Editor's Emphasis

The Future of Water

What Does the Water Industry Have in Store for 2004?

As we move forward into 2004, many organizations are looking to close the books on some issues while focusing attention on the long-term future of the industry—an industry that requires the time, attention and fullest efforts from all of its members. The marketplace has been steadily changing, and the near and distant future only looks to continue that trend.

As presented each January, the following pages contain outlooks for the water treatment industry. Water Quality Products asked various industry professionals to present a view of the marketplace from their seats, so that we all may look at our individual business futures as well as the future of the industry and make our plans accordingly. Some issues that once seemed futuristic may become reality sooner than we think.



The Future of U.S.

Manufacturing in

Residential Water

By Mark G. Bertler, Sta-Rite Industries n A Tale of Two Cities, Charles Dickens wrote, "It was the best of times, it was the worst of times." This quote is so appropriate today as manufacturers in the residential water treatment industry enter 2004. The market drivers that make the water treatment industry such an attractive market are still present, among them the increasing uncertainty over water quality and the escalating global demand for clean water. However, new competitors, significant price point pressure and the need for product innovation create potentially difficult times in 2004 for water treatment manufacturers.

and the expectation is that manufacturers need to continually reduce their selling price. Aggressive cost reductions achieved through product redesign, material substitution and better manufacturing efficiencies are mandatory to remain competitive today. An increasing trend will be to accelerate both global sourcing and manufacturing of components and finished goods.

It is predicted that there will be a continued downward slide in U.S. manufactured products, especially components. The expected growth in the manufacturing of residential water treatment products will come mainly from Asia with China being well represented. It will be uncommon to have manufactured and/or assembled product with little or no foreign content. It should be noted that products that are bulky such as brine cabinets and pressure tanks, to name a few, still will have an advantage in being manufactured locally due to the economics of transportation but still will not remain free of foreign content. The manufacturers of nondifferentiated products will continue to rely on countries that have lower operating costs.

Assembly of finished goods in the United States will remain strong, but as product quality and testing improve in Asia, the shift to finished goods manufactured there will become more prevalent throughout 2004 and beyond. Asian manufacturers have improved their quality significantly with the use of manufacturing advances such as lean manufacturing and six-sigma quality programs. These types of initiatives were unheard of a few years ago in Asia, but today they are becoming more commonplace. With expected greater reliance on foreign suppliers comes the need for



Even so, market opportunities abound. For example, the U.S. residential water treatment market is expected to grow at a rate of two to three times GDP, with total manufacturer's dollars estimated in the high several hundred million range. The demand for pure water has never been greater.

That potential is not free of challenges, however. It is rare to raise prices to customers in this business environment

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better component forecasting and larger inventories. The improved cost position from manufacturing in a foreign country does have its downside; typically higher carrying costs, higher transportation costs and the extended delivery times. These additional cost burdens need to be considered in determining the full extent that companies rely on offshore sourcing and manufacturing.

Not all is doom and gloom for U.S. manufacturers. The challenge will be to commit the necessary resources to product development and innovation in a business environment that is pressing hard to reduce costs. Where commodity products are concerned, manufacturers must embrace offshore production and/or the formation of alliances with foreign suppliers who can aid in improving cost positions. It is only through product innovation combined with a lower cost base that manufacturers/suppliers will be able to achieve and to sustain acceptable growth and profitability. Those who act aggressively in these areas can expect 2004 to be a WQP very good year.

About the Author

Mark G. Bertler is the vice president of Sta-Rite Industries Water Treatment Group, Delavan, Wis. Previously, Bertler held the position of general manager at U.S. Filter Corp. based in the Midwest. Before joining U.S. Filter in 1995, Bertler was with BFGoodrich/Arrowhead Industrial Water since 1987, serving in a number of managerial positions ranging from new business development, product development and mergers /acquisitions.

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Research, Awareness and Standards Will Drive the Future



article for *Water Quality Products*, I was reminded of the article I authored last year on predictions for 2003. For me, that article would prove to be rather predictive of my personal future in this water treatment industry.

