approach the mid-point of 2013, Minnesota AWWA is fiscally healthy, has extremely dedicated volunteers, and has a wide variety of new and existing programs in place to serve and engage our membership. As Section Chair, it is a pleasure to report there is no ‘Half Empty’ information to share. This is due to the outstanding leadership of the Section Board and Committee Chairs and all the active volunteers. Minnesota AWWA is stronger than ever as we enter into summer 2013 and begin the final planning efforts for the 2013 Annual Conference in Duluth.

Although the state and national economy are beginning to show signs of improvement, Minnesota AWWA recognizes that professional development budgets remain tight; the investment in your AWWA membership is invaluable. Minnesota AWWA members have access to a wealth of technical information, are provided training opportunities at a significant discount, and stay current on important regulatory and legislative issues that impact the drinking water industry. Your membership helps unite the water community in protecting public health and providing safe, sufficient drinking water. It is not always easy to compute a dollar value of membership in the AWWA, but the benefits to your utility or business are real in many ways:

‘WATER MATTERS’ AWWA FLY-IN
The annual AWWA Water Matters Fly-In took place April 17-18, in Washington, D.C. This is a joint endeavor with our friends in the Water Environment Federation. The Minnesota delegation visited the offices of all the Minnesota congressional Representatives and both Senators. National AWWA assisted in the development of ‘talking points,’ which included, the Water Infrastructure Finance and Innovation Authority, issues related to water bonds, and the affordability of new mandates. Stay tuned for a more detailed report on this year’s Fly-In.

WATER FOR PEOPLE
The Minnesota Section’s annual Water For People Concert was held on April 19. This year’s performance by the Classic American Rockers provided a great night of entertainment for a great cause. Additional opportunities to support Water For People in 2013 include the golf outing on May 23, the Splash Dash 5K on August 9, and the motorcycle ride on August 17.

TRAINING, TRAINING AND MORE TRAINING
The District Trustees and District Planning Committees have developed exceptional training programs to meet the needs of our members. The Metro District Training held in early April included a preconference leadership training event that was highly praised and very well attended. The Central District Spring Training event to be held in June will be co-sponsored (for the first time) by the Minnesota Wastewater Operators Association. Check the newly updated Section website at WWW.MNAWWA.ORG to find the right training for you.

MIDWEST REGIONAL WATER UTILITY MANAGEMENT INSTITUTE
The annual Management Institute was held March 12-14. This training is sponsored by Hamline University’s Center for Public Administration and Leadership and is structured to build strong supervisory and management skills. This year’s program topics were geared toward individuals who are moving into a supervisory position for the first time and for more experienced managers who wanted to sharpen their skills to help in their present positions. If you missed out this year, please plan to attend next March.

Minnesota AWWA is blessed with tremendous talent and enthusiasm. It is because of this commitment to safe drinking water, that the Minnesota Section continues to aim high, and is growing and strong.

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Updates from AWWA

The main piece of news coming from AWWA at this time is the progress being made with the Water Infrastructure Finance and Innovation Act program. It has been through the Senate and headed for the House. The program is primarily designed as a loan source for large utilities to access funding for infrastructure projects. I anticipate more information will be forthcoming after the AWWA Water Environment Federation Fly-In.

There have been two candidates selected to run for the position of AWWA President-elect in June at ACE. They are Gene Koontz of the Pennsylvania Section and Rosemary Smud of the California-Nevada Section. The AWWA Annual Conference & Exposition (ACE) will be taking place in Denver, Colorado, this year from June 9-13. Always a great event, I would encourage as many as possible to attend.

I expect by the time this is published another Water For People (WFP) concert has been successfully held. The preliminary fundraising has assured it will be well attended. A special thanks goes to Shawn Mulhern and the WFP planning committee for many hours of hard work on this very productive and good-time fundraiser. I am sure if you want to help next year, the committee will welcome you. Be sure to take note of and get involved in the 2nd WFP motorcycle ride and MN Section first ever WFP 5K Run, which for obvious reasons is not my strong suit.

A new piece at AWWA on Communities of Interest is guidelines and policies on how to handle water operations during drought conditions. It covers drought basics and information that can be shared with consumers. Included is historical data on major droughts in U.S. history, such as the dust bowl era. There also links available to several research institutes for more in-depth materials. The link is open to all with more complete information for members when they login to awwa.org.

Registration will be opening soon for the 97th Annual MN Section AWWA Annual Conference. Be sure to plan on attending. The planning committee has finished up on another excellent program and social activities that provide for networking opportunities for all participants. We will also be electing the next Section Director this Fall Conference and that individual will take office officially at ACE 2014. The board will have to make some tough decisions to narrow down the field of qualified candidates for both Director and Chair-elect. See you in Duluth in September.

