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ON PAGE 4
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PIPPINE is a publication of the Alabama-Mississippi Section of the American Water Works Association.

PIPPINE is mailed to all members of the Alabama-Mississippi Section. In addition to the members, the trustees voted to provide a complimentary copy to all community water systems within both states in an effort to keep all community water system officials informed on current events affecting the water supply industry and aware of products and services available to them. Current circulation is over 2700.

Articles and photographs are encouraged and appreciated. All submissions, comments or other matters concerning this publication should be directed to:

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Volume 2—2003 PIPELINE 1
First of all, let me preface this letter by saying, “Don’t grow tired and don’t stop watching the wall.” We should stop, look and listen more than ever.

We have seen a great number of changes in the Iraqi regimen since my last letter, and I’m sure we will continue to see many more changes in the future. Coming in different forms during these uncertain times, change may cause one to fear or dread the future. Only after the turmoil passes and things quiet down does our human nature revert back to the feeling that everything is going to be okay.

Because of the after-effects of 9-11, we’ve all had to face many new challenges, and of this one thing I am certain, it’s not the last challenge most of us will face. We all have had to handle these challenges (changes) in different ways. Some may board themselves up in a “safe room” and sit - until the air around them grows stale. On the other hand, some may “throw caution to the wind,” start charging up the Visa to the max, rent a limo and ride around until the gasoline is gone—thinking, “These are surely the last days. So, come what may!”

Where should we be? Remember, others are looking to see how we respond to the events in the news. Yes, I do believe the stock market will rebound in time.

After the smoke clears and all is said and done, people will still need the product you produce and distribute. With God’s help, we will endure as a great Country, as a steadfast Association and as a determined Alabama/ Mississippi Section.

With that having been said, the Planning Committee will meet in June to put the pieces of the puzzle together for the Conference scheduled the week of October 5th at the Beau Rivage (please see other information regarding this year’s Convention in this issue). It will be at one of the finest facilities the Mississippi Gulf Coast has to offer. While the Convention Center at the Beau Rivage is attached to the Casino, there is still a separation of the two. The meeting rooms are very nice, along with a great exhibit hall area. We believe this will be a time for those who have been under a great deal of stress in the past few months to come socialize, learn, share and enjoy.

Of course, topics that are important to us all are on the agenda. State updates pertaining to where we are and where we are going in the Water Industry will be very informative, I’m sure. Other issues dealing with the latest in treatment technologies are being booked, along with common sense security that will cover the smaller systems, as well as the larger ones. [I think the smaller systems will really enjoy this Conference.]

It seems, as time goes by that the topics presented and that affect every one of us are helping to make us all better professionals.

For quite sometime large systems have had to operate on a professional (private sector) basis. For that reason, customers sometime get the feeling that they are being left out and uninformed. After all, you know what happens when you have to “cut the budget”—greater productivity required with fewer resources. Budget cuts affect the smaller systems as well with the cost of supplies and materials on the rise. Good labor is difficult to keep with hourly wages and monthly salaries of many seemingly far behind the national average.

You are invited to register and attend this year’s Conference, yes to be a part of the growing pains, and to help one another through these changing times. Experience some relief through those who have already “invented the wheel” as they share their wisdom on tried and proven methods, what worked and does not, along with new ideas for all of us to discuss, don’t let it be said, “I wish we had attended this one.”

I look forward to seeing you there!

Ken McClellan
Time is fast approaching for the AWWA Annual Conference and Exposition (ACE) in Anaheim, CA, June 15th thru June 20th. I hope that the Alabama/ Mississippi section will be well represented. We are going to try to have a section breakfast one morning, so check the bulletin boards as we will try to get it posted at all hotels.

In the latest updates from AWWA National it appears that we are mending fences with our friends. Since EU is gone, the manufacturers are returning to the conference. The booth space is leased at about 90% of where it should be at this time.

Ken and Shirley have another planning meeting coming soon and everything should be in place by late June for our section meeting in October.

Be aware of what is going on around your system and do everything you can to protect your customers as they have put their trust in you to provide them with a safe and precious commodity that we feel honored to deliver to them daily.

