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1 **Sent:** Monday, December 31, 2001 2:35 PM
Subject: FORUM Q & A : DEIONIZATION

Dear Aquathin Dealer On-Line;

Welcome to **The New Forum Q & A** from Aquathin Headquarters. We receive many questions every week from you our friends and Dealers, as well as prospective Dealers and end users around the world concerning technical needs and support for sales and marketing. We thought that it would make a great New Year's Resolution to send you all these **Questions & Answers** as you yourself may have need someday, or wish to pass on to your staff, or simply thankful to have an old "mind file" refreshed. We will only provide you with the "meat and potatoes" portion of the responses keeping it brief and forward any leads as always!!!

So be sure to watch your email closely for both the **SPLASH ON LINE NEWSLETTERS AND THE NEW FORUM Q & A!** Enjoy !!

Happy New Year !! Warmest regards,

FOR THE BEST TASTE IN LIFE
Think Aquathin..AquathinK !!
Celebrating our 22nd birthday in 2002 !!!
(visit the allnew <http://www.aquathin.com>)

"Alfie"
Alfred J. Lipshultz, President

P.S. When responding please continue 'REPLY' to include all previous correspondences on this subject.

Today's Forum Q & A comes from Craig, a potential customer in Quebec who wants to know what is in the Deionization Module and how does it work. Craig's inquiry was also forwarded onto two Authorized Dealers in Quebec.

DEIONIZATION

The Aquathin Reverse Osmosis Element has the ability to reject (92+% to 97+%, CTA style vs. TFC style @ 60F-70F @ 60-70psi) of the dissolved inorganics in water. Rejection is based on the degree of removal of Na⁺ and Cl⁻. Although the RO has a higher percentage of removal of di, tri and quaterovalenced elements (i.e. 99% Al), the monovalenced elements are rejected at the percentages referenced above. The Aquathin Patented RO Process also removes disease causing waterborne microorganisms.

RO is not as efficient (only about 50%-65%) for nitrates, nitrites and VOCs (volatile organic chemicals i.e. hydrocarbons such as benzene, ethylene, toluene, zylene, MTBE). The nominal 8% or less of dissolved solids, mostly monovalent, and balance of any other inorganic and organic contaminates enter the four staged Aquathin Deionization Module. The DI resin is a manmade plastic bead that is chemically made anionic (OH⁻) and cationic (H⁺). This is a superior "nuclear grade" resin as opposed to the industrial type of cationic resin (Na⁺) that is utilized in a water softener. In a water softener a substitution reaction occurs whereby Na⁺ is exchanged for Ca⁺⁺ and Mg⁺⁺ at a 2:1 ration. In the proprietary Aquathin DI Module that is specially produced to compliment the Aquathin

RO Membrane, H^+ and OH^- are exchanged for the monovalenced elements in the RO permeate. Therefore, all the Aquathin System puts into the water is H^+OH^- or H_2O .

The last three inches of the DI Module is granulated activated carbon (GAC), the same high quality adsorptive carbon made use of in the Aquathin MegaChar Total Home Filter. Its purpose is to enhance what some term a flat taste and to remove any organic that may appear in trace form from a partial degree of removal via the RODI processes. To date we know of no such organic that is not rejected by the RO and / or bond is broken and force into radical state and subsequently exchanged (substituted), or adsorbed in the DI Module. At that point the GAC participates as a failsafe for organic removal. The RODI water finally passes a .2 micron pad for backup bacterial protection in the unlikely event a membrane could rupture and simultaneously serves to prevent reverse migration of contaminates.



2 **Sent:** Wednesday, January 02, 2002 10:25 AM
Subject: FORUM Q & A: CHLORINE--TOTAL, FREE, RESIDUAL

Dear Aquathin Dealer On-Line;

Welcome to **The New Forum Q & A** from Aquathin Headquarters. We receive many questions every week from you our friends and Dealers, as well as prospective Dealers and end users around the world concerning technical needs and support for sales and marketing. We thought that it would make a great New Year's Resolution to send you all these **Questions & Answers** as you yourself may have need someday, or wish to pass on to your staff, or simply thankful to have an old "mind file" refreshed. We will only provide you with the "meat and potatoes" portion of the responses keeping it brief and forward any leads as always !!!

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"Alfie"
Alfred J. Lipshultz, President

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Over the holidays I recalled a very good question from my friend Sr. Christian Vielli of Amitek, Aquathin Chile concerning the various different forms of chlorine that we all need to be aware of. I thought this would make an excellent Forum Q & A for you.

Warmest regards,
AJL

----- Original Message -----

From: info@aquathin.com

To: Amitek

Sent: Wednesday, December 12, 2001 6:28 PM

Subject: Re: Total and free chlorine

Dear Christian;

Thank you for your email. **Total chlorine** is the total concentration of the chlorine in a water including the combined chlorine (i.e. inorganic and organic chloramines) and the free available chlorine.

Free chlorine, also referred as **available chlorine**, is a measure of the amount of chlorine in chlorinated lime, hypochlorite compounds, chloramines and other materials that are used for disinfection as compared to the amount liquid amount in elemental (liquid or gaseous) chlorine.

Also, **total chlorine residual** is the total amount of chlorine residual present after a given contact time in a water sample regardless of the type of chlorine.

To make sure water is disinfected, we want the total chlorine residual. A zero value here equates to unacceptable disinfection.

Warmest regards,

Alfie

----- Original Message -----

From: Amitek

To: [Aquathin](#)

Sent: Wednesday, December 12, 2001 3:45 PM

Subject: Total and free chlorine

Alfie,

I have a simple question:

- what is the difference between total chlorine measurement and free chlorine?
- what is the chlorine we have to measure to make sure the water is disinfected?

Best regards,

Christian



3 **Sent:** Thursday, January 03, 2002 11:25 AM
Subject: FORUM Q & A: PPM TO UMHOS CONVERSIONS

Today's Forum Q & A is a request to understand the relationship of PPM (parts per million) to Micromhos and MegOhms. Open and save the attachment which is a conversion chart. At Aquathin University we learned that parts per million is the same as stating milligrams per litre (ppm = mg/ltr). Just a quick note that the graph I am sending comes from a laboratory supply house and there is a typographical error at the bottom left under the "grains" column. The error reads 1 gram = 17.1 ppm. It should read 1 grain per gallon = 17.1 ppm (remember this is the same as mg/ltr). 1 gram = 1000 mg/ltr.

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"Alfie"
Alfred J. Lipshultz, President

P.S. When responding please continue 'REPLY' to include all previous correspondences on this subject.

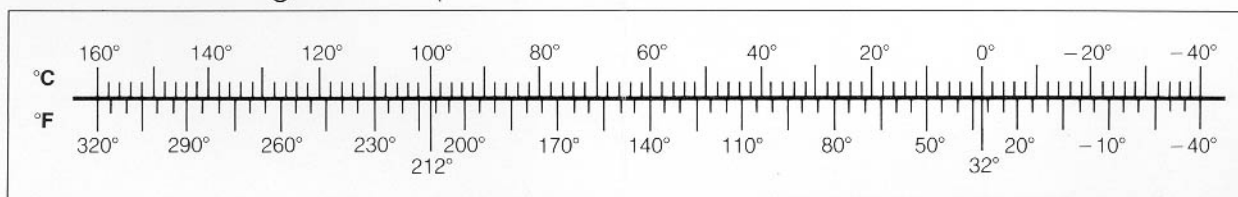
Conductivity and resistivity (NaCl and CaCO₃ solutions at 25°C)

Grains/Gal* as CaCO ₃	ppm as CaCO ₃	ppm NaCl	Conductivity micromhos/cm	Resistivity megohm/cm
99.3	1700	2000	3860	0.00026
74.5	1275	1500	2930	0.00034
49.6	850	1000	1990	0.00050
24.8	425	500	1020	0.00099
9.93	170	200	415	0.0024
7.45	127.5	150	315	0.0032
4.96	85.0	100	210	0.0048
2.48	42.5	50	105	0.0095
0.992	17.0	20	42.7	0.023
0.742	12.7	15	32.1	0.031
0.496	8.5	10	21.4	0.047
0.248	4.25	5.0	10.8	0.093
0.099	1.70	2.0	4.35	0.23
0.074	1.27	1.5	3.28	0.30
0.048	0.85	1.00	2.21	0.45
0.025	0.42	0.50	1.13	0.88
0.0099	0.17	0.20	0.49	2.05
0.0076	0.13	0.15	0.38	2.65
0.0050	0.085	0.10	0.27	3.70
0.0025	0.042	0.05	0.16	6.15
0.00099	0.017	0.02	0.098	10.2
0.00070	0.012	0.015	0.087	11.5
0.00047	0.008	0.010	0.076	13.1
0.00023	0.004	0.005	0.066	15.2
0.00012	0.002	0.002	0.059	16.9
0.00006	0.001	0.001	0.057	17.6
none	none	none	0.055	18.3**

*1 gram per gal = 17.1 ppm (CaCO₃)

**theoretical maximum

Fahrenheit/Centigrade temperature conversion chart



32° Fahrenheit = 0° Centigrade 0° Fahrenheit = -17.8° Centigrade

4 **Sent:** Monday, January 07, 2002 2:07 PM
Subject: FORUM Q & A; H2S ISSUES

Dear Aquathin Dealer On-Line;

The following responses were recently provided concerning rotten egg odor, causes, and treatments.

Warmest regards,

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Celebrating our 22nd birthday in 2002 !!!
(visit the allnew <http://www.aquathin.com>)

"Alfie"
Alfred J. Lipshultz, President

P.S. When responding please continue 'REPLY' to include all previous correspondences on this subject.

Thank you for your email. Rotten egg odor has 3 possible causes any combination of which can occur simultaneously.

1. Naturally occurring gas from well water.
2. Dead and dying bacteria either from a well or municipal water source with extremely low or no levels of chlorine at the tap.
3. Old magnesium anode rod in hot water heater can give off a similar odor. The purpose of the rod is to slowly self dissolve and coat the water tank to prevent rusting.

Regarding cures; Carbon can reduce hydrogen sulfide odors but only for a short period and is generally not recommended. If the odor is bacterial related, carbon will not work. Potassium permanganate systems and Pyrolox systems will remove H₂S odors (note pH must be above 6.5 and H₂S 5ppm max), but again not if bacterial related. Chlorination via our model RS35CL will oxidize a natural occurring gas and kill bacteria thus eliminating the recurring cause of this form of odor (as well as oxidize and precipitate iron, manganese, algae and most colloidal debris). None of the above will work if the cause is the mag rod which is the farthest point downstream. Simply removing the rod eliminates the odor.

Recommendations; Get a bacterial analysis and remove the rod if you have this style hot water heater.

5 **Sent:** Friday, January 11, 2002 6:32 PM
Subject: FORUM Q & A: RO MEMBRANES

Dear Aquathin Dealer On-Line;

Today's Forum Q & A inquiry comes from a potential customer visiting the Aquathin website who wants to know the different types of RO membranes. Below is the main portion of our reply.

Have a great weekend and warmest regards,

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Celebrating our 22nd birthday in 2002 !!!
(visit the allnew <http://www.aquathin.com>)

"Alfie"
Alfred J. Lipshultz, President

P.S. When responding please continue 'REPLY' to include all previous correspondences on this subject.

REVERSE OSMOSIS

Osmosis is a natural phenomenon whereby a low concentration of salts is drawn to a high concentration of salts passing through a semi permeable membrane. This occurs in all forms of living nature, animal and plant. Reverse osmosis is then a reduction of a high concentration of salts to a low concentration of salts passing through a semi permeable membrane. Whereas osmosis takes place naturally utilizing what is known as the "osmotic pump (salts attraction to salts)" reverse osmosis requires an external pressure to break the laws of nature (the osmotic pump) and force the fluid through the membrane. Basically only the H₂O molecule can pass the .0001 micron or less pore structure of the membrane (NOTE other contaminants can partially pass i.e monovalent salts, VOCs, nitrates. These are further eliminated by GAC pretreatment, higher source pressure, deionization). Consequently, the source side of the membrane constantly has a higher concentration of salts. This would be similar to boiling all the water from a tea kettle and observing the dust residue remaining. Another example here is lets say the water in the tea kettle was 500 ppm TDS. By boiling half away (similar to removing half the water through a membrane) the TDS equates to 1000 ppm. As the concentration would increase further it approaches a saturation index and consequently no further salts would remain in solution...they precipitate and fall out of solution forming a crystalline plaque that blinds the pores of the membranes. In order to avoid this, the RO mechanics allows for a chronic bleed off of the high concentration of salts preventing them from reaching saturation and plaquing. Normally residential systems operate around 3 or 4 to 1 gallon brine to product ratio. Commercial systems operate normally 2 to 1 (this discussion is for tap water applications where TDS is less than 2000 ppm. Ratios increase for brackish and tap water). Said conversely, if your client were to restrict the brine flow, the membranes would foul out.

CTA vs TFC

Regarding the KT90-1 (or an Aquathin RO model ending -1); this unit contains our CTA membrane (92%-94% rejection at 14gpd), tolerates a pH of 5.5 to 8.5 and is slightly bacterial resistant, hence installation is meant for chlorinated water supplies. We prefer to send the KT90-2 with a small Carb12 prefilter. This unit contains our TFC membrane (as well as any RO model ending -2...97+% rejection at 24gpd), tolerates a wider range of 2-11 and is totally bacterial resistant. The carbon prefilter permits installation on chlorinated or unchlorinated water supplies. Both models are our patented RODI process.

You may choose either model. Also, you will be interested to know that you

can install your Aquathin RODI systems on water with hardness up to 25 grains without softening pretreatment. Other companies limit their RO units to 10grains. We get this accomplished with our manual or patented auto flushing to purge potentially plaquing debris.



6 **Sent:** Tuesday, January 15, 2002 5:59 PM
Subject: FORUM Q & A: SOFT WATER WORKINGS

Dear Aquathin Dealer On-Line;

Today's Q & A comes from a visitor to the website who wants to know all the benefits of soft water and how a water softener works.

Warmest regards,

Alfie

Soft Water:

The Economical Solution

The modern economy doesn't leave a lot of room for unnecessary waste. A penny wasted here or a nickel there can add up to hundreds of dollars over the course of a year. An often overlooked budget waster is hard water and its effect on laundry. Hard water is often not an "obvious" problem to people who have not had the opportunity to compare it to soft water. It is usually difficult to see or taste any difference between hard and soft water. The minerals that make water hard (calcium and magnesium) are usually tasteless and completely dissolved.

The differences between hard and soft water become more obvious in bathing and cleaning, where hard water leaves a residue when combined with soap called "soap curd," which must itself be cleaned off. Hard water has similar effects on laundry.

Hardness minerals affect laundry in a gradual manner often not obvious in today's automated washing processes. People accustomed to hard water may not notice the increased detergent use, faster fading of colors or yellowing of whites, shortened fabric life, greater demand for hot water, increased wear on the washing machine, and extra wash and rinse cycles. But the waste is still there, slowly working away at the family budget. Fortunately, hard water can be softened, and soft water virtually eliminates these problems.

What is Hard Water?

Hard water is found throughout the world, and in about 85 percent of the United States, according to the U.S. Geological Survey. Hard water areas exist where water has access to rock that contains calcium, magnesium, or a combination of both.

The U.S. Department of the Interior has established levels for the classification of hardness based on the grains per gallon (gpg) concentration of these minerals. To put grains per gallon in perspective, a typical aspirin contains about 5 grains of material. Were this to be dissolved in a gallon of water, it would add 5 gpg of material to the water. Water in the 1 to 3.5 gpg range is considered slightly hard. If the water is in the 3.5 to 7.0 gpg range, it is considered to be moderately hard; hard water being between 7.0 to 10.5 gpg. Very hard water is defined as water with concentrations of dissolved minerals in excess of 10.5 gpg. The harder the water, the more it impacts laundry; and even moderately hard water can make a difference.

Wasteful Hard Water

It's difficult to imagine that such a small amount of calcium or magnesium dissolved in a gallon of water would have much of an effect, but the results can be far out of proportion to the concentration. Everything from soap's ability to clean to the life span of the washing machine can be affected. A study conducted by the American Institute of Laundering determined that detergent and laundering costs can be as much as twice as much in hard water as compared with soft water.

Listed below are some of the ways hard water adds its subtle waste.

Laundry Soap

Laundry soap was the primary cleaning agent for laundry prior to the development of synthetic detergents. Soaps are usually natural, made from fatty acids and alkali substances such as caustic soda, which give soap excellent cleaning properties, particularly with vegetable-based fabrics like cotton. Soap works well to suspend dirt in the wash (keep it in the water until it goes down the drain), and helps "lubricate" the fabric, prolonging its life. Another advantage is that soaps are generally made up of ninety percent or more active cleaning agent, which reduces the amount required for use. Unfortunately, hardness minerals combine with soap to form an insoluble "curd," which can remain as a residue on washed laundry. This is similar to the difficult-to-clean residue found on bathroom tubs, sinks, and tile in hard water areas.

Hardness also tends to counteract soap's alkalinity, which reduces its cleaning ability and requires the use of greater quantities to get laundry clean. A partial solution to this problem is the addition of "builders" such as complex phosphates, silicates, or sal-soda, which can be added to counteract hardness. Builders boost the alkalinity of the wash, improving its cleaning ability, and helping to neutralize acid soil and hardness minerals. However, builders do not prevent the formation of soap curd.

Laundry Detergent

Synthetic detergents based on petroleum were introduced in the 1950's primarily to overcome hard water's soap curd problem. Unlike unbuilt soaps, which are greater than 90 percent active ingredients, unbuilt detergents contain only 20 to 40 percent active ingredients, and 50 to 65 percent neutral salts, a manufacturing byproduct. The remaining ingredients are surfactants (which lower water's surface tension and improve its wetting ability), suspension agents (which keep the dirt suspended in the water), whitening agents, and cosmetic additives.

Alone, synthetic detergent is generally neutral and does not create the alkaline cleaning environment soap does. Most modern detergents also contain builders, but in much greater quantities than soap. Unfortunately, the builders tend to be consumed in softening hard water. This limits their ability to clean, and requires greater quantities of detergent to be used to get laundry clean.

Rinse Cycles and Water Temperature

It's a well known fact that the hotter the water the cleaner the laundry, and this is particularly true in hard water. Hard water's effect on soap and detergent, which reduces cleaning ability and hampers the rinse, means hotter water and extra rinse cycles may be required to clean laundry. The energy used to heat water and to operate the washing machine for extra cycles translates to higher costs and wasted expense to consumers.

Fabric Life and Appearance

A Purdue University study found that fabrics washed in hard water tend to wear out as much as 15 percent faster than fabrics washed in soft water. This is probably due to the presence of hardness residues left in the fabric after laundering, making it stiffer and causing increased friction and wear on the fabric as it flexes.

The Purdue study also found that hard water has a generally negative effect on colors and whites. Colors were found to fade and whites to darken more quickly in hard water. In addition, the study found that laundry washed in hard water became resoiled with greater ease.

Washing Machines

The dissolved minerals in hard water tend to collect in water-using appliances, shortening their life. Washing machines are not immune to this process, and the buildup of these minerals can clog pipes and cause excessive wear on moving parts. A study by the American Water Works Association (AWWA) found that washing machines used with hard water can wear out up to 30 percent faster. A washing machine, which might otherwise last 10 years, will likely last as few as 7 years where hard water deposits can be formed.

Solutions

The best solution to these hard water problems is to use a soft water. This was realized by earlier generations who coined the phrase "hard water" because they found it hard to wash with. They collected soft rainwater in a barrel to be used for laundering, which is hardly an option in the modern world of indoor plumbing and automatic washing machines.

Some water utilities offer municipal softening, but water treated in this manner falls short of being soft water. Municipal softening treatment is generally found in areas with extremely hard water, and the end water is still often in the hard to moderately hard range. Municipal softening is also inefficient because all of the community's water is softened, including water that is ultimately used to water lawns and clean public streets. Household water softeners generally provide the most economically effective source of soft water for home and business use.

A typical water softener works on the principal of "cation exchange," in which the ions of hardness minerals (an ion is an electrically charged atom or group of atoms) like calcium and magnesium are exchanged for sodium ions, effectively reducing the concentration of hardness minerals to insignificant levels.

As the water enters the softener, it passes over a resin bed in a special tank. The resin is made up of tiny beads of a plastic called styrene linked together by a compound called divinylbenzene. These beads attract and hold sodium or potassium ions. The beads will exchange sodium or potassium for hardness ions such as magnesium or calcium whenever the hardness ions are encountered. The beads are biologically safe, and approved for use by the U.S. Food and Drug Administration (FDA).

After a period of use, the sodium or potassium ions are completely exchanged and the unit has to be "backwashed" or "regenerated," which recharges the resin beads with sodium and potassium ions. This requires the use of sodium or potassium chloride, which is loaded into a "brine tank" where salt dissolves in water, forming the brine which is used to recharge the system. The recharging is most often done in one of two ways. Automatic softeners initiate the regeneration process on a set schedule based to anticipated need; Demand Initiated Regeneration (DIR) softeners use a meter or sensor to monitor the actual hardness levels, or the amount of water a unit has processed, to determine when backwashing is necessary.

Conclusion

The waste hard water creates each year can cost hundreds of dollars in extra detergent use, unnecessary rinse cycles and hot water use, fabrics that lose their usefulness, and washing machines that wear out before their time. Soft water greatly reduces this waste, and gets laundry cleaner as well. And these benefits are in laundry expenses alone.

Many of softened water's benefits apply to other areas of the home or business. Bathroom and kitchen fixtures stay cleaner without the formation of soap curd, water

heaters operate more efficiently and last longer, dishes get cleaner with less detergent and dishwashers last longer, and even bathing is free of hard water deposits which dry skin and dull hair. When it all adds up, hard water is a waste that can be done without.

*This article first appeared in the **WaterReview Technical Brief**, (1993) Volume 8, No. 1; a publication of the Water Quality Research Council. Copyright 1993, 1995 by the WQA. All rights reserved.*



7

Sent: Friday, January 18, 2002 1:00 PM

Subject: FORUM Q & A: ALPHA EMITTERS & RADIONUCLEIDES

Dear Aquathin Dealer On-Line;

Today's Forum Q & A comes from a customer in Minnesota advising that the city is informing those on city water that there is radioactivity present in the water. He wants to know if his Aquathin can deal with it.

Q: Our city (Savage, MN) has told us our city water has high levels of alpha emitters. The levels are above the EPA maximum. I was wondering if our AquaThin reverse osmosis water filter removes any radionuclides like alpha emitters?

A: [The patented Aquathin Process which combines reverse osmosis and deionization removes radionucleides. I have attached a chart herewith. As well we invite you to go to the Aquathin website listed below and click on Technology Ratings to see a comparison table. The site may be slow loading as there are many additions taking place today and tomorrow.

Further Aquathin has submitted our systems to EPA, state and country labs for various tests to validate efficiencies. You may receive a copy from the Authorized Aquathin Dealer in Minneapolis.

Note there is one radioactive entity that no water treatment system can deal with called tritium or H_3O^+ . This is the cooling waters of a nuclear plant's reactor core. The Aquathin Process will remove 50+%. The problem is that "heavy water" as it is known, looks like water when confronted with an RO membrane, distillation, carbon etc. If you are not downstream from a nuclear plant i.e. Three Mile Island, where secondary containment of the cooling water is an issue, there is no concern at all for heavy water. Just thought you'd like to know this.

Thank you for considering Aquathin for providing the very best in your family's home water security.]

Warmest regards,

FOR THE BEST TASTE IN LIFE

Think Aquathin..AquathinK !!

Celebrating our 22nd birthday in 2002 !!!

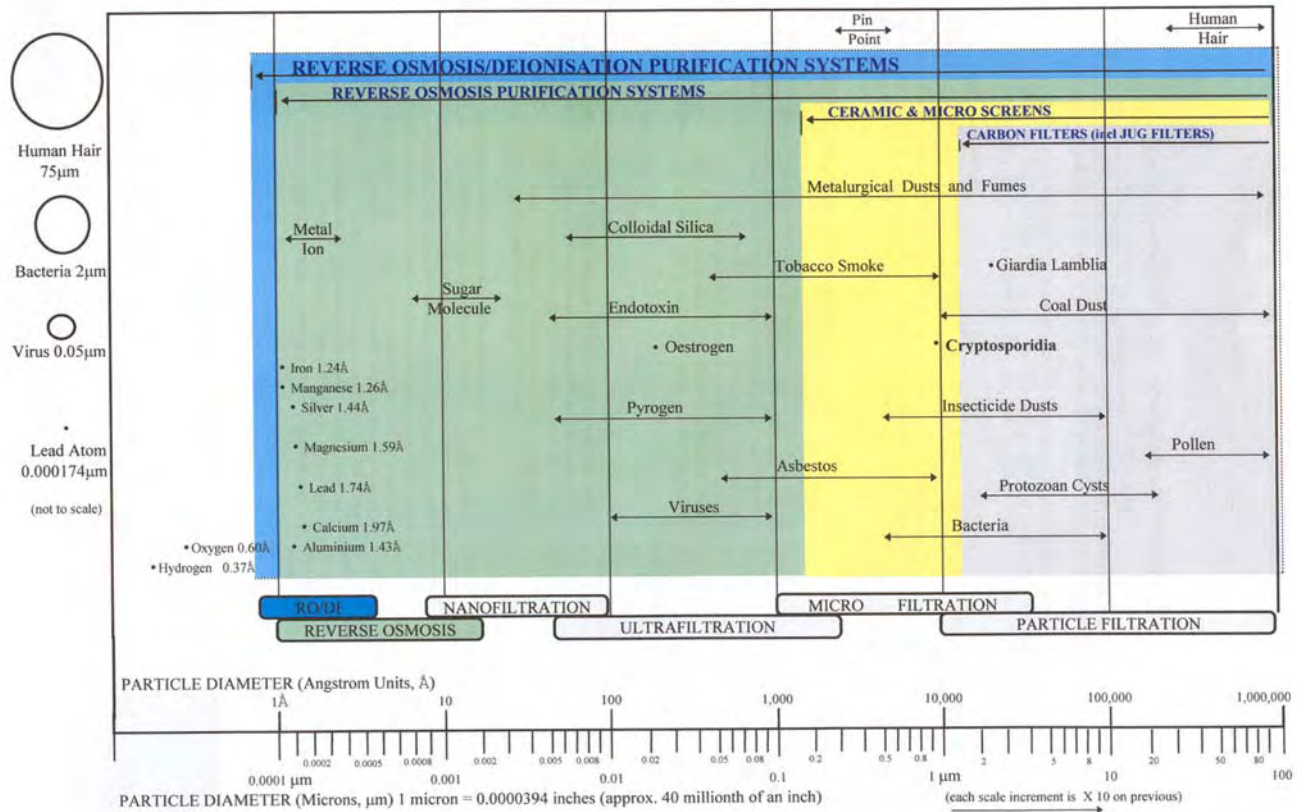
(visit the allnew <http://www.aquathin.com>)

"Alfie"

Alfred J. Lipshultz, President

P.S. When responding please continue 'REPLY' to include all previous correspondences on this subject.

PARTICLE SIZE REMOVAL RANGE BY FILTRATION & REVERSE OSMOSIS



8 **Sent:** Tuesday, January 29, 2002 6:08 PM
Subject: FORUM Q & A: MAGNETIC WATER CONDITIONING

Dear Aquathin Dealer On-Line;

Recently I was asked about magnetic types of water conditioners. The WQA has a hardline position from R & D in a study with Purdue University proving this method unaffactive against hardness in a test of 17 models. I had also saved the email below from the Water Technology chat room. Note the email is from a lead engineer at Whirlpool. This is public information and you are free to reprint.

Warmest regards,

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Celebrating our 22nd birthday in 2002 !!!
(visit the allnew <http://www.aquathin.com>)*

*"Alfie"
Alfred J. Lipshultz, President*

P.S. When responding please continue 'REPLY' to include all previous correspondences on this subject.

Subject: Re: Fwd: What is magnetic conditioning

From: Paul_W_Barnett@email.whirlpool.com

Date: Mon, 30 Apr 2001 09:57:25 -0400

X-Message-Number: 2

Mr. Harvey-

I just completed testing of 3 different magnetic water conditioners. And, in the past 5 years I have tested 6 others. In every one, I set up the testing per the manufacturer's instructions from the respective engineers. In 5 of the tests the engineers came in and inspected and approved each setup, before and after the testing. The tests were run on waters of 9 grain, 15 grain and 25 grain hardness.

In every case there was absolutely no reduction in hard water scaling. In every case, the vendor said the competitors' units failed in their testing, but their units did not. In every case we paid for the units in advance. In every case the vendors would not refund our money.

The tests were run in my lab on real appliances: whole house hot water heaters, small(point-of-use) water heaters, dishwashers, whole house humidifiers, room-size humidifiers, coffeemakers, espresso machines, factory-size welding machine coolers, small boilers, building-size boilers, and building-size air conditioning chillers. We ran the tests long enough to cause heat transfer and flow problems.

We analyzed the waters before, during and after the testing. The analyses were complete chemical analyses, including surface tension, turbidity, suspended solids and total dissolved solids and Langelier

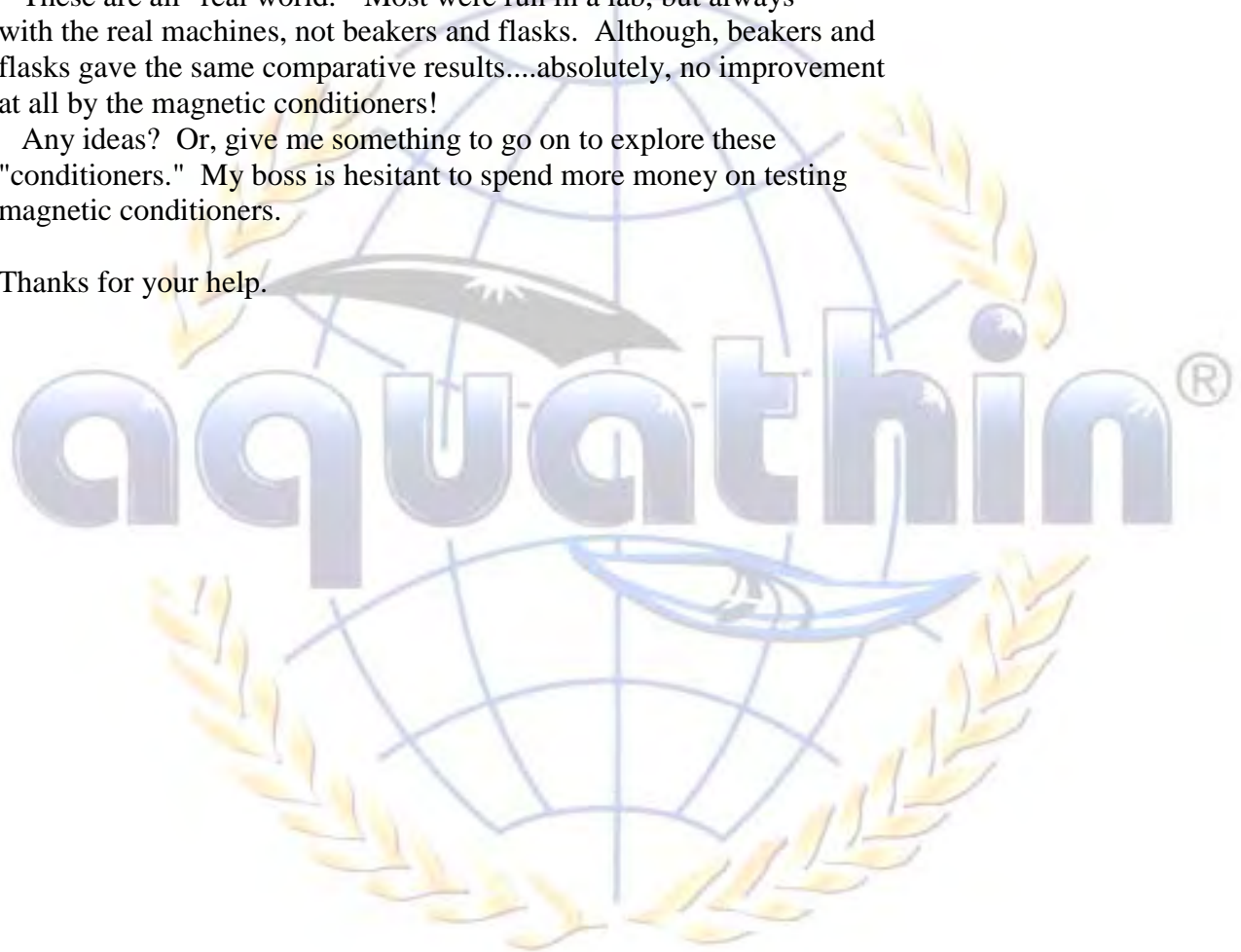
Saturation Indices. We analyzed the metal surfaces before and after the testing. We analyzed the scale after the testing. The scale analyses included thickness of hardness scale, density of the scale, complete chemical analyses and X-Ray Diffraction to determine the crystal structure, that is, the amount of calcite and aragonite. There were never any differences.

In every case except the building size machines, control units were run side by side on identical waters. In most cases we ran once through waters and repeated the tests with recirculated waters. There were never any differences between the magnetic conditioners and the controls with no treatment.

These are all "real world." Most were run in a lab, but always with the real machines, not beakers and flasks. Although, beakers and flasks gave the same comparative results....absolutely, no improvement at all by the magnetic conditioners!

Any ideas? Or, give me something to go on to explore these "conditioners." My boss is hesitant to spend more money on testing magnetic conditioners.

Thanks for your help.



9

Sent: Wednesday, January 30, 2002 8:55 PM

Subject: FORUM Q & A: SCHOOL SCIENCE PROJECTS

Dear Aquathin Dealer On-Line;

I don't really know to make this a Q & A or an email from Sales & Marketing. Today I received "another" request to assist in a school science project.

*We receive plenty of requests from parents all over the world to help their children as water issues and treatment are so popular in science classes. **Note--after years of providing all kinds of information from our database and various other kinds of support for free, we made a new policy that "if you are an Aquathin Client, we would be happy to assist"**.*

I respectfully recommend to let your customers know either in a letter or email, that you can provide them with support for their kid's science project. Use details from the Aquathin website, articles (call or email us for special needs i.e. literature on specific bacteria etc.), provide used RO membranes and details from Aquathin University, (we can send small samples of carbon, softening resin, porous plastic filter etc.).

This will continue and strengthen your already bonded and loyal relationship with your customer....and get the kid an "A+" ! Remember, he / she is a future customer also !!!!!!!!!!!!!!!

Warmest regards,

FOR THE BEST TASTE IN LIFE

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Celebrating our 22nd birthday in 2002 !!!

(visit the allnew <http://www.aquathin.com>)

"Alfie"

Alfred J. Lipshultz, President

P.S. When responding please continue 'REPLY' to include all previous correspondences on this subject.

10 **Sent:** Friday, February 01, 2002 11:40 AM
Subject: Fw: FORUM Q & A: SCHOOL SCIENCE PROJECTS

Dear Aquathin Dealer On-Line;

Please invest a short moment to read the response below from my friend and longstanding Authorized Aquathin Dealer, Mr. Roger Wiltshire, Managing Director of Aquathin UK, The Pure H2O Company. You will read how Rog already employs a program for science projects and education.

Have a great weekend and warmest regards,

Alfie

----- Original Message -----

From: [Roger Wiltshire](#)
To: [AQUATHIN TECH SUPPORT](#)
Sent: Friday, February 01, 2002 3:59 AM
Subject: RE: FORUM Q & A: SCHOOL SCIENCE PROJECTS

Of course (so long as they don't call me a school class creep)
Roger

-----Original Message-----

From: AQUATHIN TECH SUPPORT [mailto:techsupport@aquathin.com]
Sent: 31 January 2002 21:57
To: Roger Wiltshire
Subject: Re: FORUM Q & A: SCHOOL SCIENCE PROJECTS

Hi Rog;

That's terrific ! and one of the main reasons Aquathin UK, The Pure H2O Company is in the top 2% of all Authorized Aquathin Dealers. May I have your permission to forward your excellent commentary onto the Aquathin Dealers On-Line?

Warmest regards,
Alf

----- Original Message -----

From: [Roger Wiltshire](#)
To: [AQUATHIN TECH SUPPORT](#)
Sent: Thursday, January 31, 2002 6:38 AM
Subject: RE: FORUM Q & A: SCHOOL SCIENCE PROJECTS

Aquathin UK offer a free lecture programme to educate parents about hydration for their children. We have a Doctor who gives the lecture and a sales person to follow up any sales leads on the day/evening. Try offering the same service to Parent teacher Associations as an interest topic or offer it to the school in place of one of their science lessons (this is not indoctrination - it is an extension of their science and understanding of water issues).

Start teaching them young and dealers can look forward to reaping the rewards when their own children come to work for them!

Roger Wiltshire
Aquathin UK

-----Original Message-----

From: AQUATHIN TECH SUPPORT [mailto:techsupport@aquathin.com]
Sent: 31 January 2002 00:56

To: info@aquathin.com

Subject: FORUM Q & A: SCHOOL SCIENCE PROJECTS

Dear Aquathin Dealer On-Line;

I don't really know to make this a Q & A or an email from Sales & Marketing. Today I received "another" request to assist in a school science project.

*We receive plenty of requests from parents all over the world to help their children as water issues and treatment are so popular in science classes. **Note--after years of providing all kinds of information from our database and various other kinds of support for free, we made a new policy that "if you are an Aquathin Client, we would be happy to assist".***

I respectfully recommend to let your customers know either in a letter or email, that you can provide them with support for their kid's science project. Use details from the Aquathin website, articles (call or email us for special needs i.e. literature on specific bacteria etc.), provide used RO membranes and details from Aquathin University, (we can send small samples of carbon, softening resin, porous plastic filter etc.).

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Warmest regards,

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(visit the allnew <http://www.aquathin.com>)

"Alfie"

Alfred J. Lipshultz, President

P.S. When responding please continue 'REPLY' to include all previous correspondences on this subject.

11 **Sent:** Saturday, February 02, 2002 3:08 PM
Subject: FORUM Q & A: BIOACCUMULATORS---BDE

Dear Aquathin Dealer On-Line;

Bioaccumulators refer to chemical and heavy metal contaminates that are "not" biodegradable and rather increase exponentially through the food chain. One of the most familiar toxins was DDT. It is not a pretty picture and intense focus on such chemicals and metals is mandatory.

Warmest regards,

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"Alfie"
Alfred J. Lipshultz, President

P.S. When responding please continue 'REPLY' to include all previous correspondences on this subject.



Flame Retardant Chemical Found in Fish, Humans

Freshwater fish in Virginia have been found to contain the highest reported levels in the world of a common but controversial flame retardant, penta bromo diphenyl ether. The chemical, which is showing up in animals and humans around the globe, has been linked in laboratory animal studies to behavioral problems, but little is known about its effects on humans.

Penta bromo diphenyl ether (pentaBDE) has also been found in sewage sludge spread on land across the United States, renewing concerns about the long term safety of the U.S. biosolids program.

Some of the compounds in pentaBDE, including its BDE molecules, are similar in structure to PCBs (polychlorinated biphenyls), industrial chemicals which are classified as probable carcinogens. PCBs are known to cause birth defects, neurological damage and thyroid imbalances. Their use was banned in the U.S. in 1976.

The chemical structure of BDEs also resembles thyroxine, a thyroid hormone. Initial studies indicate that BDEs could interfere with the metabolism of thyroid hormones, and with their transport throughout the body.

Most of the fish tested by the Virginia researchers, including catfish, fish were contaminated with BDE-47, one of the two main constituents of pentaBDE (Photo by Konrad Schmidt, courtesy University of Minnesota)

Virginia researchers examined more than 1,000 fish from 332 different locations in the Roanoke and Dan River basins. In total, 33 species of fish were tested, including striped bass, catfish and carp. The scientists found that 89 percent of the fish were contaminated with BDE-47, one of the two main constituents of pentaBDE.

One carp from the Hyco River contained more than 47 parts per billion of BDE-47, the highest known amount to be recorded in any fish so far.

"Flame retardants are a current use chemical. Basically what we're doing is pumping more and more of the chemical into the environment and building up the levels," said Robert Hale from the Virginia Institute of Marine Science (VIMS), the main author of a report on the study published in the December 2001 issue of "Environmental Science and

Technology."

More than half of the samples weighed in with more BDE-47 than PCB-153, the most abundant of the PCB molecules.

Growing Problem

BDEs have been found worldwide in fish, wildlife and people. Research to date, though limited, suggests that these chemicals can cause harmful effects similar to those caused by PCBs.

In one Swedish study, 10 day old mice that were given large doses of the two major chemicals in commercial pentaBDE showed permanent disturbances in their behavior, memory and learning. The effects are similar to those seen in connection with PCBs, the researchers said.

BDE chemicals are persistent and bioaccumulative, meaning that they do not readily break down in the environment, and they accumulate in the tissues of animals. Like other persistent organic pollutants (POPs), BDEs get into humans mainly through food.

The levels of BDEs found in human breast milk are rising (Photo courtesy Greenpeace)

Levels of BDEs in the breast milk of North American women has increased exponentially, from two to 200 parts per billion, over the last decade. These amounts are far above those measured previously.

"It's a concern for a regulatory body if you have anything like that, that's increasing so much and your toxicology base is very limited," said Jake Ryan, a senior researcher with Health Canada who collected the North American breast milk data. "It may be innocuous and that's OK - but if it isn't then it's a real problem. You need to have a better handle on it."

One of the major concerns about BDEs in breast milk is the exposure of infants. Though the Swedish study using mice used massive amounts of BDEs, far greater than the estimated daily intake of human adults or infants, the fact that these chemicals accumulate in the body over time could potentially lead to harmful levels of the toxins in people who are frequently exposed, or particularly vulnerable - such as infants.

While current environmental levels of BDE are not considered dangerous, studies show that these levels are increasing. Researchers in Canada have studied the historical trends of BDEs in lake trout by comparing amounts of the chemical in archived trout samples with trout caught in recent years.

"We found that trends are rapidly rising in lake trout from Lake Ontario," said Mehan Alaei, an Environment Canada scientist who heads the federal BDE research team. "BDEs increased 300-400 times from 1978 to 1998," he noted.

The Swiss government proposed a ban on the use of sewage sludge on the nation's farmland last September, due to concerns over chemicals like BDE (Photo by Ian Britton courtesy Freefoto.com)

Long term safety concerns have resulted in reduced use of the penta product in some countries. The European Commission approved a ban on pentaBDE effective in July 2003, and the European parliament has recently proposed extending that ban to include other BDEs.

In Japan, pentaBDE concentration in fish has dropped because of voluntary reductions, according to Environment Canada's Alaei.

But demand for the chemical continues to increase in the United States, which accounts for 98 percent of worldwide penta use. Production of pentaBDE doubled to 8,500 tons between 1992 and 1999.

Unknown Pathways

Scientists are still trying to determine how the flame retardants enter the environment.

"We just don't know for sure," said Hale.

PentaBDE is added to polyurethane cushions, such as those found in vehicles and household furniture, to delay ignition and slow down fires. Hale suggested the chemical could seep into the environment, ending up in storm sewers, when discarded cushions disintegrate.

PentaBDE can constitute up to 30 percent of the weight of fire protected upholstery, so this route could easily account for the levels being seen in the environment, Hale suggested.

Environmental regulators will have to weigh the potential environmental and human health effects of pentaBDE against its known life saving properties, when deciding whether to restrict the flame retardant's use. Particularly in residential fires, pentaBDE can slow down a fire, allowing residents time to escape and reducing property damage, says the Brominated Flame Retardants Industry Panel (BFRIP).

A BDE treated sofa, for example, would be slower to ignite and could increase escape time by a factor of 15, the industry group says.

Under a pilot program of the U.S. Environmental Protection Agency, the main U.S. manufacturer of pentaBDE, Great Lakes Chemical, is now voluntarily testing whether children's exposure to PBDEs presents a risk.

Bob Campbell, a member of the BFRIP panel and the head of regulatory affairs for Great Lakes Chemical, agrees that more and better research into pentaBDE may be needed. The Swedish toxicological study indicating pentaBDE produced permanent damage in mice "was not done using the generally accepted method," he said.

Revisiting Biosolids

The discovery of significant amounts of BDEs in biosolids, a mixture of sewage sludge used as fertilizer, concerns some scientists and environmentalists because of the potential for more of these chemicals entering the food supply.

The Virginia Marine Institute's Hale and his colleagues were measuring the levels of nonphenols and PCBs in U.S. biosolids when they came across the BDEs.

"Sewage sludge contains everything - literally - in the kitchen sink," said Hale.

This wastewater treatment plant in Englewood, Colorado was recognized by the EPA last October for its efficient recycling of sewage sludge as biosolids fertilizer (Photo courtesy EPA)

A recent EPA risk assessment of sewage sludge concluded that biosolids containing limited amounts of heavy metals and pathogens was safe to apply to land. However, the assessment did not consider BDEs. In the U.S., 60 percent, or about four million tons a year, of the sewage sludge or biosolids produced is now spread on land as a fertilizer.

In Europe, several countries are reevaluating the use of biosolids as fertilizers. In September 2001, Swiss authorities proposed banning the disposal of sewage sludge on agricultural land by 2005. In 1999, the Swedish Farmers Association issued a temporary ban on spreading sewage sludge on farmland because of concern over potentially hazardous chemicals, including BDEs, in the sludge.

Concerns over pollutants and pathogens entering the food supply have led to a reevaluation of the risks associated with biosolids in the U.S. as well. In 1999, the EPA proposed setting limiting the amount of dioxin allowed in biosolids to 300 parts per trillion. Some critics consider that limit to be too high, and final action on the controversial rule was recently extended to March 2002.

A National Academy of Sciences review, "Risks from Toxicants and Pathogens in Biosolid Fertilizers," is scheduled for release this spring. The Virginia team's BDE data have been given to the National Academy of

Sciences committee, Hale noted.

"Our major point on the whole sludge issue is that the EPA has done a risk assessment on a number of chemicals but they've left more chemicals out than they've considered," said Hale. "Both nonphenols and brominated flame retardants were not on the considered list and both of them have environmental legitimacy."

More information on bromine based flame retardants such as pentaBDE is available through the Bromine Science and Environmental Forum at: <http://www.bsef.com/>



12 **Sent:** Saturday, February 09, 2002 4:24 PM
Subject: FORUM Q & A: NITRATES

Dear Aquathin Dealer On-Line;

We receive numerous requests for nitrate concerns. Below you will read a timely article about nitrates, the negative health affects and source. Additionally nitrates reek havoc with farm animals i.e. cows will not calve and milk reduction. State legal MCL is 10 ppm.

RO by itself is not efficient for nitrates. Your patented RODI process is! (refer to Report Card and lab tests). Further, Aquathin deals with water treatment for farm animals and POE with the Aquathin SYN-N Synchronomatic Series Water Conditioner loaded with a nitrate specific resin.

Warmest regards,

Alfie

Environment - 2/7/2002 12:30:39 PM

U.S., China share nitrate problem

WASHINGTON -- The United States and the People's Republic of China share a common problem — elevated nitrate concentrations in water supplies used for drinking water, according to the US Geological Survey (USGS).

While elevated concentrations of nitrate in water have been known to cause illness in babies, there is also indirect evidence that they can cause cancer, officials said. Because of the increased use of fertilizers worldwide since the 1950s, drinking water derived from aquifers in both countries have seen increased levels of nitrate, a plant nutrient regulated by the Safe Drinking Water Act in the United States and by the Ministry of Water Resources in China, according to the report.

On average, similar levels of nitrate were found in both countries in areas where heavy agricultural use of nitrate fertilizers is common, said the report's author, Joseph Domagalski, a USGS hydrologist. However, the highest concentrations were measured in China.

The Ministry of Water Resources and the USGS agreed to study the groundwater quality of a heavily used agricultural region in northern Hebei Province, located southeast of the city of Beijing, and to compare the quality of that water with similar areas in the U.S. The areas studied in the U.S. included the Central Valley of California and the Delmarva Peninsula of Maryland, Virginia, and Delaware.

Despite the fact that the agricultural land in China has been farmed for a much longer time than US land, the patterns of nitrate contamination are similar, said Domagalski. The reason for this similarity includes the increasing worldwide availability of nitrogen

fertilizer since the 1950s as part of the Green Revolution to increase agricultural production worldwide. Heavier use of nitrate fertilizer in China, and well construction techniques that allow for easy infiltration of rainwater or irrigation water, account for some of the higher concentrations there.

Pesticides were not detected in any of the wells sampled in China. Although it was assumed that similar types of pesticides would be used in both countries, the lower use of these types of chemicals in China probably accounts for the lack of detections in water, the report said.



13 **Sent:** Wednesday, February 27, 2002 10:10 AM
Subject: FORUM Q & A; BIDS AND QUOTATIONS

Dear Aquathin Dealer OnLine;

Today's Q & A deals with understanding the receiving of bids and presenting quotations. I have sent you emails in the past discussing the necessity and importance of a professional looking formal presentation for both residential and business quotes. Please read below (what may be a familiar response to many of you) information given to an Aquathin Dealer working on a large quotation.

Warmest regards to all,

Alfie

Regarding the second bid; This is normal. In fact I would have been really surprised if they only took one quote. Since your saleslady has the "in", she needs to get a peek at the opposition's quote so that she may assist her "friend" in the thought process...and point out that "if the other products and services were truly better, she would be working for them".

In the event the opposition is awarded (which is rare), I advise the Dealer to request a "lessons learned" meeting with the decision makers to see why they made their choice i.e. better formal written presentation, cost, the decision maker was family..."in order to see how you can improve your quotation process". This is free and highly valuable information.



14 **Sent:** Saturday, March 02, 2002 7:35 PM
 Subject: FORUM Q & A: LEAD

Dear Aquathin Dealer OnLine;

*Today's Forum Q & A is concerning lead. This timely information below discusses up to date new medical findings. I have **boldfaced** the paragraph regarding water.*

Warmest regards,

FOR THE BEST TASTE IN LIFE
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Celebrating our 22nd birthday in 2002 !!!
(visit the allnew <http://www.aquathin.com>)

"Alfie"
Alfred J. Lipshultz, President

P.S. When responding please continue 'REPLY' to include all previous correspondences on this subject.

Daily World News

Lead Exposure Linked to Antisocial Behavior

CINCINNATI, Ohio, March 1, 2002 (ENS) - Exposure to lead in childhood could lead to antisocial or even criminal behavior in adults, a new study suggests. The first comprehensive lead study to track children over a period of time found that both prenatal and postnatal exposure to lead were associated with antisocial behavior in children and adolescents.

Flaking paint from older buildings may expose residents to toxic lead. (Photo courtesy of the Medical University of South Carolina)

"It appears that the neurodevelopmental effects of this avoidable environmental diseases of childhood may not be limited to declines in IQ or academic abilities," said Dr. Kim Dietrich, associate director of Cincinnati Children's Environmental Health Center and the lead author of the study.

Researchers at the Environmental Health Center at Cincinnati Children's Hospital Medical Center, in collaboration with University of Cincinnati researchers, followed inner city adolescents recruited into the study before birth between 1979 and 1985. Mothers known to be addicted to drugs or alcohol, diabetic, or those with proven neurological disorders, psychoses or mental retardation were excluded from the study.

Between 1997 and 1999, 195 of these adolescents received follow up exams. Ninety-two percent were African American and 53 percent were male.

Blood lead levels were taken from mothers during pregnancy and from children every three months between birth and age six, covering the time period when most developmental growth involving the brain occurs.

Researchers asked the adolescents and their parents or legal guardians to document antisocial or delinquent behavior. This method of self reporting has been proved to be more valid than official records, which reflect only a small portion of antisocial acts actually committed, the researchers explained.

Lead based paint on exterior trim (Photo courtesy [University of Wisconsin-Milwaukee](#))

"Self reported acts of delinquent behavior were common," said Dietrich. "Adolescents with the highest blood lead concentrations when they were first graders reported, on average, 4.5 more delinquent acts in the previous 12 months compared to children with the lowest blood lead concentrations as first graders."

Delinquency was defined as behaviors in violation of legal statutes involving some risk of arrest, including offenses against property or persons, or other illegal activities such as driving without a license and disorderly conduct.

The researchers found that exposure to lead was associated with antisocial behavior, even after adjusting for other factors that could lead to similar behavior. These included quality of home environment, low birth weight, parental intelligence and social class.

To their surprise, the researchers found no gender differences in antisocial behavior. Girls were just as likely as boys to be violent and to be institutionalized for their behavior.

While lead could be interfering with the usual gender differences seen in behavior, it is more likely that gender is becoming less a predictor of behavior in inner city populations, said Dr. Dietrich, professor of Environmental Health and Pediatrics at the University of Cincinnati.

An X-ray fluorescence tool is used to detect lead in paint. (Photo courtesy [Kentucky Dept. for Public Health](#))

The study, which appears in the journal "Neurotoxicology and Teratology," supports previous work at the University of Pittsburgh that suggested that children exposed to lead have significantly greater odds of developing delinquent behavior.

University of Pittsburgh researcher Dr. Herbert Needleman, professor of child psychiatry and pediatrics, examined the bone lead levels of 216 youths convicted in a juvenile court and 201 non-delinquent controls from high schools in Pittsburgh.

"Of all the causes of juvenile delinquency, lead exposure is perhaps the most preventable," said Needleman. "These results should be a call to action for legislators to protect our children by requiring landlords to not simply disclose known instances of lead paint in their properties, but to remove it."

These reports join a growing body of evidence linking lead to health, cognitive and behavioral problems in children. In the U.S., almost a million children under the age of six suffer from lead poisoning.

Lead exposure can cause permanent damage to the brain and other organs. Research shows that children with elevated blood lead levels are seven times more likely to drop out of school and twice as likely to lose a few years in language acquisition.

Prior studies by Needleman linking lead exposure to lower IQ scores, short attention spans and poor language skills helped prompt nationwide government bans on lead from paint, gasoline and food and beverage cans.

Lead paint management (Photo courtesy U.S. Environmental Protection Agency)

But there are still a number of ways in which children, and adults, may be exposed to lead. Most children who suffer from lead poisoning are exposed to invisible lead dust that is released when older paint is peeling, damaged or disturbed, or by eating chips of lead paint.

Drinking water that comes from lead pipes or lead soldered fittings can expose children to lead, as can breathing air contaminated by the lead smelting, refining and manufacturing industries.

Tobacco smoke contains some lead, and hobbies that use lead, such as leaded glass ceramics, can cause environmental exposures. Eating contaminated food grown on soil containing lead or food covered with lead containing dust is another source of exposure.

Problems from lead exposure are not limited to children. A study by researchers at Johns Hopkins School of Hygiene and Public Health, found that lead exposure on the job can cause progressive declines in memory and learning abilities nearly two decades later.

Another study, from Case Western Reserve University and University Hospitals of Cleveland, Ohio, demonstrated that people who have worked in jobs with high levels of lead exposure are up to 3.4 times more likely to develop Alzheimer's disease

"Although lead has long been known to be toxic - and is believed to have affected the brains of some of the rulers of the Roman Empire, thereby causing its downfall - its long term damages are difficult to measure," said Elisabeth Koss, PhD, lead author of the study. "The extent of its negative effects have been largely overlooked."

15 Sent: Wednesday, March 06, 2002 11:16 AM
Subject: FORUM Q & A: TREATING IRON--- RSPP OPERATIONS & LOW pH

Dear Aquathin Dealer OnLine;

Todays Forum Q & A is initiated from my good friend of 12 years, Derek McConnell of Aquathin UK, a premier Authorized Aquathin Dealer located just outside London, England. Derek and his team are working on an iron issue where pH is below operation standards for iron removing manganese dioxide resins. The scenario is outside the norm of local water issues. Here's the scoop!

Warmest regards to all,

Alfie

Alfie,

Can we estimate what the media usage / replacement quantities required for an RSPP with RS/F Feeder and an ACF on feed water of 6.5 pH with 5 ppm iron would be?

Thanks

Derek McConnell
Sales Director

Hi Derek;

Thank you for your email. The potassium permanganate greensand resin of the Aquathin RSPP will last 15+ years provided that the client or servicing agent maintains the potassium permanganate chemical and regeneration is regular. Chemical replacement is annual for a family residence. Recall from Aquathin University (A.U.) that 1 cuft of greensand removes 1 ppm Fe from 12,000 gallons water. Therefore with iron of 5 ppm, the RSPP can process 2400 gallons. You have a family of 4 persons (@ 100 gpd per person) and therefore regeneration would be about every 6 days (2400 / 400). Aquathin chooses to use the timed style valve because as we learned at A.U. iron is a schizophrenic, paranoid pain in the ___! and will change on you...either concentrations or type of iron (ferrous, ferric, heme). Set the valve by pulling pins 6 and 12 to regenerate every 6 days. If staining reoccurs, either usage increased, and / or iron increased, or the calcite feeder as required in this case since pH is below RSPP limitations as you so astutely noted from your Aquathin Water Bible, needs service i.e. adding more calcite (check to see that pH has not fallen beyond the working limitations of the ACF...if so change to RS35pH as we discussed. NOTE: share this tidbit with your client upfront so that if the equipment change is necessary in the future, he has been quid up). The RSPP uses 4 ounces of potassium per regeneration. It is loaded with 10 pounds (160 oz.). At approximately 1 regeneration per week, the potassium feeder will need to have more chemical at 40 weeks (160 / 4 = 40 regens...at 1 regen /wk = 40 wks). In actuality, because we are converting the 4 dry ounces into a liquid, experience dictates adding chemical about once a year in your case. Recall, if you need to step up regeneration due to iron concentrations changing, you will be required to add chemical sooner...but its not expensive as you well know.

Regarding the Aquathin ACF calcite feeder; You can shine a light through the beige tank to note bed depth. Usually rebedding annually.

Warmest regards to all,

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"Alfie"
Alfred J. Lipshultz, President

P.S. When responding please continue 'REPLY' to include all previous correspondences on this subject.



Dear Aquathin Dealer & Sales Managers OnLine;

Today's Forum Q & A comes from a Sales Manager who had said he spends little time on reviewing sales calls made by his sales team. I reminded him that he was losing a golden opportunity to find out what is working (and how to clone it!) and what is not (and how to cure it!).

At Aquathin University we teach the importance of role playing AND review of yesterday's sales calls. Please read the article below by well known author Neil Rackham, regarding presentation analysis. Salespeople can get in the habit of missing out on extra system sales and referral acquisition...so employ the analysis method if you already do not do this.

Enjoy!

*Warmest regards,
Alfie*

Put Your Sales Calls in Playback Mode!

If the first major differentiator of top salespeople is how they plan and execute their sales calls, the second differentiator is what they actually *do* with the results of those calls. Some of the most valuable lessons you will learn about selling effectively will come from closely scrutinizing the calls you make.

The star salesperson will take the time to dissect each call, analyzing details like:

- Which parts of the call went better than others, and why?
- Which of my questions had the most influence on the customer?
- Did I uncover the needs of the customer, and how did I influence them?
- Which behaviors that I used had the most impact on the customer?

Neil Rackham writes in *SPIN[®] Selling* that unless you analyze your selling at this level of detail, you'll miss important opportunities for learning and improving your selling skills. So the next time you complete a sales call, don't be satisfied with your initial perceptions. Take it a few steps further — determine what went well, *why*, and *what* you would do differently next time.

Dear Aquathin Dealer OnLine;

Today's Forum Q & A discusses the variety of concerns for treating water on commercial ice makers. We do this alot....and so should you if you haven't started !

*Warmest regards,
Alfie*

Regarding ice machine filtration; There are two basic forms of ice machines, water cooled and air cooled. The water cooled units consume far more water than used in the production of ice. It is always important to consult with the ice machine manufacturer first (not the customer) and obtain the following information directly providing them with the model number.

- (A) Confirm if water or air cooled.*
- (B) Confirm max capacity per day in water consumption.*
- (C) Confirm flow rate.*
- (D) Confirm if dump reservoir is conductivity or float driven.*

The newer ice machines as of the last 8-10 years have water flowing and recirculating over a freeze plate. Each pass builds another thin layer of ice. Here is the important point---water without minerals freezes quicker than water with minerals. Hence during the freezing process basically only H₂O is freezing...while the mineral concentration is building up in the recirculating water and dump reservoir. This is why ice from these types of machines is usually quite clear even though they are not supplied RO water.

When the cycle is completed, the recirc reservoir dumps the concentrated mineral water to drain, the freeze plate reverses the internal cooling agent flow (now warm). The formed plate of ice drops onto an electrified piano wire grid which cuts the ice into the cubes by gravity.

What tears up ice machines is majoritively calcium and magnesium salts = hardness. Providing RO water of course would be nice, but can be costly based upon total water consumption and moreover inappropriate if the recirc / dump reservoir operates on conductivity. Softened water is appropriate, but does not address the "green haze" that can form inside the ice from chlorine or chloramines (remember I said water without minerals freezes first...but the chlorine is more gaseous and will stay in solution).

Often we treat the ice machines for hotels and fast food restaurants with the T-PFP or TGST style filters which include a phosphate filter in the final position. The phosphate is a slow dissolving mineral that will coat (sequester) the calcium and magnesium allowing it to roll over the metallic parts as if it were a ball bearing or kind of like teflon if you will. Now the machine receives sediment free, chlorine / chloramine free water with sequestered non scale forming hardness. Very cost effective.

Again my thanks and warmest regards,

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"Alfie"

Alfred J. Lipshultz, President

P.S. When responding please continue 'REPLY' to include all previous correspondences on this subject.



18 **Sent:** Friday, March 22, 2002 12:02 PM
Subject: FORUM Q & A; WHERE'S ALL THE WATER? ITS IN YOUR SOCKS MATE !

Dear Aquathin Dealer OnLine;

The drought concerns and lowered aquifers are serious issues. Incidentally, when aquifers diminish in volume, minerals and pollutants increase in concentration! Even more reason to own an Aquathin !!

Below you will read my response to an inquiry. This would actually make for an excellent school science project. If anyone presents this idea to a student who uses this them for a school project, I would love to have the results of their calculations.

Enjoy!

*Warmest regards,
Alfie*

Dear Jeff;

Thank you for your email. I recall several drought periods here and RO was not a concern. Nor has it been a concern in any other region experiencing a drought.

What some bright lad ought to state is that the water shortage is caused by more than just lack of rain. Build out and build up is sucking Florida and many other areas dry. There are now 6 billion people on Earth. 70% of the human body is water. At an average body weight of 125 lbs. per person = 10.5 gallons of water = **63 billion gallons just walking (actually taken out of the resource pool) !** Consider about 10,000 times more than that required to grow crops and raise animals to feed the population (and that's not counting water to produce needs i.e. housing, clothing, band-aids, packaging, cleaning goods).

Warmest regards,
Alf

> Dear Alfie,

>

> I was just thinking about RO water systems. And I am curious, do RO

> systems come under any fire during drought conditions? I would think that

> some bright lad in Tallahassee would want to restrict them.

>

> I hope not, I just want to be able to answer a customers questions if they

> come up.

>

> Regards

>

> Jeff

19

Sent: Thursday, April 11, 2002 4:10 PM

Subject: FORUM Q & A: UPDATE TO MAGNETIC AND ELECTRONIC CONDITIONERS---NAILED BY ARMY CORPS OF ENGINEERS

Dear Aquathin Dealer OnLine and Splash News Member;

*The Forum Q & A of January 7, 2002 discussed the WQA, Purdue University and Whirlpool Appliance testing of magnetic water conditioning devices **proving them 100% ineffective**. Here's a nine inch nail in that coffin compliments of the U.S. Army Corp of Engineers !!! Gooooooooooooooooo Army !!!!*

Warmest regards to all,

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"Alfie"

Alfred J. Lipshultz, President

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Industry Trends - 4/11/2002 12:24:33 PM

Army flunks low-cost anti-scaling devices

CHAMPAIGN, IL — Mineral scale formation, a common problem in building hot water systems, can also affect portable cleaning equipment — especially truckmounted extraction system — operators.

Today's "tip of the day" ([click here](#)) describes a cleaning/flushing operation to remove buildup. Mineral deposits occur during heating/cooling of "hard" water — water containing significant amounts of calcium and magnesium.

Cleaning pros have discussed the many advantages of reverse osmosis (filter), salt/resin water treatment/conditioning systems in cleaning systems: Eliminating mineral buildup in equipment, enhancing the performance of cleaning chemicals, enabling a "cleaner" rinse. One example is a 3,000-gallon-per-day reverse osmosis system demonstrated at the recent Building Service Contractors Association International (BSCAI) show in Tampa, FL.

This topic is slated for an upcoming [Cleanfax](#) magazine article.

On the other hand are temptingly low-priced *magnetic* solutions that

have hit both the professional/commercial and consumer markets.

Consider the results of a recent US Army Corps of Engineers study that showed two magnetic devices and one electronic device intended for inhibition of mineral scale formation or the corrosion of copper in building hot water systems.

These devices are "alternatives" to chemicals or ion exchange equipment such as water softeners.

The test protocol was designed to simulate the method of production of hot water used in many larger institutional type settings that employ and shell-and-tube heat exchanger for the production of hot water:

- There was no discernible effect on the crystalline structure of the scale formed by any of the tested devices
- Test results indicate no clear advantage for any of the three devices tested over a control (no device) for the inhibition of mineral scale formation or the corrosion of copper
- Findings did not support the claims of the manufacturers regarding the ability of their respective devices to prevent mineral scale formation in hot potable water systems

Note: Heat exchangers are familiar to truckmounted carpet cleaning equipment operators.

Study authors noted that many manufacturers say a key in the effectiveness of their devices is that use results in the formation of aragonite from calcium carbonate instead of calcite, reducing scale formation on heat exchange surfaces. The Army's tests, at Rock Island Arsenal Steam Plant, did not indicate this occurred.

"The devices tested did not prevent mineral scale formation under the conditions of this study. The heat exchange capacity of all three shell and tube heat exchangers was considerably reduced by the formation of mineral scale during the course of the study. This study found no significant difference between the devices and the controls in the amount of scale that formed."

[Review the study — click here](#)

Note: One of the devices tested is similar in appearance to a device marketed on the Internet that sells for \$49.95 and simply clamps onto a pipe. A marketing claim for this device: "Treatment changes calcium silicate into a soft form of calcium which eliminates lime/scale buildup."

The other magnetic device tested, and the electronic device, install in-line.

20 **Sent:** Tuesday, April 16, 2002 1:45 PM
Subject: FORUM Q & A: WHAT IS MTBE ?

Dear Aquathin Dealer OnLine and Splash Member;

This quick read could have also been entitled,

BAD BOY REPORT: OIL COMPANIES "KNEW" MTBE WAS BAD FOR THE ENVIRONMENT

More intentional poisoning. Here we thought the good guys were Big Oil when all they did was catch the world looking in the other direction. MTBE is most everywhere in the environment today. It is highly water soluble and a carcinogen. For more details visit <http://www.mtbecontamination.com/about/default.asp>.

Aquathin was one of the first systems to have been tested successfull for its efficient removal of MTBE back in the very early 1990's. A copy of this testing is in your Master Catalogue. Please print this article for continued education of your staff.

Warmest regards to all,

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"Alfie"
Alfred J. Lipshultz, President

P.S. Splash NewsBulletins and Forum Q & A are a FREE service to all Authorized Aquathin Dealers and their clients.

Legal Briefs - 4/16/2002 11:42:02 AM

Jury finds oil companies liable for MTBE pollution

SAN FRANCISCO — Three major oil companies were found liable Monday for polluting groundwater at Lake Tahoe in the case that turned up industry documents showing companies knew for years about the dangers of methyl tertiary butyl ether (MTBE) while still promoting its use.

Capping a five-month trial and six weeks of deliberations, a San Francisco jury found MTBE is a defective product, the [Contra Costa Times](#) reported.

The case is expected to be reviewed in dozens of other areas of the country where water agencies and state officials are looking for

ways to pay for the cost of cleaning up MTBE pollution, the newspaper said.

It also found that two of the companies — Shell Oil and Lyondell Chemical Co., formerly ARCO — were aware of the dangers posed by the controversial gasoline additive but deliberately withheld that information, the article said.

A third company, Tosco, now owned by Phillips Petroleum, stopped using MTBE shortly after it said it learned of the dangers it posed, the article stated. Unlike the other two companies, the jury was not asked to decide whether Tosco acted maliciously.

Bill Walker, the West Coast vice president of the Environmental Working Group, said oil companies clearly knew MTBE would cause groundwater pollution, but still went ahead and promoted it as the oxygenate of choice to California and the US Environmental Protection Agency, the *Times* reported.

The verdicts reached Monday amount to a victory for the South Tahoe Public Utility District during the initial phase of the lawsuit, which it filed in 1998 after MTBE pollution forced the Tahoe water utility to close one-third of its drinking water wells.

After the verdict was reached, San Francisco Superior Court Judge Carlos Bea immediately placed a gag order on trial participants, the article said.

The next phase of the trial will focus on the amount of damages. The newspaper said the Tahoe district is seeking tens of millions of dollars in cleanup costs and punitive damages.

Most of the 31 defendants named in the original lawsuit settled before the case reached the jury, paying the Tahoe district a total of \$33 million. Chevron and Exxon last year paid the district \$10 million and \$12 million settlements, respectively.

But Lyondell, a major manufacturer of MTBE, and two refiners — Shell and Tosco — continued the legal battle.

During the trial, lawyers for the Tahoe water district relied on internal industry documents that they said proved the companies knew about MTBE's threat to water and continued to promote and sell it despite that threat.

The Tahoe district estimates its cost to remove MTBE from its water supply will be about \$45 million, according to the newspaper.

21 Sent: Monday, June 03, 2002 5:08 PM

Subject: FORUM Q & A; KOSHER, WHAT IS IT AND WHY DID WE BECOME CERTIFIED?

Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;

This Forum Q & A deals with inquiries as to what the Kosher Certification means to our products and for our customers, and why Aquathin chose to acquire this tremendous achievement. The text below is taken from my reply to an Aquathin Dealer in Central America that is also Arab and devout Muslim.

It is important to note that there are a number of certification entities that are not recognized as legitimate or respectable due to either their lack of testing, enforcement and other affiliations. Aquathin has achieved certification from The Orthodox Union, the most respected organization...and recently also received certification from Badatz which vies for the esteemed position as leading certification organization.

Warmest regards to all,

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"Alfie"

Alfred J. Lipshultz, President

P.S. "Splash NewsBulletins", "Forum Q & A", "Allergic Reaction", Tech Bank and Quote Bank... ARE ALL FREE services to all Authorized Aquathin Dealers and their clients.

Acquiring Kosher certification was my father's idea. We know that the Orthodox Jewish market is very small. But there are almost 2 billion people, like your family, that subscribes to the Biblical dietary laws, which is the root of Kosher. This is how we entered into the Saudi region.

Some people think that Kosher is a prayer or blessing, but it is much more than that. In fact I have a video on Kosher certification and would be pleased to bring it during my visit if you wish. Aquathin was visited by Rabbi's from Orthodox Union, who were also professional engineers and chemists. They inspected our manufacturing facilities and each raw component and how they are processed and assembled into the final products. They also recorded all of our test data. The process took many hours, expense and six months to achieve...which we did the first time. Many companies must make changes to comply. We did not! Orthodox Union Rabbi's have 2 surprise (unannounced) inspections at Aquathin per year.

