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December 2016

Key misunderstandings or problems in pool water chemistry

By Robert W. Lowry

During the last 40 years Mr. Lowry has co-owned two chemical manufacturing companies – Leisure Time Chemical and Robarb and a publishing company - Service Industry News. He was technical director for the world's largest retailer of pool and spa supplies, technology officer for an ozone manufacturer and consultant to numerous corporations. He has written eleven pool and spa water chemistry books, published more than 150 technical articles, written 29 "white" papers, written a monthly column for a major trade publication, given more than 500 water chemistry seminars and certified more than 1500 students to be CPOs. In addition, he has formulated, invented, developed and introduced more than 111 new chemical products into the pool and spa industry. He is one of the leading chemical experts in the pool industry.

This is an over-all look at the biggest problems facing service techs or service tech lack of understanding regarding some important water chemistry topics. Instead of writing about each one of these topics, I thought that putting it all together into one document in one place would allow service techs to see the whole picture. If we think about all of these issues together, we can come up with an easy way to take care of pool water that makes sense and addresses the problems of some chemical practices in our industry. So as I see it, these are the key issues that service techs run into. But trying to fix one of these issues can create a problem in another issue. I have tried to show here how these issues interact and CYA. relate to each other.

Here are the misunderstandings. In the following paragraphs, I will explain each problem and solution but included with each of these problems is a very short reason or answer. Read the complete answers for more details.

- 1. How much chlorine does a pool need? Why do some pools get algae even with 2-4 ppm free chlorine? The short answer is that each pool needs a different amount of free chlorine. Maintaining a FC of 7.5% of CYA is what is needed.
- 2. Why is the pH always going up (or down) in pools? What is the right total alkalinity? The short answer is that the water has the wrong alkalinity and maybe the wrong amount of buffer. Most pools should have an alkalinity of 90 ppm.
- 3. How can the water be balanced quickly? How do I raise pH without raising alkalinity? The pH of the water can be raised without changing alkalinity by aeration and turbulence. Pools can be perfectly balanced in a day by lowering alkalinity to 80-90 ppm with acid and then raising only pH to 7.5 with aeration.
- 4. How do I prevent the pH from always going up? Why is the pH always going up? The short answer is that the water has the wrong (too high) alkalinity. Borates can also be used to prevent pH rise.
- 5. How do I prevent the pH from always going down? Why is the pH always going down? The short answer is that the water has the wrong (too low) alkalinity and not enough buffering which is controlled by alkalinity and

Continued on page 8



Golftoberfest 2016

By Brian Duncan

Brian Duncan is the Region 1

Even the rain could do nothing to dampen the spirit of the 2016 Golftoberfest. The northern California golf tournament now simply known as Golftoberfest takes place each year in the heart of gold country at the Dark Horse Golf Course in Auburn, California.

Nine years ago Golftoberfest was started by Mark Becker and Shawn Panico of the El Dorado IPSSA Chapter as an opportunity for the swimming pool industry to get together for a day of fun after

a long hot summer. Goltoberfest has grown into one of the premier golf tournaments in northern California and is now a fundraising event for FPSIE (The Foundation for Pool and Spa Industry Educa-

2016 Golftoberfest was another huge success thanks in part to a six hour break in the rain which totaled nearly five inches over the weekend and the dedicated handling by all of those involved in preparing and administering the

This year's sponsors are: Title Sponsor: Zodiac, Our most prestigious sponsorship! Thank You.

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JAIRETAM GETAG

Things to do in December

- **➤** Buy new equipment and/or trucks
- ➤ Send holiday greetings to customers
- ➤ Get new service contracts from customers
 - ➤ Reward yourself

DO NOT HOLD

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10842 Noel Street, #107 THE IPSSAN

THE IPSSAN

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Debbie Wendt wins the October Education Corner quiz

Debbie Wendt, a member of the Osceola chapter, was selected randomly among all of the correct entries for the October Education Corner Quiz and will receive an IPSSA shoulder bag & backpack. All correct entries submitted during 2016 are eligible for a big drawing at the end of the year for more IPSSA logo items.

The correct answers for the October quiz are 1. Electricity pass through a solution of salt and water produces chlorine gas, hydrogen gas and A. Sodium chloride B. Sodium hydroxide C. Sodium hypochlorite D. Sodium hypochloride, the correct answer is b) sodium hydroxide. 2. One pound of salt is needed in 10,000 gallons of water for each 10 ppm. A. True B. False, the correct answer is b) false. 3. Stabilized chlorine refers to chlorine compounds that contain A. Sodium B. Hydrochloric acid C. Cyanuric acid D.

orne

Calcium, the correct answer is c) cyanuric acid. 4. To calculate pool True B. False, the correct answer volume, we multiply length times is a) true.

width times the average depth. A.

Calendar of Events

Dec. 2 **NPC Start-Up Technician Certification Class** Palm Desert, CA mpandzic@tso.net

Dec. 16 **NPC Start-Up Technician Certification Class**

Salt Lake City, UT mpandzic@tso.net

NPC Start-Up Technician Certification Class Jan. 6, 2017

> Livermore, CA mpandzic@tso.net

NPC Start-Up Technician Certification Class Jan. 12, 2017

> Norcross, GA mpandzic@tso.net

NPC Start-Up Technician Certification Class Jan. 18, 2017

> San Antonio, TX mpandzic@tso.net

Jan. 28, 2017 **Region 7 Table Top**

Four Points Sheraton, San Diego, CA

www.region7tabletop.com

Feb. 3-4, 2017 **IPSSA Leadership Weekend**

Wyndham Anaheim Garden Grove, Anaheim, CA

info@ipssa.com

WELCOME NEW MEMBERS!

REGION 1 – Capital Valley: Jason Hilton... **REGION 7 –** San Diego: Cortland Williams... REGION 8 – VIPS: Travis Carter... REGION 9 - Clearlake: Martin Duran... West Houston: Christian Alvin... REGION 12 - Dallas: Paul Martin.

IPSSA Code of Ethics

As a member of the Independent Pool and Spa Service Association, Inc., I will utilize my professional knowledge and skilled practical workmanship in providing quality customer service. To that end, it will be my responsibility to keep informed of developments in the pool and spa industry including new techniques and product applications.

My second obligation will be to the members of IPSSA by giving them any professional assistance they may need including sick route coverage. With respect to sick route coverage, I will treat sick route clientele with professionalism and respect, and will not solicit the business of a sick route client while providing sick route

My final responsibility will be to my community and its citizens. I will strive to communicate the necessity for pool safety and other issues of importance to pool and spa owners.

In these ways, I will promote the ideals and objective of the Independent Pool and Spa Service Association, Inc.

Financial office thanks chapters with prompt payments

The Financial Office thanks the following 44 chapters, whose members all paid promptly in October before second notices were required:

Region	1 – Delta, East Bay, East Contra Costa, El Dorado, Ell		
Grove Gold Country Tracy			

Region 2 – Conejo

Region 3 – Diamond Bar, San Gabriel Valley

Region 4 – Central Los Angeles, East Long Beach

Region 5 – Anaheim, Central Orange County, Dana Point, Orange County #9, OCPP, Saddleback, Southwest, Surf City, Tustin/Irvine

Region 6 – Corona, Hemet, Menifee Valley, Riverside

Region 7 – North County Coastal, Rancho Del Mar

Region 8 – Henderson, Northwest Las Vegas, Tucson, VIPS, West Valley

Region 9 – Clearlake, Houston, West Houston

Region 10 - Mid Peninsula, Redwood Empire, Santa Clara, Silicon Valley, Tri Valley

Region 11 – North Georgia, Port Charlotte, Treasure Coast Region 12 – Waxahachie

* WIN * IPSSA Logo

Education

All members who mail an entry with the correct answers will become eligible for a drawing at the end of the month for IPSSA logo gear. All correct entries will go into a year-end drawing for other IPSSA merchandise. IPSSA members are the only eligible participants and only one entry per month is permitted. Each month, the winner of the drawing will be published in The IPSSAN. Entries for this month must be received by JANUARY 20, 2017.

- 1. Cyanuric acid can lock up all the chlorine in the water and make it ineffective.
 - A. True
 - B. False
- 2. The current APSP Guideline for residential pools states that the ideal recommended combined chlorine level not exceed:
 - A. 10.0 ppm
 - B. 1.0 ppm
 - C. 0.2 ppm
 - D. 0.5 ppm
- 3. A salt concentration of ___ is needed in the water for an in-line chlorine generator to operate efficiently.
 - A. 2,000 to 2,500 ppm
 - B. 2,500 to 3,000 ppm
 - C. 3,000 to 3,500 ppm
 - D. 5,000 ppm or more
- 4. The "Ideal" calcium hardness range for spa water is:
 - A. 200 to 400 ppm
 - B. 100 to 300 ppm
 - C. 150 to 250 ppm
 - D. 100 to 250 ppm

Name			
Address			
City	State	Zip	
Telephone Number ()			
Chapter			
Correct Answers: 1 2	3 4		

(Please indicate A, B, C, or D for each answer.)

Mail Entry to:

IPSSA Quiz, 10842 Noel Street, #107, Los Alamitos, CA 90720 Or Fax to: (888) 368-0432

Entries for this month must be received by <u>JANUARY 20, 2017</u>.

To the sea...

By Ingrid Slagle

Ingrid Slagle is a member of the Fort Worth chapter.

In November the volunteers of IPSSA Texas once again headed south to lend a hand at Sea Turtle Inc. on South Padre Island. This





Hospital/Rescue/Rehabilitation/E ducation center is involved with the reintroduction of the very endangered Kemp Ridley sea turtle. The Kemp Ridley were very numerous years ago but the over harvesting of the eggs and adults drove them to the edge of extinction. Without help they would disappear. Five of the seven species of sea turtles can be found in the gulf - all are endangered.

This trip, a small turtle was rescued from among the rocks at the jetty and a large green turtle was rescued after being hit by a boat. It is hopeful she can be patched up and set free.

Attending IPSSA members included Tina Slagle, Fort Worth chapter president, Gordon Slagle, Paul Nelson and Robert Noyes, Fort Worth chapter members, Dave Boyd, Tarrant County chapter, Jim Jacobsmeyer, president of







the Houston Clear Lake chapter, also volunteering Ed Moore and William Carmona. Manufacturing reps Heidi Amos, Pentair and Stan Crisp, Aqua Cal/Auto Pilot, were there dispensing useful information and lending a hand wherever needed.

On this trip we plumbed in a new 4,500 gallon silo, which will be used to pre-treat salt water from the lagoon with liquid chlorine (HASA). The chlorine will be neutralized prior to filling the main silo for distribution to the various tanks in the hospital. The goal here is to improve the change out water condition. Sand changing, repair-



ing leaks and changing out a couple of backwash valves rounded out three days of work. On the fourth day we went on a bay fish-





ing trip in the morning and chilled out in the afternoon.

This was our 9th trip in 4 years. Our next trip will be in April followed, we hope, by a trip in October to install equipment in the new improved Sea Turtle Inc. Education Center. Already this year more than 100,000 people have visited Sea Turtle. The IPSSA logo is prominently displayed and Sea Turtle includes mention of our volunteering at the educational talks several times a day.

There is something special about donating time and experience to such a worthwhile organization.

If you would like more information or would like to join us, contact Tina Slagle 817-991-0555.







DISTRIBUTOR HELP WANTED

Chem Quip, Inc. is Northern California's leader in the distribution of pool and spa chemicals and equipment to the trade. We are an Employee Owned company in need of managers, manager trainees and customer service reps. Please email resume to Jim Morrison at jim@chemquip.com with salary and location requirements. For company info, go to www.chemquip.com

Hey Ray!

Ray Arouesty is President of Arrow Insurance Service and IPSSA's endorsed insurance provider. He can be reached at (800)833-3433 or ray@arrowinsuranceservice.com

This month's question is from a member in region 8:

Hey Ray:

I need to drain my customer's pool. I can't drain it into the street and draining into the backyard isn't an option. Have you heard of any issues with draining pools through a house clean-out fitting or P-trap?

