



Water & Wastewater Industries Division Newsletter

Winter Newsletter 2011

In this Issue

- 1 Message from the Division Director
- 2 Message from Past Director
- 3 2011 Water & Wastewater Business Plan
- 3 New ISA President, Leo Staples
- 4 6th Annual WWAC
- 5 ISA Automation Week 2011 Call for Papers
- 6 Making the most of your membership

Upcoming Events

- | | |
|---------------|------------------------------------|
| 22 June | 6 th ISA WWAC Symposium |
| 22 June | WWID Board Meeting |
| 17-20 October | ISA Automation Week 2011 |

Director
Jon DiPietro
603-606-5937

Newsletter Editor
Joe Bingham
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Message from the Director

Dear ISA WWID Members,

The 2011 year is off to a great start with the planning of our 6th Water and Wastewater Division Symposium, scheduled for 22-23 June 2011 at the Chase Park Plaza in St. Louis, Missouri, USA.

Attend and get a fresh perspective on water and wastewater processing, water collection, water treatment, along with the latest controls equipment and instrumentation. Industry experts and leaders will cover several topics, including:

- Water and Wastewater Processing
- Automatic Controls Affecting the Process
- Instrumentation and Aeration
- Vermicomposting
- Supervisory Control and Data Acquisition
- Fiber Optic Network
- PC Based Control

- Programmable I/O
- Generator Control Systems

We will have vendor exhibits, social functions and networking where you will be able to meet colleagues and new customers in the water and wastewater industry.

Inside our current newsletter you will find details on ISA upcoming events in 2011 including the 6th Water and Wastewater Symposium, a message from ISA's 2011 president, Leo Staples, our division's business plan, scholarship information and much more. This is an exciting issue. I hope you will enjoy it.

The Water and Wastewater Industries Division is always looking for volunteers to contribute technical content to our newsletter and website. If you are interested in working with the WWID Division, please contact me. My contact specifics are below.

Jon DiPietro
Director, ISA Water & Wastewater Division
(603) 606-5937
jon.dipietro@gmail.com



A Message from the Past Director

WWID Practitioners:

It has been wonderful serving you as Director of the ISA's Water and Wastewater Division. Nearly two years ago I began my duties as director and did my best to build up the Water & Wastewater division. Together with new associates and those already involved we have made progress. I am pleased to announce that this October at the Joint A&T and I&S Department Awards Luncheon our division received the 2010 Most Improved Division Award. Although all division chairs were responsible for this award, I must shout out several whom the WWID H&A committee has singled out to receive special awards. The Distinguished Service Award recipient was Hank Hegner, Outstanding Leadership Award recipient was Joe Provenzano, Best Contribution Award went to Wally Ingram and the Outstanding Service Award recipient was Jon DiPietro. Several Best Paper recipients were cited for their contributions at the 2010 Symposium in Orlando. They were Bonita Springs Wastewater Plant's Cliff Morris and Mike Liggins for their presentation on Leak Detection & Reduction Techniques; Brian Hayes of ABB for his presentation on Wireless Security, and Michael Nager and Lavoie John of Phoenix Contact for their combined effort. Congratulations to all of you!

As you are aware, the WWID is committed to further education and this season awarded our first scholarship. We have announced its decision to increase the scholarship award next season by awarding two scholarships in the amount of \$1000 each. Please see the newsletter for further details.

We are currently in negotiations with the Water Resource Authority to partner with them in reviewing their next publicized textbook regarding Water and Wastewater Controls. This will be an opportunity for WWID members to be involved, offer their expertise and further the reach of ISA. Stay tuned to our website for unfolding details.

Our 2011 Symposium will be co-located with the Spring Leadership Meeting next June at St. Louis. I much appreciate the St. Louis Section for graciously stepping forward to offer special events for those attending, which will kick the event up a

notch. We again expect a blockbuster event that will meet the inquiring needs of the participants.

My service as director expired December 31, 2010. Because the board does not meet again until the Spring Leaders Meeting, the gavel is traditionally passed on at Fall Leaders Meeting. I had the distinct pleasure in Houston to pass it along into the hands of our very capable Director-Elect, Jon DiPietro. Jon will begin his duties as director on 1 January 2011. It will be a challenging season, but odds are much better than even that the division will continue to meet with success under Jon's leadership. As I last noted be sure to visit the WWID LinkedIn group site for ongoing commentary and discussions that are taking place. Feel free to jump in and offer a suggestion to someone who may be seeking an answer to a process related problem or begin your own thread. The link can be found in our website and the newsletter.