Here's something very interesting. About 15 years ago, there were only 400 products (mostly foods) certified Kosher. Today there are over 20,000. The public has come to identify Kosher with quality, integrity, purity and health. Your company, Aquathin, is the first and only manufacturer of water treatment equipment to have achieved Kosher certification to date.

I respectfully recommend that you use the Kosher logo and marketing to full advantage with Muslims, Christians, Jews and all others interested in health. And for those who do not know, educate them about this terrific benefit. Anyone can go to the internet and visit the Orthodox Union at www.ou.org to see who is certified.



22

Sent: Tuesday, June 04, 2002 11:09 AM

Subject: FORUM Q & A; INCREASING PRODUCTIVITY...HOW DO I DO IT ?!?!?!

Dear Aquathin Dealer OnLine;

I always here from Dealers and students at Aquathin University that there are not enough hours in the day...or "I wish I could clone myself". Below you will read a very timely article from Sam Parker (I've provided you with many of his sales & marketing tools in emails in the past). The best way to squeeze more out of the day is to be the most productive you can be. Enjoy Sam's article and feel free to email me your comments.

Warmest regards to all,

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"Alfie"

Alfred J. Lipshultz, President

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Each sales day, there's a block of time you and your team can talk with prospects & customers (for most people in the sales & marketing world, these are the hours between 8am and 6pm within your time zone)... whatever your block of time might be specifically-- these are your **money hours**-- the most valuable portion of your day... nothing should deter you from **investing** them well... and that means investing them with your prospects & customers (reminder: if you're in the leadership role, your customers are your people). Today, become relentless with your money hours... right now... this moment... no "crafting or drafting" of letters, unnecessary research activities, writing scripts or talking with people who can't move the sales process along or bring you more revenue... partner up with someone in your office and hold yourselves to a money hours **standard** that's uncompromising... set a new money hours **initiative** throughout your district or region...

Your money hours, well spent, will bring you, your family, your company and your customers more benefit than you can ever imagine... it's one of life's few guarantees... from this point forward, commit to taking advantage of your money hours... before you begin something other than talking with prospects or customers, do a quick money hours check-- "can this wait until I'm outside the money hours?"... if so, you **know** what to do!

q: What is the difference between cross sell and up sell?

a: The term **cross sell** is typically used to describe a selling situation where the sales professional proactively suggests a **complementary** product or service to the one the customer has already purchased or decided to purchase... it can also refer to the process of introducing the customer to other products and services your company offers that the customer is not currently purchasing from you. For example, a customer purchases a Platinum 90 and you recommend a Yes or Lead Out filter for the bathroom so that they can feel more comfortable with brushing their teeth etc. Or, when you provide a commercial

Aquathin system at a business, advise the new client "we can help you with home water security for you and your staff as well". Said conversely, when dealing with residential sales, advise each client that you provide commercial and industrial systems too.

The term **up sell** typically describes a situation where the sales professional proactively suggests a product with **greater** features and benefits for the prospect or customer... an up sell can occur at the time of the prospect's initial inquiry or at a later date after the customer has used the product or service for a period of time. For example, using the Platinum 90 above and encouraging the customer in the Aqualite, noting as well, since they may be interested in the Soft & Clean as a result of learning the hardness from the Rainbow Test Sheet...by purchasing both at the same time affords them the Exclusive Extended Lifetime Warranty FREE OF CHARGE. A SAVINGS OF \$249.

Compliments of Sam Parker, JustSell.Com



Dear Aquathin Dealer OnLine, Splash and Allergic Reaction NewsBulletinMembers;

In the past few months, we have received many calls from Dealers and consumers located in cities where municipal water plants are turning to chloramines. We have lived with chloramines in South Florida for a number of years and it is not fun.

Lets begin with why chloramines? As many of you have learned at Aquathin University, chlorine added to city water for germicidal protection had been a very good thing for many many years. It is the chlorine that knocked out typhus and acts as an oxidizer to eliminate bacteria, virus, algae and many odors. Chlorine is cheap, effective, readily available and often a byproduct of manufacturing processes. However, chlorine is not very stable and likes to combine with other contaminants in water often forming carcinogens (cancer causing compounds). Chlorine combining with organic matter i.e. decayed vegetation, forms THM's or trihalomethane which is a carcinogen. And since the second industrial revolution chemical contaminants have been introduced into drinking water (over 700 found in U.S. waters), chlorine has managed to combine with many of these pollutants making extremely toxic substances. The New England Journal of Medicine has reported that these organochloride compounds cause colorectal and prostate cancers.

Hence in order to obtain the safe germicidal benefits from chlorine a process was developed and tested by the E.P.A. and A.W.W.A. (American Water Works Association) whereby chlorine could be combined with a material at the initiation of the chlorine, forming an effective germicide unable to combine with any other matter or creating carcinogens. The most effective and least costly choice was ammonia (NH₃). The combination of chlorine (Cl₂) and ammonia forms chloramines.

Chloramines while efficient, are not as efficient as free chlorine and therefore must be used in stronger concentrations. State standard for free chlorine residual is .5 ppm . Experience shows that an average is around 1.0 ppm . Chloramine concentrations average 3.0 to as high as 4.5 reported by several Dealers. As well, when using chloramines, pH will rise on average 8.0 to 8.5 (normal average is 6.8 to 7.2). We have reports that pH is as high as 10.5 . When pH exceeds 7.2 calcium and magnesium will come out of solution and you will see increased spotting of dishes, glasses, flatware...scaling in showers and baths, even in areas where hardness is normally not a big problem. The biggie is chloraminated water is quite irritating to many people causing rashes, chaffing...it has been reported that respiratory problems have been associated with chloramines. When your area changes to chloramines, you will see the water in your baths and toilets turn to a yellow color...before you've used it ! You will receive a notice that chloramines will kill tropical fish and are devastating to dialysis patients. Chloramines must be prevented from use in clinical and home hemodialysis machines. Chloramines will also eat at your toilet flappers and rubber plumbing gaskets causing leaks. Additionally, since chloramines are not as effective as free chlorine, the municipalities will turn it off periodically i.e. every 6 months or so, and run high concentrations of free chlorine into the pipes to shock any presence of biofilm (bacterial slime).

What you can do. Many years ago Aquathin developed the MegaChar Filter Model BFF-1 total home point of entry filter out of a growing concern for bathing and breathing chlorine and organic pollutants in showers and baths. This consisted of the highest quality and quantity of steam washed bituminous grade granular activated carbon for reduction of chlorine and chemicals. When South Florida (which is one of the first areas) switched to chloramines, we learned that the higher pH caused a drop in efficiency (carbon does not like to remove organics and chlorine under increased pH environments)

along with earlier media changes than we had historically known. After several months of research and consulting with our carbon engineers, we began to produce the Model BFF-2 MegaChar which includes an acid washed lignite grade granular activated carbon. The acid washed type of carbon and quantity engineered into the MegaChar permitted it to act more efficiently by reducing the pH. Aquathin has been successfully removing chloramines with this quality filter for over 12 years now and everyone...and I mean everyone reports that they love their MegaChar just as much as their RODI systems (which also removes chloramines as you know). Water in baths and toilets remains clear. No more annual replacement of toilet flappers and rubber gaskets (as long as the BFF-2 is inspected and maintained).

Chlorine and chloramines as we teach in Aquathin University are good, good, good...from the municipal plant, keeping the pipes clean and germ free all the way up to your home. However, if you believe like we believe at Aquathin, we have a choice and can enhance the quality of our water entering into our home. I have a MegaChar and my family loves it.

Warmest regards to all,

FOR THE BEST TASTE IN LIFE

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Celebrating our 22nd birthday in 2002 !!!

(visit the allnew <http://www.aquathin.com>)

"Alfie"

Alfred J. Lipshultz, President

P.S. "Splash NewsBulletins", "Forum Q & A" and "Allergic Reaction" are a FREE service to all Authorized Aquathin Dealers and their clients.

24 **Sent:** Tuesday, May 14, 2002 3:43 PM
 Subject: FORUM Q & A: HYDRATION

Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;

A new word on the marketing block is HYDRATION. Take a look at these informative links below from the IBWA concerning the need for proper amounts of water per day concerning children, seniors, physical activities. This is a good outline concerning quantities of water. Aquathin Dealers and our customers know the benefits and importance of quality too.

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<http://www.bottledwater.org/public/hydratio.htm>
<http://www.bottledwater.org/public/hydratio2.htm>
<http://www.bottledwater.org/public/summary.htm>
<http://www.bottledwater.org/public/senior.htm>



25

Sent: Wednesday, May 22, 2002 12:42 PM

Subject: FORUM Q & A: CHLORINATED COMPOUNDS CAUSE BLADDER, RECTAL AND PROSTATE CANCERS

Dear Aquathin Dealer OnLine, Splash and Allergy Relief Newsbulletin Member;

I have been asked recently about the growing concerns for chlorinated compounds and their links to a variety of cancers. They are not links. There are cancers caused by the formation of chlorine and organics. Please read the attached paper from the National Water Quality Association which also references other publications where this information may be found. Please feel free to print this document and present to your clients who request details on this serious issue.

Warmest regards to all,

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WaterReview

Consumer Report

A Publication of the Water Quality Research Council

Volume 7, No. 2, 1992

Findings Link Chlorination With Bladder And Rectal Cancer

It's not a new finding, but it's one that has recently resurfaced: chlorine by-products are linked with bladder and rectal cancer. The topic has recently attracted national attention due to an analysis released in the July 1992 issue of the "American Journal of Public Health."

The analysis, which was headed by Dr. Robert D. Morris of the Medical College of Wisconsin in Milwaukee, found that 6,500 of the 44,000 rectal cancer cases per year and 4,200 of the 47,000 bladder cancer cases per year are associated with the consumption of chlorinated water. This statistic is a cause for concern since approximately three-fourths of the United States' drinking water is treated with chlorine for disinfection purposes.

Despite its link to bladder and rectal cancer, however, the authors and experts agree that the new findings should not lead to the abandonment of chlorination. "The potential health risks of microbial contamination of drinking water greatly exceed the risks," the authors said.

Chlorination is commonly used in the United States to disinfect water because of its effectiveness in destroying pathogenic (disease-producing) bacteria and other harmful organisms that may be present in water.

History Of Chlorination

Chlorination was first used in the United States in the early 1900s. Prior to that time, waterborne diseases such as cholera and typhoid fever were rampant. Major U.S. cities were suffering 100 or more typhoid deaths a year per 100,000 persons.

During the 10 years following the first use of chlorination, thousands of drinking water treatment plants began to use chlorine for disinfection purposes. The typhoid death rate fell simultaneously. Consequently, for more than 80 years, chlorination has been the primary means of disinfection for municipal water supplies and has had exceptionally positive results.

Due to improved testing capabilities during the mid-1970s, however, it was

detected that trihalomethanes (THMs), including chloroform and many other volatile organic chemicals (VOCs), were present in potable drinking waters. Since these compounds were usually not present in untreated water before chlorine disinfection, it soon became clear that the trihalomethanes were present whenever chlorine was used for disinfection.

Trihalomethanes are formed when chlorine reacts with naturally-occurring organic matter such as by-products of decayed vegetation. The U.S. Environmental Protection Agency (EPA) has classified various THM compounds as either probable or possible human carcinogens and has set a Maximum Contaminant Level (MCL) of 0.10 milligrams per liter for THMs. In addition, the EPA has set a Maximum Contaminant Level Goal (MCLG) of zero for THMs. An MCLG is a non-enforceable but desirable health-related goal established at the level where no adverse effects on the health of persons is anticipated to occur. An MCL is the enforceable limit set as close to the MCLG as possible, taking into consideration the cost of water treatment by public water systems.

Following the discovery of the by-products produced by chlorination, several studies concerning chlorination were conducted. However, their results appeared to be inconsistent.

Meta-analysis

The findings reported in the "American Journal of Public Health" are drawn from a combination of 10 of these previous studies (including the National Bladder Cancer Study presented by Kenneth Cantor, Ph.D. in this issue of *WaterReview*) and uses a statistical method called "meta-analysis." Meta-analysis pools the results of smaller studies and can produce a unified result from studies that may seem inconsistent when considered individually. Combining the studies results in larger numbers and provides a greater statistical power than the studies would when considered independently.

Morris and his co-authors say that they

do not intend to suggest that chlorination should be abandoned. "Nonetheless," they state, "these findings should provide an impetus to identify, develop, and implement disinfection strategies that are not associated with adverse health effects."

Home Water Treatment

Until a new strategy is found, however, there is good news for consumers who may be concerned about chlorine and its by-products in their drinking water.

Treatment technologies that reduce chlorine may be installed in the home after the water has been disinfected at the treatment plant. Activated carbon or certain specialty media filters will extract

"Treatment technologies that reduce chlorine may be installed in the home after the water has been disinfected at the treatment plant."

chlorine from water. Distillation and reverse osmosis drinking water systems also produce high quality water for drinking and cooking purposes, and most incorporate carbon filters.

In addition to reducing the harmful by-products of chlorine, these technologies can also reduce the objectionable chlorine taste and odor that may be present in chlorinated water.

When treating for harmful contaminants such as chlorine by-products, consumers are cautioned to have their water tested to determine the specific problem, select equipment designed to reduce that particular contaminant, and follow the manufacturer's maintenance and operating instructions precisely.

Please write to:

Water Quality Association
Post Office Box 606
Lisle, Illinois 60532

for more information about technologies to treat water in the home. □

EPA In Process Of Establishing Rule For Disinfectants & Disinfection By-products

The U.S. Environmental Protection Agency (EPA) is in the process of establishing a rule which will set a limit on the amount of disinfectants and disinfection by-products that can be present in municipally treated water. Although there is a lack of data regarding the health effects of disinfectants and disinfection by-products, it is known that some are considered carcinogens.

A Maximum Contaminant Level (MCL) of 0.10 milligrams per liter currently exists for total trihalomethanes (THMs). THMs are a by-product of chlorination that forms when chlorine reacts with naturally-occurring organic matter in water. An MCL is an enforceable standard set by the EPA. The current standard was put into effect in 1979 and applies only to water treatment systems serving more than 10,000 people.

"The goal of the EPA is to establish a standard that will reflect the point where the risks caused by disinfection by-products and the risks caused by microbial disease are the lowest."

The new standard for disinfectants and disinfection by-products (D-DBP) will apply to all public water systems and will include standards for individual THMs and possibly also a standard for total THMs and other disinfection by-products such as chloroacetic acid, chloroacetonitriles, chlorate, and chlorite.

Regulatory Negotiation

The EPA has chosen to use regulatory negotiation, commonly known as "reg neg," to establish the new rule. The reg neg process incorporates public consensus prior to the proposal of the rule. This will be the first time a drinking water rule will proceed through the reg neg process.

According to Stig Regli of the EPA, the agency chose to use the negotiation

route because it anticipated there would be difficulty in balancing the trade-offs of the risks involved with disinfection and its by-products. The EPA recognizes that it may not be possible, within the economic constraints of municipal water treatment, to reduce the risk of disinfection by-products without creating a greater risk of waterborne disease. "We're really reaching out to the public for help [in drafting this rule]," Regli said.

Risks Involved

Studies have linked disinfection by-products with bladder and rectal cancer (see story on other side). Although there are negative health effects caused by the by-products of disinfection, the disinfection process eliminates other negative health effects concerning microbial risks. The process of disinfection destroys pathogenic (disease-producing) bacteria and other harmful organisms that may be present in water. The threat of diseases such as cholera and typhoid fever are eliminated as a result of disinfection. Thus, disinfection by-products present more chronic, long-term effects, while microbial risks are more widespread and acute.

The goal of the EPA is to establish a standard that will reflect the point where the risks caused by disinfection by-products and the risks caused by microbial disease are the lowest.

A consultant will manage the reg neg process for the EPA and select the participants of a roundtable which will include approximately 20 to 30 representatives from health agencies, small water systems, and other members of the drinking water community. Roundtable sessions will be open to the public.

The rule coming out of that process will then proceed through the normal process of an EPA proposed rule. There will be a period of public comment and response that will be followed by final promulgation.

The EPA intends to propose the D-DBP regulations in June 1993 and promulgate them in June 1995, meaning that the earliest date that water systems would be required to begin complying with the requirements would be January 1997. □

Consumers Ask...

Q. I know that chlorination is the most common method of disinfection, but are there any other methods?

A. Yes, there are a variety of methods of disinfection. A common variant of chlorination is chloramination which uses both chlorine and ammonia to disinfect water. Distillation is another effective method, and ultraviolet (UV) disinfection units, which utilize ultraviolet light, are a growing trend in disinfection.

Ozonation is another disinfection method. It uses ozone generators to produce small quantities of ozone gas which effectively kill bacteria. Bromine and iodine feed are relatively new methods of disinfection which have been used successfully in the disinfection of swimming pools, but bromine is not recommended for drinking water, and iodine is not recommended for long-term or routine drinking water supply application. □

WaterReview is published quarterly by the Water Quality Research Council, in cooperation with the Water Quality Association for public policymakers, educators, water managers, and consumers.

The Water Quality Research Council is an independent non-profit corporation whose purpose is to conduct or sponsor scientific research and public education in the area of water chemistry as it relates to aesthetics, health, and pollution. It is located at 4151 Naperville Road, Lisle, Illinois 60532. Third class postage is paid at West Chicago, Illinois.

Send address changes along with mailing label to:

Water Review
Water Quality Research Council
4151 Naperville Road
Lisle, Illinois 60532

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For local information, you may contact:*

Dear Aquathin Dealer OnLine;

Recently I have been asked about the benefits of an alkalizing ionizing water treatment system. This product came on the scene about 7 or 8 years ago and is manufactured in Japan or Korea. It is designed to take tap or well water and increase the alkalinity. The manufacturer purports that it is important that a person consumes high amounts of alkalized water since low pH causes disease. You must buy off on the philosophy to make the machine sound worthy. If you do, they ask you to suck on a piece of litmus paper and guess what, saliva is acidic so you are in trouble.

When I was in Korea I had the chance to meet the factory rep of the ionizer who had made an appointment to call on our Dealer to sell his machine. I asked the rep, if we are to believe in your philosophy (and we don't as I will detail further below), how does your machine treat for salts, heavy metals, radioactivity, nitrates, the over 700 chemicals found in tap water such as pesticides, solvents, hormonal residue, drugs i.e. chemotherapy et. al., and disease causing waterborne microorganisms? His reply, it does not. I asked if he believed the benefit of alkalinity outweighed the consumption of the aforementioned pollutants. No answer. I asked if one's tap water was alkaline to begin with, why would they need the machine? No answer. I asked if I might be able to meet the inventor while I was traveling through Korea and Japan to personally pose these inquiries, to which the rep said he would make the arrangement. He did not. However, interestingly about two years after the meeting...and possibly after receiving numerous similar questions, the manufacturer began to recommend to use "bottled water" versus tap or well. Great...now you have to buy the machine and the expense of bottled water...and it still does not answer the question, why use the machine if the bottled water is already alkaline.

WHY DID SALIVA SHOW ACIDITY? Digestion begins in the mouth with mastication and softening from saliva juices. The chewed mixture drops into the stomach where pH is a whopping low of 1.0-2.0 (click <http://www.madsci.org/posts/archives/may98/892927858.Ch.r.html>). The result of metabolism is alkalinity. Therefore in order to remain in a homeostasis, or good health, we must eat foods that help the stomach i.e. citric fruits, vegetables...onions and garlic are low in pH.

Several years ago I was one of a group of speakers at a hospital giving a course entitled Controversial Aspects of Nutrition for nurses to receive credit hours. There I met Dr. James J. Cerda from Jacksonville who specializes in HIV, AIDS and immuno suppressed patients. In Dr. Cerda's lecture entitled "AIDS: Is Nutrition Necessary", he stated crypto and giardia even in the smallest concentration can be lethal to HIV and AIDS patients where a normal healthy person's stomach acid would destroy the bugs. This is because as the immune suppressing disease progresses, the patient's stomach acid pH level elevates to 4.0-4.5 and cannot deal with the cysts. Doctors can tell how far along the HIV or AIDS patient is in the disease by testing the stomach acidity.

Bill Tanner, my friend and Authorized Aquathin Dealer in Boise, Idaho is one of the Dealers who recently called me about the ionizer machine. He performed tests on the alkalinity ionizer machine at a client's home with the following observations. The tap source water TDS = 214 ppm, hardness of 6 gr/g and pH = 7.5. Product water from the Aquathin KT90 showed TDS of 0 ppm, 0 hardness, pH 6.9. The product water from the ionizer treating the source water had a TDS of 540 ppm, hardness of 17 gr/g and pH of 13.5. Interestingly bleach is 11.5.

From Aquathin University, we learned that pH above 7.2 causes deposition of calcium and magnesium. And we know that the reason for the higher rate of cardiovascular problems and kidney stones in the northern Texas and Oklahoma area is predominately due to high pH combined with high levels of hardness. As Aquathin Water Treatment Professionals you know the name of the game is take it out...not put it in.

OK, SO WHAT'S THE BENEFIT OF THE IONIZER MACHINE? They are helping to grow the market by creating awareness, albeit wrong. When the client discovers the machine does not purify (just like NSA..remember those boys?), the client does not go back to tap water...they go straight to the Yellow Pages to find a company with better knowledge, a better product with better service.

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27 **Sent:** Monday, June 17, 2002 11:08 AM
Subject: FORUM Q & A: WHAT'S UP WITH OXYGENATED WATER ?

Dear Aquathin Dealer OnLine;

One of the newest "fads" to hit the industry is bottled water with oxygen added called "oxygenated water" (Note I did not capitalize the O and W to lend credence and was even reluctant to use the " " !).

The providers make very nebulous general claims i.e. athletes perform better. Even if oxygenated water had any benefit, it would have dissipated by the time it reached you and / or the cap was opened similar to H₂S. And surely any attempt to make coffee, tea or to cook with would get rid of any excess gases.

One could never get any definitive result of oxygenated water because we are not built to get any definitive result through ingestion. The only way to get any definitive result is to sprout gills. And said conversely, if oxygenated water did increase the oxygen uptake, that must mean anyone who drinks 3-4 sodas a day would be suffocating from the CO₂ carbon dioxide bubbles !

The testimonials of enhanced well being promoted by the sellers of oxygenated water, are more likely due the benefits received from better hydration due to increased water consumption and / or substituting copious quantities of water for whatever one had been drinking i.e. sodas, coffee, alcohol.

SO WHAT'S THE REAL BENEFIT----Increased public awareness for another alternative to tap water which grows the market. When the user realizes the contents of the bottle are not what they expected, the user does not go back to the tap....they will change bottled waters or hit the Yellow Pages for a water treatment professional.

Have a great week and warmest regards to all,

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28 **Sent:** Tuesday, June 18, 2002 1:09 PM
Subject: FORUM Q & A: LEGIONELLA

Dear Aquathin Dealer OnLine;

This is a "brief and immediate response" to the inquiry from my friend Derek McConnell of Aquathin UK, The Pure H2O Company concerning Legionella.

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----- Original Message -----

From: info@aquathin.com

To: Derek

Sent: Tuesday, June 18, 2002 12:58 PM

Subject: Re:

Hi Derek;

Thank you for your email. Your client has a very serious problem. I respectfully recommend that you re-review the article provided on the study of microorganism growth in storage tanks. Yes the Aquathin Platinum 90 will remove disease causing water borne microorganisms because the molecular weight of microbes is far larger than the size of the inorganic atoms of dissolved solids.

However, Legionella is far more deadly from inhalation i.e. showers. Your client needs to have that tank pressure cleaned and sanitized. The Legionella forms a biofilm that is difficult to chlorinate once its growing. So after cleaning, demand chlorination into the tank followed by UV or AquaShield as backup. AND DO THIS TODAY ! Dr. David Seal, whom you've met, did a study (referred to his Red Book) on this same very serious problems in most if not all UK hospitals.

Warmest regards,

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"Alfie"
Alfred J. Lipshultz, President

P.S. When responding please continue 'REPLY' to include all previous correspondences on this subject.

----- Original Message -----

From: Derek

To: [Alfred Lipshultz \(E-mail\)](mailto:Alfred.Lipshultz@E-mail)

Sent: Tuesday, June 18, 2002 11:50 AM

Hi Alfie,

One of our customers has discovered Legionella in their water storage tanks, and is looking for reassurance that it won't damage or get through their PL90/pba system.

Can you offer a "semi-technical" assurance. What is the molecular diameter of legionella? Is there any procedure required to safeguard the Aquathin system?

Should we offer technical assistance with the problem, or is it best left to other experts?

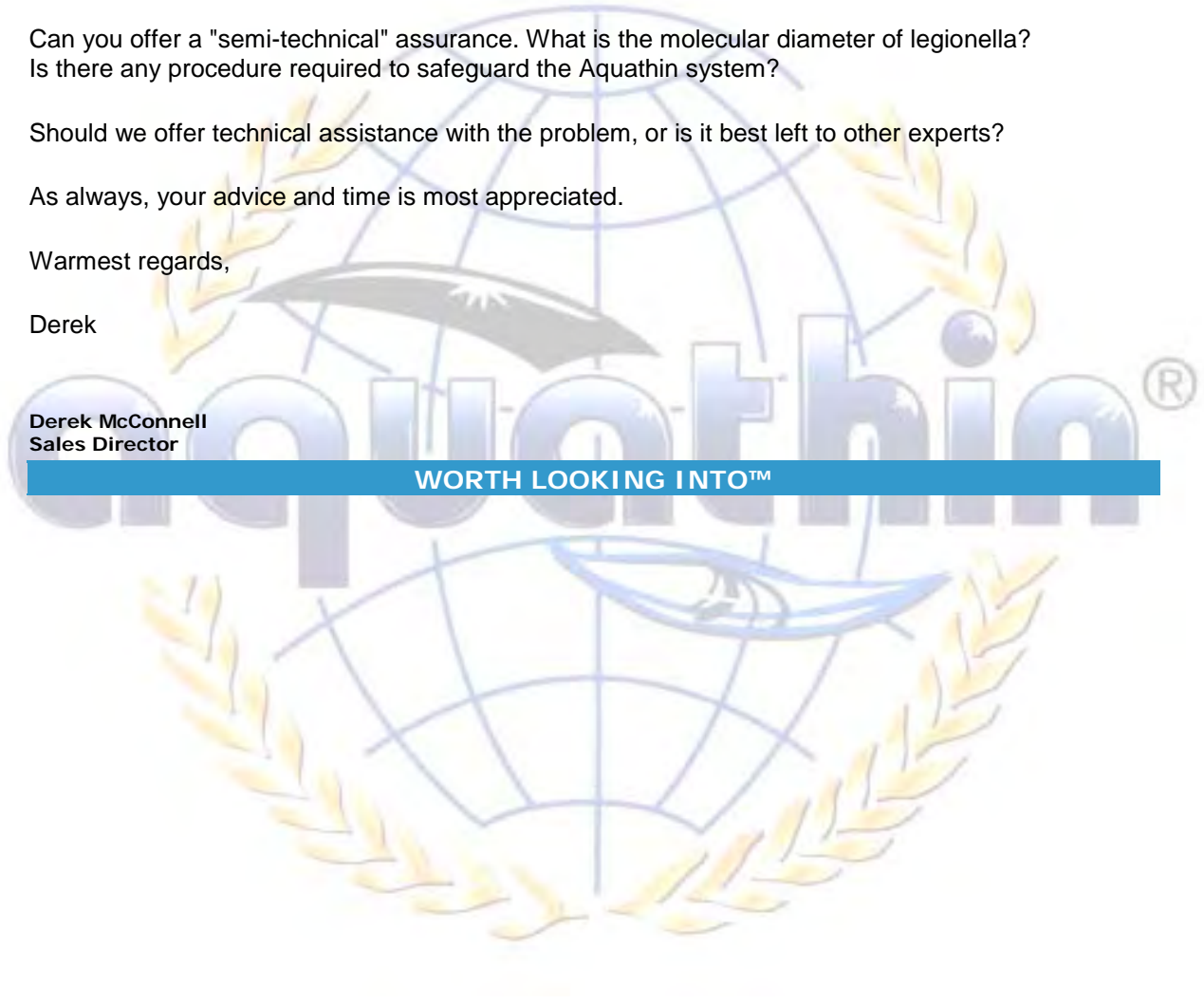
As always, your advice and time is most appreciated.

Warmest regards,

Derek

Derek McConnell
Sales Director

WORTH LOOKING INTO™



29 **Sent:** Wednesday, June 19, 2002 5:57 PM
Subject: FORUM Q & A: OZONE

Dear Aquathin Dealer OnLine;

This evening I received the request below concerning ozone from Gordon Bastiaans, my friend and Authorized Aquathin Dealer in South Africa. Gordon and several Dealers joined me recently at Aquathin UK in London for the "road show" version of Aquathin University....and since I am in the midst of a class at Aquathin University today, I am please to teach the lesson on ozone discussed earlier. Enjoy!

Warmest regards to all,

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----- Original Message -----

From: info@aquathin.com

To: aquathinsa

Sent: Wednesday, June 19, 2002 5:43 PM

Subject: Re: Ozonation

Hi Gordon;

Thank you for your email. I have inserted the appropriate responses accordingly below.

Warmest regards,

Alfie

Sent: Wednesday, June 19, 2002 4:02 PM

Subject: Ozonation

Dear Alfie,

I heard some of your comments on this type of product while in the UK.

1. These are being offered on the market here as suitable for destruction of bacteria and viruses. How effective is this system?

(A) Ozone is oxygen with an extra electron which in turn makes the oxygen one of the most efficient germicides. God invented ozone first. Witness lightning and smell the freshness in the air...that's ozone. Mix it with rain and you have a mild version of a well known antiseptic found in your medicine cabinet....hydrogen peroxide...and you know how effective that it is. So lightning manufactured ozone and rain is Mother Nature's way of helping to cleans the air from bacteria and virus.

Many countries in Europe choose ozone over chlorination because of remembering chlorine is the base of mustard gas which was used in WWI and II. Both ozone and chlorination are oxidizers in that they "burn up" bacteria, virus, odor. However, both are not effective on cysts like crypto giardia, mac and microsporidia. Chlorine has a better residual downstream where as you heard Gus Van Oene, our friend and the Authorized Dealer from Holland comment, there is no ozone residual at the tap. So they are experiencing issues with bacteria in municipal water lines.

Ozone will not remove salts, heavy metals, nitrates, all disease causing water borne microorganisms as referenced above, and will not oxidize many chemicals such as pesticides or hormonal drugs. However, ozone will not readily combine with chemicals like its very unstable oxidizing sister chlorine, and form carcinogens. Ozone air purifiers can be effective against airborne bacteria and virus and destroy odors caused by smoking but generally are not effective against molds.

POE ozone may be prescribed for bacteria, iron and hydrogen sulfide. It is very expensive...about 6 times the wholesale cost of chlorination (which is just as effective), and high maintenance. There are a couple POU systems, but as you've read above, do not address many of the customer's concerns. Additionally, some products make the water milky in color and give a medicinal taste. Some public swimming pools use ozone vs. chlorine and the water does feel better. However, the pool must be shocked with chlorine now and then to prevent algae formation.

2. Are there any adverse side effects or risks?

(A) Ozone likes to rapidly come out of solution, hence one of the problems with residual. However, if one is located in the room where POE system is off gasing, one will experience nausea, lightheadedness and even faint if receiving enough exposure. As well, if not properly contained and off gased, the ozone will oxidize most metals in the structure i.e. steel, aluminum. Ozone air purifiers can cause the same effect if turned up too high.

3. I have been advised that RO membranes are adversely affected by water that has been treated by an ozonator. Is there any truth in this?

(A) Commercial RO systems may be sanitized with peroxide. However longer membrane exposure to ozone through ordinary service / operation is not permitted and will result in membrane failure.

With best regards,

Gordon

30 **Sent:** Friday, July 26, 2002 3:35 PM
Subject: FORUM Q & A: WHY IS MERCURY SO BAD?

Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;

HEADLINES: 7/25/02 An independent food safety committee [recommended today that the US Food and Drug Administration warn pregnant women and children to limit consumption of canned tuna, one of the most consumed fish in America, due to mercury.](#)

Today we received several calls from concerned customers regarding this news who wanted to be reassured the patented Aquathin RODI removes mercury, which it does. Below is a quick read from Tech Bank on the devastating effects of this most serious heavy metal. I love my Aquathin!

Have a great weekend and warmest regards to all,

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NEW ENGLAND ZERO MERCURY CAMPAIGN Page 2

Introduction

Despite overwhelming evidence of the dangers mercury poses to developing children and to wildlife, manufacturers of products containing mercury have lobbied aggressively and successfully against mercury product regulations. And they continue persistently pushing their products into states that already face severe mercury contamination problems.

In each New England state, mercury product lobbyists have undermined the New England Governors' coordinated program to achieve the goal of virtually eliminating anthropogenic mercury emissions from consumer products.

The use and disposal of products containing mercury inevitably contaminates the food chain with toxic mercury. A 1998 report by the New England governors and Eastern Canadian premiers confirmed the dangers posed by mercury pollution: "Mercury is pervasive in freshwater fish in the Northeast at levels that pose plausible health risks to people and some species of fish-eating wildlife. In addition, there are important economic consequences, including reducing the recreational and commercial value of

fisheries resources across the region." Because of these dangers, the Governors set a landmark goal to virtually eliminate mercury emissions throughout the region at their 1998 meeting.

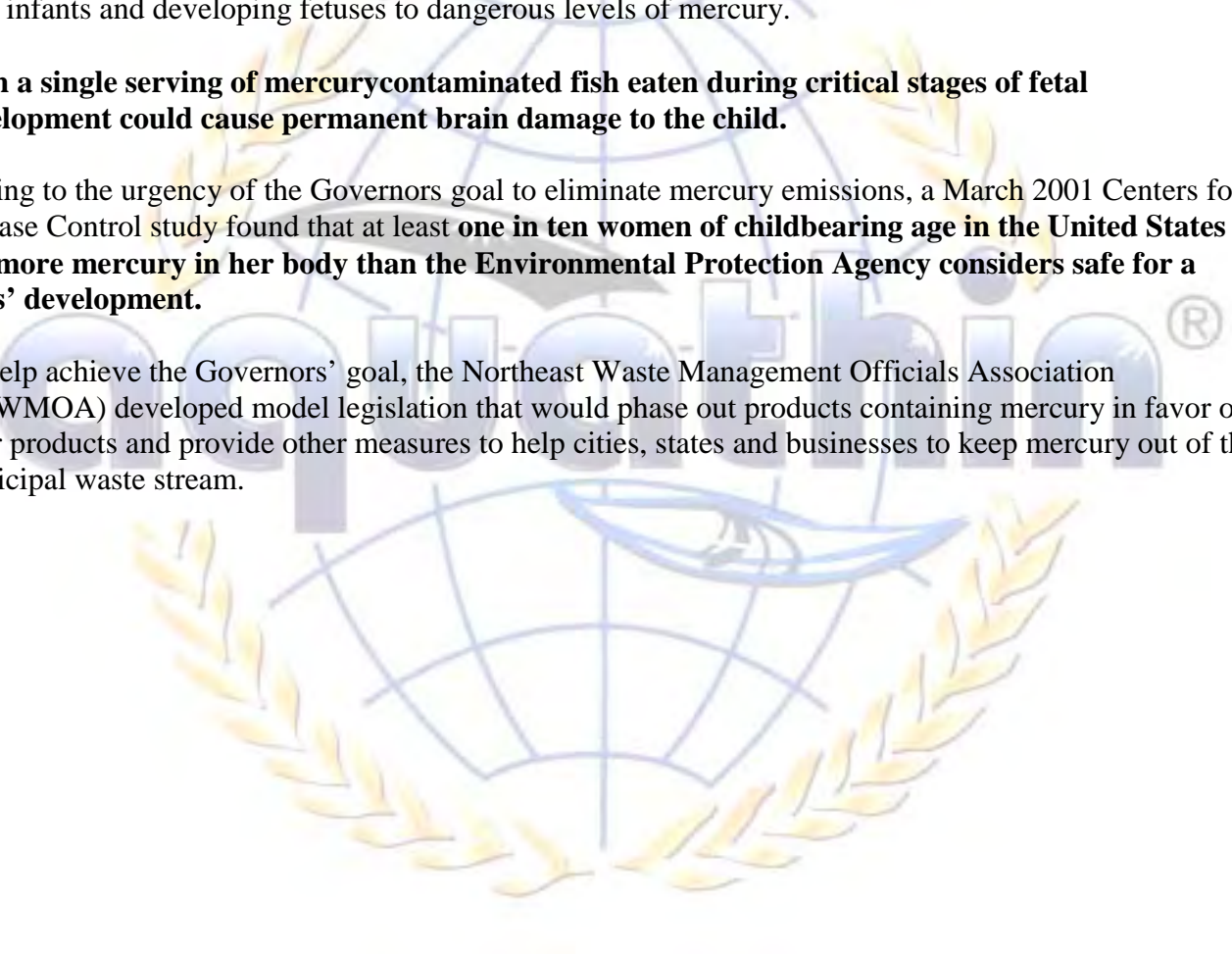
Mercury is a persistent bioaccumulative neurotoxin. This means that 1) it does not break down naturally, 2) it concentrates in animals higher on the food chain, and 3) it can cause permanent brain damage to developing children.

Mercury is so toxic that even a single drop deposited annually and emitted into the atmosphere is enough to contaminate all of the fish in a 20-acre lake. Scientists estimate that if all man made mercury emissions stopped today, it would take at least 15 years to eliminate mercury in the environment. The growing brains of fetuses and babies are extremely sensitive to the toxic effects of mercury, which impairs memory, attention span, language and motor skills in developing children. Pregnant women, nursing moms, or women who may become pregnant that eat mercury-contaminated fish can expose their infants and developing fetuses to dangerous levels of mercury.

Even a single serving of mercury contaminated fish eaten during critical stages of fetal development could cause permanent brain damage to the child.

Adding to the urgency of the Governors goal to eliminate mercury emissions, a March 2001 Centers for Disease Control study found that at least **one in ten women of childbearing age in the United States has more mercury in her body than the Environmental Protection Agency considers safe for a fetus' development.**

To help achieve the Governors' goal, the Northeast Waste Management Officials Association (NEWMOA) developed model legislation that would phase out products containing mercury in favor of safer products and provide other measures to help cities, states and businesses to keep mercury out of the municipal waste stream.



31 **Sent:** Tuesday, July 30, 2002 1:56 PM
Subject: FORUM Q & A: DOES WATER SOFTENER DISCHARGE HARM THE ENVIRONMENT?

Dear Aquathin Dealer OnLine;

Over the years our industry has received inquiries and "assumptions", concerning water softener brine and how it affects the environment. This quick read wire release below from today announces the EPA's position that there are zero negatives.

I would like to add that in the 100 or more years New York, Chicago, Milwaukee, Minneapolis - St. Paul, and all northern cities in the U.S. that have been pouring thousands of tons of rock salt on the streets and side walks in winter time, have not added 1 ppm to the salinity of the Great Lakes nor have destroyed farmlands.

Warmest regards to all,

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Industry Outlook - 7/30/2002 12:13:20 PM

EPA: Softener waste not harmful to septic systems

LISLE, IL — The US Environmental Protection Agency (EPA) has issued a document supporting the position of the Water Quality Association (WQA) that the discharge of softener wastes is not harmful to septic systems.

EPA recently issued *Onsite Wastewater Treatment Systems Special Issues Fact Sheet 3*, which supports the WQA on the issue.

The studies, according to EPA, concluded:

- High concentrations of calcium and manganese in the softener backwash water have no deleterious effect on the biological functions occurring in the septic tank and may, in some cases, be helpful

- The additional volume of wastewater generated (about 50 gallons per recharge cycle) is added slowly to the wastewater stream and does not cause any hydraulic overload problems
- Soil structure in the soil absorption field is positively affected by the calcium and magnesium ions in water softener effluent

Some of the studies that produced the results, from the University of Wisconsin and NSF International, Ann Arbor, MI, were funded by the WQA's Water Quality Research Council.

WQA Executive Director Peter Censky sent a copy of the EPA's findings in a 24 July WQA memo to all association members in case regulators try to challenge softener discharge into septic systems.

Censky also congratulated the Texas Water Quality Association, Houston, which fought a ban on softener discharge into septic systems in that state.

A California law prohibits softener bans currently, but allows cities to propose such bans after 1 January 2003 if they meet several criteria.

The criteria include conducting a study on the issue and determining there is no other method to correct the problem of high levels of total dissolved solids in wastewater other than a softener ban.

Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;

Compliments of Aquathin Tech Bank

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1,1,1-Trichloroethane (1,1,1-TCE) is an organic liquid with a chloroform-like odor. It is largely used as a solvent removing grease from machined metal products, in textile processing and dyeing and in aerosols.

Demand for 1,1,1-trichloroethane was 705 million lbs. in 1989. 1,1,1-TCE is likely to enter the environment by evaporation or in wastewater from its production or use in metal cleaning. It can also enter the environment in leachates and volatile emissions from landfills.

From 1987 to 1993, according to EPA's Toxic Chemical Release Inventory, releases to water and land totalled over 1 million lbs. These releases were primarily from metal fabrication industries. The largest releases occurred in California and Georgia. The largest direct releases to water occurred in Utah and Indiana.

What happens to 1,1,1-TCE when it is released to the environment? 1,1,1-TCE will evaporate rapidly from water and soil. It does not bind to soils nor is it broken down by microbial action, so it may leach to ground water. It has little tendency to accumulate in aquatic life.

Effect:

Short-term: EPA has found 1,1,1-TCE to potentially cause the following health effects when people are exposed to it at levels above the MCL for relatively short periods of time: damage to the liver, nervous system and circulatory system.

Long-term: 1,1,1-TCE has the potential to cause the following effects from a lifetime exposure at levels above the MCL: liver, nervous system and circulatory system damage.

Environment - 8/1/2002 11:53:22 AM

State studies suspected link between
TCE, cancer

SOUTHAMPTON, MA — The state Department of Public Health is studying to see if the higher incidence of male bladder cancer can be linked to environmental sources or to particular neighborhoods in this city.

Trichloroethylene (TCE) contamination of groundwater in the Barnes Aquifer could be a factor, according to public health officials, the [*Union-News*](#) reported.

The Barnes Aquifer provides water to Westfield, Southampton, Easthampton and Holyoke, and traces of TCE started showing up in private wells in Southampton and Holyoke in 1997, according to state officials, the article said.

TCE, a suspected carcinogen, is believed to be associated with six different kinds of cancer, including bladder cancer; the other five are Hodgkin's disease, kidney cancer, leukemia, liver cancer and non-Hodgkins lymphoma, health officials said in the article.

A statistical study of cancer rates, from 1982-1997, showed that 98 Westfield men were diagnosed with bladder cancer during that period when only 78 cases were expected, state officials said, according to the article, which said Southampton's rate is even higher with 16 diagnoses of bladder cancer for men when only nine were expected.

A Department of Public Health letter sent to Health Director Geraldine R. Swanson earlier this year, according to the article, states that the incidence of kidney cancer in Southampton females is more than expected but not significantly elevated with five cases diagnosed over the 16-year period, with only three expected.

The incidence of leukemia in Holyoke during that same period was also higher than expected, but also not termed as significantly elevated. There were 80 cases observed with only 66 expected, the letter states, according to the article.

Swanson said in the *Union-News* that residents of the Pequot Pond area should hook into municipal water whenever they can.

Water Commissioner Edward J. Cauley estimated that about 150 homes in the Southampton portion of Pequot Pond still use private wells, including "four or five" with well water that tested positive for TCE.

Charles L. Darling, Westfield's Water Superintendent, said

about 30 of the city's Pequot Pond residents remain on well water, the *Union-News* said.



33

Sent: Friday, August 02, 2002 9:25 AM

Subject: FORUM Q & A: POOL CHLORINE CANNOT BE USED FOR POTABLE WATER !!!

Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;

Every now and then Dealers receive calls from well water users asking "why is my hair turning green and stiff as if I were in a public pool"....or "can I use pool chlorine to treat my well".

NO! Ordinary household bleach is .5% pure chlorine bleach. No additives. Pool chlorine is 12% (note no decimal point here) with specific and toxic additives referred to as stabilizers to make it effective for swimming pools with concern for bather load, algae, bacteria, affects of sunlight. Green stiff hair is the least of ones problems if they use pool chlorine as you will read below.

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Environment - 8/1/2002 11:52:36 AM

Pool chlorine might have sickened 100 well users

NEW HAVEN, MI — State and county health and environmental officials are investigating whether there is a connection between the sickness of more than 100 residents here and the pool chlorine that was put in the village's well to purify it.

When water pressure dipped dangerously low in June, the [*Detroit Free Press*](#) reported, New Haven Public Works Director Rafael Rivas turned to the nearest — but wrong — source of chlorine: a local swimming pool supplier.

Ken Silfven, a spokesman for the Michigan Department of Environmental Quality, said products added to drinking water must be federally approved for that purpose.

Silfven said he is sure the worker was trying to do the right thing, but made a mistake, the *Free Press* reported.

Among those reporting health problems, five children — all in the same family — have been diagnosed with a form of herpangina, known in full-blown form as hand-foot-and-mouth disease, the newspaper said.

Other children have also have been diagnosed with the same virus, which can spring from contaminated water, according to the newspaper, but health officials said the virus is common among children during summer.

The village's troubles began with the increased water demand that comes with the kind of hot, dry weather that has plagued the region for weeks.

New Haven's outdated infrastructure was already strained by the village's growth from roughly 2,300 residents to more than 3,000 in the past decade, the *Free Press* reported.

On 26 June, officials tapped into municipal wells to supplement the water supply the village ordinarily received from Detroit. The village was not legally bound to tell residents about the switch, the article reported, but several noticed the difference when they turned on their faucets.

By 9 July, the *Free Press* said, the village office was inundated with complaints that the water was yellow, smelled rotten and made people sick.

Because the village had needed to chlorinate the well water quickly, Rivas turned to a local pool supplier, said state officials said, according to the article.

34 **Sent:** Monday, August 05, 2002 1:20 PM
Subject: FORUM Q & A: ARSENIC AND WHAT DISEASE(S) CAN IT CAUSE

Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;

Arsenic laden drinking water is growing in awareness and concern. Your patented Aquathin RODI process readily removes arsenic. But did you know that Aquathin's LeadOut Filter also removes arsenic...and that on special occasions, we have loaded the LeadOut ABA2000 media into POE MegaChar and MiniMegaChar systems for total home reduction. When providing an Aqualite, Platinum 90 or KT90 for a home where arsenic is a concern, consider including LeadOut Filters for the bathrooms so that children can brush their teeth with arsenic free water.

Warmest regards to all,

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FROM AQUATHIN TECH BANK--

Arsenic in ground water is largely the result of minerals dissolving from weathered rocks and soils. Several types of cancer have been linked to arsenic in water. In 2001 the US Environmental Protection Agency lowered the maximum level of arsenic permitted in drinking water from 50 micrograms per liter (ug/L) to 10 ug/L.

The USGS has developed maps that show where and to what extent arsenic occurs in ground water across the country. The current maps are based on samples from 31,350 wells. Widespread high concentrations were found in the West, the Midwest, and the Northeast.

For help interpreting these maps, see:

- [Mapping arsenic in ground water](#)
- [Frequently asked questions](#)

Industry Outlook - 8/5/2002 11:16:03 AM

EPA to study health effects of arsenic in drinking water

FALLON, NV — The US Environmental Protection Agency (EPA) will conduct an unprecedented study here to determine

the health effects associated with arsenic-tainted drinking water.

The EPA is seeking 1,000 residents who are at least 45 years old and who have lived in Fallon or Churchill County for at least 20 years to take part in the study, according to the [Associated Press](#) (AP).

"Fallon represents a unique opportunity to answer questions that may give us insight into what happens to people in a US population who have had long-term exposure to arsenic in their water," Dr. Rebecca Calderon, an EPA epidemiologist, said according to AP.

The Fallon study is the first that Calderon knows of in the country, she said in the AP article.

For decades, Fallon's municipal water supply has contained naturally occurring arsenic at 100 parts per billion (ppb) — 10 times the federal standard of 10 ppb, and private wells in the county have varying amounts of the metal, the article said.

The city is building a new water treatment plant to meet the new standards, though completion is not expected until early 2004, AP said.

Enrollment begins Wednesday for the study and participants will be required to fill out a questionnaire, as well as give blood and urine samples, AP said.

Jerry Buk, cooperative extension area director, said the study could help answer many health questions associated with arsenic, the article said.

"This is a great opportunity for people to contribute to finding answers to a local and national concern and help identify if arsenic is the contaminant we think it is," he said in the article.

According to AP, city officials welcomed the EPA study and had pushed for such a study in years past.

Mayor Ken Tedford said he plans to ask the EPA to do a follow-up study once the city's new water treatment plant is operational to see whether there are any changes in the health of the population, AP reported.

35 **Sent:** Monday, August 12, 2002 5:45 PM

Subject: FORUM Q & A: SETTING A SOFTENER VALVE IN REVIEW [from Aquathin University Day 2]

Dear Aquathin Dealer OnLine;

My good friend and Authorized Aquathin Dealer in South Africa, Gordon Bastiaans, has emailed a timely inquiry for review of how to setup Aquathin Soft & Clean Water Conditioner valves. Gordon has a number of sales people throughout the country and we are providing this easy step setup in review, so that he may fax to his people. Thought you'd like this as well.

Warmest regards to all,

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----- Original Message -----

Sent: Monday, August 12, 2002 5:34 PM

Subject: Re: ASC40K/F

Dear Gordon;

Thank you for your email. Yes I understand the manual appears confusing. That is because the valve has multiple uses i.e. iron filters, media filters, as well as softening. But the workings are just like the commercial Aquathin softeners you've installed.

OK lets begin. The salt setting is preset here at the factory for the size of the softener capacity. ASC25K/F = 6 lbs. ASC40K/F = 9 ASC45K/F = 12 ASC60K/F = 15.

I did not see a value for iron in your message so will believe there is none. Divide the 40,000 grain capacity by the 20 grains / gallon of hardness and you will get 2000 gallons capacity. Looking at the small dial to the right, you find a black arrow on the face of the valve pointing to the dial. First gear has a white dot. Next gear in has numbers. Each number is X 100 if your dial has 21 as max (note extended range meters go to 10,000 gallons). Set the black arrow, white dot and #20 (which represents 2000 gallon) in a row by pulling the small dial towards you and turning left or right to align. Done ! Forget the people vs. hardness because it consumes more salt and water. To prove this to yourself, set 4 people opposite 20 grains (disregard arrow and dot). Now turn the big dial in center clockwise from "Service" back again to "Service". Look at the black arrow and white dot and new number appearing in line. It will come up 900 gallons. Doing it this way the unit regenerates every 900 gallons as opposed to 2000 gallons. This setup is for those too lazy to do the calcs....certainly not any Aquathin Dealer !

After installation, set the time of day to your watch. Make sure the speedometer cable at the back of the valve is firmly inserted into the top of the dome meter. Move the central dial 1-2 clicks clockwise. This will initiate a manual regeneration and "burp" air out of the lines. Inform the customer not to use water for the next 1.5 hours.

Warmest regards to all,

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"Alfie"

Alfred J. Lipshultz, President

P.S. When responding please continue 'REPLY' to include all previous correspondences on this subject.

----- Original Message -----

To: [AQUATHIN CORP](#)

Sent: Monday, August 12, 2002 3:42 PM

Subject: ASC40K/F

Dear Alfie,

I have never set one of these up myself, and must be really stupid, as the manual does not make sense to me. The closest I can find is Page 13 of the 5600 & 5600 Econominder service manual, but the picture and explanation don't appear to correspond completely - I am faxing P. 13 to you now.

The water has a hardness of 20 GPG, and the requirement is for a home with a family of 4.

The units we have do not have a hardness scale - only a people dial which appears to be fixed to the gallons wheel.

If I understand correctly, I must set the required gallons to the white dot. Please run through what setting I should make in this case.

The "lbs. of salt" on the rear is set as received at 9. Is this correct, or must it be changed in this application? If so please run the calculation by me!

Is there anything else that I need to know or do?

Thanks in advance for all the help!

With best regards,

Gordon

36 **Sent:** Tuesday, August 13, 2002 8:48 AM
Subject: FORUM Q & A: PART 2-----SETTING A SOFTENER VALVE IN REVIEW [from Aquathin University Day 2]

PART 2 FOLLOWUP TO YESTERDAY'S FORUM Q & A

----- Original Message -----

From: info@aquathin.com

Sent: Tuesday, August 13, 2002 8:26 AM

Subject: Re: ASC40K/F

Dear Gordon;

Thank you for your email. I have inserted the appropriate responses accordingly below.

Warmest regards to all,

Alfie

----- Original Message -----

To: info@aquathin.com

Sent: Tuesday, August 13, 2002 2:08 AM

Subject: Re: ASC40K/F

Dear Alfie,

You have answered most of my questions - thank you!

Please help with the following details:

1. If say 2 ppm of Iron had been present, we must add $2 \times 4 = 8$ grains to the 20 gpg of hardness. Therefore, 40000 grains divided by 28 gpg = 1428 gallons capacity. Therefore, we should align using 1400 gallons capacity?

(AJ 13.08) Right on !

2. "Point 3" on Page 13 of the Service Manual that I faxed to you yesterday says that after making the settings you have described, we must rotate the program wheel counterclockwise until it stops at regeneration position - do we do this before or after inserting the drive cable on the rear?

(AJ 13.08) "Counterclockwise" is a horrendous typo which we have pointed out to Fleck several months ago. Turning in that direction will break the gears. Disregard this paragraph and follow the instructions I sent.

Thanks for your patience!

With best regards,

Gordon

37 **Sent:** Friday, August 16, 2002 9:50 AM
Subject: FORUM Q & A: HOW DOES PRESSURE AFFECT REGENERATION AND BACKWASH?

Dear Aquathin Dealer OnLine;

Today's topic raised by Roger Wiltshire, my friend and longstanding Aquathin Dealer at Aquathin UK, The Pure H2O Company, concerns problems associated with lack of pressure on POE softeners and filters.

I know that many of you have visited Roger's website. If you have not, the link is provided below.

Have a great weekend and warmest regards to all,

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Sent: Friday, August 16, 2002 8:34 AM
Subject: Re: re-pressurizer

Good Morning Rog;

Thank you for your email. Soft & Clean Series, Sodialite Series and MegaChar Series require a minimum of 20 psi to operate efficiently. Less pressure will not lift the media beds for proper turbulent backwashing of sediment and colloidal debris....and in the case of softeners, not completely exposing the resin to brine for the sodium substitution reaction (regeneration), as well. Therefore place the repressurizer upstream of the Soft & Clean. You will also need to place the 1200+24K Commercial RO system on a timer to clock out the regeneration period.

Sounds like a good Forum Q & A to me !

Warmest regards,

Alfie

Sent: Friday, August 16, 2002 4:41 AM
Subject: re-pressurizer

Dear Alfie

If we use an AS25K at the embassy to feed the 1200+ units and install a by-pass for a repressurizer just in case we still have the problem of supply, would you recommend putting the RP10 up front or after the softener?

Mains Inlet = 15psi approx on a 2" mains. We will drop down to the AS25 then direct into the 1200's

Thanks

Roger

Roger Wiltshire
Managing Director

<http://www.pureh2o.co.uk>

WORTH LOOKING INTO™

aquathin®

38 **Sent:** Saturday, August 17, 2002 1:35 PM
Subject: FORUM Q & A: PART 3-----SETTING A SOFTENER VALVE IN REVIEW; EARLY
REGENERATION

Dear Aquathin Dealer OnLine;

Today's Forum Q & A regarding softeners that regenerate sooner than necessary is from Bergis Smith, President of E. Smith Plumbing, my friend and Authorized Aquathin Dealer in Louisiana.

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----- Original Message -----

Subject: Re: FORUM Q & A: PART 2-----SETTING A SOFTENER VALVE IN REVIEW [from
Aquathin University Day 2]

Ø Dear Bergis;
>
> You are already enlightened ! Great observation !! Several months ago we
> sent out an announcement (2/29/02 Splash NewsBulletin and also included in
> the Planner cover letter--you can review the new pdf catalogue sheet on your
> Aquathin website), that we have upgraded to Soft and Clean control valves with
> extended meters at no extra cost. These valves go up to 10,000 gallons.
> The main reason is that more Dealers, like you, are using the higher capacity softeners
> on lower hardness. **Now you'll get even better salt and water savings.**
> There is nothing wrong with regenerating sooner than needed....and most of
> the competition have been severely hammering their clients with this for
> decades (especially when using timered valves vs. metered). The extended
> range meter is another feather in your war bonnet ! Be sure to point this
> out along with the features and benefits of the Clip Cabinet (now with
> AquaShield), to all your clients. Good Selling !
>
> Have a great weekend and warmest regards,
>
> FOR THE BEST TASTE IN LIFE
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>
> "Alfie"
> Alfred J. Lipshultz, President

>
>
> P.S. When responding please continue 'REPLY' to include all previous
> correspondences on this subject.
>
> ----- Original Message -----
> Sent: Saturday, August 17, 2002 9:33 AM
>
>
> > Alfie, after reading your email reply to Gordon concerning the procedure
> for setting the soft and clean I checked my ASC40K at my house. My hardness
> is 5 gpg. 40,000 divided by 5 is 8000 gallon capacity, but my dial will
> only let me go up to 2100 gallon capacity. So, instead of regenerating
> every 8000 gallons I am regenerating every 2100 gallons. Please enlighten
> me. Thanks, Bergis.



39

Sent: Wednesday, August 21, 2002 12:11 PM

Subject: FORUM Q & A: SAMPLE RETAIL SALES CONTRACT FORM --- AQUATHIN UNIVERSITY
DAY 3 / MARKETING

Dear Aquathin Dealer OnLine;

In recent months, we've been asked by several new Dealers if we had a sample of a retail sales contract they may use as a guide to have custom printed with their information for their sales staff. Attached herewith is the form from Sales & Marketing--Day 3 of Aquathin University which is in three part NCR...but you may choose how many carbonless pages you may want. I thought it might be a good idea to send it along for those who may have not received this document.

Warmest regards,

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954-784-5440 / FAX 954-784-0532 / 1-888-WATER 21

<input type="checkbox"/> TAKE WITH <input type="checkbox"/> DELAYED DELIVERY		<input type="checkbox"/> OTHER <input type="checkbox"/> COD		<input type="checkbox"/> CHARGE TO ACCOUNT <input type="checkbox"/> SPECIAL ORDER		<input type="checkbox"/> NEED TO ASSEMBLE		DATE	
SOLD AT		TAXABLE		TAXNUMBER		OFFICE USE ONLY		CUST. P.O. NUMBER	
SALES CONSULTANT		SALES #		SHIP VIA		COLLECT		PREPAID	
AMOUNT		<input type="checkbox"/> CASH		<input type="checkbox"/> CHECK				CUST. ACCT. NUMBER	
CREDIT CARD AMOUNT		I.D.		ACCT. NO.		SOLD TO:		PHONE:	
FINANCE CO.		ACCT. NO.		APPROVAL NO.					
FINANCE AMOUNT		TERMS OF CONTRACT							
DELIVERY DATE		DELIVERY PERSONNEL							
SPECIAL DELIVERY INSTRUCTIONS				SHIP TO:		PHONE:			

SERVICE TECHNICIAN RECOMMENDATIONS:

[illegible]

QTY. ORDERED	MATERIAL & SERVICE PROVIDED	UNIT PRICE	EXTENDED PRICE		
		TOTAL MATERIALS		TOTAL MATERIALS	

DESCRIPTION OF SERVICE PERFORMED			TOTAL LABOR		
			SALE AMOUNT		
HOURS	LABOR RATE	EXTENDED AMOUNT	INSTALLATION DIRECTIONS:	SUB TOTAL	
TERMS				TAX	
				TOTAL	
CUSTOMER SIGNATURE:				DOWN PAYMENT	
REFERRED BY				BALANCE DUE	

America's Water Company
Purifying the Waters of the World Since 1980

Sent: Tuesday, August 27, 2002 9:09 AM

Subject: FORUM Q & A: WHAT IS CHROMIUM 6 AND WHAT DISEASE(S) DOES IT CAUSE ?

Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;

Due to a recent inquiry concerning the pollutant Chromium 6, I thought it would be a good idea to create a Forum Q & A from an email sent to an Authorized Aquathin Dealer about a year ago, at time the movie entitled *Erin Brokovich* hit theatres, which dealt with Chromium 6 devastation and cover ups. NOTE: in the first article below within the Highlights section, you will see that this problem exists at 2/3s of the priority toxic clean up sites across the nation. Also, below is a very timely quick read concerning costs to clean up. Your Aquathin patented RODI system readily removes this contaminate. I love my Aquathin.

Warmest regards to all,

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ToxFAQs™ for Chromium

CAS#

Chromium (III) 16065-83-1

Chromium (IV) 18540-29-9

February 2001

This fact sheet answers the most frequently asked health questions about chromium. For more information, you may call the ATSDR Information Center at 1-888-422-8737. This fact sheet is one in a series of summaries about hazardous substances and their health effects. This information is important because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

HIGHLIGHTS: Exposure to chromium occurs from ingesting contaminated food or drinking water or breathing contaminated workplace air. Chromium(VI) at high levels can damage the nose and can cause cancer. Chromium has been found at 1,036 of the

1,591 National Priority List sites identified by the Environmental Protection Agency (EPA).

What is chromium?

Chromium is a naturally occurring element found in rocks, animals, plants, soil, and in volcanic dust and gases. Chromium is present in the environment in several different forms. The most common forms are chromium(0), chromium(III), and chromium(VI). No taste or odor is associated with chromium compounds.

Chromium(III) occurs naturally in the environment and is an essential nutrient. Chromium(VI) and chromium(0) are generally produced by industrial processes.

The metal chromium, which is the chromium(0) form, is used for making steel. Chromium(VI) and chromium(III) are used for chrome plating, dyes and pigments, leather tanning, and wood preserving.

What happens to chromium when it enters the environment?

- Chromium enters the air, water, and soil mostly in the chromium(III) and chromium(VI) forms.
- In air, chromium compounds are present mostly as fine dust particles which eventually settle over land and water.
- Chromium can strongly attach to soil and only a small amount can dissolve in water and move deeper in the soil to underground water.
- Fish do not accumulate much chromium in their bodies from water.

How might I be exposed to chromium?

- Eating food containing chromium(III).
- Breathing contaminated workplace air or skin contact during use in the workplace.
- Drinking contaminated well water.
- Living near uncontrolled hazardous waste sites containing chromium or industries that use chromium.

How can chromium affect my health?

Chromium(III) is an essential nutrient that helps the body use sugar, protein, and fat.

Breathing high levels of chromium(VI) can cause irritation to the nose, such as runny nose, nosebleeds, and ulcers and holes in the nasal septum.

Ingesting large amounts of chromium(VI) can cause stomach upsets and ulcers, convulsions, kidney and liver damage, and even death.

Skin contact with certain chromium(VI) compounds can cause skin ulcers. Some people are extremely sensitive to chromium(VI) or chromium(III). Allergic reactions consisting of severe redness and swelling of the skin have been noted.

How likely is chromium to cause cancer?

Several studies have shown that chromium(VI) compounds can increase the risk of lung cancer. Animal studies have also shown an increased risk of cancer.

The World Health Organization (WHO) has determined that chromium(VI) is a human carcinogen.

The Department of Health and Human Services (DHHS) has determined that certain chromium(VI) compounds are known to cause cancer in humans.

The EPA has determined that chromium(VI) in air is a human carcinogen.

How does chromium affect children?

We do not know if exposure to chromium will result in birth defects or other developmental effects in people. Birth defects have been observed in animals exposed to chromium(VI).

It is likely that health effects seen in children exposed to high amounts of chromium will be similar to the effects seen in adults.

How can families reduce the risk of exposure to chromium?

- Children should avoid playing in soils near uncontrolled hazardous waste sites where chromium may have been discarded.
- Although chromium(III) is an essential nutrient, you should avoid excessive use of dietary supplements containing chromium.

Is there a medical test to show whether I've been exposed to chromium?

Since chromium(III) is an essential element and naturally occurs in food, there will always be some level of chromium in your body. There are tests to measure the level of chromium in hair, urine, and blood. These tests are most useful for people exposed to high levels. These tests cannot determine the exact levels of chromium that you may have been exposed to or predict how the levels in your tissues will affect your health.

Has the federal government made recommendations to protect human health?

EPA has set a limit of 100 µg chromium(III) and chromium(VI) per liter of drinking water (100 µg/L).

The Occupational Safety and Health Administration (OSHA) has set limits of 500 µg water soluble chromium(III) compounds per cubic meter of workplace air (500 µg/m³), 1,000 µg/m³ for metallic chromium(0) and insoluble chromium compounds, and 52 µg/m³ for chromium(VI) compounds for 8-hour work shifts and 40-hour work weeks.

Source of Information

Agency for Toxic Substances and Disease Registry (ATSDR). 2000. Toxicological profile for chromium (Update). Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

Where can I get more information?

ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

For more information, contact:

Agency for Toxic Substances and Disease Registry
Division of Toxicology
1600 Clifton Road NE, Mailstop E-29
Atlanta, GA 30333
Phone: 1-888-422-8737
FAX: (404)498-0057

Industry Outlook - 8/26/2002 12:11:00 PM

Chromium 6 removal could cost \$315 million

LOS ANGELES — Removal of chromium 6, arsenic and other pollutants from county-owned drinking water wells in northern Los Angeles County could cost \$315 million, according to a report from the county Department of Public Works.

The [*Los Angeles Times*](#) reported that a review was ordered by county supervisors after more than two dozen wells in the Santa Clarita and Antelope valleys tested positive for higher-than-normal concentrations of chromium 6.

In addition to the capital costs of developing new storage capacity, expanding distribution, and implementing new technology and water treatment systems, the report by McGuire Environmental Consultants Inc. estimates that the annual cost of maintaining the infrastructure could reach \$28.6 million, the newspaper said.

The cost of a less aggressive approach to removing chemical pollutants would range from \$27 million to \$63.2 million, the report said, and maintaining the system under the more modest plan would cost \$360,000 to \$1.2 million annually, according

to the *Times*.

Chromium 6, used in paint, chrome plating and other manufacturing processes, has been detected in water systems throughout California. The chemical is considered carcinogenic when inhaled, but its danger to people when ingested is unclear, the newspaper said.

State and federal governments limit chromium in water as a means of regulating chromium 6. Federal guidelines hold total chromium to 100 parts per billion (ppb), while the state limit is 50 ppb.

The state Office of Environmental Health Hazard Assessment recommended in 1999 that the amount of chromium allowed in drinking water be lowered to 2.5 ppb.

The same agency later withdrew that recommendation, acknowledging that its initial risk assessment was flawed, according to the article.



41 **Sent:** Wednesday, September 04, 2002 2:46 PM
Subject: FORUM Q & A: EVOLUTION OF POLLUTION GRAPHIC

Dear Aquathin Dealer OnLine;

The Aquathin Evolution of Pollution graphic found in the World of Aquathin Brochure and on the Aquathin Website is extensively used by all Aquathin Dealers in their presentations and home shows. The EPA has recently produced a detailed version of this graphic. Click on

http://www.epa.gov/safewater/publicoutreach/images/landscape_1200x776.jpg . You may
Click the EPA logo in the bottom right hand corner to expand the graphic

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http://www.epa.gov/safewater/publicoutreach/images/landscape_1200x776.jpg

Click the EPA logo in the bottom right hand corner to expand.



42 **Sent:** Wednesday, September 11, 2002 5:31 PM
Subject: FORUM Q & A: PROPER PROCEDURE FOR TEFLONING FITTINGS

Dear Aquathin Dealer OnLine;

It is not proper to use silicone gel, ptfе paste or any liquidy pasty material when using plastic fittings. Two things occur. One is a chemical reaction can take place weakening the fitting and causing a leak. The other is these lubricants can cause the installer to mistakenly over tighten the fitting because it goes on so easily. The metallic metal fitting as in this case on the larger RO tanks, acts as a wedge and stresses the plastic elbow eventually splitting it. This will also happen on metal to metal fittings. Use only teflon tape. We have a unique process / style for placement of the teflon as follows:

- 1. Wrap the teflon onto the male fitting in the direction of that the female fitting will turn onto the male fitting (clockwise). This prevents the teflon from backing up into the female fitting.*
- 2. Start the wrap on thread #2 from the end so that the first thread is exposed going into the female fittings. This prevents the shaving off of the teflon tape that would form fragments that could flow downstream and cause solenoids or check valves from closing completely.*
- 3. After wrapping twice and with the teflon tape still connected between the male fitting and the teflon roll, unwind enough teflon i.e. several inches and twist to form a rope. Now wrap the teflon rope into the two central threads of the male fitting.*
- 4. Flatten out the rope and finish the procedure by placing a final wrap over the rope. The roped teflon acts like an o-ring of sorts.*
- 5. Hand tighten the female fitting onto the male fitting until slightly snug then add 1/4 to 1/2 turn more. This is leak proof and prevents splitting of the female part.*

This unique process was devised by us years ago when we discovered that sometimes the tolerance between fittings is ever so slightly different and just enough to leak. We use this process on all fittings from the smallest DI elbow to 3 inch pipe. I respectfully recommend that you review with your installers.

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43 **Sent:** Friday, September 13, 2002 10:08 AM
Subject: FORUM Q & A: FECAL COLIFORM

Dear Aquathin Dealer OnLine;

Many of you deal with river, lake, well water with e-coli issues and have thousands of satisfied customers. One of our new Dealers had an inquiry due to a neighboring city with this issue. Below is a portion of our reply and I thought it would be good to send to all in general.

Regarding fecal coliform; MMMMMMMM ! Sounds enticing huh !?!? Well it has this name because the bacteria comes from human and animal waste. Taking baths and showers where it can come in contact with eyes, ears, nose, throat and open wounds or sores can be even more dangerous than injection. Stomach acids can kill a minor amount of the bug, but there is little line of defense in the eye or open wound to prevent infection. Babies and very young children still developing immune systems, aged or infirmed, those with compromised immune systems are at large. So POE germicide is important. Superchlorination or UV are options. Ozone is also an option but very expensive and very high maintenance. Now with or without chlorination, your Aquathin RODI systems will not allow the accumulation of biofilm due to the manual and patented autoflushing feature. And you know these POU models reject disease causing water borne microorganisms such as fecal coliform.

Regarding order of installation; Nice job ! Here are the Aquathin Models as follows: RS35CL > RT120 > BFF-3 > ASC__K/F.

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44 **Sent:** Saturday, September 14, 2002 11:22 AM
Subject: FORUM Q & A: FECAL COLIFORM -- part two.