Please do not forget to pray for a safe return for all of our young service men and women that they may do their job and return home safely and soon.

May God bless each of you and our veterans.

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The Authoritative Resource for Safe Drinking WaterSM
You've all heard of arsenic. For centuries, it's been used as the favorite poison of couples who've grown weary of their mates and for whatever reason despair of any other way to part from them. The name arsenic is derived from the ancient Greek word meaning masculine from the belief that metals were of different sexes. It's been the fuel for jokes, such as the famous dialogue between Lady Astor and Winston Churchill, as Lady Astor said to the Prime Minister: “Sir, you are drunk, and if I were your wife, I would put arsenic in your brandy.” whereupon Mr. Churchill replied: “Madame, if I were your husband, I would drink it.” In 1944, Frank Capra directed the slapstick film Arsenic and Old Lace, a dark comedy starring Cary Grant, whose character found out that his two sweet elderly aunts that had been poisoning lonely travelers with arsenic and burying them in the basement. But they meant well.

But all kidding aside, arsenic contamination of ground water can be a serious matter. It's considered serious enough that the Environmental Protection Agency (EPA) decided, after much urging from environmentalists, including the Natural Resources Defense Council (NRDC), to accept the World Health Organization's Guidelines for Drinking-Water Quality promulgated in 1993, which established the Maximum Contaminant Level (MCL) for arsenic to be 0.01 mg/L, or 10 parts per billion (ppb), and sets a Maximum Contaminant Level Goal (MCLG) of zero. After much deliberation by the Bush administration, on January 22, 2001, the EPA published the new standard. However, the effective date of the new rule was postponed until February 22, 2002. The EPA expects to make a final decision on whether to revise the January 2001 rule as part of the next six-year review of drinking water standards, which is due in August 2008.

All Community Water Systems (CWS) and all Non-Transient Non-Community Water Systems (NTNCWS) that exceed the MCL of 10 µg/L will be required to come into compliance five years after the publication of the final rule. All CWSs began providing arsenic concentrations in their annual consumer confidence report (CCR) for water that exceeds ½ the new MCL last July 1, 2002.

The increased concern comes from the growing realization that arsenic may be more toxic than previously thought. Arsenic toxicity depends to a large degree on the type of arsenic to which one might be exposed. Inorganic arsenic, which naturally exists throughout the earth's crust, occurs as arsenic sulfide, metal arsenates, or arsenides. When arsenic combines with carbon and hydrogen, as is the case in plants and animals, it becomes organic, which is usually much less harmful than the inorganic arsenic.

The health effects from exposure to inorganic arsenic vary with the conditions of exposure, such as the duration and dose of exposure. The health effects can be categorized as acute (short-term) or chronic (long-term). In case of acute health effects, arsenic can be deadly at...
high concentrations. Ingestion of ~60 ppm arsenic in water or food can be fatal. Lower levels of exposure can lead to nausea, vomiting, diarrhea, abnormal heart rhythm, blood vessel damage and a “tingling” sensation in hands and feet. The level of arsenic exposure from daily intake of arsenic containing food (at miniscule levels) usually does not harm, and in some cases have been argued to be beneficial. However, arsenic is a cumulative substance, which slowly passes out of the body through the hair, fingernails and toenails, and prolonged exposure to higher levels (at least greater than 50-150 ppb) may cause skin pigmentation, keratoses and skin cancers. Other cancers, such as lung and bladder cancers, have been observed among people who drank from arsenic contaminated wells in Taiwan in 1966. Cancers such as lung, kidney, liver, bladder cancers, are expected after exposure to 500 ppb of arsenic.

Arsenic has many beneficial uses however. It is used with other metals to make hard, strong, corrosion-resistant alloys. Its compounds are used in pigments, animal poisons, insecticides and poison gases for chemical warfare. They are also used in glassmaking, in calico and indigo printing, in tanning and taxidermy (as preservatives), and in pyrotechnics. Small quantities of arsenic added to lead in the manufacture of shot assure perfectly spherical pellets by delaying the solidification of the molten lead, and thereby allowing it to flow more readily; the arsenic also contributes hardness. A small amount of arsenic is added to germanium in the production of semiconductor devices such as transistors and integrated circuits. A number of organic compounds of arsenic are used in medicine; the best known is Salvarsan, formerly used extensively in the treatment of syphilis and yaws.

