BATON ROUGE SECTION

February Newsletter 2008

PRESENTATION

"How to Control Energy Cost and Reliability with Effective Power Monitoring"

Graybar Electric and Schneider Electric/Square D

February 21, 2008
Time: 11:30 am-12:30 pm

Location:
Holiday Inn
Gonzales, LA

"

Baton Rouge Section

President's Message

Dear Members
Welcome to the ISA, BATON ROUGE. I would like to thank the section for its overwhelming support of the January monthly meeting. We are looking forward to this month's meeting. This month's speaker will be Ruston Johnson from Graybar with the topic of, "How to Control Energy Cost and Reliability with Effective Power Monitoring"

Please visit our new website We hope you find the website inviting and informative, easy to navigate and use, and relevant to your work or interests. It is of course a work in progress, and we encourage your comments, suggestions and queries – and your return visits! Please Join us for our upcoming activities starting in April 18- One Day Safety Relief Valve Seminar & plan to attend ISA NEW ORLEANS/BATON ROUGE EXPO. The best way to stay in the loop on dates and other events-- offerings is to subscribe to our new monthly e-newsletter. It will point you to our latest work and flag upcoming events that you may want to attend. Sign up now, and you can expect our first edition before the end of the year.

Please let us know if you would be interested in becoming a board member, or helping out the Section as a Chair. Several positions are needed such as Education chair, Standard & Practices & etc.

I hope that you feel ownership in our section. As your section leader I look forward to seeing our section fulfill the vision and mission of our National Organization. Please feel free to contact me if you have any suggestions or feedback at aparna.subramanian@exxonmobil.com. If you are interested in programming through the section you can contact incoming Vice-President, Murtaza Gandhi at murtaza.gandhi@Jacobs.com. It is one of our goals this year to send out a regular newsletter to improve our communication amongst the membership of the section. It takes time and effort to put everything together. Hence if you had any suggestions on further improvement, please email Crystal Barzare at crystal.barzare@Jacobs.com.

Aparna Subramanian
President - ISA Baton Rouge Section
2007-2008

Speaker's Biodata, February 21st, Presentation:
Ruston Johnson graduated from Louisiana Tech University in 1997 with a B.S. in Electrical Engineering. He worked as a Design Engineer for Fluor Corporation in Houston, TX for 6 years before joining Power Measurement as an Application Engineer . As such he was responsible for the startup and commissioning, user training, and troubleshooting of power monitoring and energy management systems for three years before Schneider Electric's acquisition of Power Measurement in 2005. He is now a member of Square D's Power Management Organization and is the PowerLogic Sales Engineer for the Gulf Coast region. Ruston lives in Houston, TX with his wife Amy and one year old son Grier.

Upcoming Presentations…

February 21st

"How to Control Energy Cost and Reliability with Effective Power Monitoring"
by Graybar Electric and Schneider Electric/Square D
Location: Holiday Inn, Gonzales

Pricing with RSVP: $15 person
Tickets at Door: $20/Members, $25 Non-Members

RSVP: By Noon January 18, 2008 to
isareservations@hotmail.com

March 20th

"Technology Developments Using Ultrasonic Meters for Custody Transfer Measurements"
by Krohne Oil and Gas
Location: Holiday Inn, Baton Rouge

April 18th

"Safety Relief Valve/Process Analytical Technology"
Location: Baton Rouge Area Foundation, **Downtown**

SESSIONS WITH THE FOLLOWING TOPICS TO BE PRESENTED: SIZING & CODE, BS&B RUPTURE DISK, APPLICATION & TABLE TOP DEMO. PDH'S WILL BE AWARDED. FINALIZED AGENDA TO BE ANNOUNCED BY THE END OF THE MONTH.

Attention Members!

Please update your email address for future correspondence by either logging onto your profile in www.isa.org or email isareservations@hotmail.com

Professional Development Hours:
Continuing Education Requirements for Registered Professional Engineers
As of January 1, 1999, the State of Louisiana began requiring Licensed Professional Engineers to participate in a continuing education process as a condition for registration renewal. During each biennial registration renewal period, every engineer registrant, including those registered in two or more disciplines, is required to obtain 30 Professional Development Hours (PDH's) in engineering related activities. The local section can help. *Many of our section meetings qualify towards this requirements.*

January 2008

Chilling out with ultrasonic

University chilled water plant plays it cool with ultrasonic flowmeters

Fast Forward

- Noninvasive flow measurement gaining ground in liquid and gas-flow measurement.
- University chilled water plant sees improved efficiency, energy use with ultrasonic.
- Transit-time is secret to ultrasonic magic.