Increased Growth Through Consumer Awareness We have witnessed in this past year greater growth in the home water treatment industry than we have in the past few years. This has been accomplished through a number of factors that will continue to play a role in this upcoming year. First, the general public continues to hear about drinking water and water quality concerns through many different media outlets. Whether it is due to a severe power outage that has caused millions of people to boil their water or a smaller localized concern that has caused the need for the local and state health agencies to get involved, the general public slowly is becoming more aware that it is responsible for its own safe drinking water. You know when the politicians are getting involved in discussing water quality matters and

By Shannon P. Murphy, Watts Premier 2003 has proven to be a very unique year, both personally and for the water treatment industry. When I was asked to author a 2004 predictions

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costs that it is becoming a larger public concern. The general media also is becoming more aware of the public need for information as we are witnessing a greater number of informative websites and printed articles nationwide that discuss local water concerns and the health and financial impact it will have on their local communities. In addition, the economic recovery also is playing a factor. As the economy continues to rebound, this will increase investment in R&D for new and innovative products, as there is greater economic confidence providing purchasing power for the consumers. Additionally, with the possible continued consolidation through acquisition, there is a potential for a merger of technology advances and new networking capabilities, providing unique product offerings to new market segments.

Working With Municipalities

As I wrote about last year, I continue to see this industry aligning itself closer with the water treatment municipalities. There are many questions and hesitations regarding the use of POU/POE devices for Safe Drinking Water Act compliance for the water municipalities. However, 2004 will be a big year for projects to answer many of these questions. The EPA will initiate Phase II of the Arsenic Treatment Technology Demonstration program, where unlike Phase I, has the potential to contain POU applications. Some states such as Arizona are being very proactive in evaluating POU products for smaller water districts; others are waiting to see how many of these pilot projects are turning out. In the end, 2004 will result in the completion of many of these studies, which will answer many of the questions regarding POU applications and its viability.

More Than Just Arsenic

As much talk as there has been in the municipalities regarding arsenic, I believe this is only the first of many topics that are on the way. As new studies are conducted on water contaminants, new levels may be set for existing contaminants, as well as the research and discovery of new water concerns that will require monitoring. Some of these new concerns may include compounds such as pharmaceutically active compounds, endocrine-disrupting compounds and personal care products. As these new regulations are enacted, the POU application may prove to be a more economical solution than initially considered.

The Infamous Purifier Standard

Continued efforts will be put forth regarding the NSF/ANSI "purifier" standard that currently is under construction. As the EPA, through its ETV testing program, continues to test and study products for the removal of viruses, bacteria, cysts and chemical agents, it will provide fruitful information for the regulators and the industry on how to test and develop these purifier products. This progress by the EPA also may influence the speed in which a purifier standard is set forth through NSF, as a real need for standard testing methodology becomes more of a concern within the industry. Development and testing of low-cost water purification devices go hand in hand with the ongoing consumer awareness, as individual homeowners then will be able to economically provide personal insurance for themselves and their families in the event of a localized water contamination or boil alert occurrences.

Consumer education, continued testing and research on POU application for SDWA compliance, new water regulations, purification, innovation and conservation combined with greater economic consumer confidence, domestically and internationally, all point to a very interesting year ahead of us for this water treatment industry.

About the Author

Shannon P. Murphy is the vice president of municipal programs at Watts Premier, Phoenix. Previously, he worked at NSF International. Watts Premier has independent piolet studies underway, which are set to be completed in mid- to late 2004. Periodic updates and findings regarding these projects can be found at www.wattspremier.com.

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Reaping the Benefits of Change

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By Mark Rowzee and Chubb Michaud, Water Quality Association

he one constant in the POU/POE market is change. Never has this fact been more evident.

Just watch the California regulations and the evolution and study of decentralized treatment in small water systems and the big box sales of water treatment. Change can present both problems and opportunities. While these many ongoing changes in our market may seem like a threat to the future of your water business, in fact this change can represent opportunities.

The key to dealing with all of these changes is becoming more diverse in your understanding of "the water market," as well as diversifying your company's avenues. In other words, there is an opportunity to grow, together, into other markets. This is partly why a segment of Water Quality Association (WQA) membership has asked for an increase in the association's commercial and industrial activities.

If you are up to date or have been involved with any of the Commercial & Industrial (C&I) activities within the WQA over the last year, you already will know that the market for knowledgeable water treatment specialists is vast. You also will know that the WQA has certain goals for linking C&I members with C&I users as well as addressing other needs of non-





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residential members.