“A special thanks goes to Shawn Mulhern and the WFP planning committee for many hours of hard work on this very productive and good-time fundraiser.”

Message from the Director

Bill Spain
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Message from the Editor

I love a good prank

The Wall Street Journal recently had a story of the Leo G. Hershberger Memorial Award, which has been presented annually since 1972 to the top college freshman basketball players by the National Association of College Basketball Writers and named after Hershberger, “a crusty, cigar-chomping New York sportswriter.” The recipients of the Hershberger Award include David Thompson, who later was inducted into the Naismith Memorial Basketball Hall of Fame. The award received recognition from Associated Press, which dispatched a wire story about the country’s top rookie basketball players “as selected by the nation’s college basketball writers” even though there was no National Association of College Basketball Writers any more than there was a real Leo G. Hershberger.

The Wall Street Journal revealed the hoax and talked to some of the award recipients, who, to their credit, were amused by the whole thing. I applaud those who created the writers association and carried out the award for more than 40 years. As an inveterate prankster, I aspire to such heights but instead have to console myself with memories of spending a day calling some poor soul and asking “Is Joe there?” and then concluding with a call of, “This is Joe. Anyone call for me today?” along with such knee-slappers as an inquiry to a grocery store, “Do you have pig’s feet? . . . Put on some shoes and nobody will notice.”

There is a point to all this since the Summer Breeze is our directory issue, packed with the names and phone numbers of those who make things happen within Minnesota AWWA. Perhaps in earlier, simpler times you could use this as a resource for prank phone calls. Alas, caller ID has put a major crimp in that, and you will just have to settle for networking, finding experts in various fields, learning the latest in new technologies from those on the cutting edge, getting help when you need it, and lots more. But, what the heck, try to have a little fun, too, and see what happens when you call some of our movers and shakers and ask, “Do you have Prince Albert in a can?” •
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Board Highlights

FINANCIAL REPORT
As of December 31, 2012, section income for the year was $329,463 and expenses were $326,733 for a net gain of $2,730. Investments were up since the beginning of the year by $31,341 for a net gain of $34,072.

Finance Committee Chair Tony Belden reports that modifications to the finance by-laws and policies and procedures were reviewed and reworded. When complete, they will be submitted to the governing board for approval and inclusion in the section’s policies and procedures. Wells Fargo was giving the authority to allocate investments according to the goals of the section. The secretary-treasurer is recommending that all future checks that are currently sent throughout the year for various events of the section be now sent certified mail only for tracking purposes.

VOLUNTEER COORDINATOR’S REPORT
(Mona Cavalcoli)
Key projects since have been Section Sponsorship Program, which has been quite successful so far. As a first year, we did not have a specific benchmark to measure against, but WFP committee has met and even exceeded their 2012 sponsorship dollars, so we see that as a measurement of success for the new Sponsorship program. I’m beginning to work more closely with Conference and Program Committees to begin plans for the Annual Conference in Duluth. Lorrie Brown from City of St. Paul has agreed to be the “Minnesota Registration Point Person,” which means she would be the one to accept any paper registration that are received, and would pass those along to me for processing in the online system. Lorrie has helped with registration before and has the support of Steve Schneider to take on this task. Dave Brown and a couple other volunteers have also stepped up to help with registration this year.

Dave Hume and I attended the 2013 Membership Summit on the Section’s behalf, and came away energized with ideas to rev up our Membership Committee and work to improve the Section’s retention rates. We’ve entered the AWWA 2013 Membership Challenge, and our goal is to maintain (or exceed) a 67 percent retention rate of first-year members. Sections that meet their goals in the Challenge can receive cash back from AWWA.

AWARDS COMMITTEE
Chair Nancy Zeigler reports that the committee invites any member to present nominations for the Volunteer of the Year and Operator Meritorious Service Award.

INFORMATION TECHNOLOGY
The committee is working on implementing on-line registration and payments for all section schools and events.

MINNESOTA ASSOCIATES COUNCIL
The council held a strategic planning meeting in December and will develop a committee for each of the following goals:
- Plan, coordinate, and enhance the exhibits, competitions, fundraising and MAC Social at the section at the annual section conference.
- Increase fundraising support to Water for People and the David B. Morris Endowment Fund.
- Identify, develop and enhance partnerships with section committee and outside organizations to leverage resources.
- Promote membership and participation in Minnesota AWWA by representatives of the service provider, consultant, distributor and manufacturer industries.

