Badger State Ethanol LLC

Volume 2, Issue 2

June 2004

NEWSLETTER

Editor: Cindy Sigafus

Comments from the Chair and the Prez

John Malchine
Board Chariman & CEO

Gary Kramer
President & G.M.

Since the last newsletter, BSE has continued to operate above a 48 MGY annualized rate. The markets for both ethanol and distiller's grain continue to be very favorable. John and Gary admit to having mixed emotions when filling up their gas tanks.

Construction of the carbon dioxide facility continues to move along on schedule with start up targeted for early July. Further expansion of other areas of the plant is also being studied.

Today's ethanol industry is experiencing unbelievable technological growth. Because it is such a rapidly changing industry, management believes it is essential to maintain a disciplined program of continuing education for the BSE staff. During the past couple months several Badger State Ethanol representatives have attended meetings around the U.S.

Here is a list of some of those meetings and those attending.

- **January 29-30** Erik Huschitt attended the annual WASA meeting. WASA is an organization dedicated to the promotion of Wisconsin agriculture. This year's meeting focused on ethanol's impact on the future of Wisconsin agriculture.

- **February 16-18** Most of the BSE board of directors attended the 9th Annual National Ethanol Conference: Policy & Marketing, held in Miami Beach, Florida. 775 people attended this year's meeting. In his State of the Industry Address, Renewable Fuels Association (RFA) President Bob Dinneen described the ethanol industry as stronger than it has ever been.

  "Because of your hard work and dedication, the U.S. ethanol industry is now the fastest growing energy industry in the world," said Dinneen. He noted that today ethanol is blended in 30% of the nation's gasoline, making it a vital component of the U.S. fuel market.

- **February 19** Kurt Koller, Jacob Duke and Jennifer Bystry attended a one day Altech yeast seminar in Madison, WI.

- **April 22-23** John attended the quarterly RFA Board of Directors meeting in Omaha, Nebraska where seventeen agenda items concerning the ethanol industry were discussed.

- **May 6-7** John, Gary and Jacob Duke attended a sister plant meeting sponsored by ICM Engineering held in Russell, KS. Also attending the meeting were representatives from other ICM designed plants. The purpose of the meeting was to brief the attendees on new plant changes, to discuss quantity purchasing, to review benchmarking results and to talk with one another regarding various production issues.

- **May 11-12** Erik and Gary attended the U.S. Energy Services Annual Energy Conference in Ames, IA. Timely information about the direction of the energy markets in the future was presented. This meeting is well attended by industries such as ethanol where the cost of natural gas & electricity are important issues.

- **June 22-25** The 20th Annual Fuel Ethanol Workshop is without a doubt the largest ethanol tradeshow/conference in the world. This year's meeting is being held in Madison, Wisconsin and because BSE is located so close to this year's show, we have offered meeting registrations to all BSE employees. At the conclusion of the meeting, BSE plans to open its doors to fellow meeting attendees for a tour of our facility in Monroe.

Encouraging staff to attend meetings similar to those listed above is essential for keeping BSE on the cutting edge of the ethanol industry and continues to be part of our vision as stated in the BSE mission statement. We are excited about the demand for ethanol and what the future holds for BSE and its investors.

Erik Huschitt

Commodities Manager

And this is just the beginning?! Even after trading grain for nine years, I am amazed how quickly the commodity markets can change. Less than a month ago the popular opinion was that world corn stocks were too tight and the market needed to push corn up to highs of $3.40 a bushel. Just last week the market had the feeling a record crop was probable and stomped prices back down below $2.80 (some 60c off their highs). What amazes me is that there is a hardworking farmer at the end of this chain who just had his/her revenue grow or shrink by 18%. This happens continually. I am going to make the one prediction that I feel comfortable sharing which is, "it will keep happening, especially this summer."

We all get caught up in looking out the window or watching the weekly export numbers to catch a clue as to where prices are going, but the next day there is always a new surprise or twist that keeps everyone guessing. Is China an importer or exporter? Is there a new disease outbreak lurking out there that will strike fear and force the market to its knees? Is Mother Nature going to teach us again that she knows the law of averages and bring us 10 inches of rain in May and none the next month? No one knows what tomorrow will bring. We are reminded of that daily, and that is why the management at Badger State Ethanol has taken a disciplined approach to preserving margin and profit. When we see the market afford us a profit, we take measures to preserve it while allowing for as much upside as possible.