But how can arsenic get into a public water supply? Arsenic is an element that occurs naturally in the earth’s crust. Fortunately, for life on this planet, arsenic is not a commonly occurring element. The main sources of arsenic in the environment are either natural or man-made. The natural sources include naturally existing minerals/ores (such as pyrite), soils which usually are sinks for the weathered form of arsenic compounds, and mineral-rich geothermal waters. The man-made sources are usually the industrial effluents, which may
be direct discharge of arsenic compounds into soil, water, air (which results in atmospheric deposition of arsenic). Such industries include copper smelters, pesticide, wood preservative manufacturers, petroleum refining, and semiconductor manufacturing, among many others. Agricultural applications, mining, and smelting operations also contribute to arsenic releases. Coal burning plants generate many wastes, including fly ash and bottom ash, which when mixed, might contain arsenic and other toxic metals.

Do water systems in Alabama have anything to fear from arsenic contamination? There were 27 water systems in Alabama in which arsenic was found and reported to the EPA from 1990 to 1998. However, the highest best estimate of average arsenic levels from any of these water systems is 4.6 ppb, substantially less than even the potential new arsenic rule. Does that mean that all Alabama water systems are out of the woods when it comes to arsenic? Not necessarily. The maximum level found in samples taken from two of the water systems were 20 ppb, twice the new potential MCL for arsenic. Still, short-term exposures at those concentrations are probably not a public health problem. There are however industrial sites in Alabama where the potential for arsenic contamination exists, and at least one site where arsenic and other poisonous metals have been directly released into the ground water. Interestingly, the water system where that release occurred was not one of the systems that reported arsenic in its water, and it is a ground water system, which is more likely to have arsenic contamination than a surface-water system.

So there you have it, a brief intro of the strange and mysterious element arsenic. As it stands now, things look good between Alabama water systems and arsenic, and we hope it stays that way. Be on the lookout for the new arsenic rule, although with a history of low concentrations of this poisonous element in Alabama's water supplies, it will probably have very little effect.

EDITOR'S NOTE
All public water systems must comply with the new revised arsenic standard beginning January 23, 2006. The final August 2002 “Implementation Guidance for the Arsenic Rule and Clarification to Compliance and New Source Contaminants Monitoring” and training information may be viewed online at [www.epa.gov/safewater/ars/implement.html](http://www.epa.gov/safewater/ars/implement.html). The next review of the arsenic standard will occur in August 2008 as part of the next six-year review of all drinking water standards.
To the **optimist**, the glass is half-full.

To the **pessimist**, the glass is half-empty.

To the **engineer**, the glass is twice as big as it needs to be.
EDITOR’S NOTE: AWWA Spring Fly-In (April 30 – May 2, 2003).

By the next edition of Pipeline we should have more detail on the AWWA “Fly-In” to Washington D.C. But to show you an example of what an active voice for water can achieve in Washington we include the following letter and attached article from Tommy Holmes. Tommy is our man in Washington D.C. who actively promotes the interest of the water industry by representing AWWA. The AL/MS Section was represented by Chuck Lott from Mississippi and Jim Miller from Alabama. Section Representatives from across the country contacted over 200 Congressmen and Senators in person. We’ll get some first-hand reporting from them in the next issue. The following letter describes one early result.

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AMERICAN WATER WORKS ASSOCIATION
1401 New York Ave. NW, Suite 640
Washington, DC 20005
(202) 628-8303 tholmes@awwa.org

May 05, 2003

Re: Follow-up info from the AWWA Fly-In

Hello!

It was great to see you all at the Fly-In last week. I especially enjoyed meeting you personally, although with the size of the group, I could not get to talk to everyone as much as I would have liked. But I will be floating around the AWWA Annual Conference and Exposition in June. Let me know if you have a Section breakfast or reception that I can drop in on and say hello.

The officers and staff here were particularly impressed with your enthusiasm and the hard work you put into this. We estimate that AWWA hit about 200 Congressional offices last week. That’s bound to have an impact. Out of curiosity, could those of you who hit all of your state delegations drop me a line?