Outreach and Growth Activity

At the March 2003 C&I section meeting in Las Vegas, representatives of more than 30 companies interested in C&I growth identified a list of target markets in which the WQA C&I section would focus growth efforts. An original list of more than 40 C&I markets was pared down to 10 markets which were subsequently prioritized by simple majority ballot vote. These include markets as diverse as boiler water treatment, metal finishing, municipal, car washing, hotels, hospitals, etc.

The next step in the growth effort is to conduct brief research of the potential of the selected markets, which will determine the WQA's outreach activities for the benefit of its member companies. The informal market research conducted will attempt to determine factors such as the size of the market and vehicles available for reaching into the market (associations, shows, publications, etc.). WQA's C&I outreach efforts could include one or more of the following.

- Education at other associations' shows.
- Producing water treatment articles specific to a market's publication(s).
- Targeted advertising, sponsoring WQA exhibiting pavilion at other shows.
- Trying to draw participation and attendance to WQA's shows and other activities.

In fact, some of these activities took place before the end of 2003.

Another branch of C&I activities is the development of C&I water treatment equipment standards. At the time this article was written, a small group of interested individuals is working on draft documents for standardizing terminology and specification guidelines for ion exchange and reverse osmosis equipment applied to commercial and industrial operations. These types of documents tend to draw attention to and participation in WOA's activities Education also has proven to be a common need. As part of the growth effort, WQA intends to bring people from outside our industry to seminars that will give water treatment professionals a clearer picture of the water needs for a variety of markets. Some of these opportunities were presented at the Mid-Year and Convention in Chicago.

WQA Commitment

The process of market outreach will take time. But those actively involved in the process from the early stages will undoubtedly benefit most from the strengths that the C&I Section has to offer. There is undoubtedly no better time to involve yourself in this process. Doing so is as simple as contacting WQA, asking for more information and participating in the section meetings at the annual and mid-year WQA conferences.

About the Authors Mark Rowzee is the Water Quality Association's (WQA) staff advisor for the

from a variety of angles (end users, suppliers and dealers).

Other Strengths

Beyond WQA's growth efforts, one common thread for C&I businesses already has emerged and that is the issues of discharge regulations. WQA is poised to leverage its governmental affairs activities on behalf of C&I interests as they pertain to C&I applications for water treatment equipment.

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C&I Section. Chubb Michaud, CWS-VI, is the WQA's C&I Section chairman.

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2004: A Year for Closure?



By Tom Bruursema, NSF International

s we look forward to another new year, we find ourselves wading among many important projects that today are riding the wave of progress, but have not yet come to closure. These range from new NSF/ANSI Standards for shower filters and microbiological treatment claims to homeland security protocols and testing to demonstration projects using POU devices for small systems compliance and more. All of these represent important opportunities for the industry, leading then to the million dollar question of ... when?

While NSF is assisting in all of these projects and leading several, there are many aspects of progress that no one organization can control. Yes, that includes NSF. It is the nature of the process. From our crystal ball observations, however, we see several of these coming to closure in the new year.

New NSF/ANSI Standards

Now in it's nineth draft, it is our sincere hope that we will soon have an NSF/ANSI Standard for Shower Filters. There have been a variety of issues that have caused this standard to take longer than most. First and most obvious, is that it's not a drinking water treatment unit standard, but rather a shower water treatment unit standard. While the template didn't change much (i.e. addressing structural integrity, performance claims and literature requirements) there is one noticeable difference from the Drinking Water Treatment Unit Standards (DWTU) (i.e. no material extraction testing). Earlier drafts included materials testing but were based largely on DWTU and, therefore, were very conservative

towards ingestion exposure. It also did not take into account other aspects of shower filters such as dermal and inhalation exposure and high temperature water conditions. In the end, it was decided that materials were an unlikely source of concern when considering the high flow rate through the product during periods of use and limited ingestion of shower water. It was agreed, however, that materials containing lead would be prohibited, as would solvent bonded materials, and those formulations not CFR Title 21 compliant would undergo review.

Other issues relating to shower filters included performance testing under high temperature conditions. Performance is limited at this time to free available chlorine reduction. Due to the volatility of chlorine at high temperatures, the method of influent challenge and influent/effluent sample collection is more closely controlled to ensure accuracy in the performance results. The challenge is 2.0 mg/L with a minimum 50 percent reduction, the same as NSF/ANSI Standard 42.

