



TWV Podcast #017

Water Tech: Clear Comfort Advances Pool Water Treatment with Steve Berens

Show Notes at <http://thewatervalues.com/pod17>

Intro: Welcome to The Water Values Podcast. This is the podcast dedicated to water utilities, resources, treatment, reuse, and all things water. Now here's your host, Dave McGimpsey.

Dave: Hello and welcome to another session of The Water Values Podcast! Thanks for joining me.

What a great weekend it was. I was fortunate enough to be up in the mountains this weekend, and we went whitewater rafting on the Eagle River right by Vail. Was a terrific experience with lots of water from the above-average Rocky Mountain snowpack run-off. Was just a great experience. If you haven't whitewater rafted during the high season, get a trip booked. It was awesome.

Now onto today's program. We're talking with Steve Berens, the CEO of Clear Comfort Water, LLC. Water tech has been on my list of topics for a long time, and my friend Nick Rancis, who has the coolest title – Chief Water Officer of Clear Comfort, introduced me to Steve. Clear Comfort holds the world-wide license for a water disinfection product that replaces chlorine treatment in pools and spas. That just one of the applications, but Steve provides a very interesting look into the water tech space and presents an interesting look at water treatment, especially in the pool and spa space.

All in all, I think you'll really find the interview with Steve interesting and a glimpse into what water treatment might look like in the future. Also, please remember to listen all the way through to the end for the all-important disclaimer.

With that said, let's get on with it. Open the valves, fasten your seatbelts and here we go.

Dave: Well, Steve, thanks very much for coming on to The Water Values Podcast. Greatly appreciate your time. I know you're a very busy man. To start off with, why don't you tell us a little about your background and how you got interested in, or how you got into, the water space.

Steve: Sure, for me, I came in through a side door. I came in through the clean tech side of the world. That's how we basically got introduced to the Clear Comfort technology in terms of what it could do for, mostly for swimming pools and spas. I came from a place where, in the clean tech world, I'd been managing a group called the Energy Fellows Institute, and I was lucky



enough to be introduced to this technology, and it really caught my eye. I thought it was very unique. It has not only a clean tech aspect but a very strong water aspect.

Dave: Let's pan back a little bit and talk about water tech in general. Could you give us some rough guidelines as to where the current state of water tech is?

Steve: Sure. I think it's getting lots and lots of attention for good reason because it's been neglected for so long. I think most of the people have taken for granted that water comes out of a tap, or it gets processed after we use it, or it is just there, and it's ubiquitous. I think a lot of people have realized that there's a lot of things going on there and whether it's scarcity or other issues, it's driven a lot of attention to it and in turn, a lot of innovation. And so, where we see most of that targeted is what most people are calling impact areas now. Impact investing, things like that. That's kind of the intersection of clean tech and business, where there's actually a business focus to it and that's very much where Clear Comfort sees its role in this space, as well.

Dave: Why don't you give us a broader overview of what exactly Clear Comfort is and what it does?

Steve: Sure. There're a lot of things called advanced oxidation now and advanced oxidation is basically a way of treating the disinfection of water with more current technology and tools. A lot of those have to do with ozone, UV or other methods. We have a unique way of doing that.

We produce hydroxyls and hydroxyls radicals, which provide very, very strong disinfection. And then we have a follow on amount of hydrogen peroxide created. And we do all of this without having to cart chemicals around. We do this by processing air with a treatment of UV and magnetism, and the two of those together create a very strong one-two punch of oxidizers coming from hydroxyl radicals, as well as sustained residual kill from the hydrogen peroxide that is formed in the water.

Dave: In the various market segments for water tech, where do you see Clear Comfort fitting in there?

Steve: We are mostly a processing platform form for sanitizing and disinfecting swimming pools and spas. That is our primary focus and that is where we stay. It's kind of on the edge of the water space, but everything we do has to do with water.

Dave: Sure, sure. You mentioned that swimming pools and spas were your primary target areas. How does the Clear Comfort product, how do those industries use the Clear Comfort product?