Answer:

We frequently take claims from members that have used the house clean-out to drain a pool. The damages can be very high, often exceeding \$25,000. Think about it – the home's plumbing system was designed to handle drain water from showers, toilets and sinks, not swimming pools containing 30,000-40,000 gallons of water. And the high flow rates of these pumps can quickly result

Answers to recent questions asked to IPSSA's insurance broker

in flooding when a drain line is even partially obstructed. The pool technician will be responsible for the resulting damages when the house floods.

I've been told that the flow rates of submersible pumps can be reduced by attaching a ball valve to the discharge end of the pump. Check with the manufacturer's representative to see if this can be done with your pump. Also, never drain a pool through a clean-out

fitting unless the homeowner is present and monitoring the procedure. Keep in mind that it can take a long time for water from a partially obstructed sewer line to back up and over flow in the house.

Your best option, however, may be a reverse osmosis treatment on the pool water considering the risk of water damage and the current draught in many areas of the county. Prices for RO have dropped over the past few years and a water-conservation-minded customer might agree that this is the best option.

RAMUC's Low VOC Rubber-Based Pool Paint honored at International Pool Spa Patio Expo

RAMUC Pool Paint's Ultra Pro 2000 Low VOC rubber-based pool paint recently received the unique distinction of second place in the Best New Product category at the International Pool Spa Patio Expo in New Orleans, Louisiana.

Answering a current high mar-

ket demand for commercial rubber pool paint, Ultra Pro 2000 Low VOC represents a unique proprietary paint formula developed in strict compliance with the current VOC regulations for a rubberbased product. It is completely self-priming and can be applied to concrete and plaster, as well as over chlorinated or synthetic rubber pool paints on surfaces in good condition. Formulated for commercial use on concrete or plaster pools with annually scheduled maintenance, Ultra Pro 2000 provides up to two years of service life. It is presently available in two color options, dawn blue and white, both with a flat finish. The paint is approved for use in all fifty states.

The expo, held in New Orleans, Louisiana, is recognized as one of the most prestigious events in the industry. Over 40,000 attendees from the United States and abroad gathered to get a first glimpse at the newest products and innovations in the pool and spa arena. Launched via a soft roll out in September of 2016, RAMUC's Ultra Pro 2000 Low VOC faced stiff competition in its niche

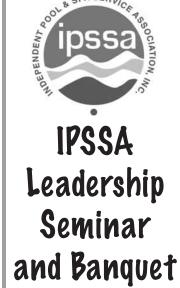
An exhibitor for many years in the International Pool Spa Patio Expo, RAMUC's products have become recognized as the brand to beat in their category.



JANUARY 18, 2017

@ The Phoenix Club Anaheim 3PM – 7PM www.hottshow.org

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February 3-4, 2017 Wyndham Anaheim Garden Grove Anaheim, CA Save the Pate!

Save energy costs & extend pump motor life using variable frequency drives

By Mike Fowler

Mike Fowler is the commercial marketing and sales manager for Pentair Aquatic Systems in Sanford, N.C. He has been with Pentair since 1992. He can be reached via e-mail at mike.fowler@pentair.com.

Over the past few years, pool professionals have learned that going 'green' can significantly lower the operating costs of the pools they service. Pumps and filters are among the items most scrutinized due to the vast amount of energy they consume. To reduce costs associated with water circulation and filtration it is important to understand why pumps and filters consume large amounts of energy and what options are available to lower consumption factors that also extend the motor life of the pump. This article will provide a few easy to follow steps to help pool professionals determine the best way to extend the life of pump motors and reduce operational costs using variable frequency drives to keep customers happy.

Variable Frequency Drives

Variable frequency drives (VFD) offer a significant return on investment, especially for commercial facilities. These drives allow the pump to run at its most efficient point on the curve and preventative maintenance costs drop due to motor protection, motor soft start and a significant

decrease in water hammer protecting the shaft and impeller.

The VFD does several things but among the key features is that it will clean up the power going to the pump it's attached to thus giving good solid power and voltage to the motor and helping in lengthening the life of that motor. It will also allow for better control of the pump itself and allow the drive to dial in the pump to exactly what the flow rate is needed rather than using butterfly valves to bring the pump to within the given parameter. The VFD would also house the motor starter which, without the use of the VFD, would have to be purchased separately at a cost of \$500-\$750. One last key thing that a VFD can do is allow for a ramp up start of the motor which makes life easier on the motor and will

also eliminate the potential water hammering effect on the plumbing systems.

Just by installing a VFD to your pump, a pool can save as much as 5-10 percent in energy costs by simply dialing in the pump where it actually needs to be and cleaning the power being sent to the motor. Variable frequency drives do the following:

• 2-step ramps (Soft Start Feature)

· Overload trip protection protects motor and drive from Voltage Spikes and phase unbalance

Brought to you by IPSSA Region 8

• Save up to 60% or more on pump's electricity usage

In order to quantitatively work on reducing the operating costs Continued on page 10





Check out the latest horror stories from Ray's blog "Blame it on the Pool Tech" at www.ArrowInsuranceService.com

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SCALE & METAL

CONTROL

Patriot Pool and Spa honored at the 12th Annual Aggie 100

Recognizing the Fastest Growing Aggie-Owned or Managed Companies in the World

Texas A&M University recognized Patriot Pool and Spa of Austin, TX as a member of the 2016 Aggie 100, which honors the fastest-growing companies in the world, owned or operated by Texas A&M University Former Students. Patriot Pool and Spa was ranked 21st with a compound annual growth rate of 71.565% from 2013 through 2015. The Aggie 100, a program created by the Center for New Ventures and Entrepreneurship in Texas A&M University's Mays Business School, honors graduates from across disciplines for their entrepreneurial endeavors and success as business leaders.

Patriot Pool and Spa has provided swimming pool service, repair, education, and renovation

to the greater Austin area since 2006. This is Patriot Pool and Spa's third time to be named to the Aggie 100, ranking 91st in 2011 and 25th in 2015.

"I am consistently looking for ways to increase the level of professionalism at Patriot Pool and Spa, and within the swimming pool industry as a whole," said Hal Denbar, President of Patriot Pool and Spa. "It is an honor to have the swimming pool industry recognized by a world-class institution such as Texas A&M University."

The 100 Aggie-owned or Aggie-led businesses with the highest annual revenue growth were recognized on Friday, November 11, 2016, at an evening gala in the Hall of Champions at Texas A&M University's football stadium, Kyle

Field. The honorees were joined by employees, faculty, administrators, current students and fellow entrepreneurs to celebrate their success.

"The 12th Annual Aggie 100 is a very impressive representation of Aggie excellence. The companies reflect 1,352 years of experience bringing the best to their respective industries and keeping the Aggie entrepreneurial standards alive and well," said Richard H. Lester, executive director of the Mays Business School's Center for New Ventures and Entrepreneurship. "We're so proud of these top 100 performing Aggie entrepreneurs, and we celebrate

the success of all Aggie companies that live by the Aggie Code of Honor: Aggies do not lie, cheat or steal or tolerate those who do. We need more of that in today's business world."

The Aggie 100 list in its entirety may be viewed at www.aggie-100.com.

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IPSSA members eligible for 35% rebate on online education at www.ipssa.com

Through a partnership with the National Swimming Pool Foundation, IPSSA is pleased to offer online education through the IPSSA website. And, IPSSA members who complete classes through this online portal are eligible for 35% rebates!

There are dozens of courses available, in the following categories:

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- Occupational safety courses
- Environmental management courses
- Depart of Transportation courses

- Healthcare courses
- Employment law courses
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It's easy to enroll. Visit www. ipssa.com and click on Shop to see all that is offered.

Once you have purchased your online training course, within one business day you will be emailed a link to the IPSSA training portal and an access code to activate your online class.

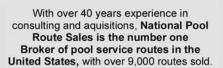
Prices for the classes range from \$19.95 to \$259, with most in the \$19.95 category. And, IPSSA members will be rebated 35% of their class fee upon completion.

www.ipssa.com

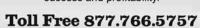


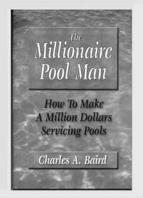
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Pool Chemistry

Continued from page 1

6. CYA (Cyanuric Acid) only protects chlorine, right? So why should it matter what the level is? The short answer is that CYA protects free chlorine from UV destruction but it also is part of the pH buffering system that keeps the pH from be lowered. CYA also controls how much of the FC (free chlorine) is available for killing and oxidizing.

7. Using liquid chlorine raises the pH of the water. No it does not! The short answer is that liquid chlorine does not raise pool water pH. When added to water, liquid chlorine which has a pH of 13 makes HOCl (hypochlorous acid – the killing form of chlorine) and NaOH (sodium hydroxide) and it raises pH. But when the HOCl is degraded by UV and when used in killing and oxidation, it creates HCl (hydrochloric acid). The amount of HCl is almost identical to the amount of NaOH. So the net effect on pH is zero (or almost

8. Why is using trichlor as main source of chlorine not a good idea? The short answer is that trichlor is 55% CYA and using it increases CYA which requires a higher level of chlorine to kill bacteria and algae. Using trichlor raises CYA by 6 ppm for each 10 ppm of FC and because it is acidic, it lowers pH and alkalinity.

If we find a solution for all of these issues, there will be no need for algaecides, superchlorination, separate oxidizers, scale inhibitors, stain removers, metal inhibitors and any other specialty chemicals. This alone will save you money. I realize that this article will not make me any friends with the chemical manufacturers, wholesale distributors or pool stores because you will not need to buy their expensive specialty chemicals any more. But it will make it easier than ever to service a pool and it will remain stable and only change a little bit from call to call or during a weekly visit so minor adjustments will be all that are necessary.

It will be better for you and your pools if you try to implement or change what you are doing on all of these issues at once rather than just picking out one or two and trying them out. As I have said, sometimes changing something creates a problem in another area so it is better if you can adjust as many of these issues on each pool as quickly as possible.

I also don't want to just give you theory on what to do but give

you advice on how and when to do it. Many times I read articles and they say maintain this condition at this level but they fail to tell you how often to do it or how to do it. I hope I can give you the details so you will not be having to figure out what somebody else meant or what you should be doing.

1. How much chlorine does a pool need? Why do some pools get algae even with 2-4 ppm free chlorine?

I wrote a whole long scientific article about this and it has appeared in a few publications and books. But here is the most important piece of information in that article. The FC (free chlorine) level should be 7.5% of the CYA (cyanuric acid level) minimum. This is for most residential pools. It also points out that the CYA level needs to be no more than 50 ppm. The reason for 50 ppm maximum for CYA is that 7.5% of 50 ppm CYA is 3.75 ppm FC. CYA of 65 ppm would require 5.0 ppm FC and 100 ppm would need 7.5 ppm FC. These area very high levels of FC and EPA and CDC say that you should not be exposed to that much chlorine. In fact, EPA says the maximum FC is 4.0 ppm for swimmers. However, just as a side note, CDC MAHC says that you can superchlorinate up to 10 ppm. In addition, CDC and EPA do not consider that chlorine is bound to CYA and that only about 3-7% of the chlorine is free in the water at any moment. So being exposed to even 10 ppm of FC with CYA in the water means that the exposure in only 3% to 7% of 10 or 0.3 to 0.7 ppm FC. This is really not very much exposure. If you have 2 ppm FC without CYA, you are exposed to all 2.0 ppm FC.

In the scientific article I wrote I explained that chlorine in water is mostly bound to the CYA in the water and only a very small amount of chlorine (about 3%) is available to disinfect and oxidize things. The remaining chlorine in the water (about 97%) is bound to CYA. It is not immediately available for disinfection and oxidation. However, as some of that 3% FC that is available gets used by UV degradation, killing and oxidizing, some of the bound chlorine replaces the lost FC so that the 3% is always available until there is no more chlorine in the water.

