



The Florida Flow

NEWS TO USE

DECEMBER 2023

UPCOMING EVENTS

WQA Convention
March 5-7, 2024
Orlando, FL

FWQA Golf Tournament
Celebration Golf Club
June 12, 2024

FWQA Convention
Education
June 13, and 14, 2024
Caribe Royale Resort
Orlando, FL

FWQA Convention
Trade Show
June 13, 2024
Caribe Royale Resort
Orlando, FL

INSIDE THIS ISSUE:

President's Message	1
Iron Removal	2-3 & 7
WQA study on Household Water	4
2023 Fall Education Seminar	5
Perils of PFAS	6 & 7
New FWQA Members	7
Board of Directors	8

PRESIDENT'S MESSAGE



FWQA President
Jeff Sadonis

The fall seminar was a great success! We managed to draw a great crowd of dealers, OEM's, and manufacturers and offered a collection of courses that were aimed to give our up and coming industry technicians some technical pump break downs, water testing practices, and terminology guides as well as expose them to what's possible and the thought process of a commercial sale. Our vets weren't left high and dry either. These courses allowed them to refresh on some of the basics as well as to be mindful of those new employees that they hire or work side by side with. The venue was a great place to hold an event like this and both the breakfast and lunch had something for everyone. Our sponsors really came through and allowed us to book an event that we were proud to put on for all of you and we hope you all took something from it. We appreciate all who attended, and if you missed it this year, please look for an announcement for another great opportunity for these types of classes.

The holidays are here and I hope you get to spend as much time with your families as you can handle. The holidays don't just bring a day or two off of work and killer deals on 4K televisions, they are usually accompanied by visiting family and guests. When we have these visitors, as a homeowner, you tend to look at your home under the microscope and try to mask that your home is lived in every day of the year. We notice things we didn't notice all year round like a crack in a wall or just how dusty those baseboards are. This is a perfect time to remind homeowners to be mindful of their water. While some folks go nose blind to their water and even forgot what great tasting water actually tastes like, when it comes time to host guests, no one wants to have the stinky house with bad water. Sometimes a friendly reminder is all your customers need to maybe jump on that quote you sent them a few months back or to go ahead and schedule that maintenance they've been putting off. While we all like to think that homeowner's wallets are clearly reserved for Amazon this time of year, there is plenty of room in that wallet for our equipment when approached creatively and properly. I've found that just simply reminding these homeowners of the quote that was given, the reason that it was offered, and that the holiday's bring company or just a fresh start on a new year will yield a few more tickets to close out the year.

Up next for the FWQA is our summer convention at the Caribe Royale in Orlando in June. This event takes place three months after the WQA event in March and we'll be sure to have plenty of follow up and recap on that event for those who can't attend both. Your board of directors are hard at work coming up with great ideas and aligning speakers and topics as you read this, and we are looking to best last year's very successful and praised event. Book your rooms early as last year we sold out of reserved rooms. We'll have more announcements on this event and booking information very soon.

Thank you for all the support in 2023. You and your support allowed us to continue to provide these learning opportunities, exposure to new products and methods, and keeping an eye on any and all legal changes that is happening in our industry both far and near. We truly do appreciate your participation in making our industry a better place to call home.

Iron Removal: A World Without Rules

A complete guide to iron removal methods, equipment & their limitations.

By Scott Harmon , CWS5, CI

Iron can often be detected visibly in water or by staining on plumbing fixtures.

There is one rule to keep in mind when selecting a method for iron removal—and that is there is no rule. You will find—as with all problem water applications—the solution is 50 percent science and 50 percent experience.

The following information describing the different types of iron removal process applications are the basics. Before using any of these applications, it's good to have an understanding of the type of iron present; the equipment and its limitations; and the product and processes involved with method.

Equipment

Care must be taken when considering iron removal advice from different regions of the country as water temperature, pH, alkalinity, dissolved oxygen content and other factors will affect the actual results.

Most application failures are caused simply by not selecting the right equipment for the water conditions present. It is important to follow manufacturer's guidelines regarding flow rates, backwash rates, pH levels, maximum iron input levels, water temperatures and any other application limitations that the manufacturer has noted in order for the equipment and media to deliver their best result as designed.

Water filter

Most iron filtration systems operate on the principal of oxidizing the iron (oxidation) to convert it from a ferrous (dissolved or soluble) to a ferric or undissolved state. Once in the ferric state, iron can be filtered.

Water filters are the most widely used equipment in removing iron. Its popularity comes from its versatility due to the various media products available and the process involved with each media.

The most common reasons for filter failure are a lack of flow in backwash or a lack of frequency of regenerations. Low pH levels when using filters are another reason for unsatisfactory results.