PUBLIC INFORMATION COMMITTEE
The committee participated in a drinking water poster contest among Minnesota schools and helped judge the entries. Four winners were selected, and their schools will receive bottle filling stations.

WATER FOR PEOPLE
Upcoming fundraising events include a 5K walk and run August 9 at Cleary Lake Regional Park in Prior Lake and a motorcycle ride August 17 in White Bear Lake.

YOUNG PROFESSIONALS COMMITTEE
Chair Brent Massmann attended the Young Professionals Summit, which had the theme of Managing Your Career: Enhancing Your Future through Negotiation and Communications.

SAFETY COMMITTEE
The committee is doing a survey to determine interest in training, such as workshops for risk management program compliance and process safety management.

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The Minnesota Clean Energy Resource Teams (CERTs) has created the ‘Make A Splash’ program to draw attention to often overlooked and simple retrofits that meet at the intersection of water and energy use. This program makes available water and energy conservation faucet aerators, pre-rinse spray valves, and showerheads at discounted prices. Cities and municipal utilities are taking advantage of the Make a Splash program to get these easy-to-retrofit devices out into their communities.

In commercial kitchens at restaurants, hospitals, senior living and community centers, schools, and churches, a pre-rinse spray valve is likely used daily to manually spray off the food waste before the dishes go into the washing machine. If a one-gallon container can be filled in thirty seconds or less, it’s probably best to invest in a new pre-rinse spray valve. Why? Because older units typically use three gallons of water or more each minute, versus the newer models that use 1.28 gallons a minute or less with the same or better performance. Depending on how often and how long you are using the sprayer, this difference can result in energy, water, and cost savings. “We have estimated that a commercial kitchen switching to an efficient sprayer that is used about one hour a day could save around $410 a year,” says Alexis Troschinetz of CERTs.

Replacing faucet aerators on sinks in bathrooms and at other sinks used for hand washing can result in substantial...
savings for restaurants, hotels, hospitals, schools, senior living and multifamily units, and office and government buildings. “A lot of sinks still have flows of 2.2 gallons per minute,” says Troschinetz. “This program makes available 0.5 and 1.0 gallon per minute aerators for hand-washing stations. You can often save over $100 per year per sink, just by unscrewing the old aerator and replacing it with a new one.” Showerheads are another easy retrofit to consider in bathrooms and locker rooms. Showerheads are also available through the program at reduced prices with flow rates of 1.5 gallons per minute to help lower energy and water use and costs even more.

Anyone can order faucet aerators for $0.50 (typically $2 retail), pre-rinse spray valve units for $28 (typically $68 retail), and showerheads for $9-11 through at [www.splash.mncerts.org](http://www.splash.mncerts.org). CERTs is also happy to calculate the energy and water savings gained through your participation in this program for you to report on your organization’s energy efficiency, water conservation, or sustainability goals.

About CERTs: The Clean Energy Resource Teams—or CERTs—are a statewide partnership with a shared mission to connect individuals and their communities to the resources they need to identify and implement community-based clean energy projects. We empower communities and their members to adopt energy conservation, energy efficiency, and renewable energy technologies and practices for their homes, businesses, and local institutions.
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Summer 2013

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<td>Weltzin, Deborah</td>
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<tr>
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<th>Website</th>
<th>Contact Information</th>
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</thead>
<tbody>
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<td>6901 East Fish Lake Road, Suite 184, Maple Grove, MN 55369</td>
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<td>Anwell</td>
<td><a href="http://www.anwell-inc.com">www.anwell-inc.com</a></td>
<td>7760 France Avenue, Suite 1200, Minneapolis, MN 55435</td>
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<td><a href="http://www.bergersoncaswell.com">www.bergersoncaswell.com</a></td>
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<td>CDM Smith</td>
<td><a href="http://www.cdmsmith.com">www.cdmsmith.com</a></td>
<td>7650 Currell Boulevard, Suite 300, Woodbury, MN 55125</td>
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<td><a href="http://www.ceifi">www.ceifi</a> ltration.com</td>
<td>28205 Scippo Road, Oakdale, MN 55128</td>
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<td>Downhole Well Services, LLC</td>
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<td><a href="http://www.ejco.com">www.ejco.com</a></td>
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From Main to Mouth: Plastic Plumbing Pipe Choices for Green Buildings and New Construction

By Matthew Connell, Alexandra Stenson, and Andrew J. Whelton, University of South Alabama, Mobile, AL

The ongoing Lead and Copper Rule revision by the U.S. Environmental Protection Agency and controversy about the U.S. Green Building Council’s (USGBC) LEEDv4 rating system has touched off debate about which plumbing system materials should be selected or avoided to ensure safe and aesthetically pleasing drinking water (Image 1). There is certainly no shortage of choices when it comes to potable water pipe materials. In communities across Alabama and Mississippi, drinking water is transported to customers with several different types of utility-owned metal and plastic pipes. These pipes differ in diameter, length, composition, and age. Similarly, the same materials and more can be found at service connections and within buildings. Each of these materials can alter drinking water quality differently. A team of University of South Alabama researchers are investigating these differences.