Another standard long in the works, or more appropriately stated a suite of standards, are those for microbiological treatment claims. There has long been a standard for ultraviolet disinfection and microbiological claims for distillation devices. Similarly, there have been cyst reduction claims for mechanical reduction technologies and bacteriostatic claims for carbon media. However, what has been missing is a complete microbiological treatment claim (i.e. bacteria, virus and cyst) for several treatment technologies. The two new standards that are the furthest along include those for mechanical and halogen treatment technologies. It is our hope that these two standards will reach conclusion in 2004.

The draft standards for these microbiological treatment claims are intended for safe water supplies, providing supplemental treatment. The challenge organisms vary by the technology under test but are designed to be very conservative surrogates for the given technology. In the case of mechanical, the surrogate selection is based on size restriction, and for halogens, chemical resistance. today, and/or a bacteria/virus claim. Bacteria and virus claims, however, cannot be separated.

One final area of closure we are seeking in 2004 is for arsenic reduction claims. In particular, we are expecting the addition of an Arsenic III claim to Standard 53 that would in turn offer a total arsenic claim when combining the Arsenic III with the existing Arsenic V claim. Validation work has been completed in 2003 and balloting will commence shortly.

Homeland Security

Throughout 2003, NSF has been working with a number of federal agencies to establish test procedures that demonstrate POU reduction of contaminants deliberately applied to a public water system. Through funding by the U.S. Environmental **Protection Agency (EPA) Office of** Ground Water and Drinking Water, NSF has been working with a core group of experts to establish a first test protocol for RO systems, looking initially at microbiological treatment claims. This protocol is not intended at this time to become an American National Standard, but may in the future. For now, it is being used to evaluate commercially available technologies. Testing was begun in 2003 and the first report is expected in the spring of 2004. This will be a significant step forward in addressing the applicability of POU technologies as protection against acts of terrorism on public water supplies. Further protocols are planned in 2004 for additional technologies and for claims relating to chemical agents.

POU/POE for Public Water Systems Compliance

This tremendous area of opportunity first exploded in 2002 with the lowering of the arsenic MCL. It was still riding high in 2003, highlighted by NSF's symposium in February. The goal of this event was to get all three parties—POU/POE manufacturers, state and federal regulators and utilities-to the table to answer the question, "Can this really work?" The answer was "yes," but there was work to be done before it progressed to any significant level. One critical area identified as needing development was with the state agencies and, in particular, adoption of regulations that allow it all to happen. The SDWA allows for the concept to work, but the states themselves must still adopt the proper regulations that govern their jurisdiction. The EPA has recognized this hurdle and is expected to release new guidance on this matter in early 2004.

Another important milestone in realizing this opportunity will come with the conclusion and findings of the pilot studies. The project lead by NSF in Grimes, Calif., will conclude in 2003, with a report expected in early 2004. This particular pilot, also funded by the EPA Office of Ground Water and Drinking Water, focused on the logistical challenges of using a POU technology for a small system treatment environment. Simple questions needed to be answered such as: Are people willing to allow such products into their homes? Is the community equipped to monitor and maintain them? Will people use the system as their only source of drinking water? The reported findings of this pilot will help to set the direction for putting this tremendous opportunity in practical terms, highlighting the obstacles that need to be considered and addressed for this to be a success.

Further Incubation Required

While NSF is planning for some significant closure in 2004, there are always plenty more opportunities still incubating. Examples include perchlorate reduction and cyanobacterial toxin reduction claims under NSF/ANSI Standard 53, harmonization of materials testing between the DWTU Standards and NSF/ANSI Standard 61, ozone treatment and others. These projects are not expected to conclude in 2004, though we always remain optimistic that progress will move more quickly than expected. And then there are those not yet underway such as standards for nano- and ultrafiltration, microbiological claims for non-potable water and health claims for shower filters to name a few. And what of international standards?

Well, enough for now. After three decades of service to this industry, suffice it to say that NSF's prognosis for the future remains as bright as ever. The value and benefits of the POU/POE industry remain clear, and the need for national standards, thirdparty testing and certification remains strong. Together, we have much to look forward to.