By Ellen Fussell Policastro

Manufacturers have been using noninvasive flowmeters for years because of their reliability, ease, low maintenance, and accuracy. Smurfit Stone Corp., a world-wide paperboard and paper-based packaging manufacturer, likes the straight-through (open-throat) design of the magnetic flow tubes, which prevent plugging from pulp stock, chemicals, slurries, and other liquids with suspended solids. Over the past 12 years, John Osborne, a mechanical engineer at the plant's West Point, Va., location has installed Coriolis meters on starch slurry to measure consistency. "Before, we had to take samples manually and test them in the lab," he said. "These meters have allowed continuous measurement and given us a degree of consistency control we have not had before."

Control and accurate measurement are behind the ultrasonic meters Mark Menefee uses at the chilled water plant in Indiana University in Bloomington, Ind. With 65 buildings over 6.9 million square feet on campus, the university had no way of metering chilled water use in the buildings, only at the production plant. The university is now in the process of converting to a system for nearly 25,000 tons of cooling. Menefee, the university's assistant director of utilities, oversees eight chillers (with a total capacity of 15,000 tons), which pump water around the 65 campus buildings attached to the system.

Before deciding on ultrasonic meters for Indiana University, Menefee and his team were trying to better control the university's chilled water system "so we could understand where the most and least efficient buildings were—where this chilled water was going," Menefee said. "We didn't know before what the true cooling load for these buildings really was. We had estimates but didn't know. We're trying to get more information so we can control the system better. Because even with 15,000 tons we're short some cooling on the hottest days in summer," he said. At each building, Menefee's team will install a meter to measure the flow of chilled water into that building, which will help the utilities team "understand our system better and be more efficient.

"We chose to go with ultrasonic because it was less invasive. We didn't have to have an outage of the system in order to install," he said. "It installs on the outside of the pipe and provides the accuracy we need."

Another advantage in installing the meters is the university will not have to shut down the cooling system to each building during installation. Noninvasive is so important, otherwise you have to shut valves and drill a hole in the pipe, and that would require an outage to install a meter. "We would have to shut cooling off to stop water from flowing and take pressure off the pipe. This was so much faster and provided better accuracy." Plus, Menefee's team has experience with these kinds of meters at the production facility. "So we'll be able to get quite a few of these done pretty quickly, in three months, before the next cooling season," Menefee said.

Clamp-on technology

Clamp-on ultrasonic flow metering technology was a good choice for a retrofit application like the one at Indiana University because clamp-on transit-time ultrasonic meters use a pair of ultrasonic transducers clamped onto the outside of existing pipes to measure the flow rate inside the pipe without cutting the pipe or otherwise penetrating the pipe wall. This keeps installation costs low because there is no need to cut open the piping system.

Opening the system in itself can be costly and may lead to unexpected expenses if the system is "old and the pipe work is fragile," said Michael J. Scelzo, a chemical engineer and flowmeter technical manager at GE Sensing in Billerica, Mass.

Other areas where clamp-on meters make sense include when measuring sanitary or toxic flows, or in highly corrosive or erosive applications. Anywhere there is a reason not to break the pipe wall or penetrate the pressure boundary is a good place to use clamp-on ultrasonic meters. In addition to permanent installations, clamp-on meters also lend themselves well to portable or temporary use. Armed with a battery powered portable meter, a trained operator can clamp the transducers onto an exposed pipe and be measuring flow rate in less than five minutes.

Using the ultrasonic transit-time principle, clamp-on ultrasonic flow meters can see use for liquid and gas flow measurement. With a growing demand for clean-burning natural gas in the Western U.S., one gas transmission company with a design capacity of more than 1.7 billion cubic feet per day uses clamp-on flowmeters on fixed and changeable locations where technicians perform check metering on valves and other metering equipment mounted along the pipeline.

The fixed-location flowmeters provide flow rates back to the main control systems to implement in the overall control scheme, while the transportable flowmeters provide comparison readings to validate the readings from the fixed meter locations. In both cases, the meters mount to the outside of the pipes, eliminating the need to cut into the pipe or interrupt the flow. This also increases the speed of installation. Technicians travel to various locations and clamp on the portable meters and document the flow rates to compare with data collected by the data acquisition systems.

Some manufacturers might prefer wetted models, in which the ultrasonic transducers are in direct contact with the flowing fluid, for certain permanent locations or for fluids difficult to measure due to their acoustic or physical properties, Scelzo said.
In either case, the ultrasonic transducers are located at an angle across the pipe so the ultrasonic pulses transmitted by one will be received by the other. The time it takes for a pulse to travel from the upstream transducer to the downstream transducer is shorter than the time it takes for the next pulse to travel in the opposite direction. "The reason is the flow of fluid in the pipeline speeds up the pulse traveling downstream and slows down the pulse traveling upstream. The difference of the two transit times is proportional to the velocity of flow of the fluid in the pipeline," Scelzo said. The meter calculates the volumetric flow rate of the fluid by multiplying its velocity by the cross sectional area of the inside pipe diameter.