The fact is that as the CYA level increases, it requires a higher FC level to control bacteria and algae. Using trichlor or dichlor means that the CYA level will change (go up) constantly. In fact, for trichlor, each 10 ppm of FC

added to the water will increase CYA by 6 ppm. Many pools consume about 1 to 1.5 ppm of FC each day so in a week or 10 days, the CYA will increase by 6 ppm or more if using trichlor. In 8 weeks you have added almost 50 ppm more CYA to the pool. If you started at 50 ppm CYA, it is now 100 ppm. This would mean that the FC requirements has gone from 3.75 to 7.5 ppm.

The main reason, I do not recommend using trichlor as the main source of chlorine in residential pool water is that it changes the amount of FC required by the pool daily. The CYA is constantly being added to the water as the trichlor tab dissolves. Another problem with trichlor tabs is that they are acidic and most have a pH of about 2.8. This low pH lowers pool water pH and alkalinity. So there are two problems. CYA constantly going up and changing the FC requirement and the pH and alkalinity always going down which requires frequent additions of sodium bicarbonate or soda ash to remedy.

Each of your pools will have its own minimum level of FC based on the CYA level. Forget keeping all of your pools between 2.0 and 4.0 ppm FC. This might work for some of your pools but not all. Calculate the FC needed for each pool by multiplying CYA by 7. 5% and use that as the minimum FC level. And because you are not using a chlorine product that increases the CYA, you can maintain a target FC for a long time. You can reduce that 7.5% if you are using an algaecide, borates or phosphate remover in the water.

You should have a different target FC for each pool based on CYA level.

2. Why is the pH always going up (or down) in pools? What is the right total alkalinity?

Total alkalinity and CYA together make one of the buffering systems in the pool water. They keep the pH from changing too quickly and by how much. They are better at keeping the pH from drifting low or going down.

But total alkalinity is causing the pH of the water to go up. If you have high alkalinity (more than 100 ppm) it will continually raise the pH which requires frequent acid additions of acid to lower pH. If you don't lower the total alkalinity, the pH will go up between visits. The real proper total alkalinity for most pools is 90 ppm. And if you are experiencing the pH drifting up to high between weekly visits, then you should lower the alkalinity by 10 ppm and use that as your new target alkalinity. So if you have a pool that the pH in one week goes from 7.5 to 7.8 or 8.0 and the alkalinity is 90 ppm, you should lower alkalinity to 80 ppm and maintain that level as your new target alkalinity. If 80 ppm doesn't work, change the target to 70 ppm. You should adjust the total alkalinity for each pool so that the weekly pH change is minimal. You may have to add a small amount of acid each weekly visit. This would be normal. But if you are having to add large amounts of acid each week, your alkalinity is way too high.

The proper target pH is 7.5. It is not 7.4 to 7.6 and it is certainly not 7.2 to 7.8. With 7.5 as a target, you will know whether it is high

or low based on your water tests and what to do about it. Having targets makes it easy to know what is wrong and what to do to fix it. Having a range just makes you believe that all is OK when maybe it isn't.

I mentioned that total alkalinity and CYA are two of the pH buffers in the pool water. They basically keep the pH from drifting low. There is a separate buffer that you can add to the pool water that keeps the pH from drifting up. It is called borate and it can be added from 3 different compounds. The most known product is Borax (not Boraxo which is detergent) and the other two are sodium tetraborate pentahydrate and sodium tetraborate decahydrate. It only needs to be added once and adjusted whenever a large amount of water is lost and replaced.

Adding and maintaining a level of 50 ppm of borate will keep the pH from rising very much. Borate in pool water also has algaestatic ability. Algaestatic means that it helps prevent rather than kill algae. Because borate is an algaestat, you could lower the recommended FC level of 7.5% of CYA to 5.5% of CYA.

3. How can the water be balanced quickly? How do I raise pH without raising alkalinity?

I wrote a long scientific paper about this that has been published in many trade publications and I included that information in the IPSSA Basic Training Manual 2016 Revised Edition Part 1 – Chemicals.

We all know that adding acid of any type to the pool water decreases pH and alkalinity. But pH and alkalinity are not lowered equally by adding acid. The reason is that pH is measured on a logarithmic scale and alkalinity is measured on a linear scale. So they will never lower together equally.

I hope all of you know that adding soda ash will raise pH and alkalinity and adding sodium bicarbonate will raise only alkalinity with very little effect on pH. This presents a problem – you can raise alkalinity and pH and you can raise only alkalinity and you can lower both but there has not been a way to raise only pH without raising alkalinity. The only chemical we use to raise pH, soda ash, also raises alkalinity. So all we have are soda ash which raises both pH and alkalinity or bicarb which raises only alkalinity.

If you have high pH and high alkalinity, you have a choice. You add an amount of acid to lower the pH to a desired level which means that the alkalinity will be too high or you add an amount of acid that will lower alkalinity to the desired level but now the pH will be too low. If you add soda ash to raise the pH, it will also raise alkalinity and you are right back where you started. If you add a dose of acid that will ower the pH to the proper level, the alkalinity will be too high. Next visit the pH is back up where it was last week. This is the classic Yo-Yo problem we face when trying to balance the water.

Here is a little known fact. If you aerate the water and create turbulence is raises the pH with no effect on alkalinity. Aeration and turbulence causes CO₂ in the water to gas off (leave the water as CO₂ gas). This loss of CO₂ is replaced

in the water by carbonic acid in the water making more CO₂. Then the lost carbonic acid is replaced by bicarbonate alkalinity which uses hydrogen ions (H⁺). The loss of hydrogen ions (H⁺) is what raises the pH. Remember that pH is a measure of the hydrogen ion (H⁺) concentration in the water. So the less H⁺, the higher the pH.

So now it becomes possible to lower high pH and alkalinity with acid to get the alkalinity to the desired level of 90 ppm with one addition of acid which will cause the pH to be very low (7.0 or less). But now we can aerate and create turbulence and depending on how much aeration and turbulence, raise pH within hours to 7.5. We can get perfectly balanced water, pH 7.5 and alkalinity of 90 ppm in the same day.

You can aerate and create turbulence by aiming return lines up so the flow of water breaks the surface, turn on spillways, turn on fountains and other water features. You could use a pressure washer like you clean your car or house with by aiming it into the water for a while. You could use an air blower or air compressor with a manifold of PVC with holes in it. You could use a Venturi injector. Understand also that this raising of pH is a natural process and the pH would probably go from 6.8 to 7.4 in about 2 days if you do nothing. We are just speeding up the

4. How do I prevent the pH from always going up? Why is the pH always going up?

As I have said, in most pools the alkalinity is too high. As a result, the pH will continuously drift up. Another way of saying it is that the alkalinity pulls up the pH. Too much alkalinity causes pH to rise. Therefore, lowering alkalinity will keep pH from rising very fast. The proper total alkalinity is 90 ppm.

And if you are experiencing the pH drifting up to high between weekly visits, then you should lower the alkalinity by 10 ppm and use that as your new target alkalinity. So if you have a pool that the pH in one week goes from 7.5 to 7.8 or 8.0 and the alkalinity is 90 ppm, you should lower alkalinity to 80 ppm and maintain that level as your new target alkalinity.

As mentioned above, adding 50 ppm of borate to the water will keep the pH from drifting up or at least slow down the rate of rise. Borate only needs to be added once to the water unless a significant amount of water has been lost and replaced. Backwashing, leaks and winterizing all cause water loss. Also as mentioned, borate acts as an algaestat so it reduces the FC requirement.

You may have a different alkalinity target for each pool.

5. How do I prevent the pH from always going down? Why is the pH always going down?

If the pH (and alkalinity) of the pool water is constantly drifting down, the most likely cause is trichlor tabs are being used as the main chlorinating source. Even if trichlor is not the main chlorinating source, a supplemental trichlor feeder may be causing the pH to drift low. In addition to lowering the pH and alkalinity, CYA is being added to the water constantly by trichlor and this means that a higher FC level will be required to

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Policy on IPSSA mailing list

The IPSSA general membership mailing list will not be given out to anyone including members, associate members or outside organizations. This policy has been established to protect members from possibly being placed on inappropriate and or indiscriminate lists.

The IPSSAN subscriptions available to employee members

Would you like your employees to read The IPSSAN each month? All you need to do is contact the IPSSA Financial Office (888-391-6012 or sue@cramercpa.com) and make the request.



Pool Chemistry

Continued from page 8

control algae and bacteria. I would suggest discontinuing trichlor use and using liquid chlorine or cal hypo as the main chlorinating source. Then you can add CYA separately to 30 or 50 ppm and the CYA level will not change. This will mean that the target FC level will remain unchanged.

Another cause of pH drifting low is that the total alkalinity is too low. If the pH is drifting low and your alkalinity is 80 ppm, you should raise the target alkalinity to 90 ppm and see if the pH becomes more stable. So if pH is always going down raise the alkalinity target by 10 ppm.

6. CYA (Cyanuric Acid) only protects chlorine, right? Why should it matter what the level is?

As mentioned above, the maximum CYA should be 50 ppm. Mostly the reason is that the required FC level is 7.5% of CYA. At 50 ppm CYA, the required FC level is 3.75 ppm $(0.075 \times 50 \text{ ppm})$ = 3.75 ppm). You get almost as much protection from 30 ppm as 50 ppm CYA so there is no advantage to having a higher level of CYA. Higher levels require higher FC. At 30 ppm CYA the required FC is 2.25 ppm FC (0.075×30) ppm = 2.25 ppm).

Also as mentioned above, CYA builds up quickly when using trichlor and as the CYA builds up, the requirement for FC goes up Remember that for each 10ppm of FC added to the pool water by trichlor, the CYA goes up by 6

The reason that many pools

seem to get algae after summer begins is because of the CYA build up. At the beginning of the swim season the CYA level is low say maybe 30 ppm. The chlorine consumption in most pools in summer is about 1.0 to 1.5 ppm FC per day. So if using trichlor as the main source for chlorine, in a week or maybe 10 days, the pool will use 10 ppm of chlorine and the CYA will increase by 6 ppm. Next week another 6 ppm and so on. In 8 weeks the CYA will have gone up by at least 50 ppm.

If the pool was being maintained at 2.0 to 4.0 ppm FC then in the beginning, 2.0 ppm with say 30 ppm CYA there is sufficient chlorine to kill algae and bacteria. (Note: It is harder - takes higher level of chlorine to kill algae than bacteria.) So there is enough chlorine to kill algae (and bacteria). However, after 4 weeks the CYA level will have gone up by about 25 ppm. Now the CYA is 55 ppm

which requires 4.125 ppm FC. If the pool was kept at 4.0 ppm or using a weekly superchlorination, then there is sufficient chlorine to kill algae. However in one more month the CYA will have increased by another 25 ppm. Now the CYA is 80 ppm. This would require 6.0 ppm FC. If the pool was being kept at 4.0 ppm there is insufficient FC to prevent algae growth. You now start to see algae and you wonder why you have algae even though you have 4 ppm FC. The simple reason is that 4.0 ppm FC is not enough chlorine to prevent algae when the CYA is 80

7. Using liquid chlorine does not raise pool water pH - Hypochlorites - Sodium hypochlorite, calcium hypochlorite and lithium hypo chlorite - Do Not raise

I have written about this many times but it is well worth repeating.

Continued on page 14

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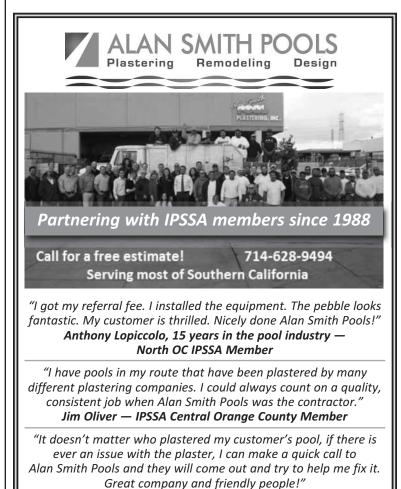
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Works, Adams Pool Specialties.

Lastly thanks to the great efforts of the FPSIE staff one and all and especially Phil Gelhaus and Carole Dittmer. Thanks to Region 1 IPSSA and of course Judy Bauder who sung the Star-Spangled Banner wonderfully and seemed to time it perfectly with the geese providing a flyover!