Water softener

Water softeners exchange ions by design. When used in iron removal, the softener uses a cation resin to exchange iron for sodium, in addition to the calcium and magnesium exchanged for sodium in the softening process.

Softeners are commonly used in removing low levels of ferrous iron (1-3 ppm), though it is not uncommon to remove 10 or more ppm depending on water conditions and control settings.

The last thing a water softener needs is for the ferrous iron to oxidize and convert to a ferric state. Since pH plays a big part in how quickly this conversion takes place, it is important to note that **softeners perform better on low pH**, which will also prolong bed life.

What is the role of pH?

The pH of a given water source plays an important role in how quickly ferrous (dissolved) iron converts to a ferric (solid) state. **The higher the pH, the faster iron will convert to the ferric state that can then be filtered.**

This is good in all equipment selections with the exception of a water softener where the ferric iron plugs the exchange sites and fouls the resin.

When using an iron filter **a pH above 6.5 is necessary** for iron to properly convert and is the recommendation of most manufacturers. However, most experienced water treatment professionals agree that a pH above 7.0 is a must and an 8.0 to 8.5 pH greatly enhances the chance of a successful application.

If it is necessary to increase the pH level, chemical feed of either sodium carbonate (soda ash) or sodium hydroxide (caustic soda) is preferred over a filter filled with calcium carbonate or magnesium oxide, as the filter method may foul quickly.

Pre-oxidation

Most chemical-free iron filters and several chemical filter media require some dissolved oxygen in the water to act as a catalyst. Pre-oxidation is required in cases where the dissolved oxygen content is too low.

Pre-oxidation can come from **aeration, chlorine or peroxide injection, ozone** and other methods.

Chemical Feed

There are several types of chemical feed applications. Using sodium carbonate or sodium hydroxide to raise pH is common. Using 5 percent to 10 percent chlorine or 7 percent hydrogen peroxide as oxidizers to the water before a filter is also widely used.

Different rules apply to each of these methods, from retention or contact tanks to using static mixers. When using different chemicals together, it's important to understand the compatibility of the chemicals and the safety considerations.

For greater success, follow the manufacturer's recommendations closely regarding proper feed rates and installation when injecting chemicals.

Aeration

When aeration is used as a pre-oxidizer it is generally done with either an air inductor or an air pump.

An air inductor is a venturi installed inline. The water flowing through the inductor creates a vacuum and sucks air into the water line. The faster the water flows, the more air induced into the water.

Watch for pressure drop and perform routine maintenance of the inductor, as they will clog with iron over time.

The air pump method allows more air induced into the water, as a mechanical pump is used to force air into the water. A contact tank is often used.

This method has proven effective with the only cautions being maintenance to the pump and injection fittings.

Ozone

Ozone is a powerful oxidizer and when used properly can be effective on large amounts of iron. Similar to aeration, ozone is injected into water via a contact vessel as a pre-treatment to filtration.

Ozone generators come in many designs and sizes and a full understanding of the process is necessary for success. Due to ozone's expense it is usually applied on iron levels higher than normal filtration is known to handle effectively.

In the ferric state, iron will coat the resin, plugging the exchange sites and fouling the resin. Iron fouling will eventually happen in any iron application and requires replacement of the media.

High saltings, longer backwashes, frequent regenerations and the use of iron cleaners are keys to longer bed life. However, even after taking these steps to prevent the bed from fouling, the resin will eventually succumb to the iron and require replacement.

Media Selection

Each type of treatment has its own strengths and weaknesses. As in the selection of equipment, it is important to follow manufacturer's recommendations and note any application limitations such as water temperature, pH alkalinity and dissolved oxygen content to get the best result.

To do this, water treatment professionals need a clear understanding of all limitations of the product and equipment selected.

Filtration using various means of oxidation is the most common method of iron removal. Depending on the media selected, other common processes such as ozone, aeration, chlorine or peroxide injection may be used to boost the oxidizing properties of the water being treated.

*** Greensand**

Greensand is one of the oldest but proven oxidation technologies. Potassium permanganate, itself an oxidizer, is used to regenerate the greensand.

In this application, potassium permanganate produces manganese dioxide on the surface of the mineral and—once the water comes in contact with it—any iron is immediately oxidized. The iron can be filtered and then cleaned away in the backwash cycle. Greensand is also effective with low levels of H₂S (hydrogen sulfide) and manganese.

Synthetic greensand is a granular mineral with a manganese dioxide coating having the same ability as regular greensand. It is much lighter and requires less of a backwash rate than standard greensand.

*** Manganese dioxide**

Manganese dioxide is a naturally mined ore with the ability to remove iron, manganese and hydrogen sulfide. The hydrogen sulfide capability exceeds that of either greensand or synthetic greensand and requires no chemicals to regenerate.