Dear Aquathin Dealer OnLine;

I received an excellent question from one of our new Dealers as follows:

"Recall that in our discussion the other day, you intimated that it is preferred to put the ASC in front of the MegaChar (BFF)...Obviously, you don't agree, as the MegaChar is clearly placed in front of the Soft and Clean in the illustration." *Mike is referring to [RS35CL > RT120 > BFF-3 > ASC__K/F] from the Forum Q & A below.*

Aquathin U. response : As with any rule, there are exceptions. In the case of using the superchlorination method, at times there are particles that become oxidized in the RT120 contact tank, but refuse to settle completely. Some call them "floaters". Actually they are colloids of 10 micron or less in size. They assume a negative charge and chronically repel each other just like trying to put two magnets together of similar poles. The purpose of the BFF-"3" (refer to Planner--this is a multimedia filter) is to filter out the colloids before they are permitted to traveling downstream and clogging the softener resin of control valve head.

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----- Original Message -----

From: [AQUATHIN TECH SUPPORT](#)

To: info@Aquathin.Com

Sent: Friday, September 13, 2002 10:08 AM

Subject: FORUM Q & A: FECAL COLIFORM

Dear Aquathin Dealer OnLine;

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Regarding fecal coliform; MMMMMMMMM ! Sounds enticing huh !?!? Well it has this name because the bacteria comes from human and animal waste. Taking baths and showers where it can come in

contact with eyes, ears, nose, throat and open wounds or sores can be even more dangerous than injection. Stomach acids can kill a minor amount of the bug, but there is little line of defense in the eye or open wound to prevent infection. Babies and very young children still developing immune systems, aged or infirmed, those with compromised immune systems are at large. So POE germicide is important. Superchlorination or UV are options. Ozone is also an option but very expensive and very high maintenance. Now with or without chlorination, your Aquathin RODI systems will not allow the accumulation of biofilm due to the manual and patented autoflushing feature. And you know these POU models reject disease causing water borne microorganisms such as fecal coliform.

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Sent: Friday, September 20, 2002 9:48 AM

Subject: FORUM Q & A: WHY DOES A WATER SOFTENER NOT USE SALT ?

Dear Aquathin Dealer OnLine;

FORUM Q & A QUESTION: "If a softener has been working for some years then fails to produce soft water yet the dials on the valve turn round indicating the meter is working, can you give me an indication as to what is going wrong?"

It does not seem to use any salt if this helps. Can the injector get blocked by itself?"

FORUM Q & A RESPONSE:

Thank you for your email. If you refer to the back of the Fleck manual you will see 3 issues to review as follows:

1. Salt Bridging can occur if cheap or dirty salt is used or if system or water is not used for prolonged periods. Moisture from humidity will actually form the salt granules or pellets into a block. As water enters the base of the cabinet to dissolve salt for regeneration / ion exchange purposes, the water erodes a cavern since the block cannot fall down. Eventually, the water never comes in contact with salt even though the control valve is going through the motions. CURE: The salt must be broken up. Its best to remove the salt and start with fresh water softener salt.
2. At the base of the safety float assembly there is an air check sometimes referred to as "J tube". The serrated flow openings may be plugged with crystallized salt, dirt or slime (no more slime issues since the all new ClipCabinet is integrated with AquaShield!). CURE: Simply remove and clean.
3. The injector block is located on the side of the control valve where the 3/8" brine tube from the salt cabinet is connected. Inside the injector block are two injectors and a screen both of which, if dirty, will prevent flow to and / or from the salt cabinet. CURE: Look at the manual. There are two screws holding a small oval plate. Remove the screws (obviously you have already unplugged the control valve, moved to bypass and turned the large face dial to "backwash" to alleviate internal pressure...if not you will notice a surprise when removing the screws! Hand towel please !!). Be sure to watch the o-rings on the oval plate you are removing so as not to lose them. Now, like an "over under shotgun", you are looking at two bores. The upper bore houses two injectors...one in front of the other. Using a very narrow flathead screwdriver, insert the screwdriver into the bore watching not to scar the sides (threads here), and back out the "first injector". It is cone shaped. There is another injector deeper inside the same bore so remove it also. Clean and rinse both and replace. The lower bore houses a screen. Use the same screwdriver or pencil and insert straight into the bore (no threads here), and draw out the screen. Clean and rinse and replace.

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46

Sent: Friday, September 20, 2002 1:53 PM

Subject: FORUM Q & A: ONE WAY TO CALL ON A PROSPECTIVE CUSTOMER THAT ALREADY HAS A SYSTEM.

Dear Aquathin Dealer OnLine;

Recently we sent a Dealer a lead from our website from a prospective client in their area (we send you all many leads as you well know...the internet is working !!), and I asked about the follow up. The Dealer advised that the customer already had a unit and was possibly calling as a result of the Dealer's recent advert campagne to check on pricing.

Here is our response: Thank you for your email and confirmation of follow up. At Aquathin U. we instruct our Students that receiving these typical calls are great ! Try to arrange an appointment to visit the prospect. **Believe this --- 99% of the time, the other salesperson did not perform all 6 tests** which leaves a huge opening to discuss Soft & Clean Water Conditioners, MegaChar, pH neutralizing, etc... AND the chance to test the other water filter. If the customer will not permit an appointment, request permission to add them to your industry newsletter (more Aquathin Dealers are either adding their customers to our Splash emailing list or creating their own) and send them the Aquathin Report Card. The Report Card immediately knocks down the credibility of their present filter. Combine uprooted confidence with competitor poor service and you will get a call to remove their present product and install yours. **WE HEAR IT ALL THE TIME !**

I respectfully recommend to all Authorized Aquathin Dealers that you review this "how to" with your Sales Team !

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Sent: Monday, September 30, 2002 10:16 AM

Subject: FORUM Q & A: TGST-1.5 WITH CARBON FILTERS VS. MEGACHAR FOR POE FILTRATION

Dear Aquathin Dealer OnLine;

Regarding BB filters: GAC-BB-20 & CBC.5-BB-20; 297 in3. With free chlorine residual of 2 ppm the filter will process 150,000 gallons at 7 gpm with greater than 90% reduction of chlorine.

Regarding your question for "twice the capacity"; If in parallel, you receive twice the flow (14gpm) at same 150K. If in series, the flow would remain at 7gpm, but the total gallons processed would be somewhat more than 150K as the second filter is doing less work, if you will. Most Dealers choose the TGST-1.5 with GAC in first position and CBC in second for chlorine and cyst removal. Dealers are now adding the AquaShield into a position #3 for antimicrobial action. You will see this complete assembly in the 2003 Planner.

Where budget is a concern; Dealers may opt for the TGST-1.5 with GAC-BB-20, CBC.5-BB-20, + AquaShield vs. MegaChar. However, remember the 7gpm limit. Exceeding the flow rate causes pressure loss and less efficient reduction of chlorine, organics, microbes. As well, you may add the AquaShield at POE with the MegaChar.

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48 **Sent:** Monday, October 07, 2002 9:09 AM
 Subject: Re: CATALYTIC WATER SOFTENERS, ZETA PROBE

> Dear Mark & Joe;
>
> Thank you very much for your assistance. The response was as I had
expected
> and will support our quotation.
>
> Have a great week and warmest regards,
>
> Alfie
>
>
> ----- Original Message -----
> From: "Mark Unger" <munger@mail.wqa.org>
> To: "Alfie" <info@aquathin.com>
> Cc: <jharrison@mail.wqa.org>
> Sent: Monday, October 07, 2002 8:25 AM
> Subject: FW: CATALYTIC WATER SOFTENERS, ZETA PROBE
>
>
>> Alfie,
>>
>> Joe had not heard of Zeta Probes and I had no luck finding any
information
>> on them. The only information I could find referred to "Zeta Probe
>> Membranes" (Bio-Rad), which are used in microbiological analyses and
>> research (DNA, RNA, etc.).
>>
>> I'll make sure to let you know if I come across any information.
>>
>> Mark
>>
>> -----Original Message-----
>> From: Joe Harrison [mailto:jharrison@mail.wqa.org]
>> Sent: Friday, October 04, 2002 6:11 PM
>> To: munger@mail.wqa.org
>> Subject: RE: CATALYTIC WATER SOFTENERS, ZETA PROBE
>>
>>
>>
>> I have not heard of the "Zeta Probe." Catalytic water conditioners are
>> physical treatment devices, like magnetic products are. They must have
>> factual and objective substantiation of their claims to follow WQA's
>> Code of Ethics.
>>
>> Joe

> >
> >
> > Joseph F. Harrison, P.E., CWS-VI
> > Technical Director
> > Water Quality Association
> > 4151 Naperville Road
> > Lisle, Illinois 60532-1088
> > Telephone: 630-505-0160, ext. 512
> > Facsimile: 630-505-9637
> > E-mail: jharrison@mail.wqa.org
> > <<mailto:jharrison@mail.wqa.org>>
> > Web Site: www.wqa.org <<http://www.wqa.org/>>
> >
> > -----Original Message-----
> > From: Mark Unger [<mailto:munger@mail.wqa.org>]
> > Sent: Friday, September 27, 2002 9:33 AM
> > To: info@aquathin.com
> > Cc: jharrison@mail.wqa.org
> > Subject: RE: CATALYTIC WATER SOFTENERS, ZETA PROBE
> >
> > Alfie,
> >
> > I'll see if I can find some information on both. Joe's out of the
> > office, so I'll get back to you when I find something.
> >
> > Mark
> > -----Original Message-----
> > From: info@aquathin.com [<mailto:info@aquathin.com>]
> > Sent: Friday, September 27, 2002 8:04 AM
> > To: UNGER, MARK--WQA; HARRISON, JOE--WQA
> > Subject: CATALYTIC WATER SOFTENERS, ZETA PROBE
> > Dear Joe and Mark;
> >
> > Several days ago we received an RFQ for large scale RO mandating
> > pretreatment with catalytic water conditioner (mfg. in Arizona) and a
> > Zeta Probe rod. I've never heard of a Zeta Probe rod. I do have tech
> > info about what catalytic conditioners are "supposed" to do. What can
> > you tell me about either.
> >
> > Warmest regards to all,
> >
> > FOR THE BEST TASTE IN LIFE
> > Think Aquathin..AquathinK !!
> > Celebrating our 22nd birthday in 2002 !!!
> > (visit the allnew <http://www.aquathin.com> <<http://www.aquathin.com/>>)
> >
> > "Alfie"
> > Alfred J. Lipshultz, President
> >

> > P.S. When responding please continue 'REPLY' to include all previous
> > correspondences on this subject.



49 **Sent:** Thursday, October 10, 2002 3:00 PM
Subject: FORUM Q & A: ARSENIC PART TWO

Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;

On August 5, 2002 you received a Forum Q & A entitled "Arsenic & What Disease(s) Can It Cause", in which arsenic was linked to several forms of cancers. Below you will read another study showing that long exposure to minute quantities of arsenic "in drinking water" is associated with higher risks of "skin cancer".

Arsenic has achieved a heightened state of concern. I would urge all Aquathin Authorized Dealers to provide copies of this article along with the appropriate lab tests from your Master Catalogue showing excellent removal with the patented RODI Process, to each of your sales teams for presentation when visiting home owners on well water.

I love my Aquathin.....and warmest regards to all,

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Environment - 10/10/2002 11:59:28 AM

Water study links arsenic, skin cancer

OSHKOSH, WI — Thousands of Outagamie and Winnebago county residents who drink well water with high levels of arsenic may face a higher risk of skin cancer, a new health study claims.

The [*Post-Crescent*](#) reported that according to the study released by the Wisconsin Department of Health and Family Services, families who live within the 224-square-mile arsenic advisory area also could face a higher risk of adult-onset diabetes and heart disease if their wells are highly contaminated.

High levels of dissolved arsenic have been found in wells inside a 10-mile-wide band that runs from southwest Winnebago County to northeast Outagamie County, the

newspaper said.

Jeff Phillips, environmental health sanitarian for Outagamie County, said in the article that the study should act as a warning for homeowners within the area who did not get their wells tested.

Those with unsafe levels of arsenic can correct the problem with new, shielded wells or by installing treatment systems in their homes, the newspaper reported.

The study, conducted between July 2000 and June of this year by DHFS and the two county health departments, involved the voluntary testing of private wells in 19 towns, according to the *Post-Crescent*.

A total of 2,233 families submitted water samples and filled out questionnaires that collected information on their wells, their water use habits and their health, the newspaper said.

The final results, compiled by Dr. Lynda Knobloch, show that skin cancer rates, excluding melanoma, were higher among adults who consumed arsenic-contaminated water for 10 years or longer.

"Among residents over the age of 50 years, those who smoke cigarettes and drank water that had an arsenic level greater than 5 (parts per billion) were three times more likely to report a diagnosis of skin cancer than non-smokers who drank water that was low in arsenic," Knobloch reported, according to the newspaper.

Adult-onset diabetes and heart disease were reported more often by adults in the study area whose drinking water had an arsenic level greater than 10 parts per billion, the current federal safe water standard, the newspaper reported.

The article said these results were harder to interpret, because so few study participants were exposed for longer than 10 years.

One positive result was that bathing and showering in water high in arsenic appears to be safe., the article said.

A new federal safety standard, reducing the action level for public drinking water from 50 parts per billion to 10 was formalized in March. The compliance date is in 2006.

50 Sent: Monday, October 21, 2002 10:46 AM
Subject: FORUM Q & A: AQUATHIN SOFT & CLEAN VS. THE COMPETITION -- NO CHALLENGE !

Dear Aquathin Dealer OnLine;

Below you will read a question posed by one of our newest Dealers concerning cheap softeners...and we've all heard this before. I thought it would be a great idea to provide our response in a Forum Q & A so that you have a quick reference to review with any new sales staff.

Have a great week and warmest regards to all,

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Hi Mike;

Thank you for your email. This is an easy one and all answers are located on the catalogue sheet. Here are highlights and some math from Aquathin U.:

1. Those companies do not use the same Fleck control valve. Theirs is timed vs. your metered. Timered valves regenerate whether or not water is consumed. Normally, those companies set the units to consume 15 lbs. of salt per cubic foot and set regeneration every day or everyother day. Regeneration at 15 lbs. of salt at 15 times per month = 225 lbs. of salt per month.

Your system is called the "Sodialite Soft & Clean" for a very good reason....sodialite = less salt. Salt usage is as follows:

ASC25K/F = 6 lbs.
ASC40K/F = 9 lbs.
ASC45K/F = 12 lbs.
ASC60K/F = 15 lbs.

You mostly use the 40K. Lets say you have 4 people in a family. Aquathin U. Rule is 1 person = 100gpd. Lets say your water test shows 20 grains per gallon. The 40K will regenerate every 2000 gallons (40,000grains capacity of system divided by 20 gr/g). Now at 400 gpd, regeneration will be every 5 days (2000 / 400) or 6 times per month = 54 lbs. of salt per month (6 x 9 lbs.) IF your customer were to use that kind of volume of water. 54 lbs. vs. 225 lbs. is a huge cost savings!

Also, your metered valve includes the 10,000 gallon extended range vs. the standard Fleck 2100 gallon range for efficient use of the most water before regeneration.

2. Those companies are using an inferior quality resin. Your system uses a very chlorine chloramine tolerant, high capacity resin (43,500 grains per cuft vs. 30,000 standard). Yet Aquathin does all the calcs using the 30K standard and therefore builds in a safety factor to prevent running out of soft water. Your resin also removes up to 5 ppm Fe.
3. Your system comes with 1" bypass valve. Theirs does not. Theirs is 3/4" and restrictive of flow.
4. Your system includes the decorative chrome resin tank jacket. Theirs does not. There are two purposes for the jacket. (A) Colder water causes the resin tank to sweat with condensation and therefore forms continuous puddles of water on the floor. The inner liner of your jacket provides a dead air space to warm the tank and prevent sweating. (B) Superior aesthetics.
5. Your system includes a black brine draw tube with UV protection. Theirs does not and will crack.
6. Your system includes the patented Aquathin Clip Cabinet with AquaShield. Brine tanks are notorious for bacterial slime formation in the tank. That crud gets sucked into the resin tank during regeneration and will breed and grow downstream. AquaShield keeps the Clip Cabinet's water and salt clean and pristine. The Clip Cabinet is also produced using the rotomold process = thicker walled and no seams. Your Clip Cabinet contains a built in sediment trapper to help prevent dirt from contaminated salt, being sucked into the valve's screen and injectors. Your Clip Cabinet is environmentally friendly in that it contains recycled virgin polyethylene and UV inhibitor. Their cabinet is thin walled blow molded with a seam and known for cracking.
7. Both your system and theirs include a safety float. However, your system includes a protective brine well to keep the safety float from coming in contact with salt that could potentially prevent the float's operation. Your system also includes a "J Tube Air Check" to prevent the valve from potentially sucking all the water and pulling in air that could create water hammers in the plumbing.
8. Their system is cheap for several reasons:

- (A) Choice of resin.
- (B) Direct sale to customer = poor service and uncontrolled installation.
- (C) Notice their RO systems MUST not be installed on water with 10 grains of hardness or more. Therefore a softener has to be forced upon the customer to get the RO sale.

9. You have the FREE Extended Lifetime Warranty.

10. In short, a metered unit with bypass, high cap resin, jacket & cap, AquaShield protected Clip Cabinet...makes for a most formidable installation, much more efficient, contains any and all options, sold - installed - serviced by a Professional Authorized Aquathin Dealer....and worth every penny !

11, 12, 13 > Anyone can make a product cheaper and less efficient. That is not in Aquathin's Philosophy....and No One Does It Better !!!

Sounds like a Forum Q & A here !!!

Warmest regards,

Alfie

----- Original Message -----

From: "mikee"

To: "Alfred Lipschultz (E-mail)" <salesandmarketing@aquathin.com>

Sent: Saturday, October 19, 2002 3:46 PM

Alfie: I am trying to "crush" the competition but these things are selling for practically my cost..... They are decent quality, I guess, since we use the same Fleck 5600 valve control. What makes us better relative to the products below.....

Thanks,

Mikee

Fleck 5600 Timer Control Valve Water Softener 24000 Grain Capacity with 15x17x36 Brine Tank using the 2310 Overflow Valve and Brine Grid 8x44 resin tank, 0.75 cubic feet of Purolite 100 resin, 1" riser tube, Fleck 5600 12 Day Timer Control valve with 3/4" inlet/outlet Noryl yoke, 15x17x36, Brine Tank with grid and 2310 float assembly and safety overflow, Fleck valve-to-brine tank tubing, Floor Space Required is 23x15x52

51 **Sent:** Friday, November 01, 2002 2:47 PM
Subject: FORUM Q & A: AIRBORNE MOLDS / FUNGI, BACTERIA

Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;

The quick read below does an excellent job in swiftly covering most concerns and issues regarding mold, fungi and bacteria. Please forward onto your clientele and cordially invite them to visit www.aquathinallergystore.com for additional information and assistance.

Have a great weekend and warmest regards to all,

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(visit the allnew <http://www.aquathin.com>)

"Alfie"
Alfred J. Lipshultz, President

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EMSL MOLD REMEDIATION TIP OF THE WEEK

Infection can be a housekeeping concern

Be aware of health issues, especially where diseases may be transmitted through dust.

Industry experts are quick to deflect — and justifiably so — reports of increasing hospital-acquired or "nosocomial" infections.

Medical experts believe that as many as 80 percent of nosocomial infections enter hospitals with the patient and invade the system through medical procedures/conditions.

Most of the rest — 10-20 percent — are thought to result from inadequate handwashing — staph or strep, for example, being transferred from one patient to another on the hands of a medical worker.

In fact, the whole concept of nosocomial infections was developed in the first half of the 19th century in a study of birthing — deliveries assisted by medical students were accompanied by much higher infection rates than midwife-assisted births because of the students' earlier contact with lab cadavers.

Inside and outside the health care setting, however, are various sources of illness — bacterial, fungal, viral — in the form of spores, colonies, organisms, etc., that can survive in dust and

in the air — sources that can be detected through sampling and testing.

Some bacteria (legionella, etc.) survive in humidification and other building air systems and cause illness or death.

- *Mycobacterium tuberculosis* can survive in dust

Industry consultant Ian Greig of Daniels Associates, Phoenix, told healthcare housekeeping professionals attending a CM/Seminars & Conferences program in Las Vegas last week, "Maybe we're using quats where we should be using phenolics." (phenolics, though dangerous in handling, are effective against TB; quats are not).

Germes that can be transmitted through dust, airborne materials include:

- *Syncephalastrum* (skin infections)
- *Drechslera* (keratitis, lesions of the nasal septum, meningitis, allergies, peritonitis and subcutaneous abscesses)
- *Streptomyces* (mycetomas of the skin and mucous membranes)
- *E. coli*
- *Salmonella*
- *Bacillus*
- *Arenaviridae*

Includes Lassa fever, Junine, Machupo, Guanarito viruses. Survives in dust. These include Hantavirus; most cases in humans involve inhalation of dust contaminated with mouse urine or aerosol of mouse urine.

- Valley fever (coccidioidomycosis or cocci), peculiar to the American Southwest, is caused by inhaling tiny spores of a fungus (in about 60 percent of cases, infection is so mild that individuals are unaware of being infected)
- Pinkeye (conjunctivitis) can be caused by bacterial or viral infections or by allergic reactions to dust, pollen, etc.

Molds/fungi also can be sources of infection for immunosuppressed patients and cause allergic reactions in others; cleaning professionals and building managers need to be aware of these:

- *Alternaria* (fungi, can cause mycotic keratitis, infections, pulmonary disease, etc.) including *alternaria alternata*
- *Penicillium chrysogenum* and *P. griseofulvum* (associated with infections, etc.)
 - *Penicillium expansum*
 - *Penicillium aurantiogriseum* & *P. viridicatum*
- *Aspergillus* (allergic reactions, problems for immunosuppressed patients)
 - *Aspergillus flavus*
 - *Aspergillus fumigatus*
 - *Aspergillus niger*
 - *Aspergillus versicolor*
- *Cladosporium* (fungi, can cause illness in immunosuppressed patients)

- *Fusarium* (mycotic keratitis, various infections)
- *Stachybotrys chartarum* (produces Saratoxins, Verrucarins, Roridins, and Stachybocins which may cause inflammation, immunosuppression, dermatitis, hemotoxicosis and hemorrhaging)



Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members with special attention to Alan Bernstein;

The quick read article below concerns a very deadly amoeba Naegleria fowleri. Click the following link at <http://people.musc.edu/~osbontb/naegleriafowleri.htm> for details of this most nasty bacterium.

The article in its attempts to perform a civic duty actually is creating a false sense of security in telling local residents not to consume the city water. This "bug" can do its damage equally as efficiently by entering eyes, ears, nose, and throat from showers and baths. Concerned authorities and residents should seriously POE UV or a more cost effective approach in the AquaShield ASTF10-PSW (<http://www.aquathin.com/entry.html>).

You will note in the article this city is not mandated to provide germicidal treatment i.e. chlorination. This is because it falls under what is known as a "secondary system" guideline based on the small amount of population served. Water lines in such cases can and will grow patches of biofilm that will breed and feed colonies of bacteria into the water flow. This scenario can also act as an anchor for other nasties i.e. Legionella, a most serious problem presently observed in the UK and other parts of Europe. I love my Aquathin !!!

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Environment - 11/5/2002 11:43:25 AM

Water scare angers Arizona city residents

PEORIA, AZ — Hundreds of residents filled City Hall on Sunday to find out if the 2,500 households served by Rose Valley Water Co. face a health risk from possible dangerous contaminants in their tap water.

The [Arizona Republic](#) reported that the meeting was organized by a community activist after Rose Valley informed Maricopa County health authorities that its own tests had revealed the presence of Naegleria fowleri, which causes primary amoebic meningitis, the newspaper said.

Two children, both of whom had access to Rose Valley water, died of the disease early in October, according to the *Republic*.

But the positive test followed several tests made by the county that revealed none of the amoebas, the newspaper said.

The newspaper said government and water company officials fielded questions in the four-hour meeting and told residents that more tests on the water are being done, but results may not be known for a week to 10 days.

Officials also said water from Peoria's system may replace the Rose Valley water, and until they get the go-ahead, residents should continue not to drink the water.

The *Republic* said restaurants in the area are closed, as is a local elementary school.

Speakers Sunday laid blame with Rose Valley, one of three private water companies in Peoria, and with the county, said the article. As recently as last Monday, some residents complained, they were told the water was fine, only to hear Saturday that it might not be, said the newspaper.

Gary Brasher, Rose Valley president, said that no water company in the United States has ever had this problem and that no company using deep wells like those his company employs is required to test for the amoeba, according to the newspaper.

He said the company received the positive results on tests it did on its own and added, "We've done everything we can," the newspaper reported.

Rose Valley has not been required to chlorinate its water routinely but began doing so on October 21 under orders from the county health department.

Dr. Jonathan Weisbuch, director of public health for Maricopa County, said the Centers for Disease Control and Prevention was conducting further tests on the Rose Valley water, the article said.

53

Sent: Saturday, November 09, 2002 2:04 PM

Subject: FORUM Q & A: WHY DO I SEE CARBON FINES IN THE HOUSE ?

Dear Aquathin Dealer OnLine;

We have received two emails from Dealers concerning the "rare" passing of carbon fines from POE MegaChar and GAC-BB20 cartridge filters. In order to discuss the cause we need to take a look first at granular activated carbon GAC) itself then the design of these filters (as taught at Aquathin U.).

GAC comes from three types of coal--anthracite (hardest and used as a polishing filter), bituminous (small pore, plenty of surface area, used in the BFF-1), and lignite (softest, macropore, great for removal of the larger color molecules i.e. tannins, used in the BFF-2). There are other types of carbon made from woodbase, peat or coconut shell, but you can only achieve maximum peak organic removal efficiencies with coal based...and its cleaner...contains far less contaminants i.e. phosphorus, arsenic, heavy metals which is another whole problem with wood type and especially coconut shell carbons (better suited for gas separation...not for water treatment).

To make carbon "activated", it is heated at high temps and depending on the temperature and length of time in the heating process, we can make the carbon much more receptive (activated) to organic chemical removal. The heating process enhances the porosity by also creating lattice like, two and three walled rooms and corridor like structures... and hence, tremendously increases the surface area in each tiny granule. The amount of GAC in a 100+GAC filter has a surface area of 162 football fields ! Now I know that is really hard to imagine so let me give you an analogy...what is the largest state in the United States? No its not Alaska or Texas. It is West Virginia !!! Take what appears to be one of the smallest states on the map, and flatten West Virginia... iron out all the mountains, valleys, hills and dales, and you have a surface area exceeding Alaska or Texas....that's Granular Activated Carbon !!!!!

The heating also has a brittling affect on the carbon. Everytime the carbon rubs against itself, tiny portions of the lattice structures are broken off creating these fines. Aquathin pays a premium to have our GAC "dedusted", but still fines are created in shipping and the turbulent backwashing...which is why the MegaChars have a settling rinse, to further wash out the fines. However, the GAC granule has a myriad of these tiny rooms and corridors that can also house the fines. Imagine a bowling ball with finger holes "all over it". The holes pointing up collect debris but the ones pointing down drop debris / fines. The backwashing cycle removes debris and the settling rinse impacts the GAC back into place and rids itself of the fines in the holes pointing down.

Regarding fines from a BFF; This may be due to air in the water line that can "burp" and disturb the GAC media bed, or peaks and valleys in source pressure allowing the bed to lift and fall...all causing the rubbing of the brittle GAC and turning rightside holes down. You can place a "flap valve" upstream to lock in the pressure or an air relief bleed valve upstream. A sediment filter downstream catches any chronic residue.

Regarding fines from the GAC-BB; Peaks and valley pressure would cause the same scenario. Place the sediment downstream or put a flap valve upstream to prevent pressure drop from in the house.

This has been a service of AQUATHIN TECH BANK.

Warmest regards to all,

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"Alfie"

Alfred J. Lipshultz, President

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54 Sent: Tuesday, November 26, 2002 12:35 PM

Subject: FORUM Q & A; ARSENIC PART 3 -- ARSENIC FROM WATER MAKES CANCER MORE AGGRESSIVE-- STUDY IN ARGENTINA AND CHILE

Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members **WITH SPECIAL ATTN: SRS. VIELLI AND DA PRA;**

On August 5 and October 10, 2002 you received a Forum Q & A discussing the hazards of ARSENIC. You also received a Splash NewsBulletin on October 28 concerning the U.S. government's thoughts to relax the arsenic standard.

Below is a quick read concerning a study showing **arsenic's capacity to make cancerous tumors more aggressive**.

Clearly, we do not know enough about arsenic to relax any MCL standards for municipal and well water. Clearly what we do know is that we do not want arsenic as part of our daily diet ! I love my Aquathin !!

Warmest regards to all,

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Environment - 11/21/2002 11:47:56 AM

Study: Arsenic in water makes cancer more aggressive

NEW YORK — High arsenic levels in drinking water are already thought to raise the risk of bladder cancer, but new research suggests heavy exposure may also cause bladder tumors to be more aggressive.

A study of bladder cancer patients in Argentina and Chile found that those whose drinking water contained high levels of arsenic tended to have more chromosome abnormalities in their tumors, Reuters news service reported.

These genetic alterations were also associated with later-stage and more-quickly growing tumors, according to findings published in the 20 November issue of the *Journal of the National Cancer Institute*, according to Reuters.

All of this suggests that bladder tumors in people with high arsenic exposure "may behave more aggressively" than those of patients with lower exposure, reported Dr. Lee E. Moore, of the National Cancer Institute in Bethesda, MD, and her colleagues, the news service said.

Reuters reported that in the current study, Moore's team examined tumor samples from 123 patients who had been exposed to arsenic in their drinking water.

Moore's team found that the average number of chromosome abnormalities per tumor went up in tandem with patients' arsenic exposure, according to the report.

For those in the two lower-exposure groups, there were five to six alterations per tumor, on average. Patients with the highest arsenic exposure showed nine chromosome alterations per tumor, on average, Reuters reported.



55

Sent: Tuesday, December 03, 2002 10:40 AM

Subject: FORUM Q & A: HEAVY SEDIMENT TREATMENT -- A REVIEW

Dear Aquathin Dealer OnLine;

We have received several calls, mostly from our newer Authorized Dealers, concerning treatment for heavy sediment...sometimes associated with new wells, heavy rains, broken mains. I thought our reply a good review for all.

~~~~~  
*Thank you for your call. You are correct, that if your client has that much sediment, the Carb12 prefilter will clog much quicker. In that instance Dealers choose (refer to page 11 in Planner) the PFP series. Since the client is on a well, use the PFP-PBA for low pressure and heavy sediment.*

*Additional options include:*

*(A) Spin Down for POE to alleviate sediment to 100 micron for total home...or*

*(B) BFF-3 MegaChar autobackwashing reducing sediment to 10 micron for total home...or*

*(C) TGST-1.5 reducing sediment to 5 micron for total home.*

*I would respectfully recommend presenting all three of the options above and allow your customer to make the choice based upon his priority for convenience, efficiency and cost.*

*Warmest regards to all,*

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"Alfie"

Alfred J. Lipshultz, President

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Dear Saul;

Thank you for your calls today. Regarding Aquarium enthusiasts; as you know we have an excellent article published in the Aquathin Master Catalogue discussing the installation of Aquathin Commercial RO systems at the National Zoo Rainforest and Aquarium Exhibits in Washington, D.C. (the same article discusses our systems in the Smithsonian Institute laboratories). My friend, Steve Lomax of Lomax Water Purification Services sold and maintains these units for years. As well, Mote Marine, one of the leading marine biology institutes in the country also published in your Catalogue, uses our Commercial RO systems exclusively for treating sick fish in isolation tanks from their large pool sized aquariums. Aquathin systems have been featured in Tropical Fish Hobbyist text books, a leading guide for educating aquarium enthusiasts.

Most residential enthusiasts know tap water can kill or harm fish or corals for a variety of reasons as follows:

- (A) Chlorine and chloramines kill fish and bleach corals.
- (B) Heavy metals especially copper in the slightest of amounts kills corals.
- (C) Ammonia and nitrates kill fish.
- (D) Bacteria will sicken fish and kill corals.
- (E) Excessively high or low pH will sicken fish and corals.
- (F) Contaminates found in tap water negate the powdered mixtures used in preparing "ocean" water for salt tanks, hence causing a chemical imbalance that harm fish and corals.

Using purified RODI water eliminates the guess work in what to add, how much....and starts the tank off in the most healthy condition. Topping the tank off with RODI water helps to maintain control.

Hey this sounds like an excellent Forum Q & A ! Thanks for the idea.

Warmest regards to all,

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"Alfie"

Alfred J. Lipshultz, President

P.S. When responding please continue 'REPLY' to include all previous correspondences on this subject.



57

**Sent:** Thursday, December 05, 2002 10:46 AM

**Subject:** FORUM Q & A: WHAT DOES THE CITY MEAN WHEN THEY SAY THEY ARE ALREADY SOFTENING WATER

*Dear Aquathin Dealer OnLine;*

*Several Dealers have asked about Customers stating "Yes I want the Aqualite, but do not need the Soft & Clean because the 'city softens the water'...and how should they overcome this remark.*

*My first response was "you did not do the complete presentation with the JobSite Analysis Sheet to show the amount of hardness present, nor did you use the Matrix which would prescribe the correct Soft & Clean model based upon the hardness.*

*Please read additional information below from the WQA concerning the type of softening that may be performed at the city central water plant. 'City softening' is an easy hurdle to answer.*

*Always do the "6 Tests" of the JobSite Analysis sheet. Your Customer deserves to know and you will get the sale !*

*Warmest regards to all,*

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"Alfie"

Alfred J. Lipshultz, President

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#### **Centralized "water softening" — know the facts!**

Some community water supply facilities are putting "water softening" capabilities on referenda—but it's important for your customers to understand that central municipal softening is not as effective as home water softening.

You can also point out to both customers and local media that centralized softening takes away their consumer choices. Some people may not want to pay the price for softened water and others may use the water for purposes that they feel don't require water softening.

Municipal water softening is most usually accomplished by a process called cold lime-soda ash water treatment. This technology can only partially soften water, down to 5 to 10 grains per gallon (gpg) of equivalent CaCO<sub>3</sub> hardness, and there is a total dissolved solids reduction about equal to the temporary calcium hardness [Ca(HCO<sub>3</sub>)<sub>2</sub>] reduction. Magnesium and noncarbonate hardness is replaced in this process by sodium.

This is the WQA table that describes the various levels or degrees of water hardness.

| Hardness (grains per gallon) | Classification  |
|------------------------------|-----------------|
| Less than 1.0                | Soft            |
| 1.0 to 3.5                   | Slightly Hard   |
| 3.5 to 7.0                   | Moderately Hard |
| 7.0 to 10.5                  | Hard            |
| 10.5 and over                | Very Hard       |

As you can see, municipal softening leaves the water from moderately hard to hard. Five to 10 grains per gallon residual hardness still remains in consumers' household water.

This *certainly* won't be satisfactory to residents who've become accustomed to zero-soft water—like that from home ion exchange units. Therefore, homeowners and business will have to pay twice for effective water softening—once in their water bill and again with their home or business units.

In addition, you can point out that central softening will, by necessity, treat a great deal of water that does not require softening, such as that used for parks, recreation, irrigation, industry, and fire fighting.

The best option for individuals is for each home and business owner to soften his or her own water in accordance with his or her own personal preferences and needs.



58      **Sent:** Monday, December 16, 2002 5:32 PM  
**Subject:** FORUM Q & A: TREATING FOR DRUGS IN WATER

*Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;*

*Recently I received a call from a good friend and associate inquiring for a potential Customer with concerns for removing oestrogen in bathing water. Over the past year you have received Splash NewsBulletins concerning the increased awareness for the bio-accumulation of chemicals, drugs and specifically hormonal drugs and the effects of this chemical cocktail on the environment... as carcinogens and / or genetic disruptors. Not all the facts are in...but those that are show specific evidence the cause for concern is genuine.*

*The patented Aquathin RODI Process REMOVES these chemicals to undetectable levels.....and No One Does It Better ! for POU. Additionally, our Customers may be concerned for POE treatment.*

*Your Aquathin MegaChar is the finest system for total home protection against organic contaminates of which the above aforementioned contaminates are included. For those Clients with budget concerns, consider the TGST-1.5 with GAC and CBC as pictured on the AquaShield page on our website....just as effective, but requires cartridge replacement vs. the automatic backwashing of the MegaChar.*

*Warmest regards,*

FOR THE BEST TASTE IN LIFE  
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"Alfie"  
Alfred J. Lipshultz, President

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----- Original Message -----

**From:** Liz Roberts

**To:** [ALFIE](#)

**Sent:** Thursday, December 12, 2002 12:29 PM

**Subject:** RE: Help.....

Hi Alfie, yes Roger did relay thank you. We now have a very happy man awaiting installation on the 18th December.

Thank you for your help - talk to you soon.

Lizzie

-----Original Message-----

**From:** ALFIE [mailto:[alfie@aquathin.com](mailto:alfie@aquathin.com)]

**Sent:** 12 December 2002 17:19

**To:** Liz Roberts

**Subject:** Re: Help.....

Hi Liz;

*Great to hear from you. I did call and left word for you to call me as I am instructing at A.U. I talked with Roger in Portugal during a break and delivered the answer to your inquiry. Did Rog relay to you ( your answer to Rog was on target ! well done !!)? I will use your question in one of the upcoming Forum Q & A.*

*Awaiting your reply and warmest regards,*

*Alfie*

----- Original Message -----

**From:** Liz Roberts

**To:** [alfie@aquathin.com](mailto:alfie@aquathin.com)

**Sent:** Wednesday, December 11, 2002 5:26 AM

**Subject:** Help.....

Dear Alfie;

I have a customer who already has a PLT90, but who is interested in removing the Oestrogen from bathing water. He has a budget of about 5K and likes the idea of the total home RO system, but thinks it 's a little expensive. Take care and hope to speak to you soon.

**Liz Roberts**  
**Domestic Sales Manager**



aquathin®



59

**Sent:** Tuesday, December 17, 2002 7:16 PM

**Subject:** FORUM Q & A: PI WATER, CLUSTERED WATER...AND OTHER WATER MYTHS

Dear Aquathin Dealer OnLine;

Goofy water claims, goofy science, goofy sales persons....and more. My friend Michael Schwindt of Purified Water To Go, an Authorized Aquathin Dealer in Toronto, received his introduction to PI water. Being a recent graduate of Aquathin University, Michael knew something was not really Kosher about this jazz and dropped me a note. Read on for some killer material on water myths. I have given this information to many Dealers over the past several years and thought it would make fun reading in a Forum Q & A. Enjoy !

Warmest regards to all,

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"Alfie"

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----- Original Message -----

From: "Purified Water to Go"

To: <info@aquathin.com>

Sent: Tuesday, December 17, 2002 4:38 PM

Subject: RE: Your opinion please !

> I love it! Many THANKS

> Michael

>

>

> -----Original Message-----

> From: [info@aquathin.com](mailto:info@aquathin.com)

> Sent: Tuesday, December 17, 2002 4:19 PM

> To: Purified Water to Go

> Cc: EMIL, GARRY--PURIFIED WATER TO GO

> Subject: Re: Your opinion please !

>

>

> Dear Michael;

>

> Thank you for your email...and your comments regarding "Alfie analysis". I

> am sure you know that our information is always backed by sound science and

> facts. Pi is in the sky.  
>  
> Here is information to provide potential clients concerning clustered water  
> and other water myths.  
>  
> [www.sfu.ca/aqua](http://www.sfu.ca/aqua)  
>  
> Warmest regards,  
> Alf  
>  
>  
> ----- Original Message -----  
> From: "Purified Water to Go"  
> To: "Aquathin" [info@aquathin.com](mailto:info@aquathin.com)  
> Sent: Tuesday, December 17, 2002 4:13 PM  
> Subject: Your opinion please !  
>  
>  
>  
>> Sorry to waste your time but I could not resist ... This Japanese thing  
>> mentions Ceramics,(we no they fail everything accept a few chemicals)  
>> magnetic (I think the US Army completely failed Magnetics as a  
> purification  
>> system) Vortex oxigenation (spooky stuff) and "pi" ionization or  
>> mineralization (is that a word?)... always enjoy the Alfie analysis!  
>> As always  
>> Michael  
>>  
>> <http://office.5pillars.com/e-nikken/pimag/optimizer.htm>  
>>  
>>  
>> Michael Schwindt  
>> Purified Water To Go



60

**Sent:** Tuesday, December 31, 2002 12:16 PM

**Subject:** FORUM Q & A: TREATING FOR DRUGS IN WATER -- PT. 2

Dear Roger;

*Thank you for your email. When considering the bio-accumulation of hormonal endocrine disruptors...and how they could react with the chemical cocktail already in tap water, the science world has absolutely zero knowledge of the potential organic and genetic effect on our body. We are talking concentrations too, so low, down to parts per trillion.*

*The highest percentage removal of the above reference organics can still allow contamination to remain at the part per billion and trillion levels if enough contact time is unavailable. So, the "Aquathing to do" (did you like that!?) is to cost effectively overkill the design. This is why we recommended the TGST-1.5 setup with GAC in first position to handle the majority and or slug loads along with sediment, CBC in second to create a vastly extended surface area = contact time, ASTF-10 PSW AquaShield in the third position for "bugs" vs. just CBC and AquaShield. Note: The price of the recommended configuration remains modest. AND even with all this, the system is only as good at the limited flow rate (which is not to be exceeded) and maintenance thereof. So be sure to define this in your literature and presentation.*

Warmest regards to all,

Alfie

----- Original Message -----

**From:** Roger

**To:** [AQUATHIN TECH SUPPORT](#)

**Cc:**

**Sent:** Tuesday, December 31, 2002 4:41 AM

**Subject:** RE: FORUM Q & A: TREATING FOR DRUGS IN WATER

Dear Alfie

*This is a really interesting development for us because we have started to sell the Aquashield coupled to the 20" GAC. The fact that oestrogen is organic and can be removed by GAC or better still CBC is a real selling point. Of course, most people think that the pollutants that are made public are the only ones they need to remove.*

*Using the two filters together BB20GAC / AQ we can sell (at a very modest price) a simple solution to potential bio-terrorist attacks for whole home application.*

*We should discuss the additional selling points for the filters and package them accordingly.*

Regards

Roger

-----Original Message-----

**From:** AQUATHIN TECH SUPPORT [mailto:techsupport@aquathin.com]

**Sent:** 16 December 2002 21:33

**To:** info@Aquathin.Com

**Subject:** FORUM Q & A: TREATING FOR DRUGS IN WATER

Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;

*Recently I received a call from a good friend and associate inquiring for a potential Customer with concerns for removing oestrogen in bathing water. Over the past year you have received Splash NewsBulletins concerning the increased awareness for the bio-accumulation of chemicals, drugs and specifically hormonal drugs and the effects of this chemical cocktail on the environment... as carcinogens and / or genetic disruptors. Not all the facts are in...but those that are show specific evidence the cause for concern is genuine.*

*The patented Aquathin RODI Process REMOVES these chemicals to undetectable levels.....and No One Does It Better ! for POU. Additionally, our Customers may be concerned for POE treatment.*

*Your Aquathin MegaChar is the finest system for total home protection against organic contaminants of which the above aforementioned contaminants are included. For those Clients with budget concerns, consider the TGST-1.5 with GAC and CBC as pictured on the AquaShield page on our website....just as effective, but requires cartridge replacement vs. the automatic backwashing of the MegaChar.*

Warmest regards,

FOR THE BEST TASTE IN LIFE  
Think Aquathin..AquathinK !!  
*Celebrating our 23rd Birthday in 2003 !!!*  
(visit the allnew <http://www.aquathin.com>)

"Alfie"  
Alfred J. Lipshultz, President

*P.S. "Splash NewsBulletins", "Forum Q & A", "Allergic Reaction", Biz Bank, Tech Bank and Quote Bank... ARE ALL FREE services to all Authorized Aquathin Dealers and their clients to keep you abreast of technology updates and industry news.*

----- Original Message -----

**From:** Liz  
**To:** [ALFIE](#)  
**Sent:** Thursday, December 12, 2002 12:29 PM  
**Subject:** RE: Help.....

Hi Alfie, yes Roger did relay thank you. We now have a very happy man awaiting installation on the 18th December.

Thank you for your help - talk to you soon.  
Lizzie

-----Original Message-----

**From:** ALFIE [mailto:[alfie@aquathin.com](mailto:alfie@aquathin.com)]  
**Sent:** 12 December 2002 17:19  
**To:** Liz  
**Subject:** Re: Help.....

Hi Liz;

*Great to hear from you. I did call and left word for you to call me as I am instructing at A.U. I talked with Roger in Portugal during a break and delivered the answer to your inquiry. Did Rog relay to you ( your answer to Rog was on target ! well done !!)? I will use your question in one of the upcoming Forum Q & A.*

Awaiting your reply and warmest regards,  
Alfie

----- Original Message -----

**From:** Liz  
**To:** [alfie@aquathin.com](mailto:alfie@aquathin.com)  
**Sent:** Wednesday, December 11, 2002 5:26 AM  
**Subject:** Help.....



Dear Alfie;

I have a customer who already has a PLT90, but who is interested in removing the Oestrogen from bathing water. He has a budget of about 5K and likes the idea of the total home RO system, but thinks it 's a little expensive. Take care and hope to speak to you soon.

**Liz**  
**Domestic Sales Manager**



**61**     **Sent:** Saturday, January 11, 2003 3:14 PM  
**Subject:** FORUM Q & A: DISTILLATION VS. THE PATENTED AQUATHIN PROCESS.....AND "THE POWER CONTINUED" !

Dear Aquathin Dealer OnLine;

*This message could just as well have been from Tech Bank or Biz Bank. But I chose Forum Q & A, because its initiation began with a technical question about **how distillation compares to the patented Aquathin Process***

*January 6th, I sent you a Splash NewsBulletin regarding the POWERFUL combination we have created, harnessed and possess entitled:*

**"THE POWER OF THE INTERNET -- THE POWER OF COMMUNICATION -- THE POWER OF NETWORKING -- THE POWER OF AQUATHIN Technology."**

*I was most pleased to read the many enthused responses. Now I want you to read how this played out in reality, again, only a couple days later, from a simple inquiry. You are getting two lessons ( you already know about distillation from A.U., so I hope you enjoy the review) for the price of one ! **Make the POWER part of your everyday business practices.** Please drop down to the last email, which is the first, and head north!*

Warmest regards to all,

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----- Original Message -----

**From:** [info@aquathin.com](mailto:info@aquathin.com)

**To:** Drjanwg

**Cc:** FURBER, RICHARD--MEDIMERGE

**Sent:** Saturday, January 11, 2003 1:45 PM

**Subject:** Re: vs. Distilled water

Dear Jan;

*Thank you for your email. I am quite pleased to see that you've linked up with Richard. Recently I sent a Splash NewsBulletin treating the intensity of the combination of the power of the internet, communications, networking and Aquathin Technology. We have taken the liberty to add your email address to the Aquathin Splash*

*NewsBulletins, a free service to all Aquathin Dealers and Customers regarding technology updates and industry news and more.*

*I look forward to speaking with you more about your project and if you like, to show you some of the work we've been asked to look into concerning bacterial growth in dental chair water lines, capturing heavy metals in cuspidors, and control of bacteria and viral slug loading in rinse effluent.*

*I shall be in all next week. Please feel free to give me a call.*

*Have a great weekend and warmest regards,  
Alfie*

----- Original Message -----

**From:** Drjanwg  
**To:** [info@aquathin.com](mailto:info@aquathin.com)  
**Sent:** Friday, January 10, 2003 7:11 PM  
**Subject:** Re: vs. Distilled water

In a message dated 1/10/2003 6:46:44 PM Eastern Standard Time, [info@aquathin.com](mailto:info@aquathin.com) writes:

Dear Alfie,

Thanks for the additional information.

Actually, Richard and I and another were on a conference call this morning discussing how to disseminate the new standard of care I developed in dentistry; how to establish a new buying criteria for dentistry. It's based on the examination I developed. Feel free to ask Richard about it.

In fact, you might have some ideas how your company can participate in the dissemination because when we do our seminars, you may want to be a sponsor and be right there when the audience is turned on to what we have to say.

If I do say so myself, we have the makings of a dramatic change in the entire health care industry, using dentistry as the tail that wagged the dog. The ramifications of that indicate that many fortunes can be made for those there at the beginning.

Jan

----- Original Message -----

**From:** [info@aquathin.com](mailto:info@aquathin.com)  
**To:** Drjanwg  
**Cc:** FURBER, RICHARD--MEDIMERGE  
**Sent:** Friday, January 10, 2003 6:37 PM  
**Subject:** Re: vs. Distilled water

*Dear Dr. Gilbert;*

*Thank you for your prompt response and details of your interest. I am very keen on the subject of nutrition and pure water and would be pleased to fax you a couple articles we've provided to the industry on the subject if you wish. These articles are just the facts.*

*You are correct in your thinking for wanting to prescribe a pure water of two parts hydrogen - one part oxygen - and no parts anything else. However, you now know that distillation cannot compete with the tap water cocktail of*

today. Bottled water manufacturers are not required to test for asbestos (comes from inner lining of worn water mains). They do bacteria tests, but not pyrogen (correct again...pyros is Greek for fire) nor endotoxins. And most often, inorganic minerals such as calcium carbonate and sodium bicarbonate are added to distilled water to give it taste. You may be interested to know the E.P.A. regulates only 91 contaminants. There are over 10,000 new chemicals introduced annually.

Please if you would like to send your book, I would be most appreciative to read. Aquathin has 635 Dealers around the world and I see every once in a while, the new Customer entries into the databank...including dentists. I recall when I first sold a system to a dentist in Ft. Lauderdale about 20 years ago, I remarked how efficient the process is...including removal of flouride. Marty told me if I thought flouride was important, he would be pleased to paint my kids teeth...otherwise, he said, all the the grief in tap water and what it can do to our body negates any benefit derived from flouride.

I look forward to hearing from you again. Please note I 'cc-d' my friend Richard Furber, President of MediMerge who provides the Wellness101.com link. He would be pleased to read you learned of Aquathin from the site.

Again our thanks and warmest regards,  
Alfie

----- Original Message -----

**From:** Drjanwg

**To:** [info@aquathin.com](mailto:info@aquathin.com)

**Sent:** Friday, January 10, 2003 4:37 PM

**Subject:** Re: vs. Distilled water

Thank you for your prompt and direct reply. Much appreciated.

Does that mean that the distilled water purchased in stores for about \$1 per gallon likely does - or just maybe does - have impurities like asbestos, bacterial residues and pyrogens? (Pyrogens, if I remember correctly, were temperature raising elements, mostly protein in nature. Does that mean the store-bought distilled water usually does contain pyrogens? I've never found a problem with the water I buy from the stores.)

Let me explain.

I'm the dentist who has been tagged to bring together the nutrition industry and the dental profession. I wrote a nutrition book (*The Traveler's Diet*) and developed a dental examination that determines the patient's nutritional status. This is a major health care changing event and I go around the country lecturing on the link between dentistry and nutrition.

(If you ever want to get into the details, I am sure you'll find them fascinating.)

One of the things I advocate is the drinking of distilled water (with something called *Crystal Energy* added to it but that's not the issue) and was wondering if my advice needed updating. So, I got in touch with you through [www.Wellness101.net](http://www.Wellness101.net).

In addition, we (my family) may soon be moving and I was personally looking into water treatment systems for our new home.

Jan Wade Gilbert, DMD

P.S. Thanks for dispensing with the hype.

----- Original Message -----

**From:** [info@aquathin.com](mailto:info@aquathin.com)



To: Drjanwg

Sent: Friday, January 10, 2003 3:04 PM

Subject: Re: vs. Distilled water

Dear Dr. Gilbert;

Thank you for your inquiry.

1. Distillation used to be the state of the art in water purification prior to the late 1960's. With the second industrial revolution and the creation of plastics and chemicals, distillation no longer was efficient due to the introduction of VOC's (volatile organic chemicals whose inherent characteristic is a vaporizing point much lower than water). As energy initiates during the distillation process, the VOC's are the first to vaporize long before water, and the first to form in condensate. Depending on the type of distiller, that may utilize 7-10 gallons of water to make 1 gallon of distillate, one could concentrate the VOC's upwards of 10 times in the product water. The distillation manufacturer's recognized the problem in the '80s and several added vents to offgas the VOC's, however, there remained the issue of inhalation of concentrated VOC's. Subsequently carbon filters were added fore and aft to pre and post treat for organics.

2. Distillation is not efficient for removal of asbestos. The extremely light fiber can get caught up in the percolation process and pass through. Same occurs with bacteria. However, the boiling process will kill bacteria and render virus inactive. But pyrogens will continue their pathogenic ways living or dead. This is why in the early days when distillation was used in labs for reagent grade water or sterile water, a .2 micron post filter was included to collect dead carcasses of bacteria. We've learned since then that the "guts" of the dead bugs, the endotoxins, will permeate the .2 micron filter and continue to contaminate and / or cause infection.

3. The patented Aquathin Process combines Reverse Osmosis and Deionization to produce not only a demineralized water, but also free of VOC's, nitrates, asbestos, disease causing water borne microorganisms (and their endotoxins).

Those are the facts...no hype as requested. Did not discuss the differences in hardware, nor the costs involved with operation and maintenance, nor that most of the distillation manufacturers from the '60s-'70s-'80s are no longer in business.

Again our thanks. I look forward to receiving your prompt reply.

Warmest regards,

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(visit the allnew <http://www.aquathin.com>)

"Alfie"

Alfred J. Lipshultz, President

**P.S. When responding please continue 'REPLY' to include all previous correspondences on this subject.**

----- Original Message -----

**From:** Drjanwg

**To:** [info@aquathin.com](mailto:info@aquathin.com)

**Sent:** Friday, January 10, 2003 2:45 PM

**Subject:** vs. Distilled water

Please tell me the differences between distilled water and the water produced by your process. No hype, just facts, please.

Thank you,

Jan Wade Gilbert, DMD



62

**Sent:** Thursday, January 16, 2003 3:52 PM

**Subject:** FORUM Q & A: HARD (AND SOFT) WATER NEGATIVE HEALTH EFFECTS

*Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;*

*We have received an excellent inquiry from one of our newest Authorized Aquathin Dealers, Dr. Stephen Parcell, Naturopath in Golden, Colorado, concerning the negative aspects of consuming very hard water. Please review our response below and look at our commentary concerning negative aspects of drinking softened water....as this is also a good review. Note to Stephan: I included a little more information in this email message....and corrected a few of my typos !*

*Enjoy ! Warmest regards to all,*

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"Alfie"

Alfred J. Lipshultz, President

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**From:** [AQUATHIN TECH SUPPORT](#)

**To:** Stephen W. Parcell, N.D

**Sent:** Wednesday, December 11, 2002 5:20 PM

**Subject:** Re: FORUM Q & A: WHAT DOES THE CITY MEAN WHEN THEY SAY THEY ARE ALREADY SOFTENING WATER

*Hi Steve;*

*Thank you for your email. There are a couple of studies that you should know. One from the New England Journal of Medicine in the mid 1980's discussed the increase of kidney stones in the Middle East due to watching television. Yes that's right. It seems that visitors and residents of the Middle East were overloading the emergency rooms due to heat prostration....and weighing heavily on the government's insurance industry to take care of these people. So the insurance companies got a bright idea to put out public relation commercials on television "to stop heat stroke by drinking 3-4 litres of tap water per day" resulting in reduced claims. What the insurance companies did not know is that in Israel, where this predominately occurred, tap water could be up to 900 ppm, mostly calcium-magnesium-silica. Within a matter of weeks, kidney stones hit epidemic proportions....hence the title of the article.*

*Another study was one performed at Mercer College of Pharmacy in Georgia in which Aquathin participated in a double crossover research of dialysis patients consuming tap water vs. demineralized water. In all cases, the patients on Aquathin could consume more water (originally limited to half litre per day), experienced less fluid retention, reduced time on the dialysis machine. Actually, the dialysis center caused several patients to experience severe hand and body cramping due to dialyzing the patient over the usual time period but unaware the patient had significantly less fluid retention to begin with.*

*Also, the midwest sections of Oklahoma and Texas are considered the cardiovascular disease capital due to issues associate with the local 9.5+ pH and hardness up to 160 grains per gallon = 2736mg/l). This area also leads with joint deposits and stones.*

*Here's a flipside for consideration; many people with severe hard water think they are better off by installing only a water softener. Drinking a litre of 2736 mg of sodium (resulting from the ion exchange reaction in the softener)*



laden water is like eating two to three bags of potato chips. Do this 3-4 times per day....and this significant salt intake increases weight and blood pressure.

Also, many older homes are piped with lead and galvanized plumbing. Softened water will leach the lead, cadmium and nickel from the pipes...which are extremely toxic heavy metals as we all know that affect kidneys, nervous system, liver ...and create a serious affinity / bioaccumulation of other heavy metals.

And as we learned from Aquathin U., water softeners do not remove salts (can actually increase if using a timed valve that over regenerates), nitrates, solvents, pesticides, heavy metals, VOC's, disease causing water borne microorganisms...only hardness and some iron are removed. So, water softeners are not in any form to be considered water purifiers. BUT, water softeners...and specifically the Aquathin Soft & Clean Water Conditioner have their importance and purpose for treating working water. Your patented Aquathin RODI Process does remove all the aforementioned contaminants for purifying cooking and drinking water.

Sounds like a Forum Q & A to me !

Warmest regards,

Alfie

----- Original Message -----

**From:** Stephen W. Parcell,N.D

**To:** [AQUATHIN TECH SUPPORT](#)

**Sent:** Wednesday, December 11, 2002 1:18 PM

**Subject:** RE: FORUM Q & A: WHAT DOES THE CITY MEAN WHEN THEY SAY THEY ARE ALREADY SOFTENING WATER

Do you have any data on the negative health effects of very hard water. I know about the effect on pipes and soap usage.

Thanks,

Steve

-----Original Message-----

**From:** AQUATHIN TECH SUPPORT [mailto:techsupport@aquathin.com]

**Sent:** Thursday, December 05, 2002 6:47 AM

**To:** [Info@aquathin.com](mailto:Info@aquathin.com)

**Subject:** FORUM Q & A: WHAT DOES THE CITY MEAN WHEN THEY SAY THEY ARE ALREADY SOFTENING WATER

Dear Aquathin Dealer OnLine;

Several Dealers have asked about Customers stating "Yes I want the Aqualite, but do not need the Soft & Clean because the 'city softens the water'...and how should they overcome this remark.

My first response was "you did not do the complete presentation with the JobSite Analysis Sheet to show the amount of hardness present, nor did you use the Matrix which would prescribe the correct Soft & Clean model based upon the hardness.

Please read additional information below from the WQA concerning the type of softening that may be performed at the city central water plant. 'City softening' is an easy hurdle to answer.

Always do the "6 Tests" of the JobSite Analysis sheet. Your Customer deserves to know and you will get the sale !

Warmest regards to all,



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#### **Centralized "water softening" — know the facts!**

Some community water supply facilities are putting "water softening" capabilities on referenda—but it's important for your customers to understand that central municipal softening is not as effective as home water softening.

You can also point out to both customers and local media that centralized softening takes away their consumer choices. Some people may not want to pay the price for softened water and others may use the water for purposes that they feel don't require water softening.

Municipal water softening is most usually accomplished by a process called cold lime-soda ash water treatment. This technology can only partially soften water, down to 5 to 10 grains per gallon (gpg) of equivalent  $\text{CaCO}_3$  hardness, and there is a total dissolved solids reduction about equal to the temporary calcium hardness [ $\text{Ca}(\text{HCO}_3)_2$ ] reduction. Magnesium and noncarbonate hardness is replaced in this process by sodium.

This is the WQA table that describes the various levels or degrees of water hardness.

| Hardness (grains per gallon) | Classification  |
|------------------------------|-----------------|
| Less than 1.0                | Soft            |
| 1.0 to 3.5                   | Slightly Hard   |
| 3.5 to 7.0                   | Moderately Hard |
| 7.0 to 10.5                  | Hard            |
| 10.5 and over                | Very Hard       |

As you can see, municipal softening leaves the water from moderately hard to hard. Five to 10 grains per gallon residual hardness still remains in consumers' household water.

This *certainly* won't be satisfactory to residents who've become accustomed to zero-soft water—like that from home ion exchange units. Therefore, homeowners and business will have to pay twice for effective water softening—once in their water bill and again with their home or business units.

In addition, you can point out that central softening will, by necessity, treat a great deal of water that does not require softening, such as that used for parks, recreation, irrigation, industry, and fire fighting.

The best option for individuals is for each home and business owner to soften his or her own water in accordance with his or her own personal preferences and needs.



63

**Sent:** Thursday, February 06, 2003 9:55 AM

**Subject:** FORUM Q & A: AQUATHIN PROPRIETARY DEIONIZATION RESIN IN DETAIL

*Good Morning Rog;*

*OK, here's the mean skinny (roaring '20s term for definition, rendition of a scenario / event, or description thereof).*

*Aquathin Deionization Resin is a mixture of gelular, polystyrene cation and anion exchange resins in the nuclear form, as supplied contains a stoichiometric equivalent of a strongly acidic cation and strongly basic anion in the hydrogen / hydroxide form as clear, amber colored spherical particles virtually perfect in bead appearance, manufactured in a special patented processing procedure to reduce chloride content and produce material of the ultimate purity...with special attention toward aesthetics i.e. "the all important Aquathin taste". Aquathin DI resins combine the properties of high capacity and excellent resistance to bead fracture from attrition or osmotic shock...which equates to no leachables (again proven in our extractables test by the Japanese Ministry of Health resulting in the first American company to receive their approval...and which Aquathin UK proofed in the satisfactory use of UPW by Nortel Networks). Aquathin DI resins conform compositionally to FDA regulations under 21CFR 173.25 relating to the safe use of ion exchange resins in the treatment of food and the purification of potable water.....and NO ONE DOES IT BETTER !*

*Now is this a Forum Q & A or a cure for insomnia !*

*Let me know !!*

*Warmest regards to all,*

*Alfie*

----- Original Message -----

**From:** Roger

**To:** Alfie

**Sent:** Thursday, February 06, 2003 6:43 AM

**Subject:** resin

Dear Alfie

Occasionally we get asked about the DI resin, in particular what is it made of and if it's plastic will it leach into the water.

My response is that it's a nuclear grade of resin, resin being a polymer. Also, it does not leach into the water.

You will recall the 'tete a tete' we had with the Fresh Water Filter Company some years ago when they deviously added in their article that the resin they use in their carbon filter is passed for use with potable water - they said they researched our resin and couldn't find anything to substantiate it being endorsed for use with water. Whilst you can imagine the reply I would have delivered given the chance, I have never questioned the nature of the resin we use since I know Aquathin's policy to products. However, could you please broaden my education and answer the questions.

**Roger Wiltshire**  
**Managing Director**

**WORTH LOOKING INTO™**



64      **Sent:** Saturday, February 08, 2003 4:01 PM  
          **Subject:** FORUM Q & A: A REVIEW OF THE USE OF PROPER TEST EQUIPMENT

Dear Aquathin Dealer OnLine;

*I recently had a conversation with a couple of our newer Dealers concerning their questioning the possible use of non Authorized Aquathin Test tools in their presentations. The only time I really discuss the "reason" we choose to use the testing devices as given in the Planner as our standard protocol, is in Aquathin University. So I thought this would be a good review for all. Here are excerpts from my conversation with the newer Dealers:*

***" Regarding the use of \$15 Taiwan precipitators that operate for 15 -20 tests and then thrown away, and cheap TDS meters; I advised our new friends that please accept these comments in the spirit with which they are offered: that any new Dealer is not smart enough to make that type of decision...that it is up to us here at Aquathin Corp. USA to be sure you have the very best tools (and we do not make money on the test apparatus) in performance and appearance to make the best presentations and avoid losing expensive leads. The TDS "toys" do not have built in temperature compensation, can short out if wetted above the test line both causing mis readings....and in general do not last. Please recall the video we show at A.U. entitled "D.C. Is Not Me" which deals where salespeople in Washington D.C. are caught on camera (aired on night time TV news network) with inappropriate test devices and language. Aquathin makes an emphatic point that our Sales Team are educated professionals utilizing proper equipment which is a reflection of our promise of efficacy in the systems we produce.***

***Regarding various liquid or powder chemicals to demonstrate precipitation; LaMotte Precip 1 and Precip 2, or barium chloride...are both commonly used by Rainsoft and the like. The stuff works and mostly used for hardness presentations. Here's the main problem...the coagulators are highly poisonous (in fact the liquids are prohibited from air transportation). We would hate for a sales person's kid to get into the kit, or the sales person not fully getting rid of the stuff in a presentation and someone or pet get residue in their mouth from a glass used in the presentation ....plus it would make for seriously bad PR. And another issue; if we are in the purification business, we should not be pouring the stuff into all those kitchen drains receiving presentations, permitting entrance into our environment. The DCWT is the safe and more effective alternative.***

***A final thought on this; There are times when I am called upon (and pleased to as well) to assist a Dealer with a question from a residential or lab Customer concerning water tests, solutions and / or statements a sales person has provided. Understandably, I cannot assist a Dealer to defend himself against the \$15 precipitator or any non authorized Aquathin tools and / or language and / or practice. Added injury is when the Customer comes back to ask us here at the factory about the possibility of inappropriate / unethical actions of the Dealer, and we say "We are sorry but Aquathin Corp. USA does not support that...the Dealer has acted independently". The result is... all the time, money and effort of the Dealer is down the drain for the savings of a few dollars. We would never permit those rogue actions to take Aquathin down the ladder of credibility. Just way too much at stake for all concerned. Let the other manufacturers and their dealers experience that !***

***Aquathin Axiom #27: Always do right. This will gratify some people, and astonish the rest.  
Aquathin Axiom #55: Play to stay. Invest time and labor in building something that's sure to last.  
Diamonds are only lumps of coal that stuck to their jobs. "***

Warmest regards to all,

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"Alfie"  
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65      **Sent:** Saturday, February 15, 2003 2:37 PM  
**Subject:** FORUM Q & A: TCE UPDATE -- 65 TIMES MORE TOXIC THAN ORIGINALLY SUSPECTED

*Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;*

*There are two extremely relevant points in the quick read below. For convenience we've included the original Forum Q & A on TCE from August 1, 2002 towards the bottom of this message.*

- 1. TCE is up to 65 more times deadly when inhaled as originally thought. This highly volatile solvent easily comes out of solution when heated and / or sprayed i.e. your showers and baths.*
- 2. 750 of the worst Superfund toxic dump sites contain TCE. You know what these sites and most managed garbage landfill sites have in common? No under liners thus permitting leachate direct to our environment.*

*Point of entry protection for our homes as we know is achieved with through the Aquathin MegaChar....and of course the Patented Aquathin RODI Process ready removes this and any solvent from our drinking water. I would urge your Team to review this information and enhance their knowledge of the problem and the solutions. I love my Aquathins !*

*Warmest regards to all,*

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Industry Outlook - 2/14/2003 11:49:14 AM

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## TCE more toxic than suspected, study says

BEAVERTON, OR — The US Environmental Protection Agency (EPA) has new information that says the solvent trichloroethylene (TCE) is more dangerous than previously thought.

According to [The Oregonian](#), the information comes on top of state and private tests that found some of the most TCE-

contaminated drinking water in the nation at the now-shuttered View-Master plant in Beaverton, which served 25,000 workers with industrial solvent-laced water.

The EPA report on TCE is not final, said the article, but has passed an independent review.

It is based on existing TCE studies and exposures says **the chemical is five to 65 times more toxic than previously thought when inhaled and two to 40 times more toxic when ingested**, the newspaper said.

The report says the dangers vary by the health and age of the person exposed to the chemical.

TCE is suspected of causing an increased risk of illnesses from nerve damage to cancer is also highlighted in the report, according to the article.

Last month, federal officials began a national reassessment of the long-term impact of possible TCE exposure on residents living near Superfund cleanup sites contaminated with the chemical, the newspaper reported.

As many as half of the 1,499 sites on the Superfund list — the worst toxic dumps under federal jurisdiction — contain varying levels of TCE, which has been used by companies from aircraft- to computer-chip-makers, said the article. .

The EPA report comes on the heels of a preliminary study released by the Oregon Department of Human Services two weeks ago. **The study compared 459 workers from a company database to death records — records show that those workers died of pancreatic cancer twice as frequently as the general population and of kidney cancer three times as frequently**, according to the article.

State researchers say they need more money and time to prove TCE caused those cancers, the newspaper said.

----- Original Message -----

**From:** [AQUATHIN TECH SUPPORT](#)

**To:** [info@Aquathin.Com](mailto:info@Aquathin.Com)

**Sent:** Thursday, August 01, 2002 1:38 PM

**Subject:** FORUM Q & A: WHAT IS TCE AND WHAT DISEASE(S) CAN IT CAUSE

*Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;*

*Compliments of Aquathin Tech Bank*

FOR THE BEST TASTE IN LIFE  
Think Aquathin..AquathinK !!  
Celebrating our 22nd birthday in 2002 !!!  
(visit the allnew <http://www.aquathin.com>)

"Alfie"  
Alfred J. Lipshultz, President

*P.S. "Splash NewsBulletins", "Forum Q & A", "Allergic Reaction", Tech Bank and Quote Bank... ARE ALL FREE services to all Authorized Aquathin Dealers and their clients.*

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1,1,1-Trichloroethane (1,1,1-TCE) is an organic liquid with a chloroform-like odor. It is largely used as a solvent removing grease from machined metal products, in textile processing and dyeing and in aerosols.

Demand for 1,1,1-trichloroethane was 705 million lbs. in 1989. 1,1,1-TCE is likely to enter the environment by evaporation or in wastewater from its production or use in metal cleaning. It can also enter the environment in leachates and volatile emissions from landfills.

From 1987 to 1993, according to EPA's Toxic Chemical Release Inventory, releases to water and land totalled over 1 million lbs. These releases were primarily from metal fabrication industries. The largest releases occurred in California and Georgia. The largest direct releases to water occurred in Utah and Indiana.

What happens to 1,1,1-TCE when it is released to the environment? 1,1,1-TCE will evaporate rapidly from water and soil. It does not bind to soils nor is it broken down by microbial action, so it may leach to ground water. It has little tendency to accumulate in aquatic life.

Effect:

Short-term: EPA has found 1,1,1-TCE to potentially cause the following health effects when people are exposed to it at levels above the MCL for relatively short periods of time: damage to the liver, nervous system and circulatory system.

Long-term: 1,1,1-TCE has the potential to cause the following effects from a lifetime exposure at levels above the MCL: liver, nervous system and circulatory system damage.

Environment - 8/1/2002 11:53:22 AM

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## State studies suspected link between TCE, cancer

SOUTHAMPTON, MA — The state Department of Public Health is studying to see if the higher incidence of male bladder cancer can be linked to environmental sources or to particular neighborhoods in this city.

Trichloroethylene (TCE) contamination of groundwater in the



Barnes Aquifer could be a factor, according to public health officials, the [\*Union-News\*](#) reported.

The Barnes Aquifer provides water to Westfield, Southampton, Easthampton and Holyoke, and traces of TCE started showing up in private wells in Southampton and Holyoke in 1997, according to state officials, the article said.

TCE, a suspected carcinogen, is believed to be associated with six different kinds of cancer, including bladder cancer; the other five are Hodgkin's disease, kidney cancer, leukemia, liver cancer and non-Hodgkins lymphoma, health officials said in the article.

A statistical study of cancer rates, from 1982-1997, showed that 98 Westfield men were diagnosed with bladder cancer during that period when only 78 cases were expected, state officials said, according to the article, which said Southampton's rate is even higher with 16 diagnoses of bladder cancer for men when only nine were expected.

A Department of Public Health letter sent to Health Director Geraldine R. Swanson earlier this year, according to the article, states that the incidence of kidney cancer in Southampton females is more than expected but not significantly elevated with five cases diagnosed over the 16-year period, with only three expected.

The incidence of leukemia in Holyoke during that same period was also higher than expected, but also not termed as significantly elevated. There were 80 cases observed with only 66 expected, the letter states, according to the article.

Swanson said in the *Union-News* that residents of the Pequot Pond area should hook into municipal water whenever they can.

Water Commissioner Edward J. Cauley estimated that about 150 homes in the Southampton portion of Pequot Pond still use private wells, including "four or five" with well water that tested positive for TCE.

Charles L. Darling, Westfield's Water Superintendent, said about 30 of the city's Pequot Pond residents remain on well water, the *Union-News* said.

Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;

*What a difference a couple of years makes....from human guinea pigs (refer to the Nov. 28, 2000 Splash NewsBulletin pasted at bottom for convenience) to class action lawsuit (quick read below). Actually, the human testing idea was squashed for obvious reasons.*

*Perchlorate is an oxidizing salt used in the manufacture of solid rocket fuel, flares, matches and fireworks. While focus is aimed at contamination in California, we can assume this issue will arise within any general region of the manufacture of the aforementioned items exists. In extremely low concentrations in ground water of only 4 ppb, when ingested can adversely affect the thyroid gland's abilities. For further details visit these links:*

<http://www.epa.gov/safewater/ccl/perchlorate/perchlorate.html>

<http://www.awwarf.com/research/spperch.asp>

*You will see that presently, the EPA and AWWA are studying methods for removal including anion exchange (similar to a water softener, but this resin identifies nitrates, sulfates and regenerates with the chloride side of salt) and reverse osmosis. I can tell you that Aquathin provides total home RO in areas where difficult contaminants exist i.e. residences over defunct mines containing lethal metal extracting chemicals. Further your Patented RODI Process will readily remove this salt as any other salt in water....And No One Does It Better !*

*I shall keep you informed as to the results of anion exchange efficiencies. I would certainly believe that if this technology proves beneficial, Aquathin would only consider setting up in our Synchromatic style to prevent sluffing, and to obtain the benefit of regenerating with de-perchlorate water i.e. same logic as we do for POE nitrate removal.*

*Warmest regards to all,*

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*Celebrating our 23rd Birthday in 2003 !!!*  
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"Alfie"

Alfred J. Lipshultz, President

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Legal Briefs - 2/17/2003 12:07:34 PM

## Perchlorate contamination leads to class-action lawsuit

SAN MARTIN, CA - A class-action lawsuit filed here Friday asks that the Olin Company, deemed responsible for perchlorate contamination of many of the

area's drinking water wells, be made to create and pay for a program to survey and monitor the health of residents.

The class-action lawsuit asks that Olin pay all costs for medical diagnosis and treatment for residents, the The Mercury News reported.

The residents became concerned about their health after learning that a plume of perchlorate is spreading into their wells, the newspaper said.

More than 800 wells could be affected, and out of the 271 wells for which test results are available, 90 have tested positive for the chemical, said the article.

Because the chemical has only been on the list of contaminants for a few years, there are no enforceable state or federal standards about how much perchlorate can be in drinking water safely, the newspaper said. The US Environmental protection Agency is still studying the contaminant, which is causing problems in various parts of the country.

Olin made highway safety flares in the San Jose area from 1955 to 1996 and has said it will pay all the costs to clean up the site, the newspaper reported.

**Perchlorate is a salt used as an oxidizer for solid rocket fuel, highway safety flares, matches and fireworks. When ingested, the chemical disrupts the thyroid gland's intake of iodine from the bloodstream,** authorities say.

While it won't affect most healthy adults, experts say that people with existing thyroid disorders, or pregnant women and very young children, are at risk, the newspaper said.

Both the federal Environmental Protection Agency and the state are working to set enforceable maximum contaminant levels for perchlorate in drinking water.

The California Department of Health Services has set 4 parts per billion (ppb) as the "action level" at which water retailers must notify customers, although they are not required to shut down the well.

The newspaper said a new law requires the state to adopt a maximum allowable level in drinking water by 1 January, and the California EPA has recommended a range of 2 ppb to 6 ppb.

After extensive review of the EPA studies, the agency will set a scientific benchmark of allowable levels in drinking water. Regulation will take several years longer as policy-makers set a national standard based on scientific advice and a number of other factors such as risk and cost, said the article.



From: [AQUATHIN CORP](#)

To: [alfie@aquathin.com](mailto:alfie@aquathin.com)

Sent: Tuesday, November 28, 2000 3:49 PM

Subject: REEKS OF NAZI DEATHCAMP MEDICAL EXPERIMENTS

Dear Aquathin Dealer;

Please read this article thoroughly. It would bring a tear to Dr. Joseph Mengela's eyes. This is a giant 40 year step backwards. You need to make copies of this article and our commentary to show each prospective client who truly believes there is nothing wrong with his tap water, now or in the future, or how MCL's are to be decided. Maybe nexttime, they will just dose the water without notification or payment.

Warmest regards,

FOR THE BEST TASTE IN LIFE

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*Celebrating our 20th birthday in 2000 !!!*

(visit the allnew <http://www.aquathin.com>)

"Alfie"

Alfred J. Lipshultz, President

~~~~~  
Environment - 11/28/00 11:31:17 AM

Human drinking water study raises controversy

SAN BERNARDINO, CA — Lockheed Martin Corp. (NYSE: LMT) in Bethesda, MD, is paying California residents to ingest ammonium perchlorate, a rocket fuel propellant often found in drinking water supplies.