Thank you to all!



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Pentair offers incentive program for IPSSA

By Steve Zorn

Steve Zorn is California regional sales manager for Pentair.

All of us at Pentair Aquatic Systems appreciate the support of the IPSSA membership. We are pleased to offer IPSSA a rebate incentive based on the individual product purchases of each member.

Pentair will reimburse IPSSA one dollar (\$1.00) for each whole good that a member purchases throughout the year. The listing of qualifying whole goods are the same that are listed in Pentair's PIP program, but basically pumps, filters, heaters, heat pumps, cleaners, automation systems, Intelli-Chlor and colored lights.

In order for IPSSA to receive payment each member must register individually on the Pentair-IPSSA Incentive Program Registration Form (shown below and available on the members-only page of www.ipssa.com). This will allow Pentair to monitor and collect electronically from participating distributors purchase details, or direct from the member purchases for the rebate accumulation.

If a member does not register, their purchases will not qualify and cannot be added later.

The Pentair Incentive Program dates reflect purchases made from October 1 thru Sept-

ember 30, 2016.

This program does not affect any member purchases that may also currently be individually enrolled in our PIP program.

If dealers have any questions regarding the program, please have them dial 800-693-0171 and speak with their Program Coordinator.

Dick Nichols, IPSSA's past Region 10 director, commented, "This partnership is a perfect match between the largest swimming pool service organization and the largest manufacturer of pool products. The funds generated will be used for IPSSA's continuing education and research programs."



Variable Frequency Drives

Continued from page 5

associated with running the pump room, you must start by determining exactly what it costs to run your system. In order to determine

this figure, you must first determine the GPM and TDH of the pump, how long each day the pump runs and what the cost per kilowatt hour your power company is charging. Once you have a clear dollar figure to tackle, you will be able to easily determine the pay back of adding a Variable Frequency Drive (VFD).

Step 1: Choose a VFD

Choosing a VFD is very easy. All you need to know is the phase going to the pump-single or three; the horsepower of the pump onto which you are installing the VFD and whether the drive will be installed indoors and outdoors. You see the greatest potential for savings when using a VFD with Class F motor insulation—be sure to check this on existing motors. If they are class B, for example, the drive can still be used but additional software may need to be added depending on the incoming voltage.

Step 2: Install the VFD

As long as you know wiring and power, most pool professionals can easily install the VFD. The incoming power from the power source basically gets wired to the incoming side of the VFD and then the pump motor gets wired to the outgoing part of the VFD. One thing to always remember is that VFD's require the use of a three-phase motor. So if you have single-phase power coming to the drive, the VFD acts as a phase converter and wires to a three-phase motor!

Step 3: Ensure correct pump selection

Proper pump selection (sizing) and optimal flow rates are additional ways a water park can increase energy savings. Be sure to check pump size on each as pumps many pool pumps are oversized by design so they are bigger than they need to be. This happens because many architects and engineers look at what is required, then pick the next size up to be sure the pump can handle the job.

Pump selection tip/ steps:

- a. Determine flow rate in gallons per minute [GPM].
- b. Calculate total dynamic head (TDH) (the pressure head difference between the inlet and outlet of the pump) to account for friction loss. Adding 20 ft/head for a dirty filter is optional.
- c. Refer to the pump's performance curve to select the preferred unit.
- d. Locate pump horsepower required by plotting GPM vs. TDH (if plotted point falls be
 Continued on page 11

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City, State	
Chapter President	
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Date

Hayward acquires Sugar Valley Group

Hayward Industries, Inc. has acquired Sugar Valley, S.L. Headquartered in Barcelona, Spain, Sugar Valley is a leading provider in Europe of integrated product solutions that intelligently automate swimming pool equipment, water chemistry and sanitization. We're delighted to add Sugar Valley's expertise in pool automation, sanitization, and internet enabled products. The addition of Sugar Valley, along with our recent acquisition of Kripsol, sig-

nificantly expands Hayward's European presence.

Founded in 1997, Sugar Valley markets a broad offering of electronic equipment for water treatment using salt electrolysis, hydrolysis, UV, and ionization technology. Sugar Valley will continue to operate as a separate entity, and Hayward looks forward to leveraging Sugar Valley's European based engineering and manufacturing. By offering a combination

quality engineered and manufactured products, Hayward will con-

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Variable Frequency Drives

Continued from page 10

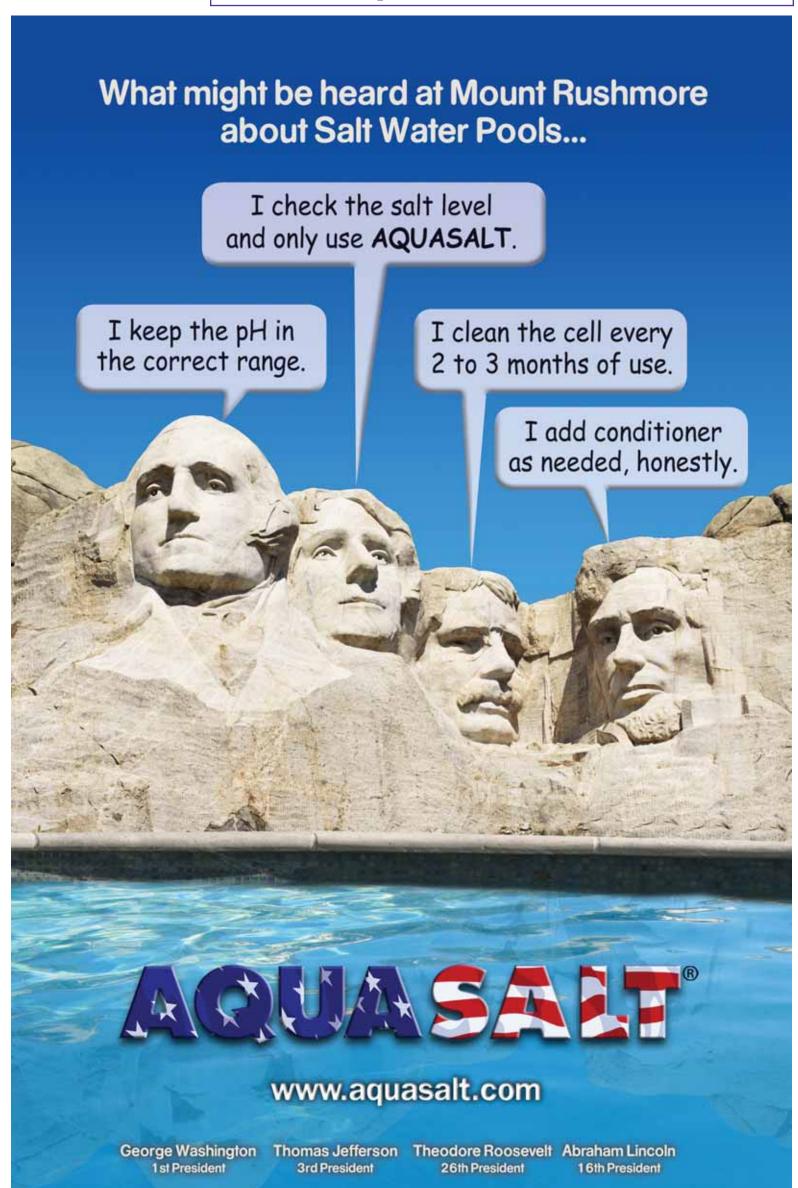
tween two pump sizes, select the next larger pump size).

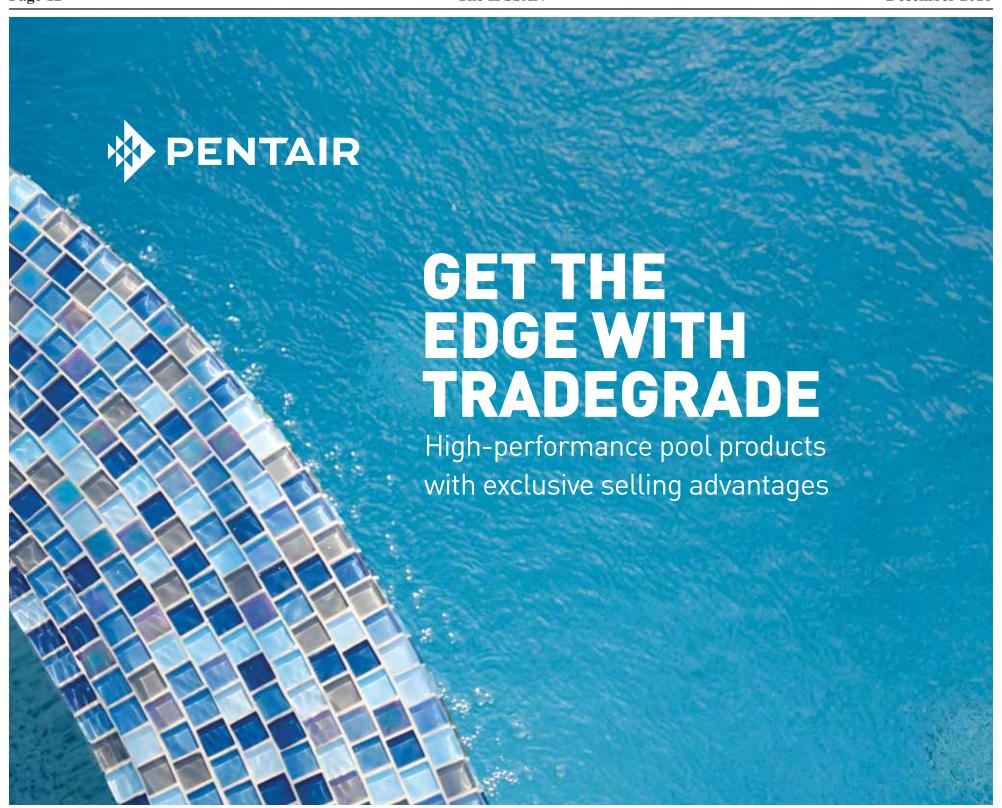
- e. Do not oversize the pump. If the preferred pump does not provide a proper fit, consider a different pump model.
- f. Verify the selected filter can handle the system's flow rate and be sure the minimum backwash flow rates can be achieved.

The greatest long-term benefit of the VFD is that it helps to lengthen the life of the pump motor so the maintenance and motor replacement is significantly increased. Pump motors last longer by having a VFD installed not only because of the 'Soft Start' 2step ramp up feature but also because of the overload trip protection which protects motor and drive from voltage spikes and phase unbalance. Installing a VFD not only saves you on energy usage costs, but also keeps motors working better, longer, so motor replacement is far less frequent.

10 Steps To Help Reduce **Energy Consumption/Pump Room Operating Costs**

- 1. Replace pool pump with an energy-efficient unit.
- 2. Consider a variable speed pump (VSP). VSPs with permanent magnet motors and digital controls can save up to 90 per cent in utility costs compared to one- or two-speed pumps with induction motors.
- 3. If using an energy-efficient one- or two-speed pump, make sure it is sized to the pool's requirements.
- 4. Reduce run time or speed to lower energy use.
- 5. If using a one-speed pump, reduce filtration run time. In general, water needs to be circulated through the filter once every 6 hours for most commercial applications.
- 6. If using a two-speed or VSP, use the lowest speed to appropriately circulate the water. Reducing speed saves more energy than reducing run time.
- 7. Install a variable speed drive to run pumps efficiently.
- 8. Run the pool's filtration system during off-peak hours when electricity demand is lower (generally between 8 p.m. and 10 a.m.). Install a timer or control system to automate hours of oper-
- 9. Keep intake grates clear of debris. Clogged drains require the pump to work harder.
- 10. To obtain maximum filtration and energy efficiency, backwash or clean the filter regularly, as required.





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NPC Start Up Technician class









Pool Chemistry

Continued from page 9

It is commonly misunderstood that using liquid chlorine or cal hypo or lithium hypo will increase pH. It is logical to think this and at one time, I even believed it. However the chemistry of chlorination is quite simple and straight forward. Many people believe that liquid chlorine raises the pool water pH. It does not. Most liquid chlorine (sodium hypochlorite 12.5%) has a pH of about 13.0, cal hypo has a pH of 11.8 and lithium hypo has a pH of 10.8. These are all very alkaline so it is logical to think that when added to water they will raise pH. And, in fact, they do.

