



# The Whistle

# FHEA

VOLUME XXV, NUMBER 2

SUMMER 2009



Summer is here and it is time to 'LEED' the way. There are a lot of ways we can all work towards greener energy and environmental practices using LEED's ideas and concepts even though there may not be funding available. At my hospital we are working on several ideas, including water conservation, waste management, recycling, and electrical savings measures. Many utility providers offer

rebates, is what makes FHEA a hugely successful and dynamic organization.

The ASHE 46th Annual Conference and Technical Exhibition will be held August 2-5 in Anaheim, CA. I am looking forward to attending and proud to be representing FHEA as your President at the conference. The theme of the meeting will focus on *Improving the Process and Reducing the Cost of Healthcare* — very timely issues about which I will report back to you.

Our summer board meeting is coming up on August 21, 2009. We have an exceptional board that is there to focus on the needs of the organization and you. Please get any information or comments, including topics you would like to see presented during our educational session, to your board representatives so they can be addressed.

## The President's Corner

JOHN WILLINGHAM, CHE, PRESIDENT

rebates that are very successful with short paybacks. Remember, it is the right thing to do.

Congratulations are in order for our FHEA State Secretary, **Rick Zurich**, CHE, CHFM, named the recipient of the **ASHE Region 4 Emerging Regional Leader Award**. What a great honor for such a great professional! I would also like to thank Mike Barrow, CHE, CHFM, our FHEA State Vice President, for submitting our application for the ASHE Platinum Award for 2008.

Your efforts, as well as the support of our mem-

bers, is what makes FHEA a hugely successful and dynamic organization. It's been a great year for FHEA thus far with our 25th Spring Meeting in Daytona Beach on May 1—not only was it our largest meeting to date, but our golf outing, organized brilliantly and tirelessly by Greg Hodgson, CHE, CHFM, rivaled AHCA's golf outing in the fall! I would like to thank *all* the Board Members for their total support, as well as our members who support FHEA and us throughout the year.

*Our thanks to Garratt-Callahan Company for their generous sponsorship of this issue of the Whistle. If you are interested in sponsoring a future edition, we would be most happy to hear from you! Please contact the FHEA office at 407-332-7767 or email: fhea@earthlink.net*

## Welcome New Supporting Members

The following have joined our growing ranks since our last newsletter.

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# Legionella Risk Minimization for Your Cooling Towers

by Rose Lagrimas  
Garratt-Callahan Company

With cooling season in full swing, there's no better time to discuss *Legionella* awareness and risk minimization. Without a diligent and effective system treatment, your towers are at risk of becoming safe havens for *Legionella*.

While *Legionella* outbreaks are a major concern and can carry hefty consequences, this problem is also one of the most ambiguously addressed issues in the maintenance and management of healthcare facilities. Unfortunately, there is no unanimously agreed upon "right way" to approach standards for *Legionella* prevention and risk minimization.

Various government agencies and professional organizations in different segments of the water treatment industry have established their position and guidelines for *Legionella* Risk Minimization Management.

But the current obscurity surrounding *Legionella* risk minimization can lead to confusion and frustration on the part of those responsible for keeping their facilities safe. For that reason, the main focus of this article is to review the most common and popular guidelines from industry organizations. This article is not intended to advocate or recommend specific guidelines to use, but is meant instead to provide a review and summary of generally recognized and recommended "best possible treatment practices" for cooling systems.

Below are steps that are generally suggested by the CDC, health departments, and industry associations to be incorporated into a cooling tower management plan:

## A. Visual Inspection and Periodic Maintenance

enable you to observe bacterial growth, which is the most obvious indication that there is a biological problem within the system. Scale, sediment and bio-fouling within these systems all support bacterial growth including *Legionella*. A

maintenance program preventing scale, sediment, and bio-fouling buildup is essential. Remember, a biologically fouled system will also undermine the corrosion and scale control program.