Today, copper is the most commonly found pipe installed as service connections and inside buildings for potable water. Residential plumbing systems frequently employ Type L copper. Copper, like all metals, is subject to corrosion and, more specifically, pinhole leaks. Furthermore, because copper piping is installed behind walls and ceilings, water damage remediation costs can be substantial. Causes of pinhole leak incidents are still being investigated, but Virginia Tech researchers have so far determined that combinations of water chemistry and hydraulics are factors. Galvanized iron, ductile iron, lead, and stainless steel potable water plumbing pipes are used less commonly. Lead pipe is no longer installed for new plumbing systems because of the acute and chronic health issues associated with lead in drinking water. Lead pipes can still be found in older buildings and as service connections.

To aid building construction, water, and public health, professionals better understand which plastic potable water pipes are available and how they differ from one another, this article was developed. This article provides an introduction to plastic pipe materials that convey water from the utility water main to the tap. Differences between plastic pipe retail cost, properties, and applications are described.

THE RETAIL COST OF PLASTIC PIPE

As shown in Table 1, on a material-cost basis, plastic pipes are less expensive than metal pipes. Plastic materials are also much lighter and generally more flexible than their metallic counterparts. These advantages enable plastics to be more easily transported and handled.

SPAGHETTI, KEY TEMPERATURES, AND THE CONTRACTOR FENCE ANALOGY

Why one plastic pipe is stiff and another is flexible can best be understood by visualizing cooked spaghetti. Plastics are composed of a mixture of polymer chains or strands of spaghetti (Image 2). Chemically, spaghetti strands represent a series of polymer chains.
small molecules bonded together. Polyethylene chains are strings of many ethylene compounds. Polyvinyl chloride chains are strings of many vinyl chloride compounds. The size and composition of the spaghetti strands (polymer chains) determine the plastic pipe’s physical and chemical characteristics. Long strands of spaghetti versus short strands of spaghetti affect plastic pipe strength, flexibility, and density.

In a plumbing supply store differences between plastic pipes are obvious. Certain plastics are flexible and others are stiff. This material characteristic derives from each material’s glass transition temperature or Tg value. The material’s Tg is the temperature at which its long polymer chains (spaghetti strands) begin to wiggle when the material is subjected to heat. Certain plastics require more heat than others. The Tg is also the temperature at which the plastic turns from a glassy material to a rubbery material. For example, PVC potable water pipe has a glass transition temperature of 177°F and is a hard, stiff pipe on the store shelves (Table 2). As you heat PVC pipe from 167°F to 185°F, it makes a transition from stiff and soft to rubbery. Another example is HDPE pipe (commonly found as black coils). HDPE potable water pipe is flexible because it has a Tg value of –184°F. That means when the temperature is greater than –184°F, HDPE will act rubbery and be flexible. Therefore, HDPE coils are easy to handle and are flexible. If the outdoor temperature ever reached –184°F in Alabama and Mississippi, the type of plastic pipe installed in a building would certainly not be the most significant issue.

Certain plastic pipes can only be used for cold drinking water transport because they lose their stiffness and deform when exposed to hot water. Heating a plastic pipe close to or above its melting temperature causes the spaghetti strands (polymer chains) to slide away from one another. Once the polymer chains slide away from one another far enough, the plastic deforms, loses material strength, and may begin to “flow” like hot oil in a frying pan. Clearly a plastic pipe that deforms or melts when exposed to hot water would be undesirable in a building. Plastics that can melt are called thermoplastics; plastics that do not melt are called thermosets. PVC and HDPE pipes, for instance, can melt and are thermoplastic.

<table>
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<tr>
<th>Material Application and Name</th>
<th>Cost, $ USD per 100 foot</th>
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<td>Hot and Cold Use</td>
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<tr>
<td>Copper (Type L)</td>
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<td>Polypropylene (PP)</td>
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<tr>
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Results were obtained by visiting local plumbing supply stores in Southern Alabama during Spring 2013. Costs do not include labor for installation.