In the case of liquid chlorine, we add it to water and it produces HOCl (hypochlorous acid - the killing form of chlorine in water) and sodium hydroxide (NaOH). The sodium hydroxide raises pH. So yes the pH goes up initially. However, when HOCl is degraded by sunlight or degraded in the process of killing organisms or used in oxidation, the HOCl produces HCl – hydrochloric acid. The amount of HCl produced is almost equal to the amount of NaOH produced when the liquid chlorine was added. So using liquid chlorine or cal hypo or lithium hypo will have a net zero effect on pH.

The advantages of using liquid chlorine or cal hypo are that they do not contribute to the CYA level and therefore do not require higher levels of FC due to CYA



One of the great things about IPSSA is the underlying commitment to help others in the industry. After all, this association was created on the principle of sick route coverage.

But, many members go above and beyond sick route, helping other members and their communities. These are IPSSA Heroes.

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increases. In fact, you can add 30 or 50 ppm of CYA to the water and use liquid chlorine or cal hypo and they will not change pH, they will not increase CYA, they will not increase alkalinity and the water balance will remain stable because nothing is being added to the water that changes water balance. If borates are used at 50 ppm, pH is 7.5 and alkalinity at 90 ppm, not much is going to change. The total alkalinity and CYA are pH buffers that keep the pH from drifting lower and the borate is a pH buffer that prevents the pH from drifting

8. Why is using trichlor as main source of chlorine not a good idea?

As I stated in #5 above, I do not recommend the use of trichlor as the main chlorinating source in residential swimming pools. The biggest reason is that the increase to CYA is huge which requires more and more FC to control algae and bacteria. The second reason is that trichlor is acidic and lowers alkalinity and pH requiring frequent additions of soda ash or bicarb. We are trying to make things stable and this constant addition of CYA and lowering of pH and alkalinity makes things unstable.

Summing it all up

- I have shown you a complete way to chemically take care of residential pool water that is easy to do and is stable. It does not require the use of expensive chemicals and it will give you great looking water with a minimum of effort.
- · You now know how much chlorine you need in any pool -7.5% of CYA or less if using algaecide, borate or phosphate remover. Each pool will have a different FC.
- · You now have a target for alkalinity: 90 ppm in most cases. This keeps pH from going up and because it is a target, you know if the water is OK based on your test results.
- You know how to raise only pH no change in alkalinity with aeration and turbulence which

makes it possible to get perfectly balanced water – pH $\bar{7}.5$ and alkalinity of 80 ppm in usually one day

- You know what to do if the pH is always going up – lower target alkalinity by 10 ppm.
- You know that using 50 ppm of borate in the water will keep pH from drifting up, it will act as an algaestat
- You know what to do if the pH is always going down - raise alkalinity by 10 ppm and stop using trichlor.
- You know the maximum level of CYA should be 50 ppm because higher levels require higher FC.
- You know that liquid chlorine and cal hypo do not raise pool water pH.
- · You know that you should not use trichlor as the main chlorinating source in residential pools because it raises CYA continuously and it lowers pH and alkalinity.
- You will not need to superchlorinate regularly - only when special events happen.
- You will not need oxidizers, algaecides, stain or scale inhibitors.

SWGs (Salt Water Chlorine Generator) use recommendations

SWG's (salt water chlorine generators) will raise pH due to the chemical reaction of electrolytically making chlorine. It is a fact that the pH will go up so I always recommend a 50-60 ppm level of borate when using SWGs. This will slow down the rate of pH rise. You will still need acid to lower pH and you may need sodium bicarbonate to replace lost alkalinity after acid additions. I also recommend a slightly higher CYA level of 60 to 70ppm. The good news is that because the chlorine is being added daily and borates are being used, the required FC is 3.5% of CYA. So if maintaining 60 ppm CYA you would have a required FC of 2.1 and at 70 ppm CYA, a required FC of 2.5 ppm.

How much acid do I need to lower pH and alkalinity? What will the acid do to pH and alkalinity?

One of the great unknowns in our industry is how much acid do I need to change pH and if I add this dose of acid, what will it do to the alkalinity? Another question is how much acid do I add to lower alkalinity to some desired level?

The good news is that there is a way to determine how much acid is required to add to lower alkalinity. Here is the information that you need: 25.6 fl oz of muriatic acid (31.45% HCl) added to 10,000 gallons of water will lower alkalinity by 10 ppm. From this information you can calculate the amount of acid needed.

Suppose that you have a 15,000 gallon pool and you want to lower alkalinity from 140 to 90

First, subtract 90 from 140 to get 50 ppm. Next divide 50 ppm by 10 ppm to get 5. Now divide 15,000 gallons by 10,000 gallons to get 1.5. Then multiply 25.6 fl oz by 1.5 and by 5 to get 192 fl oz of muriatic acid. And finally, 192 fl oz divided by 128 fl oz per gallon is 1.5 gallons. Therefore, adding 1.5 gallons of muriatic acid to a 15,000 gallon pool will lower

alkalinity by 50 ppm or from 140 ppm to 90 ppm.

This method is for calculating the amount of acid to lower alkalinity but does not give you any information about what happens to the pH. My guess would be lower than 7.0.

However, there is another way. I developed a program called the Pool Acid Dose Calculator and it is available to use FREE on my website at www.lowrycg.com/poolacid-dose-calculator/. (Note: There is another on-line calculator that will give you approximate amounts of acid for lowering pH and alkalinity. It is at www.poolcalculator.com/.)

To use Pool Acid Dose Calculator, enter Pool Volume in Gallons, Current pH, Current Alkalinity, CYA, Borate. Next enter desired pH and the Calculator will give you the exact amount of muriatic, sulfuric and dry acid to add to lower pH to that desired level. It also calculates the new Alkalinity and displays it.

You can also use it to determine the amount of acid needed to change alkalinity by changing the desired pH to a lower level until the desired alkalinity is reached.

There is also a similar, less accurate version of this calculator available on the Pool Forum web-

And finally there is a version of the Pool Acid Dose Calculator available for use on your iPhone or Android phone from iTunes or Google Play. It is a onetime purchase of \$5.99. The advantage is that you can use it in the field at a pool site to get the amount of acid instantly. Here are the links to the Apps: https://play.google.com/ store/apps/details?id=com.lowry.po olcalc and https://itunes.apple.com/ us/app/swimming-pool-acid-dosecalculator/id711282054?mt=8

There may be some questions about lowering the 7.5% required for FC but it is very difficult to calculate the effect a supplement will have on the requirement. Things like borate, algaecides, phosphate removers, SWGs, ozonators and UV will all lower the FC requirement. How much, I only have guesses.

Potential problem

I have addressed just about every potential problem above. There is one problem that you may face using this method. As I mentioned, the average pool in the swimming season uses about 1.0 ppm of FC per day due to UV degradation (which is the largest loss) and from oxidation and disinfection. Some pool may lose up to 1.5 ppm FC per day. The result is that a pool may need 7.0 to 10.0 ppm of chlorine per week. You could add enough chlorine to the pool to bring the level up to 10 ppm and hope it lasts for a week. However, EPA and common sense say that you should not be exposed to that level of chlorine. So you have a problem, how do you make the chlorine last for a week? The answer is that you may need to use a liquid chlorine dispenser, ask the pool owner to add some liquid chlorine you leave for them or perhaps try a cal hypo feeder. I would not recommend supplementing with a trichlor tab feeder or dispenser.

The good news

The good news is that if you

follow a plan like this, once set up with water adjusted to the targets for free chlorine, pH, alkalinity, CYA and borate levels, your pools will only require a little liquid chlorine, a little acid, maybe some bicarb and some air to raise pH. You will spend less time on chemicals, less money on chemicals and have better water and happier customers.

Again, this is where the Pool Acid Dose Calculator or the Pool Calculator can be of help. Suppose that the pool is all set up and when you go on a regular weekly call, you see that the pH is 7.7 and the alkalinity is say 100 ppm. This is not very far off but using targets instead of ranges, you realize that the pH should be 7.5 and alkalinity 90 ppm. (If you were using water condition standards with ranges, you would think that 7.7 and 100 ppm are within the "Acceptable" range so it is OK.) How much acid do you add? The answer is that the amount of acid varies depending on the CYA level and the borate level.

If the pH is 7.7 and alkalinity is 100 ppm in a 15,000 gallon pool and the CYA is 50 ppm and borate is 0 ppm, it will take 11.6 fl oz of muriatic acid and the new alkalinity will be 107 ppm.

However, if the CYA is 100 ppm and borate is 0 ppm then it will take 15 fl oz of muriatic and the new alkalinity will be 106

Now if CYA is 50 ppm and borate is 50 ppm, it will take 22 fl oz of muriatic acid and the new alkalinity will be 104 ppm.

And finally, if CYA is 100 and borate is 50 ppm, it will take 26 fl oz of muriatic acid and the new alkalinity will be 103 ppm.

That is quite a difference and if you did not use one of these acid calculators, you would not know how much acid to add and that the amount could almost double depending on CYA and borate.

Adjusting other chemical levels You should have a chart of

chemical amounts needed to increase or decrease chemical levels in the pool water. Many of these charts are based on 10,000 gallons of water and have an amount needed to raise the ppm by 1 or 10 ppm. There are also many online calculators for adding chemicals. However, most of them are brand specific instead of generic chemical names. There is one new one that is available as an App for iPhones and Smart Phones that is generic. It has 12 categories of Items to Change and has 38 chemicals that can be added. To use it, you enter pool volume in gallons or liters, select US or Metric, select an Item to Change and the Amount of Change in ppm or mg/l. It then calculates the exact amount of chemical need to make the change. It is called Pool Chemical Dose Calculator and it is available on iTunes and Google Play. Here are the links: https://itunes.apple. com/us/app/pool-chemical-dosecalculator/id1148385163?mt=8 and https://play.google.com/store/ apps/details?id=com.lowrycg.Poo lChem. It has a one-time cost of

All of the articles I have mentioned in this article are available for free download on my website at www.lowrycg.com.



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- ► The CDC reports an 88% reduction in drowning
- risks in children ages 1-4 if they learn to swim.
- NATIONAL SWIMMING

California Capitol Report

CPSA retains consulting firm

By John Norwood

John Norwood is president of The California Pool and Spa Association (formerly SPEC).

The CPSA has announced that it has retained the consulting firm Erler & Kalinowski, Inc. to assist the association with its ongoing work monitoring legislation and regulations that impact the pool and spa industry. EKI is a firm that specializes in water issues and is perfectly suited to help the CPSA track the full spectrum of water in California and protect the pool and spa industry from threats that might otherwise go unnoticed.

The CPSA has known for some time now that while the work that the Association does monitoring the agendas of city councils and water districts for immediate upcoming restrictions is crucially important, it is not enough. Time and again, the Association has seen that although



restrictions on pools and spas are not included in any of the state-wide manuals or handbooks for cities to use, many cities try to implement restrictions with similar themes. An underlying theme of these regulations is the use of water allotments and quotas, a difficult and worrying prospect for our water future. It seems that many cities, instead of developing their own Water Shortage Contingency Plans according to the state's guidebook, are turning to consultants to craft them.

EKI will work with the CPSA to analyze and comment on proposed water restrictions and regulations at all levels of government. While the CPSA will still being

performing the lobbying necessary on these issues, EKI will provide technical and scientific support, drafting materials and analyzing the feasibility of proposals as they relate to the pool and spaindustry. Having this support will allow the CPSA to address many more issues than was previously possible, as well as granting a wealth of direct experience in the creation of Urban Water Management Plans and Water Shortage Contingency Plans. The firm also

has a great many contacts with various water agencies and groups, allowing the CPSA to have access to those contacts as well.