## B. A Committed Biocide Program

is first on the list of a good maintenance program. While visual inspection is

includes the use of alternating biocides at the required intervals and at the proper legal dosage. A typical biocide program would consist of the use of an oxidizing biocide (halogen donor) alternated with a non-oxidizing biocide (isothiazolone or glutaraldehyde for example).

Deviations from a committed program will almost certainly lead to biological growth problems. An example



*Prudent attention to tower is essential in minimizing Legionella risk.*

important, you should not rely solely on the appearance of the system's visible areas as bacteria tend to grow primarily out of sight. Bacteria can be controlled with a good biocide program that

of an ineffective program would be constant under-dosing of biocide. This will eventually lead to the bacteria within the system developing a resistance to the

—continued on page 4

*Continued from page 3*

biocide that was utilized to destroy them. This kind of situation should be avoided at all costs. Maintain written records detailing the type of biocide used, the frequency of biocide additions, and amount of biocide added.

### C. Bio-Dispersants

play an important role in microbiological control programs, particularly against *Legionella*. These chemicals help to improve biocide performance by penetrating and releasing biofilm deposits from the surfaces into the bulk water. This allows the biocides to work more effectively in killing or inhibiting the bacteria since they are now free floating in the water. These bacteria can either be those that contribute to biofilm formation and/or those, like *Legionella*, that use the biofilm as their shelter for proliferation.

### D. A Cleaning Schedule

is essential to a good maintenance program. Debris entering the system can include pollen, insect bodies, feathers, plant parts, and other materials. These promote biological growth, corrosion, and deposit formation. They also tend to neutralize treatment chemicals and must be controlled for the treatment to work effectively.

Keep the tower clean of dirt and other environmental debris via routine manual cleaning. Cooling towers should be shut down and manually cleaned at least twice a year. If the cooling tower receives a high organic load, more frequent cleaning may be required. Perform manual cleaning just before the cooling season starts and at the end of the cooling season in the fall. Any system that has been off line for an extended period of time must be cleaned before it is brought back on line. Clean new systems before going on line to remove construction debris left within the system. Keep records with dates of all manual cleanings and calendar accordingly.

### E. Periodic Disinfection

of a system is required. This is normally done with a manual cleaning or when there are visible signs of biological fouling. The following chemical disinfection

steps were outlined by the Center for Disease Control (L. Sehulster, R.Y. Chinn, *Guidelines for Environmental Infection Control in Health-Care Facilities - Recommendations of CDC and the Healthcare Infection Control Practices Advisory Committee (HICPAC)*, 2003, Part IV, Appendix C, Section 4.0.):

- Turn off the cooling tower fans; keep the make-up water valves open and the recirculation pumps running
- Close outdoor air intake vents located within 30 meters of the cooling tower.
- Treat the system with an initial Free Residual Chlorine (FRC) of 50 mg/L minimum
- Add a dispersant within 15 minutes of chlorine addition
- Maintain 10mg/L FRC for 24 hours
- Drain and refill the system
- Repeat the third through sixth steps at least one more time
- Using a brush and water hose, thoroughly clean visible dirt, sediment, sludge, mud or scale from all water-contact areas
- Circulate 10 mg/L FRC for one hour, then flush the system until free of all sediment
- Refill the system with clean water. Return to service and commence maintenance treatment program

### F. Improve System Design

so that all towers have adequate drift eliminators to minimize the spray created by the action of the water within the tower. It is accepted that the main path of contracting Legionnaire's Disease is through the inhalation of infected water that has been turned into an aerosol mixture by some kind of mechanical action. Drift eliminators are recommended if the system does not already have them. These are essential to minimize aerosols created when the system is in operation. Side stream filters should be fitted to a system and run continuously. This will help remove particulate matter from the system. Particulate matter is a growth accelerator for bacteria, including *Legionella*. Domestic plumbing systems are well known as the perfect reservoir for bacteria and biofilms where *Legionella* can flourish. The focus on control and

prevention in these systems is critical in managing your utility program.