We got a number of questions after some of you visited the Hill about which bill our special appropriations for security training would be in. The answer is there is no bill number to give yet. We are asking Congress to put that funding in the FY2004 appropriations bill that funds Veterans Affairs, Housing and Urban Development, and Independent Agencies. The latter category includes EPA. All drinking water related grants would officially travel via EPA to us and to AWWARF.

Again, I really enjoyed meeting you all, or getting reacquainted with many of you, and I really enjoyed seeing your dedication to this effort. I believe we made a real impact on decision makers in Washington.

Tommy Holmes
Legislative Programs Manager
In blow to Pentagon

House Armed Services Committee lawmakers have agreed to drop a host of controversial environmental exemptions from the defense authorization bill it is planning to mark up later this week, including contentious provisions that would have exempted military training activities from federal cleanup, waste management and air quality rules that are implemented by EPA, according to House Democratic and Republican sources.

Specifically, the chairman's mark that will be considered by the Readiness Subcommittee May 9 is not expected to include any provisions under the jurisdiction of the House Energy and Commerce Committee— including the Clean Air Act, Resource Conservation and Recovery Act, and the Superfund law, according to a Democratic committee spokeswoman.

However, the House Resources Committee May 7 completed a markup of a bill exempting the military from some provisions of two natural resource laws, Endangered Species Act and Marine Mammal Protection Act, in order to ensure the committee retains jurisdiction over those provisions.

The exclusion would be a major blow to the Pentagon, which has pushed hard for relaxing requirements for military readiness activities under EPA's jurisdiction, as well as under the two natural resource laws.

However, the Pentagon’s proposal to exempt military readiness activities from environmental laws has drawn significant opposition from Democrats, state
Kathryn Wright (“Katy”) was born in Aberdeen, Scotland, and has lived in Bergin and Stavanger, Norway; Abu Dhabi, U.A.E.; and Meridian and Clinton, MS. One trait that has remained common in her travels has been her proximity with the water. During her years at Clinton High School, she volunteered at the Mississippi Museum of Natural Science in Jackson, MS. Her interest in water, along with her experiences in environmental education, is what drew her to Civil Engineering.

Kathryn has had many great educational opportunities during her academic career at Mississippi State. Working at U.S. Geological Survey in Pearl, MS, she had the opportunity to work with Geographic Information Systems in the bridge-sites division. She also worked on converting the hydraulic atlases from Hurricane Camille and the Pearl River flood of 1979 in Jackson to digital format. During the summer of 2000, she had the opportunity to study abroad through the College of Engineering. She studied at the University of Bristol in Bristol, England for 4 weeks, and then she set off to backpack through Europe for 2 weeks. After completing the co-op job at USGS, Kathryn accepted a position at Lockwood, Andrews and Newnam (LAN) in Houston, TX as a summer intern. She worked 2 consecutive summers for LAN. The first summer, she worked in the water resources division and the second for the Surface Water Transmission Program doing project management for large diameter water mains.

During her college career, Kathryn has been involved in many organizations on campus and in the community. She has been a member of the American Society of Civil Engineers (ASCE) and Theta Tau Professional Engineering Fraternity and has held offices in her dorm residence hall association, Engineering Student Council and the Society of Women Engineers (SWE). She is currently the president of the Mississippi State University section of SWE and the Region C representative on the Student Transition Team. Kathryn plans to continue her involvement in SWE on a local and national level after graduation. Kathryn will graduate from Mississippi State with a Bachelor’s of Science in Civil Engineering in August of this year.

Gaurav Savant is a native of India and graduated from the Punjab Engineering College with a Bachelor of Science Diploma in Civil Engineering. He was admitted to the Dean’s list throughout the 4 years of his BS education.

Gaurav has been at the Mississippi State University for the past 2 years and is pursuing his Master of Science degree in Civil Engineering with an emphasis on Environmental engineering and water resources. For his Master’s thesis Gaurav is researching the use of alternative disinfectants such as ultraviolet radiation and ozone for the purpose of disinfecting water. While pursuing his Master’s degree Gaurav has given presentations at Mississippi Water Environment Federation, American Society of Photogrammetry and Remote Sensing as well as American Society of Civil Engineers conferences and has been an active member of ASCE, AWWA and the WEF. In addition to his Master’s thesis research Gaurav has conducted remote sensing research at the Mississippi State University’s Engineering Research Center.