A further measure of conservatism can be found in the requirements for treatment performance. Reduction of bacteria is set at 6 logs (99.9999 percent), virus at 4 logs (99.99 percent) and cyst at the current criteria of 3.3 logs (99.95 percent). Products will be able to make a cyst only claim, as is true

About the Author

Tom Bruursema is the general manager, Drinking Water and Wastewater Treatment Unit Programs. Tom has been employed by NSF for 18 years, serving in a number of technical and administrative positions. Tom holds a B.S. in Medical Technology and M.S. in General Biology from Eastern University Michigan. Tom is an honorary member of the Water Quality Association, and serves currently on the WQA International Standards and Regulations

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PREDICTIONS

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Task Force. He has primary responsibility for all of NSF's POU and POE testing and certification services.

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Industry Perspective: Just a Drop in the Bucket



By Jeff Roseman, CWS-II, Aqua Ion Plus+ Technologies

ater treatment is something that has been used for centuries. Over time technology and water sources have changed; therefore, so have the demand and expectations. Treatment methods have been traced back to early civilization. Mankind always has sought ways to remove contaminants or bacteria from water sources. Water treatment has been employed to solve issues of aesthetic nature such as staining; maintenance issues such as clogged pipes and scaling; or health-related issues, where water transports pathogens.

As more sophisticated manufacturing evolved, a need for better water treatment emerged. Electronic and pharmaceutical industries needed ultrapure water and nanofiltration. Hospitals and medical facilities needed deionized water for various needs and labs required pure water for testing purposes. Over time, filtration methods such as reverse osmosis and UV light were developed, not only to become a more effective means of water treatment but also to be affordable.

The paradigm for change must be addressed in the water treatment industry. Water sources have changed drastically, whether it is surface water

or ground water. The needs of the consumer have changed and are more demanding. Municipalities are using newer disinfection methods such as chloramines that are creating a slew of byproducts, which are harder to deal with but less health concerning. A worldwide water crisis is being touted as a future problem, just like the oil shortage was viewed as the end of mankind 30 years ago. New technology and methods of producing oil, in addition to more efficient fuel use and alternative fuels have eliminated that fear. Ground water is being contaminated from herbicides, pesticides and manufacturing. Pollutants from farming and manufacturing operations are leaching into our aquifers from runoff, septic and improper disposal methods. The Water Quality Act is helping, but it could be too little too late. Is there really going to be water crisis, or will there only be a shortage of affordable water?

Water reclamation, new technologies and affordable methods of obtaining water all will be the keys to a worldwide water surplus. Water treatment professionals need to be organized and share information in order to make water treatment a household necessity. POU/POE water treatment systems need to be a key focus of the consumer, whether the consumer is residential, commercial, industrial or agricultural. Applications need to be addressed and water treatment systems need to be designed to solve problems and not just be an avenue for revenue and profit. Treatment professionals need to help create affordable treatment methods and share ideas in order to provide end users with great water quality.

Banded together, self policed and organized water treatment professionals can prevent government intervention that would likely result in licensing and/or certification. Many industries have seen regulation. The communications, medical and commerce industries, just to name a few, have been regulated for decades. It is up to each and every water dealer, manufacturer, sales representative, installer, retailer, etc., to do their part to make sure regulations that don't

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VISA

make sense do not get passed. Educational programs and organizations need to train and recruit members to adhere to the highest standards of ethics and business practices. End users and consumers need to know that each and everyone in these organizations are trained properly and can be trusted to provide the best water treatment or water treatment products.

In conclusion, if you are a member of an organization, get involved and stay involved. Attend the conventions, learning seminars and educational venues to expand your knowledge. If you are not a member become a member in your respective industry, even if only at the state level at first and the national or international level later. We must all do our part to weed out unscrupulous, misinformed and uneducated personnel in the water treatment industry to protect our industry from regulation and WQP government intervention.



About the Author

Jeff Roseman, CWS-II, is the owner of Aqua Ion Plus+ Technologies, in La Porte, Ind., and a member of the *Water Quality Products'* Editorial Board. He has been instrumental in developing copper ionization controllers for the greenhouse and agriculture industries for disease control and scaling issues. He can be reached for comment at 219-362-7279; jeff@aquaionplus.com; www.aquaionplus.com.

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