Table 2. Glass transition and melting properties of a few potable water plumbing pipes, Degrees Fahrenheit (Celsius)

<table>
<thead>
<tr>
<th>Material Name</th>
<th>Glass Transition Temperature, Tg</th>
<th>Melting Temperature, Tm</th>
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<tr>
<td>Acrylonitrite Butadiene Styrene (ABS)</td>
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<td>430 (221)</td>
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<tr>
<td>Chlorinated (cPVC)</td>
<td>223 (106)</td>
<td>414 (212)</td>
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<td>Polypropylene (PP)</td>
<td>212 (100)</td>
<td>320 (160)</td>
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<tr>
<td>Polyvinylchloride (PVC)</td>
<td>177 (81)</td>
<td>360 (182)</td>
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<tr>
<td>High Density Polyethylene (HDPE)</td>
<td>–184 (–120)</td>
<td>266 (130)</td>
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</tbody>
</table>

In practice, Tg values can vary slightly based on chemical structure, pipe manufacture, and its additives. For reference, water typically boils at 212°F.
materials. For these reasons, knowing the approved plastic pipe temperature range for the material being considered is important.

Reliable hot water plumbing pipe materials must not melt when carrying hot water. Chlorinated polyvinyl chloride (cPVC), polypropylene (PP), and crosslinked polyethylene (PEX) pipe can transport hot water. cPVC and PP pipes are thermoplastics with very high melting temperatures. PEX, however, is a thermoset material. Thermoset materials have short polymer chain ‘bridges’ that connect individual polymer chains to each other. A visual representation of thermoset materials can be seen in Image 3. This image shows orange contractor fencing example where polymer chains can be seen (a) crosslinked and (b) NOT crosslinked (like a pile of spaghetti).

**WHAT ARE THE PLASTIC PIPE OPTIONS?**

Water temperature and cost of installation can largely drive the plumbing pipe selection decision. Several available materials, and their histories, are briefly described below. New plastic pipe formulations are constantly entering the marketplace (Image 4). Testing of existing and new materials by the University of South Alabama is providing a more scientific understanding of how these materials impact water quality and how they degrade once installed.

**Poly(1-Butene) (PB).** PB pipe, also called “polybutylene” and “the grey pipe,” used to be installed across the United States from 1978 to 1995, but widespread premature PB pipe failures resulted in a class action settlement. Millions of dollars of water damage were caused by PB pipe system failures across the United States. Thus, this type of pipe system is no longer used.

**Acrylonitrile Butadiene Styrene (ABS).** Although certain ABS pipes are approved for drinking water use, they are not typically installed for potable water plumbing.

**Polyvinyl Chloride (PVC).** PVC has been used as a potable water pipe since the 1970s. This material is also commonly used for drain waste vent (DWV) pipe and is commonly found under the kitchen sink drain. PVC potable water pipe systems are typically linked together with glue. The glues involved have been subject for concern. Debate continues within the green building community about whether PVC can be considered a green material.

**Chlorinated Polyvinyl Chloride (cPVC).** cPVC is commonly installed for both hot and cold water plumbing applications. Compared to PVC pipe, cPVC pipe is stiffer and more stable at higher temperatures (Table 2); cPVC pipe has a greater Tg and Tm value than PVC pipe. Like PVC pipe, cPVC pipe is also installed using glue.
High Density Polyethylene (HDPE).
In the early 1990s, polyethylene potable water pipe began to gain widespread use. HDPE is a polyethylene material, which by definition very dense. Polymer chains of HDPE (spaghetti strands) are packed closely together, resulting in an increased plastic pipe strength. PE pipe has been embraced by the green building industry. HDPE pipe is commonly installed using fittings, but can also be ‘fused.’ Fusion is the act of melting two ends of a pipe, pressing them together, and allowing them to cool, thereby creating a joint.

Polypropylene (PP). PP–R, polypropylene random pipes, were invented in Europe in the 1990s and are relatively new to the US building plumbing industry. PP materials have similar characteristics to HDPE, but greater Tg and Tm values. For these reasons, PP pipes can be used as hot water plumbing pipes. PP pipe systems can be installed with fittings or fused similar to HDPE systems.

Crosslinked Polyethylene (PEX).
Unlike other pipe systems previously described, PEX pipe systems involve a single manifold where individual pipes are run to each faucet in the building (Image 5). PEX material is typically created by further processing HDPE polymers. PEX (Type B) pipe is one of the most common types of PEX available for potable water plumbing pipe installation in the US. Two other types of PEX pipes are available (PEX Type A and PEX Type C), but those are more commonly installed in Europe.