Gaurav’s future plans include getting a PhD in Civil Engineering at the State and then to go on and work for a consulting company.
Elizabeth “Claire” Booth was born and raised in Chattanooga, Tennessee. She is a student at Auburn University’s Civil Engineering Department and will receive her BA in Civil Engineering in May, 2003. While at Auburn she has been named “Outstanding Student in Civil Engineering” and ASPE “Student of the Year.” Claire will be entering graduate school in the fall at Virginia Tech and plans to obtain a Masters of Science degree in Environmental Engineering.

Claire is particularly interested in the field of water resources as it pertains to water supply, flood control, hydropower, and the environment. She is quite interested in finding solutions to the deterioration of the nation’s aging infrastructure and pursuing ways to rebuild and revitalize them. Her ultimate career goal is to work in the environmental engineering field protecting and improving environmental resources for future generations.

During Claire’s studies at Auburn she has participated in Alpha Lambda Delta, Pi Gamma Tau, Golden Key, Tau Beta Pi, Chi Epsilon, Society for Women Engineers, American Society of Civil Engineers, and Society of American Military Engineers. Extracurricular and civic activities have included Auburn’s Cross-Country Team, Track Team, Outdoor Club and Co-ed Flag Football Team as well as the Sierra Club, Impact Service Club, Lee County Humane Society Volunteer, Boykin Center Volunteer, and various charity races.

Claire has interned with Betts Engineering Associates in Chattanooga, Tennessee, where she assisted project engineers with projects that included designing exit and entrance ramps for a new interchange on Interstate 24 and performing grading and drainage calculations for other commercial and industrial projects. Claire has also tutored fellow students and assisted graduate students and faculty in preparing and conducting research projects.

DEFENSE BILL, continued from page

and municipal officials, EPA staff and environmentalists. These groups have charged that these provisions would exempt the Defense Department (DOD) from key cleanup requirements at a time when releases from military facilities may be contributing significant contamination to drinking water resources.

Many critics charged that DOD’s language would go much further than the military has claimed, providing exemptions, for example, for defense contractors and the military from cleanup liability for perchlorate and other munitions constituents. This prompted DOD to narrow the provisions and offer to work with state regulators to refine the language so it doesn’t go beyond DOD’s intent.

EPA Administrator Christine Todd Whitman said publicly earlier this year that she did not believe there was a pressing need for the exemptions. However, Whitman and EPA enforcement chief J.P. Suarez later said that DOD had made changes to its legislation that satisfied the agency’s concerns.

However, Resources Committee Chair Richard Pombo (R-CA) urged lawmakers to quickly pass an
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Imagine that you are in the final stages of constructing a ten-filter water treatment plant. Start-up for the filter control system alone requires the contractor to coordinate with representatives from the valve supplier, actuator supplier, instruments supplier, filter console supplier, the electrician, and the integrator to put together a system that is supposed to work as one complete unit. Now imagine the additional complications of a controls upgrade project where older, existing equipment must be integrated with a new control system. In the water treatment industry, these headache-inducing scenarios are the norm. However, this is expected to change with the introduction of the industry’s first complete, turnkey automation system for filtering operations.

Although the basic components of any filtering system include the filter console, the communications link, the sensors, the actuators, and the instrumentation, it is the turnkey integration of these components into a pre-packaged, pre-engineered and pre-programmed system that merits its classification as a major step forward. Combined with the use of pneumatically-operated actuators, this “total solution” can reduce installation costs by 30-40%, ensure reliability, reduce maintenance and increase safety. Furthermore, a single-source system ensures a single point of responsibility for installation and support. A solution whose time has come.

As all water treatment officials and engineers know, the Safe Drinking Water Act mandates strict control of turbidity within levels that can only be achieved through exacting control of filter operations. As a result, new facilities must incorporate state-of-the-art equipment and many older plants must undergo control upgrades. But the complicated process of integrating valve management and software testing for an easy system to begin.