As a note, items B and D are often neglected because of the downtime needed to manually clean systems, and/or if management cannot allocate the man hours. Another problem is that, while biocides should generally be fed at least twice weekly, human error can cause frequently missed doses. The use of automated feeding systems can alleviate this problem. You should also be sure to use pumps that have the proper capacity to introduce the biocide as quickly as possible when a slug dosing program is employed.

While these steps to reducing the risk of a *Legionella* may be tedious and time-consuming, the effort and resources involved far outweighs that which would be required if an outbreak were to occur. Never has "an ounce of prevention is worth a pound of cure" been truer than when it comes to keeping your system safe by reducing the risk of *Legionella*.

**Important:** While this serves as a summary review of the guidelines generally agreed upon by several associations, agencies such as the Center for Disease Control (CDC), American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE), Cooling Technology Institute (CTI), or the Joint Commission on Accreditation of Health Organizations (JCAHO) should be contacted for additional information on their specific individual recommendations regarding *Legionella*.

(The FHEA also recommends contacting your chemical service provider for more information.)

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*Rose Lagrimas is the Biocides and Bioaugmentation Products Manager at Garratt-Callahan Company, which has provided water treatment expertise since 1904. In 2007, she spearheaded G-C's Legionella Risk Awareness and Minimization policy to promote understanding and consciousness of Legionella. If you'd like more information on Legionella, or would like to receive a copy of "Tools for Developing a Legionella Response Plan," Rose can be reached at (650) 697-5811 or rlagrimas@g-c.com.*

# Just *hoping* Legionella isn't a problem?



When 'just hoping' isn't good enough, get a water treatment program that can help minimize the risk of Legionella before it becomes a problem. Call Garratt-Callahan, the water treatment experts with over a century of experience!

*For a free consultation, contact:*

**Bruce Dempsey**

District Manager

ph: (256) 453-5761

email: [bdempsey@g-c.com](mailto:bdempsey@g-c.com)



Some called it FHEA's Spectacular  
2nd Annual Spring Golf Outing—

(but it was also known as

**FHEA's 25<sup>th</sup>  
Spring Meeting)**

April 30 - May 1, 2009

Hilton Daytona Beach

Oceanfront Resort

(& LPGA International - Legends Course)

--See you in Pensacola in 2010!

*Lily Salkoff-Piner, the event's unofficial photographer (Florida Air Services, Inc.) and Tina Stanisci (HDR Architecture), both FHEA Supporting Members, volunteered their time and dazzling smiles for the event.*



*"On your mark, get set, GO!"*



*Greg Hodgson's foursome make a natty quad!*



*Even after a full day of golf, Friday's meeting room was SRO for Shelburn Wilkes's keynote address, and a full day of educational presentations.*

See more Spring Meeting Golf Outing photos on the FHEA website, [www.fhea.org](http://www.fhea.org), compliments of Lily Salkoff-Piner.

## 2009 TRADE SHOW - OCT 26-27, 2009

*As of press time, only a handful of booths remain in the lobby. The following companies have secured booths in our upcoming trade show. The majority will be participating with door prizes. Visit all of them October 26 and 27 at the Rosen Centre in Orlando!*