The newsletter and website are always seeking content and articles for the benefit of water and wastewater practitioners. Please send your input to Joe Bingham our newsletter editor. Joe can be reached at jbigham@aesglobal.com. Our website, too, is being updated; thus if you have anything to offer, whether it be a sound-off, kudos for one of your associates, or an article, please forward it to our webmaster, Jon DiPietro. Jon can be reached at jon.dipietro@bridge-soft.com.

If you would like to become a board member and volunteer your time for the benefit of ISA's Water and Wastewater Industries division, please email either Jon or me. We would be happy to hear from you and make certain your expertise is shared.

Lastly, I wish to thank those who served the division in various chairs with excellence. Messrs: Jon DiPietro, Director-Elect, Wally Ingham, Secretary, Steve Valdez our Honors & Awards Chairman, Joe Provenzano, Symposium General Chairman, Joe Bigham, Newsletter Editor, Hank Hegner, Scholarship Chairman, Tom McAvenue, Tom Krupinski, Frank White our Membership Chairman, Graham Nashby, Marketing Chair and Paul Lanzillotta who served as symposium moderator. A very special thanks to Mr. Rodney Jones who serves us from staff and Dr. Peggie Koon, Industries and Sciences Department Director, who has always been there for us.

Sincerely,
Michael B. Fedenyszen, Division Director

WWID 2011 Business Plan

- The Leadership Officers slate will be filled with active members. An effort will be made to attract new participants at the officers and committees level.
- The Newsletter will be produced two times this season and distributed to our membership electronically.
- Meetings will be held twice yearly in conjunction with the *ISA Spring Leadership Meeting* and *ISA Fall Leadership Meeting*. The officers will regularly communicate via e-mail, and teleconference accordingly in order to affirm events and that responsibility is being fulfilled to the society and WWID members.
- The division will host a *Membership Luncheon* during the *ISA October EXPO 2011*.
- In support of EXPO 2011 the division will *solicit papers, develop a session and provide moderators* as required.
- The Website is planned to be maintained during the year, refreshing its content quarterly: 5/31, 8/31, 11/30 and 2/28.
- A Symposia and Exhibit will be planned for 2011 in St. Louis. The staff and membership will be advised by the Fall Leaders Meeting. We will announce a call for papers on the website and in the newsletter and WWID LinkedIn group.
- Membership drives will be conducted throughout the year. A booth will be maintained at the WWID Symposium, and the division will make itself available to be present at District Leadership Conferences.
- A goal to add one thousand members to the WWID LinkedIn group site will be made.
- Two scholarships will be awarded and pertinent applications will be posted in the newsletter and on the website.
- The Budget will be submitted by the WWID in conformance with ISA guidelines and the associated timetable.
- The division will reach out to the Water and Wastewater industries in ways that will extend the reach of the ISA.
- A Sponsorship Committee will be established to seek advertisements in the newsletter and on the WWID website.

Respectfully submitted,
Michael B. Fedenyszen
Past Division Director

ISA Welcomes New President, Leo Staples

ISA welcomes H. L. "Leo" Staples as its 2011 president. Staples opened the year with a call-to-action to all ISA members to dedicate themselves



to a high level of involvement in, and collaboration among, their sections, divisions, and the Society. "We have exciting, yet tough, challenges ahead of us, just as any great association does," he said. "I believe that, with passion, dedication and focus, we can meet our new goals and create a very bright future for ISA."

Describing his vision for ISA for 2011, Staples cited four challenges identified by ISA's Strategic Planning Department that he wants the membership to focus on.

The first challenge is financial performance that would enable ISA to recover from the economic recession while setting the stage for long-term health and profitability. "Many ideas are on the table, from improving revenue from existing products to development of new product lines," Staples said.

