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The City of Fairmont’s new 5.4 million gallon per day (MGD) water treatment plant (WTP) went online a little more than one year ago, after nearly six years of planning, design, and construction. The City’s previous plant was built in 1926 and despite diligent maintenance, the WTP was facing significant challenges related to deteriorating equipment and structures, treatment capacity limitations, seasonal treatment issues, and projected treatment deficiencies with regard to anticipated future drinking water regulations.

Goals for the new WTP were to eliminate taste and odor complaints due to seasonal changes in Budd Lake, the source of the City’s drinking water, and to provide the most responsible long-term improvements for the City’s aging water treatment infrastructure. Troy Nemmers, Fairmont’s Director of Public Works and City Engineer, says, “Continuing to provide an abundant supply of safe, potable drinking water is imperative to the ongoing success of the City, and addressing seasonal taste and odor issues will greatly enhance the quality of water for our customers.” The WTP serves a population of nearly 11,000 people, as well as 476 commercial and 17 industrial customers.

In the summer of 2008, the City of Fairmont contracted with Advanced Engineering and Environmental Services, Inc. (AE2S) of Maple Grove, Minnesota, and the project teams comprised of the City and AE2S staff began working together on a Facility Planning effort targeted at developing a feasible solution to the compounding challenges at the WTP. The study included projecting treatment and capacity needs and evaluating source water supply alternatives. In addition, the City placed a high priority on evaluating the potential for rehabilitation of the aging facility and reuse of existing treatment infrastructure. Based on the completion of a multi-disciplinary facility condition assessment, it was determined that extensive rehabilitation of the facility would be required to keep the existing WTP in service for the foreseeable future. In addition, the WTP would still require advanced treatment technologies to be installed to address anticipated future regulations and seasonal taste and odor issues. In the end, Fairmont decision makers concluded that construction of a new WTP would be the best option from both financial and long-term sustainability perspectives.

Following a collaborative design process, construction of the new WTP began in July 2011. The new 5.4 MGD facility includes the following treatment processes: raw water aeration, conventional lime and soda ash softening, a filter press solids handling process, conventional sand filtration, granular activated carbon (GAC) filters/adsorbers, on-site generation of sodium hypochlorite for chlorine disinfection, additional chemical feed systems, and a complete Supervisory Control and Data Acquisition (SCADA) System. Although much of the new WTP was constructed on a site across the street from the original WTP, the City was able to reuse much of the existing raw water intake station on the shore of Budd Lake. The existing raw water intake station was rehabilitated...
and returned to service for the City of Fairmont. Butch Hybbert, Fairmont’s Water Treatment Superintendent, says, “Incorporating the flexibility to manage a wide range of influent water qualities, water demand variations, and operational conditions was very important to our operations.”

In addition to the more conventional lime/soda ash softening and filtration treatment processes, the addition of the granular activated carbon (GAC) filtration/adsorption technology will provide taste and odor control during seasonal variations in raw water quality. GAC is a superior treatment technology for taste and odor constituents and is recognized by the United States Environmental Protection Agency as a “best available technology” for the treatment of many of the source water compounds that may be regulated over the life of the WTP.

“Over the past 80 years, the City of Fairmont had maximized the useful service life of its previous WTP. The new WTP provides a strong foundation of lasting infrastructure, robust treatment technologies, enhanced control systems, and the operational flexibility to accommodate future changes in the drinking water industry. The new WTP is prepared to serve the City of Fairmont well for the foreseeable future,” says Jason Kosmatka, PE, AE2S Project Engineer.

In early 2015, the City’s former WTP was razed, and the site was developed into green space on the eastern shore of Budd Lake.

This fall, AE2S officially celebrated the firm’s newest offices in Bozeman, MT and Sioux Falls, SD with open houses and local Chamber of Commerce ribbon cutting events. “Bozeman is an important client for AE2S in Montana. The recent hire of Scott Buecker in the Bozeman office is an indication of our commitment to provide our brand of extreme client service to the City and surrounding area,” says Nate Weisenburger, Bozeman and Great Falls Operations Manager. The Bozeman office is located at 1050 East Main Street, Suite 2.

“It is exciting to continue growing our business and to be able to serve clients in new geographies. We have been working in Sioux Falls for many years, so this expansion is especially rewarding,” says Eric Dodds, PE, Sioux Falls and Fargo Operations Manager. The Sioux Falls office is located in the Hegg Building at 1300 West 57th Street, in Suite 200.