Volunteers are being paid \$1,000 each to take daily pills containing perchlorate at concentrations 83 times those allowed in drinking water by the state Department of Health Services, according to the *Los Angeles Times*. The six-month experiment at Loma Linda Medical Center is intended to determine safe drinking water limits for perchlorate, which is known to affect thyroid function. Very high doses are sometimes used to treat thyroid disorders.

The state department has set an action level of 18 parts per billion (ppb) for perchlorate, and the state is considering a more stringent standard. A Lockheed Martin plant is considered to be the most likely source of perchlorate groundwater contamination in San Bernardino County, where one public well was found to contain 800 ppb of perchlorate.

The US Environmental Protection Agency (EPA) has not yet set a drinking water standard for perchlorate, but is studying the issue. Some public water systems will begin testing for perchlorate under

the revised Unregulated Contaminant Monitoring Regulation in 2001.

The design of the Loma Linda study has raised ethical eyebrows in the health and consumer communities. News reports from California said this is believed to be the first large-scale US study of water contaminants using human subjects, although a report on a short-term study involving nine subjects who ingested perchlorate at Brigham and Women's Hospital in Boston was published in August.

"The idea of paying someone to take a toxic chemical is highly questionable," said Jean Halloran of Consumers Union in Yonkers, NY. The US Environmental Protection Agency (EPA) should not accept the results of such research, Halloran said, "without an extensive public discussion."

The Loma Linda study was approved by Boston University and the Jerry L. Pettis Memorial VA Medical Center, the *Times* reported.

"This study escaped the mechanisms that normally filter these things out," said Dr. Sidney Wolfe, head of Public Citizens Health Research Group in Washington. "It's a very bad precedent."

The Brigham and Women's study did not find any effect on thyroid function. However, an epidemiological study published in the August issue of the *Journal of Occupational and Environmental Medicine* concluded that even low levels of perchlorate in drinking water may negatively affect babies' health before birth. Scientists with the Arizona Department of Health Services' Bureau of Health Statistics reached this conclusion after comparing newborn screening data for 1,542 infants born in Yuma and Flagstaff between 1994 and 1997.



67 **Sent:** Saturday, March 01, 2003 6:55 PM
Subject: FORUM Q & A: WHAT IS TRITIUM

Dear Aquathin Dealer OnLine;

You may recall back in the late '70s, there was a serious problem when the Three Mile Island nuclear power plant leaked water designed to cool the nuclear reactor core, into the waterway adjacent to it. The crystal clear ultra pure water cooling the core becomes the radioactive isotope of H_3O^+ , Tritium or sometimes called heavy water (its sister deuterium is also referred to as heavy water). Adolph Hitler's scientists experimented extensively on the capacity of deuterium and tritium as a weapon.....until all his top notch people left for the free world.

I teach at Aquathin University that our Patented Aquathin RODI Process is the closest thing to panacea purification and that its only Achilles Heel is Tritium. There is no method of treatment that can deal with Tritium basically because for all intensive purposes, it is water and acts like water. We can remove 50+% due to the mechanics of RO, but by our standards, that is not a qualified claim.

Tritium has a half life of 12 years and when ingested or absorbed disrupts the thyroid and can cause cancer of the thyroid. All the residents living downstream of Three Mile Island were given iodine capsules to prevent the possible effects of tritium contamination. Today there are several nuclear plants that have problems with tritium leaks.

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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"Alfie"
Alfred J. Lipshultz, President

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Industry Outlook - 2/17/2003 12:06:37 PM

Groundwater contaminated by leaky nuclear reactor

SALEM COUNTY, NJ — Groundwater adjacent to the Salem nuclear reactor has been contaminated by radioactive water after an apparent leak at the building holding submerged nuclear fuel, New Jersey's environmental commissioner said today.

Although public water supplies are not threatened, tritium could be hazardous if ingested, according to the *The Press of*

Atlantic City.

The newspaper reported that PSEG Nuclear, which operates the plant, detected low tritium levels in two 20-foot-deep monitoring wells adjacent to the reactor, federal and state officials said.

The contamination was confirmed Monday by the state Department of Environmental Protection.

"We didn't find any immediate health and safety consequences to workers or members of the public," said Ron Nimitz, acting branch chief for radiation at the Nuclear Regulatory Commission, according to the newspaper.

According to the article, tritium is an isotope of water that is created when cooling water passes through the reactor core or circulates through the spent fuel pools, said Dave Lochbaum, a nuclear safety engineer at the Union of Concerned Scientists and a former Salem employee.

A radiation leak was first suspected last month after a plant employee was found to have high levels of radiation on his protective boot coverings, said Fred Mumford, a spokesman for the state Department of Environmental Protection, the article reported.

That incident prompted DEP Commissioner Bradley M. Campbell to appeal for assistance directly to the Richard A. Meserve, chairman of the Nuclear Regulatory Commission. It led to the installation of monitoring wells outside the plant, the newspaper said.

Campbell said the spill was enough to make the groundwater unfit for human consumption, the article said.

"We continue to have concerns about contamination of our water resources from this leak, and we will work closely with the Nuclear Regulatory Commission and PSEG Nuclear to take every appropriate step to safeguard New Jersey's public health and environment," Campbell said in a statement.

68

Sent: Monday, March 03, 2003 11:15 AM

Subject: FORUM Q & A: HOW DO I DEAL WITH A CUSTOMER OR PROSPECT WHO HAS LOOKED AT THE CHEAPEE RO'S AT COSTCO, SAMS, ETC. ?

Dear Aquathin Dealer OnLine;

We here at the Factory... and some Dealers receive inquiries from Aquathin Customers every now and then who have Platinum 90's or Aqualite's for some years, and thought it may be better to get one of the cheapee's vs. service their system. Also, Dealers and Students at Aquathin U. have asked how should I defeat the interest in the cheapee units at the wholesale clubs. When Dealing with an Aquathin Customer, this provides you the opportunity to re-edify all the features and benefits of the product and company....and to obtain referrals!

I thought you would appreciate the review of our "high powered" response below and provide this email to your Team for reference.

Also, remember to get your Team's email on the Aquathin Sales Team Email List to receive these NewsBulletins. Its like Aquathin U. 24 / 7 / 365 !!

Have a great week and warmest regards to all...as well, your comments are always welcome and very much appreciated.

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*"Alfie"
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Aquathin manufactures a broad spectrum of unique and patented water purification, softening and filtration systems servicing the residential, commercial and laboratory markets. For a quick review of our superior Reverse Osmosis Deionization purification efficiency vs. "ordinary RO systems" click here <http://www.aquathin.com/table.html> after reading this reply.

Here is a little additional information about the systems sold in hardware stores and wholesale clubs:

- 1. There is a disclaimer that the units may not be installed on microbiologically unsafe water. But would that not be a reason one would purchase a system? Your Platinum 90 / Aqualite will remove disease causing waterborne microorganisms.*
- 2. They state their systems must be installed on water with less than 10 grains of hardness. Otherwise you need an expensive water softener just for the RO system. Your Platinum 90 / Aqualite can be installed on hard water up to 25 grains due to the patented auto flush.*
- 3. Their warranty is one year, but does not cover the RO membrane, yet that is the heart of the unit. When service is needed you must ship the system out of town. If you are looking at a GE unit made by Eco, that membrane has to be replaced every 6 months according to them. Your Platinum 90 / Aqualite carries a Lifetime Warranty except*

for normal filter changes and abuse, 2 years on the electronics..unless of course you were eligible for the Exclusive Extended Lifetime Warranty.

You originally invested in your Aquathin to provide your family the very best in total home water security. There is hardly anything in this world that a man could not make a little worse or a little cheaper, and the people who consider price alone are this man's lawful prey. Its like this: we would rather explain price once than apologize for poor quality and service the rest of our life. Aquathin made the decision 23 years ago, that we would never sacrifice lower quality for price...too much depends it. Would you prefer that your family drink from a system whose poor technology and cheap design allows them to continue to consume contaminates...or a product that provides the safest and most pure drinking and cooking water available. Mr. _____, your system has served you well for ____ years and totally outperforms any competitor. Please contact your local Authorized Aquathin Dealer at _____ or email to the 'cc' addresses above.



69

Sent: Friday, March 07, 2003 10:35 AM

Subject: FORUM Q & A: PRESCRIBING A COMMERCIAL SOFTENER

Dear Alfie,

I am just running out the door for that meeting I told you about yesterday, and Se from Portugal has called to ask for guidelines on how to determine which Sodialite model 2900 he needs to specify for an apartment block there. Could you oblige me by assisting him?

approx 30 people (7 apartments)

Hardness is 14gpg

Pipe work is 2"

Thank you,

Best Regards,

Derek

Derek McConnell
Sales Director

OK Gents:

Here's the math. 7 apartments = 1440 gpd at 40 gpm peak flow rate with flush tanks and no irrigation.

$1440 \text{ gpd} \times 14 \text{ gr/g} = 20,160 \text{ gr/d.}$

Even though the AS2850 1.5" Series would handle the flow and capacity, it is illegal to bush down. One prime reason its illegal, is that in case of fire, sprinkler demand would exceed the flow of the 1.5" downsizing. The apartment building could hold the installer liable even though it was their decision to purchase. You must make this very very clear in your presentation so that should the Client shop price, they are educated now not to accept quotes on price alone!

Your choice is AS2900-240K. $240,000 \text{ gr capacity} / 14 \text{ gr/g} = 17,142 \text{ gallons capacity before regeneration. } 17,000 - 1440 \text{ (1 day reserve)} = 15,560. \text{ Set the meter at } 15,500 \text{ g. Regeneration will be every 15 days "if" they consume the peak 1440 per day.}$

AS2900-240K contains 8 cuft high capacity cation resin. Regeneration requires 15 lbs. salt per cuft resin for max efficiency or 120 lbs. of salt per regeneration. Your system will regenerate twice per month (refer to para. above at 15 days) or 240 lbs. per month. You can opt to set at 9 lbs. per cuft since the system has a built in reserve and not all the resin will be consumed. Salt usage then is 144 lbs. per month.

You could also play (I mean practice) with the Commercial MatRx on the website !

This sounds like a Forum Q & A !

Have a great weekend and warmest regards to all,

FOR THE BEST TASTE IN LIFE
Think Aquathin..AquathinK !!
Celebrating our 23rd Birthday in 2003 !!!
(visit the allnew <http://www.aquathin.com>)

"Alfie"

Alfred J. Lipshultz, President

P.S. When responding please continue 'REPLY' to include all previous correspondences on this subject.



70 **Sent:** Friday, March 07, 2003 1:24 PM
Subject: FORUM Q & A: HOW TO ADJUST LOW PH IN LAB AFTER PURIFICATION

***PLEASE BEGIN AT BOTTOM MESSAGE AND HEAD NORTH !
WARMEST REGARDS TO ALL,
ALFIE***

Confirmed & Terrific !

AJL

----- Original Message -----

From: <echavez

To: <info@aquathin.com>

Sent: Friday, March 07, 2003 11:42 AM

Subject: Re: Drop in the PH

> Dear Alfred,
>
> Thank you fot your help. We installed a carb 10 filter
> and solved the probelm.
>
> Enrique Jr

> Dear Enrique;
>
> Thank you for your email. RO will always lower pH because
> it removes
> carbonates which buffer the H⁺ hydrogen ions causing
> acidity...but you
> normally only see a 1 to 1.5 decline. Therefore your
> source water must be
> slightly acidic. The ADI Deionization Module will adjust
> upward. Are you
> using an ADI? If you are, then the source water is lower
> than thought. You
> could use a Carb 6 or Carb 10 or Carb 12 afterwards. An
> inherent
> characteristic of steam washed bituminous grade GAC is
> that it sucks H⁺ out
> and thus raises pH. Just like we do in the BFF series.
>
> Normally, pH range for CAP and ASTM laboratory grade water
> is 5.0 to 8.0 so
> you should be OK with the 5.2 .
>

> Awaiting your reply and warmest regards to all,
> Alfie

>

> ----- Original Message -----

> From: echavezp

> To: <info@aquathin.com>

> Sent: Thursday, March 06, 2003 1:08 PM

> Subject: Drop in the PH

>

>

>> Dear Alfred,

>>

>> We have an unusual proble. One of the AQL TFX installed
>> in a lab is dropping thr pH of the water to 5.2 and we
>> need a minumun of 6.8 pH. I would like to know if you
>> have any filter that can level the water pH so we can
>> include it in the order.

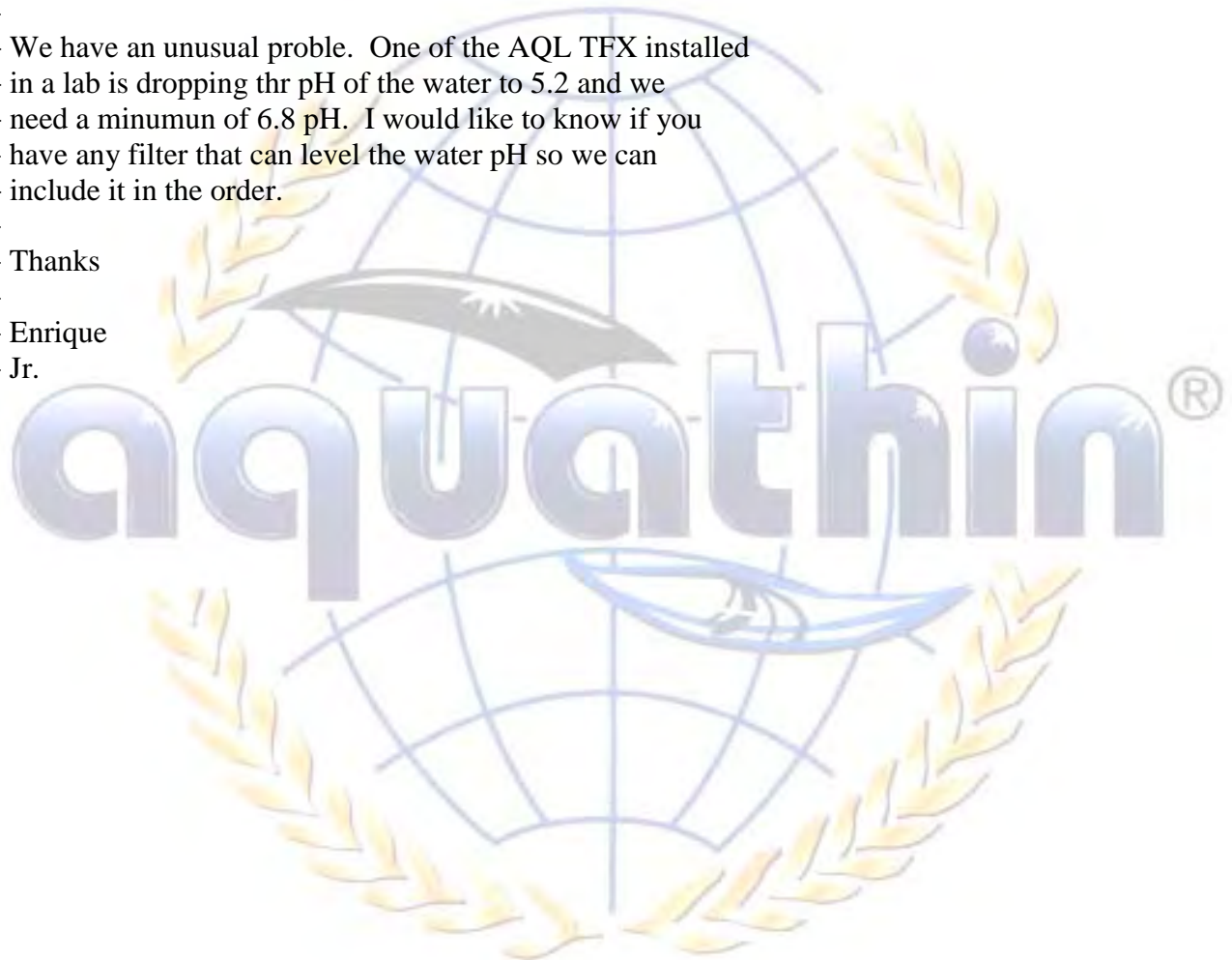
>>

>> Thanks

>>

>> Enrique

>> Jr.



71 **Sent:** Friday, March 07, 2003 2:26 PM
 Subject: FORUM Q & A: FLOWER MARKET MAKES THE WATER BIZ BLOSSOM !!!!!

***PLEASE BEGIN AT BOTTOM MESSAGE AND HEAD NORTH !
WARMEST REGARDS TO ALL,
ALFIE***

Dear Enrique;

Thank you for your email. You are most correct. Flower industry needs your services ! Here's the scoop !!

(A) Botanists and nurseries provide nutrients to their plants. Many people are familiar with brand names like "Peters" and "Scotts Miracle Grow". However, contaminants in water can negate the effects of the nutrients i.e. heavy chlorination, metals, chemicals...not to mention other issues like iron, tannins and high hardness causing spotting and stains. Often, the nursery staff try to compensate by overdosing with nutrients, but end up doing more damage i.e. burn out. So, the nurseries enjoy using RO water just like the printing companies, to provide a known "control" water with nothing in it to precisely measure out the nutrients, increase yield / productivity.

(B) Growers of exotics i.e. orchids know that these air rooted plants take their moisture from high up in the canopies of the rainforests. There is no soil up there you know. So trying to feed orchids tap or well water with minerals is like giving it poison. Exotics require RO. You have a great letter of satisfaction from Sr. Alfredo Manrique of Peru who raises orchids. Alfredo enjoyed his Aqualite so much he became a Dealer !

(C) Here's a biggie: Cut flowers live longer in demineralized water. The reason is the cut root system stays in the "draw up" cycle longer. If placed in tap or well water with minerals, because of the laws of osmosis (a low concentration of salts seeking a high concentration of salts through a semi permeable membrane...but you knew that from Aquathin U.!) after a few days, the water in the bowl begins to draw the minerals (and the water) from the plant and the plant loses turgor (rigidity). Flower stores have used Aquathin since almost the beginning of the company.

Sounds like a great Forum Q & A !!

Again our thanks and warmest regards to all,

Alfie

----- Original Message -----

From: echavezp

To: <info@aquathin.com>

Sent: Friday, March 07, 2003 11:43 AM

Subject: Business opportunity

- > Dear Alfred,
- >
- > In Ecuador exists approximately 3000 hectares of land
- > dedicated to grow flowers with a exportation potential of
- > approximately USD \$ 300,000,000. A friend of us has
- > expressed his necessity for purified water for the after
- > harvesting point of the flower exportation process, thing
- > that will improve considerable the flower's freshness and
- > life. Considering the potential market, we installed a
- > AQL TFX to show them the quality of our equipment and he
- > was satisfied with the results.
- >
- > With this antecedent and considering the opportunity that
- > this sale will give us by having a show room of the
- > equipment for other flower growers, our client who has make a commitment to give us
- > all the help and facilities we need to make his plantation
- > an exhibition room for the other flower growers.
- >
- > Our client has a water demand of 25,000 (twenty five
- > thousands) liters per 12 hour day. We are sending a fax
- > with the water analysis of the source so you can recommend
- > the proper equipment.
- >
- >
- > Waiting for your response,
- >
- >
- > Enrique Jr.

72 **Sent:** Thursday, March 27, 2003 2:49 PM
Subject: FORUM Q & A: WHAT IS NDMA = N-nitrosodimethylamine

Dear Aquathin Dealer OnLine;

In the quick read below you will learn of a not so well known, but extremely carcinogenic chemical...as you will see the legal limitation is on par with dioxin. Yet you will read its use in everyday consumer products.

Below the article, I have provided in depth information from TechBank about this chemical for your reference.

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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Industry Outlook - 3/27/2003 12:09:01 PM

Town fears water supply may be link to childhood cancer

WILMINGTON, MA — Following the discovery of N-nitrosodimethylamine (NDMA) in the local groundwater, residents here and state health officials are asking the US government to examine whether the substance could be linked to the town's high rate of childhood cancer.

According to the [Boston Globe](#), state Rep. James R. Miceli said he will officially request help this week from the Agency for Toxic Substances and Disease Registry (ATSDR), the Atlanta-based federal office that investigates toxic substances.

Late last month, a Wilmington test well revealed a dangerously high level of NDMA, a chemical classified by the federal government as a probable human carcinogen, the *Globe* said.

Wilmington wells were tested for NDMA after residents urged

the DEP and Olin Chemical, which owns a plant in the town that is suspected of being the origin of the contaminant, to include the toxin among chemicals of concern that Olin regularly tests for, the [Lowell Sun](#) reported.

The Department of Public Health has been researching elevated incidences of childhood cancer in Wilmington, according to the *Sun*, including documentation that there have been 21 instances of childhood cancers – mostly leukemia and Hodgkin's disease – recorded from 1998 to the end of 2000.

The state's Department of Environmental Protection (DEP) and the federal ATSDR will conduct a water distribution study, the [Wilmington Advocate](#) said.

Some 5,200 parts per trillion of NDMA were discovered – 26 times what the state considers safe, according to media reports.

The state safety threshold is 200 parts per trillion for any exposure, and 10 parts per trillion for long-term exposure of 30 years or more, the *Globe* said.

Olin has agreed to pay up to \$3 million for the town to build an emergency pipeline to the MWRA regional water supply, reported the *Sun*.

What is n-nitrosodimethylamine? **(Pronounced n-ni-tro'so die-meth-yl' uh-meen)**

n-Nitrosodimethylamine is produced by industry only in small amounts for research. At room temperature, it is a yellow liquid with no distinct odor. It was used to make rocket fuel, but this use was stopped after unusually high levels of this chemical were found in air, water, and soil samples collected near a rocket fuel manufacturing plant. It is used in some cosmetic and toiletry products and in cleansers.

n-Nitrosodimethylamine is unintentionally formed during various manufacturing processes and in air, water, and soil from reactions involving other chemicals called alkylamines. It is also found in some foods and may be formed in the body.

What happens to n-nitrosodimethylamine when it enters the environment?

- *n*-Nitrosodimethylamine may be found in air, water, and soil.
- When released to the air, it is broken down by sunlight in a matter of minutes.
- In water, it may break down when exposed to sunlight or by natural biological processes.
- When released to soil, it may evaporate into air.
- It could also sink down into deeper soil.

How might I be exposed to *n*-nitrosodimethylamine?

- Eating food containing it, such as cured meats, fish, and cheese.
- Using toiletry and cosmetic products such as shampoos and cleansers that contain it.
- Breathing or inhaling cigarette smoke, which may contain low levels.
- Eating foods containing alkylamines, which can cause *n*-nitrosodimethylamine to form in the stomach.
- Working in industries such as tanneries, pesticide manufacturing plants, and rubber and tire plants.

How can *n*-nitrosodimethylamine affect my health?

When people were exposed to very high levels of *n*-nitro-sodimethylamine, liver damage occurred. Little else is known about the health effects of *n*-nitrosodimethylamine in people. Liver effects have also been seen in animals that ate food, drank water, or breathed air containing high levels of *n*-nitrosodimethylamine.

Mice that were fed *n*-nitrosodimethylamine during pregnancy had offspring that were born dead or died shortly after birth.

How likely is *n*-nitrosodimethylamine to cause cancer?

n-Nitrosodimethylamine exposure has been shown to result in an increase in liver and lung cancer in animals. No information is available on whether it causes cancer in people. The Department of Health and Human Services (DHHS) has determined that *n*-nitrosodimethylamine may reasonably be anticipated to be a human carcinogen.

Is there a medical test to show whether I've been exposed to *n*-nitrosodimethylamine?

Samples of your blood and urine can be tested to determine if you have been recently exposed to *n*-nitrosodimethylamine. These tests must be done soon after the exposure occurred. These tests will not tell you whether your health will be affected by *n*-nitrosodimethylamine. They are not routinely available in hospitals and clinics because they require special equipment.

Has the federal government made recommendations to protect human health?

The EPA recommends that levels in lakes and streams should be limited to 0.00069 parts of *n*-nitrosodimethylamine per billion parts of water (0.00069 ppb) to prevent possible health effects from drinking water or eating fish contaminated with *n*-nitrosodimethylamine.

The EPA requires that spills or accidental releases of 10 pounds or more of *n*-nitrosodimethylamine be reported to the EPA.

The federal recommendations have been updated as of July 1999.

Sent: Wednesday, April 02, 2003 6:01 PM

Subject: FORUM Q & A: WHAT IS HPC BACTERIA AND IS IT HARMFUL?

Dear Aquathin Dealer OnLine;

This Forum Q & A is kind of an oddity. Most often we discuss harmful bacteria, virus, chemicals, metals, etc. However, there are a host of "bugs" out there that are harmless, non-opportunistic (means not disease causing) not-so-commonly known as heterotrophs. Below is quick read regarding the recent WHO Report on this subject. It is important to note that we come in contact with several gazillion of these "bugs" per day, for example, milk contains 50,000 colonies per ml.

Also, while we are on this subject, there is a pesky pink nuisance that we are often asked about, called Serratia Marcescens...a problem that rears its ugly "head" (literally) across the entire country as an airborne bacteria, that frequently announces its presence with a pink film (occasionally gray) in toilets and other bathroom fixtures. Because the bacteria is airborne, it often strikes in spring and summer when windows are open to the home. In Florida here, it seems like we "farm" the stuff. The best treatment is for the homeowner to keep surfaces clean using ordinary household bleach.

Your Patented Aquathin Process cannot determine a good bug from a bad bug and therefore removes them all...along with the rest of the contaminants that should not be there. I love my Aquathin !

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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"Alfie"

Alfred J. Lipshultz, President

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Industry Outlook - 9/19/2002 11:45:45 AM

WHO water report says HPC not significant threat

GENEVA — Heterotrophic plate count (HPC) bacteria in drinking water does not exist at levels that are harmful to people who consume it, according to the final report from an international symposium on the topic held earlier this year.

A symposium on HPC bacteria in drinking water and the health implications was held in April in Geneva, Switzerland, coordinated by NSF International, Ann Arbor, MI, and the World Health Organization (WHO) Collaborating Centre for

Drinking Water and Treatment.

Organizers hailed the symposium as the first time the effects of HPC bacteria in drinking water would be extensively examined.

The WHO [report](#) basically states that HPC bacteria is not something that the average person needs to worry about.

"There is no evidence that HPC values alone directly relate to health risk either from epidemiological studies or from correlation with occurrence of waterborne pathogens," the report said. "They are therefore unsuitable for public health target setting, or as sole justification for issuing boil-water advisories."

Upon his return from the symposium, Joseph Harrison, technical director of the Water Quality Association (WQA), told [Water Technology magazine](#) that 40 papers were filed on the subject from some of the most renowned scientists in the world, and none found HPC bacteria as particularly harmful.

Harrison said that the WQA had held that HPC was not a big problem, and he expected the final WHO report to bear that out.

"Exposure to general HPC microbiota is far greater through foodstuffs than through drinking water. Levels of exposure regarded as acceptable from foods are much greater than those regarded as acceptable from drinking water," said the WHO report.

Heterotrophic bacteria can grow on water treatment equipment, as well as bottled water, water vending machines, water coolers and other media.

But the report stated that "Increases of HPC (due to growth) in these devices therefore do not indicate the existence of a health risk, so long as the entry water meets acceptable water microbial quality norms."

Harrison said that typically only 3 percent of a person's exposure to HPC bacteria comes from drinking water.

The report from WHO stated: "The state of the evidence indicates that any further research on HPC in general should focus on its use for process management and control applications... and is not a high priority for public health protection."

74 **Sent:** Monday, April 21, 2003 1:21 PM
Subject: UPDATED FORUM Q & A: WHAT IS NDMA = N-nitrosodimethylamine

Dear Aquathin Dealer OnLine;

On March 27, 2003 we sent a Forum Q & A on a new to media chemical called "NDMA" and its potential as a carcinogen at extremely low levels. Please review today's update.

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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Environment - 4/21/2003 11:50:03 AM

Volatile water contaminant could become a big expense for utilities

LOS ANGELES — Water and wastewater utility managers in California predict another contaminant that facilities worry will be a particularly costly one to deal with.

N-Nitrosodimethylamine (NDMA) is a semi-volatile organic chemical that the US Environmental Protection Agency (EPA) considers a probable human carcinogen at extremely low concentrations, reported the [Los Angeles Times](#).

Like perchlorate, NDMA is associated with rocket fuel production, but is also used in several other industrial applications and is more commonly associated with drinking water formed as a byproduct of water treatment, the newspaper said.

NDMA's occurrence in drinking water was first observed in Ontario, Canada, several years ago and was attributed to either source water contamination via waste discharges or formation in source water during treatment, according to the American Water Works Association Research Foundation.

The United States currently has no federal standard for NDMA in drinking water, but it is on EPA's radar screen, said Joyce Donohue, a toxicologist in EPA's Office of Science and Technology, the newspaper said.

The [Wilmington Advocate](#) reported that NDMA's discovery in wells in Wilmington, MA, has placed the town's water supply under close scrutiny by state and federal environmental and health agencies.

The state Department of Environmental Protection (DEP) and the federal Agency for Toxic Substances and Disease Registry (ATSDR) will conduct a water distribution study that will also look at the effects of NDMA on residents.

The state Department of Public Health (DPH) is already investigating the high rate of childhood cancer in town, the newspaper said.

----- Original Message -----

From: [AQUATHIN TECH SUPPORT](#)

To: info@Aquathin.Com

Sent: Thursday, March 27, 2003 2:49 PM

Subject: FORUM Q & A: WHAT IS NDMA = N-nitrosodimethylamine

Dear Aquathin Dealer OnLine;

In the quick read below you will learn of a not so well known, but extremely carcinogenic chemical...as you will see the legal limitation is on par with dioxin. Yet you will read its use in everyday consumer products.

Below the article, I have provided in depth information from TechBank about this chemical for your reference.

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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Town fears water supply may be link to childhood cancer

WILMINGTON, MA — Following the discovery of N-nitrosodimethylamine (NDMA) in the local groundwater, residents here and state health officials are asking the US government to examine whether the substance could be linked to the town's high rate of childhood cancer.

According to the [Boston Globe](#), state Rep. James R. Miceli said he will officially request help this week from the Agency for Toxic Substances and Disease Registry (ATSDR), the Atlanta-based federal office that investigates toxic substances.

Late last month, a Wilmington test well revealed a dangerously high level of NDMA, a chemical classified by the federal government as a probable human carcinogen, the *Globe* said.

Wilmington wells were tested for NDMA after residents urged the DEP and Olin Chemical, which owns a plant in the town that is suspected of being the origin of the contaminant, to include the toxin among chemicals of concern that Olin regularly tests for, the [Lowell Sun](#) reported.

The Department of Public Health has been researching elevated incidences of childhood cancer in Wilmington, according to the *Sun*, including documentation that there have been 21 instances of childhood cancers – mostly leukemia and Hodgkin's disease – recorded from 1998 to the end of 2000.

The state's Department of Environmental Protection (DEP) and the federal ATSDR will conduct a water distribution study, the [Wilmington Advocate](#) said.

Some 5,200 parts per trillion of NDMA were discovered – 26 times what the state considers safe, according to media reports.

The state safety threshold is 200 parts per trillion for any exposure, and 10 parts per trillion for long-term exposure of 30 years or more, the *Globe* said.

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What is *n*-nitrosodimethylamine? (Pronounced *n*-ni-tro'so die-meth-yl' uh-meen)

n-Nitrosodimethylamine is produced by industry only in small amounts for research. At room temperature, it is a yellow liquid with no distinct odor. It was used to make rocket fuel, but this use was stopped after unusually high levels of this chemical were found in air, water, and soil samples collected near a rocket fuel manufacturing plant. It is used in some cosmetic and toiletry products and in cleansers.

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What happens to *n*-nitrosodimethylamine when it enters the environment?

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How might I be exposed to *n*-nitrosodimethylamine?

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How can *n*-nitrosodimethylamine affect my health?

When people were exposed to very high levels of *n*-nitro-sodimethylamine, liver damage occurred. Little else is known about the health effects of *n*-nitrosodimethylamine in people. Liver effects have also been seen in animals that ate food, drank water, or breathed air containing high levels of *n*-nitrosodimethylamine.

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Is there a medical test to show whether I've been exposed to *n*-nitrosodimethylamine?

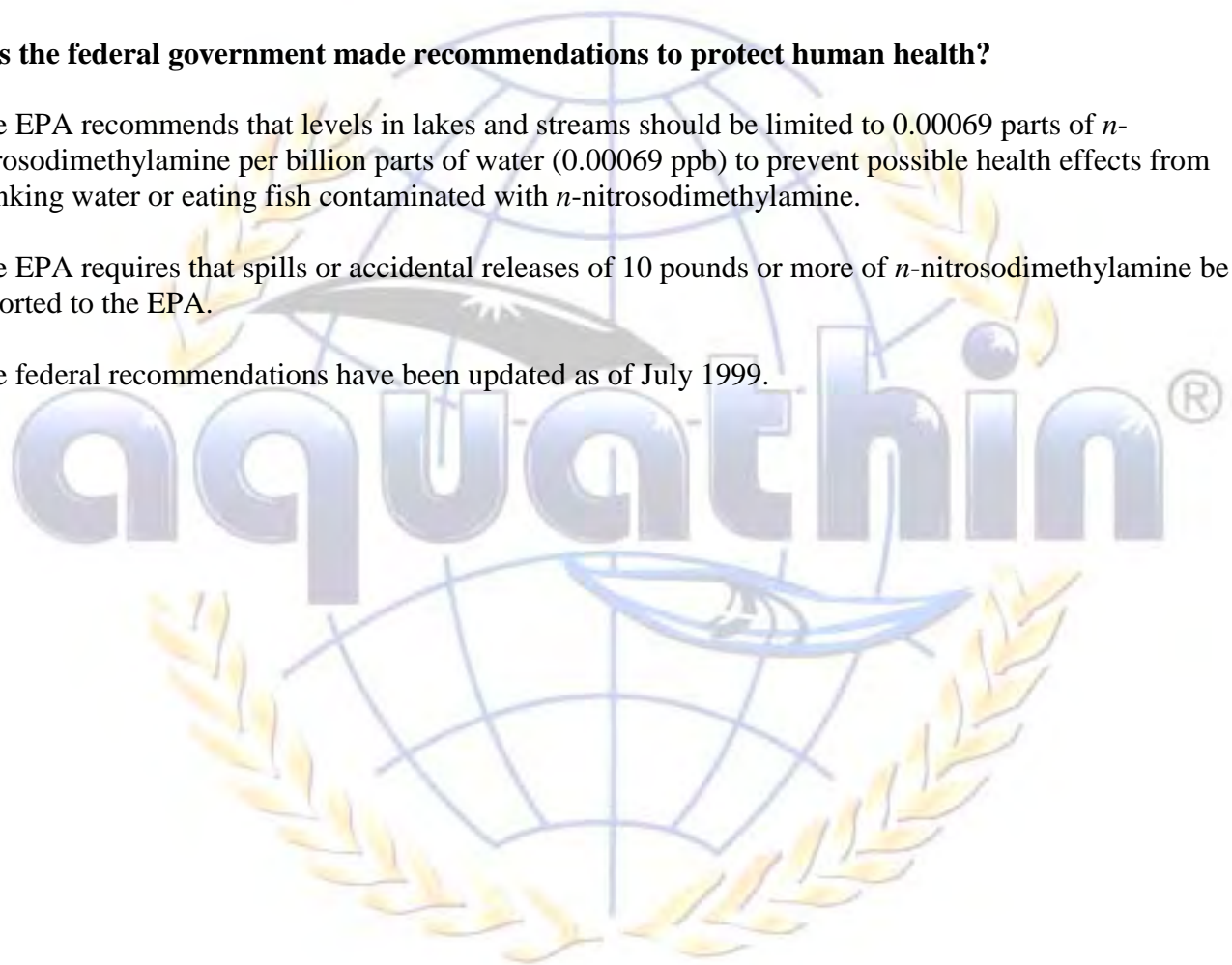
Samples of your blood and urine can be tested to determine if you have been recently exposed to *n*-nitrosodimethylamine. These tests must be done soon after the exposure occurred. These tests will not tell you whether your health will be affected by *n*-nitrosodimethylamine. They are not routinely available in hospitals and clinics because they require special equipment.

Has the federal government made recommendations to protect human health?

The EPA recommends that levels in lakes and streams should be limited to 0.00069 parts of *n*-nitrosodimethylamine per billion parts of water (0.00069 ppb) to prevent possible health effects from drinking water or eating fish contaminated with *n*-nitrosodimethylamine.

The EPA requires that spills or accidental releases of 10 pounds or more of *n*-nitrosodimethylamine be reported to the EPA.

The federal recommendations have been updated as of July 1999.



75 **Sent:** Thursday, May 22, 2003 2:45 PM
Subject: UPDATE: FORUM Q & A: PPM TO UMHOS CONVERSIONS...SO WHAT IS MICROSIEMENS?

Dear Aquathin Dealer OnLine;

Recently several of you have submitted water analyses with Conductivity stated as microSiemens/cm and miliSiemens/cm...and have taken advantage of Aquathin Quote Bank and Tech Bank assistance (thank you for the terrific feedback !).

Below is a Forum Q & A from January last year to provide the conversion of ppm to micromhos. Please note that micromhos is equivalent to microSiemens. MiliSiemens = 1000 microSiemens.

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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----- Original Message -----

From: [AQUATHIN TECH SUPPORT](mailto:info@aquathin.com)

To: info@aquathin.com

Sent: Thursday, January 03, 2002 11:25 AM

Subject: FORUM Q & A: PPM TO UMHOS CONVERSIONS

Today's Forum Q & A is a request to understand the relationship of PPM (parts per million) to Micromhos and MegOhms. Open and save the attachment which is a conversion chart. At Aquathin University we learned that parts per million is the same as stating milligrams per litre (ppm = mg/ltr). Just a quick note that the graph I am sending comes from a laboratory supply house and there is a typographical error at the bottom left under the "grains" column. The error reads 1 gram = 17.1 ppm. It should read 1 grain per gallon = 17.1 ppm (remember this is the same as mg/ltr). 1 gram = 1000 mg/ltr.

Dear Aquathin Dealer On-Line;

Welcome to **The New Forum Q & A** from Aquathin Headquarters. We receive many questions every week from you our friends and Dealers, as well as prospective Dealers and end users around the world concerning technical needs and support for sales and marketing. We thought that it would make a great New Year's Resolution to send you all these **Questions & Answers** as you yourself may have need someday, or wish to pass on to your staff, or simply thankful to have an old "mind file" refreshed. We will only provide you with the "meat and potatoes" portion of the responses keeping it brief and forward any leads as always !!!

So be sure to watch your email closely for both the **SPLASH ON LINE NEWSLETTERS AND THE NEW FORUM Q & A!** Enjoy !!

Happy New Year !! Warmest regards,

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 Celebrating our 22nd birthday in 2002 !!!
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"Alfie"
 Alfred J. Lipshultz, President

P.S. When responding please continue 'REPLY' to include all previous correspondences on this subject.

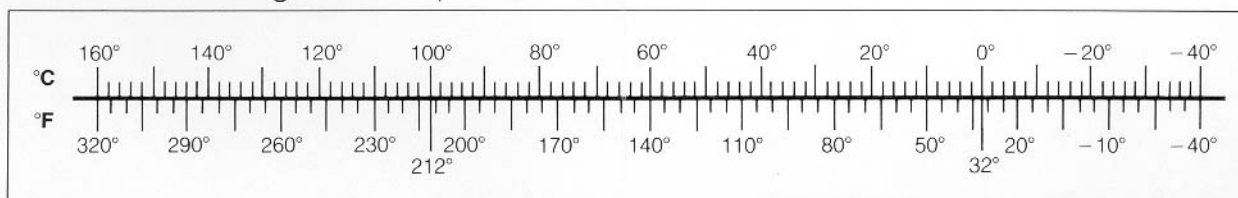
Conductivity and resistivity (NaCl and CaCO₃ solutions at 25°C)

Grains/Gal* as CaCO ₃	ppm as CaCO ₃	ppm NaCl	Conductivity micromhos/cm	Resistivity megohm/cm
99.3	1700	2000	3860	0.00026
74.5	1275	1500	2930	0.00034
49.6	850	1000	1990	0.00050
24.8	425	500	1020	0.00099
9.93	170	200	415	0.0024
7.45	127.5	150	315	0.0032
4.96	85.0	100	210	0.0048
2.48	42.5	50	105	0.0095
0.992	17.0	20	42.7	0.023
0.742	12.7	15	32.1	0.031
0.496	8.5	10	21.4	0.047
0.248	4.25	5.0	10.8	0.093
0.099	1.70	2.0	4.35	0.23
0.074	1.27	1.5	3.28	0.30
0.048	0.85	1.00	2.21	0.45
0.025	0.42	0.50	1.13	0.88
0.0099	0.17	0.20	0.49	2.05
0.0076	0.13	0.15	0.38	2.65
0.0050	0.085	0.10	0.27	3.70
0.0025	0.042	0.05	0.16	6.15
0.00099	0.017	0.02	0.098	10.2
0.00070	0.012	0.015	0.087	11.5
0.00047	0.008	0.010	0.076	13.1
0.00023	0.004	0.005	0.066	15.2
0.00012	0.002	0.002	0.059	16.9
0.00006	0.001	0.001	0.057	17.6
none	none	none	0.055	18.3**

*1 gram per gal = 17.1 ppm (CaCO₃)

**theoretical maximum

Fahrenheit/Centigrade temperature conversion chart



32° Fahrenheit = 0° Centigrade 0° Fahrenheit = -17.8° Centigrade

76 **Sent:** Friday, May 30, 2003 10:09 AM
Subject: FORUM Q & A: H2O AND DISSOLVED GASSES

Hi Noel;

RO removes dissolved solids...not dissolved gasses. Some oxygen will be depleted by virtue of the RO process itself.

Said conversely, RO water in makeup water for freshwater aquariums holds more oxygen from aeration since the water contains no load. Talk about an experiment, my daughter Abbie won a guppy at a local carnival. Sushie lived in an ordinary fish bowl, without aeration pump, just a few marbles, for 8 years. The water was Aquathin and changed about every 3-4 weeks.

Regarding "less of a liquid"; Remember a dissolved oxygen and hydrogen gas is not part of the liquid. In fact, there are systems designed for ultra water purification to remove dissolved O2 and CO2 that would interfere in certain manufacturing processes. There is no reduction of the liquid. Your daughter's experiment did show a less liquid because instead of removing a dissolved gas, you were breaking the H2O molecule with an electric current, hence reducing the liquid.

Regarding doctors and dead water; where in the world did they ever read that in med school. File that under Water Myths we emailed months ago in a newsletter. Even the Dead Sea with a salinity of 50,000 ppm (oceans are 35,000) supports its sealife.

Sounds like a Forum Q & A !

Have a great weekend and warmest regards,
Alfie

----- Original Message -----

From: Noel

To: alfie@aquathin.com

Sent: Friday, May 30, 2003 10:03 AM

Subject: H2O

Good Morning Alfie:

Got a question for you? The night before last, a customer came over to replace a small fitting on an Aqualite which had started leaking. He also brought a friend with him who is a Medical Gas salesman, supplying medical oxygen to many people with breathing difficulties. This salesman believes that our purification system only removes contaminants but leaves total oxygen plus hydrogen in the water.

He believes that as water is made up of 1pt. oxygen and 2pt. hydrogen, if both elements are removed from the water or liquid, there will be "**LESS**" of the liquid present, and eventually there will be no liquid left.

We have in the past, manufactured hydrogen and oxygen from water for a grade 8 science project for my daughter, by using stainless plates and a 12 volt battery, (electrolysis), and a dome for the collection process. We used to pump the hydrogen-oxygen into a green garbage bag, tie the top of the bag and with a torch against the bag we would hear a loud "BANG". After 24 hours there was no more hydrogen produced but still we had only lost 3" of water in our 6 gallon tank.

I was led to believe that RO & DI stripped the water of the oxygen molecule and that we are drinking water as some Doctors suggest is classified as DEAD WATER. Which is the truth?

sincerely Noel

77 **Sent:** Friday, May 30, 2003 12:05 PM
Subject: FORUM Q & A: IS WATER A NUTRIENT?...A REVIEW FROM AQUATHIN U. !

Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;

You all know that MediMerge has a wonderful link on the Aquathin Website. Below you will read a newsletter sent by MediMerge regarding the many merits of "hydration"....with a little clarification assistance by Aquathin.

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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----- Original Message -----

From: Richard Furber
To: info@aquathin.com
Sent: Thursday, May 29, 2003 12:09 PM
Subject: RE: Water, Water, Water

Excellent additions - I'll pass it to the other readers. Thx, Richard

Richard Furber
Chairman & CEO
MediMerge Group, L.L.C.

-----Original Message-----

From: info@aquathin.com [mailto:info@aquathin.com]
Sent: Thursday, May 29, 2003 11:15 AM
To: Richard Furber
Subject: Re: Water, Water, Water

Hey, you're getting pretty good in your old age !

Actually, water is not a nutrient (which is why most players in our industry just don't get it), but it is the most essential to life. A nutrient is something that can be broken down and deliver energy. Water does not break down. When taking an engineered approach to water, it has 5 functions serving as a coolant, a lubricant, transportant, solvent and dispersant. A copious quantity of "clean" water, void of a load (inorganics and organics), is at its most efficient for the 5 functions.

*Warmest regards,
Alfie*

----- Original Message -----

From: Richard Furber
Sent: Thursday, May 29, 2003 9:42 AM

Subject: Water, Water, Water

1. Hydration

GENERAL DESCRIPTION:

Although we take water for granted, the fact is that water is a nutrient essential to life. Your body typically loses two to three quarts of water each day through perspiring, sneezing, breathing, urinating, defecating and, for some women, nursing a baby. Depending on how much physical work or exercise you do and how hot or cold the temperature is, you may lose more. The best way to monitor fluid intake is to watch the color of your urine, which should be light rather than dark. Half of all the fluids you drink should be water. Tea, coffee, milk, and juice count as fluids, but the water in foods (for example, fruits, vegetables and soups) does not. Consider that fluid a bonus.

ROLE FOR ANTI-AGING:

Water is crucial for the organs to function correctly, the regulation of body temperature (thermoregulation), and for dissolving solids and moving nutrients throughout the body. Research has shown that proper hydration may help to minimize chronic pain such as rheumatoid arthritis, lower back pain, migraines, and colitis. Drinking plenty of water could help to lower the risk of heart disease and heart attack, according to results of a study published in the American Journal of Epidemiology in 2002. Researchers found that men and women who drink five or more glasses of water each day are 54% and 41%, respectively, less likely to die from a heart attack than those who drink two or less glasses each day. However, the reverse appears to be true in people who drink a lot of fluids other than water. In fact, women who drank high levels of fluids other than water were found to be twice as likely to die as those who drank less non-water fluids, while men had a 46% increased risk of dying from a heart attack. The researchers suspect that water helps to lower heart attack risk by thinning the blood, whereas drinking other fluids thicken the blood, thus increasing the risk of developing a heart-attack triggering blood clot. Drinking plenty of water may also lower cholesterol and combat high blood pressure. Water can also improve mental performance, according to scientists from the UK. Researchers from the University of Bristol found that people who were thirsty performed 10% better on tests of mental performance if they drank a glass of cold water before taking the test.

THERAPEUTIC DAILY AMOUNT:

General guidelines for optimal fluid intake include:

- * Aim for at least eight cups of fluid a day, half of them water.
- * Drink some water first thing in the morning to make up for loss of fluids during the night.
- * Drink a beverage with every meal.
- * Don't wait until you are thirsty; drink throughout the day.
- * For every cup of caffeinated beverage you drink, consume an extra half-cup of another fluid to make up for caffeine's diuretic effect.

Richard Furber
Chairman & CEO
MediMerge Group, L.L.C.

78 **Sent:** Saturday, June 21, 2003 11:46 AM
Subject: FORUM Q & A: CADMIUM NEWS UPDATE -- CAUSES GENETIC MUTATIONS AS MUCH AS 2000 FOLD.

Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;

Please accept our apologies for the delay in sending important news updates as I have been traveling on business. Below you will read an all important update on the heavy metal Cadmium. However, there is also an extremely important piece of information missing. What the article fails to report is that one of the largest sources of this toxic heavy metal is in galvanized piping (cadmium and zinc). You will read that the EPA banned cadmium based pesticides only a few years ago. Galvanized piping is a major conduit in most older homes and buildings throughout the world and leaches cadmium and zinc (in fact, softened water running through these galvanized pipes increases the leaching).

Your patented Aquathin Reverse Osmosis Deionization Process easily removes all heavy metals including cadmium and zinc...and No One Does It Better Than You ! I love my Aquathin !!!!

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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Cadmium Disrupts Ability of Cells to Fight Cancer

RESEARCH TRIANGLE PARK, North Carolina, June 9, 2003 (ENS) - Cadmium, a naturally occurring metal found in food, water and cigarette smoke, disrupts a DNA repair system that is important in preventing cancer, according to researchers at the National Institute of Environmental Health Sciences (NIEHS). The metal, primarily used to make batteries, is a known human carcinogen and has long been known to cause human lung cancer in cadmium-related industries unless strict safeguards are taken.

But unlike most carcinogens that work by attacking DNA directly, the NIEHS study released today indicates that cadmium causes mutations in another way, explains the study's senior author Dr. Dmitry Gordenin.

The NIEHS research team showed that cadmium causes mutations by inhibiting the ability of cells to repair routine errors made when the DNA is copied to make new cells.

"Unless cadmium is unique in its mechanism, it would seem that environmental factors may cause genetic defects and cancer not only by attacking our DNA directly but also by undermining the mechanisms by which faulty DNA replication is repaired," Gordenin said.

Cadmium is a natural element and can be found in air, water, soil and food. (Photo courtesy [Royal Society of Chemistry](#))

Cells must duplicate their DNA in order to replace dying cells, but mistakes in this duplication are frequently made. Most organisms correct these mistakes, Gordenin explained, by "efficient mechanisms akin to a computer's 'spellcheck.'"

Without these corrective mechanisms, mutations would occur and multiply in cell after cell, which could lead to cancer, reproductive problems, birth defects or other ills.

The researchers found that cadmium blocks "post-replication mismatch repair" of natural errors.

This increases mutations "as much as 2,000 fold," said Dr. Michael Resnick, an NIEHS senior scientist and a co-author of the report.

"Genetically, this can result in a vast increase in errors that could be catastrophic," Resnick said.

The researchers say that the amount of cadmium needed to inhibit repair and increase mutations was remarkably small.

"We saw substantial effect from cadmium exposure from concentrations that may well be environmentally relevant especially to cadmium-related industry workers and smokers," said Dr. Thomas Kunkel, another NIEHS senior scientist who worked on the study.

Cadmium is a natural element, found in all soils and rocks, including coal and fertilizers. Its natural presence in air, water, soil and foodstuffs results mainly from mining and metal processing operations, gradual rock erosion and abrasion, as well as from volcanic eruptions.

Cadmium is not mined, rather it is a byproduct of the smelting of other metals such as zinc, lead and copper. The soft, silver-white metal has been used for metal coatings, and in paint, plastics and batteries, because it does not corrode easily, has a low melting point and excellent electrical conduction.

Scientists hope a better understanding of how carcinogens affect DNA will lead to improvements in defining at risk populations. (Photo courtesy [National Institute of General Medical Sciences \(NIGMS\)](#))

Some seventy percent of its use is in rechargeable nickel-cadmium batteries.

The primary health concerns are for industrial workers who may be exposed to generation concentrations, but the general population can be exposed to cadmium from breathing cigarette smoke, drinking contaminated water or eating foods that contain it. Smoking doubles the average daily intake.

Cadmium disappears from organisms very slowly and its half-life in the human body can be as long as 20 years.

Until banned by the EPA in 1997, cadmium carbonate and cadmium chloride were used as fungicides for golf courses and home lawns.

The NIEHS studies, reported in today's online issue of the journal "Nature Genetics," were done in yeast cells - the living cells used to make bread rise - which have proved a useful tool for studying cellular activities.

Previous work has demonstrated that what happens in yeast cells generally also happens in more complex life forms. The researchers say that their studies with extracts of human cells and initial studies in cultured human cells also suggest a similar mechanism to the one found in the study of yeast cells.



79 **Sent:** Thursday, June 12, 2003 6:31 PM
Subject: FORUM Q & A: IRON REVIEWED

Hi Roger;

Thank you for your email. I have inserted our responses below at **(aj-12-06-03)**. Rog, as we teach at Aquathin U., iron is a schizophrenic-paranoid-pain in the a#s and will be the most difficult contaminate one will ever deal with. It comes in 3 forms (ferric, ferrous, heme) and requires in depth knowledge for treating. Please accept my invitation (as most Dealers do) to consult with me with every "iron" project presented to you...until you become absolutely as comfortable with iron as you are with Aquathin RODI.

Warmest regards to all,
Alfie

----- Original Message -----

From: Roger Wiltshire

To: alfie@aquathin.com

Sent: Thursday, June 12, 2003 8:13 AM

Subject: iron

Dear Alfie

I can see that Pedro is going to be quoting for a great many commercial softeners in the future. He has asked me for help with another and I need to clarify some points with you.

1. Iron - can you remind me the calculation for ppm to gpg. My recollection is that our softeners cope with up to 5ppm Fe. On this quote the iron figure is less than 10 mg **(aj-12-06-03) Each ppm of Fe (ferrous & ferric) equates to 4 gr/g of CaCO3. While everything we teach at Aquathin U. is "textbook", this iron conversion is a "street factor" and not found in textbooks. It is well known by all that deal with the bugger.**

Regarding "less than 10 mg"; We need exact value. With iron greater than 5 mg, we need to consider treatment other than cation softening. We also need TDS, pH...you know, all of the "Friendly Six" tests that make for a successful H2O Rx.

2. Hardness - if it is measured in mg/ltr how is this converted to gpg. Do we divide by 17? The figure he shows me is 849.9 mg/ltr CaCO3 with pH at 8.05. **(aj-12-06-03) "gpg" is incorrect. "gr/g" = grains per gallon. Also, mg/ltr = ppm, so you can see values like the 849.9 also given as ppm.**

What you are referring to as "divide by 17" is "grain per U.S. gallon" which is 17.1. You will also come across values of hardness given as "French Degree (10 ppm as CaCO3), German Degree (17.9 ppm as CaCO3), English Degree (14.3 ppm as CaCO3). To ascertain the gr/g in Pedro's analysis, be sure to confirm that the hardness is given as U.S. grain per gallon...and if so, hardness of 849.9 mg/ltr divided by 17.1 is 49.7 gr/g. Always round up, so this one is 50 gr/g. If the hardness is stated as "German", "French" or "English", divide by those respective factors given above.

Whenever you do your onsite testing from our Aquathin / Hach 4 In 1 Test Kit, those values received are always in U.S. grains per gallon. The immediate paragraph above explanation pertains to what you will read on a lab test.

Sounds like a Forum Q & A !

Roger Wiltshire
Managing Director

WORTH LOOKING INTO™



80 Sent: Wednesday, June 25, 2003 7:19 PM
Subject: FORUM Q & A: WHAT ARE AUTOCLAVES AND WHAT WATER IS BEST FOR AUTOCLAVE OPERATION

Dear Aquathin Dealer OnLine;

Autoclaves are devices designed to sanitize surgical tools. They range from small units for a few tools like you see in the dentist office, to large units for sanitizing hundreds of surgical tools at one time in large hospitals. While this is a very niche market...it is a good market for your Patented Aquathin RODI Process. Call upon hospitals, dental offices, labs and introduce your "specialized services". You are armed with the best solution as you will read below...and No One Does It Better Than You !

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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----- Original Message -----

From: info@aquathin.com
To: EMIL, GARRY--PURIFIED WATER TO GO
Sent: Wednesday, June 25, 2003 7:11 PM
Subject: WATER FOR AUTOCLAVE

Dear Garry;

Thank you for your call. Aquathin has provided our patented RODI process for autoclaves for many years. Please review letters of satisfaction from Albert Einstein Medical Center, Dr. Carlos A. Azar, Hospital Metropolitano, Dr. Larry Wardzalla, Kirkegaard & Perry.

*Main issues of concern and distress are pathogens, endotoxins, organics all found in source water **and** DI water (ordinary DI exchange tanks breed bacteria). Also, even though autoclaves are designed to create heat for disinfection, they cannot contend with cysts i.e cryptosporidia, giardia lamblia, mac and microsporidia, nor pyrogens (germs that create infection and fever whether living or dead). Further the heating action literally "plates" endotoxins (the naked DNA...or toxic guts, if you will, of the pathogens) onto the surgical tools often resulting in transmittal of disease into patients. Since patients most always have reduced immune systems, even the slightest of endotoxins can and will be deadly.*

Autoclaves require a demineralized water free of disease causing waterborne microorganisms and endotoxins. The above referenced letters and lab results in your Aquathin Master Catalogue will be most interesting to your Clients.

We can discuss a simple system and also a slightly larger capacity system that will provide reagent grade water for use in their labs and service the autoclaves all from the same system.

Awaiting your reply and warmest regards,

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"Alfie"

Alfred J. Lipshultz, President

P.S. When responding please continue 'REPLY' to include all previous correspondences on this subject.



81 **Sent:** Friday, July 04, 2003 12:38 PM
Subject: FORUM Q & A: TREATING SILICA

Dear Aquathin Dealer OnLine;

We received an inquiry for assistance from my friend Derek McConnell of Aquathin UK, The Pure H2O Company, concerning silica. Derek took a great shot at a recommendation for silica which they have never encountered in their 12 years of successful operation. Please read the appropriate action below.

Also, you will notice that as an Englander, Derek still refuses to recognize our Independence by posing this question on the 4th of July !

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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----- Original Message -----

From: ALFIE
To: Derek
Sent: Friday, July 04, 2003 12:31 PM
Subject: Re: Silica

Hi Derek;

Thank you for your email. Silica is almost on the same P.I.A. level as iron. Its only salvation is that concentrations above 3 ppm are rare. When you find silica as high as you have, it will etch porcelain dishes, glassware, etc. In fact, you can have zero hard water and swear its hard because of the silica levels. In the U.S., high levels of silica are found in southern Texas and the mountains near Washington State and Idaho where the well water can look like milk from all the glacial till containing silica. Salvador is blessed with the burden. This is the first we've seen in the UK that I can recall.

So, go to page 49 in the new Planner and locate Colloidal Scavenging Resin about 4" from the bottom of the page. This is a macroporous anion that regenerates with the chloride side of the salt in a water softener setup. We would recommend an ASC60K/F with half Colloidal Scavenging and half softener cation resin. Add \$250 to system cost. You have to do it this way otherwise that level of silica will plaque the RO membrane.

Regarding bacteria and iron; The softener portion may take care of the iron if ferrous or ferric. If its organic bacterial, you must recommend chlorination which will also precipitate all irons and destroy the bacteria. RS35CL with RT120 followed by BFF-3 or TGST-1.5 with 50-5 and GACBB20. Additionally the chlorine will bump up the pH.

Regarding the water analysis in general; if the TDS is 190 mg/l then the conductivity should be approximately 350 micromhos.

Looks like a Forum Q & A to me !!!

*Warmest regards to all,
Alf*

----- Original Message -----

From: Derek

To: Alfie

Sent: Friday, July 04, 2003 9:36 AM

Subject: Silica

Dear Alf,

I wouldn't have sent you this if I felt it needed an in-depth answer!

Well-water
Conductivity 192.5 umhos/cm
TDS 190
Total Solids 221 ppm
pH 6.6
Iron 0.79 ppm
Silica 84 ppm
Hardness as CaCO₃ 63.9
Magnesium 9.3 ppm
Slightly Turbid NTU 21
Odourless
Coliforms 15 CFU/ml
E.Coli o
Total plate count 155

I'm recommending Aquashield POE Bacteria Filter Assembly (50-5 & Aquashield), followed by Calcite Feeder to raise pH for incoming water, and PL90 for drinking. If the client cannot afford the PL90 also, will the filter reduce/remove the silica?

Best Regards,

Derek

Derek McConnell
Sales Director

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82 **Sent:** Tuesday, July 15, 2003 10:58 AM
Subject: FORUM Q & A: LEAD UPDATE...AN UNWARY SOURCE OF POISONING.

Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;

Well we've just returned from our favourite vacation spot in the Florida Keys. Each day I would see hundreds of avid fishermen enjoying themselves and their families, here, in the sport fishing capital of the world.

On March 20, 2002, you received a Forum Q & A regarding lead poisoning. The EPA Tip of The Week below describes the terrible environmental side effects associated with the love of fishing i.e. use of lead weights. Compound that with thousands of bass lakes and trout streams around the world, toss in a couple hundred years of this practice, and a side dosing of gun range and hunting fields (yes, shotgun pellets and bullets are mostly lead), and you get one heck of a lead poisoning. Many of our Customers draw residential water from lakes and streams. I would respectfully recommend that you include this Forum Q & A in your presentation to all future Customers on lakes and streams. I love my Aquathin !

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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Our Environmental Tip of the Week is courtesy of the Alameda County Water District, Fremont, Calif. Environmental specialist Marian J. Gonzalez writes: "Birds are particularly susceptible to ingesting lead fishing tackle lost by anglers. Once ingested, acid in a bird's stomach dissolves the lead, which then enters their bloodstream and is carried to vital organs. Health impacts from this lead poisoning can range from loss of weight and trouble feeding and caring for their young, to the inability to fly or walk and even death. Predators and scavengers who then eat these birds are also at risk for lead poisoning.

"Fortunately, there are inexpensive and ecologically friendly alternatives to lead fishing tackle. Simply replace lead tackle with nonlead tackle made from materials such as tin, steel, bismuth, glass, ceramic, rubber and plastic. Nonlead jigs and weights work equally well and are not harmful to humans or waterfowl."

83 **Sent:** Wednesday, July 16, 2003 2:00 PM
Subject: FORUM Q & A: UPDATE-- PI WATER, CLUSTERED WATER...AND OTHER WATER MYTHS

----- Original Message -----

From: David Waddell
To: info@aquathin.com
Sent: Sunday, July 13, 2003 12:24 AM
Subject: Re: Inventory order

Alfie,

You have my permission to use this e-mail on the Q and A.
I am looking forward to placing my inventory order this week. Hopefully next month we can bring in an RO/DI unit or two.

Thanks,

Dave

----- Original Message -----

From: info@aquathin.com
To: David Waddell
Sent: Saturday, July 12, 2003 3:47 PM
Subject: Re: Inventory order

Hi David;

Thank you for your email and warm comments regarding our support. We make the best equipment in the world...and we make the best Dealers too !

Regarding your experience with magnetics; Absolutely correct. What allows these types of characters to sell, is that the reader must buy off on their first premise (now, only the uneducated on the subject would do so....but there are a lot of those people, including you and me, for many topics....that's why proper due diligence is imperative at all times), and when one does, they are lead astray completely.

May I have your permission to use your experience and comments concerning magnetics on the PI Water Forum Q & A reply?

*Awaiting your reply and warmest regards,
Alfie*

----- Original Message -----

From: David Waddell
To: info@aquathin.com
Sent: Friday, July 11, 2003 11:53 PM
Subject: Re: Inventory order

Alfie,

Thank you for your reply. I briefly read the Nikken website and was even more amused than before. They claim that electromagnetic fields are what cause lightning. I always thought it was static electricity. Magnetic flux can obviously generate electricity, but the magnetic fields within clouds couldn't be that strong, or an aircraft's compass wouldn't function inside them.

For a few years, I have helped a friend of mine, on occasion, that owns a non-destructive testing consultation business. In short, we go into power plants (coal-fired and nukes) and test the turbine rotor and diaphragms for signs of fatigue or cracking. We give the rotor a "headshot" test, which requires about 3,000 "magnetic amps" of current to generate a field strong enough to properly check it. This is surely more of an electromagnetic field than

most clouds produce. We should have generated at least a small spark. No sparks, just heat. Also, after 3 days of generating intense electromagnetic fields and working next to an operational 60 megawatt generator, I feel no different than when I arrived (aside from obvious fatigue from the hard, hot work).

I appreciate your excellent support and the amount of information that is available to me through the e-mails, catalogues, etc. It is unusual for any manufacturer to offer such strong support to its distributors, retailers, and customers.

Have a great day!
Dave

----- Original Message -----

From: [AQUATHIN TECH SUPPORT](#)

To: info@Aquathin.Com

Sent: Tuesday, December 17, 2002 7:16 PM

Subject: FORUM Q & A: PI WATER, CLUSTERED WATER...AND OTHER WATER MYTHS

Dear Aquathin Dealer OnLine;

Goofy water claims, goofy science, goofy sales persons....and more. My friend Michael Schwindt of Purified Water To Go, an Authorized Aquathin Dealer in Toronto, received his introduction to PI water. Being a recent graduate of Aquathin University, Michael knew something was not really Kosher about this jazz and dropped me a note. Read on for some killer material on water myths. I have given this information to many Dealers over the past several years and thought it would make fun reading in a Forum Q & A. Enjoy !

Warmest regards to all,

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----- Original Message -----

From: "Purified Water to Go"

To: <info@aquathin.com>

Sent: Tuesday, December 17, 2002 4:38 PM

Subject: RE: Your opinion please !