Polyethylene Raised Temperature (PERT). PERT pipe is new to the marketplace and has been advertised as being another polyethylene pipe alternative that is capable of transporting hot water. PERT has not yet widely been applied in building plumbing systems.

Multilayered Pipes. Until recently, plastic pipe for potable water plumbing systems did not contain metal. Today, ‘multilayered’ piping is available in which the metal (typically aluminum) is sandwiched between two layers of plastic that may or may not be of the same type (Image 6). As Table 3 shows, there are a number of different types of multilayered pipes on the market. The advantage of a multilayered pipe compared to other plastics described is that they capitalize on the benefits of both polymeric and metallic materials, while overcoming the drawbacks of each. These plastic-metal hybrids allow for greater stiffness than plastic-only pipes. The plastic-metal combination enhances their compatibility with brass fittings already installed in copper plumbing systems. Multilayered pipes also hold their shape after being bent and reduce the elasticity associated with the heating of certain plastic pipes.

CONCLUSION
Homeowners, builders, and water professionals have many potable water plumbing pipe options. Because plastic pipes are less expensive than metal pipes and easy to install, their use in building plumbing is expected to continue. Stiffness and flexibility differences between plastic piping derive from chemical and manufacturing differences between the materials. Understanding the allowable operating temperatures of plastic pipes is important because certain pipes also can only be used for cold water transport.

Table 3. Several different multilayered pipes are available for potable water transport.

<table>
<thead>
<tr>
<th>Name of Multilayered Pipe</th>
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<tr>
<td>PEX / AL / PEX</td>
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<td>PE / AL / PE</td>
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<td>cPVC – Aluminum Barrier – cPVC</td>
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</table>
conveyance as they will deform and melt at hot water temperatures. With more than 10 different types of plastic potable water pipes available and roughly 5 to 10 brands (formulations) per pipe type, no shortage of plumbing pipe options exist. This number is expected to increase as innovative, more sustainable, materials are developed to meet the emerging needs of the green building industry.

In addition to the information presented above, there are many unknowns about plastic potable water pipe plumbing systems. One unknown is the degree to which new and aged plastic pipes alter drinking water quality. Results from our laboratory testing have revealed that several "approved" plastic pipes being sold at plumbing supply stores can alter drinking water chemical and odor quality once installed. Furthermore, our team has detected several chemicals of interest that leached into the drinking water from a newly installed green building plastic piping system. As summarized in our 2013 published review of chemical leaching data from plastic water pipe tested in 15 countries, little information is available for plastic piping systems sold in the US. To aid homeowners, builders, and water professionals in their desire to select plumbing pipe that ensures safe and aesthetically pleasing drinking water, more data are needed.

This article is part of a larger plastic pipe project funded by US National Science Foundation grant CBET–1228615. The purpose of the larger project is to better understand the chemicals released from plastic pipe into building drinking water. The project will also identify better methods for plastic pipe design and installation to limit chemical exposures.

ABOUT THE AUTHORS
Matt Connell is a graduate student in the University of South Alabama Environmental Toxicology Program, Dr. Sandra Stenson is an Associate Professor of Chemistry, and Dr. Andrew Whelton is an Assistant Professor of Environmental Engineering in the Civil Engineering Department. Additional information can be obtained by contacting Dr. Whelton at ajwhelton@southalabama.edu, (251) 460–6174, and by visiting the project website: http://www.usacoee.org/ajwhelton.

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Marti is a brewmaster at Schell’s Brewery in New Ulm, Minnesota, and a sixth-generation descendant of August Schell, who co-founded the brewery in 1860. A native of Durbach, Germany, Schell came to the United States in 1848 and found his way to New Ulm. Not finding any of the German beer he was fond of in the area, Schell started a brewery, using an artesian spring as a water source and the nearby Cottonwood River for transportation of the finished product.

At the time, most of the brewing was done in the winter, and the beer was kept in caves – kept cool with blocks of ice from the river – for aging and fermentation and to store the product for the peak summer months.

Schell’s survived the Dakota War in southern and western Minnesota in 1862 and expanded. The brewery and grounds now cover 40 acres with scenic gardens, a deer park (in addition to a year-round residency of peacocks) and a mansion, making it a popular tourist destination in the summer as well as the site of the annual Bockfest event in the winter.

Eventually the springs were replaced by wells. In 1995 Schell’s switched to water provided by the city, which opened its water treatment plant. City water comes from the quaternary buried artesian and undifferentiated cretaceous aquifers, tapped by 13 wells, ranging in depth from 62 to 247 feet.

