



IPSSA

Independent Pool and Spa Service Association

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Pool Water or Fertile Stew?

By Eric Herman

Nitrate spread over crops, yards and anything else that grows is a life-giving compound: It is the primary component in most fertilizers and is essential to the development of all vegetation. Every time you see lush green, you are looking at nitrate's effects.

In a swimming pool, however, things that grow and turn green are unwelcome – and nitrate is the kiss of death. Nothing will engender blossoming algae and other waterborne plants in a pool and spa more effectively than nitrate. Despite nitrate's critical role in the development of algae-related headaches, the pool and spa industry has yet to deal with nitrate as a specific issue. There are no seminars devoted to nitrate; there is virtually no literature on the subject: and many service technicians say they never consider nitrate when addressing a problem pool. Most significant, there are as yet no products on the market that are designed to remove nitrate from water.

Stable to a fault

Perhaps the main reason that nitrate is virtually ignored stems from the unfortunate fact that there is absolutely no way to oxidize it. Nitrate (NO_3) consists of a single nitrogen atom attached to three oxygen atoms; it is extremely stable and will stay in solution very comfortably. Because nitrate is in a sense immune to oxidation, the only known way to remove it is through draining or dilution.

Service techs who are aware of nitrate's effects and have tested for it in problem pools will attest that it will turn even the best-kept pool or spa into a greenish mess.

"If you get nitrate in the water, you've got a problem," says George's Pool Service in Miami, FL.

"When you have a pool that keeps turning green no matter what you do – it's probably nitrate."

Nitrate is found in the air, on the ground and in groundwater. It occurs in nature as animal waste and through the ionization of oxygen and nitrogen atoms in the atmosphere during thunderstorms.

The main source, however, is man, mostly through use of fertilizer in agricultural operations as well as through septic tank leaching. Because of its direct relationship to animals and farms, nitrate contamination of groundwater is particularly pronounced in rural areas.

Another nitrogen compound, nitrite (NO_2), is also found throughout nature and, like nitrate, is an effective form of plant food. When introduced into a chlorinated environment such as a pool or spa, however, nitrite quickly gains a third oxygen atom and becomes nitrate.

Tracking the problem

Despite nitrate's relative obscurity in the pool and spa lexicon, there are a few people in this industry who have studied it. The man generally credited with first examining the relationship between nitrate and pool water is industry veteran John Girvan, a manufacturer of pool chemicals in Jacksonville, FL. In 1965, Girvan set out to learn why some pools that were otherwise in perfect condition were turning green and using inordinate amounts of chlorine. After examining water from literally thousands of pools in his laboratory, Girvan discovered that nearly all of them had one thing in common – the presence of nitrate.

"We wanted to find what it was that we couldn't see, taste or smell that was turning these pools green," he says. "Through a process of elimination we found nitrate. Nitrate will feed algae faster than any legal sanitizing system can kill it.

"With nitrate in the pool, you will get algae and other contaminants that won't respond to normal treatment."

Through the years of field and lab work that followed Girvan's initial findings, he discovered that nitrate finds its way into pool water by five basic avenues:

* Fertilizer – far and away the most common nitrate source. "We have actually had tests run where a pool that showed a zero-ppm nitrate level the day before fertilizer was added to a nearby lawn or garden will pick up 10 to 30 ppm nitrate after a single dusting of dry fertilizer." Because nitrate will continue on page 2

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drive sanitizer consumption through the roof (see chart) and the only way to remove it is by draining, asking gardeners and landscape contractors to be careful when fertilizing can be a cost-saving move.

* Birds – the second leading nitrate source. According to Girvan, Florida’s screened pools ironically are at greatest risk because of birds’ preference for sitting atop the permeable structures. With even a modest flock perched above the pool, a substantial quantity of nitrate-rich feces can be easily dispensed onto the screen, when rain rinses the material into the pool, nitrate levels can jump to between 10 – 20 ppm.

Large, overhanging trees at pool-side can also contribute to the same bird-generated greening affect. “Some people put up fake owls to scare away the birds.” Girvan says.

* Human waste – urine and particles of feces can add double-digit nitrate levels depending on the bather load and how careful those bathers are about tending to nature’s call before they enter the pool.

Spas are particularly susceptible to the effect of bather load because of the added problem of sweat and body oils. Problems stemming from nitrate contamination is one more reason to be sure to drain spas on regular basis.

* Thunderstorms – because lightning ionizes nitrogen and oxygen in the air, subsequent rain can actually boost the nitrate levels as much a 5 – 10 ppm.

This isn’t the most common source of nitrate contamination, but Girvan notes that it’s enough to create green water in what should be a healthy, nitrate-free pool.

* Tap water – this is the least likely but most troubling means of introducing nitrates into the pool. When this happens, you’ve got a real problem because draining and refilling will only add more nitrates.

More important however, when nitrates are in the household’s water supply, it means that people are drinking it and that represents a serious public health problem.

Testing the waters

Even though your only remedy for nitrate in the pool is either dilution through partial replacement or elimination through complete draining of the water, knowing that the contaminant is actually there is the first step in the battle. Tests for nitrate are available, but they are relatively difficult to use – and they take time. Tom Metzbower, director of sales and marketing with Taylor Technologies, a manufacturer of water-testing kits based in Sparks, Md., notes that using his company’s nitrate test is not likely to become part of the service technician’s routine. “If at all,” he says, “you are going to use this on a troubleshooting call. If you are someone who is on a service route, obviously you are concerned with time so this is not going to be part of your regular service, even with the zinc reduction test that we’ve developed, it takes a few minutes to develop a color for comparison.”