“On a typical filter control project, the control system designer has to start from scratch,” says Patrick Moorman, an instrumentation and control specialist with Black & Veatch Corporation—a leading engineering, consulting and construction company providing water and wastewater services for clients around the world. Black & Veatch also provides services for global energy and information markets. “You have to buy this piece from one vendor and another piece from another; then have a contractor put it all together. Then, hopefully, find a system integrator that can make it all work.”

In response to this challenge, vendors have each offered their own, increasingly sophisticated elements: the control console, the networking of sensors, software, actuators, and the valves. Yet, any piecemeal approach to upgrading can result in increased complexity and heightened vulnerability.

“As a result, the necessary control and electrical instrumentation within the filter pipe gallery, notes Willard Jordan, PE, whose company—Electrical Expertise of Longview, Texas—specializes in engineering the instrumentation and SCADA system design for water and wastewater treatment plants. “But all this extra wiring creates its own problems. You have myriad of boxes and conduit and wire that looks like a bowl of spaghetti. I’ve had installations where we’ve had to go back and replace wiring, and that’s real time consuming because you can’t do it one filter at a time.”

Some solutions have focused solely on the collection of data from the sensors as a means of simplifying the process. While these higher level fieldbuses provide improved performance, they do so at a much higher cost.

“There’s been newer data-highway systems around for awhile, notes Jordan, “but they usually are high-dollar, proprietary protocols like Allen Bradley or Honeywell.”

In the face of diminishing federal, state and local revenues, most water treatment facilities enjoy little leeway in expanding their installation costs. Anything decreased expense and complexity is sought at all levels.
especially at the control console.

"With some of the older systems, all of the data signals from the sensors would come up to this large instrument control panel on the top of the filter gallery, and then through a series of relay switches to handle the signals for opening and closing all the valves," says Patrick Moseley, a senior engineer who heads up the electrical SCADA department for Chiang, Patel & Yerby, Inc. of Dallas, Texas. "CP&Y offers planning, design, and construction management services for environmental projects including waterworks and wastewater systems. "It can get quite complicated."

Ultimately, the price paid for attacking the problem of improved data access and control in an ad hoc, piecemeal fashion comes in the form of diluted responsibility. "Nothing is more frustrating for a plant engineer than having vendors dodge culpability when a problem arises."

"Typically, the mechanical guys install the valves and actuators, the electrical guys wire it up, and the instrumentation guys apply the instruments and control panel," observes Moseley. "But when a problem crops up with the filter, you have all these subcontractors and the general contractor pointing fingers at each other."

The demand for unified systems and single point responsibility has already been demonstrated by the recent popularity of a product that includes the underdrain, media, and control system. Yet this does little good for those water treatment plants that already have a satisfactory filter bed or those that require an entirely new data acquisition and control system. Until now, no single vendor has delivered the entire operation "from soup to nuts."

The integrated Filter Magic® "Loop" concept

Completely up-ending the old way of assembling filter control systems from scratch, Filter Magic® of Dallas, Texas, has designed and engineered the industry's first water and wastewater filter control system that utilizes a menu-driven operational control console and a 2-wire data and control bus to simplify and guarantee backwashes that comply with federal turbidity levels. Filter Magic is a division of Controls International, Inc., a leading manufacturer of filter control systems and high-performance components for the water treatment industry for over 30 years.

The system is configured around what Filter Magic calls the "Loop," which consists of four elements: the central console, the communications link, the actuators, and the instrumentation. While these elements individually comprise the basic components of any filtering system, it is the turnkey integration of these components that is the key to the intuitive human-machine interface that provides complete automation and the simplicity with which this feat is accomplished, that merits its classification as a major step forward.

The console

Engineers at Filter Magic have created menu-driven software and graphics of the filter, recognizing that not every operator is sufficiently trained to perform a backwash operation. The detailed graphic changes with each command demonstrate that the command entered per the menu was successfully completed. Each filter has its own PLC, completely stepping through the necessary slow, crash-prone PC-based switches on all valves, while ensuring the commands were completed, while acting as safeguards against performing an improper command that could put the filter in operational jeopardy.