The second challenge is to evaluate the effectiveness of ISA's current Society governance model, and, where appropriate, make changes. "Even though changes had been made in the past, our leaders knew there was still a lot more work that needed to be done. A task force has already begun work on this evaluation process. Our members will be hearing more about it as we move into the year. I ask for their support in validating, endorsing, and implementing the work of this governance task force," he said.

The third challenge for the Society is to strengthen the ISA family. "A strong ISA family consists of a dedicated group of volunteer leaders working together, sharing a common vision, and operating within a governance structure that fits the organization," Staples said. "We need to maintain a strong value proposition so we can keep the ISA family strong, so we can attract new leaders for the future, and so we can develop and engage tomorrow's automation professionals," he added.

Staples wants ISA to refine and enhance workforce development programs and give sections and

divisions the tools they need to implement these programs into their existing activities. He suggested that many of the tools can come from strategic partnerships, such as the affiliation ISA has with inventor Dean Kamen's FIRST® organization (For Inspiration and Recognition of Science and Technology).

The fourth challenge Staples presents ISA membership with is to embrace technology. "We have a task force that is evaluating technology and investment priorities that will allow us to expand social media and provide an enhanced experience for virtual attendees of events, functions, and courses—so we can expand the audience we reach," Staples said. He encourages all members to take advantage of ISA's movement into social networking by participating in the many online opportunities that already exist and new ones to be offered in the future.

"As ISA's newest president, I look forward to working with our membership as we address these four challenges. It will take dedication and focus from members at all levels...and I know we can do it!" he concluded.

Staples has been an ISA member since 1989 and a Fellow since 2009. He is a member of the Greater Oklahoma Section. He has vast experience in section, district, department, division, and Society activities, including serving as district vice president and chair of the Council of District Vice Presidents and three terms on the ISA Executive Board as Society treasurer. Staples is an active participant in ISA's Power Industry Division and has authored and delivered several papers at various symposia. He recently published his first book through ISA, *Project management: A Technician's Guide*.

Staples is a compliance management leader at Power Supply Division, Oklahoma Gas and Electric (OG&E). He began his career with OG&E in 1978 at the company's Horseshoe Lake Power Plant. He is a Level III Certified Control Systems Technician® and a Level IV Senior Engineering Technician-Industrial Instrumentation through the National Institute for Certification in Engineering Technologies (NICET). He earned an Associate's degree in electrical engineering technology from Rose State College in Midwest City, Oklahoma, USA, and a Bachelor of Science degree in Business Management from the University of Phoenix.

Join us at WWAC in St. Louis in June

Start making plans now to attend the 6th Annual ISA Water and Wastewater Symposium, sponsored by WWID. This event helps professionals in water and wastewater industries understand how automatic control applications affect processing and distribution of water treatment. The dates are 22-23 June 2011 and the location is St. Louis, Missouri, USA.

Industry experts and leaders will cover several topics, including:

- Water and Wastewater Processing
- Automatic Controls Affecting the Process
- Instrumentation and Aeration
- Vermicomposting
- Supervisory Control and Data Acquisition
- Fiber Optic Network
- PC Based Control
- Programmable I/O
- Generator Control Systems
- And more

We'll have working luncheons, vendor exhibits that showcase the latest technologies, an evening reception, and plenty of networking opportunities with industry leaders, experts, and peers.

Register today—the form is attached. You can learn more about the WWAC Symposium and make your hotel reservations by visiting www.isa.org/wwac. We look forward to seeing you at this must-attend learning and networking event.

“You know, I could use a little help on ...”

Do you already volunteer a lot in our division?
Would you like a little help? Just ask!

When you're talking to another division member, why not ask for a bit of help? Or make a few phone calls and ask? Our WWID has plenty of jobs—and plenty of members. Surely, there are some who would be willing to help, but just need a little nudge to get started.

Just think: you'll get the help you need, and a new volunteer will get the chance to learn new skills while networking in a fulfilling way. Ask for help today!

ISA Automation Week 2011 Call for Papers

The Program Committee of ISA Automation Week 2011: Technology and Solutions Event has issued a Call for Papers inviting authors, experts, innovators, thought leaders and automation professionals to submit abstracts for presentation consideration at the conference to be held at the Arthur R. Outlaw Convention Center in Mobile, Alabama, USA, 17-20 October 2011.