Ultrasonic radar
The ultrasonic meter works somewhat like a policeman's radar, Menefee said. "A police radar sends out a signal that then hits an automobile. Then it sends out a second signal that hits it again. It's the time difference that helps calculate how fast the car is moving. It's the same with ultrasonic meters. It sends a signal through the pipe—through water moving in the pipe. It then sends out a second signal and measures the difference between the signals, and that way it calculates how fast the water is moving."

The water may be moving 7, 8, or 9 feet per second. "Measuring in feet per second helps us calculate volume because we know the size of the pipe," he said. "And we know the area of the pipe. And by knowing what the temperatures are, we can calculate energy and tons of cooling. So there's a calculation if you know the volume rate, cubic feet per minute, and temperatures. You can calculate the amount of cooling the building is using to air condition the building. If the water comes into the building at 40°F, and comes back out at 55°F, it has absorbed the heat out of the building.
"Before we did not know how much cooling each building was using. We knew the total for the whole system. The new ultrasonic meters will allow us to look at each building individually, and see which are performing well, which buildings are the most and least energy efficient. And they will help us improve our system."
Improve efficiency, energy use
The bottom line benefit to Indiana University is to improve efficiency in the chilled water distribution system and to better recognize where to address building problems and issues to improve efficiency. "This will allow us to better use the capacity we have," Menefee said. "By having this information, we'll look for ways to improve efficiency of the system and utilize capacity to save money in the long run."

With a big sustainability move on campus, Indiana University is looking at energy use and how to better utilize energy and reduce the carbon dioxide footprint, Menefee said. "The electricity we're using is being produced by coal fired plants. If we can reduce our electricity use, that's good for our bottom-line dollars and the environment—reducing the amount of carbon dioxide produced when the electricity is produced." Using the ultrasonic meters helps "because it will show us how the chilled water is being used and hopefully will point out how to improve efficiency and capacity utilization. Those are the two bottom lines."

Fiber Optic vs. Copper: 5 Reasons Fiber Wins

Control Engineering -- January 29, 2008
Fort Lauderdale, FL – Fiber optics, also called optical fibers, are microscopic strands of very pure glass with about the diameter of a human hair. Thousands of optical fibers, arranged in bundles, protected by a jacket, in optical cables, transmit light signals over long distances. Although similar to copper wire systems, fiber optics are steadily replacing copper wires as a means of communication signal transmission; applications include manufacturing, process control, and supervisory control and data acquisition. **CableOrganizer.com** gives five reasons **why fiber optic cables are preferable to copper cabling for telecommunications and datacom network applications**.

1. Fiber optic is more efficient and secure than copper cabling, transmitting information with greater fidelity. Fiber links offer more than 1,000 times as much bandwidth over distances more than 100 times farther than copper, and extra data security is provided since it is more difficult to tap than copper cable.

2. Fiber optic cable can carry more data than copper and for longer distances. It can transmit a signal as far as 80 km or beyond without need for amplification.

3. The glass-based cables don't conduct electricity, which eliminates the need for grounding and makes them immune to electrical interference, even lightning. They can be used outdoors and in proximity to electrical cables.

4. Glass fibers are virtually free from corrosion. While copper is sensitive to water and chemicals, fiber optic runs almost no risk of being damaged by harsh elements, and can endure "living conditions" that coaxial cable cannot, such as direct contact with soil. And, while you may not have considered it....

5. Fiber-optic cabling poses no threat of physical injury if it breaks. Since it transmits light, not electricity, handlers run no risk of injury from fire, sparking, or electrocution.

In 1999, an estimated $14.6 billion was spent on fiber optics items. These figures were attributed to the growing use of the Internet. Companies are increasingly using fiber optics for other purposes. Applications exist for manufacturing plants, computer offices, telemarketing networks, Internet broadband companies, online video providers, Ethernet users, medical offices, hospitals, financial institutions, and communications companies.

"Today's increased ability to transmit more information over longer distances quickly has expanded the boundaries of technological development in many areas, including data networking, wireless and satellite communications, cable operations and broadcasting," said Paul Holstein, co-founder and COO of CableOrganizer.com. "All of this has, in fact, become possible by the use of fiber optics, and as technology users insist upon improved performance, the demand for and use of fiber optics will continue to increase."

READ-OUT

The newsletter of ISA Baton Rouge Section and is published 9 times a year. Business card ads by sponsors are $200 per year, this would also include website and banner advertisement during monthly presentation. If you are interested in an ad, have an announcement, comment, question or suggestion; please contact us. **Deadline for ads, articles, etc. is noon on the last Friday of the month! Please provide the information to the editor by email to crystal.barzare@jacobs.com**