

BANNER

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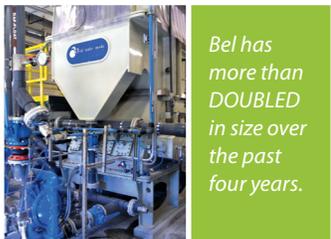


bel brands

WASTEWATER PRETREATMENT



Bel Brands USA is the U.S. subsidiary of Fromageries Bel, a world leader in branded cheeses, based in Paris, France.



Bel has more than DOUBLED in size over the past four years.



Bel expects to produce 1.5 million delicious individually wrapped, portion-controlled Mini Babybels EACH DAY at the Brookings plant.



The City of Brookings has been buzzing for over a year a now. The interest is centered on all of the construction activity between 32nd and 34th Avenues in the northeast corner of town: the location of the new Bel Brands USA cheese processing facility. Located in the southeast corner of Bel's property, just north of Larson Ice Arena, is a cluster of structures separate from the main processing facility. This small group of tanks and building is a sophisticated industrial wastewater pretreatment facility. Its primary treatment method is an Upflow Anaerobic Sludge Blanket (UASB) digestion process. Overall, the system reduces the strength of the wastewater to minimize the impacts to the Brookings Wastewater Treatment Facility.

The new pretreatment facility is actually being constructed by the City of Brookings as part of the agreement for Bel to locate in Brookings. The City of Brookings will recover costs accrued during construction through revenues from a Tax Increment Financing (TIF) district formed as a part of the project. While full transfer of ownership to Bel has yet to be completed, the industry has taken over operation of the pretreatment facility to coordinate with the ramp up of Mini Babybel® cheese production. Banner partnered with the City of Brookings to provide design, construction, and start-up phase services, but Bel Brands was an active participant in all aspects of the project as well.

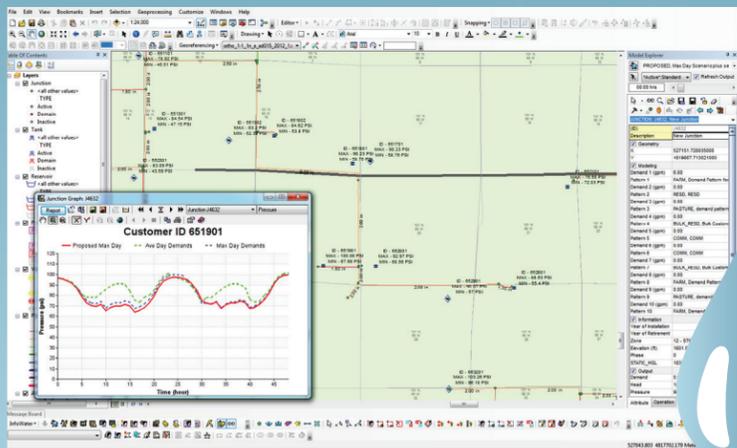
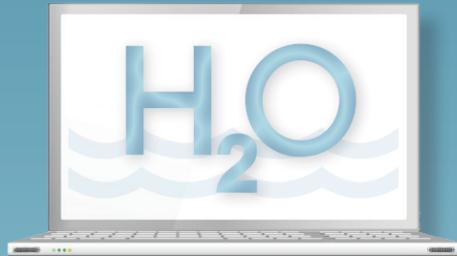
In addition to the UASB, the facility includes equalization of flows, solids removal with Dissolved Air Flotation (DAF) process, and an odor control system. Flow equalization allows the facility to avoid slug loads and spread the loading out through the day. The DAF process efficiently reduces solids loadings including fats, oils and grease to protect the operation of the UASB process. Due to the close proximity of these facilities to Brookings, odor control facilities were included to draw air from treatment units like the DAF and EQ tank and treat the air in a woodchip bed to tie up odor causing compounds before release of the treated air. *(cont'd on next page)*

Computer Water Distribution Modeling

Computer Water Distribution Modeling has come a long ways in the past ten years. Computer modeling software has allowed users the ability to determine flow rates in pipes, minimum and maximum pressures for customers and impacts of pumping rates and their ability to cycle water tower levels during winter and summer months. However, with advancements in computer technology, cloud-based systems and mobile technology, the opportunities for integrating GIS data and creating water distribution models that accurately simulate conditions in the water system is endless. Computer models can be connected to monthly billing records for individual customers to create simulations that determine monthly variations based on actual water use at specific locations.