Steve: Well, right now, we're new to the space, and we're just entering. Right now, we have about twenty to thirty installed locations, and we did those mostly in stealth mode. The way that pools and spas use this is, if you are a commercial pool vendor, you're using this by reducing the amount of chlorine you put in the pool and providing a better oxidative kill with Clear Comfort, and also killing bugs that chlorine no longer kills. So there's many facets to what we do. That's the primary way in the commercial or public pool. In a residential pool, we eliminate chlorine and we make it so that the swimming experience is much more pleasant. You don't have the red eyes and itchy skin, and you have clean, clear water.

Dave: Ok. My son would probably appreciate that. He's on the swim team now and getting up in the mornings and going swimming, you know how ever many laps they are forced to swim.

Steve: Not to scare you, but one of the biggest challenges in swimming pools is, there have been many studies on this and some are referenced on our website at clearcomfort.com, is the tie between the chlorine and the chloramine, specifically, formed from chlorine, and asthma in lifeguards and swimmers, in terms of swimmers who put a lot of time in the water. So it's a real problem, there are real health issues that are coming out of this and are being documented now. And that's one of the areas that we are making a big impact.

Dave: In terms of the market that you are looking to get into, what are the barriers to adoption of the Clear Comfort product?

Steve: Right now, it's just educating people, I believe. How this works, the fact that it is a process that is not just a process we've invented, we've just produced a better way of delivering that process to the pool water. The process itself is really done every day. The air we breathe is cleaned with the same process of hydroxyl radicals killing off and cleaning up our air once air gets past our ozone layer. It actually gets exposed to UV radiation from the sun. It gets exposed to magnetism in the Earth's atmosphere, and those two things create hydroxyl radicals, which kill things like methane and other things. So what we're doing is very, very similar to what's done in the natural world. We've just taken it and put it into a box that's a couple feet tall, and we put that directly in the pool and use the same technology.

Dave: That was going to be my next question. What does the Clear Comfort product look like? So it's a box, that's how big is it?

Steve: It's, right now our commercial unit is about two feet tall and a foot and one half wide. And it's six inches deep and mounts on a wall very easily. It has a power cord coming out of it and quarter inch tubing coming out and that goes into what's called a venturi injector, which is very similar, in fact, the same thing used on hot tubs for ozone injection.

Dave: And how large of a volume pool will one of these boxes service?



Steve: Right now, the commercial size pool goes up to about 250,000 gallons, which is about the size of a twenty-five meter lap pool. We also have units that will go even larger than that we can configure for customers who want to go up to larger pools or even water parks. The technology also scales downwardly very well, and in the Fall, we'll be doing a broad launch of a residential product. Today, we are doing limited release with our commercial product in the residential space, and those people who are interested in that, we'd be happy to entertain them as part of our limited release program, which is available just by filling out an information contact form on our website at www.clearcomfort.com.

Dave: Besides getting clean water, are there any other benefits as to why someone would use your product?

Steve: Yes. Actually, there's a lot. In the commercial space, the commercial and public pools like rec centers and city pools and things like that have a tremendous problem with chlorine-resistant organisms. The chlorine-resistant organisms are tending to cause a huge amount of concern because it would take chlorine on the order of ten days to kill some of these organisms at normal chlorine levels. This is causing a huge amount of problems in the pool space, and the only solutions right now are very, very expensive. That's one area.

The other area is ease of management. This technology can cut down the amount of toxic chemicals that these commercial pool operators have to manage. And that's a tremendous burden on them. There are material safety data sheet issues with every batch of chemical they buy. There's just an amazing amount of behind the scenes activity that goes on to dose water with chemicals. We reduce that greatly in the commercial space.

Probably the biggest thing is what people say when they swim in a Clear Comfort pool. And that is, it's just a far better swimming experience. You don't have the smell, taste or feel from chlorine. You have very clean and almost silk-like water to swim in. So from a commercial pool perspective, that's a much better patron experience.