In keeping with its promise of automation, the console includes completely hands-off control sequences that derive input from the sensor and determine when and how the backwash process should take place. Yet, this system also offers three other levels of control that allow increasing operator input to the point of total manual control. The menu directs the operator to perform the exact sequence of backwash operations. Still, a plant operator has some latitude to configure parameters, such as filter basin water levels, air scour time and low/high backwash durations. On the other hand, safeguards built into the code prevent warrants deviations from the process sequence so that the clearwell cannot be accidentally contaminated. Redundant power supplies automatically switch in the event of failure, and a battery-powered, UPS keeps the entire system powered for a minimum
amended version of the Bush administration’s proposed exemptions to the endangered species and marine mammal laws in order to preserve the committee’s primary jurisdiction over these statutes. “While I want our committee to remain relevant to this process, time is not on our side,” Pombo said at a May 6 hearing on H.R. 1835 -- which provides some relief to DOD under these natural resource statutes.

“If we are to remain relevant, we need to move a bill by [May 7],” he said, ahead of the Armed Services subcommittee markup scheduled for May 9. “I must reiterate that the only way to maintain jurisdiction and relevancy in this process as the committee of expertise on these subjects is for us to take action rather than the Armed Services Committee, which does not have our level of expertise.”

The committee May 7 approved an amended version of H.R. 1835 on a 25-13 vote, with Rep. Neil Abercrombie (D-HI) as one of only a handful of Democrats supporting the bill. Abercrombie also serves on the Readiness Subcommittee.

The bill prohibits the designation of critical habitat on DOD lands where an integrated natural resources management plan is in place. A Pombo amendment removed a controversial provision that could have limited DOD’s responsibility to protect threatened species if doing so was inconsistent with its primary mission.

The bill also amends the definition of “harassment” and creates a national security exemption under the marine mammal law similar to existing provisions in other environmental laws, and allows “incidental takings” of marine mammals during military readiness activities.

The Pombo amendment eliminated the most controversial portion of the proposed harassment definition changes, dealing with acts directed toward a specific individual or stock of marine mammals. Pombo said his amendment was based on testimony at the May 6 hearing and concerns raised by committee Democrats and moderate Republicans.

Date: May 7, 2003
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The communication link

FilterMagic engineers opted for the proven, open architecture AS-i network supported by over 100 vendors worldwide, allowing a low, hence fail-safe level of automation. This 2-wire, 24 VDC bus carries both the network communication signal and the power needed for the peripheral devices by way of a redundant (in case of a line break) ring topology. The AS-i interface is ideally suited to the needs of devices, such as sensors and actuators, where low connection cost per node is critical and simplicity is paramount.

Jordan explains the FilterMagic arrangement from his perspective as an electrical engineer in the field: “The loop wires carry the control signal, which is multiplexed data originating at each peripheral device with its own address that acts as the interface. These signals are standard NEMA 4/4X screw-covered junction boxes. The device accepts the signal coming in and converts it to a contact closure to open or close the valve. If you need valve status, it takes the same contact closure status and converts it into a signal back to the console.”

In the case of pre-existing protocols at any given facility, both the console and the AS-i network can be designed with gateways to communicate with other options, such as plant SCADA, Allen-Bradley, Modicon, GE, Siemens, Profinet, Modbus, RS422, 485, Modbus+, Device Net or Ethernet TCP/IP.

Valve actuation

The “loop” encompasses control of all the necessary valves: influent, effluent, backwash, airwash, filter-to-waste, valve and drain valve.

FilterMagic supplies the actuators, which are pneumatically operated and capitalize on a simple, “rotary vane” design utilizing only one moving part. This design ensures accurate, incremental control and eliminates hysteresis. Each actuator is assigned a default setting in the event a power grid goes out. The actuator holds its respective valve in the open or closed position until power is restored, thus preventing the flooding of filter galleries and protecting treated water.