Models can be used to determine and evaluate water age, or the length of time water is retained within the distribution system. Why is water age something that should be evaluated? Water age is not only an important component in the degradation of chlorine residual and formation of disinfection by-products, but also impacts the water temperature in the distribution system. A water system's ability to prevent water tanks and water towers from freezing in the winter is not only a function of mixing water in these facilities but also being conscious of how much longer water takes to get to these facilities! This is something that should be looked at and considered when constructing larger water storage reservoirs, adding large diameter pipes and making operational changes with regards to cycling pumps on and off, water levels in tanks and flow settings on pumps and control valves.

Did you know that in addition to modeling pressures and flows in a computer modeling software you can model water quality? With regulations on disinfection by-products becoming more and more stringent, water quality within the distribution system continues to become a very important factor. Computer models can be used to determine and evaluate improvements in the system and their impact on water quality. There are three groups of water quality analyses that can be done with water modeling software. They are chemical propagation or the growth and decay of a chemical based on reaction rates, source tracing or the ability of a chemical to move through the distribution system based on a specific injection point and water age.



Bel Brands (cont'd)

Just like the human body, the UASB needs to have a controlled temperature, adequate nutrients, and food (wastewater) in order to remain healthy. A healthy reactor will give off biogas - mostly methane like in natural gas - that is available in sufficient quantities to fire a boiler that provides heat back to the system to maintain temperatures. The warmer treated wastewater is run through a heat exchanger with the cooler raw wastewater to preheat the influent water and minimize the heat required to maintain temperatures in the reactor. The industrial pretreatment facility was designed to minimize energy needs while meeting the treatment goals, was constructed in a time frame to coordinate with the start up of the cheese processing facility, and was completed within the budget for the project. Bel Brands is known for its "smiles". Banner has been happy to partner with the City of Brookings and Bel Brands USA to complete this project.



Madison Water Treatment Plant Improvements



The challenge for the contractor was keeping the plant fully operational throughout construction.

The City of Madison owns and operates a conventional lime softening water treatment plant and below grade clearwell on East 4th Street in Madison, SD. The plant was originally built in 1966 with clarification and filtration. A reclaim basin and an additional clarifier were added in 1996 along with other miscellaneous improvements. The 2013 improvements consist of several components: the replacement of the filter underdrains, the replacement of the below grade ground storage reservoir with an above grade reservoir, the addition of a new pump station, and several site piping modifications. The challenge for the contractor was keeping the plant fully operational throughout construction.

A major component to the 2013 improvements was the replacement of the ground storage reservoir. Due to age and deterioration of the below grade clearwell, the City decided to replace the 1 MG of below grade storage with a 1 MG bolted steel, glass lined, above grade ground storage reservoir. The below grade reservoir is currently being demolished and work should be completed in June, 2014. As part of the reservoir replacement, a new pump station was added to house new low service pumps, high service pumps, and an ammonia feed system. Also, multiple site piping modifications were made to accommodate the new pumping systems.

The contractor is currently working on the filter underdrain replacement project which consists of demolition and removal of the existing underdrain, support gravel, and filter media and installing a new underdrain, media retaining cap, and media. As part of the filter improvements, the surface wash system was removed and replaced with an air wash system and blower. The City has four (4) filters, two (2) filters are complete and operational and the remaining two (2) should be finished by mid-June.

The facility improvements are wrapping up and should be substantially complete by the end of June, 2014.