> I love it! Many THANKS

> Michael

>

>

> -----Original Message-----

> From: info@aquathin.com
> Sent: Tuesday, December 17, 2002 4:19 PM
> To: Purified Water to Go
> Cc: EMIL, GARRY--PURIFIED WATER TO GO
> Subject: Re: Your opinion please !

> Dear Michael;

> Thank you for your email...and your comments regarding "Alfie analysis". I
> am sure you know that our information is always backed by sound science and
> facts. Pi is in the sky.

> Here is information to provide potential clients concerning clustered water
> and other water myths.

> www.sfu.ca/aqua

> Warmest regards,
> Alf

> ----- Original Message -----

> From: "Purified Water to Go"
> To: "Aquathin" info@aquathin.com
> Sent: Tuesday, December 17, 2002 4:13 PM
> Subject: Your opinion please !

>> Sorry to waste your time but I could not resist ... This Japanese thing
>> mentions Ceramics,(we no they fail everything except a few chemicals)
>> magnetic (I think the US Army completely failed Magnetics as a
>> purification
>> system) Vortex oxygenation (spooky stuff) and "pi" ionization or
>> mineralization (is that a word?)... always enjoy the Alfie analysis!
>> As always
>> Michael

>> <http://office.5pillars.com/e-nikken/pimag/optimizer.htm>

>> Michael Schwindt
>> Purified Water To Go



84 Sent: Wednesday, August 06, 2003 1:18 PM

Subject: FORUM Q&A: WHY ITS A BAD CONCEPT TO PUT RO IN BOTTLELESS WATER COOLERS.

Dear Aquathin Dealer OnLine;

Recently we've received an increased number of calls from Dealers and non dealers requesting information for bottleless water coolers with RO systems installed inside them. **THIS IS A BAD CONCEPT PROVEN BY THE EXTREMELY HIGH PERCENTAGE OF FIELD FAILURES IN OASIS, CORDLEY TEMPRITE, SUNROC, AND THE VARIOUS KOREAN AND TAIWANESE MODELS.** Some of you may recall from several years ago, the thousands of refurbished Oasis RO coolers we provided (RO removed) at an extreme discount. They were removed from the field by their "bottled water companies" who rented them, and sold them to use with the RO systems removed and a fraction of the original cost.

I have provided a copy of an earlier response on this subject to Michael Schwindt, an Authorized Aquathin Dealer in Toronto, for your review.

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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----- Original Message -----

From: Purified Water To Go

Subject: RE: Cooler with built in RO

This is great ammo!

THANKS

Michael

-----Original Message-----

Subject: Re: Cooler with built in RO

Hi Michael;

No we cannot make a recommendation. The problem with present designs is that the RO systems are undersized to fit in coolers i.e. do not come with the failsafes that make systems operate efficiently....and then there's the drain line issue. You see if you run the drain line any distance, it puts back pressure on the RO and hence reduces the efficiency causing TDS to go up. The best scenario is to use a bottleless water cooler (preferably from the Aquathin Oasis Dealer Direct Program) and locate the RODI system at the source allowing the tank to drive water to the cooler....and no long drain runs ! This scenario

also facilitates a more cost effective installation when multiple coolers are used and taking advantage of a single central Aquathin RODI system to service them.

*Have a great weekend and warmest regards,
Alfie*

----- Original Message -----

From: Purified Water To Go

Subject: Cooler with built in RO

Alfie ... can you recommend a good Cooler with a built in RO unit? preferably American made etc.

THANKS

Michael



85 Sent: Tuesday, August 12, 2003 9:55 AM
Subject: FORUM Q & A; WHAT ABOUT SHOWER HEAD FILTERS?

> Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction
> NewsBulletin Members;
>
> A new friend and business associate, Bob Vineyard, asked about shower head
> filter efficiencies. Below is our response as taught at Aquathin
> University.

>
> Warmest regards to all...as well, your comments are always welcome and
very
> much appreciated.

>
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>
> "Alfie"
> Alfred J. Lipshultz, President

>
>
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Bank,
> Tech Bank and Quote Bank... ARE ALL FREE services to all Authorized
> Aquathin Dealers and their clients to keep you abreast of technology
updates
> and industry news.

>
>
>> Hi Bob;
>>
>> Thank you for your email and super news regarding orders.

>>
>> Regarding shower filters; The various apparati that fit onto the shower
>> head have been proven not to work...time and time again. Here are the
>> reasons:

>>
>> 1. Many manufacturers use coconut shell carbon which is best suited for
>> gaseous separation vs. organic and chlorine removal in water.

>>
>> 2. Even when using bituminous or lignite GAC, carbon does not like to
>> remove organics in hot situations...in fact, one of the ways to
regenerate

>> carbon is to heat away the organics.

>>
>> 3. There is no advantage to using redox materials i.e. KDF along with

> the
> > carbons as the quantities of these medias are far too small with regard
to
> > the 2.5 or more gpm flow rate, temperature...and especially in the
> presence
> > of chloramines and / or high pH (another way for GAC to give off
organics
> is
> > to bath the GAC in caustic conditions, hence GAC's efficiency is
> diminishing
> > the higher the pH increases in water).
> >
> > 4. And now for a little common sense. Everyone has used or is aware of
> the
> > 10" GAC filters that fit in housings often installed under kitchen sinks
> > along with a separate carafe faucet for delivery of filtered water.
That
> > system flows at a paltry .5 to .75 gpm to attain an effective contact
> time.
> > How on Earth is a filter of considerably smaller size attached to a
shower
> > head flowing at 5 times the rate of the undersink model, and in hot
water
> > conditions, expected to do anything by comparison!?!?!?
> >
> > 5. Hence the Aquathin MegaChar or ASTF-2003.
> >
> > The above issues are presented at Aquathin U. and would make an
> excellent
> > Forum Q & A...thanks !
> >
> > Have a great weekend and warmest regards to all,
> > Alfie
>
>

86 **Sent:** Thursday, September 18, 2003 5:00 PM
Subject: FORUM Q&A: WHAT IS DIOXIN?

Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;

Recently several people have asked for information about dioxin and if Aquathin removes it. Please read the details below about this highly toxic chemical....and yes, the Patented Aquathin Process readily removes it....and No One Does It Better ! I love my Aquathin !!

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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***Celebrating our 23rd Birthday in 2003 !!!
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"Alfie"

Alfred J. Lipshultz, President

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What Is Dioxin?

Dioxin is the name generally given to a class of super-toxic chemicals, the chlorinated dioxins and furans, formed as a by-product of the manufacture, molding, or burning of organic chemicals and plastics that contain chlorine. It is the nastiest, most toxic man-made organic chemical; its toxicity is second only to radioactive waste. Dioxin made headlines several years ago at places such as Love Canal, where hundreds of families needed to abandon their homes due to dioxin contamination, and Times Beach, Missouri, a town that was abandoned as a result of dioxin.

Dioxin - An Unprecedented Threat

We now know that dioxin exhibits serious health effects when it reaches as little as a few parts per ***trillion*** in your body fat. Dioxin is a powerful hormone disrupting chemical. By binding to a cell's

hormone receptor, it literally modifies the functioning and genetic mechanism of the cell, causing a wide range of effects, from cancer to reduced immunity to nervous system disorders to miscarriages and birth deformity. Because it literally changes the functioning of your cells, the effects can be very obvious or very subtle. Because it changes gene functions, it can cause so-called genetic diseases to appear, and can interfere with child development. There is no "threshold" dose - the tiniest amount can cause damage, and our bodies have no defense against it.

Unfortunately, according to the EPA, much of the population of the U.S. is at the dose at which there can be serious health effects. How did this happen? For about 40 years we have seen a dramatic increase in the manufacture and use of chlorinated organic chemicals and plastics. For chemicals, it was insecticides and herbicides (weed killers). For plastics, it was primarily polyvinyl chloride (PVC). From phonograph records to automobile seat covers to wire insulation to shampoo bottles to handbags to house siding to plumbing pipes to wallpaper, we are literally surrounded by PVC. When these chemicals and plastics are manufactured or burned, dioxin is produced as an unwanted (but inevitable) by-product.

Dioxin had been a little-known threat for many years near factories that produce PVC plastic or chlorinated pesticides and herbicides, and where those pesticides and herbicides have been heavily used, such as on farms, near electric and railway lines, apple orchards, paper company forests. It became better known when Vietnam War veterans and Vietnamese civilians, exposed to dioxin-contaminated Agent Orange, became ill. It has been a hazard downstream of paper mills (where chlorine bleach combines with natural organics in wood pulp and produces dioxin).

Several towns and cities have become contaminated as a result of chemical spills or manufacturing emissions, some that needed to be evacuated. Love Canal (Niagara Falls, N.Y), Seveso (Italy), Times Beach (Missouri), Pensacola (Florida), and the entire city of Midland, Michigan have high concentrations of dioxin. Bizarre health effects, such as cancer, *spina bifida* (split spine) and other birth defects, autism, liver disease, endometriosis, reduced immunity, chronic fatigue syndrome, and other nerve and blood disorders have been reported.

But in the last 20 years we have begun to **burn** household and industrial trash and medical waste in mass-burn incinerators. The result - given that we have disposable vinyl plastic all around us - has been a dramatic increase in dioxin contamination everywhere in the U.S. Dioxin, formed during burning, is carried for hundreds of miles on tiny specks of fly-ash from the incinerators. It settles on crops, which then get eaten by cows, steers, pigs, and chickens. It contaminates lakes, streams, and the ocean. Like the pesticides such as DDT, dioxin accumulates in the fat cells of the animals, and re-appears in meat and milk. Dioxin is virtually indestructible in most environments, and is excreted by the body extremely slowly.

87 **Sent:** Tuesday, September 23, 2003 6:18 PM
Subject: FORUM Q & A UPDATE: LEGIONELLA -- IN RESIDENTIAL HOT WATER PIPES

Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;

On June 18, 2002, I sent you a Forum Q & A discussing Legionella (pasted at bottom for immediate reference). The quick read below details new information that Legionella does not only reside in cooling towers and hospitals, but also your homes. Drop down to the quote where I have made bold and underscored from microbiologist Janet Stout for a real consumer reality check.

For the past 4 months we have seen more Dealers automatically include AquaShield in their POE installations. Here is another excellent reason. I love my Aquathin !!

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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Celebrating our 23rd Birthday in 2003 !!!
(visit the allnew <http://www.aquathin.com>)

"Alfie"
Alfred J. Lipshultz, President

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<http://www.newsday.com/news/nationworld/wire/sns-ap-legionnaires-disease,0,4151134.story>

Hot Water Pipes Said Tied to Legionnaires

By DANIEL Q. HANEY
AP Medical Editor

September 15, 2003, 8:37 AM EDT

CHICAGO -- Outbreaks of Legionnaires disease are often blamed on germs spewing from air conditioning systems in big buildings, but new research shows home hot water pipes can also be a common source of the disease.

Legionnaires is a form of pneumonia caused by a bug that occurs naturally in water. The latest work, combined with earlier studies, suggests the bacteria often grow in the slimy gunk lining residential hot water pipes, and home water may be responsible for about 20 percent of cases.

"The evidence suggests that the residential water system is an underappreciated source of Legionnaires disease," said Janet Stout, a microbiologist who heads that special pathogens lab at the Veterans Administration Medical Center in Pittsburgh.

Stout presented her latest findings Sunday at a conference in Chicago of the American Society for Microbiology.

Stout estimates that between 2 percent and 5 percent of the 600,000 pneumonia cases requiring hospitalization in the United States each year are caused by Legionella pneumophila bacteria. The diagnosis is often missed because finding it requires both a bacterial culture and a special urine test.

Her team set out to track the sources of Legionnaires infections reported to the health departments in Allegheny County in Pennsylvania and Cuyahoga County in Ohio. The families of 21 victims agreed to allow testing of their home water, and the Legionnaires bug was found in 24 percent of them. Two of the patients studied died of their infections.

The bacteria flourish at temperatures between 90 and 105 degrees. People catch the germs by inhaling drops of water. This can occur while showering, washing or even drinking, especially if people have swallowing difficulties and accidentally aspirate water.

Most people exposed to the bacteria never get sick. Those who are susceptible may include the elderly as well as people with diabetes or diseases that weaken the immune defenses.

"The overall perception we have that drinking water in the home is free of bacteria is a misconception," said Stout. "Although Legionnaires is a naturally occurring organism in water, people should be aware this is a potential source of disease."

People often keep the temperature in their hot water tanks set low to save electricity and prevent scalding. To kill off the Legionnaires bacteria, Stout recommends temporarily turning up the temperature to above 140 and running the hot water outlets for a half hour. Since the bug quickly returns, this should be done every two or three months, especially if people prone to the infection are using the water. If the temperature is kept high, the bacteria return much more slowly or not at all.

Another strategy is to let the shower run on hot for a few minutes before jumping in. This flushes out some of the bacteria that have built up in the pipes.

Typically, Legionnaires is blamed on air conditioning systems and cooling towers in large buildings, such as hotels and hospitals, where outbreaks can be especially serious.

"Everybody has been so focused on hospitals," said Richard Miller, a microbiologist at the University of Louisville. "Homes have always been in the background, but they are clearly a risk factor."

Legionnaires can be treated with the antibiotic erythromycin. The disease is found worldwide and does not spread from person to person. It was first recognized after an outbreak at an American Legion convention in 1976 in Philadelphia, where it made 182 people sick.

* ____

Medical Editor Daniel Q. Haney is a special correspondent for The Associated Press.

----- Original Message -----

From: info@aquathin.com

To: info@Aquathin.Com

Sent: Tuesday, June 18, 2002 1:09 PM

Subject: FORUM Q & A: LEGIONELLA

Dear Aquathin Dealer OnLine;

This is a "brief and immediate response" to the inquiry from my friend Derek McConnell of Aquathin UK, The Pure H2O Company concerning Legionella.

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"Alfie"

Alfred J. Lipshultz, President

P.S. "Splash NewsBulletins", "Forum Q & A", "Allergic Reaction", Tech Bank and Quote Bank... ARE ALL FREE services to all Authorized Aquathin Dealers and their clients.

----- Original Message -----

From: info@aquathin.com

To: Derek

Sent: Tuesday, June 18, 2002 12:58 PM

Subject: Re:

Hi Derek;

Thank you for your email. Your client has a very serious problem. I respectfully recommend that you re-review the article provided on the study of microorganism growth in storage tanks. Yes the Aquathin Platinum 90 will remove disease causing water borne microorganisms because the molecular weight of microbes is far larger than the size of the inorganic atoms of dissolved solids.

However, Legionella is far more deadly from inhalation i.e. showers. Your client needs to have that tank pressure cleaned and sanitized. The Legionella forms a biofilm that is difficult to chlorinate once its growing. So after cleaning, demand chlorination into the tank followed by UV or AquaShield as backup. AND DO THIS TODAY ! Dr. David Seal, whom you've met, did a study (referred to his Red Book) on this same very serious problems in most if not all UK hospitals.

Warmest regards,

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(visit the allnew <http://www.aquathin.com>)

"Alfie"

Alfred J. Lipshultz, President

P.S. When responding please continue 'REPLY' to include all previous correspondences on this subject.

----- Original Message -----

From: Derek

To: [Alfred Lipshultz \(E-mail\)](#)

Sent: Tuesday, June 18, 2002 11:50 AM

Hi Alfie,

One of our customers has discovered Legionella in their water storage tanks, and is looking for reassurance that it won't damage or get through their PL90/pba system.

Can you offer a "semi-technical" assurance. What is the molecular diameter of legionella? Is there any procedure required to safeguard the Aquathin system?

Should we offer technical assistance with the problem, or is it best left to other experts?

As always, your advice and time is most appreciated.

Warmest regards,

Derek

Derek McConnell
Sales Director

WORTH LOOKING INTO™



88 **Sent:** Friday, October 10, 2003 3:54 PM
Subject: FORUM Q & A: 3 STAGE VS. 5 STAGE VS.

Dear Aquathin Dealer OnLine;

In March of this year, I sent you a Forum Q & A (pasted below for immediate reference) concerning how to deal with prospective Clients who have seen "toy filters". One point I overlooked to discuss, but have reviewed with many of you individually over the years and at Aquathin U., is this issue about X amount of stages made by other companies, for their RO systems. They make statements i.e. "mine is a 5 stage multiplex..." as though the number makes it more effective or impressive. However, all those guys fall under the "Ordinary RO" category in your Aquathin Report Card...and all of you have seen and tested those units and are fully aware that the quality of their water does not come close to your Aquathin (and neither does their warranty !).

But hey, if you really want to count stages, show'em these bullets from your bandolero ! Your Aquathin Patented Process is a 9 stage system consisting of:

Stages One and Two: The Aquathin Carb 12 Prefilter consisting of high grade high capacity dedusted steam washed bituminous grade granular activated carbon for adsorption of organics, chlorine and chloramines with 10 micron sediment and colloidal debris entrapment filter.

Stage Three: The Aquathin Reverse Osmosis Membrane with guaranteed minimal 97+% of removal of inorganics and 99.999+% removal of disease causing waterborne microorganisms.

Stages Four, Five, Six, Seven; The Aquathin Deionization Module internal chambers initiates with a stainless steel mesh containment screen locked in place followed by the Aquathin Proprietary Nuclear Grade Deionization Resin to extract whatever is not removed by the Aquathin Reverse Osmosis Membrane, locked place with another stainless steel screen; followed by high grade high capacity dedusted steam washed bituminous grade granular activated carbon for taste; followed by a 5 micron felt pad to retain any GAC fines; followed by a .2 micron filter to prevent the slightest potential of reverse migration of microorganisms; all retained again and locked in place by a stainless steel screen.

Stages Eight and Nine; The Aquathin Carb 6 Post Tank Filter consists of high grade high capacity dedusted steam washed bituminous grade granular activated carbon and 1 micron post sediment filter.

Aquathin does not make an issue of 9 stages...we make an issue of "free of salts, heavy metals, chemicals, nitrates, solvents, pesticides and disease causing waterborne microorganisms....and no other company will make those claims". But if you ever have a Client who positively has to be a "stage counter", let them see your stuff...its all listed on the back of your Aquathin Catalogue Sheets !

I love my Aquathin !

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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"Alfie"

Alfred J. Lipshultz, President

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----- Original Message -----

From: [AQUATHIN SALES & MARKETING](#)

To: info@Aquathin.Com

Sent: Monday, March 03, 2003 11:15 AM

Subject: FORUM Q & A: HOW DO I DEAL WITH A CUSTOMER OR PROSPECT WHO HAS LOOKED AT THE CHEAPEE RO'S AT COSTCO, SAMS, ETC. ?

Dear Aquathin Dealer OnLine;

We here at the Factory... and some Dealers receive inquiries from Aquathin Customers every now and then who have Platinum 90's or Aqualite's for some years, and thought it may be better to get one of the cheapee's vs. service their system. Also, Dealers and Students at Aquathin U. have asked how should I defeat the interest in the cheapee units at the wholesale clubs. When Dealing with an Aquathin Customer, this provides you the opportunity to re-edify all the features and benefits of the product and company....and to obtain referrals!

I thought you would appreciate the review of our "high powered" response below and provide this email to your Team for reference.

Also, remember to get your Team's email on the Aquathin Sales Team Email List to receive these NewsBulletins. Its like Aquathin U. 24 / 7 / 365 !!

Have a great week and warmest regards to all...as well, your comments are always welcome and very much appreciated.

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Aquathin manufactures a broad spectrum of unique and patented water purification, softening and filtration systems servicing the residential, commercial and laboratory markets. For a quick review of our superior Reverse Osmosis Deionization purification efficiency vs. "ordinary RO systems" click here <http://www.aquathin.com/table.html> after reading this reply.

Here is a little additional information about the systems sold in hardware stores and wholesale clubs:

1. There is a disclaimer that the units may not be installed on microbiologically unsafe water. But would that not be a reason one would purchase a system? Your Platinum 90 / Aqualite will remove disease causing waterborne microorganisms.
2. They state their systems must be installed on water with less than 10 grains of hardness. Otherwise you need an expensive water softener just for the RO system. Your Platinum 90 / Aqualite can be installed on hard water up to 25 grains due to the patented auto flush.

3. Their warranty is one year, but does not cover the RO membrane, yet that is the heart of the unit. When service is needed you must ship the system out of town. If you are looking at a GE unit made by Eco, that membrane has to be replaced every 6 months according to them. Your Platinum 90 / Aqualite carries a Lifetime Warranty except for normal filter changes and abuse, 2 years on the electronics..unless of course you were eligible for the Exclusive Extended Lifetime Warranty.

You originally invested in your Aquathin to provide your family the very best in total home water security. There is hardly anything in this world that a man could not make a little worse or a little cheaper, and the people who consider price alone are this man's lawful prey. Its like this: we would rather explain price once than apologize for poor quality and service the rest of our life. Aquathin made the decision 23 years ago, that we would never sacrifice lower quality for price...too much depends it. Would you prefer that your family drink from a system whose poor technology and cheap design allows them to continue to consume contaminates...or a product that provides the safest and most pure drinking and cooking water available. Mr. _____, your system has served you well for ____ years and totally outperforms any competitor. Please contact your local Authorized Aquathin Dealer at _____ or email to the 'cc' addresses above.



89 **Sent:** Monday, October 27, 2003 10:47 AM
Subject: FORUM Q & A:

Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;

Two new words for your vocabulary !! A rapidly growing water contaminate and environmental concern is "xenobiotics, xenoestrogens" [from Greek 'xenos' meaning strange, foreign] as a result of the destruction of plastics. There is absolutely no conclusive evidence completed to date concerning the toxicity levels...but what we do know and have learned, it does not look good at all. Below you will read a brief history of correspondences on this subject and an extremely interesting high school science project, which presents a highly relevant issue in view of the small amount of work that has been available to date.

Even though given the lack of conclusive evidence, one thing is for certain....given the choice of consuming and living with or without xenobiotics, we'd rather choose without. I love my Aquathin !!

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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> -----Original Message-----

> From: ALFIE [mailto:alfie@aquathin.com]

> Sent: 11 August 2003 17:54

> To: Roger Wiltshire

> Subject: Re: Carole Caplin article

>

>

> Hi Rog;

>

> In the past, PVC - PET - POLYCARB bottles had issues with leaching. As
> plastics became more sophisticated, extractables
> were stopped (save PE bottles). However, the issue today is heat and what
> is given off. I have an interesting email from Noel Douglas, my friend and
> Authorized Aquathin Dealer in Canada, on this subject. My computer has
> archived the email on a disc and it would take awhile to retrieve, but I
> will fax my printed copy to you.

>

> So here's the main issue. All this non biodegradable plastic is going to
> the landfill and incineration. Landfills generate heat from composting.
> Offgassing from landfills and incinerators will place xenos into the air.

> Rain absorbs and brings into our soil, streams. Your Aquathin stops it at
> the tap and shower. I love my Aquathin !

>
> Warmest regards to all,
> Alfie

>
>

> -----Original Message-----

> From: ALFIE [mailto:alfie@aquathin.com]
> Sent: 11 August 2003 14:24
> To: Roger Wiltshire
> Cc: Laura Hogevoold (E-mail)
> Subject: Re: Carole Caplin article

>
>

> Hi Rog;

>

> Thank you for your email and you are most welcome. I would respectfully
> recommend to focus on "xenobiotics" vs "xenoestrogen" for xenobiotics is all
> encompassing and easier for you to make your solid point. You may wish to
> share this with Ms. Caplin.

>

> Warmest regards to all,
> Alfie

>
>

> ----- Original Message -----

> From: "Roger Wiltshire" <
To: "ALFIE"

Cc: "Laura Hogevoold (E-mail)"

> Sent: Monday, August 11, 2003 3:34 AM
> Subject: RE: Carole Caplin article

>
>

> Dear Alfie

>

> Thank you for that wealth of information. Is there a way (source) to
> confirming that plastic bottles do actually leach xenoestrogen or do we just
> say that plastic waste is responsible for xenobiotics?

>

> Many thanks indeed

>

> Roger

>
>

> -----Original Message-----

> From: ALFIE [mailto:alfie@aquathin.com]

> Sent: 08 August 2003 21:58
> To: Roger Wiltshire;
> Subject: Re: Carole Caplin article

> Dear Laura and Roger;

> Thank you for copying me. "Xenobiotics" are synthetic products not formed
> by natural biosynthetic processes; a foreign substance or poison. The
> production of many novel xenobiotics has introduced into the environment
> many compounds that microorganisms normally do not encounter and are
> therefore not prepared to biodegrade (hence the fear of voluminous
> empties...but recall the Splash Newsbulletins regarding the billions of
> toxic materials reported by companies released into the environment of which
> a fair amount are xenos....and toss that on top of the heap of bottles).
> Many of these compounds are toxic to living systems, and their presence in
> aquatic and terrestrial habitats often has serious ecological consequences,
> including major kills of indigenous biota (that's plants, you and me!). So
> I concur with the little that I've had to read below, and that Carole Caplin
> is "spot on".

> Reading your NMWO comments; agreed.

> Have a great weekend and warmest regards to all,
> Alfie

> ----- Original Message -----

> From: "Roger Wiltshire"
> Cc: "Alfie Lipshultz (E-mail)" <alfie@aquathin.com>
> Sent: Friday, August 08, 2003 7:49 AM
> Subject: RE: Carole Caplin article

> Dear Laura

> All good stuff.

> 1st - the article is nothing to do with us - we simply got a mention so we
> don't need to worry about a thing. However we should help the editor as far
> as we can. Remind her that this guy at NMW cannot ever substantiate his
> complaint and remember that he has one objective in life and that is to
> protect NMW and to attack anything else, therefore he is not subjective and
> extremely biased.

> I have put this NMW chaps nose out of joint once before when he tried to

> educate me that pure water was not good for health. He is a beaurocratic man
> that is full of his self importance but I reminded him that pure water is
> better for health than contaminated water and that if he wanted to create
> trouble (he actually threatened me) then he would receive a damn site more
> in return for his efforts. He disappeared after that. Let us make it very
> clear to him that if he writes anything stating that pure water is bad for
> health that 1st - he has to prove it and 2nd he will have a law suit on his
> hands.

>
> This is another attempt to undermine the pure water revolution yet again.
> The follow up article is a great idea. Let's feed them some more
> information.

>
> Regarding xenoestorgen.
> I did see an article about this years ago - I think the daily newspapers
> reported it. Please have a look at the Friends of the Earth website and see
> if you can find it there. I have copied Alfie on this to see if he is any
> the wiser. He usually has the answer to most questions and in any case could
> run circles round the NMW chap.

>
> Let the editor of Night&Day call me if she wants further reassurance.

>
> Rog

> -----Original Message-----

> From: laura hogevoid

> Sent: 08 August 2003 10:24

> To: Roger Wiltshire

>

> Subject: Carole Caplin article

>

>

> Hi Roger

>

> Just to inform you that I had a conversation from a lady called Sue that
> works for Night & Day magazine yesterday. She has received a complaint from
> a guy at the Natural Mineral Water Organisation regarding the article Carole
> Caplin wrote about water and she wanted to check a couple of points with
> us...

>

> Firstly, he says that Carole Caplin is incorrect about Xenoestrogen in PET
> plastic bottles - and insists that they do not contain the two "ingredients"
> that Carole mentioned in her article. I have trawled the net and have only
> found articles about Xenoestrogen in Polycarbonate bottles! Do you have any

>

> independent information about this - and anything about the composition of
> different types of plastic?

>

> Also, he has suggested to her that purified water is bad for the health and

> that we need the minerals in drinking water. I pointed Sue to the WHO
> website, which states that neither mineral or purified waters have been
> shown to be detrimental to health. And then I brought up the issue about
> whether minerals in water can actually be absorbed - and that if NMW Org are
> insistent that minerals in water are good for you - where is their evidence?
>
> We don't need to get directly involved with this because Sue is quite cross
> with the tone of his letter and has already responded to it, although she
> said that Night & Day will retract the info about Xenoestrogen if it is
> found to be incorrect.
>
> Anyway, after chatting to her for a while about this boring, pathetic
> ongoing battle - she has said she would like to get Carole to follow the
> article up with something on the environmental impact of the bottled water
> industry on the environment - which would serve the NMWO right!
>
> I've given her a couple of statistics and will speak to her next week about
> this story. There will be something like 3 billion bottles discarded into
> the environment in the UK alone within a year, it takes 450 years for a
> single bottle to degrade and the amount of air pollution created by
> producing these and then sending them to their destination in delivery
> trucks is phenomenal!
>
> So.....if you could let me know about the Xenoestrogen issue that would be
> a great help. I am also getting together some existing quotes from medical
> experts about the different types of water for her, including John McKenna's
> one from the Vaccination book. Anything else you think might be useful to
> send to her - let me know.
>
> I will keep you posted!
>
> Laura
>
> p.s. Please don't contact the NMWO - Sue is handling it and rather than get
> into another row we should turn this to our advantage and perhaps get a
> mention in another article instead!
>
> Laura Hogevoid
> PR & Marketing

----- Original Message -----

From: "AQUATHIN TECH SUPPORT"

To: "Noel Noel"

Cc: "DOUGLAS, NOEL--AQUASCIENCE"

Sent: Wednesday, April 10, 2002 8:11 AM

Subject: Re: FW: **Don't microwave with Plastic Wraps- read on for more info.**

> Hi Noel;
>
> I knew that there were problems with various plastics giving off gases,
some
> even totally melt although advertise microwave safe. This is extremely
> enlightening. Would you have a copy of the magazine article? Is your
lady
> doctor friend / customer (sorry I do not have her name at hand) aware of
> this and have an opinion?
>
> Awaiting your reply and warmest regards,
>
> Alfie

> ----- Original Message -----

> From: "Noel Noel"

> To: "AQUATHIN TECH SUPPORT"

> Sent: Tuesday, April 09, 2002 11:38 AM

> Subject: Fw: FW: **Don't microwave with Plastic Wraps- read on for more
info.**

>

>

>>

>> ----- Original Message -----

>> From: "Rachel Handbury"

>> Sent: Monday, April 08, 2002 5:08 PM

>> Subject: Fwd: FW: Don't microwave with Plastic Wraps- read on for more
> info.

>>>> Plastic Wrap Toxins. Author/s: Jule Klotter Issue: Jan, 2001 As a

>>>>

>>>> seventh grade student, Claire Nelson learned that di(ethylhexyl)

>> adepate

>>>>

>>>> (DEHA), considered a carcinogen, is found in plastic wrap. She
also

>>>>

>>>> learned that the FDA had never studied the effect of microwave
> cooking

>>>>

>>>> on plastic-wrapped food. Claire began to wonder:

>>>>

>>>> "Can cancer-causing particles seep into food covered with
household

>>>>

>>>> plastic wrap while it is being microwaved?"

>>>>

>>>>

>>>>

>>>> Three years later, with encouragement from her high school science
>>>>
>>>> teacher, Claire set out to test what the FDA had not. Although
she
>> had
>>>>
>>>> an idea for studying the effect of microwave radiation on
>>>>
>>>> plastic-wrapped food, she did not have the equipment. Eventually,
> Jon
>>>>
>>>> Wilkes at the National Center for Toxicological Research in
> Jefferson,
>>>>
>>>> Arkansas, agreed to help her. The research center, which is
>> affiliated
>>>>
>>>> with the FDA, let her use its facilities to perform her
experiments,
>>>>
>>>> which involved microwaving plastic wrap in virgin olive oil.
>>>>
>>>>
>>>> Claire tested four different plastic wraps and "found not just the
>>>>
>>>> carcinogens but also xenoestrogen was migrating [into the
oil]...."
>>>>
>>>> Xenoestrogens are linked to low sperm counts in men and to breast
>> cancer
>>>>
>>>> in women. Throughout her junior and senior years, Claire made a
>> couple
>>>>
>>>> of trips each week to the research center, which was 25 miles from
> her
>>>>
>>>> home, to work on her experiment. An article in Options reported
> that
>>>>
>>>> "her analysis found that DEHA was migrating into the oil at
between
>> 200
>>>>
>>>> parts and 500 parts per million. The FDA standard is 0.05 parts
per
>>>>
>>>> billion."

>>>>
>>>>
>>>>
>>>> Her summarized results have been published in science journals.
>> Claire
>>>>
>>>> Nelson received the American Chemical Society's top science prize
> for
>>>>
>>>> students during her junior year and fourth place at the
> International
>>>>
>>>> Science and Engineering Fair (Fort Worth, Texas) as a senior.
>>>>
>>>>
>>>>
>>>> "Carcinogens -- At 10,000,000 Times FDA Limits" Options May 2000.
>>>>
>>>> Published by People Against Cancer, 515-972-4444; COPYRIGHT 2001
The
>>>>
>>>> Townsend Letter Group COPYRIGHT 2001 Gale Group
>>>>
>>>> _____ Dr.
>> Edward
>>>>
>>>> Fujimoto from Castle Hospital on the program is the manager of the
>>>>
>>>> Wellness Program at the hospital. He was talking about dioxins
and
>> how
>>>>
>>>> bad they are for us. He said that we should not be heating our
food
>> in
>>>>
>>>> the microwave using plastic containers.
>>>>
>>>>
>>>>
>>>> This applies to foods that contain fat. He said that the
> combination
>> of
>>>>
>>>> fat, high heat and plastics releases dioxins into the food and
>>>>
>>>> ultimately into the cells of the body. Dioxins are carcinogens
and
>>>>

>>>> highly toxic to the cells of our bodies.

>>>>

>>>>

>>>>

>>>> Instead, he recommends using glass, Corning Ware, or ceramic
>> containers

>>>>

>>>> for heating food. You get the same results without the dioxins.

So

>>>>

>>>> such things as TV dinners, instant saimin and soups, etc.

>>>>

>>>> should be removed from the container and heated in something else.

>>>>

>>>> Paper isn't bad but you don't know what is in the paper. Just
safer

>> to

>>>>

>>>> use tempered glass, Corning Ware, etc. He said we might remember

> when

>>>>

>>>> some of the fast food restaurants moved away from the foam

> containers

>> to

>>>>

>>>> paper. The dioxin problem is one of the reasons.

>>>>

>>>>

>>>>

>>>>

>>>> Pass this on to your friends.



90 **Sent:** Wednesday, November 12, 2003 2:58 PM
Subject: FORUM Q & A UPDATE: WHAT'S UP WITH OXYGENATED WATER ?

Dear Aquathin Dealer OnLine;

Here's one for the "I Told You So" column. On June 17, 2002, I sent you a Forum Q & A (pasted below for your convenience) concerning the 'hyperventilated claims' made by the 'marketeers' of oxygenated bottled water. Enjoy the quick read below from the Journal of the American Medical Association.

Please reprint this message for your Sales Team to have on hand when anyone asks about this 'puffery'.

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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"Alfie"
Alfred J. Lipshultz, President

*P.S. "Splash NewsBulletins", "Forum Q & A", "Allergic Reaction", Biz Bank, Tech Bank and Quote Bank... **ARE ALL FREE** services to all Authorized Aquathin Dealers and their clients to keep you abreast of technology updates and industry news.*

Bottled Water - 11/12/2003 11:54:49 AM

Medical journal: Bottled water's added oxygen not healthier

SEATTLE — A study published in the *Journal of the American Medical Association* (JAMA) has found that each of the five brands of oxygenated water the researchers tested contained less oxygen in 12 ounces than is contained in a single human breath, [The Seattle Times](#) reported.

The study was conducted by researchers at Seattle's Virginia Mason Medical Center and at Duke University in North Carolina. Testing 11 adults, they also found "no significant differences in exercise results" based on whether the person drank oxygenated bottled water or ordinary tap water, the article stated.

Two Northwest producers of oxygenated water responded to the study in different ways. A spokeswoman for Talking Rain, of Preston, WA, said the company makes no health claims for

its product, called airwater, while Aqua Rush, of Coeur d'Alene, ID, told the paper that its oxygen-infusing technique gives its product a higher level of "stable" oxygen than any others.

The researchers would not identify any of the five brands they tested, nor whether either of the Northwest brands was included in the study, according to the paper.

----- Original Message -----

From: [AQUATHIN TECH SUPPORT](mailto:info@Aquathin.Com)

To: info@Aquathin.Com

Sent: Monday, June 17, 2002 10:08 AM

Subject: FORUM Q & A: WHAT'S UP WITH OXYGENATED WATER ?

Dear Aquathin Dealer OnLine;

One of the newest "fads" to hit the industry is bottled water with oxygen added called "oxygenated water" (Note I did not capitalize the O and W to lend credence and was even reluctant to use the " " !).

The providers make very nebulous general claims i.e. athletes perform better. Even if oxygenated water had any benefit, it would have dissipated by the time it reached you and / or the cap was opened similar to H₂S. And surely any attempt to make coffee, tea or to cook with would get rid of any excess gases.

One could never get any definitive result of oxygenated water because we are not built to get any definitive result through ingestion. The only way to get any definitive result is to sprout gills. And said conversely, if oxygenated water did increase the oxygen uptake, that must mean anyone who drinks 3-4 sodas a day would be suffocating from the CO₂ carbon dioxide bubbles !

The testimonials of enhanced well being promoted by the sellers of oxygenated water, are more likely due the benefits received from better hydration due to increased water consumption and / or substituting copious quantities of water for whatever one had been drinking i.e. sodas, coffee, alcohol.

SO WHAT'S THE REAL BENEFIT----Increased public awareness for another alternative to tap water which grows the market. When the user realizes the contents of the bottle are not what they expected, the user does not go back to the tap....they will change bottled waters or hit the Yellow Pages for a water treatment professional.

Have a great week and warmest regards to all,

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"Alfie"

Alfred J. Lipshultz, President

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91 **Sent:** Monday, November 17, 2003 6:45 PM
Subject: FORUM Q & A: WHAT IS A RADIONUCLIDE AND HOW DO I TREAT IT?

Dear Aquathin Dealer OnLine;

Below you will see a quick read regarding the growing concerns for "**radionuclides**". Today, most states in the New England and Midwest regions mandate well water tests for radionuclides (along with nitrates...and the usual roof and termite inspections), and if present, the seller of a home must install treatment before the buyer is granted a mortgage. You can readily see how important it is to network with real estate agents. Please do not think this problem is isolated to the aforementioned regions....there's plenty in Europe and other areas. Radium for example was thought to be isolated to sites where deep granite and basalt formations exist. However, its been located even in the sandy coral structures here in Florida.

A radionuclide is any manmade isotope or natural element that emits radiation with an unstable nucleus that spontaneously decays or disintegrates, producing radiation. They may also be termed as alpha, beta, photon, or gamma ray emitters and include radon, uranium, radium-226, radium-228, polonium, actinium, lead (Pb-212), thorium, strontium and measured in picoCuries per litre (pCi/L). One picoCurie equals approximately one disintegration every 27 seconds per litre of water.

Gross alpha particle contamination has an MCL (Maximum Contaminate Level) of 15 pCi/L but does not include activity from uranium or radon. When testing water, a lab must supply you with exact sources of contamination to best prescribe treatment.

Radium-226, 228 and strontium (5pCi/L MCL combined) can be reduced via your Aquathin Soft and Clean Water Conditioners for Point of Entry treatment. Your Patented Aquathin RODI Process removes it for POU. Uranium (30ppb MCL) can be reduced POE by utilizing a specific anion resin that regenerates with the chloride side of the salt (similar to tannin and nitrate resin). Radon (300pCi/L MCLG...proposed goal) is a gas reduced at POE via your Aquathin MegaChar. Beta particles (4 mrems / year MCL...millirems per year is a measurement of radiation sustained within the human body) is removed by the Patented Aquathin RODI Process.

I love my Aquathin !!

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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Environment - 10/16/2003 12:07:43 PM

Drinking water tests positive for
radionuclides

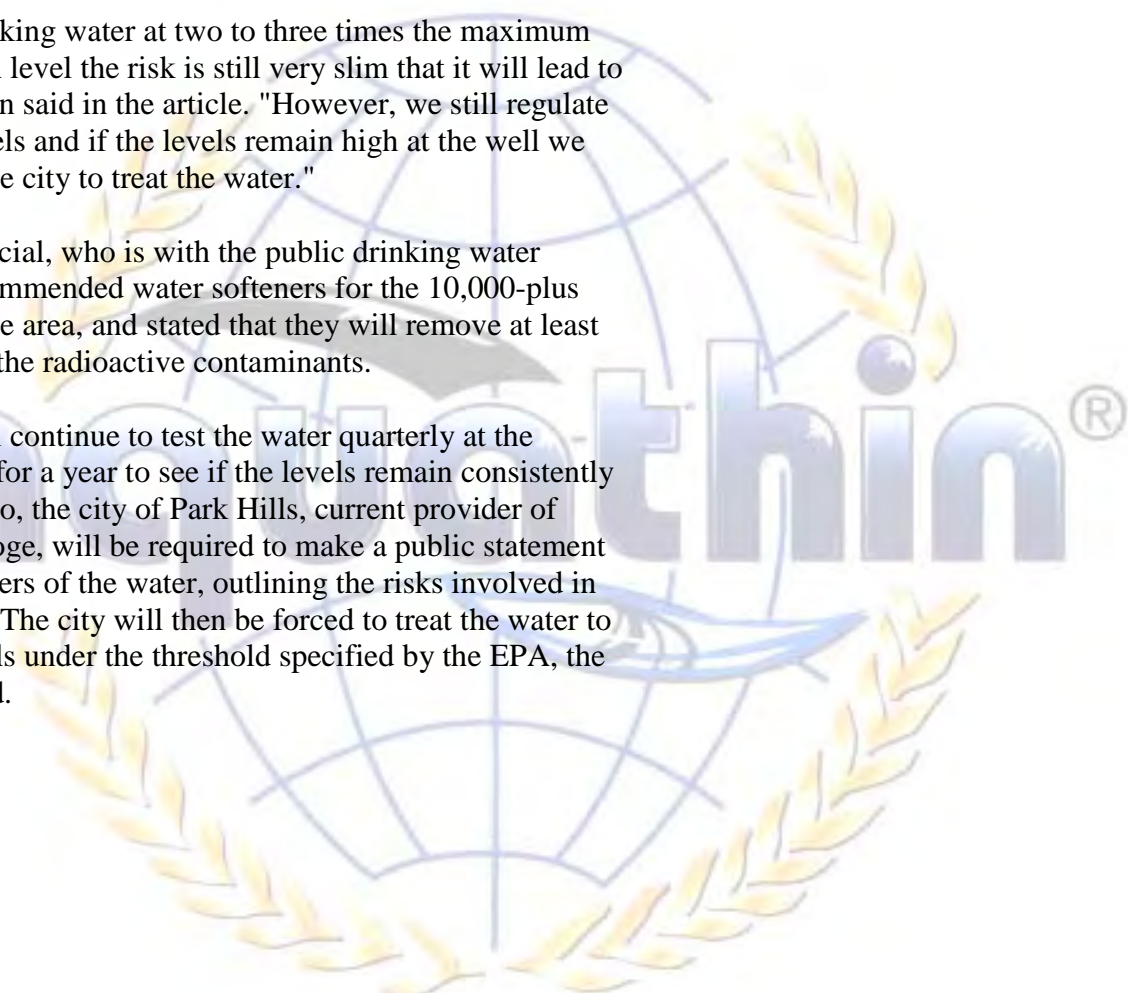
PARK HILLS, MO — Water tests conducted by both the Missouri Department of Natural Resources (DNR) and Metropolitan Engineering and Surveying show higher than acceptable levels of radionuclides in an area water well, the [Daily Journal](#) reported.

Despite the high levels of radionuclides, Kenny Duzan, of the Missouri Department of Natural Resources, has cautioned the citizens of Desloge not to panic.

"If you're drinking water at two to three times the maximum contamination level the risk is still very slim that it will lead to cancer," Duzan said in the article. "However, we still regulate it at those levels and if the levels remain high at the well we will require the city to treat the water."

The DNR official, who is with the public drinking water program, recommended water softeners for the 10,000-plus residents of the area, and stated that they will remove at least 90 percent of the radioactive contaminants.

The DNR will continue to test the water quarterly at the Desloge well for a year to see if the levels remain consistently high. If they do, the city of Park Hills, current provider of water to Desloge, will be required to make a public statement to the consumers of the water, outlining the risks involved in consumption. The city will then be forced to treat the water to bring the levels under the threshold specified by the EPA, the paper reported.



92 **Sent:** Thursday, November 20, 2003 12:00 PM
Subject: FORUM Q & A UPDATE: WHAT IS A RADIONUCLIDE AND HOW DO I TREAT IT?

Dear Aquathin Dealer OnLine;

WOW, TALK ABOUT TIMELY ! Please review the quick read below concerning the **proposed lawful dumping of radionuclides into local landfills**. I have pasted at the bottom, the Forum Q & A of Radionuclides sent earlier this week for immediate reference.

SPECIAL NOTE TO ALL INTERNATIONAL DEALERS: It is extremely interesting that Germany recently dealt with their nuclear waste issue in a wholly different manner. Germany elected to shut down all nuclear power plants by 2010 and stop the creation of radioactive waste that would be around for hundreds of years. However, if the U.S. is going to proceed with this legalized dumping here, expect most other nuclear powered countries to follow.

I love my Aquathin !!!

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EPA proposes deregulating disposal of low-level radioactive waste

EPA issued an Advance Notice of Proposed Rulemaking Nov. 18 seeking comments on the possibility of allowing low-activity radioactive waste to be disposed of at hazardous waste sites or ordinary solid waste landfills.

First on EPA's agenda is low-activity mixed waste, which is both chemically hazardous under the Resource Conservation and Recovery Act and radioactive with low radionuclide concentrations under the purview of the Atomic Energy Act of 1954.

"Such waste is regulated and managed under both authorities, but under certain conditions, one authority may be sufficient to provide public health and environmental protection," the agency states in its notice.

EPA notes that it is also seeking comments on possible regulatory and nonregulatory options for simplifying the management of other, nonmixed radioactive wastes with relatively low concentrations of radioactivity.

A coalition of environmental organizations, including the Nuclear Policy Research Institute, the Nuclear Information and Resource Service, Sierra Club and Public Citizen, has sent a letter to EPA Administrator Mike Leavitt voicing its opposition to the potential rule change.

"The nuclear industry knows that in order to prolong its existence, it must deal with nuclear waste and it must do so at a minimal cost," said David Ritter, policy analyst with Public Citizen's Critical Mass Energy & Environment Program. **"The EPA is now helping to prop up the industry, at the expense of public health, by paving the way for tons of nuclear waste to be dumped in facilities that were not designed for, nor capable of containing, these dangerous radionuclides."**

The *Federal Register* notice, including information on submitting comments, is available online at <http://www.epa.gov/fedrgstr/EPA-WASTE/2003/November/Day-18/f28651.htm>

----- Original Message -----

From: [AQUATHIN TECH SUPPORT](#)

To: Info@Aquathin.Com

Sent: Monday, November 17, 2003 5:45 PM

Subject: FORUM Q & A: WHAT IS A RADIONUCLIDE AND HOW DO I TREAT IT?

Dear Aquathin Dealer OnLine;

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Environment - 10/16/2003 12:07:43 PM

Drinking water tests positive for radionuclides

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Despite the high levels of radionuclides, Kenny Duzan, of the Missouri Department of Natural Resources, has cautioned the citizens of Desloge not to panic.

"If you're drinking water at two to three times the maximum contamination level the risk is still very slim that it will lead to cancer," Duzan said in the article. "However, we still regulate it at those levels and if the levels remain high at the well we will require the city to treat the water."

The DNR official, who is with the public drinking water program, recommended water softeners for the 10,000-plus residents of the area, and stated that they will remove at least 90 percent of the radioactive contaminants.

The DNR will continue to test the water quarterly at the Desloge well for a year to see if the levels remain consistently high. If they do, the city of Park Hills, current provider of water to Desloge, will be required to make a public statement to the consumers of the water, outlining the risks involved in consumption. The city will then be forced to treat the water to bring the levels under the threshold specified by the EPA, the paper reported.

93 **Sent:** Tuesday, November 25, 2003 1:36 PM
Subject: FORUM Q & A: WHAT'S UP WITH SILVER FOR WATER TREATMENT ?

Dear Aquathin Dealer OnLine;

Please enjoy this correspondence with my friend Derek McConnell of Aquathin UK, The Pure H2O Company in the UK regarding his Client's inquiry for inclusion of silver in his water treatment project. Start at the bottom and head north !

I love my Aquathin !!

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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----- Original Message -----

From: Derek
To: [ALFIE](#)
Sent: Tuesday, November 25, 2003 11:40 AM
Subject: RE: FW: USP grade water

Thank Alf, fire away with the Forum Q&A
Warmest regards,
Derek

-----Original Message-----

From: ALFIE [mailto:alfie@aquathin.com]
Sent: 25 November 2003 14:41
To: Derek McConnell
Cc: Roger Wiltshire
Subject: Re: FW: USP grade water

Good Morning Derek;

Thank you for your email. Using silver as a "bacteriostat" has been around for hundreds of years. When silversmiths first put water into silver chalices and silver pitchers, they learned that bacteria would not readily form. The settlers traveling from the east coast of the U.S. to unknown lands in the west dropped their silverware into the water barrels on their Conestoga wagons to help preserve water. You know of silver impregnated GAC filters and there are swimming pools using silver copper electrodes for discharging these heavy metals into water.

Silver is leached into the water, it coats the bug, and it either dies or is prevented from replicating. Note the term "bacteria'stat" ". The stat means that if there are 50 bugs passing through a filter you get 50 out...not 51. Your Client has asked for USP (U.S. Pharmaceutical grade) water which never would permit silver in the product water. The EPA limitation for silver leaching is 50 ppb . Back in the '70's, a company called Ogden Co. produced a silver impregnated GAC filter that leached heavy concentrations of silver. The Client's sclera (white part of

the eye) and pink portions under the fingernail turned slate blue. This heavy metaled disease caused by silver is called argenosa (not certain on the spelling here this early in the a.m.).

The stuff about changing the molecular structure of water...or rearranging the clusters...or energizing etc. is snake oil. Your Client will be embarrassed when promoting such nonsense to those in the know...and you should forewarn.

Regarding injection grade; You have within your Master Catalogue one of the earliest and terrific test done by Bert in a lab long ago which rates our technology in even the Kitchentop as producing injection grade water. Be certain to show your Client.

Geez we've not been asked about silver for a long time. With your permission, I would like to make this into a Forum Q & A.

Again our thanks and warmest regards to all,

Alfie

----- Original Message -----

From: Derek

To: alfie@aquathin.com

Sent: Tuesday, November 25, 2003 8:38 AM

Subject: FW: FW: USP grade water

Dear Alfie,

Do you recognise the "silverisation" process described below?

Derek

-----Original Message-----

From: krishna chilukuri

Sent: 25 November 2003 13:23

To: Derek McConnell

Subject: Re: FW: USP grade water

dear sirs,

i have already written to you now i am clearing your doubts regarding silverisation, this is a process by metito water works, and a silver electrode is used finally for breaking up of water to molecules and it is combined again to give water with the use of silver electrode i will be happy if you give me another reply regarding this since i will be going to meet dr b,k sharma at bombay within a week which is quite far off from here to give you more details on machinery specifications. i can send you his email to you next reminder as i am far off from my home that is near in equator at trivendrum. let me know in your next letter about manufacturing sterile water for injection from your units for manufacture of injections.

thanking with regards

krishna m.pharm

-----Original Message-----

From: Derek

Sent: 09 October 2003 17:08

To: 'chairmanatitcvsat@yahoo.com'

Subject: USP grade water

Dear Krishna,

Thank you for your enquiry - copy below.

In order to properly prescribe the correct system, we need a recent analysis of the feed water, together with information on the feed water pipe size and pressure.

Can you supply this information, or a 200ml sample for analysis.

Please provide more detail on what you mean by silverisation. Is this to ensure bacteriological purity? If so, we do not use silver nitrate for this, as it is considered unsafe. We achieve total microbiological purity using either Ultra-Violet or Microban filtration.

As a guide, a high pressure Reverse Osmosis System with a production rate of 300 LPH would cost in the region of ST£8,000.00 plus prefiltration, post Deionisation, installation and commissioning.

Best Regards,

Derek

Derek McConnell
Sales Director

WORTH LOOKING INTO™

This message is intended only for the use of the person(s) / recipient(s) to whom it is addressed.
It may contain information which is privileged and confidential within the meaning of applicable law.
The views expressed in this communication may not necessarily be the views held by The Pure H2O Co Ltd.

-----Original Message-----

From: krishna chilukuri

Sent: 09 October 2003 14:11

To: info

Subject:

dear sirs,i am looking for a reverse osmosis plant for manufacture of sterile water for injection usp grade including micro nano ultrafiltration and silverisation process for 300 litres/hour.kindly let know price list at an early date

94 **Sent:** Thursday, December 18, 2003 4:09 PM
Subject: FORUM Q & A: FLOURIDE REMOVAL & RO REJECTION RATES

Dear Aquathin Dealer OnLine;

Due to growing concerns over flouridation at the Consumer level, several Dealers have recently asked about flouride removal via RO alone, the Patented Aquathin RODI Process, and the Aquathin LeadOut.

Recall from A.U. that rating membrane rejection is based upon the test control water of 250 ppm NaCl at 60F to 70F at 60 to 70 psi. Sodium chloride is chosen because the elements are single charged (known as monovalent) i.e. Na⁺ and Cl⁻ and specifically that monovalents are the most difficult to remove which is why the standard rating. So if we rate our Aquathin TFC membranes at 97% based upon optimum temp and pressure, that means all monovalents are rejected at least 97% and anything higher in valence charge i.e. Pb⁺⁺ and AL⁺⁺⁺⁺ carries a higher rejection percentage.

Flouride is monovalent. If a competitor rates their membrane at 95%, then flouride should be at that rate. BUT HERE'S THE KICKER....if the membrane is operating on lower pressure i.e. 30psi all claims are off for % reduction as removal efficiencies drop. Your patented RODI process's Deionization Module picks up what the RO is not. Therefore their claim of 95% needs the heavy aforementioned disclaimer because we all know that there are plenty of low pressure areas.

The Aquathin LeadOut's ABA2000 could care less about temp and pressure.

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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95 **Sent:** Tuesday, December 30, 2003 3:34 PM
Subject: FORUM Q & A UPDATE: WHAT ARE CHLORAMINES ?

Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;

In May of 2002, we sent a Forum Q & A concerning the municipal water germicide called "chloramines" (attached below for convenience) and some of the issues it presents. The following quick read asserts these several cautions we pointed out, as they turn on chloramines in San Francisco. I love my Aquathin !

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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Market Updates - 12/30/2003 11:58:37 AM

Water district spreads the word about chloramines switch

HAYWARD, CA — The San Francisco Public Utilities Commission will switch its disinfectant for tap water from chlorine to chloramine effective Feb. 1, and is notifying residents in local communities who might be affected by the change, such as dialysis patients and pet fish owners, [*The Alameda Times-Star*](#) reported.

Chloramine, which is a combination of chlorine and ammonia, generally lasts longer in water and produces lower levels of suspected cancer-causing byproducts than chlorine, the article said.

However, the article also reported that while water disinfected with chloramine is safe for human and animal consumption and for use in cooking and bathing, **it may be deadly if it enters directly into the bloodstream, such as through kidney dialysis.**

It could also affect pets such as fish, reptiles and amphibians and businesses using highly processed water, the article said

The state Department of Health Services will be inspecting and certifying all kidney dialysis facilities once they have been upgraded to remove all chloramines, according to the paper.

----- Original Message -----

From: [AQUATHIN TECH SUPPORT](#)

To: info@Aquathin.Com

Sent: Thursday, May 09, 2002 5:10 PM

Subject: FORUM Q & A: WHAT ARE CHLORAMINES ?

Dear Aquathin Dealer OnLine, Splash and Allergic Reaction NewsBulletinMembers;

In the past few months, we have received many calls from Dealers and consumers located in cities where municipal water plants are turning to chloramines. We have lived with chloramines in South Florida for a number of years and it is not fun.

Lets begin with why chloramines? As many of you have learned at Aquathin University, chlorine added to city water for germicidal protection had been a very good thing for many many years. It is the chlorine that knocked out typhus and acts as an oxidizer to eliminate bacteria, virus, algae and many odors. Chlorine is cheap, effective, readily available and often a byproduct of manufacturing processes. However, chlorine is not very stable and likes to combine with other contaminates in water often forming carcinogens (cancer causing compounds). Chlorine combining with organic matter i.e. decayed vegetation, forms THM's or trihalomethane which is a carcinogen. And since the second industrial revolution chemical contaminates have been introduced into drinking water (over 700 found in U.S. waters), chlorine has managed to combine with many of these pollutants making extremely toxic substances. The New England Journal of Medicine has reported that these organochloride compounds cause colorectal and prostate cancers.

Hence in order to obtain the safe germicidal benefits from chlorine a process was developed and tested by the E.P.A. and A.W.W.A. (American Water Works Association) whereby chlorine could be combined with a material at the initiation of the chlorine, forming an effective germicide unable to combine with any other matter or creating carcinogens. The most effective and least costly choice was ammonia (NH₃). The combination of chlorine (Cl₂) and ammonia forms chloramines.

Chloramines while efficient, are not as efficient as free chlorine and therefore must be used in stronger concentrations. State standard for free chlorine residual is .5 ppm . Experience shows that an average is around 1.0 ppm . Chloramine concentrations average 3.0 to as high as 4.5 reported by several Dealers. As well, when using chloramines, pH will rise on average 8.0 to 8.5 (normal average is 6.8 to 7.2). We have reports that pH is as high as 10.5 . When pH exceeds 7.2 calcium and magnesium will come out of solution and you will see increased spotting of dishes, glasses, flatware...scaling in showers and baths, even in areas where hardness is normally not a big problem. The biggie is chloraminated water is quite irritating to many people causing rashes, chaffing...it has been reported that respiratory problems have been associated with chloramines. When your area changes to chloramines, you will see the water in your baths and toilets turn to a yellow color...before you've used it ! You will receive a notice that chloramines will kill tropical fish and are devastating to dialysis patients. Chloramines must be prevented from use in clinical and home hemodialysis machines. Chloramines will also eat at your

toilet flappers and rubber plumbing gaskets causing leaks. Additionally, since chloramines are not as effective as free chlorine, the municipalities will turn it off periodically i.e. every 6 months or so, and run high concentrations of free chlorine into the pipes to shock any presence of biofilm (bacterial slime).

What you can do. Many years ago Aquathin developed the MegaChar Filter Model BFF-1 total home point of entry filter out of a growing concern for bathing and breathing chlorine and organic pollutants in showers and baths. This consisted of the highest quality and quantity of steam washed bituminous grade granular activated carbon for reduction of chlorine and chemicals. When South Florida (which is one of the first areas) switched to chloramines, we learned that the higher pH caused a drop in efficiency (carbon does not like to remove organics and chlorine under increased pH environments) along with earlier media changes than we had historically known. After several months of research and consulting with our carbon engineers, we began to produce the Model BFF-2 MegaChar which includes an acid washed lignite grade granular activated carbon. The acid washed type of carbon and quantity engineered into the MegaChar permitted it to act more efficiently by reducing the pH. Aquathin has been successfully removing chloramines with this quality filter for over 12 years now and everyone...and I mean everyone reports that they love their MegaChar just as much as their RODI systems (which also removes chloramines as you know). Water in baths and toilets remains clear. No more annual replacement of toilet flappers and rubber gaskets (as long as the BFF-2 is inspected and maintained).

Chlorine and chloramines as we teach in Aquathin University are good, good, good...from the municipal plant, keeping the pipes clean and germ free all the way up to your home. However, if you believe like we believe at Aquathin, we have a choice and can enhance the quality of our water entering into our home. I have a MegaChar and my family loves it.

Warmest regards to all,

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Celebrating our 22nd birthday in 2002 !!!
(visit the allnew <http://www.aquathin.com>)

"Alfie"
Alfred J. Lipshultz, President

P.S. "Splash NewsBulletins", "Forum Q & A" and "Allergic Reaction" are a FREE service to all Authorized Aquathin Dealers and their clients.

Sent: Wednesday, January 07, 2004 6:15 PM

Subject: FORUM Q & A; UNDERGROUND INJECTION...AND UPDATE TO: DEEP WELL INJECTION GOOFED

Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;

OK, this one is longer than usual...what a tremendous amount of information and education to start out the New Year...here we go ! [Note I've included all Customers along with Dealers in this Forum Q & A emailing due to the Consumer inquiries / feedback on the subject]

On June 21, 2003 (pasted below for convenience), I sent you a Splash NewsBulletin article discussing the serious problem of contamination to aquifers resulting from deep well injection. Also, I sent you an article and concerns for the burying of CO2 on December 12, 2003 (also pasted below).

Several of you called and emailed asking for more information about underground and deep well injection...and provided your comments. Below is the EPA's detailed explanation concerning underground and deep well injection. You will be astounded at the number of placements...just in the U.S.

Also, I have received permission to reprint the excellent feedback from "Steve", an Aquathin Customer. You will enjoy his remarks as much as I have. We are proud that our informed Aquathin Customers and our Dealers raise the bar on environmental awareness at the Consumer level.

Happy New Year...WE LOVE OUR AQUATHINZ !!!

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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"Alfie"

Alfred J. Lipshultz, President

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What is Underground Injection?

Underground injection is the technology of placing fluids underground, in porous formations of rocks, through wells or other similar conveyance systems. While rocks such as sandstone, shale, limestone appear to be solid, they can contain significant voids or pores that allow water and other fluids to fill and move through them. Man-made or produced fluids (liquids, gases or slurries) can move into the pores of rocks by the use of pumps or by gravity. The fluids may be water, wastewater or water mixed with chemicals. Injection well technology can predict the capacity of rocks to contain fluids and the technical details to do so safely.

Why Do We Need a Program to Regulate the Placement of Fluids Underground?

Facilities across the United States and in Indian Country discharge a variety of hazardous and nonhazardous fluids into more than **400,000 injection wells**. While treatment technologies exist, it would be very costly to treat and release to surface waters the billions and trillions of gallons of wastes that industries produce each year. Agribusiness and the chemical and petroleum industries all make use of underground injection for waste disposal. **When wells are properly sited, constructed, and operated, underground injection is an effective and environmentally safe method to dispose of wastes.**

The Safe Drinking Water Act established the **Underground Injection Control (UIC) Program** to provide these **safeguards so that injection wells do not endanger current and future underground sources of drinking water (USDW)**. The most accessible fresh water is stored in shallow geological formations called aquifers and is the most vulnerable to contamination. These aquifers feed our lakes; provide recharge to our streams and rivers, particularly during dry periods; and serve as resources for 92 percent of public water systems in the United States.

What Is an Injection Well?

The UIC Program defines an injection well as any bored, drilled or a driven shaft or a dug hole, where the depth is greater than the largest surface dimension that is used to discharge fluids underground. This definition covers a wide variety of injection practices that range from more than 100,000 technically sophisticated and highly monitored wells which pump fluids into isolated formations up to two miles below the Earth's surface, to the far more numerous on-site drainage systems, such as septic systems, cesspools, and storm water wells, that discharge fluids a few feet underground.

[What does a deep technically sophisticated injection well look like?](#)

How Does the UIC Program Regulate the Very Different Types of Underground Injection?

The EPA groups underground injection into five [classes](#) for regulatory control purposes. Each class includes wells with similar functions, and construction and operating features so that technical requirements can be applied consistently to the class. Class I includes the emplacement of hazardous and nonhazardous fluids (industrial and municipal wastes) into isolated formations beneath the lowermost USDW. Because they may inject hazardous waste, Class I wells are the most strictly regulated and are further regulated under the Resource, Conservation and Recovery Act. Class II includes injection of brines and other fluids associated with oil and gas production; Class III encompasses injection of fluids associated with solution mining of minerals; Class IV addresses injection of hazardous or radioactive wastes into or above a USDW and is banned unless authorized under other Statutes for ground water remediation. Class V includes all underground injection not included in Classes I-IV. Class V wells inject nonhazardous fluids into or above a USDW and are typically shallow, on-site disposal systems, such as floor and sink drains which discharge directly or indirectly to ground water, dry wells, leach fields, and similar types of drainage wells. Injection practices or wells which are not covered by the UIC Program include **other individual residential waste disposal systems that inject ONLY sanitary waste and commercial waste disposal systems that serve fewer than 20 persons that inject ONLY sanitary waste.**

Are All Injection Wells Waste Disposal Wells?

All injection wells are not waste disposal wells. Some Class V wells, for example, inject surface water to replenish depleted aquifers or to prevent salt water intrusion. Some Class II wells inject fluids for enhanced recovery of oil and natural gas, and others inject liquid hydrocarbons that constitute our Nation's strategic fuel reserves in times of crisis.

How Does the UIC Program Prevent Contamination of Our Water Supply?

Injection wells have the potential to inject contaminants that may cause our underground sources of drinking water to become contaminated. The UIC Program prevents this contamination by setting minimum requirements. The goals of the EPA's UIC Program are to prevent contamination by keeping injected fluids within the well and the intended injection zone, or in the case of injection of fluids directly or indirectly into a USDW, to require that injected fluids not cause a public water system to violate drinking water standards or otherwise adversely affect public health. These minimum requirements affect the siting of an injection well, and the construction, operation, maintenance, monitoring, testing, and finally, the closure of the well. All injection wells require authorization under general rules or specific permits. Finally, States may apply to have [primary enforcement responsibility](#) (primacy) for the UIC Program. To date, 33 States, Guam, the Commonwealth of the Mariana Islands, and Puerto Rico have obtained primacy for all classes of injection wells. Seven States share primacy with the EPA. The EPA administers UIC programs for the remaining States, the Virgin Islands, American Samoa and Indian Country.

Note: Hydraulic Fracturing Agreement Signed with Major Companies
EPA signed an agreement with three major companies that provide approximately 95 percent of the hydraulic fracturing services performed in the United States. These companies are: BJ Services Company, Halliburton Energy Services Inc., and Schlumberger Technology Corp. The agreement calls for the voluntary removal of diesel fuel from hydraulic fracturing fluids injected directly into formations which contain Underground Sources of Drinking Water (USDWs) during hydraulic fracturing for coalbed methane production. Included in the agreement are assurances from the companies that fluids used to replace diesel fuel will not endanger USDWs. Upon signing, the companies have agreed to discontinue the use of diesel fuel in the hydraulic fracturing fluids they use in coalbed methane wells within 30 days to the extent they have not already done so. The Memorandum of Understanding (MOU) is available at:

For More Information about the EPA's UIC Program Contact:

The Safe Drinking Water Hotline (800) 426-4791 or the Office of Ground Water and Drinking Water (202) 260-7077. Write to: The UIC Program, Mail Code 4606, U.S. EPA, 401 M Street S.W., Washington, D.C. 20460. Please visit the web site at www.epa.gov/safewater.

----- Original Message -----

From: [AQUATHIN TECH SUPPORT](#)

To: Info@Aquathin.Com

Sent: Saturday, June 21, 2003 11:00 AM

Subject: DEEP WELL INJECTION GOOFED

Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;

Almost 25 years ago, I was astonished that government legislation permitted the injecting of minimally treated sewage and waste waters back into the Earth in a process known as "Deep Well Injection". There was no history of success anywhere...it became a theory in wide spread practice. Today many cities are floating over billions of gallons of this stuff. Now history has spoken and its an unsavory speech as you will read below.

Remember from previous Splash NewsBulletins...treated and untreated sewage also includes residual chemotherapies, hormonal drugs, antibiotics, detergents, greases, virus, cysts, bacteria...all of which your Patented Aquathin RODI Process easily handles...and No One Does It Better Than You! I love my Aquathin !!

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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Celebrating our 23rd Birthday in 2003 !!!

(visit the allnew <http://www.aquathin.com>)

"Alfie"

Alfred J. Lipshultz, President

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EPA Permits Florida to Pollute Freshwater Aquifers

By Donald Sutherland

TALLAHASSEE, Florida, June 11, 2003 (ENS) - Before Christine Todd Whitman resigned from her office as administrator of the U.S. Environmental Protection Agency (EPA) in May she had decided to sign off on a rulemaking decision drawn up by EPA water administrators declaring Florida exempt from certain provisions of the Safe Drinking Water Act.

Published in the Federal Register on May 5, the exemption will permit Florida to legally pollute drinking water aquifers with inadequately treated waste through municipal underground injection control (UIC) wells.

EPA administrators, including Whitman, have been reviewing a problem that arose when the federal agency advised the Florida Department of Environmental Protection (FDEP) in the late 1970s to initiate a program of disposal of municipal sewage and industrial waste by injection underground into deep injection wells.

A Fortune 500 engineering consulting firm, CH2M Hill, had assured all parties that the injected underground waste effluent would be contained by a geological barrier and would not commingle with drinking water aquifers.

The injected sewage and industrial waste would also harmlessly be disposed of in deep saline aquifers and then migrate into coastal waters, the company said.

Since the EPA gave approval for the underground injection of sewage and industrial waste, more than 120 Class 1 underground injection control wells have been built to service the unfettered growth in south Florida.

Officials with the Florida Department of Environmental Protection estimate the flow of injected waste at over 400 million gallons daily, but environmental groups contend it is closer to one billion gallons every day.

Now there is a big containment problem.

Monitoring tests conducted by the EPA and the FDEP in the 1990s and again this year have shown the UIC waste is migrating upward into aquifers the region relies on for drinking water.

U.S. Geological Society (USGS) tracer studies of injection wells in the Florida Keys have shown that bacteria, viruses, and nutrient loading from migrating UIC sewage waste are contaminating tourist beaches and destroying the nutrient sensitive, fragile coastal reef ecosystem in the Florida Keys National Marine Sanctuary.

Algae that choke coral, and algal blooms that harm and kill fish and marine mammals, and dying sea grass beds are all associated with nutrient loading from sewage waste.

The health of Carysfort Reef off the coast of Florida has declined in the past 25 years. Corals that were healthy in 1975 are visibly sick by 1985, and dead and broken by 1995. (Photo by Phillip Dustan, College of Charleston courtesy [NASA](#))

Government officials admit these events are occurring where sewage waste injected into Florida's underground sources of drinking water is migrating into coastal waters.

Still, federal and state governments have secured no funding to study the health implications of this contamination - the nation's largest violation of the Safe Drinking Water Act.

They have not funded studies of the environmental impact of municipal UIC waste migration into coastal waters.

The tourist, recreational, and resort industries have not expressed a concern regarding the economic impact of UIC pollution even though beach closings due to bacteria contamination and harmful algal blooms have increased since the inception of municipal UICs.

Florida's building, housing, and construction industries endorse the continuation of the current sewage disposal process that is less expensive than building advanced wastewater treatment plants with facilities to reuse the treated effluent.

Communities and residents of most of south Florida's counties have not repealed measures authorizing the expansion of municipal injection wells and have not expressed a health concern with the practice.

Only Pinellas County has decided to plug failed UIC wells and replace them with an extensive wastewater reuse program.

All of Florida's government representatives, officials, and agencies have endorsed south Florida's loosely permitted disposal in underground injection control wells.

Although two Democratic state legislators this year proposed legislation to require a stricter accounting of UIC permitting, the proposal was not considered by the legislature.

Florida's UIC municipal waste disposal program is banned in other states because it is viewed as a health and environmental threat.