AE2S currently has 17 offices in six states, including Montana, Minnesota, North Dakota, South Dakota, Wisconsin, and Utah.
Aging and outdated infrastructure is one of the greatest challenges facing federal, state, and municipal leaders across the U.S. right now. Determining the best way to move forward on a major project can be difficult, but there is a new tool to make the decision-making process easier. An independent, non-profit organization called the Institute for Sustainable Infrastructure (ISI) has developed a rating system called Envision™ to evaluate the sustainability of infrastructure projects such as water and wastewater treatment plants, pipelines, bridges, and roads. Basically, the rating system is intended for infrastructure projects that are not already covered by the Leadership in Energy & Environmental Design (LEED) rating system. The tool can be used for existing infrastructure, new projects, and infrastructure renovations.

Envision™ is based on the “triple bottom line” concept of sustainability, which considers a proposed project or existing infrastructure’s environmental, economic, and social impacts. ISI describes Envision™ as “the only comprehensive assessment system that strives to improve a project’s social and environmental performance, while also accounting for economic benefits and creating a better long-term value for the community.”

The Envision™ system is organized into five categories: Quality of Life, Leadership, Resource Allocation, Natural World, and Climate and Risk. “The Envision™ rating method is a defensible decision support tool. When a project is considered through the Envision™ lens, leaders can go back to their city councils, boards, and tax payers and show exactly how a project will benefit their communities financially, environmentally, and socially,” says Jaroslav Solc, certified Envision™ Sustainability Professional (ENV SP) and AE2S Civil Municipal Practice Leader.

Similar to the LEED certification, projects can be eligible for Envision™ certification if they meet certain criteria. However, certification is not necessary. “Many cities will just want to use Envision™ as a tool for making sustainable infrastructure decisions. They do not have to get their projects certified at the Platinum, Gold, Silver, or Bronze level unless that is something that is important to them. This is not about having a plaque on the wall – it’s about making sound decisions that will stand the test of time,” says Jared Heller, ENV SP and AE2S Fargo Assistant Operations Manager. “I’m passionate about Envision™ because this rating system will help us determine the most sustainable way to complete great projects today that will gain the admiration of future generations.”

To become an ISI credentialed practitioner, a candidate must have a four year engineering degree or hold a Professional Engineer (PE) designation, complete a series of Envision™ courses conducted by ISI, and pass an exam regarding the use of Envision™, among other requirements.

ISI was cofounded by the American Council of Engineering Companies, American Public Works Association, and the American Society of Civil Engineers. The non-profit organization offers free membership to public utilities, governments, and government agencies. Click here to access the application for membership or contact Jared Heller at Jared.Heller@ae2s.com to learn how Envision™ can be used to help plan your next infrastructure project. AE2S is a charter member of ISI, as well as the first engineering consulting firm in North Dakota to have certified ENV SP on staff, and among the first in Minnesota, Montana, and South Dakota. AE2S currently has five employees who are ENV SP certified.

NEW TOOL HELPS LEADERS “ENVISION” SUSTAINABLE INFRASTRUCTURE PROJECTS

ENV SP CERTIFIED STAFF
- JARED HELLER, PE
  Assistant Operations Manager, Fargo
- BRETT MORLOCK, PE
  Project Engineer, Bismarck
- SCOTT SCHAFFER, PE
  Wastewater Practice Leader, Minneapolis
- Jaroslav Solc, PE
  Civil Municipal Practice Leader, Grand Forks
- Nate Weisenburger, PE
  Operations Manager, Great Falls & Bozeman
Jay Kleven, PE, joined the AE2S staff in September as a Senior Project Manager in the Grand Forks office. "Jay brings a passion for both client service and project management/doing work and will be a great addition to our team. He will be working to develop projects in the areas of structural engineering and civil engineering, as well as supporting AE2S Industrial and AE2S Construction," says Sanford Case, PE, Grand Forks Operations Manager.

Jay came by engineering naturally, as his parents ran a materials testing laboratory and geotechnical engineering firm in Minot when he was growing up. "I started working there when I was 12, so the engineering profession was a natural choice," he says. Prior to joining AE2S, he was a Partner/Principal at EAPC for more than 16 years, managing the structural and civil engineering divisions. He also previously worked as a research laboratory manager at the University of Wisconsin-Madison, where he received his Masters Degree in Geotechnical Engineering.

Currently, Jay is working on the City of Devils Lake’s Recycling Center re roofing project. He is also building the firm’s industrial client base, expanding service in his hometown of Minot, and introducing AE2S’ broad range of services to less traditional clients.

If his last name sounds familiar to you, it may be because his wife, Miranda Kleven, PE, has worked as an AE2S Special Projects Engineer and an AE2S Nexus Financial Analyst for the past 16 years. “My much better half Miranda and I have been married for 20 years, and we actually moved back to Grand Forks in 1999 so she could take a job with AE2S. She has been bugging me to come to work at AE2S ever since,” Jay says with a laugh.