As you switch to the residential market, that's why they bought a pool was to enjoy it. And so in the residential pools, there's been very strong pull, and we're moving as quickly as possible to satisfy the demand from residential pools. The simpler method of managing the pool means you don't have to balance chemicals all day long or worry about it or wonder if it was done properly. The system works whenever the pump is on and does a very good job at cleaning the water but also keeping it simple to do.

The last thing is, obviously, nobody likes the irritation from chlorine. Nobody likes the risk when it's overdosed. And all those pieces are beneficial benefits to what we provide.



Dave: Sure. It's interesting. You were talking about not having to mess with all the chemicals and all that. Once the Clear Comfort product is installed, how long until the water is safe? How long does it take to cycle through all that water?

Steve: Generally speaking, our system takes one cycle of the pump circulating the water. Most pools are designed to have that circulation between six and twelve hours. So within that time, the pool is safe. Most of the pools we're going in, we're replacing chlorine systems, so they're really safe from the minute they're installed. The chlorine starts to degrade and disappear as we replace that with our Clear Comfort system.

Dave: Ok. Are there other applications beside the pool? Did you just target the pool industry because it's right there in front of you? Are there other applications? What I'm specifically looking at is drinking water.

Steve: Right. So the technology was developed by another company. We have the world-wide exclusive license for pools and spas and water features. The drinking water is a potential solution, but with any technology, both our company, Clear Comfort, as well as our licensing company, have really no ability to go after large broad markets as a start-up. We're very focused on what we do, and so we believe the pools and spas market is a huge opportunity for us in itself. It's a five billion dollar market. It's a two billion dollar annuity market. So there's plenty of activity to go on there. The drinking water space is an important area, but again, it just takes time and resource to go after it.

Dave: Sure. Just for those of us who aren't necessarily in the business arena, could you explain what an annuity market is?

Steve: Sure. That just means that in certain cases, I'll give an example. For our commercial customers, instead of capitalizing our equipment, they prefer to rent our equipment. And that makes it easier for them because we're just part of their normal operations - just replace the chemical budget with a Clear Comfort budget, and they get a better solution overall. That would be considered an annuity stream. Something they pay every month versus something that would be a one-time purchase and then you would pay maintenance costs, things like that. What a lot of our customers like about the rental system is, it is a predictable bill. It's the same every month, and it does a complete job. And so that, for us, we recognize that as annuity revenue, versus sales of a unit. In the residential market, we'll sell those units because those customers prefer that model.

Dave: Sure. Ok. What's the difference in cost between a chlorine-treated pool and a Clear Comfort unit treated pool?



Steve: So it's kind of a big question because so many pools are so different. But in terms of just in general, easy to get your arms around the concept. Roughly a pool like a twenty-five meter lap pool could cost on the order of \$500-\$800 a month in chlorine cost. We should reduce that by two-thirds, so roughly saving them two-thirds of their chlorine costs. In addition, though, we add the value of giving a better patron experience, which should improve their revenue stream from people coming to the facility. And it should also improve their up-time of their pool because our disinfection works faster in times when the pool when the pool has been soiled. And that's one of the areas that makes us a better solution over all.

Dave: Could you get into that issue where the pool has been soiled?

Steve: Sure. In the industry, they refer to it as "Code Brown", and there's a protocol that all pools follow for patron safety. I'm very impressed because when you look at the pool professionals that are out there, they really are very diligent in this area. But the requirement for chlorine to kill, let's say cryptosporidium, is a very long time for shocking the pool and then waiting for that shock value, shock with lots of chlorine. So, you take a toxic chemical, and you put lots more of it in there. And you get a kill factor that's elevated, but it takes a day, day-and-a-half before they can reopen the pool. And that's something that we can shorten that time frame, but also something we provide a more effective kill for the organisms like cryptosporidium. Cryptosporidium is a real nasty bug, and people are trying to figure out better ways to deal with it. We are one of those ways.