Joel Johnson, the chief operator for the New Ulm utility, said they feed potassium permanganate and chlorine for manganese and iron removal and have five sand filters. New Ulm averages 2.5 million gallons per day (MGD) throughout the year with the production reaching about 3.5 MGD during the summer. Of that amount, Schell’s uses approximately 1.2 million gallons per month in brewing 130,000 barrels of beer a year.

Marti says the brewery is still getting water from the same aquifers as it had during the time they had their own wells. The groundwater, with its iron and hardness, is more suited to brewing English-style ales, Marti explained, adding that the New Ulm water profile is similar to England’s Burton upon Trent, a major brewing city.

The German lagers and Pilsners require softer water, and the brewery performs its own water treatment, which includes reverse-osmosis and an iron filter at the head of the brewing. The water treated at the plant is then blended with more city water with the goal of reducing the hardness to 50 parts per million.
“There are certain elements [of the water] good for brewing and some that are not,” said Ted Marti, Jace’s dad and the company president. Ted attended Siebel’s Institute of Brewing in Chicago and has been a brewmaster since 1975. Jace went to school in Berlin and became a brewmaster in 2011. Besides Ted and Jace Marti, Schell’s has two other brewmasters, Jeremy Kral and Dave Berg, among its 57 full-time employees.

In addition to eight year-round specialty brands and eight seasonal brands, Schell’s now brews Grain Belt Beer with three different labels. Grain Belt used to have a large brewery in northeast Minneapolis, but the facilities have been converted to a library and space for other uses. The Twin Cities also had Hamm’s and Schmidt breweries, but Jace Marti notes that consumer preferences have been changing with the craft-beer revolution.

Schell’s remains one of the few large breweries in the state, along with Cold Spring in central Minnesota. Summit Brewing in St. Paul has also risen in prominence. From the micro-breweries to full-scale facilities for beer production, it all starts with the water.

Vats in the brewing room are used to separate the grain from the liquid.

“...”
Industry News (reprinted from Waterline)

Electronic delivery options for Consumer Confidence Reports

Community water systems must distribute their Consumer Confidence Report (CCR) by July 1, and can use a combination of methods, including a new electronic delivery option, to deliver them Electronic delivery can be done through the mail with a postcard listing a direct link to the CCR and/or through an e-mail message that includes a direct link, the CCR as a file attachment, or the CCR embedded in the e-mail message. In addition, systems must provide a paper copy of the report to anyone who requests it.

In all cases, a link must take customers directly to the report rather than to a page (such as the city’s utility site) that requires further navigating. In addition, efforts must be made to reach customers who do not receive a water bill, such as renters.

Water systems may get their CCR information from the Minnesota Department of Health from the department’s web site at http://health.state.mn.us/ccr (User ID: commccr and Password: CCRDraft!). Starting next year MDH will not be mailing the reports to water systems, who will have to get the information off the web site or make a specific request to MDH to receive the reports in the mail.

For more information, contact Lih-in Rezania, (651) 201-4661, lih-in.rezania@state.mn.us or Cindy Swanson, (651) 201-4656, cindy.swanson@state.mn.us.

Drinking Water Institute in Rochester

Water Works! A Drinking Water Institute for Educators will be held in Rochester this summer from Monday, August 5 to Wednesday, August 7. Each year Minnesota science teachers attend the three-day institute, learning about drinking water and about ways to develop inquiry-based activities that can be incorporated into their existing science curriculum. The program is free to teachers, who will receive college credit for their participation.

Water Works! is sponsored by the Minnesota Department of Health and the Minnesota Section of AWWA and is conducted through a partnership with Hamline University’s Center for Global Environmental Education. More information is available on the MDH website at http://www.health.state.mn.us/water/institute/index.htm.
Many Small Systems continue to face day-to-day challenges with system management

By Lori Blair, Minnesota Rural Water Association

The Check Up Program for Small Systems (CUPSS) is a free, easy-to-use, asset management tool for small drinking water and wastewater utilities. CUPSS provides a simple, comprehensive approach to help you develop a record of your assets, a schedule of required tasks, an understanding of your financial situation, and a tailored asset management plan.

CUPSS software has four main goals:
1. Assist with communication between system staff and decision makers;
2. Help move systems from crisis management to informed decision making;
3. Facilitate more efficient and focused utility operations; and
4. Improve financial management to make the best use of limited resources.