"There is no short term solution to the municipal Class 1 UIC fluid migration into underground sources of drinking water in Florida," says Nancy Marsh, program manager for EPA Region 4 Ground Water UIC section.

"Municipalities are reliant on these injection wells and they can't be shut down," she says.

Drawing showing an underground injection control well (Image courtesy [EPA](#))

Only two environmental organizations, the Florida Sierra Club and the Legal Environmental Assistance Foundation, have mounted a campaign to oppose the nation's largest violation of the Safe Drinking Water Act and the UIC destruction of Florida's marine ecosystems.

"The Sierra Club's Florida Chapter has been rebuffed by the state in a call for transparency of the state's underground injection control program that would enhance the public right to know," says Alan Farago, the organization's Miami conservation chair.

"Governor [Jeb] Bush and FDEP Secretary [David] Struhs failed to support a proposal which sought simply to account for the massive pollution of underground aquifers in Florida," he says.

To date there are no lawsuits being brought against the EPA, FDEP, or any local utility authority over the contamination of Florida's drinking water supplies.

A regional EPA official who walked out of the rule reversal sessions on Florida's UIC program held at EPA headquarters in Washington, considered the consequences with ENS on condition of anonymity. "The big question is, is the EPA violating the federal law National Environmental Policy Act with this action?" he asked.

The National Environmental Policy Act requires all federal agencies to integrate environmental values in their rulemaking processes. They must consider any environmental impacts of their proposed actions and give reasonable alternatives to those actions. The act also mandates a detailed Environmental Impact Statement (EIS) for these rulemaking processes.

The larger question according to the same EPA regional official concerns what legal precedent has been set by this EPA rule change of the Safe Drinking Water Act to accommodate a state's noncompliance with a national law that safeguards the American public and the environment.

----- Original Message -----

From: Steve

To: ['AQUATHIN TECH SUPPORT'](#)

Sent: Wednesday, December 24, 2003 9:12 AM

Subject: RE: BURYING CARBON DIOXIDE...NOT IN MY NEIGHBORHOOD !

Please feel free to use it. Edit bits you think make it too long or over the top.

Thanks,

Steve.

From: AQUATHIN TECH SUPPORT [mailto:techsupport@aquathin.com]
Sent: Tuesday, December 23, 2003 12:13 PM
To: Steve
Subject: Re: BURYING CARBON DIOXIDE...NOT IN MY NEIGHBORHOOD !

Hi Steve;

Thank you for your detailed response. I studied geology (used to be a pretty good spelunker in KY) and had been an avid diver for a long time and understand the carbon and nitrogen cycles...so your reply is greatly appreciated. I always enjoy receiving excellent feedback. With your permission, I would like to forward your remarks to list members (we would remove your email address). Even though it may be a little over the top for most, it speaks volumes that as we know here, Aquathin Customers are environmentally in touch and concerned.

*Wishing you, your family and staff, the very best of holidays. Awaiting your reply and warmest regards,
Alfie*

----- Original Message -----

From: Steve
To: 'AQUATHIN TECH SUPPORT'
Sent: Tuesday, December 23, 2003 9:19 AM
Subject: RE: BURYING CARBON DIOXIDE...NOT IN MY NEIGHBORHOOD !

The idea to bury C02 is not totally 'stupid', it appears they are trying to emulate and accelerate something of the natural mineralogic carbon cycle. However it still seems to use flawed chemical and hydrogeological logic.

Kids in high school learn the organic 'carbon cycle' which cycles carbon between living matter and the atmosphere as C02 through the processes of photosynthesis and respiration. The increase in C02 concentration now occurring raises the risk of global warming, but it also improves photosynthesis which captures that C02 in plant material. Unfortunately unless this plant material gets buried before it can be eaten or decay (perhaps to form new coal deposits in a few score million years) this C02 is quickly returned to the air. A different, 'mineralogic', carbon cycle traps huge quantities of C02 and takes it out of the atmosphere for much longer times. When C02 is dissolved in water an equilibrium between h20 and c02 and a weak acid, h2c03 occurs. The carbonate ions can get 'fixed' into the bodies of animals as mineral materials (bone, shell) such as Calcium Carbonate which then precipitate and become part of rock crust formations for many millennia. It occurs on a vast scale in the oceans. Essentially this is the natural version of the 'bury it and forget it' solution to the current C02 crisis you called a 'stupid dynamic'. My guess is the scientists thought that since nature puts lots of C02 into the ground for long term storage perhaps we could find a way to do the same. The flaw in their logic seems to be that in this case the C02 will not be in a fixed form. Simply injecting C02 as gas is unlikely to be effective and may have the effect of raising acidity and dissolving naturally occurring minerals (including carbonates) with harmful or counter-productive effect.

In the end the idea most likely die because it will proved too expensive and inefficient to be practical. However, I wouldn't be so quick to 'poo-poo' research even if it seems at first glance silly. I believe global warming is a real problem, and I for one am glad someone is doing research seeking solutions that take C02 levels down. In the grand scheme of things the impact of this one study will be absolutely negligible yet like so many other times in history it may yield unexpected results and insight that leads to a better understanding and learning of what really works.

Thanks for the newsletter!

Steve.

From: AQUATHIN TECH SUPPORT [mailto:techsupport@aquathin.com]
Sent: Friday, December 12, 2003 5:38 PM
To: info@Aquathin.Com
Subject: BURYING CARBON DIOXIDE...NOT IN MY NEIGHBORHOOD !

Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;

Do you know why our industry will always do well....its because of political brainiacs with ideas like the one below. Earlier this year, I sent you information where the thought to inject CO2 deep into the coldest of northern oceans was thankfully rejected because no one could confirm the effect on sea life or what happens if the CO2 warmed up and rose. I also sent you a newsbulletin showing where two decades of deep well injecting treated sewage is failing...this stuff is percolating upwards into aquifers. So now, it looks like these "myopic minds of 10 seconds or less", are considering another shortsighted approach by injecting CO2 deep into Earth. At least one person from Princeton U. demonstrates the severe tragedy resulting...and environmentalists should know better, as you will read.

So there are two stupid dynamics going on here: (A) Lets bury today's CO2 now and worry about it later, because if we don't, the greenhouse affect will harm us first....and (B) Lets deal with the CO2 rather than the CO2 producers who will be making more CO2 as we're bury it.

I love my Aquathin !!!!!

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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Environment - 12/11/2003 1:00:24 PM

Water quality could be affected by deep drilling

WASHINGTON — A project involving the burying of carbon dioxide gases deep into the earth is being closely watched by the federal government, as well as water experts who fear it could negatively impact drinking water, [USA Today](#) reported.

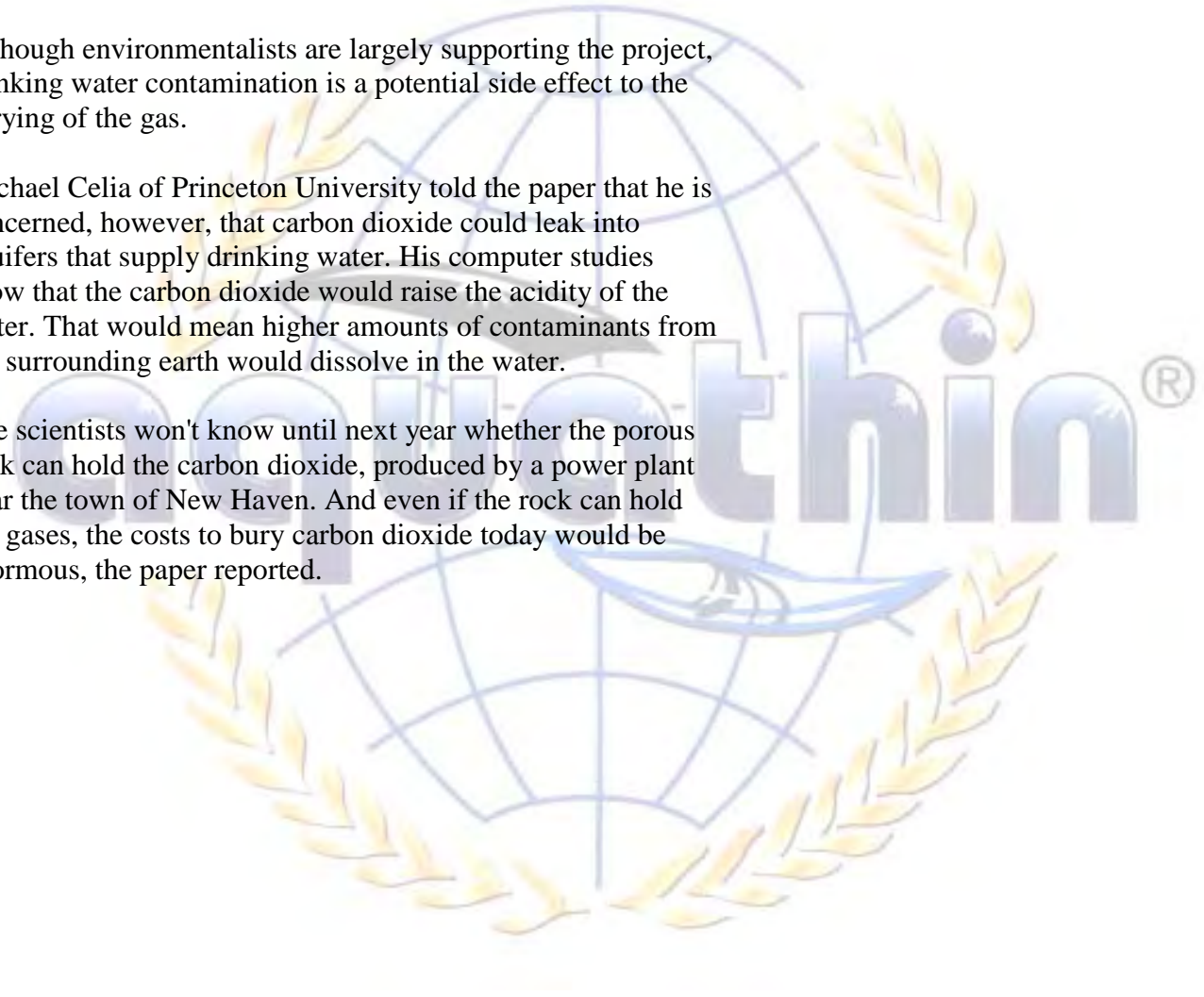
This summer, scientists began drilling deep into the earth of West Virginia to determine whether a spongy layer of rock 9,000 feet beneath the surface could hold carbon dioxide, which causes global warming, scientists said.

Both the Energy Department and the power industry are funding the project. Both see burying the gas, carbon dioxide, as a possible long-term solution to keeping gases from power plants out of the atmosphere and reducing the risk of global warming, the article stated.

Although environmentalists are largely supporting the project, drinking water contamination is a potential side effect to the burying of the gas.

Michael Celia of Princeton University told the paper that he is concerned, however, that carbon dioxide could leak into aquifers that supply drinking water. His computer studies show that the carbon dioxide would raise the acidity of the water. That would mean higher amounts of contaminants from the surrounding earth would dissolve in the water.

The scientists won't know until next year whether the porous rock can hold the carbon dioxide, produced by a power plant near the town of New Haven. And even if the rock can hold the gases, the costs to bury carbon dioxide today would be enormous, the paper reported.



97 **Sent:** Monday, February 16, 2004 4:35 PM
Subject: FORUM Q&A UPDATE: MTBE -- BAN OF MTBE SHELVED

Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;

Over the course of this past couple years, we've provided updated information (ref: Forum Q & A 4/16/02) concerning MTBE (methyl tertiary butyl ether) octane enhancer pollution (and how the patented Aquathin Process was tested almost 14 years ago for superior efficiency in removal). Now the issue is being set behind the back burner...even though oil companies knew MTBE was bad for the environment.

Need another reason to own an Aquathin ! Go right to the last paragraph of the article below !!

I love my Aquathin !

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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Posted on Sun, Feb. 15, 2004
MIAMI HERALD

AP: Bush Administration Shelved MTBE Ban

PETE YOST
Associated Press

WASHINGTON - The Bush administration quietly shelved a proposal to ban a gasoline additive that contaminates drinking water in many communities, helping an industry that has donated more than \$1 million to Republicans.

The Environmental Protection Agency's decision had its origin in the early days of President Bush's tenure when his administration decided not to move ahead with a Clinton-era regulatory effort to ban the clean-air additive MTBE.

The proposed regulation said the environmental harm of the additive leaching into ground water overshadowed its beneficial effects to the air.

The Bush administration decided to leave the issue to Congress, where it has bogged down over a proposal to shield the industry from some lawsuits. That initiative is being led by House Majority Leader Tom DeLay, R-Texas.

The Associated Press obtained a draft of the proposed regulation that former President Clinton's EPA sent to the White House on its last full day in office in January 2001.

It said: "The use of MTBE as an additive in gasoline presents an unreasonable risk to the environment."

The EPA document went on to say that "low levels of MTBE can render drinking water supplies unpotable due to its offensive taste and odor," and the additive should be phased out over four years.

"Unlike other components of gasoline, MTBE dissolves and spreads readily in the ground water ... resists biodegradation and is more difficult and costly to remove."

People say MTBE-contaminated water tastes like turpentine.

In Santa Monica, Calif., the oil industry will pay hundreds of millions of dollars because the additive contaminated the city's water supply.

"We're the poster child for MTBE, and it could take decades to clean this up," said Joseph Lawrence, the assistant city attorney.

In 2000, the MTBE industry's lobbying group told the Clinton administration that limiting MTBE's use by regulation "would inflict grave economic harm on member companies."

Three MTBE producers account for half the additive's daily output.

The three contributed \$338,000 to George W. Bush's presidential campaign, the Republican Party and Republican congressional candidates in 1999 and 2000, twice what they gave Democrats, according to the Center for Responsive Politics. Since then, the three producers have given just over \$1 million to Republicans.

The producers are Texas-based Lyondell Chemical and Valero Energy and the Huntsman companies of Salt Lake City.

"This is a classic case of the Bush administration helping its campaign contributor friends at the expense of public health," said Frank O'Donnell, executive director of the Clean Air Trust, a Washington-based environmental group.

Huntsman spokesman Don Olsen, echoing comments by other MTBE producers, said, "We were not a huge campaign contributor and this has absolutely nothing to do with campaign donations. It has to do with good public policy."

The industry says it has become a victim in a Washington power struggle.

"Because of MTBE there has been a marked improvement in air quality and reduction in toxics in the air," Olsen

said. "Because of leaking underground storage tanks in some relatively few instances, MTBE found its way into places it shouldn't be. But that has nothing to do with the product, which has done exactly what it was designed to do."

Said Valero Energy spokeswoman Mary Rose Brown: "It would have been impossible to fulfill the requirements of the Clean Air Act without MTBE."

A daily Washington newsletter disclosed the existence of the draft rule shortly after Bush's inauguration; outside the industry, few people noticed.

At the direction of White House chief of staff Andrew Card and Mitch Daniels, then the White House's budget director, all government agencies withdrew their pre-Inauguration Day draft regulations.

The EPA withdrew agency rules, including the MTBE one, in mid-February 2001, White House budget office spokesman Chad Kolton said.

In subsequent months, agencies rewrote many Clinton-era regulatory proposals and went public with them. The proposed MTBE regulation, however, never surfaced.

"As legislation looked more promising in 2002 and 2003, we focused our energies on supporting language in the Senate's energy bill," Jeffrey Holmstead, the EPA's assistant administrator for air quality, said in a statement Friday.

"We have not ruled out the possibility of seeking a solution" by regulation, Holmstead said.

The EPA favors a phaseout of MTBE through legislation. But the legislation has stalled and it no longer calls for a ban in four years.

Sen. John Kerry of Massachusetts, the front-runner for the Democratic presidential nomination, issued a statement Sunday calling the MTBE matter a case of the Bush administration "yet again putting special interests over America's interest." He pledged to "take on the big oil and gas companies and fight for clean water and a clean environment."

On their own, 17 states banned the additive and dozens of communities are suing the oil industry.

"Nobody's talking about the trial lawyers campaign contributions to their supporters in Congress and its the trial lawyers who are the force behind these unjustified lawsuits," said Brown of Valero Energy.

To regulate MTBE, the EPA would have to use the Toxic Substances Control Act, which the agency considers cumbersome and unwieldy.

MTBE industry representative Scott Segal said, "It took EPA a decade to develop enough data to justify issuing a regulation for asbestos" under the law. "Even then, the courts still blocked it."

Bob Perciasepe, an EPA official during the Clinton administration, said a regulatory approach would have provided "a pressure point" to pass legislation.

Georgetown University law professor Lisa Heinzerling said regulating MTBE would be difficult, but "if we can't use the Toxic Substances Control Act to regulate MTBE, which has contaminated water supplies all

over the country, then what can you use it for?"

ON THE NET

Documents excerpts available at: <http://wid.ap.org/mtbe.pdf>

EPA background on MTBE: <http://www.epa.gov/mtbe/>



98

Sent: Tuesday, February 17, 2004 11:10 AM

Subject: FORUM Q & A: WHAT'S THE DIFFERENCE BETWEEN WORKING PRESSURE AND HYDROSTATIC PRESSURE...AND WHY SHOULD I EVEN CARE?

Dear Aquathin Dealer OnLine;

Working (also called Operating) Pressure are the manufacturer's specified range of pressures (expressed in psi, pascals, kilopascals, bars) within which a water processing device or water system is designed to function. Obviously we want to know this information to be certain we do not harm a product or that what we spec will perform effectively.

Hydrostatic Pressure is the pressure at a specific elevation exerted by a body of water at rest. This one is a little more curious. For example, city pressure may well be 70psi at the street. But get into an apartment on the 10th floor, and the pressure may only be 35psi (lose approximately .5 psi for every foot of rise). Hence the Pressure Test Quick Connect Test of the "Friendly Six" makes for a precise system prescription i.e. Aqualite "with PBA".

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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99 **Sent:** Tuesday, April 13, 2004 6:20 PM
Subject: FORUM Q & A: UPDATE: WHY IS MERCURY SO BAD?

MORE NEWS ON HEAVY METALS

Dear Aquathin Dealer Online;

Following up to the previous Tech Bank today, on the visible mountain of heavy metals, below is an update on mercury. I have included an earlier Forum Q & A from July 2002. So first drop down to the article discussing the White House playing down the effects of mercury.

There is a word used in the article which I really enjoy..."wordsmithing". Isn't that a cool way to point out "spin". It almost insinuates that someone who is good at this ought to have a degree ! Well I laid in bold the significant portion of the article. Here's the bottom line as you and I know it...**given the choice of drinking mercury or not, we choose NOT !**

I LOVE MY AQUATHIN !

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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Alfred J. Lipshultz, President

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----- Original Message -----

From: [AQUATHIN TECH SUPPORT](mailto:info@Aquathin.Com)

To: info@Aquathin.Com

Sent: Friday, July 26, 2002 3:35 PM

Subject: FORUM Q & A: WHY IS MERCURY SO BAD?

Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;

HEADLINES: 7/25/02 An independent food safety committee [recommended today that the US Food and Drug Administration warn pregnant women and children to limit consumption of canned tuna, one of the most consumed fish in America, due to mercury.](#)

Today we received several calls from concerned customers regarding this news who wanted to be reassured the patented Aquathin RODI removes mercury, which it does. Below is a quick read from Tech Bank on the devastating effects of this most serious heavy metal. I love my Aquathin!

Have a great weekend and warmest regards to all,

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NEW ENGLAND ZERO MERCURY CAMPAIGN Page 2

Introduction

Despite overwhelming evidence of the dangers mercury poses to developing children and to wildlife, manufacturers of products containing mercury have lobbied aggressively and successfully against mercury product regulations. And they continue persistently pushing their products into states that already face severe mercury contamination problems.

In each New England state, mercury product lobbyists have undermined the New England Governors' coordinated program to achieve the goal of virtually eliminating anthropogenic mercury emissions from consumer products.

The use and disposal of products containing mercury inevitably contaminates the food chain with toxic mercury. A 1998 report by the New England governors and Eastern Canadian premiers confirmed the dangers posed by mercury pollution: "Mercury is pervasive in freshwater fish in the Northeast at levels that pose plausible health risks to people and some species of fish-eating wildlife. In addition, there are important economic consequences, including reducing the recreational and commercial value of fisheries resources across the region." Because of these dangers, the Governors set a landmark goal to virtually eliminate mercury emissionsthroughout the region at their 1998 meeting.

Mercury is a persistent bioaccumulative neurotoxin. This means that 1) it does not break down naturally, 2) it concentrates in animals higher on the food chain, and 3) it can cause permanent brain damage to developing children.

Mercury is so toxic that even a single drop deposited annually and emitted into the atmosphere is enough to contaminate all of the fish in a 20-acre lake. Scientists estimate that if all man made mercury emissions stopped today, it would take at least 15 years to eliminate mercury in the environment. The growing brains of fetuses and babies are extremely sensitive to the toxic effects of mercury, which impairs memory, attention span, language and motor skills in developing children. Pregnant women, nursing moms, or women who may become pregnant that eat mercury-contaminated fish can expose their infants and developing fetuses to dangerous levels of mercury.

Even a single serving of mercurycontaminated fish eaten during critical stages of fetal development could cause permanent brain damage to the child.

Adding to the urgency of the Governors' goal to eliminate mercury emissions, a March 2001 Centers for Disease Control study found that at least **one in ten women of childbearing age in the United States has more mercury in her body than the Environmental Protection Agency considers safe for a fetus' development.**

To help achieve the Governors' goal, the Northeast Waste Management Officials Association (NEWMOA) developed model legislation that would phase out products containing mercury in favor of safer products and provide other measures to help cities, states and businesses to keep mercury out of the municipal waste stream.

NEW YORK TIMES.COM

April 7, 2004

White House Minimized the Risks of Mercury in Proposed Rules, Scientists Say

By JENNIFER 8. LEE

WASHINGTON, April 5 — While working with Environmental Protection Agency officials to write regulations for coal-fired power plants over several recent months, White House staff members played down the toxic effects of mercury, hundreds of pages of documents and e-mail messages show.

The staff members deleted or modified information on mercury that employees of the environmental agency say was drawn largely from a 2000 report by the National Academy of Sciences that Congress had commissioned to settle the scientific debate about the risks of mercury.

In interviews, 6 of 10 members of the academy's panel on mercury said the changes did not introduce inaccuracies. They said that many of the revisions sharpened the scientific points being made and that justification could be made for or against other changes. Most changes were made by the White House's Office of Management and Budget, which employs economists and scientists to review regulations.

But scientists on the academy panel and others outside it as well as environmentalists and politicians expressed concern in recent interviews that a host of subtle changes by White House staff members resulted in proposed rules that played down the health risks associated with mercury from coal-fired power plants. The proposal largely tracks suggestions from the energy industry.

While the panel members said the changes did not introduce outright errors, they said they were concerned because the White House almost uniformly minimized the health risks in instances where there could be disagreement.

"What they are saying is not scientifically invalid on its face," said Alan Stern, a New Jersey toxicologist who served on the panel. "Partially they edited for clarity and relevance from a scientific standpoint. But there appears to be an emphasis on wordsmithing that is not necessarily dictated by the science."

Last Thursday attorneys general from 10 states and 45 senators asked the E.P.A. to scrap the proposed rules, saying they were not strict enough.

They also asked Michael O. Leavitt, the agency's administrator, to extend the comment period for the rules, which now ends April 30. Under a court-ordered agreement, the rules are to be in final form by Dec. 15.

In some cases, White House staff members suggested phrasing that minimized the links between power plants and elevated levels of mercury in fish, the primary source from which Americans accumulate mercury in their bodies, in a form known as methylmercury.

The academy has found that exposure to elevated levels of mercury can damage the brains of children and fetuses.

In another instance, a draft passage originally read, "Recent published studies have shown an association between methylmercury exposure and an increased risk of heart attacks and coronary disease in adult men."

It was changed to "it has been hypothesized that there is an association between methylmercury exposure and an increased risk of coronary disease; however this warrants further study as the new studies currently available present conflicting results."

The change understates known science, some academy panel members said in interviews.

The proposed regulations are available on the E.P.A. Web site (epa.gov/). The proposed rules would limit mercury emissions by an estimated 70 percent over decades and would also allow power plants to buy and sell among themselves the rights to create mercury pollution.

Mr. Leavitt is reconsidering elements of the rules.

Small amounts of mercury occur naturally in the environment. In December 2000, however, the environmental agency concluded that mercury from power plants should be classified as a hazardous air pollutant to be strictly regulated under the Clean Air Act. In December 2003, the Bush administration reversed that finding.

The proposed regulations for power plants — the single-largest source of mercury emissions in the United States — are the culmination of 14 years of lawsuits, scientific review and government reports.

Coal and utility groups lobbied intensively to help shape the regulations, which will cost billions of dollars. Paragraphs in the proposed rules are inserted nearly verbatim from memorandums from the firm of Latham & Watkins, where two top political officials in the E.P.A.'s office overseeing air regulations, Bill Wehrum and Jeffrey Holmstead, once worked.

White House officials and E.P.A. political appointees say the changes in the draft rules reflect the typical back and forth of developing regulations among agencies, and environmental agency officials had the option of rejecting the suggestions, which in some cases they did.

"This is a standard collaborative process that involved experts across the government to create a solid product," said Dana Perino, the spokeswoman from the Council on Environmental Quality, which coordinates federal environmental efforts.

But some critics are not convinced. "This is a pattern of undermining and disregarding science on political considerations," said Senator Hillary Rodham Clinton, Democrat of New York, citing a recent letter by the Union of Concerned Scientists, signed by 60 scientists, including 20 Nobel laureates, which criticized the administration's handling of science issues.

Others feel the White House's Office of Management and Budget is overstepping its bounds. "O.M.B.'s role is supposed to be to review the economics of rules — which they did very poorly here — not to fly speck the science and minimize health threats," said Lisa Heinzerling, a professor at Georgetown University who is a co-author of the book "Priceless," on cost-benefit analysis.

Throughout an E.P.A. draft of the proposed regulations circulated in November, a White House staff member crossed out the word "confirmed" from the phrase describing mercury as a "confirmed public health risk." In some instances, sentences in the final proposals were changed to mercury "warrants regulation."

Mr. Wehrum, the chief counsel of E.P.A.'s air regulation office, said that the handwritten changes were prompted by his agency's desire to use more precise legal language from the Clean Air Act.

Some members of the National Academy said that sections of the regulations on health effects could have been made more clear, but that the science was strong enough not to delete them entirely.

An official with the Office of Management and Budget who emphasized that neurologic risks to children were the most important concern, said language on other health effects was deleted or softened for a number of reasons. In some cases the draft had overstated the known science, while in others, like cerebral palsy, the effects were not relevant to mercury exposure in fish or power plants.

Even taking into account studies that have been published since their report in 2000, some panel members said the language was made too soft in several cases.

"There is increasing evidence of an association between mercury exposure and cardiovascular effects," said Thomas Burke, an epidemiologist from Johns Hopkins University and a member of the panel. "I would call it stronger than a hypothesis."

In another case, a toxicologist with the Office of Management and Budget recommended changes to a sentence saying children exposed to mercury in the womb "are at increased risk of poor performance on neurobehavioral tests." The final sentence that was published said children "may be at increased risk." That pattern was repeated a number of times throughout regulations where "are" or "can" was changed to "may." The official said that the softened language reflected the fact that low levels of mercury exposure below the safe dose were not known to be risky, even to children.

Other scientists interpret the edit differently. Joseph L. Jacobson, a professor of psychology at Wayne State University, who served on the academy panel, said, " 'May be' suggests an effort to discount the fact that we have consistent evidence across more than one study."

While it is standard for the White House to review federal agency testimony and reports, E.P.A. staff members say the Bush administration also minimized the amount of mercury that comes from power plants. Over agency staff objections, the White House on several occasions in the past year added the statement that coal burning produces "roughly one percent of mercury in the global pool."

According to the E.P.A. staff, the 1 percent figure was added to an agency report on children's health; Senate testimony by Christie Whitman, who was the E.P.A. administrator; and Senate testimony of Mr. Holmstead, who is the assistant agency administrator for air.

While that figure is cited in the E.P.A.'s 1997 report to Congress, agency staff members and independent scientists say it is misleading because much of the mercury that ends up in the nation's water and soil comes from nearby sources.



100 Sent: Wednesday, April 14, 2004 4:58 PM
Subject: FORUM Q & A UPDATE #2 FOR: WHAT ARE CHLORAMINES ?

NEWS ON CHLORAMINES

Dear Aquathin Dealer OnLine;

Attached herewith is a report from the WQA citing chloramines are responsible for the accelerated corrosion in lead pipes and lead solder joints resulting in lead concentrations exceeding 1250 ppb !

I love my Aquathin !!!

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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----- Original Message -----

From: [AQUATHIN TECH SUPPORT](#)

To: [AQUATHIN TECH SUPPORT](#)

Sent: Tuesday, December 30, 2003 3:34 PM

Subject: FORUM Q & A UPDATE: WHAT ARE CHLORAMINES ?

Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;

In May of 2002, we sent a Forum Q & A concerning the municipal water germicide called "chloramines" (attached below for convenience) and some of the issues it presents. The following quick read asserts these several cautions we pointed out, as they turn on chloramines in San Francisco. I love my Aquathin !

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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Market Updates - 12/30/2003 11:58:37 AM

Water district spreads the word about chloramines switch

HAYWARD, CA — The San Francisco Public Utilities Commission will switch its disinfectant for tap water from chlorine to chloramine effective Feb. 1, and is notifying residents in local communities who might be affected by the change, such as dialysis patients and pet fish owners, [The Alameda Times-Star](#) reported.

Chloramine, which is a combination of chlorine and ammonia, generally lasts longer in water and produces lower levels of suspected cancer-causing byproducts than chlorine, the article said.

However, the article also reported that while water disinfected with chloramine is safe for human and animal consumption and for use in cooking and bathing, **it may be deadly if it enters directly into the bloodstream, such as through kidney dialysis.**

It could also affect pets such as fish, reptiles and amphibians and businesses using highly processed water, the article said

The state Department of Health Services will be inspecting and certifying all kidney dialysis facilities once they have been upgraded to remove all chloramines, according to the paper.

----- Original Message -----

From: [AQUATHIN TECH SUPPORT](#)

To: info@Aquathin.Com

Sent: Thursday, May 09, 2002 5:10 PM

Subject: FORUM Q & A: WHAT ARE CHLORAMINES ?

Dear Aquathin Dealer OnLine, Splash and Allergic Reaction NewsBulletinMembers;

In the past few months, we have received many calls from Dealers and consumers located in cities where municipal water plants are turning to chloramines. We have lived with chloramines in South Florida for a number of years and it is not fun.

Lets begin with why chloramines? As many of you have learned at Aquathin University, chlorine added to city water for germicidal protection had been a very good thing for many many years. It is the chlorine that knocked out typhus and acts as an oxidizer to eliminate bacteria, virus, algae and many odors. Chlorine is cheap, effective, readily available and often a byproduct of manufacturing processes. However, chlorine is not very stable and likes to combine with other contaminates in water often forming carcinogens (cancer causing compounds). Chlorine combining with organic matter i.e. decayed vegetation, forms THM's or trihalomethane which is a carcinogen. And since the second industrial revolution chemical contaminates have been introduced into drinking water (over 700 found in U.S. waters), chlorine has managed to combine with many of these pollutants making extremely toxic substances. The New England Journal of Medicine has reported that these organochloride compounds cause colorectal and prostate cancers.

Hence in order to obtain the safe germicidal benefits from chlorine a process was developed and tested by the E.P.A. and A.W.W.A. (American Water Works Association) whereby chlorine could be combined with a material at the initiation of the chlorine, forming an effective germicide unable to combine with any other matter or creating carcinogens. The most effective and least costly choice was ammonia (NH₃). The combination of chlorine (Cl₂) and ammonia forms chloramines.

Chloramines while efficient, are not as efficient as free chlorine and therefore must be used in stronger concentrations. State standard for free chlorine residual is .5 ppm . Experience shows that an average is around 1.0 ppm . Chloramine concentrations average 3.0 to as high as 4.5 reported by several Dealers. As well, when using chloramines, pH will rise on average 8.0 to 8.5 (normal average is 6.8 to 7.2). We have reports that pH is as high as 10.5 . When pH exceeds 7.2 calcium and magnesium will come out of solution and you will see increased spotting of dishes, glasses, flatware...scaling in showers and baths, even in areas where hardness is normally not a big problem. The biggie is chloraminated water is quite irritating to many people causing rashes, chaffing...it has been reported that respiratory problems have been associated with chloramines. When your area changes to chloramines, you will see the water in your baths and toilets turn to a yellow color...before you've used it ! You will receive a notice that chloramines will kill tropical fish and are devastating to dialysis patients. Chloramines must be prevented from use in clinical and home hemodialysis machines. Chloramines will also eat at your toilet flappers and rubber plumbing gaskets causing leaks. Additionally, since chloramines are not as effective as free chlorine, the municipalities will turn it off periodically i.e. every 6 months or so, and run high concentrations of free chlorine into the pipes to shock any presence of biofilm (bacterial slime).

What you can do. Many years ago Aquathin developed the MegaChar Filter Model BFF-1 total home point of entry filter out of a growing concern for bathing and breathing chlorine and organic pollutants in showers and baths. This consisted of the highest quality and quantity of steam washed bituminous grade granular activated carbon for reduction of chlorine and chemicals. When South Florida (which is one of the first areas) switched to chloramines, we learned that the higher pH caused a drop in efficiency (carbon does not like to remove organics and chlorine under increased pH environments) along with earlier media changes than we had historically known. After several months of research and consulting with our carbon engineers, we began to produce the Model BFF-2 MegaChar which includes an acid washed lignite grade granular activated carbon. The acid washed type of carbon and quantity engineered into the MegaChar permitted it to act more efficiently by reducing the pH. Aquathin has been successfully removing chloramines with this quality filter for over 12 years now and everyone...and I mean everyone reports that they love their MegaChar just as much as their RODI systems (which also removes chloramines as you know). Water in baths and toilets remains clear. No more annual replacement of toilet flappers and rubber gaskets (as long as the BFF-2 is inspected and maintained).

Chlorine and chloramines as we teach in Aquathin University are good, good, good...from the municipal plant, keeping the pipes clean and germ free all the way up to your home. However, if you believe like we believe at Aquathin, we have a choice and can enhance the quality of our water entering into our home. I have a MegaChar and my family loves it.

Warmest regards to all,

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Dates to Remember

June 4-5, 2004

Missouri WQA Summer Meeting

Honeysuckle Inn, Branson, MO

Mike Chaudor, 636 629 5529

WQA Certification Exams

Friday, June 4 8-11 a.m. - Anne Parissidi, 630 505 0160

June 10-11, 2004

WQA Great Lakes Annual Convention

Kellogg Hotel & Conference Center, East Lansing, MI

Donna Moseley, 517 487 6840

WQA Certification Exams

Friday, June 11 - Anne Parissidi, 630 505 0160

June 24-26, 2004

Florida WQA Convention and Trade Show

Caribe Royale Resort, Orlando, FL

Suzanne Trueblood, 863 688 6286

July 15-18, 2004

Texas WQA Annual Convention

Menger Hotel, San Antonio, TX

Debbie Cunningham, 210 680 2300, www.twqa.org

WQA Certification Exams

Saturday, July 17 1-5 pm, Anne Parissidi 630 505 0160

September 15-17, 2004

WQA Mid-Year Meeting

Marriott Lincolnshire Resort, Lincolnshire, IL

WQA Certification Exams

Friday, September 17 8-11 am

Anne Parissidi 630 505 0160

September 17-18, 2004

Wisconsin WQA Annual Convention

Kalahari Resort, Wisconsin Dells, WI

Lori Jansen, 608 285 0765

WQA Certification Exams

Date to be determined, Anne Parissidi, 630 505 0160

September 27-29, 2004

Eastern WQA Annual Convention

Harrisburg Holiday Inn East, Harrisburg, PA

Jodi Snyder, 866 557 5513

continued, page 2...

DC lead issue goes national: consumers need ethical information

The lead debacle in Washington DC has sparked news coverage that has hit a nerve; the EPA has urged national testing of schools—even the General Accounting Office will investigate how local and federal authorities have handled the DC lead problem and determine if laws meant to safeguard drinking water across the US must be tightened.

The lead issue and WQA members - All of this attention again raises safe drinking water concerns in consumers, so every WQA member should understand the issues involved and respond accurately and ethically to consumer questions. A few points listed below are key to understanding the technology and economic impact; an expanded story is on the WQA Web site, and another will appear in the May *WQA-Viewpoint* newsletter.

Chloramine and lead leaching - An April 5 story in *Time* Magazine quoted Marc Edwards, a Virginia Tech civil-engineering professor and water-corrosion expert who found "One sample [in DC that] was so high it was off the scale of my field meter," he said. "The only thing I know for sure is that it contained more than 1,250 ppb of lead."

Edwards—a leading authority, was concerned that there might be a widespread problem and launched an investigation. He concluded that chloramine—used to minimize chlorine disinfection byproducts in drinking water—was causing lead to leach from lead pipes and brass plumbing materials.

Potential economic impact - A class action lawsuit was filed in DC Superior Court requesting that the courts throw out all the city's recent residential property tax assessments because the value of thousands of District homes with lead service lines has been diminished. (It's estimated that 23,000 homes have lead lines and that more than 5,000 homes have water with lead levels exceeding the federal limit.

Bottom line - If the science involved is accurate, other major cities will no doubt find similar problems. In problem areas with naturally corrosive water, homes with lead solder and/or with lead supply lines, or where chloramines are being used instead of chlorine, POU/POE equipment can eliminate lead contamination. [See full story at www.wqa.org.] ♦

101 Sent: Friday, April 16, 2004 11:27 AM
Subject: FORUM Q & A: WHAT IS UV ?

Dear Aquathin Dealer OnLine;

We've had several inquiries recently to set the record straight on UV. The following lecture is from Aquathin University:

"Another 'germicidal' technology is UV or ultraviolet irradiation. UV light waves come from the far right of the lightwave spectrum. It is colorless, odorless and tasteless...but it is the same stuff that will burn your tush on the beach from prolonged exposure! Below you will find a detailed explanation for UV and how it works along with the amount of exposure required to destroy bacteria or render virus non lethal (not legit to say kill these guys, since virus are not considered living or dead). For those of you that are Star Trek fans, think of UV as a Klingon Disruptor. The intense light "disrupts" the bugs DNA so that it dies or cannot replicate or becomes non lethal.

But there are issues with UV:

1. Water must pass within a specific distance of the UV lamp that generates the appropriate intensity and at a specific flow rate to achieve maximum efficiency. There are products that do not adhere to these engineering demands, specifically those that we've tested in the big blue housing configuration.
2. Water must be clear. Bacteria and virus can be shielded by colloidal debris.
3. Water must be fairly soft so that the quartz sleeve barrier is not coated resulting in reduced lightwave effectiveness.
4. Water must flow by and through the UV system in a tortuous turbulent manner to minimize and avoid bacteria and virus shielding one another.
5. Bacteria known as "pyrogens" are not truly affected as these bugs will cause infection and fever (Greek 'pyros' meaning fire) whether living or dead. Hence a .2 micron filter is required as post treatment.
6. Cysts are not affected i.e Giardia (even though listed in the chart below...UV is not a primary recommendation for Giardia), Cryptosporidia, Microsporidia, Macrosporidia.
7. UV is not effective on endotoxins = the naked DNA of bodiless microbes. Think of stepping on a bug...that stuff you see oozing...same goes for bacteria i.e. toxic guts (refer to Forum Q & A dated June 25, 2003 "What Are Autoclaves..."). Sorry to be so colorful, but you now get the picture. I learned this technique from a Prof. at UK.
7. There is no germicidal residual downstream as with chlorine, bromine, iodine, ozone.
8. UV does not remove salts, heavy metals, nitrates, chemicals, pesticides, herbicides, solvents.

Hence UV is not purification as in 2 parts hydrogen 1 part oxygen and no parts anything else. But there is a place for it and we used it often. UV is regarded as a failsafe and specified in laboratory installations. Well water Customers who are allergic to chlorine and need germicidal protection use POE UV. UV (or a germicide) is legally required (serving 25 persons or more) as post treatment in water bottling and dispensing. Used in recirculating UPW (ultrapure water) systems. Used in cistern recirc systems.

Our choice of UV features high polished housings with excellent internal refraction qualities for maximum exposure of our highly intensive and long lasting lamps (maintains wavelength efficiencies for a full year with recommended annual exchange). Aquathin Quote Banks concerning UV make a point to pretreat when necessary and how to apply i.e. standard lamps or ozone producing lamps for residual."

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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What is ultraviolet?

Ultraviolet light is part of the light spectrum, which is classified into three wavelength ranges:

- **UV-C**, from 100 nanometers (nm) to 280 nm
- **UV-B**, from 280 nm to 315 nm
- **UV-A**, from 315 nm to 400 nm.

What is germicidal ultraviolet?

UV-C light is germicidal - i.e., it deactivates the DNA of bacteria, viruses and other pathogens and thus destroys their ability to multiply and cause disease. Specifically, **UV-C** light causes damage to the nucleic acid of microorganisms by forming covalent bonds between certain adjacent bases in the DNA. The formation of such bonds prevent the DNA from being unzipped for replication, and the organism is unable to reproduce. In fact, when the organism tries to replicate, it dies.

What are the beneficial uses of germicidal uv?

Ultraviolet technology is a non-chemical approach to disinfection. In this method of disinfection, nothing is added which makes this process simple, inexpensive and requires very low maintenance. Ultraviolet purifiers utilize germicidal lamps that are designed and calculated to produce a certain dosage of ultraviolet (usually at least 16,000 microwatt seconds per square centimeter but many units actually have a much higher dosage.) The principle of design is based on a product of time and intensity - you must have a certain amount of both for a successful design.

What microorganisms are deactivated by ultraviolet?

Bacteria	UV Dose	Bacteria	UV Dose
<i>Agrobacterium lumefaciens</i> 5	8,500	<i>Pseudomonas aeruginosa</i> (Environ. Strain) 1,2,3,4,5,9	10,500
<i>Bacillus anthracis</i> 1,4,5,7,9 (anthrax veg.)	8,700	<i>Pseudomonas aeruginosa</i> (Lab. Strain) 5,7	3,900
<i>Bacillus anthracis</i> Spores (anthrax spores) *	46,200	<i>Pseudomonas fluorescens</i> 4,9	6,600
<i>Bacillus megatherium</i> Sp. (veg) 4,5,9	2,500	<i>Rhodospirillum rubrum</i> 5	6,200
<i>Bacillus megatherium</i> Sp. (spores) 4,9	5,200	<i>Salmonella enteritidis</i> 3,4,5,9	7,600
<i>Bacillus paratyphosus</i> 4,9	6,100	<i>Salmonella paratyphi</i> (Enteric Fever) 5,7	6,100
<i>Bacillus subtilis</i> 3,4,5,6,9	11,000	<i>Salmonella Species</i> 4,7,9	15,200
<i>Bacillus subtilis</i> Spores 2,3,4,6,9	22,000	<i>Salmonella typhimurium</i> 4,5,9	15,200
<i>Clostridium tetani</i>	23,100	<i>Salmonella typhi</i> (Typhoid Fever) 7	7,000
<i>Clostridium botulinum</i>	11,200	<i>Salmonella</i>	10,500
<i>Corynebacterium diphtheriae</i> 1,4,5,7,8,9	6,500	<i>Sarcina lutea</i> 1,4,5,6,9	26,400
<i>Dysentery bacilli</i> 3,4,7,9	4,200	<i>Serratia marcescens</i> 1,4,6,9	6,160
<i>Eberthella typhosa</i> 1,4,9	4,100	<i>Shigella dysenteriae</i> - Dysentery 1,5,7,9	4,200
<i>Escherichia coli</i> 1,2,3,4,9	6,600	<i>Shigella flexneri</i> - Dysentery 5,7	3,400
<i>Legionella bozemanii</i> 5	3,500	<i>Shigella paradysenteriae</i> 4,9	3,400
<i>Legionella dumoffii</i> 5	5,500	<i>Shigella sonnei</i> 5	7,000
<i>Legionella gormanii</i> 5	4,900	<i>Spirillum rubrum</i> 1,4,6,9	6,160
<i>Legionella micdadei</i> 5	3,100	<i>Staphylococcus albus</i> 1,6,9	5,720
<i>Legionella longbeachae</i> 5	2,900	<i>Staphylococcus aureus</i> 3,4,6,9	6,600
<i>Legionella pneumophila</i> (Legionnaire's Disease)	12,300	<i>Staphylococcus epidermidis</i> 5,7	5,800
<i>Leptospira canicola</i> -Infectious Jaundice 1,9	6,000	<i>Streptococcus faecalis</i> 5,7,8	10,000
<i>Leptospira interrogans</i> 1,5,9	6,000	<i>Streptococcus hemolyticus</i> 1,3,4,5,6,9	5,500
<i>Micrococcus candidus</i> 4,9	12,300	<i>Streptococcus lactis</i> 1,3,4,5,6	8,800
<i>Micrococcus sphaeroides</i> 1,4,6,9	15,400	<i>Streptococcus pyrogenes</i>	4,200
<i>Mycobacterium tuberculosis</i> 1,3,4,5,7,8,9	10,000	<i>Streptococcus salivarius</i>	4,200
<i>Neisseria catarrhalis</i> 1,4,5,9	8,500	<i>Streptococcus viridans</i> 3,4,5,9	3,800
<i>Phytomonas tumefaciens</i> 1,4,9	8,500	<i>Vibrio comma</i> (Cholera) 3,7	6,500
<i>Proteus vulgaris</i> 1,4,5,9	6,600	<i>Vibrio cholerae</i> 1,5,8,9	6,500

Molds	UV Dose	Molds	UV Dose
<i>Aspergillus amstelodami</i>	77,000	<i>Oospora lactis</i> 1,3,4,6,9	11,000
<i>Aspergillus flavus</i> 1,4,5,6,9	99,000	<i>Penicillium chrysogenum</i>	56,000
<i>Aspergillus glaucus</i> 4,5,6,9	88,000	<i>Penicillium digitatum</i> 4,5,6,9	88,000
<i>Aspergillus niger</i> (bread mold) 2,3,4,5,6,9	330,000	<i>Penicillium expansum</i> 1,4,5,6,9	22,000
<i>Mucor mucedo</i>	77,000	<i>Penicillium roqueforti</i> 1,2,3,4,5,6	26,400
<i>Mucor racemosus</i> (A & B) 1,3,4,6,9	35,200	<i>Rhizopus nigricans</i> (cheese mold) 3,4,5,6,9	220,000
Protozoa	UV Dose	Protozoa	UV Dose
<i>Chlorella vulgaris</i> (algae) 1,2,3,4,5,9	22,000	<i>Giardia lamblia</i> (cysts) 3	100,000
Blue-green Algae	420,000	Nematode Eggs 6	40,000
<i>E. histolytica</i>	84,000	Paramecium 1,2,3,4,5,6,9	200,000
Virus	UV Dose	Virus	UV Dose
Adeno Virus Type III 3	4,500	Influenza 1,2,3,4,5,7,9	6,600
Bacteriophage 1,3,4,5,6,9	6,600	Rotavirus 5	24,000
Coxsackie	6,300	Tobacco Mosaic 2,4,5,6,9	440,000
Infectious Hepatitis 1,5,7,9	8,000		
Yeasts	UV Dose	Yeasts	UV Dose
Baker's Yeast 1,3,4,5,6,7,9	8,800	<i>Saccharomyces cerevisiae</i> 4,6,9	13,200
Brewer's Yeast 1,2,3,4,5,6,9	6,600	<i>Saccharomyces ellipsoideus</i> 4,5,6,9	13,200
Common Yeast Cake 1,4,5,6,9	13,200	<i>Saccharomyces sp.</i> 2,3,4,5,6,9	17,600

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* Approximate - Various sources may report different inactivation dosages.

102 **Sent:** Monday, May 10, 2004 4:30 PM
Subject: FORUM Q & A: BUT I THOUGHT I NEEDED MY MINERALS ?

Dear Aquathin Dealer OnLine;

This Forum Q & A is mostly for your newer Salespeople who will be asked these two questions from people who will become your very, very best Customers; "I certainly don't want to be exposed to bacteria, solvents, nitrates, heavy metals, chemicals and pesticides, but how do I get my minerals if your system takes everything out?".....and "if your water is tooooooooo pure, won't it leach minerals out of my body?"

*Attached herewith are several articles and a paper loaded with powerful and educational responses...and why we do what we do (incidently, this is the type of information you will be able to reseach on your own in **TECH BANK** in the new Aquathin website coming soon). Your Customers will appreciate receiving this superior level of information and handed copies of these reprints...and you'll receive their appreciation along with their confirmed understanding that you know your "stuff"...and NO ONE DOES IT BETTER THAN YOU !*

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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The Fifth Function of Water

by Alfred J. Lipschultz

In the April '85 issue of *The American Chiropractor*, there appeared a discussion concerning the five functions of water entitled **Pure H₂O**. This paper will focus attention on the fifth function of water as a dispersant. It is necessary to understand the concept of the following terms, as they shall be used in this paper.

Chiropractor: As a group, the world's foremost authoritative nutritionists. The limitations of their licensing has forced them to practice a new type of preventive medicine that has hurled them decades ahead of many other practitioners.

Preventive Medicine: A practice from the belief that degenerative diseases and cancers are not "diseases of chronicity," a thought still maintained by the traditionalists in medicine.

Pure Water: Water that is free of inorganic pollutants as well as organic.

Reverse Osmosis: The greatest contribution to preventive medicine in the past five years. It is a process to achieve pure water.

Through years of water research regarding the role that water plays within our bodies, it was thought that water had four functions: a solvent, transportant, lubricant, and coolant. It was not until after numerous discussions with physicians that the possibility of a fifth function of water was recognized. Subsequent studies found their roots in understanding the difficulties in manipulation of obese patients who complained of back pains, tension,

headaches, all caused from the protrusion in front of the overweight patient . . . and his constant battle to maintain a center of gravity (of course, many of these patients additionally suffered from hypertension and various degrees of diabetes, both of which were attributable to their obesity.) If that patient could begin to lose weight, the job of health maintenance would be easier for both the patient and doctor.

In talking with obese patients, it was found that most of them had tried as many as five different methods of weight loss. The main problem they encountered was that no program remained consistent for them; they would reach plateaus, suffer anxiety, and release themselves from the "hardship of dieting." When researching each weightloss program individually for its merits and benefits, it was found that the basic concept indigenous to them all was incorrect because it dealt with the problem of obesity as a physiologic problem: "If you eat too much you will gain . . . if you count calories and limit them you will lose . . . eat less fats and live longer, etc." It is important for the patient to understand his own body, because the victim of obesity who does not understand what is causal in obesity does not know enough about the situation to make a reasonable and valid choice to bring about a change. The laws of learning are precise —before we can bring about a change of an individual, we must **show him why he is in trouble**.

In the study of obesity, one must view all the characters of the adipose cell. Frank Lloyd Wright said "function determines design." It is the function of the fat cell to store that which the body cannot use and/or get rid of. The fat cell is spherical in shape to maximize storage capacity and when it grows, because it is a sphere, storage area increases geometrically. When asked what type of weight one wishes to lose, most persons reply "fat." In looking at the constituents of a fat cell, understanding that "fat" is a wrong answer creates a unidirectional concept, and the realization as to why so many fail at "dieting." An adipose cell contains for the most part salts, sugars, other inorganic and organic pollutants, tiny amount of lipid, *all bathed in an ocean of water*. These salts and heavy metal inorganics have an affinity for others, a magnetic attraction so to speak. It is in fact an osmotic attraction. A woman about to begin her menstrual cycle understands a portion of this because if she consumes a pizza and soft drink during this time, she will "retain" fluids. So she takes a diuretic (an electronegative enhancer) to avoid water retention by dispersing the salts into solution. Fat cells are good, not bad. They store toxic material and keep it from being deposited in vital areas. However, when the fat cell has reached its limit of storage, it will allow the deposition of metabolites and wastes in other areas, such as blood vessels.

To further understand the act of deposition, it is im-

CONTINUED ON PAGE 23

portant to comprehend a few laws of colloid stability. A colloid is a particle that stays suspended in a solution. When that colloid is ten microns in size or less, it assumes a negative charge automatically. Milk is not a white liquid. It is clear with many white colloids all charged the same (electronegative) and repelling one another. When adding a positive charged particle (cation) to the milk, an agglomeration or flocculation, or coagulation is caused. That is how cottage cheese is made. Milk with a brine solution passed through it causes it to form curds, a coagulant. The electronegativity of the system has been reduced. Red blood cells are less than ten microns in size and follow the laws of colloid stability; that is, they are electronegatively charged along with the lining of the lumen of the blood vessels. Red blood cells pass single file, never touching one another. The distance between the cells can be measured and a norm be defined.

Normal specific conductivity (a numerical electrical measurement of a fluid's ability to resist an electric current) of blood is 12,500 micromhos. When kidneys work properly they maintain an even blood waste level, which is directly correlated to specific conductivity value of 12,500 micromhos. When urine levels exceed 12,500 micromhos, the kidneys are either working overtime to avoid deposition in vital areas and/or taking the stain off the adipose tissue to store more wastes. But when the kidneys can only do this for a period of time, wastes are permitted to remain, causing the red blood cells to lose their electronegativity and draw closer together. A greater loss of electronegativity causes the red cells to lose all space between each other and form "clots." Doctors treat this acutely by prescribing coumadin and heparin (electronegative inducers.) However, the above two scripts lose part of their effectiveness when taken with tap water that contains many cations, contradicting the potential effect. Another method to avoid clots through maintained electronegativity is the consumption of citric foods, garlic, and onions, all of which are naturally electronegative inducers. Further, the ingestion of copious quantities of pure water enhances electronegativity because, when the volume of a colloid system is increased, the electronegative potential is increased. Also, through osmosis the fat cell will try to take in more of this pure water, due to the cell's "education" to attract salts. Because there are no inorganics, or a reduced amount, in the solution that baths the fat cell, the cell will disperse its contents into the solution due to a law of equilibrium, and those ingredients will be removed through the kidneys more readily because of the volume and ability a pure water has to carry wastes. A measurement of the specific conductivity of urine demonstrates the existence of this phenomenon. The result is that not only does one lose weight, but circulation is improved. Also, flow through blocked capillaries can be improved with chelation therapy and oral chelators, both of which are electronegative inducers. Positive results are proven with the use of thermograms. The chelators work in the same manner as when oil companies add tripyrophosphates (the most powerful electronegative inducer known today) to millions of years old, thick, sludgy oil in Alaska. The tripyrophosphates allow the oil to become "thinner" and flow easily through the thousands of miles of pipeline.

Studies of the role that "salt-free water" plays as a dispersant in hemodialysis patients provide important information for all of us. Whatever would happen to a normal, healthy human being within a lifetime, with regard

to accumulation of wastes and the associated symptoms thereof, happens to a dialysis patient in a period of days. A study performed at the Mercer College of Pharmacy in Atlanta, Georgia reached the merits and benefits of consuming inorganic and organic free water by hemodialysis patients. In all cases in this double crossover study, all patients had decreased two and three day weight gain between dialysis sessions when consuming this type of pure water, and claimed to have a better general feeling of well being.

The process of reverse osmosis forces water of a high dissolved solid concentration through a semipermeable membrane, leaving the solid dissolved content on the one side and a slight amount of content (usually monovalent) on the product side.

A calorie is only a unit of measurement to measure the combustibility of a food. Those "foods" such as saccharins, preservatives, leavening agents, smoothing agents aren't foods at all and do not have a caloric value which most dieters mark as an attribute. By consuming them along with tap water or bottled mineral water, we do not consume calories, but we will decrease our electronegative atmosphere and readily store them, hence attracting other wastes and toxins and ultimately creating a home for a multitude of degenerative diseases to begin to take shape and form. It is important to become knowledgeable and invoke a change in our lifestyle and practice this type of preventive medicine. The greatest gift the chiropractor has to give in his practice is his knowledge.

Alfred J. Lipschultz has devoted many hours of research to the functions of water in the body and the processes and technology by which water can be purified. Mr. Lipschultz is the Vice President of Aquathin Corp. and can be contacted for more information in Fort Lauderdale, Florida.

TAC SPECIAL

by Alfred J. Lipshultz

PURE

The inorganic minerals that line a thirty-year-old plumbing pipe will eventually line ours.

H₂O

A gentleman said to me in the middle of a recent business meeting, one that seemed to be going nowhere, "O.K., Alf, what's the bottom line?" My response was so off-the-wall that he didn't know whether to laugh, act insulted, or just leave my office: "The bottom line is to improve my quality of life." He sat back, collected his thoughts to search for an alternative to circumlocute my statement, and then said, "You're absolutely right." Well, to make a long story short, I bought his line of goods and he bought an Aquathin.

What it all comes down to for all of us is quality of life. If you don't have your health, everything else loses its value. So, I began to research what makes us healthy. Hardly any research has been devoted to the most important thing we put inside us . . . WATER. We're approximately 85% water, yet water is taken for granted!

Water has five functions in our bodies: it is a lubricant, solvent, transportant, coolant and dispersant (electronegative enhancer). If water carries a load (salts, heavy metals, and pollutants dissolved into itself) then the water cannot be efficient in these functions. If your car has rusty water in the radiator, it overheats. If we have an above normal waste level in our blood, we overheat and develop fever. In sports medicine, physicians advise athletes to drink water. Research shows water consumption during activity increases endurance, and muscles remain relaxed rather than tense when the activity is over.

Our kidneys have to filter 400 gallons of fluid a day. If there is enough water present, kidneys operate easily. If not, kidneys are forced to recycle too much and deposits may be left behind in the form of stones. Many of a kidney stone's mineral constituents are the same as in tap

water or bottled spring water. These minerals are plant food, inorganics from rocks, and not people food. It is not until a plant absorbs that mineral, making it organic, that we can use it. A doctor could look at you and say, "You appear a little anemic. Here are some nails and iron supplements. The choice is yours." You would not choose the nails, that's for sure; yet the iron found in nails is the same as that in our tap water and bottled waters. Once when I was speaking to a medical convention in Ohio I showed the doctors a picture of a blocked vessel. The color photo showed deposits completely closing the vessel. I asked the doctors to tell me what this picture was. The unanimous decision was a blocked artery from a person needing multiple aorta bypass surgery. I said, "Doctors, your diagnosis is correct. This is a blocked artery; however, it is the one that feeds my house." It was a water pipe. They were amazed. The inorganic minerals that line a thirty-year-old plumbing pipe will eventually line ours. Also, the inorganic materials (preservatives) that give our foods an extended shelf life, take shelf life from us. We should not eat processed meats, yet we'll drink processed water (electronegative reducers).

Many physicians and dieticians are calling for low- and no-salt diets because of the propensity towards higher blood pressure. But consider other minerals to; i.e., aluminum. Aluminum is the most powerful coagulator known to man. When a boxer gets cut, his corner man puts alum in the cut to stop the bleeding. Syptic saves the lives of careless shavers. Aluminum chlorhydrate shrinks the pores of our underarms to avoid the embarrassment of perspiration. Further, municipalities add ferrous aluminum sulfate to murky reservoir or river drinking

water to coagulate and precipitate the particles to provide clear water. The brain of the prematurely senile Alzheimer's victim is overdosed with abnormally high aluminum levels. We consume aluminum leavening agents in bread, dissolved in canned foods, leached from the surface of cooking utensils, and most recently in the air we breath from space shuttle launches. One launching deposits 150 tons of aluminum oxide into the air. Water that is void of inorganic materials is the type of water we need to consume. Drinking two litres of this water daily will improve the roles that water plays within our bodies through its ability to move nutrients deeply into tissues, pick up wastes, keep us cool, and maintain joints without leaving deposits.

Hence, Aquathin . . . a water purification system designed to remove wastes found in tap water using the same principle that kidney dialysis machines use to remove waste from blood. Aquathin utilizes reverse osmosis and deionization for maximum rejection and removal of waste contaminants. Carbon filters, which is what most people have, cannot remove salts, heavy metals, and only reduce a few of the pollutants in the spectrum of pesticides and industrial wastes.

Aquathin removes 98-plus% of the inorganics and 100% of the organics. Getting rid of these contaminants, the causes of degenerative disease, can only improve the quality of our lives. And after all, our great grandparents knew this. They collected their drinking water in rain barrels—we cannot. Water is the key to life . . . and a pure water is the key to a healthful qualitative life. If you would like to know more, direct your questions to: Alfred J. Lipshultz, Aquathin Corp., 6303 NW 9th Avenue in Ft. Lauderdale, FL 33309. ♦

Pure Water and Medication

Untreated water can interfere with pharmaceuticals.

By Dr. Harvi Lipshultz and Alfred J. Lipshultz

Any water treatment professional is familiar with the many health risks related to consuming unpurified water. What many people, even in the water industry, do not yet know is that tap water can interfere with the medications doctors prescribe.

Many prescription vials carry small, brightly colored stickers that say "Take on an empty stomach" or "Do not take with dairy products or antacids." The pharmacist places these stickers on the vial because the components of food, milk or antacids will inhibit the absorption of the medicine and render it partially or totally inactive. These same components are found in tap water and can render some medication inactive. Antibiotics, specifically tetracyclines, norflaxin and ciprofloxacin, can be affected in this way.

Also, certain medications depend upon an acidic (low pH) environment to be absorbed. The stomach provides an acidic site of absorption, but if tap water is basic (high pH), it might render the environment neutral and inhibit the absorption and activity of certain medications.

Fluoride Considerations

Another pharmacological reason not to use untreated tap water to swallow medications is related to the fluoride content of the water. Many post-menopausal women suffer from osteoporosis, which is a breakdown or thinning of the

bones. The treatment for this condition is hormonal and calcium supplements. However, if calcium is consumed with tapwater, the fluoride in the water will render the calcium insoluble. Therefore, the calcium might not be absorbed, and it will have no effect on bone formation.

If tap water contains an excessive amount of fluorides, it may cause a condition known as endemic dental fluorosis, which appears as a dark brown spotting of the teeth. In certain cases, the teeth become chalky in appearance.

American Medical Association (AMA) has issued several printed statements about drinking water and human health. AMA states, "Since drinking water frequently contributes significantly to the human intake of a number of chemicals, the physician should be aware of the consumption of water in relation to the patient's condition. For example, the sodium content of drinking water in public systems is reported to health authorities so that physicians can prescribe alternative water sources for hypertensives and others who must restrict sodium intake." All patients with any type of cardiovascular disease should benefit from sodium-free water.

Another pharmacological interaction occurs between sodium and the medication lithium. Consuming excessive amounts of sodium will increase the excretion of lithium resulting in a decrease

in the activity of lithium and an increase in the symptoms of bipolar affective disorders, or manic-depressive illnesses.

As people get older, their renal (kidney) function decreases. Drinking chemical-laden water puts an additional stress on an already stressed renal system. Evidence of this is seen in people who are maintained on hemodialysis because of kidney failure. They are advised not to consume tap water with excessive ammonia levels, since ammonia causes toxic uremic effects in this patient population.

AMA also attributes outbreaks of disease to the quality of water. Microorganisms such as protozoa,

The physician should be aware of the consumption of water in relation to the patient's condition.

fungi and coliform bacteria have been found in tap water, usually resulting in an advisory to boil the water. These microorganisms are potentially dangerous to anyone who consumes them, and they pose a particular danger to people with weakened immune systems, as in cases of chemotherapy, radiation and AIDS.

These are just some of the pharmacological reasons not to drink unpurified tap water, including the possible inactivation of medications, aggravation of existing health problems or even the creation of new ones. Mounting evidence of serious health risks such as these provide ample motivation for increasing numbers of people to investigate the water treatment option. □

Dr. Harvi A. Lipshultz is clinical coordinator of the North Broward Hospital District, Broward County, FL. Alfred J. Lipshultz is president and CEO of Aquathin Corp., Pompano Beach, FL.



Untreated water can affect the efficiency of various medications.

CONSUMPTION OF LOW TDS WATER

A COMMITTEE REPORT

BY

**WATER QUALITY ASSOCIATION
SCIENCE ADVISORY COMMITTEE
1992-1993**

**With
Review By**

Dr. Lee T. Rozelle

and

Dr. Ronald L. Wathen, M.D.

MARCH 1993



**WQA
Technical
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INTRODUCTION

Since the beginning of time, water has been both praised for good health and blamed for human ills. We now know the real functions of water in the human body are to serve as a solvent and medium for the transport of nutrients and wastes to and from cells throughout the body, a regulator of temperature, a lubricator of joints and other tissues, and a participant in our body's biochemical reactions. It is the H_2O in water and not the dissolved and suspended minerals and other constituents that carry out these functions.

Low TDS water is defined in this paper as that containing between one and 100 milligrams per liter (mg/L) of total dissolved solids (TDS). This is typical of the water quality obtained from distillation, reverse osmosis, and deionization point-of-use water treatment of public or private water supplies that are generally available to consumers in the world.

Highly purified (distilled) water is believed by some to help "cure" arthritis by "washing out" excess calcium and other minerals from deposits in joints. Along with this reasoning, some people speculate that drinking highly purified water, treated by distillation, reverse osmosis, or deionization, "leaches" minerals from the body and thus causes mineral deficiencies with subsequent ill health effects.

An isolated report, a summary of Russian studies available through the World Health Organization, has recommended that fluid and electrolytes are better replaced with water containing a minimum of 100 mg/L of TDS. However, this may pertain more to situations in the human body during heavy exertion and sweating. It is the market for sports drinks which are formulated to help replace the sugar compounds, glucose in the blood and glycogen in the muscles that are burned in prolonged exercise. Sports drinks are formulated to help replace the sugar compounds - glucose in the blood, glycogen in the muscles - and electrolytes - salt, calcium, and potassium that keep cells in proper electrical balance - that may be burned and depleted after an hour or more of hard exercise. This situation does not have anything to do with low TDS or demineralized water for normal drinking and cooking purposes. Even in warm weather exercise, the greatest danger is that of dehydration, and the proper advice to ward it off is to drink lots of plain water.

The scope of this paper is limited to answering whether low TDS water contributes to the loss of minerals from body tissues, producing associated harmful side effects. The types of minerals -- e.g., calcium versus sodium, or hard water versus soft water -- and the toxicity of minerals - - e.g., lead, cadmium, brackish, or saline waters -- are not an issue in this report. Information on the body's homeostasis mechanisms, community water supplies with natural TDS less than 50 mg/L, historic use of distilled water with less than three mg/L TDS on board Navy ships, the U.S. Environmental Protection Agency's response to this issue, and other evidence are presented to demonstrate that the consumption of water with low levels of minerals is safe.

ESTABLISHED DRINKING WATER STANDARDS

A review was conducted of the United States, Canadian, World Health Organization (WHO) and European Community (EC) drinking water standards. None of them has minimum limits or optimum levels of total dissolved solids. The U.S. recommended maximum level is 500 mg/L, the Canadian guideline suggests less than 1,000 mg/L, and the EC maximum admissible concentration (MAC) is 1,500 mg/L (for "dry residues").

The EC standards also list numbers for calcium (guide level of 100 mg/L) and magnesium (guide level of 30 mg/L, and MAC of 50 mg/L), and a minimum for hardness (minimum required concentration for softened water of 60 mg/L as Ca), and alkalinity (minimum required concentration for softened water of 30 mg/L HCO_3^-). However, there is no health criteria documentation for these advisories. These levels are listed as aids to operation for water supply systems, i.e., suggested parameters for laying down a passivating film of scale in municipal distribution mains. Calcium, magnesium, hardness, and alkalinity conditions are not necessary for judging the safety of drinking water. It is understood that the association of European water suppliers, Eureau, is moving to exclude these parameters from the European legally enforceable limits.

THE NATURAL CONTROL OF MINERAL CONCENTRATION IN THE HUMAN BODY

A better understanding of the effect of low TDS water on the human body requires a basic understanding of the body's mechanism in this respect. Following is a description of the relevant mechanism.

Homeostasis is the maintenance of static or constant conditions in the internal body environment. This natural process controls the mineral (ion) and the water concentrations in the body fluids within narrow limits inside and outside all the cells in all the organs and tissues of the body. The kidneys are most important in maintaining constant ion concentrations (including sodium, potassium, calcium, etc.) through elimination and reabsorption.

In homeostasis, three body fluids are involved: plasma (approximately 3/5 of the blood volume); interstitial fluid (the fluid between cells); and intracellular (fluid inside the cells). The concentration of sodium ions is highest outside the cell and that of potassium ions is highest inside the cell. When the osmotic pressure is high on one side of the cell membrane (high concentration of ions) and low on the other side, water moves across the cell membrane from the dilute side toward the other side to equalize the osmotic pressure. This phenomenon is known as osmosis. [This is unlike reverse osmosis which occurs when outside pressure is applied to the concentrated side, pushing the water back to the dilute side.] The normal osmolality (concentration of ions) of all these fluids is about 300 milliosmoles per liter (mOsm/L) (~ 9,000 ppm).

Any changes from normal in ion concentration across the cell membrane is corrected in one minute or less because water moves quickly through cell membranes. Thus, small changes in osmolality from drinking purified water (0 to 100 mg/L TDS) are quickly brought to equilibrium.

The kidneys control the overall concentration of the constituents of body fluids. It filters about 180 liters (165 quarts) of water per day, but over 99% is reabsorbed and only 1.0 to 1.5 liters are eliminated as urine. If the osmolality of the fluid to be filtered by the kidney is lower than normal (low solute concentration - such as low TDS water) nervous and hormonal feedback mechanisms cause the kidney to excrete more water than normal and thus maintain the ion concentration in the body fluid to normal values. The opposite is true if the ion concentration of the fluid to be filtered is higher than normal. This kidney homeostatic mechanism keeps the body fluid osmolality normal. The osmolality of the fluid to be filtered by the kidney is controlled to $\pm 3\%$ to maintain it at the normal level of 300 mOsm/L. The three basic hormonal and nervous control systems triggered by abnormal ion concentration in the body fluids to be filtered by the kidney are antidiuretic hormone (ADH) from the pituitary gland, aldosterone from the adrenal glands, and thirst (as osmolality rise of about 1% causes thirst).

Because of these kidney control mechanisms, drinking one liter of water would cause the urine output to increase about nine times after about 45 minutes (due to absorption of water in the gut) and continue for about two hours. Thus, the concentrations of solutes in the blood and other body fluids are quickly maintained by the kidney through homeostasis. These control

mechanisms keep the sodium concentration at $\pm 7\%$. Calcium secretion is controlled by parathyroid hormone to \pm a few percent in the extracellular body fluid.

Also, saliva increases the ion concentrations during water intake. The concentration of sodium chloride in saliva is typically 15 milliequivalents per liter (mEq/L) or 877 mg/L; that of potassium ion is about 30 mEq/L (1170 mg/L). As low TDS water is consumed, it is combined with saliva which increases the TDS before it reaches the gut to be absorbed, (e.g., each one milliliter of saliva can increase the TDS level in eight ounces of water consumed by about 10 mg/L).