Ethanol demand is expanding at a remarkable pace. Total production capacity will have grown to 3.8 billion gallons or approximately 1.4 billion bushels of corn demand. At the same time the demand for corn is growing, the land available to grow it shrinks. Each year we need more bushels of yield for every acre grown. This means there is more at stake with every change in information because we don't have a billion extra bushels of corn stocks as was the case even as recent as a year ago. This may change as other countries develop their agricultural sectors or the U.S. makes changes to the CRP program, but until then volatility is here to stay. I will end as I started, "And this is just the beginning…"

Bill Jacobson

Maintenance Manager

Bio: *Bill Jacobson, BSE Maintenance Manager, was raised on a dairy farm near Darlington, Wisconsin and now lives with his wife, Rita and three children in Monroe.*

Bill first started in maintenance at Advance Transformer in 1979. After eight years as lead electrician in Monroe he was moved to corporate as a manufacturing engineer for the Manufacturing Technologies Group where he oversaw engineering and installation of new equipment. Over the next eleven years Bill supervised three building additions, installations of two annealing furnaces, a tar plant rebuild and several assembly lines. After Advance Transformer shifted production to Mexico, he spent three years designing and starting up packaging equipment for the cheese industry.

Having an electrician's license and a degree in advance electronics from the Navy, he proved to be a perfect fit and in December 2001 was hired by Fagen Inc. for the construction of Badger State Ethanol. In 2002, Bill joined Badger State Ethanol as head of maintenance.

Bill says, "Maintenance at Badger State Ethanol covers a wide and sometimes "high" area, literally. The work we do is interesting as well as challenging. It might be a floor drain problem in the Process Building in the morning, then that afternoon a speed switch on top of a corn leg.

We have the normal preventative maintenance plan that you might expect: greasing, changing oil, inspections, etc., but because BSE runs 24/7, we also have a "predictive" maintenance procedure; where we replace belts, bearings and so forth before they fail. To make a "predictive" system work well requires good record keeping and a constant monitoring of all systems for signs of wear.

From day one BSE brought together people from all walks of life to make a dream work. In the same way the seven members of the maintenance team have come together to bring BSE a wealth of experience from many varied industries and offer unique approaches to daily challenges.

In the past years I have seen jobs and technology leave our area for other countries. That is why I believe ethanol is truly a homegrown industry that is here to stay. BSE has a strong commitment to being a good neighbor to Monroe and our farming community".

As head of maintenance, Bill serves an integral role at Badger State Ethanol, and we are fortunate to have someone of his caliber on staff.

Laurie Cannova

Safety Director and Administrative Assistant

We have had a busy spring so far at BSE. Ongoing training ranging from equipment training, chemical awareness, hazmat general awareness & security, and grain handling safety was completed in addition to the monthly computer modules. Looking ahead we will continue annual training on fire safety, crisis management and several other regulated training requirements that the DOT, OSHA, EPA, DNR & BATF have established for our facility.

BSE is a member of the National Safety Council as well as the Wisconsin Safety Council. This past April some of the members of the Safety Committee, Maintenance Department, our Plant Manager and I had the opportunity to participate in the continuing education courses offered at the 62nd Annual Wisconsin Safety & Health Congress/Exposition in Madison.

We believe in continuing education for our employees. Knowledge is the best tool for maintaining a safe work environment. With the ever-changing regulations it is imperative that we continue to be on top of the changes and how they affect our facility.

In July some members of the Safety Committee will be attending two additional continuing education courses: Confined Space/Fall Protection Program Management and On Scene Incident Commander. Also that month, I am scheduled to attend a compliance seminar put on by the Grain Elevator and Processing Society (GEAPS) which will focus on effective safety, health and environmental compliance programs.

Congratulations to the grains receiving & rail yard employees for doing an outstanding job in maintaining compliance with OSHA and Federal DOT regulations. Both areas have several "layers" of regulations with which to comply.