The Call for Papers for the event solicits abstracts that cover topics for the following tracks, as they relate to automation:

- Advanced Process Control Techniques
- Analyzers
- Automation and Control System Design
- Energy and Environmental
- Human Asset Optimization
- Installation, Operations, & Maintenance
- Networks and Use of Data
- Safety and Security
- Wireless Technology and Applications

"This is your chance to participate in the most pertinent and comprehensive technical conference for the automation profession. Every aspect of process asset and human asset optimization is included. The scope of topics should help maximize loop and process performance and optimize the use of technology and resources," said Greg McMillan with CDI Process & Industrial and ISA Automation Week 2011 program committee chair.

The ISA Automation Week 2011 technical program is building upon its initial success and will continue to be a knowledge-focused event that will bring top professionals in automation and control together for an intensive technical conference and networking opportunity with key industry suppliers. Sessions will be educational and applications-based, rich in content, and delivered by subject-matter experts in each field. Among new program features is a Technician Day that offers content that ranges from basic to advanced topics.

"The range of topics starts with the development and justification of automation projects and continues to the use of the latest in measurement, valve, control system, and safety system technology. Other proposed topics cover selection of the best control strategy, enhancement of the power of the PID, addition of advanced control, installation and maintenance of the system, integration with the business and maintenance

systems, use of data including data analytics, advances from the human design center for operator excellence, automation of loop tuning and metrics, education of automation professionals, operator training, improving operations and lowering total lifecycle costs," McMillan continued.

An integrated supplier showcase floor and increased supplier program participation will complement the technical program. Two 400-square-foot solutions swap theaters will be placed on the showcase floor and will integrate technical content via standards briefings, supplier solutions presentations, and more.

The ISA Automation Week 2011 Program Committee:

General Chair

Ken Baker, former ISA president

Program Chair

Greg McMillan, CDI Process & Industrial

Vice Program Chair

Dean Ford, MAVERICK Technologies

Program Committee Members

Jeff Arbogast, Air Liquide

Gerald Cockrell, Indiana State University

John Kuenzler, ARC Advisory Group

Greg Lehmann, URS Corporation

Dale Merriman, MerTech, Inc.

Russell Rhinehart, Oklahoma State University

Rick Zabel, Automation.com

"We are encouraging engineers and technicians in plants and industry engineering centers, university professors and students, system integrators, architectural engineering firms, exhibitors, and suppliers to present how to improve project, system, operations, plant, and professional performance and advance our profession to the status it deserves," concluded McMillan.

The deadline for abstract submittals for consideration to present is 28 March 2011. More information about the Call for Papers, including a list of proposed topics, can be found at www.isaautomationweek.org.

For more information on ISA Automation Week 2011, please visit www.isaautomationweek.org.

So...what do you know? Let's do a Brain Swap!

Do you have insights and ideas that might interest your automation colleagues? Maybe you've completed a successful integration project or mastered a retrofit.

Perhaps you've experienced a difficult challenge at your company and would like to share the lessons you've learned.

What better way than with an article in *InTech*?

You don't have to be an accomplished writer. If you're already a published author, that's great. But, you don't have to be. We're interested in ideas and articles that can serve *InTech*'s readership.

You can start by providing your thoughts to our editorial staff. We'll review your ideas and, if they're a good fit with our editorial calendar, we'll get the ball rolling. Together, we'll collaborate to publish your story. If your article is published, *InTech* will award you with our ultra-cool, exclusive "Brain Swap Contributor" T-shirt. You can find *InTech*'s editorial calendar at www.isa.org/intechadkit.

Published technical articles are a great way to help your colleagues, establish yourself as an esteemed professional in your field, and boost your career profile.

If you're interested, contact our editors at intechmagazine@isa.org to discuss how you can contribute. Let's do a **Brain Swap!**



Making the Most of Your Water & Wastewater Division Membership

Did you know that many folks who belong to WWID don't realize that there is more to ISA other than the wall plaque and the magazine? I used to be one of those people. In fact, I was a member of ISA for almost ten years before I started to really use the benefits of ISA and WWID. Sure, just listing your ISA WWID membership on your resume looks good, but there is so much more you can get out of the organization.