Thus, based on the above highly credible and up-to-date textbook knowledge* it is evident that consumption by a healthy person of low TDS water alone cannot cause unhealthy systems. ['Healthy person' means free of disease, hormonal problems, etc., and not necessarily a healthy diet.] Of course, homeostasis is maintained by diet as are other body functions. If homeostasis is not maintained because of major diet deficiencies, disease, or hormonal dysfunction, consuming low TDS water would be a minor (if any) factor in any observed symptoms. It is apparent that disease, physiological dysfunction, or major nutritional deficiencies may cause a "leaching" problem, but not consuming one to two liters of low TDS water on a daily basis.

*Guyton, Arthur L., M.D. *Textbook of Medical Psychology* Eighth Edition, W.B. Saunders Company, Philadelphia (1991).

LITERATURE SEARCH AND REVIEW

During the last 12 months, several literature searches have been undertaken to bring out studies, reports, reviews, and related information that may be of value to reach conclusions that would be scientifically supportable. These searches can be outlined as follows:

- Request of expert review by U.S. EPA, Dr. Lee T. Rozelle, and Dr. Ronald L. Wathen of an annex (Appendix) attached to a report submitted to WHO prepared in 1980 by two Russians, G.I. Sidorenko and Y.A. Rachmanin, on the general subject of desalination.
- Letters sent out to various experts and informed parties, including inquiries sent to the World Health Organization (WHO), U.S. EPA, and U.S. Department of the Navy.
- A comprehensive search of the Medline medical literature database for articles related to low TDS water and homeostasis.
- A search of AWWA's WATERNET database for articles with key words describing low TDS waters and salt "leaching," etc. (No articles were found.)
- Review of published information regarding the levels of TDS in many public water supplies.

A review of the literature has shown that there is very little information published in western scientific literature that relates the consumption of low TDS water to physiological effects on the human body. A report "Guidelines on Health Aspects of Water Desalination" prepared by G.I. Sidorenko and Y.A. Rachmanin of Russia in 1980 and submitted to the World Health Organization contains an annex (Appendix), 6½ pages long, reviewing work that has been reported in the Russian literature. The present literature search did not unearth any official translation of any of the articles cited in that annex. The annex concludes that consumption of water with less than 100 mg/L disturbs the body's water/salt balance, promoting the release of sodium, potassium, chloride, and calcium ions from the body of animals or humans, imposing a stress on the mechanism of homeostasis, promoting changes in the gastrointestinal muscles and mucosa, and reducing the thirst quenching capacity of the water.

This annex has been intensively reviewed by many scientifically oriented individuals, including Dr. Lee Rozelle and Dr. Ronald L. Wathen.

Dr. Rozelle summarized his review:

The data for their conclusions, summarized in Annex 8 of the WHO unofficial guidelines, are not very convincing from a scientific viewpoint. The volume of water consumed per day was not indicated and the length of time of the experiment for the human "volunteers" was not indicated (one year for rats). The physiological changes reported apparently were based on rat and dog studies. For dogs, the same physiological changes were observed for water containing 50 mg/L and 1,000 mg/L.

The conclusion of a minimum TDS of 100 mg/L is confusing and thus not very convincing.

In the human studies, diuresis was observed particularly on the second day of the study (the increase in urine output reported to be 18%). The volume of water in the body from the "distillate" was reported to be 50 to 100% higher than the "other groups." The Russians also reported increased elimination of sodium, potassium, chloride, calcium, and magnesium in the urine, and the specific gravity was reduced. In the blood serum, the sodium was increased and the potassium decreased. Then it was reported that the "tendency" for similar changes were observed after consumption of 100 mg/L TDS and 1,000 mg/L TDS. The water intake (based on thirst) of various TDS waters was not clearly reported. In some cases it was difficult to determine if the data were from animals or humans.

In summary, the Russian studies, as reported in Annex 8 of the WHO document appeared not to be rigorously scientific.

Dr. Wathen reviewed it from a medical point of view and wrote the following:

The Annex VIII of the report is an alleged "review" of water and salt balance under the influence of a variety of water and salt intakes, in a variety of animals, including humans, exposed to a variety of conditions. The review is long on deductions, but very short on (re) presentation of solid data. Moreover, probably only a handful of references cited in this review (assuming they are cited correctly) may be from creditable scientific journals, that is, journals which demand proper scientific methodology and peer review of all work, prior to publication. Many of the cited articles may be from journals of "personal opinion": being versed only in English, it is impossible for me to establish the credibility of the cited work.

This review cited observations on the organoleptic features of water (i.e., consumer appreciation of taste, odor, and color qualities) to underscore precise, physiologic thirst slaking with specific levels of TDS -- containing water in response to volume depletion. To begin with, the quoted electroencephalographic studies probably indicate only that a maximum number of receptor sites (taste buds) have to be recruited through stimulation to provide a maximum brain (alpha) wave response and that the TDS level in water providing the maximum response was between 200-600 mg/L of salt.

One would expect such a response; one might also imagine that receptor response (sensitivity) is considerably tempered by prior salt and mineral exposure for the individual. Organoleptic features are very, very unlikely to define whether a given water source is healthful or non-healthful or that the amount imbibed is appropriate to need. Moreover, taste receptor electrical activity, being unlikely to reveal preference by the consumer, means the consumer must be asked whether he or she prefers a given type of water. More often than not, preference reflects prior experience (learned behavior).

The review refers to exposure to desert and exercise conditions for humans and how water lost in sweating should be replaced, not with purified water but with salt water. Who would disagree with this conclusion? With Gatorade[®], for example, selling to extremely large U.S. and world markets, one hardly needs to be reminded in this day and age that volume and salt losses encumbered with the sweating of heavy exercise are best replaced with a fluid whose constituents are more aligned with extracellular fluid in the human. Gatorade[®], though billed as being "low sodium" on its label, is in fact rather high in salt content (both sodium and potassium) and it provides a rapid, convenient, and safe way to promptly reconstitute vascular volume after heavy exercise. Dizziness, even syncope (passing out), from volume depletion are thereby avoided and strength of the individual is better sustained, due both to volume replacement and the glucose contained within Gatorade.

Gatorade[®] is a water source to be taken only to replace severe fluid losses accompanying sweating; it generally averts the need for supplemental salt tablets. Gatorade[®], in an opinion which may not be shared by the Gatorade Company (Chicago, IL), is not a source which should be used to replace normal fluid and electrolyte losses any more so than pure water should be used to accommodate severe volume losses. In the presence of salt accompanying usual dietary food intake (4-8 gm/day of sodium in U.S.), Gatorade[®] might conceivably lead to volume excess. A 64 oz. serving of Gatorade[®] contains: 880 mg of sodium; 200 mg of potassium; and about 400 calories, as carbohydrate (112 grams). There is no magical solution; one should drink what's appropriate to the circumstance.

Replacement of the large fluid losses accompanying heavy exercise or thermal exposure, therefore, has nothing to do with using purified water for normal drinking and cooking purposes, the latter being paired with normal food intake to meet salt and mineral needs. In normal day-to-day activity not associated with extremes in sweatloss, the salt and minerals accompanying normal food intake more than meet daily dietary needs of such elements, whether consuming potable water (e.g., TDS of up to 500 mg/L) or purified water (e.g., TDS 100 mg/L) or pure water (e.g., 0.111 mg/L TDS).

Salts and minerals are not "leached" from the human body; they are preferentially retained or excreted, either of these events occurring relative to whether or not one is surfeit in water or salt or both. In short, the human body is not a lead or copper pipe which "leaches" in the presence of purified water. The Annex VIII review is very misleading in this regard.

I also think it is incredible to suggest that, in the absence of abnormal water loading experiments, consumption of demineralized water will cause distortion of the mucosal cells lining the GI tract. Besides, in the normal human setting, such water is often combined with other elements (e.g., coffee, tea, fruit juices, soft drinks, etc.) which raises its TDS prior to consumption.

But, even if the TDS is not raised by some external means, through the additions of saliva, gastric secretions, and small intestine secretions beyond the stomach,

there is an internal elevation in TDS of any dilute fluid one might drink. It would be my opinion that the adsorptive portion of the GI tract, that is, the small intestine, in the absence of extreme water loading, never sees a hypotonic solution sufficient to cause the mucosal cells to swell or to appear damaged. There is a tendency in this review to draw conclusions from observations in anhidrotic (non-sweating) laboratory animals (dogs, rats, and rabbits) and apply them to the very hydrotic (sweating) human. That is, the review often draws conclusions from fluid, electrolyte, and acid-base studies in "non-sweaters" and seems to transfer these conclusions to the "sweaters." It is imprudent physiologically, if not scientifically erroneous, to do so. I found the reported physiological data to be very confusing, often at right-angles to prior knowledge. One wonders if the responses to various levels of salt in water were confused when citing data from the actual papers used in the review.

I personally have never heard of osmoreceptors being present in the gut which might serve to regulate fluid adsorption. And certainly, I have never heard of the liver being a repository of salt to be released to reconstitute salt levels in the vascular compartment. This statement, I think, is borderline preposterous. The literature cited here has been misconstrued or is comprised of essentially factitious observations. Salt in all body fluid compartments redistributes bidirectionally in attempts to off-set excesses or insufficiencies in extracellular fluid constituents, particularly in the vascular (blood volume) compartment.

The following responses have been received from different experts in many different fields:

WHO's Dr. Galal-Gorchev states that WHO has "no information that such (low TDS) water would have and adverse effect on mineral balance".

U.S. EPA's Dr. Edward V. Ohanian, Chief of Human Risk Assessment Branch wrote,

Drinking water supplies a number of minerals that are important to human health. However, drinking water is normally a minor source of these minerals. Typically, the diet is the major source of these beneficial minerals. I am not aware of any data adequate to support the conclusion that water with low levels of minerals is unsafe.

The U.S. Navy has used distilled water with less than three ppm TDS aboard ship for more than 40 years. Surface ships while on shore take on water from shore sources, but it is common for submarines to provide nothing but purified water for months at a time, all with no reported ill effects. This was confirmed with separate sources at the David Taylor Research Center in Annapolis, the Naval Sea Systems Command, the Bureau of Medicine and Surgery, and the Navy Environmental Health Center. Finally, the Surgeon General directed the Navy to address the subject formally in 1972. The conclusion was that drinking distilled water is not harmful.

The University of Illinois Health Sciences Library's ONLINE SERVICES department was contracted to search the MEDLINE database for the several key word groups back to 1980. That search produced 18 articles, but only two relevant ones, both supporting the proposition

that the physiologic mechanisms of homeostasis are more than adequate to permit routine drinking of purified water.

Article 1 described experiments in which dogs were given large amounts of distilled water to lower the blood osmotic pressure while monitoring very closely the pH and CO₂ of arterial blood and the breathing rate. They found that the blood osmolality has a direct effect on breathing in addition to the known effects on kidney function. Thus, homeostasis appears to be controlled while intentionally consuming low TDS water.

Article 2 described experiments with rats which had had their pituitary glands removed ("hypophysectomized rats"), and which therefore should show some damage to the hormonal control system. They found that the renin-angiotensin-aldosterone system worked well even without a pituitary, suggesting an additional control system leading to the maintenance of homeostasis.

None of the 18 articles, including these two, showed any direct information about the subject matter of interest, but only that the homeostasis mechanism in living beings has significant abilities to adapt to different situations and inputs.

DISCUSSION OF FIELD EXPERIENCES

There are no known scientific data which clearly demonstrate that the consumption of low TDS water by humans will or will not lead to harmful effects on the human body. However, a number of field experiences can be cited which support the premise that the consumption of such water by humans does not cause such harmful effects. There are no known documented experiences which show that consuming low TDS water will create any long-term health effects.

The U.S. Navy has used distilled sea water for human consumption for approximately 40 years. TDS levels below 3 mg/L have been reported and consumption of this water for months at a time is common on submarines. No health problems have been reported by the Navy and they feel low TDS water is safe to drink.

The U.S. Army uses reverse osmosis units to provide drinking water for soldiers in the field. They do not consider low TDS water to be a problem and have no minimum standard.

The U.S. EPA conducted a project in San Ysidro, New Mexico in which the TDS was dropped from 800 mg/L to a range of 40 to 70 milligrams per liter. No health effects were observed during the one year test.

Possibly the largest field study of human consumption of low TDS water is within the United States where municipal systems are delivering water in this category. Millions of people currently consume such water, and this practice has gone on for decades. Exact data are difficult to obtain due to seasonal changes, use of blended water from multiple sources, and changes of sources. However, the following levels have been reported:

Boston, MA	64 mg/L
Portland, OR	23 mg/L
Baltimore, MD	89 mg/L
Lake Tahoe, CA	50-64 mg/L
San Francisco, CA	27-154 mg/L
Seattle, WA	34-47 mg/L
Denver, CO	39-216 mg/L
New York City, NY	41-283 mg/L

In addition to these areas, thousands of private wells, as well as numerous small municipal systems in the U.S., produce low TDS water. No known health effects or problems have been reported as a result of this widespread practice.

Thousands of TDS reduction devices have been sold residentially in the United States for decades. No reports of mineral depletion or health effects are known as a result of the consumption of this water.

In Plains, Texas, where the drinking water was brackish at 1500-2000 mg/L TDS, a change was made to desalinated water and the residents experienced temporary diarrhea. Because of the high initial TDS and because of blending, the treated water exceeded 100 mg/L TDS, which is above the definition of low TDS water established for this report.

In Montreal, a study compared the gastrointestinal disorders of two groups; one consumed tap water, while the other consumed reverse osmosis water. The group consuming the tap water had a higher incidence of GI infections. While neither of these experiences can be considered conclusive, no evidence of mineral leaching, the topic of this report, was reported in either case.

NASA has reported no ill effects from the consumption of approximately .05 mg/L TDS water on board space craft. It appears that the possibility that this could have been a problem was never seriously considered by NASA.

In a field test in Boulder, Colorado with about 50 families, an experimental, zero discharge water system provided drinking water containing about .05 ppm TDS. No ill health effects were caused as a result of drinking this water.

In conclusion, the field experiences cited suggest that there are no long-term ill health effects, specifically the mineral leaching from human tissue, due to the consumption of low TDS water.

CONCLUSION

It has been concluded that the consumption of low TDS water, naturally occurring or received from a treatment process, does not result in harmful effects to the human body. This is based upon the following points:

- **No public health organization with authority over the drinking water quality anywhere in the world has enacted or even proposed a minimum requirement for total dissolved minerals in drinking water.**
- **The human body's own control mechanism (homeostasis) regulates the mineral content of the body fluids and the discharge of different types of ions from the body of normal health individuals drinking water with low or high mineral content.**
- **Several types of scientific literature searches have found no harmful effects to the human body attributable to the consumption of low TDS water.**
- **Review of the Soviet report has shown that the scientific methods used are questionable and the conclusions are either vague or unsupported by the data.**
- **Many examples of real-world situations in which large populations have been and continue to be provided exclusively with low TDS water without any reported unusual or ill health effects, establishes the safety of consuming such waters by human beings.**

103 Sent: Friday, June 11, 2004 3:40 PM

Subject: FORUM Q & A UPDATE: WHAT IS PERCHLORATE ?...AND WHAT DOES IT HAVE IN COMMON WITH RED WORMS !?

Dear Aquathin Dealer OnLine;

So, what does perchlorate and red worms have in common? Water chemists believe its OK to drink 'em ! Please read the newly pasted article concerning perchlorate below and its "relaxed" position. Just above that article is the email received today from my friend and Authorized Dealer in South Africa, Gordon Bastiaans...and my comments on the SA officials stating its OK to consume red wormed water.

Concerning perchlorate or any tested chemical; General lab protocol says take a known amount of the perc and mix with demineralized sterile water, then test. Here's what's missing....everything else that is in that water. Perc as with the vast majority of all chemicals can combine to form other chemicals. The process can be immediate or take time and varying conditions, not easily repeated in the lab. Additionally, it is not confirmed that perchlorate can be metabolized (not likely), and biodegradable vs. bio-accumulator. And in view of the many presently regulated contaminants that are "downsizing" the MCL's, its waaaaaaaay to soon to "relax" any position on perc....and its wormy brethren.

So here's the choice; to consume or not to consume. Your Customers have far more common sense than buying off on the water officials' waxing comments....and you can take that to the bank ! Enjoy the reads below ! { I've pasted the previous Perc info at bottom for your immediate reference }

I LOVE MY AQUATHIN !!!

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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"Alfie"

Alfred J. Lipshultz, President

P.S. "Splash NewsBulletins", "Forum Q & A", "Allergic Reaction", Biz Bank, Tech Bank and Quote Bank... **ARE ALL FREE** services to all Authorized Aquathin Dealers and their clients to keep you abreast of technology updates and industry news.

----- Original Message -----

From: info@aquathin.com

To: aquathinsa

Sent: Friday, June 11, 2004 10:22 AM

Subject: Re: Red Worms

Dear Gordon;

Thank you for your email. The mentality behind the writings of this article is why we all will be in business for a very very long time. Here is what the article does not mention:

(A) Every living thing poops. How do you feel about drinking that even though the writer says its OK to drink.
(B) The fact that the worms exist says chlorination is not being accomplished. Chlorine is there for a host of germicidal, oxidizing, and precip reasons. Who is looking out for the residents here...on their tax dollars !?
(C) Today its not harmful. Who can guarantee that in the future, they will not discover they were wrong? Remember that a number of the chemicals and elements that science felt was not harmful 30 years ago, now appear on the regulated list...and many of those that appear have had their MCL's reduced over time.
(D) Well, we have a choice...to drink water with worms or not. Those that throw caution to the wind and say its OK, deserve it.

Have a great weekend and warmest regards,

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(visit the allnew www.aquathin.com)

"Alfie"

Alfred J. Lipshultz, President

P.S. When responding please continue 'REPLY' to include all previous correspondences on this subject.

----- Original Message -----

From: aquathinsa

To: [Alfie Lipshultz](#)

Sent: Tuesday, June 08, 2004 1:26 AM

Subject: Red Worms

Dear Alfie

We have just faxed a newspaper report from Witbank area where little red worms are coming in the municipal supply of water to the towns. They state that these are innocuous but we wonder whether you are in agreement and have any interesting comments that we could use perhaps in an editorial in the same newspaper.

With best regards

Gordon

Aquathin South Africa

Environment - 6/9/2004 11:38:54 AM

Report: Perchlorate in water poses little risk

EAST SUSSEX, ENGLAND — Perchlorate in drinking water seems to pose no additional risks to healthy people, according to a recent report issued by the University of California at Irvine Urban Water Research Center, Britain's [Medical News Today](#) reported.

Even at significantly higher levels than recommended by the state's leading health assessment agency, perchlorate contamination poses

relatively no threat, the report said.

The center reached this conclusion following a broad review of existing research. Produced by an independent committee of scholars, the center's report is being provided to the California Department of Health Services and other policymakers as they wrestle with setting a statewide standard for perchlorate in drinking water, the article stated.

The committee viewed the Office of Environmental Health Hazard Assessment's current public health goal of 6 parts per billion. Its findings, however, show that exposure to perchlorate at levels below 100 parts per billion would still protect the public health, according to the report.

"Clearly more research should be conducted related to exposure to perchlorate, particularly with pregnant women and other susceptible individuals," committee member Ronald Shank, a UCI professor and chair of community and environmental medicine, said in the report. "But we found no evidence in the current studies that demonstrate a difference in health effects in healthy individuals between low levels of perchlorate, such as the 6 ppb public health goal, and a level 10 times higher."

Perchlorate has been found throughout California in approximately 350 wells in 89 water systems; 90 percent of these are located in Southern California. Los Angeles, Orange, San Bernadino and Riverside counties report 40 to 89 percent of the water systems tested contain perchlorate levels greater than 6 ppb, the report stated.

To read the full story, click [here](#).

----- Original Message -----

From: [AQUATHIN TECH SUPPORT](#)

To: Info@Aquathin.Com

Sent: Wednesday, February 19, 2003 10:29 AM

Subject: FORUM Q & A: WHAT IS PERCHLORATE ?

Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;

What a difference a couple of years makes....from human guinea pigs (refer to the Nov. 28, 2000 Splash NewsBulletin pasted at bottom for convenience) to class action lawsuit (quick read below). Actually, the human testing idea was squashed for obvious reasons.

Perchlorate is an oxidizing salt used in the manufacture of solid rocket fuel, flares, matches and fireworks. While focus is aimed at contamination in California, we can assume this issue will arise within any general region of the manufacture of the aforementioned items exists. In extremely low concentrations in ground water of only 4 ppb, when ingested can adversely affect the thyroid gland's abilities. For further details visit these links:

<http://www.epa.gov/safewater/ccl/perchlorate/perchlorate.html>

<http://www.awwarf.com/research/spperch.asp>

You will see that presently, the EPA and AWWA are studying methods for removal including anion exchange (similar to a water softener, but this resin identifies nitrates, sulfates and regenerates with the chloride side of salt) and reverse osmosis. I can tell you that Aquathin provides total home RO in areas where difficult contaminants exist i.e. residences over defunct mines containing lethal metal extracting chemicals. Further your Patented RODI Process will readily remove this salt as any other salt in water....And No One Does It Better !

I shall keep you informed as to the results of anion exchange efficiencies. I would certainly believe that if this technology proves beneficial, Aquathin would only consider setting up in our Synchronomatic style to prevent sluffing, and to obtain the benefit of regenerating with de-perchlorate water i.e. same logic as we do for POE nitrate removal.

Warmest regards to all,

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Alfred J. Lipshultz, President

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Legal Briefs - 2/17/2003 12:07:34 PM

Perchlorate contamination leads to class-action lawsuit

SAN MARTIN, CA - A class-action lawsuit filed here Friday asks that the Olin Company, deemed responsible for perchlorate contamination of many of the area's drinking water wells, be made to create and pay for a program to survey and monitor the health of residents.

The class-action lawsuit asks that Olin pay all costs for medical diagnosis and treatment for residents, the The Mercury News reported.

The residents became concerned about their health after learning that a plume of perchlorate is spreading into their wells, the newspaper said.

More than 800 wells could be affected, and out of the 271 wells for which test results are available, 90 have tested positive for the chemical, said the article.

Because the chemical has only been on the list of contaminants for a few years, there are no enforceable state or federal standards about how much

perchlorate can be in drinking water safely, the newspaper said. The US Environmental protection Agency is still studying the contaminant, which is causing problems in various parts of the country.

Olin made highway safety flares in the San Jose area from 1955 to 1996 and has said it will pay all the costs to clean up the site, the newspaper reported.

Perchlorate is a salt used as an oxidizer for solid rocket fuel, highway safety flares, matches and fireworks. When ingested, the chemical disrupts the thyroid gland's intake of iodine from the bloodstream, authorities say.

While it won't affect most healthy adults, experts say that people with existing thyroid disorders, or pregnant women and very young children, are at risk, the newspaper said.

Both the federal Environmental Protection Agency and the state are working to set enforceable maximum contaminant levels for perchlorate in drinking water.

The California Department of Health Services has set 4 parts per billion (ppb) as the "action level" at which water retailers must notify customers, although they are not required to shut down the well.

The newspaper said a new law requires the state to adopt a maximum allowable level in drinking water by 1 January, and the California EPA has recommended a range of 2 ppb to 6 ppb.

After extensive review of the EPA studies, the agency will set a scientific benchmark of allowable levels in drinking water. Regulation will take several years longer as policy-makers set a national standard based on scientific advice and a number of other factors such as risk and cost, said the article.

From: [AQUATHIN CORP](#)

To: alfie@aquathin.com

Sent: Tuesday, November 28, 2000 3:49 PM

Subject: REEKS OF NAZI DEATHCAMP MEDICAL EXPERIMENTS

Dear Aquathin Dealer;

Please read this article thoroughly. It would bring a tear to Dr. Joseph Mengela's eyes. This is a giant 40 year step backwards. You need to make copies of this article and our commentary to show each prospective client who truly believes there is nothing wrong with his tap water, now or in the future, or how MCL's are to be decided. Maybe nexttime, they will just dose the water without notification or payment.

Warmest regards,

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"Alfie"