Speciality Certifications



ASFPM Certified Floodplain Manager - Kent Johnson, PE, CFM Floodplain management is a process that promotes the wise use of floodplains in order to minimize flood risks, reduce losses from floods, protect public health and safety, and improve the quality of life for a community. As a ASFPM Certified Floodplain Manager, Kent's expertise includes drainage and floodplain studies and development of floodplain maps. Working directly with a homeowner to remove their house from the floodplain where possible, Kent coordinates with the local floodplain administrator and Federal Emergency Management Agency (FEMA) regulatory administration to obtain permits. The program strives to bring decision-making back to the local level in order to help manage the floodplains in a positive way so as to not adversely impact the natural environment.



NASSCO Certified Inspectors of Cured-in-Place Pipe (CIPP) - Scott Mohror, PE and Joe Munson, PE Cured-in-Place Pipe (CIPP), manhole rehabilitation and other trenchless technologies are frequently used in place of conventional open-cut construction to reduce surface restoration requirements and overall construction costs. CIPP technology is becoming more acceptable and cost efficient. For close to ten years, Banner has been working with owners and contractors in identifying locations that are best suited for trenchless applications and installation. Scott and Joe recently became certified by NASSCO (National Association of Sewer Service Companies) for the inspection of cured-in-place pipe (CIPP) installation. Currently Banner has CIPP projects in Yale, SD and Ivanhoe, MN.



NACE Coating Inspector Level 1 - Certified, Adam Hanson, PE No matter the material type, most structures require a protective coating to limit the amount of corrosion and extend the life of that structure. One form of quality assurance is coating inspection. As a NACE Coating Inspector Level 1 - Certified, Adam is familiar with the processes required to prepare and properly apply protective coatings. He has been certified for the last 3 years.

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Bidding documents available at www.bannerassociates.com

Lewis & Clark RWS Update

The Lewis & Clark Regional Water System (L&C) is nearing the second anniversary of delivering water to eleven of its member systems. L&C's water treatment plant came on-line on July 30, 2012. The first year of operation resulted in production and delivery of 2.775 billion gallons of water for an average of 7.6 million gallons per day. Usage during July, 2013 was 475.7 million gallons with a daily average of 15.3 million gallons and a peak day of 16.4 million gallons.

Federal funding has been dramatically reduced from previous levels. The FY 2014 Omnibus Budget Bill included \$3.2 million for L&C. The Omnibus Budget Bill also included funding for the Rural Water Program, which provided an additional \$5.15 million for L&C. The President's budget calls for only \$2.4 million for L&C in FY 2015.

L&C has been working closely with the legislatures in South Dakota, Iowa and Minnesota. Minnesota elected officials and the Governor's office have included \$22 million in funding in the State's bonding bill to construct a portion of their pipelines and other features needed in Minnesota. L&C received \$1.0 million from South Dakota to begin design, environmental work and easement acquisition for the pipeline to connect to Madison. Banner, along with officials from L&C and the City of Madison are developing a plan to deliver water to Madison.

The following construction is underway or planned for bidding in 2014:

- Treated Water Pipeline - Minnesota Segment 1A. Merryman Excavation completed the initial part of this project and placed it into operation. A change order was negotiated with Merryman to extend the main 30" PVC pipeline a mile into Minnesota along with a mile of 10" line to serve Rock County Rural Water District. The bulk of construction under this contract was completed in May.
- Meter Building 3A - A combined meter building/pump station is planned to serve Rock Rapids and the Rock County Rural Water District. This project should be ready to advertise for bids in June.
- Sodium Hypochlorite Generator - L&C is planning to increase its capacity to generate sodium hypochlorite at its water treatment plant. The generator produces diluted liquid bleach that is used for disinfection of water. L&C plans to advertise for bids to purchase a unit with the approximate capacity of 1,500 pounds per day later this summer.
- Treated Water Pipeline - Minnesota Segment 2. L&C plans to construct an additional 12.6 miles of 24" (or 30") and 5.6 miles of 14" diameter pipe in Minnesota. L&C has not yet set a bid date for this project.