Dave: Ok. Let's back track a little. You had mentioned that you're the exclusive licensee for pools and spas for the Clear Comfort technology. In the water tech space generally, the whole intellectual property issue is interesting to me. What's the market like for the IP?

Steve: I think it's strong once it's applied. IP in general is a very good defense mechanism in my mind. Where you create value with IP is when you deliver it and provide a solution to customers. And that's really the focus here of the Clear Comfort system. We've been able to have investors who have the wisdom to see and look ahead and say "this is something that we want to apply to the market, not just sell the IP." So Aravaipa Ventures has been a tremendous partner in helping us get off the ground and really are involved in everything we do in a very positive way. And one of those things is their commitment towards, not just leveraging IP for their own profit, but leveraging it for an impact in the market. And that's something that makes it very appealing for myself, for our employees and our team who know we are doing something that matters to people and we are making an impact. And that's where the IP in the end matters to us. Generally speaking, the IP is only worth what we make it to be worth.

Dave: Good answer. Well, let's talk about bringing the technology to market and the adoption. What all goes into that? How do you get your message out? How do you get people finding out about your water tech?



Steve: There's really three steps. One of the things that I found with this opportunity and this space is that the notion of being able to provide the solution we provide gets people's attention very quickly. We haven't had to tell people five or ten times, here's what we do. Usually the first time somebody hears about what we do, they want to learn more. And usually very quickly, they want to try it out. That's been a huge benefit for what we've done.

From a how we bring it to market, there are really three key areas that we focus on. The first of which is the commercial space. That's unique in that the people there are pool operators who have either businesses to run or responsibility to the public or both, so that's one segment of the market we talk to. And we do that on really a direct one-by-one basis, as well as we use a dealer network.

The second that we do is the residential market. And we're mostly focused on going through pool professionals, service companies, as well as pool builders. Those are the people who are most interested in what we have. And the covers the retrofit market, as well as the new pool market.

And then the third market we'll go after, but we're not focused on right now, is the spa and hot tub manufacturers who want to integrate this into the spas and hot tubs they ship.

Dave: Curious, can one unit be interconnected between the pool and say a spa or Jacuzzi or a hot tub that's nearby or do they need separate units?

Steve: Actually a lot of in-ground spas and pools, when they are tied together, are on one system already. So that actually is fine. Generally speaking, we use one of our systems for every pump used in the pool. And if there is more than one pump for one body of water, we still only need one unit.

Dave: Well, let's take it to the next level and talk about some of the challenges in water tech adoption? You've kind of identified the market segments you're going after and how you're bringing it to market. What are some of the challenges that come along with breaking into the markets?

Steve: I think in general, it's not unlike other markets. There are a lot of archaic policies that were developed, some of them in the pool space, going all the way back to 1910's. Where that was the standard of the day and that was used to set policy. And today, pool operators tend to still march to those same guidelines without understanding the implications of newer technology. So education there is important. Having them understand that we actually do fit into the policies that are there, whether it's residual chlorine or things like that.



And then, the other piece is the local variances. Water is a very local thing. Whether you're supplying water for drinking water or wastewater or any other technology you're going after. In the pool space, in specific, there are lots of local variances. So, some areas require certain amount of residual chlorine to be found in the water regardless of whether it is doing anything, that's just the code. And we fit into that environment very well, and we still deliver tremendous benefit. The issue, though, is each one of those is different. California is different than Colorado, and then in certain cases, parts of states are different underneath that. So there's a lot of localization that has to happen for the product. We're fine with that, but that's the reality of the market.

Dave: Sure. Real quick, something just popped into my mind. Is there a benefit to the Clear Comfort system in terms of, does it conserve water? Is there any way that water consumption is reduced through Clear Comfort versus chlorine treatment or is it the same?

Steve: Swimming pools are pretty water efficient, on the whole. Especially if you have a cover on them or things like that, or you're limiting evaporation. Where we have our biggest impact is, one of the things that most pools have to have is what's called a back-flush. Water goes through a filter, the particulate gets trapped in the filter but eventually you have to back-flush or rinse out that filter.