The Safety Committee (Ron Stauffer, Jenny Bystry, Randy Witt, Dave DeVoe, and Andy Phillips) has done an excellent job assisting me with facility inspections, policy and regulation reviews and daily monitoring of operations and security.

In addition to their participation on the Safety Committee, Jenny Bystry, Dave DeVoe and Ron Stauffer have assisted me with the research and development of training and educational programs. Specifically we have been working with Blackhawk Technical College and Green County Emergency Management.

Thanks to everyone at BSE for having high safety awareness and using safe practices.

This issue's Employee Feature
Chris Cahoon, Production Supervisor

Chris grew up on a grain farm outside of Orangeville, IL. After high school, he attended Highland Community College in Freeport, IL where he graduated with an Associate Degree in Agribusiness. He then transferred to Illinois State University, in Normal, IL. During that time at ISU, Chris was an active member of the Alpha Gamma Rho Fraternity and the 1996-97 livestock judging team; graduating from ISU in 1997 with a Bachelor of Science degree in Agribusiness.

He currently resides in Orangeville, IL with his wife of four years, Dawn, and their daughter Cailey (2 ½). Along with Chris' brother they raise and show registered Hampshire sheep on the local, state and national level.

Chris said, "I've been interested in the ethanol industry since college. It has seen an incredible amount of growth in recent years and I feel that the growth will continue".

Chris began his employment with BSE, in August of 2002, as a Plant Operator. In May of 2003, he was promoted to Production Supervisor. When asked how he felt about his job here at BSE, Chris said, "I feel that I'm very lucky to have been given the opportunity to run this plant since its start-up in 2002. We have learned so much since then and continue to learn more every day as we strive to maximize production and increase efficiency".

Badger State Ethanol LLC

820 West 17th-Street
PO Box 317
Monroe, WI 53566

Phone: 608-329-3900
Fax: 608-329-3866

U.S. POSTAGE
PAID
PERMIT NO. 8

Coming together is a beginning; keeping together is progress; working together is success

We're on the Web!
www.badgerstateethanol.com

Kurt Koller

Plant Chemist

In my last edition of the newsletter I talked about the grain used at BSE to produce fuel ethanol. Each step in the production of ethanol is critical for us to be successful in this field. Last time I wrote about a "Near Infra-Red" instrument used to profile incoming grain for several components important to our process. After the corn is characterized and in the silos the next step in the process is to release the fermentable components of the grain in our cook system. As the name implies this system simply prepares the grain for fermentation by "cooking" the grain. We utilize both mechanical and natural processes to liquefy the grain and the starch found therein. The first step in this process is milling of the grain. At Badger State Ethanol we use rotary hammer mills which produces a coarse grind corn meal. The particle size is important as a very fine grind will give a higher alcohol yield due to the increased surface area. However, this can cause problems when trying to slurry/liquefy the corn. Additionally, a fine grind can cause recovery of one of the co-products, Modified Dried Distiller's Grain, more difficult. However, a very coarse grind will reduce alcohol yield as the starch will be protected from those forces we use to convert starch to sugar. Because particle size distribution is so important a sample is taken off the hammer mills every day to perform a sieve analysis. This helps to ensure we are operating the mills as efficiently as possible.

The corn meal is then conveyed to a large mixer where water and enzymes are added to liquefy the corn. The enzyme added at this point is called Alpha Amylase and is used to break down the starch to long chain sugars. These enzymes have a very specific pH and temperature in which they operate most efficiently. Anhydrous Ammonia is injected into the vessel which helps achieve a preset pH, and steam is injected to raise the temperature of the slurry. Another parameter we consider is the time in which the enzymes have to work, called retention time. By allowing the enzymes more conversion time you can decrease the amount of enzymes you add and release more sugar.

Because the plant continues to enjoy steady state operations we at BSE are able to affect changes to our process which allow for higher ethanol yields and increased production.

Employee Recognition/Accomplishments:

Congratulations to **David DeVoe** who is the recipient of the 2004 FEW Scholarship Award.

Congratulations to **Laurie Cannova** for her appointment to the Blackhawk Technical College Board of Directors.