It does, however, require adequate amounts of dissolved oxygen in the water as a catalyst and may require some type of pre-oxidation to achieve its maximum ability.

*** Birm**

Birm has the ability to remove iron and manganese and has no effect on hydrogen sulfide. Like manganese dioxide, birm also uses dissolved oxygen as a catalyst and may require some type of pre-oxidation in cases where the dissolved oxygen content is too low to affect a maximum iron removal result.

*** Redox**

Redox media, which requires adequate dissolved oxygen to be effective, consists of two metals—85 percent copper and 15 percent zinc. These two dissimilar metals create a small electrical field in the bed that will not allow bacterial growth in the media.

CONTINUED ON PAGE 7...

Study shows overall concern for quality of household water supply is growing

Consumers report being far more concerned about the quality of their household water supply this year than in any previous year they have been surveyed as part of the Water Quality Association's biennial Consumer Opinion Study. WQA released the results of the 2023 Consumer Opinion Study during its Convention & Exposition in Las Vegas in April.

Survey results also indicated that while the overall perception of household tap water safety is high, safety concerns still remain. Also, more consumers are taking a larger role in improving their home water quality through the use of water treatment products, and they are more knowledgeable about the types of products available, results showed.

"This shows us that more and more consumers care about the quality of their water," said WQA Associate Executive Director Tom Bruursema. "The water treatment industry as a whole, and WQA member companies specifically, are well-equipped to provide the solutions to these quality concerns."

This year, a third of those surveyed (34%) reported being very concerned with the quality of their household water supply, and another quarter (24%) described themselves as "concerned." In 2021, less than one-quarter (23%) were very concerned and only 15% were concerned.

When it comes to perceptions of drinking water, the survey found this year almost three-fifths (59%) of households think their drinking water is safe versus 57% in 2021; however, this year 20% thought their drinking water was unsafe versus 15% in 2021.

Those with a home water filtration system other than a refrigerator water filter has grown significantly since 2021. The survey found almost half (45%) of households reported having a water filtration system in the home in 2023, whereas in 2021 only two-fifths (40%) had one.

Bottled water usage, which had been slipping in previous studies, remained similar to the previous study with seven in 10 households (71%) purchasing bottled water. Almost half (49%) did so because of the taste. The other primary driver was convenience.

Finally, lack of knowledge and cost concerns are two of the major deterrents among those who currently do not have a water treatment product. Still, two-thirds (65%) said they would consider installing a water treatment product if they undertake a major home improvement project.

The survey comes at a time of heightened awareness of water quality issues in Washington. The U.S. Environmental Protection Agency recently proposed the first National Primary Drinking Water Regulation for six PFAS chemicals. In addition, the WQA-backed bipartisan Healthy H2O Act, which would offer federal grants for water quality testing and certified treatment technology in rural and underserved communities, has been introduced in both houses of Congress.

A public summary of the 2023 results is now available at wqa.org/COS. More detailed reports will be made available to WQA members in coming weeks.

The WQA Consumer Opinion Study presents the findings of a national online survey conducted by Applied Research-West, Inc. between January 5 and January 30, 2023. A total of 1,413 adults over the age of 18 and living in private households were interviewed. ARW used a random sampling procedure, and the survey results are accurate within +/- 2.6 percent.

2023 Fall Education
Our Fall Education Seminars were amazing!
Thank you to our speakers...

Larry Eaton, Dennis Garcia, Don Grace, John Ladue, Nick Mahle, Bob Pierson, Jeff Sadonis, Chris Schmidt. Your knowledge and passion to help our industry by sharing and educating our members is so appreciated.

We couldn't keep the costs so reasonable to attendees without our sponsors...



If you missed it—here's a glimpse of what went on.
Fall Education is all about hands-on learning.



‘Never seen a group of substances’ like these: House lawmakers told of the perils of PFAS

Ryan Nicol, Florida Politics

As Florida lawmakers continue efforts to keep the state’s environment clean, lawmakers heard of a possible threat that could cause harm to the state’s residents.

The **House Water Quality, Supply & Treatment Subcommittee** heard a presentation regarding PFAS, or per- and polyfluoroalkyl substances. Vice Chair **Randy Maggard** led the meeting by explaining a bit about the compounds.

“While PFAS are no longer manufactured in the United States, they were extensively used and manufactured beginning in the 1940s. Efforts to investigate and understand PFAS and the potential risks to our ecology and human health are still going on.”

PFAS were common in cosmetics, nonstick cookware, waterproof footwear and other items and are being studied as a possible carcinogen. **Christopher Teaf**, hazard substance and waste management researcher at Florida State University, spoke to lawmakers Thursday and was clear about the dangers of PFAS.