In this constantly-shifting water landscape, it is crucial to adapt and change as new challenges present themselves. While the CPSA's standard approach, developed and tested in a time of crisis, is still a valuable there is a broader issue that must now be addressed. If the CPSA does not become a voice in the wider water community as new plans and regulations are developed, there is the strong possibility that the industry will be

caught by surprise in new and damaging ways. Having the support of a firm like EKI will help the industry stay strong and prepared, and move forward no matter what the future brings.

The ability to retain this firm is a direct result of an improving budget position for CPSA with membership and finical support trending in the right direction. That having been said, this is an expensive proposition, and CPSA needs to keep expanding membership in order to have the tools available to continue to protect the swimming pool and spa industry from this and other challenges.

Education Quiz

Try the Education Quiz on page 2 and challenge your knowledge!
And Win a Prize!

It pays to designate beneficiaries

One of the benefits of membership in IPSSA is a \$50,000 life insurance policy. All you need to do is complete a Beneficiary Designation Form.

But, what happens if you haven't declared a beneficiary? You will lose control of who receives your benefits. The payment of funds will be delayed and, if the benefits are part of a probate, it could take a year or more for your loved ones to get those funds.

The good news is that, when your Beneficiary Designation Form is on file at the IPSSA financial office, the check for your life insurance benefit is issued as soon as the death certificate is received by the insurance company.

Call the financial office (888-391-6012) if you are not sure whether or not your Beneficiary Designation Form has been filed or if you want to change your beneficiary.

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Yes, I agree to join CPSA and support their efforts advocating for and protecting the industry!

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contributions as needed; I agree to abide by the Code of Ethics; to promote the last consent to receive ongoing communication from California Pool & Spa Ass	sociation via telephone, fax, email, and/or mail. number, company fax and company website to be published in CPSA documents such		
Name (Please Print)	Title (Please Print)		
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Enclosed is my Check in the amount of \$for 2013-2014 Membership Dues	Manufacturer – Pledge Amount: □ \$12,500 □ \$10,000 □ \$7.500 □ \$5,000 □ \$2,500 (Minimum)		
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Credit Card Number:	Builder – Pledge Amount: □ \$2,500 □ \$1,000 □ \$500 (Minimum)		
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Authorization Signature:	I want to make a Contribution \$100 □ Other		
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IMPORTANT NOTE: Federal tax laws require industry trade associations to annually inform its members and contributors of the percentage of the association's budget that is attributable to lobbying (defined as the attempt to influence legislative or administrative action). Under federal tax laws, expenses incurred for direct lobbying are not tax deductible. CPSA has determined that 40% of CPSA's budget for the 2013-2014 fiscal year is directly attributable to lobbying. As such, 40% of your membership dues or the amount you or your company has or will contribute to CPSA is not deductible. The remaining 60% of membership dues or contributions are tax deductible as a business expense as allowed by law.

Questions? Please contact us via phone, fax or email. Fax or mail this form with your business information and credit card data or check to the address below.

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IPSSA Membership qualifications

must meet the following standards: Be self-employed or employed

To qualify for membership, you in the pool and spa service and repair business and derive more than 50% of your income from it.

ber three out of four meetings of the chapter you seek to join (the

one in the closest proximity to your route). Go to ipssa.com to find the chapter nearest you.

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Maintain liability insurance. IPSSA members may obtain group liability insurance through an IPSSA-affiliated company. Go to ipssa.com/join for more information on insurance.

Pass IPSSA's Water Chemistry Certification Examination. Check the information at ipssa.com for more details on the exam.

Meet any additional requirements as may be required by IPSSA Inc. or your chapter.

All IPSSA members are encouraged to maintain current business and professional licenses required in their geographic locations.

No chapter in your area? It only takes ten people to start a new chapter. Please contact the regional director for information and assistance.

How do I apply for membership?

Contact the chapter nearest your route for specific information on its requirements. This may include an online test or oral interview. Membership applications are only available through the chapter.

What is the cost of joining IPSSA?

Initiation fee (set by each chapter) and monthly fees, which include chapter dues, insurance premiums and other fees.

Order Training Manuals at www.ipssa.com/shop/ ipssa-store



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The IPSSA Scholarship Fund

Advancing professional training and education in the swimming pool and spa industry

The Independent Pool and Spa Service Association (IPSSA), established in 1988, was formed to promote educational opportunities and provide business resources to its membership. Scholarships through the IPSSA fund are available to all self-employed swimming pool/spa service technicians in Arizona, California, Florida, Georgia, Nevada and Texas.

Scholarships will be available in all swimming pool/spa service related areas, including businessrelated courses at local community colleges. Scholarships are not available for pool building education. Applications are accepted throughout the year. The Scholarship Committee meets once each year in January. Applications must be received in the IPSSA executive office by December 1st to be considered for a scholarship at that

Applications are available by contacting the IPSSA executive office at 888-360-9505.

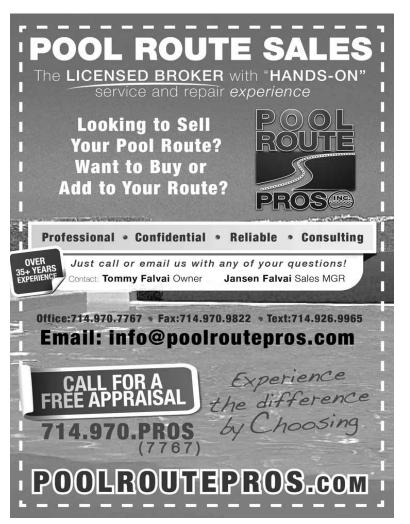
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• Certified Pool Operators (CPO)

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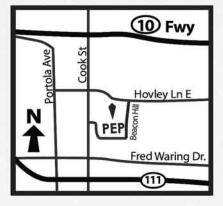
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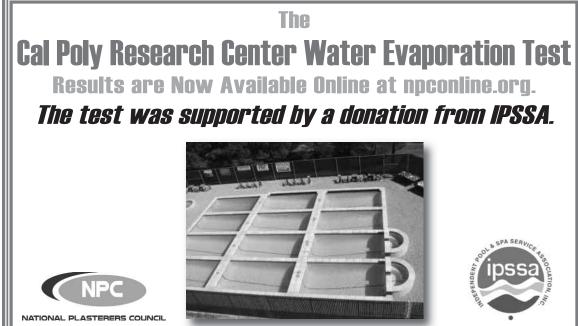
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Pool Safely's Top 10 Tips to stay safer around the pool or spa

- 1. Learn how to swim and teach your child how to swim.
- 2. Install a four-foot or taller fence around the entire perimeter of the pool and use self-closing and self-latching gates; ask your neighbors to do the same at their
- 3. Never leave a child unattended in or near a pool or spa and always watch your children closely around all bodies of water.
- 4. Designate a Water Watcher to supervise children in the pool or spa. This person should not be reading, texting, using a smart phone or be otherwise distracted. Adults can take turns being a Water Watcher.
- 5. If a child is missing, look for him or her in the pool or spa first.
- 6. Keep children away from pool drains, pipes and other openings to avoid entrapments.
- 7. Ensure any public pool and spa you use has drain covers that comply with federal safety requirements, and, if you do not know, ask the pool manager if the facility complies with the "VGB
- 8. Learn how to perform CPR on children and adults, and update those skills regularly.
- 9. Install and use a lockable safety cover on your spa.

10. Have lifesaving equipment such as a life ring, float or fiberglass reaching pole available and accessible.

Pool Safely, a national public education campaign supporting the requirements of Section 1407 of the Virginia Graeme Baker Pool and Spa Safety Act, works with partners around the country to reduce fatal child drownings, nonfatal drownings and entrapment



incidents in swimming pools and spas. Parents, caregivers and the media are encouraged to visit: PoolSafely.gov or @PoolSafely on Twitter for vital safety information regarding the prevention of child drownings in and around pools

Matching funds available from IPSSA Inc.

IPSSA Inc. has a matching grant fund of \$24,000 to assist individual regions and chapters for community involvement, safety programs, and promoting IPSSA to the public. The spirit of the matching grant is to foster IPSSA promotions by facilitating new ideas from individual members, chapters and regions.

The matching grant funds shall be allocated evenly by region in each given year. In the event that a region does not request funds in a given year, that region's representative may elect to reallocate their portion to the matching grant fund for redistribution. Any redistribution of funds must be approved by the BORD.

The BORD will match, dollar for dollar, up to the budget amount once a matching grant is approved by the regional Board.

Each region shall determine how to use its allotment of funds without BORD approval once it has been approved by the regional

Individual members, chapters and regions of IPSSA in good standing qualify for matching

- Matching grant requests must be submitted in writing to the regional director by December 1st each year.
- The regional director shall qualify the request to meet the spirit of the matching grant pro-
 - The region must approve the

grant by either a regional Board meeting, regional Board teleconference, or e-mail ballot, and the results will be posted in the regional minutes.

• The regional director shall

then request the funds from the IPSSA BORD president or chief financial officer without BORD approval, as long as the requested amount does not exceed the region's budgeted amount.

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Introducing the 2016 Pleatco Perfect Team!

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For nine years, Pleatco and Genesis 3 have co-sponsored the Perfect Pool Guy & Gal and Spa Guy Contest, a nationwide event where customers, bosses, and employees have the opportunity to honor a pool service technician for the highest level of service.

The Pleatco Perfect Pool Guy & Gal Contest originated in 2008 when the new owner of Pleatco started a light-hearted contest that quickly turned into a serious event.

The contest started as the Perfect Pool Guy contest, but when 20 percent of all the entries were women, Pleatco realized that there needed to be a Perfect Pool Gal Award as well.

This year, Pleatco's staff so impressed with the excellence and experience of so many contestants

that they decided to award four other individuals with the Lifetime Achievement, Outstanding Service, Backyard Hero, Big Heart and Industry Leadership awards.

Winners received a trip for two to the International Pool, Spa, and Patio Expo hosted in New Orleans this November. They also received a \$5,000 continuing education scholarship from Genesis Three Design Group to attend the



Genesis Basic Pool Construction

The highlight of this year's contest was the inclusion of the National Swimming Pool Foundation as co-sponsor. NSPF awarded their new Advanced Service TechnicianTM (AST) Certification

Course to each and every finalist, a \$1,100 value.

They also won a high profile awards ceremony, a gala dinner, a nationwide advertising campaign and thousands of dollars of free Pleatco products.

Continued on page 21



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Pleatco

Continued from page 20

"We recognize the crucial role every pool service technician plays and we are honored to celebrate them," said Thomas Lachocki, Ph.D., CEO of NSPF.

This year, Cory Eagles, of Moncton NB, Canada, won the prestigious title of Pleatco Perfect PoolGuy 2016.

Cory is known for giving back to his community. Most recently, with help from his suppliers and subcontractors, he donated an inground pool to a woman and her daughter, Tiffany, who has been disabled since birth.

Cory has been recognized not just by Pleatco, but by CTV News for his commitment to community by being awarded the Martimer of the week by CTV News.

"Cory not only has a heart of gold, he has the work ethic of steel! Cory is celebrating the 10th anniversary of opening his own business and his success in Canada is due in large part to his determination, great customer service, honesty and integrity," said Howard Smith, CEO of Pleatco.

The celebrated title of the 2016 Pleatco Perfect Pool Gal went to Jennifer Del Vaglio, who has been working at East End Pool King since 2009.

As a Certified Service Technician and Certified Pool Operator, she has her own pool and spa route servicing 30 pools weekly and is the sales force behind new construction and renovations.

She enjoys interacting with the clients and getting her hands dirty in the field. You'll find Jennifer

and her team in all aspects of the business, from construction to cleaning pools and trouble-shooting pool and spa issues.

Doug Hoerber was awarded the Lifetime Achievement Award. With 43 years in the pool industry, Doug considers learning, teaching, and mentoring being nothing short of a remarkable career. He has worked with some of the best in this business.

The Outstanding Service Award

went to Erin Thibodeau. Working for Pace Pool and Spa Service in Pace, FL as acting office manager, her list of duties has expanded to include coordinating weekly routes, repairs and inventory management.