Capable of carrying up to 8 Amps at 24 VDC, the AS-i wire loop supplies sufficient power to open and close the solenoid on each pneumatically operated actuator. The system also works with plants that rely on electric actuators. “You don’t have to switch over to pneumatic actuators,” says Fred Underwood, developer of the FilterMagic system. “In plants that already have electric actuators, the address on the network bus will point to a transformer that converts our 24 volts to the 125 volts on an electric actuator. In such cases, the actual 480 VAC required to power the actuator/valve movement is usually already wired into the pipe gallery.”

The instrumentation

The “loop” includes the high-quality sensors required for metering any water filtering application: level transmitter, head loss transmitter, turbid meter and an effluent flow transmitter. Each sensor is sized, selected and calibrated for optimum performance within the prescribed application. All instruments return data back to the console via the AS-i bus. In coming data is checked by the receiver for possible faults by comparing the parity bit and several other independent values to ensure accurate and reliable feedback.

Installation

In keeping with its self-positioning as being pre-packaged, the FilterMagic “loop” comes pre-engineered specifically for each filtering plant. At the factory, each component is addressed and configured with the AS-i communication network and the console, then tagged appropriately for ease of installation. After factory testing, the entire system is shipped as a “kit,” including wiring.
Multiple benefits turn the tide toward turnkey solutions. What appears to be a “total solution” stand store revolutionizes the entire water treatment industry as more engineering professionals recognize its value.

“The real advantage of the Filter Magic system is that they provide a pre-packaged, pre-engineered scheme and even developed pre-programmed software,” observes Moorman. “The possible best niche for Filter Magic is a retrofit job because a lot of the legwork – the design and fabrication – is already thought out so there are massive efficiencies there. The bottom line is they should be able to deliver it little more competitively.”

As an example, the elimination of redundant wiring turned out to be a strong suit of such turnkey systems. Specifically, the AS-i bus reduces the size of cabinets and cableducts while eliminating terminating resistors and excessive connectors, bridges, terminal housings and distributing clamps. This translates into less installation time and reduced maintenance. According to the AS-i technical forum, typical cost savings range from 15-40% compared with traditional cabling methods.

“This system has eliminated all the extra enclosures, conduit and wiring,” reiterates Jordan. “Now you only need to run one ½-inch conduit with a couple of number 12 wires to as many as six filters and you’re in business. This eliminates about 90% of the previous wiring. These efficiencies also manifest themselves at the control console.

“We are now able to eliminate all of those relays and switches at the control panel,” points out Moseley. “Because they are a supplier, you have a panel that is already pre-programmed and field tested, Filter Magic definitely simplifies the wiring and programming when it arrives on the job site, it’s ready to go.”

Equally important, low voltage architectures help improve safety conditions for plant workers.

“If you go with a pneumatic actuating system, the advantage is that you eliminate the 480 power voltage and also the 125 volt control voltage,” says Underwood. “There is tremendous safety here. Everybody is concerned about flooding and subsequent short circuits. At the very least, once you get one of these electric actuators filled with water, they’re history.”

The wave of the future: pre-packaged, fully automated filtering systems

Water treatment operators are already eagerly incorporating turnkey solutions such as the underdrain. This trend promises to accelerate with the offering of a complete filtering instrumentation and control system.

“One of our clients asked us to consider this route,” says Moorman. “We looked at it and agreed that it is a viable scheme. We then proceeded with the design, based on use of the Filter Magic system.”

Ultimately, the appeal for Filter Magic turnkey filtering systems rests with the fact that they system, by definition, from a single source.

“Filter Magic represents a combination of technologies – something that have been around the industry for a while – but this is probably one of the first times that key components, like the console, have allowed all of these technologies to be brought together,” notes Moseley. “You have the valves, the actuators, the instrumentation, the bus highway, the control, all wrapped up as a single product. What’s nice is that under one platform, there is a single point of responsibility to ensure the filter system works.”

All signs seem to indicate that the future of water treatment will revolve around the concept of turnkey automation.

“To me, it looks like Filter Magic has really got onto something that is going to be revolutionary,” sums up Jordan.

For more information regarding the Filter Magic® system, contact Filter Magic® at 10410 Vista Park Road, Dallas, TX 75238; (214) 343-0025; fax (214) 503-0736; info@filtermagic.com; or visit www.filtermagic.com.

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