And the way that's done is by back-flushing pool water through the filter, running it backwards and then running the water out into a drain or sometimes just off on to the property somewhere. When that happens, and you're doing that with heavily chlorinated water, you're polluting the area around you and you are polluting the water system. So one of the things we eliminate is that piece of it. We find that to be a huge benefit for people who are sustainably minded and want to think about how they are impacting their environment. We've already gotten customers who are concerned about that.

The other piece is that there's not that much in terms of evaporative loss that we change, but in a spa, when the spa water goes bad, they do what's called a drain and fill. And basically what's happening there is, because there's not effective sanitation maintained in the spa, they drain and rinse out the whole spa, and then fill it again. It's a very wasteful way to do things, and we can avoid that.

Dave: That's good to know. Getting back on the train of thought where we were headed, I was wondering where you saw the future of water tech.

Steve: I think it's very strong. The amount of attention coming to water tech has brought an amount of attention to the space that I think people are less likely to take for granted where their water comes from, where their wastewater goes, what water they swim in. All the aspects around water seem to be getting more and more attention, positive attention. I think a lot of investors



have learned the lesson that we saw clean tech go through, which was this boom-bust phenomenon. And I don't think we're going to see that in the water space. I think what we're seeing is fairly conservative investment applied to well thought-out ideas with businesses that can scale. And so I think water tech is a huge area of interest. We're seeing it from all areas, from the Gates Foundation to other places where people are seeing this as one of the top priorities in the world. And we're just a piece of that, too.

Dave: Very interesting. Your product seems to me to be a cross between clean water that people can swim in, drink and things of that nature. And also, the sanitation side from what you explained out when you do the drain and fill and things like that. So it really is an interesting intersection of where your product is lying. I think it's very interesting.

Steve: Thanks.

Dave: You bet. Before we sign off, could you tell folks where they can go to find out more about you and Clear Comfort?

Steve: Absolutely. The company has our website www.clearcomfort.com. We have several ways on the site for you to contact us. We are very responsive and would love to hear from you. You can also reach us by phone at 303-872-4477. We're very proud to be located in Colorado. All of our manufacturing is here in Colorado, and we'll continue to do that as we scale. We appreciate the opportunity to talk to you.

Dave: Terrific. I really appreciate your time, Steve. Thanks so much, we'll talk to you soon.

Steve: Thank you.

Dave: You bet. Bye.

Steve: Bye.

Dave: Well, that was my interview with Steve Berens. Very knowledgeable and a terrific guy. Really appreciated him coming onto the podcast and educating us about the water tech sector and the Clear Comfort product.

I had a couple key takeaways from the interview with Steve. First, I found it interesting the myriad benefits the technology brings to pool and spa treatment – how the Clear Comfort product can greatly enhance the pool experience at, in all likelihood, a lower total cost to pool operators. And it provides a more comprehensive kill than does chlorine and avoids some of the



health risks that are coming to be associated with chlorinated pools. All of that is great news, and I am very curious to see how quickly this technology gets adopted.

Second, the flexibility of the technology is fantastic. I'm almost through David Sedlak's *Water 4.0*, in which Professor Sedlak discusses some of the problems with chlorine treatment for drinking water supplies, and I can't help but be curious about the application of Clear Comfort's technology for drinking water treatment. And wastewater treatment before ultimate discharge, as that is also a big issue. I just find it fascinating how this technology could have impacts far beyond pools and spas.

Third, the water tech sector appears to be going steady – no meteoric rise and then a collapse like what has happened with cleantech. Hopefully, that leads to a stable source of capital for water tech investments.

Well, you can check the Show Notes out for this session at <http://thewatervalues.com/pod17>. And please don't be bashful in letting me know what interested you about the interview by leaving a comment on the Show Notes or by emailing me at david@thewatervalues.com. You can also tweet at me @DTM1993.

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