Todd Riddick was awarded the Backyard Hero. Todd is the owner and operator of Sand Dollar Shores Pool & Spas LLC, in the Outer Banks of North Carolina. Working in this tourist town, Todd is known to "save the day" from sun up until sun down, 7 days a week, all year

The Big Heart Award went to Mark Howard, who started his business at the young age of 20. Determined to not being just another pool service company, Mark gives to the community by donating money and prizes to the local high school football and volleyball teams and "Bad Girls Do Good Things For Cancer Inc."

Jason Lehmann was given the Industry Leadership Award. He is the 17-year owner and operator of The Water Connection, in Fort Worth, Texas, and has served IPSSA from the start, the last four years as a director & CFO of IPSSA. Jason is a co-founder of APEC but his true passion is water safety. Jason is on the board for the Texas drowning coalition, Ft. Worth drowning prevention, and Safe Kids Tarrant County.



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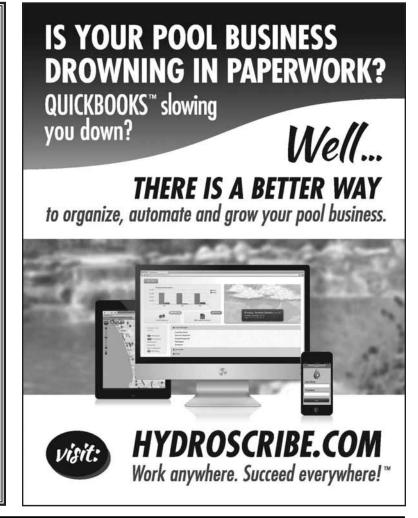
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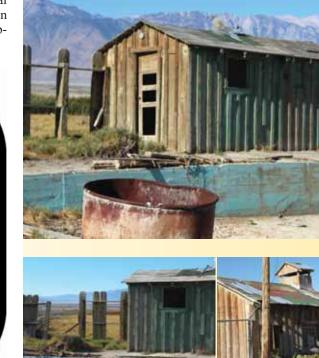
Ry Ivan Vanc

Ivan Vance is the past Region 3 Director and a member of the San Fernando Valley chapter



I took a little getaway trip recently to the Eastern Sierra but just couldn't get away from those darn pools! Meandered along a side road on the outskirts of Lone Pine and stumbled on to this little beauty in a dusty little community of perhaps two hundred souls. No doubt it cooled off the inhabitants during their blazing summers at one time but either the pool man stopped showing up, the city council put a drought ban on refilling, or maybe it was just cheaper to fill it with dolomite (the local industry). Anyway, it could be an ideal place for a new IPSSA chapter, so BORD, think it over.







Got Algae?

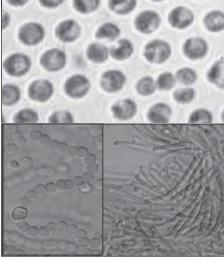
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For insurance information: call Arrow Insurance (800) 833-3433 / Fax (805) 870-7625 / 2393 Townsgate Rd., Suite 101, Westlake Village, CA 91361, E-mail: ray@arrowinsuranceservice.com

REGION 1 (NORTHERN CALIFORNIA) B.O.R.D. Member: Brian Duncan (925) 370-6675 E-mail: brian@pppsinc.com

CAPITAL VALLEY: (Sacramento): First Wed., 7 p.m VFW, 8990 Kruithof Way, Fair Oaks Pres. Scott Houseman (916) 638-4100 scott@leisuretimepool.com
DELTA: (Stockton)

Third Wed., 6:00 p.m., The Elks Lodge 19071 N Lower Sacramento Road, Woodbridge Pres. Rick Plath (209) 456-1605 service@rickspoolservice.com EAST BAY

Third Tues., 6 p.m., Pleasant Hill Community Center, 320 Civic Drive, Pleasant Hill Pres. David Luthy (510) 435-5252 townandcountrypool@comcast.net EAST CONTRA COSTA

Fourth Tues., 6:00 p.m., La Fuente Mexican Restaurant, 642 1st Street, Brentwood Pres. Dale Vaughn (925) 759-3819

dalevaughn1176@comcast.net EL DORADO

Second Thurs., 6:30 p.m., Shingle Springs Comm. Ctr. 4440 S. Shingle Road, Shingle Springs Pres. Shawn Panico (916) 201-6245 / www.edipssa.com **ELK GROVE**

Second Wednesday, 7:00 p.m., Logan's Roadhouse, 9105 W. Stockton Boulevard, Elk Grove

Pres. Jerry Marquardsen (209) 747-4953 jerryspoolservice@yahoo.com GOLD COUNTRY

First Mon., 6:00 p.m., Max's Restaurant 110 Grass Valley Hwy, Auburn Pres. Allan Leas (530) 887-8074 al@townepools.com

MODESTO CENTRAL VALLEY:

Third Tues., 6 p.m.
Perkos Restaurant, Kiernand Road & 99, Salida Pres. Mike Imelio (209) 581-3294

SACRAMENTO CITY Fourth Wed., 7:00 p.m., Plaza Hofbrau 2500 Watt Ave., Sacramento Pres. Nathan Williams (916) 213-6889

TRACY: Fourth Thurs., 6 p.m., Perko's Café, 1321 W. 11th Street, Tracy 95376 Pres. Kevin McLard (209) 833-9200 kevin_m@klmpools.com WEST PLACER

First Thurs., 5:30 p.m., Strikes Bowling Alley 5681 Lonetree Blvd., Rocklin CA 95765 Pres. Kim Silva (916) 955-2990

REGION 2 (CENTRAL CALIFORNIA) B.O.R.D. Member: Manuel Margain (559) 307-1072

E-mail: manuelmargain@comcast.net

BAKERSFIELD: First Tues., 5:30 p.m., Rusty's Pizza, 6675 Ming Ave, Bakersfield Pres. Beau Braisher (661) 332-4952 braisherpools@gmail.com

CENTRAL COAST Second Wed., 7 p.m., Mtgs alternate between N/S Co., Contact chapter Pres. for info. Pres. Tom Mazzo (805)550-6709

tmazzopoolguru@yahoo.com CONEJO: Second Wed., 7:30 p.m., Alpha Water Systems, 725 Cochran Street #A, Simi Valley Pres. Dennis Van Sloten, (805)813-6154 dvs10@live.com CONEJO VALLEY

Second Wed., 6:30 p.m., Superior Pool Products 1200 Lawrence Drive #400, Newbury Park Pres. Michael Flanagan (805) 444-7960 FRESNO: Fourth Tues., 7 p.m. Roundtable Pizza at First & Bullard, Fresno

Pres. Norm Carpenter, (559) 217-1228

ipssafresno@gmail.com SANTA BARBARA

Second Mon., 6:30 p.m., Rusty's Pizza Parlor 232 W. Carrillo, Santa Barbara (downtown) Pres. Joe Burich (805) 451-1963 mericks2001@yahoo.com

VENTURA: Third Tues., 7 p.m. Poinsettia Pavilion, 3451 Foothill Rd, Ventura Pres. Max O'Brien (805) 794-6270 gotomax@att.net VISALIA: Third Wed., 6 p.m.

Amigo's Cantina, 5113 W. Walnut Ave., Visalia Pres. Roman Gomez (559) 992-5779 romangomez1251@yahoo.com

REGION 3 (NORTH L.A. COUNTY) B.O.R.D. Member: Terry Snow (909) 982-9962 E-mail: tls.pools@verizon.net

ANTELOPE VALLEY: Second Monday, 6 p.m. SCP Antelope Valley, 4514 Runway Dr., Lancaster Pres. Steven Polovina (661) 236-6095 spgoti85@vahoo.com

DIAMOND BAR

First Thurs., 7:30 p.m., Oak Tree Lanes, Diamond Bar Pres. Robert Nichols (626) 914-4813 FOOTHILL

Third Thurs., 7:00 p.m.; American Legion Hall La Crescenta at Manhattan, La Crescenta Pres. Raul Fernandez (818) 378-9231 SAN FERNANDO VALLEY

Third Wed., 7:30 p.m., Canoga Bowl 20122 Vanowen, Canoga Park Pres. Blaine Enbody (805) 529-7562

SAN FERNANDO VALLEY METRO First Tues., 7 p.m., Canoga Bowl 20122 Vanowen, Canoga Park Web site: www.sfvmetro.com Pres. Eric Nielson (818) 710-1628

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SAN GABRIEL VALLEY

Second Thurs., 7:00 p.m.
PEP, 1862 Business Center Dr., Duarte, CA 91010
Pres. Brian Nies (626) 536-2008

brian@propoolm.com SANTA CLARITA VALLEY First Thurs., 7:00 p.m.

Vincenzo's Pizza, 24504 ½ Lyons Avenue, Newhall Pres. Kent Simpson (661) 373-9901

> REGION 4 (SOUTH L.A. COUNTY) B.O.R.D. Member: Jason Briggs (310) 370-2144

E-mail: jason@paradisepools.biz

CENTRAL LOS ANGELES

Second Mon., 6:30 p.m., Han Woo Ri Presbyterian Church, 1932 S. 10th Ave, Los Angeles Pres. Se Hwan Kim (323) 733-8712

EAST LONG BEACH Second Tues., 6:30 p.m., Ecco's Pizza, 2123 N. Bellflower Blvd, Long Beach Pres. Bill Rothwell (562) 425-8249

poolboy1950@yahoo.com SOUTH BAY Second Wed., 7 p.m., American Legion Hall 412 S. Camino Real, Redondo Beach

Pres. Brad Jones, (310) 880-7665 aaapoolspa@verizon.net

WESTSIDE Second Tues., 6:30 p.m., American Legion Hall 5309 S. Sepulveda, Culver City Pres. Jeff Von Dwingelo (310) 749-1853 waterdogpoolservice@msn.com

WHITTIER: First Wed., 7 p.m. Superior Pool Products in Santa Fe Springs Pres. Tom Horning, (562) 458-2881 tomspoolcare@roadrunner.com

REGION 5 (ORANGE COUNTY) B.O.R.D. Member: Michael Kei Black (714) 891-0351

E-mail: mblackels@netzero.com

ANAHEIM

Third Wed., 6:30 p.m. Roundtable Pizza, 12829 Harbor Blvd., Garden Grove Pres. Cal Pratt (949) 230-7462 CENTRAL ORANGE COUNTY

Last Tues., 7 p.m., Coco's, 14971 Holt Ave., Tustin Pres. Mark Harrison (949) 874-8234 maharrison16@yahoo.com

DANA POINT

Second Tues., 6 p.m., Coco's, Crown Valley and I-5 Pres. Brian Bottrell, (949) 697-8544

MISSION VIEJO

First Tues., 6 p.m. Claim Jumper, 27845 Santa Margarita Pkwy Pres. Mark Byrne, (949) 690-6381

eternitypool@gmail.com NORTH ORANGE COUNTY

Second Wed., 7 p.m., Graziano's Italian Restaurant, 17487 Imperial Highway, Yorba Linda Pres. George Bonilla (714) 349-3326 gbpsinc@ymail.com

ORANGÉ COAST

Last Monday, 5 p.m., Carrow's Restaurant Warner & Magnolia, Huntington Beach Pres. Tom Honrath (714) 848-3580 thonrath@hotmail.com

ORANGE COUNTY #9

Second Wed., 7 p.m., Dad Miller Golf Course North Gilbert Street, Anaheim

Pres. Rob Tobias (714) 812-7993 **ORANGE COUNTY POOL PROFESSIONALS** Last Mon., 6:00 p.m., Claim Jumper Banquet Room, 18050 Brookhurst St., Fountain Valley CA 92708 Pres. Jim Romanowski (714) 404-2550

ooolperfection1@aol.com SADDLEBACK VALLEY

Last Tues., 6 p.m., Lone Star Steakhouse, 24231 Avenida de la Carlotta, Laguna Hills Pres. Scott Kather (714) 742-9597 SOUTHWEST

First Wed., 6 p.m., ABC Pools 10560 Los Alamitos Blvd., Los Alamitos Pres. Ken Tipton (562) 430-8515 SURF CITY

Third Tues., 6:30 p.m., Superior Pool Products, 10865 Kalama River, Fountain Valley Pres. Frank Malavar (714) 960-3558 TUSTIN/IRVINE

p.m., PSOC Waterline Tech 220 N. Santiago Street, Santa Ana Pres. Rich Foley (714) 974-1514

YORBA LINDA

First Wed., 6:45 p.m., Lampost Pizza, 21480 Yorba Linda Blvd. #D. Yorba Linda CA (call president to confirm mtg time). Pres. Jaime Aranda, (714) 746-5138 jaimearanda@sbcglobal.net

> **REGION 6 (INLAND EMPIRE)** B.O.R.D. Member: Scott Peterson (951) 699-8407 E-mail: ipssascott@yahoo.com

CORONA: Second Tues., 7:00 p.m., Marie Callenders 160 E. Rincon St. (at Main St.), Corona Pres. Dave Berg (909) 674-1556 / djpoolguy@msn.com **HEMET:** Third Wed., 6:00 p.m. Shooters, 121 E. Florida Ave, Hemet Pres. John Bettencourt (951) 925-2442 bettencourtpool@msn.com

MENIFÉE VALLEY

First Wed., 7 p.m. at My Buddies Pizza 2503 E. Lakeshore Drive #A, Lake Elisnore Pres. Renee Marier, (951) 285-9672 mangopoolnspa@verizon.net

ONTARIO/ RANCHO CUCAMONGA

Second Tues., 7 p.m., Carrows Restaurant 11669 Foothill Blvd,, Rancho Cucamonga Pres. Ron Goodwin (909) 989-0406 good2win@msn.com

PALM DESERT

Third Thurs., 6 p.m./7 p.m., please check with pres. Sloan's, 81539 US Hwy 111, Indio CA Pres. Matt Kauber (760) 702-0160 salernopools@yahoo.com

PALM SPRINGS First Wed., 6:30 p.m.