One of the most useful benefits of membership is the opportunity to meet other people in your discipline and sector. Unless you are part of a

large engineering firm or large plant, it is unusual for more than a few automation professionals to work in a department. I used to be at a firm like that—I worked with a lot of great people, but there really wasn't anyone to talk to if I got stuck on an automation issue. This is where contacts you make through WWID can come in handy.

Through the WWID email mailing list, LinkedIn discussion group and symposia, you can make the contacts that can help you in your job. Stuck on a problem? Send out an email on the discussion list; you'll be amazed how often other fellow professionals want to help and share their knowledge. Looking for new ideas? Subscribe to the mailing lists and read our publications; you'll be surprised at the new techniques you'll discover and the people you will meet. At the end of the day, we can have as much technology as we want, but it is the personal connections and sharing of information that helps all of us get the job done.

This brings us to the upcoming annual WWID symposium that is being held this June in St. Louis, Missouri. It is only through WWID that an event like this can be held. It covers topics that involve both automation and the water/wastewater sector. This is something that you can't get at WEFTEC or at the general ISA conferences. Whether you are presenting a new technology in a talk, or coming just to meet new people and find out what is new, this is a great opportunity to find out information unique to the challenges of automation in the water/wastewater environment. It's also a great way to show to your management that you care about being progressive. Maybe your organization has a new technology or project that you would like to showcase? Have something you want to share? Abstracts are due 27 February, 2011.

Think of your WWID as icing on your ISA cake. With your core membership of ISA, you have online access to ISA standards, access to the ISA technical reports library, discounts on ISA publications, *InTech* magazine, and that shiny membership card that goes in your wallet. All of these core benefits from ISA are very useful, but it's your WWID membership that adds the networking and information-sharing opportunities we all need for our line of work. Don't be like me. Don't wait ten years to make the most of your membership! You'll be amazed about the opportunities that active WWID membership can bring.

Graham Nasby, Eramosa Engineering Inc.
nasby@eramosa.on.ca

Free ISA Web Seminars

Isn't it time you explored ISA's free web seminars? As an ISA member, you can enjoy unlimited, free access to a library of over 40 online pre-recorded web seminars covering today's hottest topics. It's a great way to get extra training that fits your schedule.

Below is an alphabetical listing of the seminars. They can be accessed at: www.isa.org/webseminars.

Don't forget, you must be logged into www.isa.org.

- Applying Manufacturing Execution Systems
- Benefits of ISA Certification
- Boiler Control Fundamentals
- CSE PE Exam Review Part 1: Standards & References
- CSE PE Exam Review Part 2: Measurement I
- CSE PE Exam Review Part 3: Measurement II
- CSE PE Exam Review Part 4: System Analysis
- CSE PE Exam Review Part 5: Final Control Elements
- CSE PE Exam Review Part 6: Control System Implementation
- DCS Alarm Assessment Overview
- Deployment of ISA100.11a - The First Proposed Standard of the ISA100 Universal Family of Wireless Standards for Industrial Automation
- Designing & Applying Model Predictive Control Strategies
- Effective Project Team Building
- Engineering Influence: Unlock the Secrets to Getting Your Way
- Fiber Optic Sensing
- FOUNDATION Fieldbus H1 Field-Level Installation and Commissioning
- Grounding in Instrumentation Systems
- How Can OPC Reduce Your Plant Control Integration Costs?
- Hybrid Systems Overview
- Industrial Ethernet Series Part 1: Understanding Ethernet Cabling & Hardware
- Industrial Ethernet Series Part 2: Is Ethernet Ready for the Plant Floor?
- Industrial Ethernet Series Part 3: Designing Industrial Ethernet Networks
- Introduction to DCS Alarm Management
- Introduction to ISA100.11a - The First Proposed Standard of the ISA100 Universal Family of Wireless Standards for Industrial Automation
- Introduction To Patents & Patent Process
- Introduction to Process Control
- Introduction to Safety Instrumented Fire & Gas Systems
- Introduction to SCADA
- Introduction to Temperature Measurement
- Is a Burner Management System (BMS) a Safety Instrumented System (SIS)?
- Is a Fire & Gas System a Safety Instrumented System?
- Manufacturing System Security Using ISA SP99
- Motivating Team Members
- Network Security Series Part 1: Cyber Security Risk Assessment for Automation Systems
- Network Security Series Part 2: Firewalls and Filtering Security on the Plant Floor
- Network Security Series Part 3: Encryption and Virtual Private Networks
- Next Generation Fieldbuses - Picking the Right One
- Noise Reduction in Signal Replacement
- Overview of Enterprise Control Integration
- Overview of Foundation Fieldbus Technology
- Overview of HMI Applications
- Safety Instrumented Systems Series Part 1: Determining Safety Integrity Levels
- Safety Instrumented Systems Series Part 2: The Pros and Cons of Logic System Technologies
- Safety Instrumented Systems Series Part 3: Field Device Issues and Their Impact on System Performance
- Sell More Through Effective Technical Presentations
- The ISA95 Object Models for Enterprise - Control System Integration Part 2
- Wireless Networking of Sensors and Instrumentation: Applications & Techniques