A-fabco, Inc.	Follett Corporation	Protek Systems of Florida Inc.
AAF International (American Air Filter)	FP&L	R.C. Stevens Construction
Abatix Corporation	Garland Company, Inc.	RLF (Rogers, Lovelock & Fritz)
Aldoors of Florida	Garratt-Callahan Company	R. R. Simmons
American Portable Air	Getinge USA	Robins & Morton
Anacom MedTek	Glazing Consultants International LLC	S. I. Goldman Co., Inc.
Andrews Filter & Supply Corp.	GRAEF	Safe Check
ANF Group, Inc.	H. Stephen Jones & Associates, Inc.	Safety Management Services, Inc.
APG Electric, Inc.	Harvard Jolly, Inc.	Schneider Electric
ASCO Power Technologies	Heat Pipe Technology Inc.	Shannon Sales - Specialty Floors
ASCO Services	Hill-Rom	Sika Sarnafil
ASSA ABLOY - DSS of Florida	HKS Security	SimplexGrinnell LP
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Baker Barrios Architects	Hospital Furniture Restoration	Smith Seckman Reid, Inc.
Balfour Beatty	Hospital Systems, Inc	SoftSwitching Technologies Inc.
Barton Malow	Hunt Construction Group	Southwest Engineers
Batson-Cook Company	Hurricane Protection Industries, LLC	Spot Coolers
Becker Pumps Corp.	I.COMM	SPX Cooling Technologies (Marley)
Belimo Americas	IBA Consultants	Stan Weaver & Company
Bernhard Communications Inc.	Industrial Engineering Company	Stanley Security - Access Technologies
Bovis Lend Lease	Ingersoll Rand Security Technologies	Stanley Security - Best Access Systems
Brasfield & Gorrie	Interface Architectural Signage, Inc.	Stanley Security - Cnvrngt Security Sol.
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Comprehensive Energy Services	LG Electronics	Surge Suppression Inc.
Construction Specialties Inc.	Life Safety Enterprises Inc.	Swisslog Healthcare Solutions
Creative Arts Unlimited, Inc.	Life Safety Service	System Components Corp.
Creative Contractors, Inc.	Lifespan Healthcare, LLC	T.A.W. Power Systems
Creative Sign Designs	Link Construction Group	TekTone Sound & Signal Mfg. Inc.
Cummins Power South	M. J. Harris, Inc.	TLC Engineering for Architecture
Curbell Electronics, Inc.	Mason Engineering	TeleHealth Services
Daikin	McCree General Contractrs & Architects	TGSV Enterprises, Inc.
Datarep Inc.	Mechanical Services of Central FL, Inc.	The Whiting-Turner Contracting Co.
DeAngelis Diamond Construction	Meridian Art Group	ThyssenKrupp Elevator Corporation
Healthcare Group	MET Laboratories	Timothy Haahs & Associates, Inc.
Decon Environmental	MGMC	TLC engineering for Architecture
Dixie Plywood	Mintie Technologies, Inc.	Tom Barrow Company
Door Control Inc.	Modular Services Company	Trane
Door Solutions Inc.	Nalco Company	Tremco Incorporated
Doster Construction Company	Optimum Power	Tri-Dim Filter Corporation
Doyle Electric Services Inc.	Original Solutions Company, Inc.	Tropic Mechanical Contractors
Dynatherm Resources, Inc.	Otis Elevator Company	Turner Construction Company
Electrical Reliability Services	Pantropic Power / Ring Power	Waco
Engineered Energy Equipment, Inc.	Patterson Pope, Inc.	Walbridge
Engineered Lining Systems	Petroleum Recovery Services	Walker Parking Consultants
EnviroTeam Group	Phoenix Architectural Products Inc.	Wal-Mark Contracting Group
ETS - Lindgren	Phoenix Products (Div. Ring Power)	Watson McDaniel Co
Exeter Architectecutral Products	Powerex	Whitehall Mfg Co./A Division of ACORN ENG CO.
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**ATTENTION: Mark your calendars**  
**—and make your reservations— for our**  
**47<sup>th</sup> Annual Meeting and Trade Show**  
**Monday-Wednesday, October 26-28, 2009**  
**The Rosen Centre in Orlando**

Packets to register to attend this program  
will not arrive until late August.

So, in the meantime, if you know you will be attend-  
ing, avoid the rush and make your room reservations  
at the Rosen Centre TODAY!!

**Trade Show/Annual Meeting Schedule**

**Trade Show: Monday 4:00-7:30pm & Tuesday 7am-2:30pm**

**Educational Session and Annual Meeting: Wednesday**

**CALL the Rosen Centre: 407/996-9840**

and mention FHEA and/or AHCA to get our group rate.

The International Heating, Refrigeration and Air Conditioning Expo will be in Orlando January 25-27th, 2010 at the Orange County Convention Center. This is a great opportunity for people associated with our industry to attend technical seminars on subjects we deal with every day.

Manufacturers from around the world will have product displays available for you to re-view.