The software is structured through a series of modules to collect information on a utility’s assets, operation and management activities, and financial status for setting up an asset management plan. You can download CUPSS at http://www.epa.gov/cupss or order a copy by calling 800-490-9198 to request EPA 816-K-08-002 user’s kit. CUPSS also has technical support by e-mail at cupss@epa.gov.

A series of conference calls are being held quarterly this year for both new and experienced CUPSS users and trainers. The CUPSS Community Calls provide a forum for those using, training, and learning about CUPSS to hear updates and asset management strategies from CUPSS practitioners.

Upcoming CUPSS Community Calls
(all calls will be held 1:00-2:00pm Central time):
Wednesday, July 31
Thursday, October 31

Grant Funds available for Community Fluoridation

Minnesota Rule 4720.3000 requires municipal water supplies to maintain fluoride content within the range of 0.9 to 1.5 milligrams per liter (mg/L) surrounding a 1.2 mg/L optimum. However, pending U.S. Health and Human Services fluoridation recommendations are likely to trigger future required fluoride content of approximately 0.7 mg/L. Those water systems still performing fluoridation treatment in the future may encounter pump size, blending, and optimization questions in addition to ongoing aging infrastructure issues.

The 2013 Community Fluoridation Grant can provide up to $3,600 toward community fluoridation installation and optimization. Awarded funds may be used for purchase, installations, and engineering costs of both process equipment and analytical equipment. A large fraction of the potential awards ($3,000) are designated for process equipment but only if installed at an entry point requiring at least 0.3 mg/L fluoride addition to provide 0.7 mg/L fluoride in the finished water. Applicants must provide in-kind or matching funds equivalent to 20 percent of the total project cost. The application deadline is Thursday, May 30, 2013.

The Request for Proposal has been posted on the MDH Community Public Water Supply Web site at http://www.health.state.mn.us/divs/eh/water/com/grants.

Compliance Corner

By Mackenzie Hales, Minnesota Department of Health, Community Water Supply Unit

30-hour holding time: Total Coliform samples should arrive at the lab within 30 hours after sampling. Due to U.S. Environmental Protection Agency requirements and studies pointing to significant bacteria die-off in water samples between 30 to 48 hours old, the Minnesota Department of Health must start moving towards upholding this limit. Community systems will begin receiving calls when samples are received more than 30 hours after they were taken. Please discuss shipping options with your assigned lab, and consider using another shipping method if your samples are consistently late. Proper planning can also help avoid exceeding the 30-hour limit. Check with local mail-service options about pick-up times, as this may help you plan your sampling schedule. For example, if the truck comes to pick up packages at 4 p.m., sample in the early afternoon instead of in the morning to reduce the amount of time the sample sits around outside of transport. Thanks for your cooperation!

Please properly fill your total coliform sample bottles! Make sure to fill sample bottles with the proper amount of water. We have been receiving a lot of samples with insufficient volume to run the required analysis. (See the photo for proper water levels.)

Disinfection residual lab form: Fill out all required fields on lab forms. If your system measures the chlorine residual, make sure to write this in the proper field on the lab form. The sampling time should be recorded and the am/pm box must be checked. Systems may use military time, and if no am/pm is checked the lab will assume that the time is written in military time.
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Robertson named supervisor

Steve Robertson has been named the supervisor of the Source Water Protection Unit at the Minnesota Department of Health. He succeeds Bruce Olsen, who retired last year, and Art Persons, who served as interim supervisor before retiring in April.

Robertson recently completed the Boston Marathon and had finished after the bombs exploded. He said he heard the explosions but was out of the immediate area by the time they occurred.

Fleischhacker joins Black & Veatch

Nathan Fleischhacker joined the Minneapolis office of Black & Veatch Water Division. He will serve as a Project Engineer with the water and wastewater group. He is a recent graduate of the University of Minnesota where he was a research assistant under Paige Novak looking at phytoestrogen degradation in the environment.

WSB & Associates, Inc. announces staff promotions

WSB & Associates, Inc. is pleased to announce five staff promotions:

SHAREHOLDER:

Brian Bourassa, PE, was promoted to Shareholder. He is a senior project manager and leads the firm’s Business Services Group. Bourassa has been with WSB for five years.

ASSOCIATE:

Sean Delmore, PE, PTOE, was promoted to Associate. He is a traffic engineer and has been with WSB for four years.

Jason Wedel, PE, was promoted to Associate. He is a senior project manager who joined WSB in 2011.

TECHNICAL ASSOCIATE:

Ed Youngquist was promoted to Technical Associate. He is an engineering specialist who has been with WSB for three years.

Brad Robinson was promoted to Technical Associate. He is a structural engineering specialist and has been with WSB for eight years.

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