Registration Form

International Society of Automation
67 Alexander Drive
P.O. Box 12277
Research Triangle Park, NC 27709
PHONE +1 919-549-8411
FAX +1 919-549-8288
EMAIL info@isa.org
www.isa.org

6th Annual ISA Water and Wastewater and Automatic Controls (WWAC) Symposium

22–23 June 2011 • Chase Park Plaza • 212 N. Kingshighway Blvd. • St. Louis, MO

Mail Form and Payment to: ISA—WWAC Symposium
PO Box 3561
Durham, NC 27702-3561

Call ISA Customer Service at: +1 919-549-8411

Email: info@isa.org

Fax Form to ISA Customer Service at: +1 919-549-8288

1. Customer Information

ISA Member: _____
Name (last): _____ (first): _____ (mi): _____
Company: _____ Title: _____
Street Address: _____
City: _____ State: _____ Postal Code: _____
Phone: _____ Fax: _____ Email: _____
 Speaker Vendor Attendee

2. ALL PARTICIPANTS ARE REQUIRED TO PAY REGISTRATION FEES

- One Day Conference Registration (23 June)**
 ISA Member\$395
 List\$495
 Author/Speaker Registration\$100

8 PDHs Earned

Your Full Symposium registration includes admission to all paper sessions, tutorials, scheduled meals, and notes and handouts.

Registration Total: \$ _____

3. Payment Summary

Charge: Visa MC Amex Discover
Charge Account Number: _____
Exp. Date: _____
Signature: _____

Make Checks Payable to:

ISA WWAC
Military vouchers or company purchase orders not accepted.

Hotel Registration:

Chase Park Plaza
212 North Kingshighway Blvd.
St. Louis, MO 63108
Phone: 1 877-587-2427
Fax: 1 314-633-3000
www.chaseparkplaza.com

www.isa.org/wwac

Hotel Reservation cut off date: **30 May 2011**



WWID 2011 SCHOLARSHIP APPLICATION

College Student or WWID Student Member Name: _____

Address _____

Home Phone: _____

Student E-mail: _____

College Name: _____

College Address: _____

College Phone: _____

Dean of Admission's Name: _____

Parent Name: _____

Parent Address: _____

Parent Phone: _____

Parent E-mail: _____

ISA Membership Number _____
(Parent or Student)

Parent information above may be omitted if the applicant is an ISA WWID Student member.



WWID 2011 SCHOLARSHIP AWARD REQUIREMENTS

The ISA's WWID plans to award two one-thousand dollar (\$1000.00) scholarship to qualifying candidates. The scholarships will be selected by a lottery chance at the WWID meeting to be held at the 2011 Fall Leaders Meeting (FLM). All eligible candidates and their application forms will be reviewed by the Scholarship Chairman before the drawing at the 2011 FLM and must meet the following requirements.

1. Applicant must have a parent who is an ISA WWID active member, or the applicant must be an ISA WWID Student member. The WWID member must be in good standing with ISA, I.E., dues paid to date.
2. The candidate must be enrolled as a full-time student in the spring semester at a two or four year college or university, and he or she must have completed the previous semester as a full-time student.
3. To be considered for the ISA WWID Scholarship Award, the application form must be filled out completely and mailed to:
Michael B. Fedenyszen
ISA WWID Scholarship Chairman
60 Whittier Street
Haverhill, MA 01830 USA
4. Application forms must be received by the WWID Scholarship Chair no later than May 10, 2011. **DEADLINE - MAY 10, 2011**

ADVERTISING OPPORTUNITY



ATTENTION Water & Wastewater Industry Manufacturers and Representatives!