“We’ve never seen a group of substances like the fluorinated compounds. We used to think that arsenic was the worst thing that we’d seen, or we used to think that it was ethylene dibromide or benzene,” Teaf said.

But those are “nothing like” PFAS, Teaf warned.

He explained that the compounds have powerful carbon-to-fluorine bonds, which “drives a lot of the physical, chemical properties, and ultimately, some of the toxicology as well.”

And the sheer number of them makes it hard for researchers to get a read on their effect.

“People say PFAS as though it were a thing,” Teaf told lawmakers. “It’s about 7,000 things, and that’s not an exaggeration.”

Their traits vary, but the compounds are generally soluble in water, dispersive, readily travel through the environment, and bioaccumulative, which means organisms accumulate them faster than they can get rid of them.

The concern is when PFAS gets into water sources, meaning humans can consume them. Teaf said the compounds cause problems with groundwater, surface water and soils, but less so with air.

The compounds are problematic even in wastewater treatment plants.

“Most of what we deal with as domestic customers or as commercial customers goes to the wastewater treatment plants. It then gets treated to the extent you can for the things that we can treat,” Teaf explained.

“PFAS are not well treated by wastewater treatment plants. And so, therefore, they are often discharged from the plants, or they get discharged to the land in the form of the sludges that are removed from wastewater treatment plants.”

While Teaf said research indicates PFAS are carcinogenic for animals, the jury is still out on their effects on humans, though research suggests there may be carcinogenic effects. And the information surrounding PFAS is changing rapidly.

“There’s probably 10 times as much information now as in 2020 or 2021.”

Jessica Kramer of the Department of Environmental Protection (**DEP**) also spoke Thursday to update lawmakers on DEP’s efforts to study and clean up PFAS.

Those efforts include partnering with the Department of Health (DOH) when identifying PFAS compounds.

“The main thing we were looking at is ensuring there aren’t drinking water impacts; folks weren’t drinking the water that was testing above 70 parts per trillion,” Kramer said.

DEP would then reach out to DOH, and analysts would scan a half-mile radius around that source to identify private groundwater drinking wells. They would then continue expanding the search area until they were confident PFAS was not present.

If anyone’s water source were affected, the state would help out.

(The Perils of PFAS continued)

“Our water supply restoration program supplies those citizens that are drinking that water with alternative sources of drinking water, at no cost to the citizen, until a permanent solution can be achieved, such as hooking up to a municipal drinking water system,” Kramer said.

Kramer told lawmakers that site assessments are ongoing, and the agencies are also dealing with PFAS in other ways.

“There are a couple of cases, as I understand it, where we are actually starting to do source removal. So we’ve identified a source of PFAS at a site that we can go in and actually remove and hope to get the bulk of it out to stop environmental impacts,” she explained.

As for what’s on the horizon, officials still have their eyes on the rapidly evolving research to determine the precise effects of PFAS. The Environmental Protection Agency (EPA) is also working to finalize a rule regarding the acceptable levels of PFAS in drinking water.

That rule could still be years away. But the state isn’t waiting, Kramer added. DEP is looking at a Jan. 1, 2025, target for that EPA rule.

“If they have finalized it by then, we will adopt the rule statewide. And if not, then we will go through our process to adopt our own rules and our own levels,” Kramer said.

Welcome to Our NEW Members!

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Mr. Eddy Martinez
Well Connection, LLC
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The Board of Directors represents you, but you, the Florida Dealers and OEMs are our reason to have an association. We need not only your financial support through your dues but also value your input and participation. Consider attending a board meeting, volunteering for a committee or becoming a board member. Ask any board member or call the FWQA office to inquire.

IRON REMOVAL... THE REST OF THE STORY FROM PAGE 3

This property earns redox the unique distinction of being effective on bacterial iron without the use of chlorine injection and being rated as bacterial static.

Effective on removal of iron and hydrogen sulfide, able to reduce chlorine and heavy metals such as lead and mercury, **redox is not effective with manganese.**

The biggest drawback for this media is its weight. Being almost twice as heavy as other minerals, it requires more than twice the backwash rate of other minerals. **Sizing mineral tanks is crucial.**

Catalysts & Considerations

Once you have identified the enemy and selected the equipment with compatible backwash and flow rates for the media selected, the water itself must be scrutinized.

Check for dissolved oxygen and pH levels and determine what, if any, pre-treatment is necessary for the selected application to deliver maximum iron removal efficiency.

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We continue to update and correct our mailing list. If you have an error in the address of this mailing, please fax or email us the correction.*

Our Mission

To promote increased use of industry products and services, to foster and maintain the professional competency of water treatment professionals, and work with governments, other organizations and the public on issues affecting water quality. Serving the water industry since 1975

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