The Kleven family has three daughters and one son, Norah (17), Maddie (15), Annie (11), and Joseph (6). One of Jay’s passions is hockey. He refereed for many years and has an interesting battle scar on his neck and story to show for it. The sport is pretty popular in the Kleven household as well. “I coach hockey, watch hockey, talk about hockey, and live hockey. All of our kids play or have played hockey,” explains Jay. It certainly seems like hockey and engineering run in the family. Perhaps AE2S will have a few more Klevens on staff in the future?

Jay Kleven, PE
Senior Project Manager

AE2S Good Samaritan Fund

The corporate headquarters of AE2S is located in Grand Forks, ND, where the firm was founded back in 1991. This, in addition to attending UND and raising a family in Grand Forks, means the city will always hold a special place in the hearts of Steve Burian, AE2S CEO, and his wife, Barb. That is why the couple, in conjunction with AE2S, created the AE2S Good Samaritan Fund through the Grand Forks Public Schools (GFPS) Foundation for Education.

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AE2S CEO Steve Burian with wife Barb, daughter Tiahna, and son Tyler

The endowment was created to help support students in need who attend Grand Forks Public Schools. The Fund’s primary goal is to provide students with basic necessities so they can achieve their full academic potential. “My wife, who is a teacher, my children, Susie Laurin who is now an AE2S Human Resources Assistant but previously worked in the Grand Forks school system, and others close to me had relayed some really sad stories regarding students whose educations and lives were being affected by an inability to afford basic needs. The AE2S Good Samaritan Fund was formed to meet this need,” says Steve.

Since the Good Samaritan Fund was created in December 2013, the funds have helped approximately 50 students who have received items such as backpacks, school supplies, warm winter clothing, and gym shoes.

In addition, the money raised has also provided reading glasses and hearing aid repairs. And because AE2S’ leadership feels strongly that a good education is one of the keys to future success, the AE2S Good Samaritan Fund also provides scholarships for summer classes focused on math, science, and reading. “My family did not have a lot of money when I was growing up but I never worried about meeting basic needs and I was given a lot of educational opportunities. I hope this fund continues to play a small part in extending this abundance to others,” says Steve.

Tax deductible donations to the AE2S Good Samaritan Fund can be made by contacting the GFPS Foundation for Education, or click here and select the AE2S Good Samaritan Fund in the drop down menu to make an online donation.
AE2S HOSTS EASTERN MONTANA SURFACE WATER TREATMENT TRAINING

Dr. Delvin DeBoer, AE2S Special Projects Engineer and former SDSU professor, went back to his teaching roots for the Eastern Montana Surface Water Treatment Workshop in November in Miles City.

Dr. DeBoer presented five hours of training on the topics of Surface Water Quality and Treatment, Coagulation, Softening, Filtration, and Disinfection. Surface water treatment plant operators from around Montana had a chance to earn accredited hours and learn about the characteristics of surface water quality, the fundamental chemistry of surface water treatment processes, jar testing techniques, and how to optimize treatment methods to meet Safe Drinking Water Act requirements.

The workshop was coordinated in response to interest in surface water treatment from some Montana cities. If you would like to find out about future training events, contact Gary Cline, PE, AE2S Drinking Water Practice Leader at Gary.Cline@ae2s.com.

Look for AE2S at these upcoming conferences

DECEMBER

9-11, BISMARCK, ND
Joint North Dakota/Upper Missouri Water Convention and Irrigation Expo

JANUARY

12-14, PIERRE, SD
South Dakota Rural Water Association Annual Technical Conference

19-21, GRAND FORKS, ND
Red River Basin Land and Water International Summit Conference

FEBRUARY

16-18, FARGO, ND
North Dakota Rural Water Systems Association Annual Water EXPO and Technical Conference

17-19, GREAT FALLS, MT
Montana Rural Water Systems Annual Conference and Exhibition

MARCH

1-3, ST. CLOUD, MN
Minnesota Rural Water Association Water and Wastewater Technical Conference

DID YOU KNOW AE2S IS A FULL SERVICE CONTROL SYSTEM INTEGRATOR, AND CAN PROVIDE UPGRADES, SERVICE, AND SUPPORT? CLICK HERE TO CHECK OUT A BRIEF INTERVIEW WITH AE2S INSTRUMENTATION AND CONTROLS SYSTEMS DIVISION MANAGER, JASON SANDEN, AS HE EXPLAINS THE SERVICES AE2S OFFERS.