**WWID now offering quarter page, half page, and full page advertisements
in two seasonal newsletters**

Your advertisement in the 2011 Fall Edition of the newsletter will be
complimentary when you confirm for year 2012

Full page = \$995.00 / year
Half page = \$525.00 / year
Quarter page = \$275.00 /year
Business Card = \$150.00 / year

**Newsletter circulation reaches upwards of 1600 water and wastewater
member practitioners throughout North America**

***** Hurry - We are currently gathering information for the fall edition *****

E-mail rjones@isa.org or mfedeny@comcast.net for further information

Table of Contents

1	PROJECT BACKGROUND.....	1
2	ELECTRICAL, INSTRUMENTATION AND CONTROLS UPDATING	2
3	ISSUES & CHALLENGES	6
4	SUMMARY.....	7

1 PROJECT BACKGROUND

The Town of Whitecourt's Water Treatment Plant (WTP) was originally commissioned in 1980 as a conventional treatment system to provide a capacity of approximately 6 ML/day. Its treatment process included rapid mixing and coagulation, a solids contact clarifier, three dual media rapid sand filters, post chlorination, and fluoridation.

The Town contacted Stantec Consulting Ltd. (Stantec) in 2002 to complete a detailed audit to determine how the WTP could be cost effectively upgraded as it had reached its capacity and did not meet current standards for contact time and *Giardia* reduction. As a result of the audit, the Town of Whitecourt became the first in Alberta to install microfiltration pressure membranes.



The WTP upgrade became a two stage, multi-year project spanning from 2002 to 2009. Stage 1 involved baffling the adjacent potable water reservoir and construction of a new distribution pump house to take advantage of the new baffling arrangement. In addition, Pall Corporation Microza™ MF pressure membranes were installed in parallel with the existing conventional treatment process, providing the redundancy required for the Stage 2 upgrades to proceed.

Since commissioning, in 2005, the Pall Corporation pressure membrane system has performed exceptionally well and has been granted a 4.0-Log *Giardia* and *Cryptosporidium* reduction credit from Alberta Environment and tripled the WTP output without expanding the plant's footprint.

Stage 2 consisted of pre-treatment upgrades involving the conversion of the existing filter chambers and recarbonation channel to provide three stages of flocculation, and adding Lamella inclined plate settler packs into the existing clarifier. Commissioned in April 2009, the WTP now has capacity of approximately 18 ML/day, even when raw water turbidities are as high as 1,500 NTU.

2 ELECTRICAL, INSTRUMENTATION AND CONTROLS UPDATING

Stage 1 required the construction of a new distribution pump house to replace the high lift pumps in the WTP following the potable water reservoir baffling. The new pump house is designed for four 125 HP vertical centrifugal pumps (two variable speed and two fixed speed). Currently only one variable speed pump and one fixed speed pump is installed. To meet the utility company's harmonic requirements, an 18 pulse VFD from Allen-Bradley was supplied for the variable speed pump. The VFD was also supplied with a bypass fixed speed starter in case the VFD developed problems. Of the two pumps installed only one pump is allowed to run at any time with the variable speed pump always the lead pump.



The new pump house is equipped with A-B ControlLogix PLC with touch screen HMI for monitoring and local control of the pumps and communicates back to the WTP via Ethernet link. Pump house instrumentation includes ultrasonic level, monitoring of the pump well, discharge flow by magnetic flowmeter, and discharge pressure. The pumping scheme is the basic pressure on—flow off with the VFD pump always the lead. The fixed speed pump is equipped with a hydraulic actuated pump control valve to prevent starting and stopping surges.

The pump house has a secondary purpose, which is to keep the existing Hilltop reservoir full. The Hilltop reservoir used obsolete Quindar tone shift telemetry units over dedicated leased telephone lines to the WTP to control the old high lift pumps. During Stage 1, the Quindar was replaced with A-B MicroLogix PLC and phone lines redirected to the new pump house. During periods of low flow, and acceptable Hilltop reservoir level, all distribution pumps are shutdown and the Town is supplied water from the Hilltop reservoir.