Superior, 5700 Indian Springs Rd, Palm Springs Pres. James Elliott (760) 413-0463 REDLANDS: Second Tues., 6 p.m.

Hickory Ranch, 32971 Yucaipa Blvd., Yucaipa Pres. Bill Brooks (909) 553-5780 RIVERSIDE:

First Tues., 6:00 p.m., Cask N Clever, 1333 University Ave., Riverside Pres. Scott Zahn, (951) 966-0592 libertypoolservice@hotmail.com

TEMECULA/MURRIETA

Third Wed., 7 p.m., Pat & Oscar's 29375 Rancho California Rd., Temecula Pres. Jack Delaney (951) 674-6318

REGION 7 (SAN DIEGO COUNTY) B.O.R.D. Member: Joe Lukacik (619) 561-8587

E-mail: joe.sunpools@yahoo.com

CARLSBAD: Third Wed., 7 p.m. El Ranchero Restaurant, 1565 N. Santa Fe, Vista Pres. David Talbot (760) 845-6863 ESCONDIDO

Third Wed., 6:30 p.m., Call for location. Pres. James Leisten (760) 737-3058

jim@blueribbonps.com
NORTH COUNTY COASTAL Third Tues., 6:30 p.m.

Brett's BBQ, 1505 Encinitas Blvd., Encinitas Pres. Jordan Nelson (760) 753-4996 jordan1111@gmail.com RANCHO DEL MAR

Third Mon., 5:30 p.m., Tio Leos 3510 Valley Centre Drive, San Diego Pres. Joshua McKee (858) 337-4482

josh@makaipools.com SAN DIEGO

Third Wed., 7 p.m., Mission Valley Resort 875 Hotel Circle S., Mission Valley Pres. Michael Harris (619) 395-6700 barrowpoolssd@gmail.com SAN DIEGO EAST COUNTY

Third Tues., 6 p.m.

Superior Pool Products, 1973 Friendship Dr., El Cajon Pres. Berny Sweeny (619) 244-0496 bernvpoker@hotmail.com

SAN DIEGO METRO

Fourth Thurs., 7:00 p.m. Coco's, 1025 Fletcher Parkway, El Cajon Pres. Mike McCourtney (760) 788-0823 sunrisepools1@hotmail.com

REGION 8 (SOUTHWEST)
B.O.R.D. Member: Marc Cannon (602) 432-3371 E-mail: rescueh2oinc@aol.com

EAST VALLEY

Third Thurs., 5:45 p.m., Superior Pool Products 2350 W. Broadway Rd. #110, Mesa Pres. Mike Lee (480) 786-0687 HENDERSON:

First Wed., 7 p.m., Village Pub-Horizon Ridge 10900 S Eastern Ave, Henderson NV

Pres. Forrest Owen (702) 372-7200, poolboys@cox.net IPSSA VIPS

Third Wed., 7:00 p.m.
Elk's Lodge #335, 14424 No. 32nd St., Phoenix
Pres. Joe Mischik (602) 290-5547 NORTH PHOENIX

Third Tues., 7 p.m., SCP 18201 N. 25th Avenue, Phoenix AZ 85023 Pres. William Goossen (623) 580-9802 goosse-man@cox.net

NORTHWEST LAS VEGAS

First Thursday, 7:00 pm Joey's Bar & Grill, 7081 W. Craig Road, Las Vegas Pres. Robert Fazio, (702) 591-1624 SCOTTSDALE

Third Mon., 6:00 p.m., NPS Pool and Spa Supply, 4718 E. Thunderbird Rd, Phoenix Pres. Kurt Schuster (602) 488-733

TUCSON:

Third Wed., 7 p.m. Superior Pool Products, 4055 N. Runway Drive. Ken Sanders (520) 429-6959 WEST VALLEY First Wed., 7:00 p.m., Cloud Supply

1100 N. Eliseo Felix Way, Avondale Pres. Patrick Pace (623) 853-6859 WESTERN LAS VEGAS

First Mon., 6:30 p.m. (excl. holidays) Vietnam Vets Hall, 6424 W. Cheyenne, Las Vegas Pres. Linda Cross 702-524-8453 ipssalindacross@gmail.com

> REGION 9 (TEXAS) B.O.R.D. Member: Becky Clayson (210) 240-3121 E-mail: becky.clayson@yahoo.com

> > AUSTIN

First Tues., 6 p.m., Cherry Creek Catfish Co. 5712 Manchaca Rd, Austin Pres. Todd Swearingen (512) 326-4695 CLEARLAKE

Fourth Tues., 7:00 p.m., Rudy's BBQ, 21361 Gulf Fwy, Webster Pres. Jim Jacobsmeyer (281) 787-6116

CORPUS CHRISTI

First Thurs., 6:30 p.m., Schlitterbahn Upper Padre 14353 Commodores Drive, Corpus Christi Pres. Michael Baker (361) 563-7655

HILL COUNTRY: Third Tues. Logan's Roadhouse, 1141 Interstate 35 Frontage Rd, San Marcos Pres. Jim Stearns (832) 278-9192

stearns_pools@aol.com
HOUSTON: Second Tues., 7 p.m.
IHop, 11225 Katy Freeway, Houston
Pres. Bryan Norris (713) 234-7649 bryan@norrispools.com

NORTH AUSTIN Second Tues., 6 p.m., Cedar Park Library 550 Discovery Blvd.,

Pres. Rick Beaubouef (512) 466-9672 NORTH HOUSTON: Third Tues., 7 p.m., IHop 25619 Interstate 45, Spring Pres. David Harling (281) 256-7886

bigstatepools@sbcglobal.net

SAN ANTONIO: First Mon., 6:30 p.m.

Palenque Grill, 389 North Loop 1604 W, San Antonio
Pres, Flash Rose (210) 241-7548

flashpoolservice@sbcglobal.net **WEST HOUSTON:** First Mon., 7 p.m. Texas Land & Cattle, 12313 Katy Fwy, Houston Pres. Earl Jones (832) 573-8279 earl@texaspooltechs.com

> REGION 10 (BAY AREA SOUTH) B.O.R.D. Member: John Oldfield (888) 641-8047 E-mail: joldfield@oldfieldinc.com

FREMONT: Second Mon., 6 p.m., El Patio Restaurant, 37311 Fremont Blvd., Fremont Pres. Michael Murphy (510) 579-1448 MID-PENINSULA

Last Tues., 7 p.m., Highland Community Club 1665 Fernside Ave., Redwood City Pres. Jerry Lindley (650) 454-7252 MONTEREY COAST: Fourth Wed., 7:00 p.m., Holiday Inn Express, 1855 Main Street, Watsonville Pres. Bob Blade, (831) 647-8680 alohapoolbob@sbcglobal.net

REDWOOD EMPIRE (Marin Co.)

Third Wed., 7 p.m., Lucchesi Park, Petaluma Park, 320 N. McDowell Blvd., Petaluma Pres. Darrell O'Neal (707) 544-3060 dandmpool@aol.com SANTA CLARA VALLEY

Third Thurs., 7:30 p.m., Napredak Hall 770 Montague Expressway, San Jose Pres. Joe McVeigh (408) 249-9731 josplash@sbcglobal.net SILICON VALLEY: First Wed., 6 p.m.

Armadillo Willy's, 1031 N. San Antonio Road, Los Altos Pres. David Guslani (650) 333-1351 dguslani@earthlink.net
TRI-VALLEY: Second Thurs., 6 p.m., Meeting locations vary. Check with chapter president.

> stan@aquacps.com**REGION 11 (FLORIDA/GEORGIA)** B.O.R.D. Member: Derric Raymond (407) 908-4555

E-mail: derric@raymondscustompools.com

Pres. Stan Phillips (925) 518-1718

GOLD COAST (Ft. Lauderdale area) Second Tues., 6:30 p.m., Wings Plus, 9880 W. Sample Rd, Coral Springs Pres. Ana Labosky (954) 224-7733

www.ipssagoldcoast.com; president@goldcoastipssa.com MANASOTA (Bradenton/Sarasota) First Mon., 7:00 p.m., Call for meeting

location and directions Pres. Todd Starner (941) 915-2135 tstarner@tampabay.rr.com NORTH GEORGIA

Pres. Benjamin Decker (404) 405-0197 ben@classicpoolsvc.com OSCEOLA (Kissimmee/Orlando)

Second Wed., 6:30 p.m. Fat Boy's Restaurant, 2512 13th Street, St. Cloud Pres. Diane Fowler (407) 460-6680

poollady2001@gmail.com
PORT CHARLOTTE: Fourth Monday, 6:30 p.m.,
Buffalo Wings & Rings, 1081 W. Price Blvd. North Port
Pres. Ray Kurilivicoius, (941) 743-2010 ray@dartpoolsolutions.com **SARASOTA:** First Tues., 6:30 pm Gecko's Grill & Pub, 351 N Cattlemen Road, Sarasota

Pres. Andy Homner (941) 330-5757 andy@clearwavepoolcare.com TREASURE COAST: Fourth Tues., 7:00 pm Duffy's Sports Bar, 6431 SE Federal Hwy, Stuart Pres. Allen Schroeder (772) 215-1884

> **REGION 12** B.O.R.D. Member: Jason Lehmann (817) 605-0194

E-mail: waterconnection@att.net DALLAS: Fourth Tues., 5:30 p.m., Tony's Diner

3112 N. Jupiter Rd #307 Garland TX Pres. Eustaquio Portillo (214) 325-6746 FORT WORTH Third Tues., 6:30 p.m., La Playa Maya Restaurant

1540 N Main Street, Fort Worth Pres. Tina Slagle (817) 991-0555 MID CITIES DFW: First Mon., 7:00 p.m., SCP, 2107 Hutton Drive, Carrollton TX 75006 Pres. Casey Gardner (469)835-5674

TARRANT COUNTY First Tues. 7 p.m., El Chico's Café 7621 Baker Blvd., Richland Hills

Pres. Will Ainsworth (817) 987-8580 **WAXAHACHIE:** Second Wed., 7 a.m., Denny's, 408 Westchase Drive, Grand Prairie Pres. Tom Sheehy (214) 395-0143 / tsheehy@prodigy.net

Associate Members

For more information about our associate members. please visit their web sites. If company representatives are available to speak at chapter meetings, their topics and geographic availability is indicated.

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