Whether or not a removal system for nitrate will ever be available to the pool and spa service industry – and to the rest of the world for that matter remains to be seen.

In the meantime, technicians should be aware that fertilizer, birds and careless bathers can add nitrate to the water. If you have a problem you can’t pinpoint using your usual diagnostic skills and equipment. It maybe be time to test the water for nitrate content. If the results come back positive, be prepared for an uphill battle.

Nasty numbers

The presence of nitrate in pool water will drastically increase your sanitizer consumption – but just how much? The following chart is based on data provided by John Girvan.

The levels are approximations only and serve solely to illustrate the potential effects of nitrate.

Nitrate Concentration – ppm	Added Sanitizer Consumption %
10	0
20	25
30	50
50	100
75	200
100	“out of control”

Girvan notes that between 30 – 50 ppm, algae can be controlled with the use of an algaecide and additional sanitizer. This, however, is not recommended. Instead, he prefers either partial or total replacement of the water.

This article was recommended by IPSSA member Lance Rust form our Dallas Chapter. Lance never goes anywhere without his nitrate test kit. Thanks Lance.

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WEBTALK

We continue to see more and more activity on our www.ipssafortworth.com website

and I'm doing my best to add and adjust information as quickly as I get it.

We have had over 3300 hits on the website for this year.

Let me know if you are getting any positive results (New Customers) from our website.

Contact me at: ipahl@sbcglobal.net

Thanks, Ingrid

- **Members we still need business cards for the website –**
 - APC
 - Aquamaid
- Clear Connection Pool Service
- G & D Pool & Spa Inc.
- Kelley's Complete Pool Care
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Please review the website and let me know if you have any additional information or changes to be made.



How can I make more money doing what I loved to do, without spending an arm and a leg? Well I know some of you might think you need to have a marketing degree from Harvard, but really, it is the small things that count. Next time you're stuck in traffic look around at all the cars, yes, those could be your new customers. Signs on your truck, they don't have to be fancy how about just "Bob Pool Service", and a phone number, and maybe a website address. You're already paying the gas bill on that billboard going to and from the job, why not let it make you some money. Second, websites. I know alot of you don't know much about the web, and feel a little intimidated by the thought of having to make a website, well, you're right that most web designers think 1s and 0s and are very hard to talk to in laymen's terms, what you might not know is that in Fort Worth and in Dallas

we have two very good webmasters, working very hard to lay the ground work to help put money in your pocket, I have known both of them for a very very long time, believe me when I tell you they speak your language. All you need to do is get in contact with one of them and give them some simple company info maybe a logo, and what you want to sell or service. Then while your out driving around in your billboard the internet is sending business to you.

Lance Rust

We will have our Christmas Party on December 20th, everyone that would like to exchange gifts should bring something to our meeting. Gift should be between \$ 10 to \$ 15. Numbers will be drawn to distribute items.



**Our next meeting is:
Tuesday, November 15th at:**

La Playa Maya Restaurant, 1540 North Main Street
Fort Worth, TX 76106 - 817-624-8411

that's a few blocks south of the Stockyards

We try to arrive around 6:30 PM with the meeting
called to order at 7:00 PM.

We do our best to be finished by 9:00 PM.

Officers Meetings

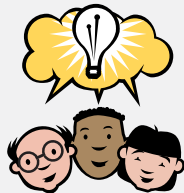
Tuesday, November 7th - 7:00 pm:

Chili's Restaurant, 8000 Bedford-Eules Road
Eules, TX 76180 - 817-577-1245

Pool Quiz

1.) It is recommended that you use cyanuric acid if you use which type of chlorine?

- A. Gas
- B. Liquid
- C. Cal hypo
- D. All of the above



2.) The effectiveness of killing power of chlorine is controlled most by...

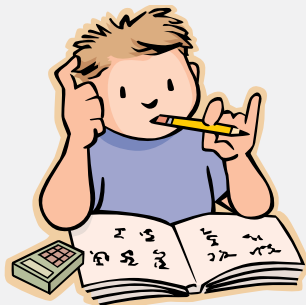
- A. Total Alkalinity
- B. Total dissolved solids
- C. Hardness
- D. pH

3.) Ozone is a stronger oxidizer than which of the following?

- A. Chlorine
- B. Bromine
- C. Both A & B
- D. None of the above

4.) The use of a chlorine generator forces you to rethink the entire concept of which of the following?

- A. pH
- B. Sanitizer
- C. Total dissolved solids
- D. All of the above



Officers elections will be at this member meeting so get your pencils sharpened.



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For more information, contact Jason Bonser
at 817-605-0194 or aquatown@charter.net

**Meeting – Region 9 –
October 22, 2005 –
Shreveport**





IPSSA Fort Worth
P.O. Box 820852
N. Richland Hills, TX 76180

Please check our on-line calendar for other upcoming events!

Contact me to keep the calendar updated -

let me know when there is an event coming up that should be brought to everyone's attention!

November Calendar

Nov. 7th Officers Meeting

Nov. 11th Veteran's Day

Nov. 15th Member Meeting

Nov. 24th Thanksgiving



Mel Myers from Financial Investments

will be our speaker for the next member meeting

For information regarding this newsletter please contact
Ingrid Slagle
Phone: 817-595-1167
E-mail: ladyweaver@ladywebweaver.com

Officers

817-605-0194 Jason S. Bonser - President

817-337-8585 Dave Boyd - Vice President

817-595-1167 Gordon F. Slagle - Secretary

817-247-5247 Paul Garcia - Treasurer

817-459-0808 Christopher Miles - Texas Region 9 Director

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Quiz Results

1.) - D

2.) - D

3.) - C

4.) - C