At the WTP, instrumentation and control upgrades for Stage 1 were provided primarily by Pall Corporation in the form of a main A-B ControlLogix PLC and remote drops for each filter rack and CIP system. Pall Corporation also provided the main operator HMI station in the WTP office, remote programming modem, and Ethernet router. This allowed the WTP to monitor the new pump house PLC and for Pall to have the ability to provide remote troubleshooting and programming upgrade services.



A SLC 505 was installed in the WTP's existing relay panel to provide minimum interfacing to the old controls required to remain under Stage 1. In addition to the instrumentation supplied by Pall Corporation, the WTP's old Foxboro influent magmeter was replaced with a current Rosemount unit, which could provide a 4 to 20 mA signal to Pall PLC; and all Healy Ruff float level units were replaced with ultrasonic level monitors using the existing standpipes. The remaining WTP pneumatic instrumentation was left in place until the Stage 2 upgrade.



The WTP 600 Volt electrical service was upgraded to accommodate the new pressure membrane and Clean-In-Place (CIP) systems, fortunately the original designers had provided for future upgrading, which resulted in minimal WTP downtime. The existing 30 year old MCC was retained with only the old high lift pumps being decommissioned due to the construction of the new pump house. To accommodate the new pumps, air compressors, CIP heaters, etc. supplied by Pall Corporation, a new A-B MCC, with DeviceNet, was provided with VFDs, starters and breakers. All of the new electrical and control equipment were all networked together using DeviceNet resulting in reduced installation material, labor, and commissioning time.

Stage 2 of the WTP upgrade was when the fun began. All the existing pneumatic filter controls, filter consol, old relay logic, old annunciators, and decommissioned pumps were removed. Additional I/O was added to the SLC 505 in the old control panel to replace the old relay logic. The existing MCC was required to remain in place, but with removal of old starters and rearranging remaining starters there was sufficient space to install six new small VFDs, specially fabricated with DeviceNet interface, to fit the old MCC for Stage 2 flocculator and chemical feed pump additions. In addition, DeviceNet interfaces were added to select existing starters such as the clarifier rake drive, allowing control through the new Pall Corporation PLC/HMI control system. Finally, the old annunciator alarm and status light boxes in the WTP's office were removed with all alarms and statuses switched over to the HMI. Arrangements were made with Pall Corporation and their programmers to provide the additional PLC programming and HMI development required for the final WTP configuration.





A Stage 3 had been planned whereby the river water intake pump house PLC would be upgraded to match the WTP PLCs once Stage 2 was completed. This upgrade was moved ahead and added into Stage 2 and consisted of replacing an obsolete GE PLC with A-B ControlLogix with a local control panel touch screen HMI communicating back to the WTP via Ethernet using an existing direct buried multi-pair instrument cable.

3 ISSUES & CHALLENGES

At the beginning of Stage 1 renovations to the existing WTP, to prepare for the Pall Corporation pressure membranes it was found that the fluorescent light fixtures contained PCBs requiring total fixture replacement.

During commissioning and initial operation of the new reservoir pump house, the variable speed pump was found to have a vibration, of course just at the optimal operating speed. Despite numerous efforts and investigations, the pump vendor could not eliminate the vibration. The solution was therefore to program out the speed range of the vibration in the VFD. In spite of this, the pump operates well.

During Stage 2 commissioning of the communication link between the WTP and the raw water pump house, the link worked fine, but the A-B Ethernet module could not be configured to transfer the data between the two ControlNet PLC's. A-B tech support proved unresponsive. The solution to this apparent protocol incompatibility (signal conversion from RS232 to Ethernet) is still being investigated with A-B.

4 SUMMARY

Overall, the project was a huge success and the WTP currently has upgraded electrical, instrumentation, control, and SCADA systems. The operators currently have the capability to centrally monitor their entire system from the WTP. As an additional benefit, Pall Corporation included a dial-in modem in the main PLC, which has proved to be a big asset in assisting the plant to refine its treatment and operating systems by remotely troubleshooting and modifying the PLC operating program.

The major success of the Whitecourt WTP has resulted in additional contracts for microfiltration upgrades at other WTP's of the same vintage throughout the Province of Alberta.

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