Alfred J. Lipshultz, President

~~~~~  
Environment - 11/28/00 11:31:17 AM

## Human drinking water study raises controversy

SAN BERNARDINO, CA — Lockheed Martin Corp. (NYSE: LMT) in Bethesda, MD, is paying California residents to ingest ammonium perchlorate, a rocket fuel propellant often found in drinking water supplies.

Volunteers are being paid \$1,000 each to take daily pills containing perchlorate at concentrations 83 times those allowed in drinking water by the state Department of Health Services, according to the *Los Angeles Times*. The six-month experiment at Loma Linda Medical Center is intended to determine safe drinking water limits for perchlorate, which is known to affect thyroid function. Very high doses are sometimes used to treat thyroid disorders.

The state department has set an action level of 18 parts per billion (ppb) for perchlorate, and the state is considering a more stringent standard. A Lockheed Martin plant is considered to be the most likely source of perchlorate groundwater contamination in San Bernardino County, where one public well was found to contain 800 ppb of perchlorate.

The US Environmental Protection Agency (EPA) has not yet set a drinking water standard for perchlorate, but is studying the issue. Some public water systems will begin testing for perchlorate under the revised Unregulated Contaminant Monitoring Regulation in 2001.

The design of the Loma Linda study has raised ethical eyebrows in the health and consumer communities. News reports from California said this is believed to be the first large-scale US study of water contaminants using human subjects, although a report on a short-term study involving nine subjects who ingested perchlorate at Brigham and Women's Hospital in Boston was published in August.

"The idea of paying someone to take a toxic chemical is highly questionable," said Jean Halloran of Consumers Union in Yonkers, NY. The US Environmental Protection Agency (EPA) should not accept the results of such research, Halloran said, "without an extensive public discussion."

The Loma Linda study was approved by Boston University and the Jerry L. Pettis Memorial VA Medical Center, the *Times* reported.

"This study escaped the mechanisms that normally filter these things out," said Dr. Sidney Wolfe, head of Public Citizens Health Research Group in Washington. "It's a very bad precedent."

The Brigham and Women's study did not find any effect on thyroid function. However, an epidemiological study published in the August issue of the *Journal of Occupational and Environmental Medicine* concluded that even low levels of perchlorate in drinking water may negatively affect babies' health before birth. Scientists with the Arizona Department of Health Services' Bureau of Health Statistics reached this conclusion after comparing newborn screening data for 1,542 infants born in Yuma and Flagstaff between 1994 and 1997.





**104** Sent: Wednesday, July 14, 2004 6:42 PM

**Subject:** FORUM Q & A UPDATE #2: LEGIONELLA -- IN RESIDENTIAL HOT WATER PIPES

*Dear Aquathin Dealer OnLine...with special attention to New Jersey Aquathin Dealers;*

*Just a short 10 months ago, I sent you an update on Legionella (pasted below for convenience) and its potential to grow in residential hot water pipes. The quick read below clears up whether it's "potential" or "for real".*

*You all know that Aquathin is continuing the promotion of providing an AquaShield with Soft & Clean systems. However, not every homeowner needs or wants a water conditioner. It is necessary for your Team to make the AquaShield known in all your RODI presentations and why this great product is so important.*

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*Warmest regards to all...as well, your comments are always welcome and very much appreciated.*

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*"Alfie"*

*Alfred J. Lipshultz, President*

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## **Senior center fights Legionnaires' disease**

Wednesday, July 14, 2004

BY ANGELA STEWART

**The New Jersey Star-Ledger Staff**

Health officials in Paterson continued to advise residents at a senior housing center yesterday not to drink the tap water or to use the showers after two people were stricken by Legionnaires' disease, one of them fatally.

Both victims lived in the Nathan Barnert Senior Housing Center, owned by the city's housing authority.

Richard Guthrie Jr., 82, died Thursday at Barnert Hospital in Paterson of Legionnaires', a deadly bacterial infection. A 76-year-old woman was reported in stable condition at the hospital yesterday and said to be improving. Her identity was not released by authorities.

No other residents of the 96-unit building on Keen Street have exhibited symptoms of the illness, according to Stephen Summers, a spokesman for the Passaic County Department of Health.

He said officials from the Paterson Division of Health, along with county and state health officials, are monitoring the situation.

Symptoms of Legionnaires' usually include fever, chills and a cough, which may be dry or may produce phlegm. Sometimes, victims also experience muscle pain, headache and diarrhea. The illness can be treated with antibiotics.

Paterson Housing Authority officials shut off the hot water Saturday after preliminary lab results from the state Department of Health detected bacteria in the water supply. The building's water system is being remediated by an outside firm, and the 117 residents are being provided with bottled water for drinking, washing and bathing until the system is cleaned.

Yesterday, only the cold water remained on for the sole purpose of flushing toilets, Summers said.

"They are starting the remediation process today, using a chemical treatment for the water to kill the bacteria," he explained. "We could be looking toward the end of the week or thereabout for closure on this. We want to make sure this is cleaned up quickly and efficiently."

Legionnaires' disease is not known to be spread from person to person. It most commonly affects seniors, smokers and those with weakened immune systems. The bacteria is acquired through drops of water or steam, so authorities suspect the most likely site of transmission in the Paterson cases was the shower.

Last year 65 cases of Legionnaires' disease were reported to the state health department, of which seven were fatal. The last reported death was in October and involved a Passaic County resident, said Donna Leusner, a health department spokeswoman. The other deaths last year occurred in Burlington, Essex, Mercer, Ocean and Union counties.

This year, 31 Legionnaires' cases have been reported. Most cases have been single, isolated events, with outbreaks being relatively rare.

----- Original Message -----

**From:** [AQUATHIN TECH SUPPORT](mailto:info@Aquathin.Com)

**To:** [info@Aquathin.Com](mailto:info@Aquathin.Com)

**Sent:** Tuesday, September 23, 2003 6:18 PM

**Subject:** FORUM Q & A UPDATE: LEGIONELLA -- IN RESIDENTIAL HOT WATER PIPES

*Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;*

*On June 18, 2002, I sent you a Forum Q & A discussing Legionella (pasted at bottom for immediate reference). The quick read below details new information that Legionella does not only reside in cooling towers and hospitals, but also your homes. Drop down to the quote where I have made bold and underscored from microbiologist Janet Stout for a real consumer reality check.*

*For the past 4 months we have seen more Dealers automatically include AquaShield in their POE installations. Here is another excellent reason. I love my Aquathin !!*

*Warmest regards to all...as well, your comments are always welcome and very much appreciated.*

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(visit the allnew <http://www.aquathin.com>)

"Alfie"  
Alfred J. Lipshultz, President

*P.S. "Splash NewsBulletins", "Forum Q & A", "Allergic Reaction", Biz Bank, Tech Bank and Quote Bank... **ARE ALL FREE** services to all Authorized Aquathin Dealers and their clients to keep you abreast of technology updates and industry news.*

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<http://www.newsday.com/news/nationworld/wire/sns-ap-legionnaires-disease,0,4151134.story>

## Hot Water Pipes Said Tied to Legionnaires

By DANIEL Q. HANEY  
AP Medical Editor

September 15, 2003, 8:37 AM EDT

CHICAGO -- Outbreaks of Legionnaires disease are often blamed on germs spewing from air conditioning systems in big buildings, but new research shows home hot water pipes can also be a common source of the disease.

Legionnaires is a form of pneumonia caused by a bug that occurs naturally in water. The latest work, combined with earlier studies, suggests the bacteria often grow in the slimy gunk lining residential hot water pipes, and home water may be responsible for about 20 percent of cases.

"The evidence suggests that the residential water system is an underappreciated source of Legionnaires disease," said Janet Stout, a microbiologist who heads that special pathogens lab at the Veterans Administration Medical Center in Pittsburgh.

Stout presented her latest findings Sunday at a conference in Chicago of the American Society for Microbiology.

Stout estimates that between 2 percent and 5 percent of the 600,000 pneumonia cases requiring hospitalization in the United States each year are caused by Legionella pneumophila bacteria. The diagnosis is often missed because finding it requires both a bacterial culture and a special urine test.

Her team set out to track the sources of Legionnaires infections reported to the health departments in Allegheny County in Pennsylvania and Cuyahoga County in Ohio. The families of 21 victims agreed to allow testing of their home water, and the Legionnaires bug was found in 24 percent of them. Two of the patients studied died of their infections.

The bacteria flourish at temperatures between 90 and 105 degrees. People catch the germs by inhaling drops of water. This can occur while showering, washing or even drinking, especially if people have



swallowing difficulties and accidentally aspirate water.

Most people exposed to the bacteria never get sick. Those who are susceptible may include the elderly as well as people with diabetes or diseases that weaken the immune defenses.

**"The overall perception we have that drinking water in the home is free of bacteria is a misconception," said Stout. "Although Legionnaires is a naturally occurring organism in water, people should be aware this is a potential source of disease."**

People often keep the temperature in their hot water tanks set low to save electricity and prevent scalding. To kill off the Legionnaires bacteria, Stout recommends temporarily turning up the temperature to above 140 and running the hot water outlets for a half hour. Since the bug quickly returns, this should be done every two or three months, especially if people prone to the infection are using the water. If the temperature is kept high, the bacteria return much more slowly or not at all.

Another strategy is to let the shower run on hot for a few minutes before jumping in. This flushes out some of the bacteria that have built up in the pipes.

Typically, Legionnaires is blamed on air conditioning systems and cooling towers in large buildings, such as hotels and hospitals, where outbreaks can be especially serious.

"Everybody has been so focused on hospitals," said Richard Miller, a microbiologist at the University of Louisville. "Homes have always been in the background, but they are clearly a risk factor."

Legionnaires can be treated with the antibiotic erythromycin. The disease is found worldwide and does not spread from person to person. It was first recognized after an outbreak at an American Legion convention in 1976 in Philadelphia, where it made 182 people sick.

\* \_\_\_\_

Medical Editor Daniel Q. Haney is a special correspondent for The Associated Press.

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----- Original Message -----

**From:** [info@aquathin.com](mailto:info@aquathin.com)

**To:** [info@Aquathin.Com](mailto:info@Aquathin.Com)

**Sent:** Tuesday, June 18, 2002 1:09 PM

**Subject:** FORUM Q & A: LEGIONELLA

*Dear Aquathin Dealer OnLine;*

*This is a "brief and immediate response" to the inquiry from my friend Derek McConnell of Aquathin UK, The Pure H2O Company concerning Legionella.*

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***P.S. "Splash NewsBulletins", "Forum Q & A", "Allergic Reaction", Tech Bank and Quote Bank... ARE ALL FREE services to all Authorized Aquathin Dealers and their clients.***

----- Original Message -----

**From:** [info@aquathin.com](mailto:info@aquathin.com)

**To:** Derek

**Sent:** Tuesday, June 18, 2002 12:58 PM

**Subject:** Re:

Hi Derek;

*Thank you for your email. Your client has a very serious problem. I respectfully recommend that you re-review the article provided on the study of microorganism growth in storage tanks. Yes the Aquathin Platinum 90 will remove disease causing water borne microorganisms because the molecular weight of microbes is far larger than the size of the inorganic atoms of dissolved solids.*

*However, Legionella is far more deadly from inhalation i.e. showers. Your client needs to have that tank pressure cleaned and sanitized. The Legionella forms a biofilm that is difficult to chlorinate once its growing. So after cleaning, demand chlorination into the tank followed by UV or AquaShield as backup. AND DO THIS TODAY! Dr. David Seal, whom you've met, did a study (referred to his Red Book) on this same very serious problems in most if not all UK hospitals.*

Warmest regards,

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(visit the allnew <http://www.aquathin.com>)

"Alfie"

Alfred J. Lipshultz, President

***P.S. When responding please continue 'REPLY' to include all previous correspondences on this subject.***

----- Original Message -----

**From:** Derek

**To:** [Alfred Lipshultz \(E-mail\)](mailto:Alfred.Lipshultz@E-mail)

**Sent:** Tuesday, June 18, 2002 11:50 AM

Hi Alfie,

One of our customers has discovered Legionella in their water storage tanks, and is looking for reassurance that it won't damage or get through their PL90/pba system.

Can you offer a "semi-technical" assurance. What is the molecular diameter of legionella?  
Is there any procedure required to safeguard the Aquathin system?

Should we offer technical assistance with the problem, or is it best left to other experts?

As always, your advice and time is most appreciated.

Warmest regards,

Derek

Derek McConnell  
Sales Director

WORTH LOOKING INTO™



105    **Sent:** Tuesday, July 20, 2004 10:06 AM  
      **Subject:** FORUM Q & A: WHAT IS LEAD POISONING?

*Dear Aquathin Dealer Online;*

*As a result of all the very recent and numerous articles raising awareness for the prevalence of lead and in higher concentrations than ever could have been imagined, we are providing the information below concerning lead poisoning from Aquathin Tech Bank. Please use this information along with previous Forum Q & A's concerning lead dated March 2, 2002 and July 15, 2003...and most importantly, feel free to share with your Customers who have concerns for this highly toxic heavy metal.*

## Lead Poisoning

Exposure to **lead in the home** occurs via two routes: the ingestion and/or inhalation of lead dust from paint and the consumption of water contaminated with lead.

### **Lead Paint**

Lead paint is present on an estimated 30 to 40 million houses in the United States. Most homes built before 1970 contain heavily leaded paint. Some homes built as recently as 1978 may also contain lead paint. This paint could be on window frames, walls, the outside of homes, or other surfaces. Lead comes from paint chips, plaster chips, and windowsills and other woodwork in old houses painted with lead-based paint. Old lead-based paint is the most significant source of lead exposure in the U.S. today. Harmful exposures to lead can be created when lead-based paint is improperly removed from surfaces by dry scraping, sanding, or open-flame burning.

### **Water**

Lead-contaminated drinking water is most often a problem in homes that are either very old or very new. Up through the early 1900s, it was common practice to use lead pipes for interior plumbing. Also lead piping was often used for the service connections that join residences to public water supplies. Copper pipes have replaced lead pipes in most residential plumbing. However, the use of lead solder with copper pipes is widespread. Experts regard this lead solder as the major cause of lead contamination of household water in U.S. homes today. Lead concentrations in drinking water can be also be elevated if your home has faucets or fittings of brass which contains some lead. The most common cause of lead getting into drinking water is corrosion, a reaction between the water and the lead pipes or lead solder. Lead can leach into the water from the joints or from lead pipes. [Dissolved oxygen](#), low [pH](#) (acidity), and low mineral content in water are common causes of corrosion. One factor that increases corrosion is the practice of grounding electrical equipment, such as telephones, to water pipes. Any electric current traveling through the ground wire will accelerate the corrosion of lead in the pipes. Most well and city water does not usually contain lead. Water can pick up lead inside the home from household plumbing that is made with lead materials. The only way to know if there is lead in drinking water is to have it tested. Contact the local health department or the water supplier to find out how to get the water tested.

New brass faucets and fittings can also leach lead, even though they are "lead-free". Scientific data indicate that the newer the home, the greater the risk of lead contamination. Lead concentrations decrease as a building ages. This is because, as time passes, mineral deposits form a coating on the inside of the pipes (if the water is not corrosive). This coating insulates the water from the solder. But, during the first five years, before the coating forms, water is in direct contact with the lead. More likely than not, water in buildings less than five years old has high concentrations of lead contamination.

Because of similar chemical properties, the body confuses lead with calcium when ingested and incorporates it into the bone marrow, nerve tissue, brain, and kidneys. The body never decomposes the lead into another, more easily tolerated substance, because lead is an element.

In children, symptoms of lead poisoning can include headaches, irritability, abdominal pain, vomiting, anemia, weight loss, poor attention span, noticeable learning difficulty, slowed speech development, and hyperactivity. In adults, symptoms of lead poisoning can include pain, numbness or tingling of the extremities, muscular weakness, headache, abdominal pain, memory loss, unsteady gait, pale skin, weight loss, vomiting, irritability, and anemia. Although adults are susceptible to the toxic effects of lead, children are at high risk due to the nature of a child's activities that involve the introduction of non-food items into their bodies. Lead poisoning is one of the most common preventable public health problems related to children today.

At low concentration lead can adversely affect the brain, the central nervous system, blood cells, and kidneys. Blood lead concentrations as low as 10 ug/dl can impair mental and physical development. Lead at high concentrations (80 ug/dl or above) can cause convulsions, coma, and death. The effects of lead exposure on unborn and young children can be severe. The effects of lead poisoning in children include reading and learning disabilities, delays in physical and mental development, shortened attention span, speech and language handicaps, lowered IQ, neurological deficits, behavior problems, mental retardation, kidney disease, heart disease, stroke, and death. Children are more vulnerable to lead exposure than adults since lead is more easily absorbed into growing bodies, and the tissues of small children are more sensitive to the damaging effects of lead. Children may have higher exposures since they are more likely to get lead dust on their hands and then put their fingers or other lead-contaminated objects into their mouths. If you suspect lead poisoning, consult your physician immediately. ([reference](#))

For more information on lead poisoning visit the U.S. [EPA website](#) and the [CDCP website](#) .

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*Warmest regards to all...as well, your comments are always welcome and very much appreciated.*

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"Alfie"

Alfred J. Lipshultz, President

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**106 Sent:** Monday, July 26, 2004 4:11 PM

**Subject:** FORUM Q & A: WHAT IS RADON...WHAT DOES IT CAUSE...HOW TO TREAT?

Dear Aquathin Dealer OnLine;

Please review the information concerning radon discussed with my friend Bob Vineyard of Pure Water Systems. According to some stats, radon causes more lung issues than cigaretter smoking. The problem is that public's persepction does not see this as critical since no one has been "toe tagged ...'due to radon' ". However, where radon exists, homeowners must treat for it (A) to sell that home before a mortgage company will take the deal...and (B) obviously its the healthy thing to do. Recall the AQUA Qs discussing FINDERS and NETWORKING. Homeowners in areas of radon (and nitrates as discussed in previous Forum Q & A) who wish to sell, require roof, termite, and water inspections. Real estate agents take the homeowner to the water treatment Dealer to get the deal done. If you know radon is in your neck of the woods, hook up with real estate agents and inform them that NO ONE DOES IT BETTER THAN YOU !

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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----- Original Message -----

**From:** ALFIE

**To:** Bob

**Sent:** Thursday, July 22, 2004 10:40 AM

**Subject:** Re: question re: radon

Hi Bob;

Thank you for your email. Yes, radon { carcinogen causing lung cancer } is a radioactive element in gas phase resulting from the radioactive decay of radium { carcinogen causing bone cancer }. It has a short half life and turns into an isotope of lead ( Pb-210...also radioactive ) when it touches GAC...hence EPA's B.T.G.A. { stands for best technology generally accepted...but I prefer Better Think about Getting an Aquathin } is POE filtration thru GAC. Automatic backwashable makes the best sense i.e. Aquathin MegaChar to remove colloidal and sediment debris to keep active GAC sites open and available, and to get rid of the Lead 210 . But there are some cities that mandate non backwashable...and here the BFF-IO is chosen. The TGST-1.5 with GAC or ASTF2003 with GAC would work, provided flow rates are slower { smaller bed depths } and with frequent cartridge exchanges. Aeration with explosion proof hoods is also an acceptable procedure. And where there's radon...there's radium, therefore we would certainly recommend POU RODI ! Say this sounds like a great Forum Q & A !.

Warmest regards,

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"Alfie"

Alfred J. Lipshultz, President

**P.S. When responding please continue 'REPLY' to include all previous correspondences on this subject.**

----- Original Message -----

**From:** Bob

**To:** ALFIE

**Sent:** Wednesday, July 21, 2004 2:40 PM

**Subject:** question re: radon

Hi Alfie,

One of the chiropractors in our network called today asking if I had a whole-house solution for removing radon. My first thoughts were since radon is a radioactive gas, it would probably be best removed by some kind of ion-exchange method. But, knowing the EPA recommends GAC for radon reduction, I'm thinking as ASTF2003 might be a great solution?

You mentioned in a previous conversation something about the ASTF filters reducing overall flow rate - can you elaborate on this further?

Best regards,

*Bob*



## Customers ask: "Will my basement become a Superfund site?"

While it's always disturbing for consumers to learn there are health-related contaminants in their drinking water, the impact of that news is worsened when misinformation is involved. Radioactive contaminants—due to popular misconceptions—can cause more worry than is warranted.

**As a drinking water treatment equipment dealer, you can help these concerned consumers solve their radioactive water problems and regain peace of mind.**

One of the more common radioactive water contaminants is radon, which can be effectively treated by one of two household treatment options. With radon levels greater than 5000 picoCuries per liter (pCi/L), the WQA recommends using air stripping, which forces the dissolved radon gas to bubble out of the water. It then vents to the outside to harmlessly disperse into the atmosphere. With radon levels less than 5000 pCi/L, the problem can be effectively treated by granular carbon filtration.

With GAC, the radon is adsorbed onto the carbon of the filter, meaning that in the filter, concentrations of a radioactive substance begin to accumulate. Often, homeowners express concern about this build-up of radioactivity in their basement, and even dealers and service technicians are nervous about handling used filters. While accumulations of radioactive substances may pose some real danger, the danger perceived by the homeowner is often disproportionate to the actual risks.

For many people, the mention of nuclear radiation brings to mind images of green glowing oddities, but that is, at best, an incomplete notion of radiation. Nuclear radiation actually comes in three forms: alpha, beta, and gamma. (Gamma radiation is most closely related to the phosphorescent "Hollywood" version of radiation.) Understanding some of the simple differences between the three types of radiation will make it easier to reassure customers about the safety of their water and the equipment used to treat it.

**Alpha radiation is the least energetic form of radiation.** For the technically inclined, an alpha particle is just a helium nucleus. Compared to the other two types of radiation, it is the heaviest, and generally the least dangerous. It can only travel a short distance through air before "fizzling out".

*continued next column...*

Alpha radiation doesn't have enough energy to penetrate the layer of dead skin cells on the outside of the body, meaning that the only way it can enter the body and do any damage is through ingestion or inhalation. Radon emits alpha radiation, and that's why it's important not to drink water with radon in it. Getting radon-water splashed on your hand is harmless, but if you ingest it, the alpha radiation can have direct contact with living tissue.

**Beta radiation is a moderately energetic form of radiation.** A beta particle is either an electron or a positron. Beta radiation is lighter and has more energy than alpha radiation, but it still doesn't have very much penetrating power. It is, however, able to pass through dead skin cells and reach the live cells beneath. A layer of clothing or gloves will stop beta radiation from reaching the body. While beta radiation is able to penetrate the skin, simple precautions are all that are needed to be protected.

**Gamma radiation is the most energetic form of nuclear radiation,** and the most dangerous. It is not a particle, like alpha and beta radiation, but is an electromagnetic wave, like an x-ray. Heavy shielding is necessary to be protected from gamma radiation. Fortunately, radon decays by alpha and beta particle emission, and so does not give off appreciable amounts of gamma rays.

You can assure customers that having a GAC system to treat low to moderate levels of radiation will not turn the basement into a miniature Superfund site. Because radon decays primarily through alpha emission (with some beta emission), the housing surrounding the filter is more than adequate to shield customers from the radiation emitted by the adsorbed radon. Moreover, when it comes time to handle the spent carbon, simple precautions, like wearing gloves, are all that are required.

Knowing that most of the **radiation emitted by radon is unable to even penetrate skin** is a much more comfortable thought than imagining an eerie, glowing filter. When radiation is broken down into its three parts, and when dealers and consumers understand what types of radiation they are facing, solving a radon problem becomes less threatening, and more manageable.

If you have questions about any water chemistry topics, please call 630 505 0160. ♦



**107 Sent:** Thursday, August 26, 2004 11:06 AM  
**Subject:** FORUM Q & A: WHAT'S UP WITH HOKEY WATER / HEALTH CLAIMS & HOW DO I RESPOND TO NUTRITION QUESTIONS

Dear Aquathin Dealer OnLine;

*This Forum Q & A is a bit different from previous Q & A's, in that it includes our responses to some very off-the-wall water related / health remarks by a "medical doctor"...and supplements. I am sending this because every now and then, one of you asks how to respond to such inquiries. Enjoy ! Start at the bottom and head north !*

*Warmest regards to all...as well, your comments are always welcome and very much appreciated.*

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**From:** [info@aquathin.com](mailto:info@aquathin.com) [mailto:info@aquathin.com]  
**Sent:** Wednesday, August 18, 2004 7:50 PM  
**To:** Michael Schwindt  
**Subject:** Re: water article ...

Hi Michael;

*Thank you for your email and I agree with your comment "I just wanta purify water". But the fact these people are hitting on you is (A) for your information...and / or (B) your blessing.*

*I am not a homeopath. I looked up glyconutrients = sugars that heal. Sounds good, but here is our take at Aquathin and as well, tell our students at Aquathin U., who also include MDs, DOs, DCs, Naturopaths, Homeopaths, Nutritionists, Dieticians. I ask "how much of us is water". Depending on the doc, answers range from "65%" to "85%". Then I advise them "then 65% to 85% of your knowledge on nutrition best be about water...because all the nutraceuticals, vitamins and minerals won't respond properly if there is (A) not enough water or (B) not the right water i.e. why should nutraceutical "x" help me if my water is loaded with carcinogens and heavy metals?"*

*Warmest regards,*

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Alfred J. Lipshultz, President

**P.S. When responding please continue 'REPLY' to include all previous correspondences on this subject.**

----- Original Message -----

**From:** Michael

**To:** [info@aquathin.com](mailto:info@aquathin.com)

**Sent:** Wednesday, August 18, 2004 2:00 PM

**Subject:** RE: water article ...

I love it. This will be integrated into my pure water Aquathin pitch ... it's always a little delicate with many of my clients. They seem very intelligent yet neurotic (not Tzabia) and of course there is so much BAD info on the net! As you detected ... their selling product! I've got another client (bought a PLT-90) all over me about Glyconutrients ? I just wanta' purify water! Their pitch is well rehearsed and they overlay credentials ... if there real?

Really appreciate your time on this ...

As always

Michael Schwindt

Purified Water To Go

2714 Yonge Street

Toronto, On. M4N 2H9

----- Original Message -----

**From:** [info@aquathin.com](mailto:info@aquathin.com)

**To:** Michael

**Sent:** Tuesday, August 17, 2004 5:51 PM

**Subject:** Re: water article ...

Hi Michael;

1. Paavo Airola study was on Hunsu (sp?) people and about 100 years ago. He determined hard water was better than pure water because those people lived longer there. The reason they lived longer is the same reason that in Appalachia there are more people 100 years of age than anywhere else in the U.S. = clean air, clean water (TDS averages 12 ppm through the limestone up in the mountains before it dissolved a ton of minerals by the time it reached the valley), clean food and NO STRESS !

2. "dangerous loss of electrolytes" = BS. Refer to the Forum Q & A entitled "But I Thought I Needed My Minerals" and its attachments. You may direct Tzabia to the website, tell her to plug in your email address and use the password "revlis" (silver backwards). She will have a very good time in there.

3. "cooking with pure water pulls minerals" = BS. Seattle TDS and Long Island is only 35 ppm. I guess all our forefathers and people with catchments, who drank rain water ate nutritionless veggies and ultimately became 2 dimensional from so much mass loss.

4. "toxic soft drinks...spill calcium" = BS. Beside being BS..another way to look at this is people who drink plenty of soft drinks are often obese. So where's the spill? Even if your body could lose minerals, mineral loss does not cause high blood pressure, coronary disease, hypothyroidism, or premature aging. Ask to see the studies he is generally stating.

5. "acid wastes" = BS. This paragraph has nothing to do with the rest of the article and he makes no ties. Just a claim. But I would bet he is a proponent of those Korean alkalizers. Refer to Forum Q & A on Alkalized Water.

6. "cell tissue does not like to be dipped in acid" = BS. Saliva is acidic and begins digestion. Stomach pH is 1-2. Maybe the doc is talking about sticking his finger in sulfuric acid ! In that case, cells don't like alkalinity either. Stick your finger in Clorox where pH is 11.5 .

7. Hey guess what. My hunch in #5 was correct. Click on the blue "alkaline" in the article. Doc's a huckster.

8. "water filtered through solid carbon is slightly alkaline" = BS. It depends on the source water pH and type of carbon processing. i.e. acid washed gac reduces pH.

9. "Disease and early death from long term pure water" = BS. That statement alone to one's peers would be professional suicide (hey, where's all his peer followers !?). And that is why he's making the statement to lay people.

Michael, never fear "MD" . It often stands for "mostly dismissed" when it comes to preventative knowledge.

Warmest regards,

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"Alfie"

Alfred J. Lipshultz, President

**P.S. When responding please continue 'REPLY' to include all previous correspondences on this subject.**

----- Original Message -----

**From:** Michael

**To:** [info@aquathin.com](mailto:info@aquathin.com)

**Sent:** Tuesday, August 17, 2004 5:17 PM

**Subject:** water article ...

Alfie ... if you ever get a spare second ... a client of mine just forwarded me this article ... we installed a ASTF & AquaQueen in their house in the spring .. they love it! But she is also a food consultant etc. I have sent her the 5<sup>th</sup> Function and asked her to read "Your Bodies Many cries for Water" ... Batmanghelidj, MD but thought you may have some further reading? I'm always a little intimidated when the articles are written by MD's ... yet seem so out of touch with logic?

Talk to you soon

As always

Michael

Excellent Michael. Thank you.

When you get a chance, would you read this article about water purification <http://watershed.net/purified.htm> and tell me what you think.

Warm regards,

Tzabia





108 Sent: Wednesday, September 08, 2004 3:38 PM  
Subject: FORUM Q & A: UPDATE #2: WHY IS MERCURY SO BAD?

Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;

**This is more of a PUBLIC SERVICE vs. our standard Dealer and Customer emailings..hence this Forum Q&A UPDATE is being sent to all Authorized Dealers and Aquathin Customers Online. I would respectfully urge Dealers who are linked up with health advocates and wellness organizations, to print out and deliver copies of this information to your associates.**

**Should pregnant women and nursing mothers avoid seafood that comes from certain waterbodies?** To answer questions like these, EPA has released its summary of information on locally-issued fish advisories and safe-eating guidelines. A fish advisory is issued to warn the public of the potential human health risks from chemical contamination of certain species from particular lakes, rivers or coastal bodies. A safe-eating guideline is issued to inform the public that fish from specific waterbodies have been tested for chemical contaminants, and the fish from these waters are safe to eat without consumption restrictions. To view the summary, visit <http://www.epa.gov/waterscience/fish/>

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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----- Original Message -----

From: [AQUATHIN TECH SUPPORT](mailto:AQUATHIN TECH SUPPORT)

To: [info@Aquathin.Com](mailto:info@Aquathin.Com)

Sent: Tuesday, April 13, 2004 6:20 PM

Subject: FORUM Q & A: UPDATE: WHY IS MERCURY SO BAD?

**MORE NEWS ON HEAVY METALS**

Dear Aquathin Dealer Online;

Following up to the previous Tech Bank today, on the visible mountain of heavy metals, below is an update on mercury. I have included an earlier Forum Q & A from July 2002. So first drop down to the article discussing the White House playing down the effects of mercury.

There is a word used in the article which I really enjoy..."wordsmithing". Isn't that a cool way to point out "spin". It almost insinuates that someone who is good at this ought to have a degree ! Well I laid in bold the significant portion of the article. Here's the bottom line as you and I know it...**given the choice of drinking mercury or not, we choose NOT !**

**I LOVE MY AQUATHIN !**

**Warmest regards to all...as well, your comments are always welcome and very much appreciated.**

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----- Original Message -----

**From:** [AQUATHIN TECH SUPPORT](mailto:info@Aquathin.Com)

**To:** [info@Aquathin.Com](mailto:info@Aquathin.Com)

**Sent:** Friday, July 26, 2002 3:35 PM

**Subject:** FORUM Q & A: WHY IS MERCURY SO BAD?

Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;

**HEADLINES: 7/25/02** An independent food safety committee [recommended today that the US Food and Drug Administration warn pregnant women and children to limit consumption of canned tuna, one of the most consumed fish in America, due to mercury.](#)

Today we received several calls from concerned customers regarding this news who wanted to be reassured the patented Aquathin RODI removes mercury, which it does. Below is a quick read from Tech Bank on the devastating effects of this most serious heavy metal. I love my Aquathin!

Have a great weekend and warmest regards to all,

FOR THE BEST TASTE IN LIFE  
Think Aquathin..AquathinK !!  
Celebrating our 22nd birthday in 2002 !!!  
(visit the allnew <http://www.aquathin.com>)

"Alfie"  
Alfred J. Lipshultz, President

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# Introduction

Despite overwhelming evidence of the dangers mercury poses to developing children and to wildlife, manufacturers of products containing mercury have lobbied aggressively and successfully against mercury product regulations. And they continue persistently pushing their products into states that already face severe mercury contamination problems.

**In each New England state, mercury product lobbyists have undermined the New England Governors' coordinated program to achieve the goal of virtually eliminating anthropogenic mercury emissions from consumer products.**

The use and disposal of products containing mercury inevitably contaminates the food chain with toxic mercury. A 1998 report by the New England governors and Eastern Canadian premiers confirmed the dangers posed by mercury pollution: "Mercury is pervasive in freshwater fish in the Northeast at levels that pose plausible health risks to people and some species of fish-eating wildlife. In addition, there are important economic consequences, including reducing the recreational and commercial value of fisheries resources across the region." Because of these dangers, the Governors set a landmark goal to virtually eliminate mercury emissions throughout the region at their 1998 meeting.

**Mercury is a persistent bioaccumulative neurotoxin. This means that 1) it does not break down naturally, 2) it concentrates in animals higher on the food chain, and 3) it can cause permanent brain damage to developing children.**

Mercury is so toxic that even a single drop deposited annually and emitted into the atmosphere is enough to contaminate all of the fish in a 20-acre lake. Scientists estimate that if all man made mercury emissions stopped today, it would take at least 15 years to eliminate mercury in the environment. The growing brains of fetuses and babies are extremely sensitive to the toxic effects of mercury, which impairs memory, attention span, language and motor skills in developing children. Pregnant women, nursing moms, or women who may become pregnant that eat mercury-contaminated fish can expose their infants and developing fetuses to dangerous levels of mercury.

**Even a single serving of mercurycontaminated fish eaten during critical stages of fetal development could cause permanent brain damage to the child.**

Adding to the urgency of the Governors goal to eliminate mercury emissions, a March 2001 Centers for Disease Control study found that at least **one in ten women of childbearing age in the United States has more mercury in her body than the Environmental Protection Agency considers safe for a fetus' development.**

To help achieve the Governors' goal, the Northeast Waste Management Officials Association (NEWMOA) developed model legislation that would phase out products containing mercury in favor of safer products and provide other measures to help cities, states and businesses to keep mercury out of the municipal waste stream.



April 7, 2004

## **White House Minimized the Risks of Mercury in Proposed Rules, Scientists Say**

By JENNIFER 8. LEE

ASHINGTON, April 5 — While working with Environmental Protection Agency officials to write regulations for coal-fired power plants over several recent months, White House staff members played down the toxic effects of mercury, hundreds of pages of documents and e-mail messages show.

The staff members deleted or modified information on mercury that employees of the environmental agency say was drawn largely from a 2000 report by the National Academy of Sciences that Congress had commissioned to settle the scientific debate about the risks of mercury.

In interviews, 6 of 10 members of the academy's panel on mercury said the changes did not introduce inaccuracies. They said that many of the revisions sharpened the scientific points being made and that justification could be made for or against other changes. Most changes were made by the White House's Office of Management and Budget, which employs economists and scientists to review regulations.

But scientists on the academy panel and others outside it as well as environmentalists and politicians expressed concern in recent interviews that a host of subtle changes by White House staff members resulted in proposed rules that played down the health risks associated with mercury from coal-fired power plants. The proposal largely tracks suggestions from the energy industry.

While the panel members said the changes did not introduce outright errors, they said they were concerned because the White House almost uniformly minimized the health risks in instances where there could be disagreement.

"What they are saying is not scientifically invalid on its face," said Alan Stern, a New Jersey toxicologist who served on the panel. "Partially they edited for clarity and relevance from a scientific standpoint. But there appears to be an emphasis on wordsmithing that is not necessarily dictated by the science."

Last Thursday attorneys general from 10 states and 45 senators asked the E.P.A. to scrap the proposed rules, saying they were not strict enough.

They also asked Michael O. Leavitt, the agency's administrator, to extend the comment period for the rules, which now ends April 30. Under a court-ordered agreement, the rules are to be in final form by Dec. 15.

**In some cases, White House staff members suggested phrasing that minimized the links between power plants and elevated levels of mercury in fish, the primary source from which Americans accumulate mercury in their bodies, in a form known as methylmercury.**

**The academy has found that exposure to elevated levels of mercury can damage the brains of children and fetuses.**



**In another instance, a draft passage originally read, "Recent published studies have shown an association between methylmercury exposure and an increased risk of heart attacks and coronary disease in adult men."**

**It was changed to "it has been hypothesized that there is an association between methylmercury exposure and an increased risk of coronary disease; however this warrants further study as the new studies currently available present conflicting results."**

**The change understates known science, some academy panel members said in interviews.**

The proposed regulations are available on the E.P.A. Web site ([epa.gov/](http://epa.gov/)). The proposed rules would limit mercury emissions by an estimated 70 percent over decades and would also allow power plants to buy and sell among themselves the rights to create mercury pollution.

Mr. Leavitt is reconsidering elements of the rules.

Small amounts of mercury occur naturally in the environment. In December 2000, however, the environmental agency concluded that mercury from power plants should be classified as a hazardous air pollutant to be strictly regulated under the Clean Air Act. In December 2003, the Bush administration reversed that finding.

The proposed regulations for power plants — the single-largest source of mercury emissions in the United States — are the culmination of 14 years of lawsuits, scientific review and government reports.

Coal and utility groups lobbied intensively to help shape the regulations, which will cost billions of dollars. Paragraphs in the proposed rules are inserted nearly verbatim from memorandums from the firm of Latham & Watkins, where two top political officials in the E.P.A.'s office overseeing air regulations, Bill Wehrum and Jeffrey Holmstead, once worked.

White House officials and E.P.A. political appointees say the changes in the draft rules reflect the typical back and forth of developing regulations among agencies, and environmental agency officials had the option of rejecting the suggestions, which in some cases they did.

"This is a standard collaborative process that involved experts across the government to create a solid product," said Dana Perino, the spokeswoman from the Council on Environmental Quality, which coordinates federal environmental efforts.

But some critics are not convinced. "This is a pattern of undermining and disregarding science on political considerations," said Senator Hillary Rodham Clinton, Democrat of New York, citing a recent letter by the Union of Concerned Scientists, signed by 60 scientists, including 20 Nobel laureates, which criticized the administration's handling of science issues.

Others feel the White House's Office of Management and Budget is overstepping its bounds. "O.M.B.'s role is supposed to be to review the economics of rules — which they did very poorly here — not to fly speck the science and minimize health threats," said Lisa Heinzerling, a professor at Georgetown University who is a co-author of the book "Priceless," on cost-benefit analysis.

Throughout an E.P.A. draft of the proposed regulations circulated in November, a White House staff member crossed out the word "confirmed" from the phrase describing mercury as a "confirmed public

health risk." In some instances, sentences in the final proposals were changed to mercury "warrants regulation."

Mr. Wehrum, the chief counsel of E.P.A.'s air regulation office, said that the handwritten changes were prompted by his agency's desire to use more precise legal language from the Clean Air Act.

Some members of the National Academy said that sections of the regulations on health effects could have been made more clear, but that the science was strong enough not to delete them entirely.

An official with the Office of Management and Budget who emphasized that neurologic risks to children were the most important concern, said language on other health effects was deleted or softened for a number of reasons. In some cases the draft had overstated the known science, while in others, like cerebral palsy, the effects were not relevant to mercury exposure in fish or power plants.

Even taking into account studies that have been published since their report in 2000, some panel members said the language was made too soft in several cases.

"There is increasing evidence of an association between mercury exposure and cardiovascular effects," said Thomas Burke, an epidemiologist from Johns Hopkins University and a member of the panel. "I would call it stronger than a hypothesis."

In another case, a toxicologist with the Office of Management and Budget recommended changes to a sentence saying children exposed to mercury in the womb "are at increased risk of poor performance on neurobehavioral tests." The final sentence that was published said children "may be at increased risk." That pattern was repeated a number of times throughout regulations where "are" or "can" was changed to "may." The official said that the softened language reflected the fact that low levels of mercury exposure below the safe dose were not known to be risky, even to children.

Other scientists interpret the edit differently. Joseph L. Jacobson, a professor of psychology at Wayne State University, who served on the academy panel, said, " 'May be' suggests an effort to discount the fact that we have consistent evidence across more than one study."

While it is standard for the White House to review federal agency testimony and reports, E.P.A. staff members say the Bush administration also minimized the amount of mercury that comes from power plants. Over agency staff objections, the White House on several occasions in the past year added the statement that coal burning produces "roughly one percent of mercury in the global pool."

According to the E.P.A. staff, the 1 percent figure was added to an agency report on children's health; Senate testimony by Christie Whitman, who was the E.P.A. administrator; and Senate testimony of Mr. Holmstead, who is the assistant agency administrator for air.

While that figure is cited in the E.P.A.'s 1997 report to Congress, agency staff members and independent scientists say it is misleading because much of the mercury that ends up in the nation's water and soil comes from nearby sources.

**109 Sent:** Wednesday, September 08, 2004 6:14 PM

**Subject:** FORUM Q & A: WHAT ARE ASTM, CAP, NCCLS, AAMI WATER QUALITY STANDARDS?

*Dear Aquathin Dealer OnLine;*

*A great many of you have been involved with laboratory, clinic and hospital installations for a very very long time...and more Dealers are coming online with these markets "by demand". That's a good thing when you are sought out by your / our reputation ! ...and Aquathin has a long, impressive and proven track record for these installations.*

*Well, the lab lingo can be baffling, so here's the Cliff's Notes version:*

*ASTM Standards = American Society for Testing and Materials {see standards attached}*

*CAP Standards = College of American Pathologists {see standards attached}*

*AAMI Standards = Association for the Advancement of Medical Instrumentation {see standards attached}*

*NCCLS Standards = National Committee for Clinical Laboratory Standards {see standards attached}*

*And what is truly and incredibly neat...you've been providing this quality of water easily and everyday to your residential Customers for the most part !*

*So, when you receive an RFQ {Request For Quotation} from a lab Client, the docs will have one of these Standards listed...and your Customer will be confident he is talking with indeed "a player", because knowing the lingo means experience.*

*Next step = contact Aquathin Quote Bank, get the detailed specs in 60 seconds, paste it onto your letterhead and add the appropriate Aquathin Catalogue Sheets, deliver the next day...and you just beat the competition by 2 to 3 weeks ! **A keen sense of immediacy + detailed professional quote + rock solid letters of satisfaction + 25 Years Pure Excellence = THE DEAL !***

*Warmest regards to all...as well, your comments are always welcome and very much appreciated.*

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## REAGENT GRADE WATERTABLES

### Proposed Water Specifications

#### Proposed Guidelines National Committee for Clinical Laboratory Standards (NCCLS)

|                                                                  | Type I           | Type II | Type IIB        | Type III |
|------------------------------------------------------------------|------------------|---------|-----------------|----------|
| Bacterial content, colony forming units per mL, cfu/ml (Maximum) | 10               | 10      | 10 <sup>2</sup> | N.A.     |
| pH                                                               | N.A.             | N.A.    | N.A.            | N.A.     |
| Resistivity, megohm centimeter (M <sub>Ω</sub> - cm), 25°C       | 10 (in-line)     | 1.0     | 1.0             | 0.1      |
| Silicant mg/liter SiO <sub>2</sub> (Maximum)                     | 0.05             | 0.1     | 0.1             | 1.0      |
| Particulate matter                                               | 0.22 um filter   | N.A.    | N.A.            | N.A.     |
| Organics                                                         | Activated Carbon | N.A.    | N.A.            | N.A.     |

#### College of American Pathologists (CAP)

##### WATER GRADE

|                                                                 |                       | Microbial Content (cfu/ml, max.) |                 |           |
|-----------------------------------------------------------------|-----------------------|----------------------------------|-----------------|-----------|
|                                                                 |                       | Type I                           | Type II         | Type III  |
| Specification Resistivity - Specific Resistance (megohms @25EC) | a. in line            | 10                               | N.A.            | N.A.      |
|                                                                 | b. Effluent (As Used) | N.A.                             | 2.0             | 0.1       |
| Silicate (mg/liter SiO <sub>2</sub> )                           |                       | 0.05                             | 0.10            | 1.00      |
| pH                                                              |                       | N.A.                             | N.A.            | 5.0 - 8.0 |
| Microbial Content (cfu/ml, max.)                                |                       | 10                               | 10 <sup>4</sup> | N.A.      |

#### Notes:

1. Particulate Matter - Type I water should be "free" of particulate matter larger than 0.2 microns. "Free of particulate matter" is defined as less than 500 particles/liter which are greater than 0.2 ohms.
2. Other parameters, such as particle size, heavy metals and/or trace elements, and carbon dioxide content should be considered and monitored when appropriate for special or specific uses.
3. Organics and other contaminants may be reduced with the use of activated carbon.

#### American Society for Testing Materials (ASTM)

---



|                                                                 | Type I         | Type II        | Type III    | Type IV   |
|-----------------------------------------------------------------|----------------|----------------|-------------|-----------|
| Total Matter, max. mg/liter                                     | 0.1            | 0.1            | 1.0         | 2.0       |
| Electrical conductivity, max. umho/cm at 298 K (25EC)           | 0.06           | 1.0            | 1.0         | 5.0       |
| Electrical Resistivity, min. M/cm at 298 K (25EC)               | 16.67          | 1.0            | 1.0         | 0.2       |
| pH at 298 K (25EC)                                              | *              | *              | 6.2 - 7.5   | 5.0 - 8.0 |
| Min. color retention time of potassium permanganate, minutes 60 | 60             | 60             | 10          | 10        |
| Max. soluble silica                                             | Not detectable | Not detectable | 10 ug/liter | No limit  |

#### Microbiological Classification\*\*

\* The measurements of pH in Type I and Type II reagent waters are meaningless and have been eliminated from the procedure, since electrodes used in this test contaminate the water.

\*\* When the bacterial levels need to be controlled, reagent grade types should be further classified as follows:

|                           | Type A | Type B | Type C |
|---------------------------|--------|--------|--------|
| Max. total bacteria count | 0/ml   | 10/ml  | 100/ml |

#### WATER TREATMENT APPLICATION DATA

##### Main Page

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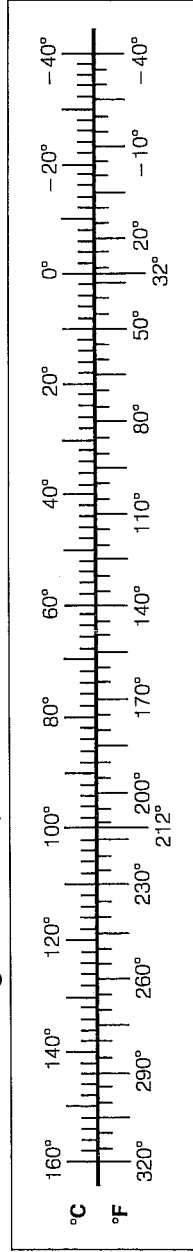
# Conductivity and resistivity (NaCl and CaCO<sub>3</sub> solutions at 25°C)

| Grains/Gal <sup>*</sup><br>as CaCO <sub>3</sub> | ppm<br>as CaCO <sub>3</sub> | ppm<br>NaCl | Conductivity<br>micromhos/cm | Resistivity<br>megohm/cm |
|-------------------------------------------------|-----------------------------|-------------|------------------------------|--------------------------|
| 99.3                                            | 1700                        | 2000        | 3860                         | 0.00026                  |
| 74.5                                            | 1275                        | 1500        | 2930                         | 0.00034                  |
| 49.6                                            | 850                         | 1000        | 1990                         | 0.00050                  |
| 24.8                                            | 425                         | 500         | 1020                         | 0.00099                  |
| 9.93                                            | 170                         | 200         | 415                          | 0.0024                   |
| 7.45                                            | 127.5                       | 150         | 315                          | 0.0032                   |
| 4.96                                            | 85.0                        | 100         | 210                          | 0.0048                   |
| 2.48                                            | 42.5                        | 50          | 105                          | 0.0095                   |
| 0.992                                           | 17.0                        | 20          | 42.7                         | 0.023                    |
| 0.742                                           | 12.7                        | 15          | 32.1                         | 0.031                    |
| 0.496                                           | 8.5                         | 10          | 21.4                         | 0.047                    |
| 0.248                                           | 4.25                        | 5.0         | 10.8                         | 0.093                    |
| 0.099                                           | 1.70                        | 2.0         | 4.35                         | 0.23                     |
| 0.074                                           | 1.27                        | 1.5         | 3.28                         | 0.30                     |
| 0.048                                           | 0.85                        | 1.00        | 2.21                         | 0.45                     |
| 0.025                                           | 0.42                        | 0.50        | 1.13                         | 0.88                     |
| 0.0099                                          | 0.17                        | 0.20        | 0.49                         | 2.05                     |
| 0.0076                                          | 0.13                        | 0.15        | 0.38                         | 2.65                     |
| 0.0050                                          | 0.085                       | 0.10        | 0.27                         | 3.70                     |
| 0.0025                                          | 0.042                       | 0.05        | 0.16                         | 6.15                     |
| 0.00099                                         | 0.017                       | 0.02        | 0.098                        | 10.2                     |
| 0.00070                                         | 0.012                       | 0.015       | 0.087                        | 11.5                     |
| 0.00047                                         | 0.008                       | 0.010       | 0.076                        | 13.1                     |
| 0.00023                                         | 0.004                       | 0.005       | 0.066                        | 15.2                     |
| 0.00012                                         | 0.002                       | 0.002       | 0.059                        | 16.9                     |
| 0.00006                                         | 0.001                       | 0.001       | 0.057                        | 17.6                     |
| none                                            | none                        | none        | 0.055                        | 18.3**                   |

\*1 gram per gal = 17.1 ppm (CaCO<sub>3</sub>)

\*\*theoretical maximum

# Fahrenheit/Centigrade temperature conversion chart



32° Fahrenheit = 0° Centigrade 0° Fahrenheit = -17.8° Centigrade

# AAMI water quality standards

| Contaminant           | Suggested Maximum Level (mg/l) |
|-----------------------|--------------------------------|
| Calcium               | 2(0.1 mEq/l)                   |
| Magnesium             | 4(0.3 mEq/l)                   |
| Sodium                | 70(3 mEq/l)                    |
| Potassium             | 8(0.2 mEq/l)                   |
| Fluoride              | 0.2                            |
| Chlorine              | 0.5                            |
| Chloramines           | 0.1                            |
| Nitrate (N)           | 2                              |
| Sulfate               | 100                            |
| Copper, Barium, Zinc  | 0.1 each                       |
| Arsenic, Lead, Silver | 0.005 each                     |
| Chromium              | 0.014                          |
| Cadmium               | 0.001                          |
| Selenium              | 0.09                           |
| Aluminum              | 0.01                           |
| Mercury               | 0.0002                         |
| Bacteria              | 200 (cfu/ml)                   |

Ref. Association for the Advancement of Medical Instrumentation (AAMI). "Hemodialysis Systems Standard." May 1982. Adopted by American National Standards Institute (ANSI), 1982.

Table A

**CAP & ASTM Reagent-Grade Water Specs\***

|                                            | CAP TYPE |                 |         | ASTM TYPE |     |         |         |
|--------------------------------------------|----------|-----------------|---------|-----------|-----|---------|---------|
|                                            | I        | II              | III     | I         | II  | III     | IV      |
| Spec. Conductance (microhms/cm)            | 0.1      | 0.5             | 10      | 0.06      | 1.0 | 1.0     | 5.0     |
| Spec. Resistance (megohms/cm)              | 10       | 2.0             | 0.1     | 16.6      | 1.0 | 1.0     | 0.2     |
| Silicate (mg/l)                            | 0.05     | 0.1             | 1.0     | —         | —   | —       | —       |
| Heavy Metals (mg/l)                        | .01      | 0.01            | 0.01    | —         | —   | —       | —       |
| Potassium Permanganate Reduction (minutes) | 60       | 60              | 60      | 60        | 60  | 10      | 10      |
| Sodium (mg/l)                              | 0.01     | 0.01            | 0.01    | —         | —   | —       | —       |
| Hardness                                   | neg.     | neg.            | neg.    | —         | —   | —       | —       |
| Ammonia                                    | .01      | .01             | .01     | —         | —   | —       | —       |
| Bacterial Growth (ctu/ml)                  | 10       | 10 <sup>4</sup> | —       | —         | —   | —       | —       |
| pH                                         | —        | —               | 5.0-8.0 | —         | —   | 6.2-7.5 | 5.0-8.0 |
| CO <sub>2</sub> (mg/l)                     | 3        | 3               | 3       | —         | —   | —       | —       |

\*ACS specifications similar to CAP Type II

**110 Sent:** Saturday, September 11, 2004 1:17 PM  
**Subject:** FORUM Q & A: UPDATE -- BIOACCUMULATORS---BDE "NOW ON YOUR GROCERY SHELF... FOR QUICK CONVENIENCE !"

Dear Aquathin Dealer OnLine;

*This article should not be shocking to anyone ! We've been educating our Dealers for years about bioaccumulation of carcinogenic pesticides and flame retardants ( and I've pasted most of the recent pertinent articles together herewith below for your convenience...as well they do appear on the Aquathin Website ). Why would this news be incredulous...after all, bioaccumulation means in the food chain, and grocery stores and restaurants certainly fit in, don't they !!*

*Your article entitled **The 5th Function of Water is your answer to combat bioaccumulation "at the end of the food chain" through the ability to flush out and detoxify via pure-no load carrying-water.***

**I LOVE MY AQUATHIN !**

*Warmest regards to all...as well, your comments are always welcome and very much appreciated.*

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*( visit the allnew [www.aquathin.com](http://www.aquathin.com) )*

*"Alfie"*

*Alfred J. Lipshultz, President*

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September 8, 2004 from Environmental Protection e-News

## **Flame retardants found on supermarket shelves**

A new study has found flame retardant chemicals, called PBDEs, in foods taken straight from supermarket shelves in Dallas, Texas, suggesting that food may be a key source of the contamination measured in people around the world.

The report, which was published online Sept. 1 by *Environmental Science & Technology*, a peer-reviewed journal of the American Chemical Society, revealed higher levels of flame retardants in the foods here than similar market studies from other countries.

Polybrominated diphenyl ethers (PBDEs) -- used widely as flame-retardant additives in electronics and in polyurethane foam used for carpet padding, mattresses, chairs, sofas and other furniture -- have been detected in humans across the globe, but scientists are not certain how they are getting there.

"Our paper is the first U.S. market basket food survey for brominated flame retardants," says the study's lead author Arnold Schecter, M.D., M.P.H., an environmental health expert at the University of Texas?



School of Public Health in Dallas. Schecter and his coworkers tested 32 food samples from three major supermarket chains in Dallas. "We found PBDE contamination in all food containing animal fats," Schecter said, "with the highest levels in fish, followed by meat and then dairy products. PBDEs are most soluble in fats, so they tend to accumulate in animal and human tissues."

Only two other similar market basket studies have been done -- in Spain and Japan -- and the U.S. levels were higher than both, according to the Texas study.

**The Spanish study reported an upper level of 340 parts per trillion (ppt), while the most contaminated sample in the Texas study was a salmon filet with a concentration of more than 3,000 ppt. Likewise, the median concentration of PBDEs in meat from Dallas supermarkets was more than twice the maximum levels in meat from both the Spanish and Japanese surveys. About 5 percent of people in the United States have PBDE levels in their bodies greater than 300 parts per billion, according to the California Office of Environmental Health Hazard Assessment.**

The researchers did not speculate on why levels in samples from Dallas supermarkets were higher than in the other two studies.

"Although these findings are preliminary, they suggest that food is a major route of intake for PBDEs," said Schecter.

The researchers recently reported high levels of PBDEs in breast milk of 47 women in Dallas and Austin -- the highest levels found in the world to date. They selected three major supermarket chains in Dallas for the new study and sampled well-known brands, assuming these were foods the women would probably have eaten.

It is important to note, however, that supermarkets in the United States often receive food from distant parts of the country. Schecter plans to extend the research to a larger study of foods from across the United States to better understand how people are exposed to flame retardants through their diets.

Little is known about the specific toxic effects of brominated flame retardants, but their increasing presence in human tissue is cause for concern because they have been associated with cancer, endocrine disruption and impaired brain development in animal studies, according to the researchers. The European Union has banned two types of PBDEs -- the penta and octa formulations -- and is currently considering a ban on a third type, the deca formulation. Officials in the United States are still debating the fate of flame retardants, although the main U.S. manufacturer recently announced plans to discontinue production of the penta and octa formulations as part of a voluntary agreement with EPA.

The online version of the research paper cited above was initially published Sept. 1 on *Environmental Science & Technology's* Web site and will appear in the journal's Oct. 15 print edition.

Visit the Web site at <http://pubs.acs.org/journals/esthag/index.html> for more information.

----- Original Message -----

**From:** [AQUATHIN TECH SUPPORT](mailto:info@Aquathin.Com)

**To:** [info@Aquathin.Com](mailto:info@Aquathin.Com)

**Sent:** Saturday, August 21, 2004 2:12 PM

**Subject:** FLAME RETARDANTS FOUND IN SALMON...BUT YOU WILL NOT BELIEVE WHAT THE BRAINIACS PLAN FOR CURE

Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;

*It is the type of thinking in the quick read below, as to why we shall be in business for a very long time. The article discusses flame retardants as a carcinogen. The **bold black** discusses their bioaccumulation. The **bold red** nonchalantly discusses the results from future discontinuing the chemical as plateau; reverse and decrease; **WHICH MEANS in addition to slow microbe deactivation of the contaminate, burying the the wildlife and people who have bioaccumulated the cancer causing chemical.** Now there's a sound method for remediation if I ever saw one.*

*I LOVE MY AQUATHIN !*

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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Alfred J. Lipshultz, President*

*P.S. "Splash NewsBulletins", "Forum Q & A", "Allergic Reaction", Biz Bank, Tech Bank and Quote Bank... ARE ALL FREE services to all Authorized Aquathin Dealers and their clients to keep you abreast of technology updates and industry news.*

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## **Flame Retardants Found in Salmon Meat**

Wed Aug 11, 3:38 PM  
ET

WASHINGTON (Reuters) - Farmed salmon, already found to carry higher levels than wild salmon of chemicals such as PCBs, may also contain higher levels of flame retardants, environmental researchers said on Wednesday.

However, some wild salmon also carry high levels of the chemicals in their flesh and some wild Chinook have the highest levels of all, the team at Indiana University reported.

Writing in the journal Environmental Science & Technology, the researchers said they tested salmon meat for polybrominated diphenyl ethers or PBDEs, which are used widely as flame-retardant additives in electronics and furniture.

**Like PCBs and dioxin, they can build up in the flesh of animals and are especially high in carnivores.**

Indiana University's Ronald Hites and colleagues measured PBDEs in 700 samples of farmed and wild salmon from around the world. The same team reported in January that they found high levels of chemicals in farmed salmon and blamed the "salmon chow" fed to the fish.

Salmon chow is a mixture of ground-up fish and oil fed to farm-raised salmon and scientists think it may be more likely to contain contaminated fish than the variety of foods eaten by wild salmon.

There is disagreement over whether PBDEs are dangerous. But Hites said he would be concerned.

"If you're a chemist and you draw the structure, they look a lot like PCBs," he said in a statement.

**PCBs can cause cancer and reproductive, neurological and developmental defects.**

In September 2003, the Environmental Working Group, which reports on levels of chemicals in the environment and other issues, said varying levels of PBDEs could be found in human breast milk.

The European Union ([news - web sites](#)) banned two of the three most common PBDE products this year, and the state of California has banned two types of PBDEs beginning in 2008. **Levels found in people's bodies are rising steadily.**

The Bromine Science and Environmental Forum, which represents the industry, said action was already being taken to phase out the most dangerous PBDEs.

**"As the sole manufacturer of penta-BDE (Great Lakes Chemical Corporation) has already announced to voluntarily cease production of this product by Dec. 31, 2004, these levels are expected to soon plateau, reverse course, and then decrease over time," it said in a statement.**

Beginning next month, U.S. supermarkets will be required to put labels on salmon telling whether the fish is farmed or wild.

Consumers are being urged by doctors and the U.S. government to eat fatty fish such as salmon because of the high content of omega-3 fatty acids. These compounds are key for brain and eye development and can lower the risk of heart disease.

----- Original Message -----

**From:** [AQUATHIN TECH SUPPORT](#)

**To:** WILTSHIRE, ROGER; WILLIAMS, JIM -- AQUATHIN UK, THE PURE H2O CO

**Sent:** Tuesday, April 13, 2004 3:10 PM

**Subject:** SCOTTISH TROUT POLLUTED BY FLAME RETARDANT

Dear Roger & Jim;

*As an avid fisherman, I am deeply grieved that some of the greatest (and known to be the most pristine) fishing areas in Scotland have become contaminated with flame retardants. What makes matters even worse, is that PDBE is a bioaccumulator (refer to Forum Q & A Feb. 2, 2002).*

*This article is a must read for those that believe their water or well water is OK.*

Warmest regards to all,

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"Alfie"



Alfred J. Lipshultz, President

*P.S. When responding please continue 'REPLY' to include all previous correspondences on this subject.*

-----

**Edie**

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### **Trout from Royal estate are ten times higher in pollution**

Brown trout from Lochnagar on the Royal Balmoral Estate in Scotland have been found to contain ten times the concentration of a pollutant from chemicals used as flame retardants than those in any other European lakes.

This was the shock finding of a study of 11 remote lakes in Northern Europe and Greenland to gauge how widely polybrominated diphenyl ethers (PDBE), used as flame retardants in lots of plastics, electrical goods, textiles and cars, had spread. The researchers from Spanish and Norwegian universities found PDBEs were present in all of the lakes.

They studied concentrations in mountain lakes to determine how far the PDBE travels by air. As fish are at the top of the food chain and the locations were away from human habitation, any pollution would have to have come from the air, the researchers said.

Mike Donaghy, from WWF Scotland said: "It could be that they were present in the rain which fell on the lakes, or in dust or other material deposited from the air, then they would have entered the food chain, eventually reaching the fish which accumulated them."

Dr Grimalt of Barcelona University, who led the study, said of the Balmoral trout: "As this lake shows concentrations so much higher than others, it should be monitored to study the long term health of its fish." He did stress, however, that at present levels were not immediately hazardous.

Equally surprising was that PDBEs were also found in arctic carp from a remote lake in Western Greenland - a country with very little industrial development at all. Anne-Marie Bjerg, from WWF Denmark explained that Greenland suffers from transborder pollution.

"Because of the prevailing winds Greenland is the recipient of pollution from North America, the Ruhr Valley in Germany and even mainland China, so the pollution could have travelled thousands of kilometres," she said.

By David Hopkins



----- Original Message -----

**From:** [AQUATHIN TECH SUPPORT](mailto:info@aquathin.com)

**To:** [info@aquathin.com](mailto:info@aquathin.com)

**Sent:** Saturday, February 02, 2002 3:08 PM

**Subject:** FORUM Q & A: BIOACCUMULATORS---BDE

*Dear Aquathin Dealer On-Line;*

*Bioaccumulators refer to chemical and heavy metal contaminants that are "not" biodegradable and rather increase exponentially through the food chain. One of the most familiar toxins was DDT. It is not a pretty picture and intense focus on such chemicals and metals is mandatory.*

*Warmest regards,*

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*P.S. When responding please continue 'REPLY' to include all previous correspondences on this subject.*



## Flame Retardant Chemical Found in Fish, Humans

Freshwater fish in Virginia have been found to contain the highest reported levels in the world of a common but controversial flame retardant, penta bromo diphenyl ether. The chemical, which is showing up in animals and humans around the globe, has been linked in laboratory animal studies to behavioral problems, but little is known about its effects on humans.

Penta bromo diphenyl ether (pentaBDE) has also been found in sewage sludge spread on land across the United States, renewing concerns about the long term safety of the U.S. biosolids program.

Some of the compounds in pentaBDE, including its BDE molecules, are similar in structure to PCBs (polychlorinated biphenyls), industrial chemicals which are classified as probable carcinogens. PCBs are known to cause birth defects, neurological damage and thyroid imbalances. Their use was banned in the U.S. in 1976.

The chemical structure of BDEs also resembles thyroxine, a thyroid hormone. Initial studies indicate that BDEs could interfere with the metabolism of thyroid hormones, and with their transport throughout the body.

***Most of the fish tested by the Virginia researchers, including catfish, fish were contaminated with BDE-47, one of the two main constituents of pentaBDE*** (Photo by Konrad Schmidt, courtesy University of Minnesota)

Virginia researchers examined more than 1,000 fish from 332 different locations in the Roanoke and Dan River basins. In total, 33 species of fish were tested, including striped bass, catfish and carp. The scientists found that 89 percent of the fish were contaminated with BDE-47, one of the two main constituents of pentaBDE.

One carp from the Hyco River contained more than 47 parts per billion of BDE-47, the highest known amount to be recorded in any fish so far.

"Flame retardants are a current use chemical. Basically what we're doing is pumping more and more of the chemical into the environment and building up the levels," said Robert Hale from the Virginia Institute of Marine Science (VIMS), the main author of a report on the study published in the December 2001 issue of "Environmental Science and

Technology."

More than half of the samples weighed in with more BDE-47 than PCB-153, the most abundant of the PCB molecules.

### Growing Problem

BDEs have been found worldwide in fish, wildlife and people. Research to date, though limited, suggests that these chemicals can cause harmful effects similar to those caused by PCBs.

In one Swedish study, 10 day old mice that were given large doses of the two major chemicals in commercial pentaBDE showed permanent disturbances in their behavior, memory and learning. The effects are similar to those seen in connection with PCBs, the researchers said.

BDE chemicals are persistent and bioaccumulative, meaning that they do not readily break down in the environment, and they accumulate in the tissues of animals. Like other persistent organic pollutants (POPs), BDEs get into humans mainly through food.

## ***The levels of BDEs found in human breast milk are rising*** (Photo courtesy Greenpeace)

Levels of BDEs in the breast milk of North American women has increased exponentially, from two to 200 parts per billion, over the last decade. These amounts are far above those measured previously.

"It's a concern for a regulatory body if you have anything like that, that's increasing so much and your toxicology base is very limited," said Jake Ryan, a senior researcher with Health Canada who collected the North American breast milk data. "It may be innocuous and that's OK - but if it isn't then it's a real problem. You need to have a better handle on it."

One of the major concerns about BDEs in breast milk is the exposure of infants. Though the Swedish study using mice used massive amounts of BDEs, far greater than the estimated daily intake of human adults or infants, the fact that these chemicals accumulate in the body over time could potentially lead to harmful levels of the toxins in people who are frequently exposed, or particularly vulnerable - such as infants.

While current environmental levels of BDE are not considered dangerous, studies show that these levels are increasing. Researchers in Canada have studied the historical trends of BDEs in lake trout by comparing amounts of the chemical in archived trout samples with trout caught in recent years.

"We found that trends are rapidly rising in lake trout from Lake Ontario," said Mehan Alaei, an Environment Canada scientist who heads the federal BDE research team. "BDEs increased 300-400 times from 1978 to 1998," he noted.

## ***The Swiss government proposed a ban on the use of sewage sludge on the nation's farmland last September, due to concerns over chemicals like BDE*** (Photo by Ian Britton courtesy [Freefoto.com](http://Freefoto.com))

Long term safety concerns have resulted in reduced use of the penta product in some countries. The European Commission approved a ban on pentaBDE effective in July 2003, and the European parliament has recently proposed extending that ban to include other BDEs.

In Japan, pentaBDE concentration in fish has dropped because of voluntary reductions, according to Environment Canada's Alaei.

But demand for the chemical continues to increase in the United States, which accounts for 98 percent of worldwide penta use. Production of pentaBDE doubled to 8,500 tons between 1992 and 1999.

### **Unknown Pathways**

Scientists are still trying to determine how the flame retardants enter the environment.

"We just don't know for sure," said Hale.

PentaBDE is added to polyurethane cushions, such as those found in vehicles and household furniture, to delay ignition and slow down fires. Hale suggested the chemical could seep into the environment, ending up in storm sewers, when discarded cushions disintegrate.



PentaBDE can constitute up to 30 percent of the weight of fire protected upholstery, so this route could easily account for the levels being seen in the environment, Hale suggested.

Environmental regulators will have to weigh the potential environmental and human health effects of pentaBDE against its known life saving properties, when deciding whether to restrict the flame retardant's use. Particularly in residential fires, pentaBDE can slow down a fire, allowing residents time to escape and reducing property damage, says the Brominated Flame Retardants Industry Panel (BFRIP).

A BDE treated sofa, for example, would be slower to ignite and could increase escape time by a factor of 15, the industry group says.

Under a pilot program of the U.S. Environmental Protection Agency, the main U.S. manufacturer of pentaBDE, Great Lakes Chemical, is now voluntarily testing whether children's exposure to PBDEs presents a risk.

Bob Campbell, a member of the BFRIP panel and the head of regulatory affairs for Great Lakes Chemical, agrees that more and better research into pentaBDE may be needed. The Swedish toxicological study indicating pentaBDE produced permanent damage in mice "was not done using the generally accepted method," he said.

### Revisiting Biosolids

The discovery of significant amounts of BDEs in biosolids, a mixture of sewage sludge used as fertilizer, concerns some scientists and environmentalists because of the potential for more of these chemicals entering the food supply.

The Virginia Marine Institute's Hale and his colleagues were measuring the levels of nonphenols and PCBs in U.S. biosolids when they came across the BDEs.

"Sewage sludge contains everything - literally - in the kitchen sink," said Hale.

***This wastewater treatment plant in Englewood, Colorado was recognized by the EPA last October for its efficient recycling of sewage sludge as biosolids fertilizer (Photo courtesy EPA)***

A recent EPA risk assessment of sewage sludge concluded that biosolids containing limited amounts of heavy metals and pathogens was safe to apply to land. However, the assessment did not consider BDEs. In the U.S., 60 percent, or about four million tons a year, of the sewage sludge or biosolids produced is now spread on land as a fertilizer.

In Europe, several countries are reevaluating the use of biosolids as fertilizers. In September 2001, Swiss authorities proposed banning the disposal of sewage sludge on agricultural land by 2005. In 1999, the Swedish Farmers Association issued a temporary ban on spreading sewage sludge on farmland because of concern over potentially hazardous chemicals, including BDEs, in the sludge.

Concerns over pollutants and pathogens entering the food supply have led to a reevaluation of the risks associated with biosolids in the U.S. as well. In 1999, the EPA proposed setting limiting the amount of dioxin allowed in biosolids to 300 parts per trillion. Some critics consider that limit to be too high, and final action on the controversial rule was recently extended to March 2002.

A National Academy of Sciences review, "Risks from Toxicants and Pathogens in Biosolid Fertilizers," is scheduled for release this spring. The Virginia team's BDE data have been given to the National Academy of



Sciences committee, Hale noted.

"Our major point on the whole sludge issue is that the EPA has done a risk assessment on a number of chemicals but they've left more chemicals out than they've considered," said Hale. "Both nonphenols and brominated flame retardants were not on the considered list and both of them have environmental legitimacy."

More information on bromine based flame retardants such as pentaBDE is available through the Bromine Science and Environmental Forum at: <http://www.bsef.com/>



111 Sent: Wednesday, September 15, 2004 4:22 PM  
Subject: FORUM Q & A UPDATE #3 FOR: WHAT ARE CHLORAMINES ?

### **NEWS ON CHLORAMINES...HIGHLY TOXIC BYPRODUCT FORMATION**

Dear Aquathin Dealer OnLine;

*Disinfection byproducts (DBP) using free chlorine were the main issues and concerns forcing the switch to chloramines. The attached article reads that a new level of concern over new DBP produced using the chloramine process on source water where bromide and iodide is present, called iodoacetic acids, "raise the risk of cancers, as well as birth and developmental defects" has been identified.*

*The article uses some of the strongest language I've read, i.e. "...alternatives may be opening a Pandora's Box of new DBPs", and "how many are out there, how many new ones will be formed..."*

*Another point to for serious consideration and not mentioned in the article is that you encounter chloramines its and DBP in 3 highly concentrated forms; ingestion, inhalation thru effervescence in showers, skin absorption in baths and showers...of which the latter two would deliver the highest exposure. These are powerful points to make for POU and POE treatment.*

*I love my Aquathins !!!*

*Warmest regards to all...as well, your comments are always welcome and very much appreciated.*

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----- Original Message -----

**From:** [AQUATHIN TECH SUPPORT](mailto:info@Aquathin.Com)

**To:** [info@Aquathin.Com](mailto:info@Aquathin.Com)

**Sent:** Wednesday, April 14, 2004 4:58 PM

**Subject:** FORUM Q & A UPDATE #2 FOR: WHAT ARE CHLORAMINES ?

### **NEWS ON CHLORAMINES...CORROSIVITY**

Dear Aquathin Dealer OnLine;

*Attached herewith is a report from the WQA citing chloramines are responsible for the accelerated corrosion in lead pipes and lead solder joints resulting in lead concentrations exceeding 1250 ppb !*

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*Warmest regards to all...as well, your comments are always welcome and very much appreciated.*

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----- Original Message -----

**From:** [AQUATHIN TECH SUPPORT](#)

**To:** [AQUATHIN TECH SUPPORT](#)

**Sent:** Tuesday, December 30, 2003 3:34 PM

**Subject:** FORUM Q & A UPDATE: WHAT ARE CHLORAMINES ?

Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;

In May of 2002, we sent a Forum Q & A concerning the municipal water germicide called "chloramines" (attached below for convenience) and some of the issues it presents. The following quick read asserts these several cautions we pointed out, as they turn on chloramines in San Francisco. I love my Aquathin !

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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Market Updates - 12/30/2003 11:58:37 AM

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## Water district spreads the word about chloramines switch

HAYWARD, CA — The San Francisco Public Utilities Commission

will switch its disinfectant for tap water from chlorine to chloramine effective Feb. 1, and is notifying residents in local communities who might be affected by the change, such as dialysis patients and pet fish owners, [The Alameda Times-Star](#) reported.

Chloramine, which is a combination of chlorine and ammonia, generally lasts longer in water and produces lower levels of suspected cancer-causing byproducts than chlorine, the article said.

However, the article also reported that while water disinfected with chloramine is safe for human and animal consumption and for use in cooking and bathing, **it may be deadly if it enters directly into the bloodstream, such as through kidney dialysis.**

**It could also affect pets such as fish, reptiles and amphibians and businesses using highly processed water, the article said** The state Department of Health Services will be inspecting and certifying all kidney dialysis facilities once they have been upgraded to remove all chloramines, according to the paper.

----- Original Message -----

**From:** [AQUATHIN TECH SUPPORT](#)

**To:** [info@Aquathin.Com](mailto:info@Aquathin.Com)

**Sent:** Thursday, May 09, 2002 5:10 PM

**Subject:** FORUM Q & A: WHAT ARE CHLORAMINES ?

*Dear Aquathin Dealer OnLine, Splash and Allergic Reaction NewsBulletinMembers;*

*In the past few months, we have received many calls from Dealers and consumers located in cities where municipal water plants are turning to chloramines. We have lived with chloramines in South Florida for a number of years and it is not fun.*

*Lets begin with why chloramines? As many of you have learned at Aquathin University, chlorine added to city water for germicidal protection had been a very good thing for many many years. It is the chlorine that knocked out typhus and acts as an oxidizer to eliminate bacteria, virus, algae and many odors. Chlorine is cheap, effective, readily available and often a byproduct of manufacturing processes. However, chlorine is not very stable and likes to combine with other contaminants in water often forming carcinogens (cancer causing compounds). Chlorine combining with organic matter i.e. decayed vegetation, forms THM's or trihalomethane which is a carcinogen. And since the second industrial revolution chemical contaminants have been introduced into drinking water (over 700 found in U.S. waters), chlorine has managed to combine with many of these pollutants making extremely toxic substances. The New England Journal of Medicine has reported that these organochloride compounds cause colorectal and prostate cancers.*

*Hence in order to obtain the safe germicidal benefits from chlorine a process was developed and tested by the E.P.A. and A.W.W.A. (American Water Works Association) whereby chlorine could be combined with a material at the initiation of the chlorine, forming an effective germicide unable to combine with any other matter or creating carcinogens. The most effective and least costly choice was ammonia (NH3). The combination of chlorine (Cl2) and ammonia forms chloramines.*

*Chloramines while efficient, are not as efficient as free chlorine and therefore must be used in stronger concentrations. State standard for free chlorine residual is .5 ppm . Experience shows that an average is around*



1.0 ppm . Chloramine concentrations average 3.0 to as high as 4.5 reported by several Dealers. As well, when using chloramines, pH will rise on average 8.0 to 8.5 (normal average is 6.8 to 7.2). We have reports that pH is as high as 10.5 . When pH exceeds 7.2 calcium and magnesium will come out of solution and you will see increased spotting of dishes, glasses, flatware...scaling in showers and baths, even in areas where hardness is normally not a big problem. The biggie is chloraminated water is quite irritating to many people causing rashes, chaffing...it has been reported that respiratory problems have been associated with chloramines. When your area changes to chloramines, you will see the water in your baths and toilets turn to a yellow color...before you've used it ! You will receive a notice that chloramines will kill tropical fish and are devastating to dialysis patients. Chloramines must be prevented from use in clinical and home hemodialysis machines. Chloramines will also eat at your toilet flappers and rubber plumbing gaskets causing leaks. Additionally, since chloramines are not as effective as free chlorine, the municipalities will turn it off periodically i.e. every 6 months or so, and run high concentrations of free chlorine into the pipes to shock any presence of biofilm (bacterial slime).

What you can do. Many years ago Aquathin developed the MegaChar Filter Model BFF-1 total home point of entry filter out of a growing concern for bathing and breathing chlorine and organic pollutants in showers and baths. This consisted of the highest quality and quantity of steam washed bituminous grade granular activated carbon for reduction of chlorine and chemicals. When South Florida (which is one of the first areas) switched to chloramines, we learned that the higher pH caused a drop in efficiency (carbon does not like to remove organics and chlorine under increased pH environments) along with earlier media changes than we had historically known. After several months of research and consulting with our carbon engineers, we began to produce the Model BFF-2 MegaChar which includes an acid washed lignite grade granular activated carbon. The acid washed type of carbon and quantity engineered into the MegaChar permitted it to act more efficiently by reducing the pH. Aquathin has been successfully removing chloramines with this quality filter for over 12 years now and everyone...and I mean everyone reports that they love their MegaChar just as much as their RODI systems (which also removes chloramines as you know). Water in baths and toilets remains clear. No more annual replacement of toilet flappers and rubber gaskets (as long as the BFF-2 is inspected and maintained).

Chlorine and chloramines as we teach in Aquathin University are good, good, good...from the municipal plant, keeping the pipes clean and germ free all the way up to your home. However, if you believe like we believe at Aquathin, we have a choice and can enhance the quality of our water entering into our home. I have a MegaChar and my family loves it.

Warmest regards to all,

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Alfred J. Lipshultz, President

**P.S. "Splash NewsBulletins", "Forum Q & A" and "Allergic Reaction" are a FREE service to all Authorized Aquathin Dealers and their clients.**

Some DBPs in chlorine-treated water have been found to raise the risks of various cancers, as well as birth and developmental defects.

Corpus Christi's water supply has high levels of bromide and iodide because of the chemical makeup of the ancient seabed under the water source. Local water sources lead to different DBPs. Whether the types of iodoacids found in Corpus Christi's treated water might be simply a reflection of local conditions, and thus a rare occurrence, is not known.

The DBPs in Corpus Christi's water were found as part of an EPA national occurrence survey of selected public water-treatment plants done in 2002. The survey reported on the presence of 50 high-priority DBPs based on their carcinogenic potential. The report, published in April, also identified 28 new DBPs.

Because so many new DBPs are being found in drinking water, Plewa said, two basic questions should be asked: How many are out there? And how many new ones will be formed as chlorine treatments are replaced with alternative methods?

Co-authors with Plewa on the EPA-funded study were Elizabeth D. Wagner, a scientist in the department of crop sciences at Illinois; Susan D. Richardson and Alfred D. Thruston Jr. of the EPA's National Exposure Research Laboratory; Yin-Tak Woo of the EPA's Risk Assessment Division, Office of Pollution Prevention and Toxics; and A. Bruce McKague of the CanSyn Chemical Corp. of Toronto.

Contact: Jim Barlow, Life Sciences Editor  
jebarlow@uiuc.edu  
217-333-5802  
[University of Illinois at Urbana-Champaign](#)

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# Medical News Today



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## Byproduct of water disinfection process found to be highly toxic

15 Sep 2004

A recently discovered disinfection byproduct (DBP) found in U.S. drinking water treated with chloramines is the most toxic ever found, says a scientist at the University of Illinois at Urbana-Champaign who tested samples on mammalian cells.

The discovery raises health-related questions regarding an Environmental Protection Agency plan to encourage all U.S. water-treatment facilities to adopt chlorine alternatives, said Michael J. Plewa [PLEV-uh], a genetic toxicologist in the department of crop sciences. "This research says that when you go to alternatives, you may be opening a Pandora's box of new DBPs, and these unregulated DBPs may be much more toxic, by orders of magnitude, than the regulated ones we are trying to avoid."

Plewa and colleagues, three of them with the EPA, report on the structure and toxicity of five iodoacids [EYE O-doe-acids] found in chloramines-treated water in Corpus Christi, Texas, in this month's issue of the journal *Environmental Science & Technology*. The findings, which appeared online in advance, already have prompted a call from the National Rural Water Association for a delay of EPA's Stage 2 rule aimed at reducing the amount of previously identified toxic DBPs occurring in chlorine-treated water.

"The iodoacids may be the most toxic family of DBPs to date," Plewa said in an interview. One of the five detailed in the study, iodoacetic acid, is the most toxic and DNA-damaging to mammalian cells in tests of known DBPs, he said.

"These iodoacetic acids raise new levels of concerns," he said. "Not only do they represent a potential danger because of all the water consumed on a daily basis, water is recycled back into the environment. What are the consequences? The goal of Stage 2 is to reduce DBPs, particularly the ones that fall under EPA regulations, and especially the ones that have been structurally identified and found to be toxic."

The use of chloramines, a combination of chlorine and ammonia, is one of three alternatives to chlorine disinfectant, which has been used for more than 100 years. Other alternatives are chlorine-dioxide and ozone. All treatments react to compounds present in a drinking water source, resulting in a variety of chemical disinfectant byproducts.

Some 600 DBPs have been identified since 1974, Plewa said. Scientists believe they've identified maybe 50 percent of all DBPs that occur in chlorine-treated water, but only 17 percent of those occurring in chloramines-treated water, 28 percent in water treated with chlorine-dioxide, and just 8 percent in ozone-treated water. Of the structurally identified DBPs, he said, the quantitative toxicity is known for maybe 30 percent.

**112 Sent:** Wednesday, September 29, 2004 1:14 PM

**Subject:** FORUM Q & A: ARSENIC UPDATE #4 -- NEW LOWERED 10 PPB MCL STILL NOT LOW ENOUGH

Dear Aquathin Dealer OnLine;

*This is a most interesting update. Researchers have learned that arsenic affects different tissue cells at different levels of concentration over varying times. That sheds a totally new questionable light on "exposure" to any contaminate.*

*So, as the laws designed to protect our drinking water over the past 30 years become more restrictive and protective due to ongoing R & D, again water we were told was safe to drink over the years, was not safe by today's standards...and already today's standards are proving continuously questionable (which we already knew). Don't give me 'safe' or 'safer'...I want 'safest'. One sure thing is that the MCL's for contaminants are lowering not raising, and in the direction of Aquathin's Philosophy = give me 2 parts hydrogen 1 part oxygen and no parts anything else !*

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Water & Wasterwater Newswire 9/29/04

## New Arsenic Drinking Water Standard May Still Not Prevent Toxic Exposure

Arsenic could be toxic at much lower levels than previously thought, suggesting that the new EPA drinking water standard of 10 parts per billion might still be too high, according to a team of researchers at Dartmouth Medical School (DMS). The study, which appeared in the August 2004 edition of *Chemical Research in Toxicology*, shows that in cell cultures extremely low levels of arsenic act as an endocrine disruptor. Endocrine disruption is likely to be an important contributor to arsenic's ability to increase the risk of a host of diseases including several forms of cancer, heart disease, diabetes and reproductive or developmental problems.

New medical research on arsenic, long recognized as a fatal poison when administered in high doses, indicates that decades of exposure to low doses of arsenic can pose a significant threat to human health. People are primarily exposed to arsenic through drinking water, which is contaminated naturally by underground geological



sources in some areas of the world. In 2001, EPA adopted a new standard for arsenic in drinking water of 10 parts per billion (ppb), replacing the old standard of 50 ppb. Public water systems must comply by 2006.

The new standard, however, might still be too close to arsenic levels related to known health effects to offer a protective margin for most members of the public, says Joshua Hamilton, PhD, professor of pharmacology and toxicology at Dartmouth Medical School and one of the authors of the new study. The research team includes lead author and Research Associate Professor of Physiology Jack Bodwell, Ph.D., and Lauren Kingsley, who was a Dartmouth undergraduate when the work was done.

By examining the effects of arsenic on a rat's cell line, Hamilton and his colleagues confirmed their earlier report that **arsenic can act as an endocrine disruptor, while also finding that these toxic effects occur at extremely small concentrations -- as low as 20 times below the new standard of 10 ppb.**

**"I would hope that the arsenic drinking water standard could be revisited,"** Hamilton says, **suggesting that a standard of 2-3 ppb would provide a more substantial margin protective of public health.** This is supported by several recent epidemiological studies that have found subtle health effects at as low as 10 ppb.

"Opponents say that there is no concrete evidence that there is a health benefit from further lowering of the standard," Hamilton says, "but this is one of the few -- perhaps the only -- drinking water standards where there are measurable health effects at or so close to the Federal Maximum Contaminant Level."

The researchers examined the effects of arsenic on the glucocorticoid receptor (GR), which is involved in many important body processes, such as regulating blood sugar and vascular function, and suppressing skin and lung cancer. Interestingly, the primary effects of arsenic exposure in humans are increased risk of diabetes, vascular disease and skin and lung cancer, according to DMS investigators.

They also found that arsenic affects cells differently, depending on the amount of GR in the cell. "Different tissues and organs of our body naturally have different levels of GR," Hamilton explains. "This may lead to different arsenic responses, which may in turn lead to different effects in different tissues."

"Such variations in response may account for why arsenic exposure has been linked to certain diseases, but it also predicts that different levels of arsenic may have very different effects," he continues. "So we may see an entirely different pattern of diseases at very high doses, such as in Bangladesh or Taiwan, than at lower doses such as those in the United States and South America."

Hamilton and his DMS colleagues are currently researching endocrine disruption in animals and humans to further explore arsenic's impact on human health, which they hope to publish later this year. Hamilton is a member of the Epidemiology and Chemoprevention Research Program of the Norris Cotton Cancer Center.

**113 Sent:** Thursday, September 30, 2004 5:33 PM

**Subject:** FORUM Q & A: WHAT DO I DO FOR MY WELL IN CASE OF FLOODING

*Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;*

*Recent violent weather in Florida and eastern U.S. in general, the UK, Caribbean have wreaked havoc on private well owners causing unknown and continuous contamination due to flooding. Unknown because the total amount and makeup of the contamination can contain pet waste, farm runoff, street grease-oil-heavy metals, chemicals...and certainly many forms of bacteria and virus. The information below is meant as a public service from Aquathin Corp. USA to help well owners properly maintain their wells and cope with severe problems. Your Authorized Aquathin Dealer has a host of solutions to protect your family.*

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**Water and Wastewater Newswire 9/29/04**

**Guide: Private Water Well Testing, Part I**

Nearly 42 million people in the United States obtain their drinking water from private wells. Poor construction or lack of maintenance of water wells can lead to water contamination resulting in severe health problems. This guide from the Louisiana Department of Health and Hospitals will tell you how to keep your water safe.

Note: These tips reflect Louisiana regulations. Be sure to adhere to applicable regulations in your area.

**How do I protect my private well water supply?**

In order to properly protect your household water, the activities near the water source must be managed. This includes:

- Keeping all contaminants such as gasoline, pesticides, paint, solvents and chemicals away from the well.
- Inspecting the well frequently for damage and discussing what you find with your water well driller.
- Sloping the area around the well to drain rainfall and surface water away from the well.
- Ensuring that the well is at least 50 feet away from sewage systems.

- Preventing backflow or cross-connections. To do this, maintain an air gap between the end of a water hose and standing water in the garden or in a household sink. A sudden loss of power or pressure can cause contaminated water to back-siphon into the well. Use check valves or anti-siphon valves where an air gap is not feasible.

There are many other requirements for private water wells. Check your local requirements.

### When do I test my water?

It is important to remember that taste and color are not an indication of safe water. Testing your water every year for total coliform bacteria and nitrates provides a good indication of the water's safety. However, there are other situations that warrant water testing. These include:

- Contaminants found in a neighbor's water
- A change in the odor, color or taste of the water
- A chemical spill near the well
- A pregnant woman in the home
- Unexplained illnesses in the household

### How do I test my water?

There are many resources available with information on getting your well water tested or whether testing is necessary.

- For a list of private certified water testing labs, you can contact your local Office of Public Health. You also can contact other private water testing laboratories. They can be found in the yellow pages under "Environmental Services" or "Laboratories."
- Your local health unit or cooperative extension service office also may be contacted for further information.

### What contaminants should I test for?

Certain types of contaminants should be tested for on a regular basis. These include:

- **Total Coliform Bacteria** originate in soil, vegetation or the intestinal tracts of animals. Although these bacteria may not be harmful themselves, high levels may indicate the presence of other bacterial, viral or parasitic pathogens.
- **Lead content** should be examined if household plumbing has lead pipe fittings, soldered joints and/or brass fixtures. Excessive lead consumption can affect vital organs and is especially harmful to young children under seven years of age.
- **Nitrates** can cause health problems in infants less than six months of age. Thus, testing for nitrates is important if infants or expectant mothers consume the water. Research is being conducted to determine whether nitrate exposure is linked to chronic illnesses in adults. Nitrates are plant nutrients and could come from fertilizer, livestock, poultry or septic tanks.
- **Volatile Organic Chemicals (VOCs)** are found in fuels, paints and solvents and can cause organ damage. If the water smells like gasoline or fuel, if the well is near an abandoned gas or fuel storage tank or if a chemical spill has occurred, the well should definitely be tested for the presence of VOCs.



- **Pesticides** can cause skin and eye irritations, respiratory problems and other serious health conditions; therefore, a pesticide spill warrants a test of your water.

Next week, part II of the guide will focus on how to clean and disinfect your well after a flood.

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Guide: Private Water Well Testing, Part II

Nearly 42 million people in the United States obtain their drinking water from private wells. Poor construction or lack of maintenance of water wells can lead to water contamination resulting in severe health problems. This guide from the Louisiana Department of Health and Hospitals tells you how to keep your water safe. To read part I of the guide, [click here](#).

Note: These tips reflect Louisiana regulations. Be sure to adhere to applicable regulations in your area.

How do I clean and disinfect my well after a flood?

After a flood, it is important to take every precaution to insure the safety of your well water. First, it is necessary to inspect and clean the well and pump before using them. You may want to have your water well driller or contractor check out the well before using it.

- Do not turn on the pump until an electrician or well contractor has checked the wiring -- there is a risk of electrical shock! After the proper inspections have taken place, run the pump and discard the water until the well water runs clear.
- Most importantly, after a flood, you should disinfect the well. This can be accomplished by following the procedures outlined below. However, it is advisable to hire a well contractor to disinfect the well for you.
 - Pump the well for several hours to reduce the cloudiness and contaminant levels in the water.
 - Pour 4 gallons of a chlorine bleach solution into the well. Chlorine bleach solution consists of 1 gallon of bleach with 3 gallons of clean water. Open every faucet and pump the water until the water coming out of the faucet smells like chlorine, and then turn off each faucet. If you do not smell chlorine at the faucet, add a little more chlorine solution until the smell is detected.
 - Let the system sit for 24 hours.
 - Open the faucets and run the water until the chlorine smell disappears.
 - Have the water sampled and tested. The water IS NOT safe for drinking until lab results show no indication of total coliform bacteria. You can discuss the final lab results with the lab or local health unit. It is important to remember that disinfection will not remove chemicals, which may have contaminated your well during a flood.

114 Sent: Friday, November 19, 2004 5:59 PM

Subject: FORUM Q & A UPDATE #2: WHAT'S UP WITH OXYGENATED WATER FROM MEDICAL NEWS TODAY

Dear Aquathin Dealer OnLine;

Here is another 9" nail in the coffin of the oxygenated water mini-fad. This medical article discusses the discovery of what regulates oxygen in blood. Drop down to the last paragraph in bold and note the newly discovered oxygen sensing molecule triggers the signal to increase ventilation **not thirst**...meaning once again, obtaining oxygen direct into blood and muscle is from lungs and not from the phony claims for increasing or even the capacity to obtain oxygen from water.

Whenever anyone decides to espouse their grand knowledge of hyper O2 H2O, hand over this Forum Q & A with all updates. GOTTALUVIT !

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A banner for Medical News Today. It features a green cross icon in the top left corner. The text "Medical News Today" is centered in a large, white, serif font. Below the text, the website address "www.medicalnewstoday.com" is displayed in a smaller, white, sans-serif font. On the right side of the banner, there is a circular inset image showing a woman in a white lab coat (a nurse or doctor) attending to a patient who is lying in a hospital bed and looking up at her.

Medical News Today

www.medicalnewstoday.com

Discovery reveals how the body regulates blood oxygen

16 Nov 2004

Findings have implications for treatment - A team of researchers, led by a Cardiff University professor, has discovered how the body regulates the amount of oxygen in the bloodstream.

The findings, by Professor Paul Kemp of the Cardiff School of Biosciences, and colleagues at both Cardiff and Leeds Universities, will be published in the journal Science later this month.

"The discovery could have important implications for understanding how the body adjusts to major changes in oxygen levels, such as when babies are born or following a stroke," said Professor Kemp. "It will certainly lead to the development of new therapeutic strategies aimed at maximising oxygen delivery when and where it is needed most."

The scientists have identified an oxygen-sensing protein, which in mammals is located in a cluster of cells at the spot where the carotid artery branches in the neck. It

"When oxygen becomes scarce, channels on these cells become less active, causing a cascade of signals that ultimately increases ventilation," explained Professor Kemp. "Until now, it has been unclear exactly how these channels sense oxygen."

The scientists discovered that the oxygen-sensing molecule is the enzyme "hemoxygenase-2". Under normal conditions, this enzyme uses oxygen to generate carbon monoxide. Under low-oxygen conditions, the enzyme produces less carbon monoxide, thus inhibiting the channels and triggering the signal to increase ventilation.

Contact: Professor Paul Kemp
KempPJ@cardiff.ac.uk
44-292-087-9347
[Cardiff University](http://www.cardiff.ac.uk)

----- Original Message -----

From: AQUATHIN TECH SUPPORT

To: Info@Aquathin.Com

Sent: Wednesday, November 12, 2003 1:58 PM

Subject: FORUM Q & A UPDATE: WHAT'S UP WITH OXYGENATED WATER ?

Dear Aquathin Dealer OnLine;

Here's one for the "I Told You So" column. On June 17, 2002, I sent you a Forum Q & A (pasted below for your convenience) concerning the 'hyperventilated claims' made by the 'marketeers' of oxygenated bottled water. Enjoy the quick read below from the Journal of the American Medical Association.

Please reprint this message for your Sales Team to have on hand when anyone asks about this 'puffery'.

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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Bottled Water - 11/12/2003 11:54:49 AM

Medical journal: Bottled water's added oxygen not healthier

SEATTLE — A study published in the *Journal of the American Medical Association* (JAMA) has found that each of the five brands of oxygenated water the researchers tested contained less oxygen in 12 ounces than is contained in a single human breath, *The Seattle Times* reported.

The study was conducted by researchers at Seattle's Virginia Mason Medical Center and at Duke University in North Carolina. Testing 11 adults, they also found "no significant differences in exercise results" based on whether the person drank oxygenated bottled water or ordinary tap water, the article stated.

Two Northwest producers of oxygenated water responded to the study in different ways. A spokeswoman for Talking Rain, of Preston, WA, said the company makes no health claims for its product, called airwater, while Aqua Rush, of Coeur d'Alene, ID, told the paper that its oxygen-infusing technique gives its product a higher level of "stable" oxygen than any others.

The researchers would not identify any of the five brands they tested, nor whether either of the Northwest brands was included in the study, according to the paper.

----- Original Message -----

From: [AQUATHIN TECH SUPPORT](#)

To: info@Aquathin.Com

Sent: Monday, June 17, 2002 10:08 AM

Subject: FORUM Q & A: WHAT'S UP WITH OXYGENATED WATER ?

Dear Aquathin Dealer OnLine;

One of the newest "fads" to hit the industry is bottled water with oxygen added called "oxygenated water" (Note I did not capitalize the O and W to lend credence and was even reluctant to use the " " !).

The providers make very nebulous general claims i.e. athletes perform better. Even if oxygenated water had any benefit, it would have dissipated by the time it reached you and / or the cap was opened similar to H₂S. And surely any attempt to make coffee, tea or to cook with would get rid of any excess gases.

One could never get any definitive result of oxygenated water because we are not built to get any definitive result through ingestion. The only way to get any definitive result is to sprout gills. And said conversely, if oxygenated water did increase the oxygen uptake, that must mean anyone who drinks 3-4 sodas a day would be suffocating from the CO₂ carbon dioxide bubbles !

The testimonials of enhanced well being promoted by the sellers of oxygenated water, are more likely due the benefits received from better hydration due to increased water consumption and / or substituting copious quantities of water for whatever one had been drinking i.e. sodas, coffee, alcohol.

SO WHAT'S THE REAL BENEFIT-----Increased public awareness for another alternative to tap water which grows the market. When the user realizes the contents of the bottle are not what they expected, the user does not go back to the tap....they will change bottled waters or hit the Yellow Pages for a water treatment professional.

Have a great week and warmest regards to all,

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115 Sent: Wednesday, December 08, 2004 6:03 PM
Subject: FORUM Q & A UPDATE: LEAD LEADS TO CATARACTS...

Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;

*July of this year, we emailed a Forum Q & A on Lead Poisoning (pasted at bottom for convenience and no Aquathin website). This new information below published in the Journal of the American Medical Association discusses that exposue to lead, which accumulates in our body, **increases the risk factor to develop cataracts 250%.***

*You **SEE** another reason why I say I LOVE MY AQUATHIN !*

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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REUTERS 
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A Link Between Lead Exposure and Cataracts?

Tue Dec 7, 2004 04:09 PM ET

CHICAGO (Reuters) - Lifetime exposure to lead from paint in older houses, drinking water pipes and other sources appears to increase men's risk of cataract development, researchers reported on Tuesday.

"This research suggests that reduction of lead exposure throughout a man's lifetime should help reduce his chances of developing cataracts and of requiring cataract surgery," said Debra Schaumberg of Brigham and Women's Hospital in Boston, lead author of the study.

"By preventing or delaying the onset of this condition, many instances of blindness worldwide could be prevented," she added.

Her study, published in this week's Journal of the American Medical Association, looked at data from 795 U.S. men age 60 and older for whom bone lead levels were measured between 1991 and 1999. The report did not speculate

about whether the findings would also apply to women.

In the United States about 20 percent of those in their 60s develop cataracts. The problem accounts for more than 40 percent of all cases of blindness worldwide, the report said.

Schaumberg and colleagues found that those with the highest levels of lead exposure had more than two-and-a-half times the risk of developing cataracts compared to those with the lowest levels.

"Lead exposure continues to pose a significant public health problem," she said.

"While lead exposure has been reduced over the past several decades, for example through the elimination of leaded gasoline, it has not been eliminated, and older Americans still have a significant amount of lead accumulated in their bodies," she added.

"Because prevention of age-related cataracts is an important worldwide public health goal, this study adds to the evidence that continued reduction of lead exposure should be a priority, she said.

In the United States where more than 80 percent of homes built before 1980 are believed contaminated by lead-based paint, leaded water pipes or both. Accumulated lead in the body has previously been linked to high blood pressure and mental decline.

Lead stored on bones migrates from the skeleton and circulates in blood plasma at low levels, the study said. While the way it may impact cataract formation is not clear, some previous research has suggested it could affect protein formation in the eye lens, the report added.

----- Original Message -----

From: [AQUATHIN TECH SUPPORT](mailto:info@Aquathin.Com)

To: info@Aquathin.Com

Sent: Tuesday, July 20, 2004 9:06 AM

Subject: FORUM Q & A: WHAT IS LEAD POISONING?

Dear Aquathin Dealer Online;

As a result of all the very recent and numerous articles raising awareness for the prevalence of lead and in higher concentrations than ever could have been imagined, we are providing the information below concerning lead poisoning from Aquathin Tech Bank. Please use this information along with previous Forum Q & A's concerning lead dated March 2, 2002 and July 15, 2003...and most importantly, feel free to share with your Customers who have concerns for this highly toxic heavy metal.

Lead Poisoning

Exposure to **lead in the home** occurs via two routes: the ingestion and/or inhalation of lead dust from paint and the consumption of water contaminated with lead.

Lead Paint

Lead paint is present on an estimated 30 to 40 million houses in the United States. Most

homes built before 1970 contain heavily leaded paint. Some homes built as recently as 1978 may also contain lead paint. This paint could be on window frames, walls, the outside of homes, or other surfaces. Lead comes from paint chips, plaster chips, and windowsills and other woodwork in old houses painted with lead-based paint. Old lead-based paint is the most significant source of lead exposure in the U.S. today. Harmful exposures to lead can be created when lead-based paint is improperly removed from surfaces by dry scraping, sanding, or open-flame burning.

Water

Lead-contaminated drinking water is most often a problem in homes that are either very old or very new. Up through the early 1900s, it was common practice to use lead pipes for interior plumbing. Also lead piping was often used for the service connections that join residences to public water supplies. Copper pipes have replaced lead pipes in most residential plumbing. However, the use of lead solder with copper pipes is widespread. Experts regard this lead solder as the major cause of lead contamination of household water in U.S. homes today. Lead concentrations in drinking water can also be elevated if your home has faucets or fittings of brass which contains some lead. The most common cause of lead getting into drinking water is corrosion, a reaction between the water and the lead pipes or lead solder. Lead can leach into the water from the joints or from lead pipes. [Dissolved oxygen](#), low [pH](#) (acidity), and low mineral content in water are common causes of corrosion. One factor that increases corrosion is the practice of grounding electrical equipment, such as telephones, to water pipes. Any electric current traveling through the ground wire will accelerate the corrosion of lead in the pipes. Most well and city water does not usually contain lead. Water can pick up lead inside the home from household plumbing that is made with lead materials. The only way to know if there is lead in drinking water is to have it tested. Contact the local health department or the water supplier to find out how to get the water tested.

New brass faucets and fittings can also leach lead, even though they are "lead-free". Scientific data indicate that the newer the home, the greater the risk of lead contamination. Lead concentrations decrease as a building ages. This is because, as time passes, mineral deposits form a coating on the inside of the pipes (if the water is not corrosive). This coating insulates the water from the solder. But, during the first five years, before the coating forms, water is in direct contact with the lead. More likely than not, water in buildings less than five years old has high concentrations of lead contamination.

Because of similar chemical properties, the body confuses lead with calcium when ingested

and incorporates it into the bone marrow, nerve tissue, brain, and kidneys. The body never decomposes the lead into another, more easily tolerated substance, because lead is an element.

In children, symptoms of lead poisoning can include headaches, irritability, abdominal pain, vomiting, anemia, weight loss, poor attention span, noticeable learning difficulty, slowed speech development, and hyperactivity. In adults, symptoms of lead poisoning can include pain, numbness or tingling of the extremities, muscular weakness, headache, abdominal pain, memory loss, unsteady gait, pale skin, weight loss, vomiting, irritability, and anemia. Although adults are susceptible to the toxic effects of lead, children are at high risk due to the nature of a child's activities that involve the introduction of non-food items into their bodies. Lead poisoning is one of the most common preventable public health problems related to children today.

At low concentration lead can adversely affect the brain, the central nervous system, blood cells, and kidneys. Blood lead concentrations as low as 10 ug/dl can impair mental and physical development. Lead at high concentrations (80 ug/dl or above) can cause convulsions, coma, and death. The effects of lead exposure on unborn and young children can be severe. The effects of lead poisoning in children include reading and learning disabilities, delays in physical and mental development, shortened attention span, speech and language handicaps, lowered IQ, neurological deficits, behavior problems, mental retardation, kidney disease, heart disease, stroke, and death. Children are more vulnerable to lead exposure than adults since lead is more easily absorbed into growing bodies, and the tissues of small children are more sensitive to the damaging effects of lead. Children may have higher exposures since they are more likely to get lead dust on their hands and then put their fingers or other lead-contaminated objects into their mouths. If you suspect lead poisoning, consult your physician immediately. ([reference](#))

For more information on lead poisoning visit the U.S. [EPA website](#) and the [CDCP website](#) .

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116 Sent: Tuesday, December 21, 2004 1:43 PM

Subject: FORUM Q & A: UPDATE ON ENDOCRINE DISRUPTORS -- MALE FISH GROWING EGGS

Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;

You have read numerous Splash NewsBulletins from us in the past dealing with malformed vertebrates due to hormonal disrupting pollutants. **This quick read below, by far, is the most intense....aaaaaaand it includes several of the issues we've pointed to in the past i.e. "everyone lives downstream from everyone else"...and "the water we were told was safe to drink 10 and 20 years ago was not safe by today's standards..." AAAAAAND as you will read, because there are no regs for these pollutants, water plants do not treat for them !!!**

I LOVE MY AQUATHIN !! 4 shopping days till Christmas...what an excellent and timely gift !!

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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Male Fish Growing Eggs Found in Potomac

Male Fish That Are Growing Eggs Found in the Potomac River, Suggesting Pollution Is Spreading

The Associated Press

Dec. 21, 2004 - Male fish that are growing eggs have been found in the Potomac River near Sharpsburg, a sign that a little-understood type of pollution is spreading downstream from West Virginia, a federal scientist says.

The so-called intersex abnormality may be caused by pollutants from sewage plants, feedlots and factories that can interfere with animals' hormone systems, The Washington Post reported Sunday.

Nine male smallmouth bass taken from the Potomac near Sharpsburg, about 60 miles upstream from Washington, were found to have developed eggs inside their sex organs, said Vicki S. Blazer, a scientist overseeing the research for the U.S. Geological Survey.

Authorities say the problems are likely related to a class of pollutants called endocrine disruptors, which short-circuit animals' natural systems of hormone chemical messages.

Officials are awaiting the results of water-quality testing that might point to a specific chemical behind the fish problems, Blazer said.

"It certainly indicates something's going on," Blazer said of the new findings in Maryland. "But what, we don't know."

The Potomac River is the main source of drinking water for the Washington metropolitan area and many upstream communities. It provides about 75 percent of the water supply to the 3.6 million residents of Washington and its Maryland and Virginia suburbs.

Blazer, who works at a federal fish lab in Leetown, W.Va., said she found the latest abnormalities last week while examining tissues from fish taken from the river near Sharpsburg.

The same symptoms had previously been found about 170 miles upstream, in the South Branch of the Potomac in Hardy County, W.Va. Blazer and other scientists discovered the problem there last year while investigating a rash of mass fish deaths.

U.S. Fish and Wildlife Service researchers are seeking money for a much larger study across the Potomac watershed.

Endocrine disruptors comprise a vast universe of pollutants capable of driving a hormone system haywire. Some are hormones themselves such as human estrogen from women taking birth-control pills or animal hormones washed downstream with manure that can pass through sewage plants untouched.

In Hardy County, officials were especially concerned about chicken waste from poultry farms.

Other endocrine disruptors are hormone "mimics" industrial chemicals or factory byproducts which confuse the body because they are chemically similar to natural hormones.

These pollutants are often found in very low concentrations, so until recently no equipment could detect them. But the first nationwide survey, in 1999 and 2000, found hormones in about 37 percent of streams tested.

Many scientists are concerned that people, as well as other animals, might be affected. "It's not good news that there's something that feminizes male fish in your water," said Gina Solomon, a senior scientist at the Natural Resources Defense Council.

But the Environmental Protection Agency has not set standards for many of these pollutants. Because of this, many drinking-water plants make no special efforts to remove them.

Authorities in West Virginia are investigating whether there is a link to higher rates of certain cancers in people there.

A recent survey of cancer in Hardy County, where some residents get drinking water from the South Branch, found rates of cancer of the liver, gallbladder, ovaries and uterus that were higher than the state average. All four cancers can in some cases grow faster in the presence of estrogen or chemicals that mimic it, cancer experts said.

"It is at least theoretically possible that those two concepts are worth thinking about side-by-side," said Alan Ducatman, chairman of the Department of Community Medicine at West Virginia University.

On the Net:

U.S. Geological Survey:

Information from: The Washington Post,

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117 Sent: Wednesday, December 22, 2004 1:07 PM
Subject: FORUM Q & A: ARSENIC UPDATE #5 -- ARSENIC INCREASES RISK OF LUNG CANCER

Dear Aquathin Dealer OnLine;

This is the first article of its time that I can recall, discussing how a known carcinogen acts as a catalyst or supercharger if you will, for another carcinogen. What is incredibly important here is because we are so exposed to environmental pollutants in our atmosphere, the chances for increased lethal effect can possibly come from other pollutants in our drinking water.

If ever there was a more serious reason for removal of water pollution, this Pandora's Box has to reign as king.

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Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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Industry Outlook - 12/22/2004 11:41:30 AM

Study: Arsenic-laden water increases lung cancer risk

CHICAGO — In a study published in this week's [*Journal of the American Medical Association*](#) (JAMA), researchers in Taiwan reported that high levels of arsenic-laden water increased the risk of lung cancer in combination with cigarette smoking, [Reuters](#) reported.

The study said people living on the Southwestern and Northeastern coasts of Taiwan had been exposed to arsenic in high concentrations in well water before a public tap water system was established, Reuters said.

Between 32 percent and 55 percent of lung cancer cases were estimated to be caused by the combined effect of cigarette smoking and ingested arsenic, depending on the levels of both exposures, the study said.

The study came from the College of Public Health, National Taiwan University, Taipei. It covered more than 10,000 people who were tracked for eight years, the article said.

To read the full story, click [here](#).



118 Sent: Wednesday, December 29, 2004 2:49 PM
Subject: FORUM Q & A: TRUE OR FALSE -- WATER SOFTENERS PUT WAY TOO MUCH SALT INTO THE ENVIRONMENT

Dear Aquathin Dealer OnLine;

As many of you know, a few cities in the U.S. have banned water softeners for fear of the negative effects from ever increasing sodium during regeneration processes. Several bans have been overturned. It has been my opinion all along that the WQA actually caused the issue because the WQA had never formally took a stance against the use of "timed" heads with pumped up salt settings, that were pushed by water treatment dealers wanting to sell a lot of salt...a grand disservice to the Customer by Aquathin standards.

Today's article and supportive EPA Paper below state that although facts are in the favour of the water industry, the story remains somewhat inconclusive. **The EPA Paper is a powerful tool you now have to show any city council who is considering softener review or any Customer concerned about softener effluent.**

aaaaaaaand, it is important to note that with hundreds of years of salting icy streets in Chicago, NYC, and the like, neither the TDS nor sodium levels in the Great Lakes, Hudson River, etc., have risen....and that's a heckofalot more salt and slug loading than their local population of softeners could ever put out.

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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Industry Outlook - 12/29/2004 12:35:38 PM

EPA: Home water softener impact 'often inconclusive'

WASHINGTON — Home water softeners can periodically generate backwash high in sodium and affect wastewater treatment processes, however, attempts to predict whether impacts will occur and to estimate their severity are difficult and often inconclusive, according to a US Environmental Protection Agency (EPA) [fact sheet](#).

As posted by the [Water Quality Association](#) (WQA) yesterday, the EPA's fact sheet explicitly states that studies are in the water industry's favor, and

it is recommended that water professionals use the fact sheet as a reference during inspections.

Specifically, studies noted in the EPA fact sheet conclude the following:

- High concentrations of calcium and manganese in the softener backwash water have no deleterious effect on the biological functions occurring in the septic tank and may, in some cases, be helpful;
- The additional volume of wastewater generated (typically about 50 gallons per recharge cycle) is added slowly to the wastewater stream and does not cause any hydraulic overload problems; and
- Soil structure in the soil absorption field is positively affected by the calcium and magnesium ions in water softener effluent.

Regarding the last conclusion, the influent, with its high concentration of sodium ions, is very different than the effluent, which has a high concentration of calcium and magnesium ions, the EPA reported.

According to the fact sheet, the potential for chemical clogging of clayey soil by sodium ions is reduced. The calcium and magnesium input may even help improve soil percolation.



U.S. Environmental Protection Agency

National Risk Management Research Laboratory

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EPA 625/R-00/008

Onsite Wastewater Treatment Systems Special Issues Fact Sheet 3

Water Softeners

Description

Home water softeners, which periodically generate a backwash that is high in sodium, magnesium, and calcium concentrations, can affect wastewater treatment processes and the composition and structure of the infiltration field biomat and the underlying soil. However, attempts to predict whether impacts will occur and to estimate their severity are difficult and often inconclusive.

Water softeners remove "hardness" (dissolved calcium and magnesium) through ion exchange processes. Incoming hard water passes through a tank of containing high-capacity ion exchange resin beads supersaturated with sodium. The calcium and magnesium ions in the water attach to the resin beads, replacing the sodium, which is released into the water. The softened water is then distributed for use throughout the house.

Over time, the ion exchange resin beads become saturated with calcium and magnesium ions. When this occurs, the tank must be recharged by flushing with a salt brine solution. Sodium ions reclaim their position on the resin beads, and the calcium and magnesium ions are released into the backwash water. The backwash water then exits the tank and is discharged to the wastewater treatment system. The number of times the tank is recharged and the amount of wastewater generated depends on a number of factors, including the hardness of the water, the amount of water used, the size of the water softener, and the capacity of the resins to remove calcium and magnesium.

The wastewater generated during the recharge phase of the water softening process mixes with other household wastewaters, enters the septic tank, and eventually moves to the soil adsorption field. Studies conducted by soil scientists at the University of Wisconsin and the National Sanitation Foundation conclude that the wastewater effluent generated from properly operating and maintained water softeners will not harm onsite systems that are designed, operated, and maintained appropriately. Specifically, the studies conclude the following:

- High concentrations of calcium and manganese in the softener backwash water have no deleterious effect on the biological functions occurring in the septic tank and may, in some cases, be helpful.
- The additional volume of wastewater generated (typically about 50 gallons per recharge cycle) is added slowly to the wastewater stream and does not cause any hydraulic overload problems.
- Soil structure in the soil absorption field is positively affected by the calcium and magnesium ions in water softener effluent (Corey et al., 1977).

Regarding the last conclusion, some people have the misconception that the salt brine that enters the ion exchange tank also exits the tank as wastewater. In fact, the influent with its high concentration of sodium ions is very different than the effluent, which has a high concentration of calcium and magnesium ions. Consequently, the potential for chemical clogging of clayey soil by sodium ions is reduced. The calcium and magnesium input may even help improve soil percolation.

Risk management issues

The human health impacts of ingesting softened water are increasingly discussed in addition to the traditional benefits of reduced use of surfactants and plumbing repair requirements. The choice of the homeowner to soften or not to soften will factor into all arguments. Also, the preceding descriptions are predicated on whole-house-supply softening. Today point-of-use devices designed for use with specific features in the house make the traditional advantages and disadvantages less clear.

References

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University of Wisconsin. 1978. *Management of Small Waste Flows*. EPA-600/2-78-173. U.S. Environmental Protection Agency, Cincinnati, OH.

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[Office of Research & Development](#) | [National Risk Management Research Laboratory](#)

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119 **Sent:** Wednesday, January 12, 2005 9:44 AM
Subject: FORUM Q & A: BFF-3 SERIES ???????????????????/

Dear Aquathin Dealer OnLine;

This Forum Q & A comes from my friend Ina Obasi, Son of Chief Obasi, and Authorized Aquathin Dealer in Nigeria. Ina has done a fine job with many commercial installations including several PPVM systems for Shell Nigeria. Ina also bottles "Quanta" by Aquathin...one of the largest and fully automated purified bottled water plants in the region.

Ina's issues deal with when to use the BFF-3 Multimedia units and what are the features and benefits of the HFD Synchromatic series vs. single tanked models.

ENJOY !

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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~~~~~  
Dear Ina;

Thank you for your email...and special thanks in advance for the forthcoming order. Responses inserted below at (aj-12-01-05).

Warmest regards,

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"Alfie"  
Alfred J. Lipshultz, President

----- Original Message -----

From: "Ina Obasi"

To: alfie

Sent: Wednesday, January 12, 2005 5:05 AM

Subject: RE: HFD Filters

> Dear Alfie,

> I am preparing another order for the HFD filters. Please clarify the following:

> 1.) Which of the systems, BFF-3-2850/4.5 or HFD-BFF-3/8.5 is best for the  
> sandbed filter or sediment filter.

(aj-12-01-05) Both do a fine job. However, biggest differences are the more bed depth the more efficient in filtration and allows for extended periods between backwash. Also, the HFD series operates 24/7 without interruption and backwashes with "filtered water". Single tanked / valved models would permit unfiltered water downstream if used during backwash phase. However, under System 6 & 7 style installations, we install "lock out" feature to prevent.

> My facility at Aba is Using BFF-3-2850/4.5 but the one you sent last for the

> same purpose was the HFD-BFF-3/8.5 as we had to block the hole for the salt tank to use this.

(aj-12-01-05) Yes, please recall that Aku made the decision to save a few bucks.

> 2.) the planner states that BFF -1 model is used when PH is below 6.8 and

> BFF-2 used when PH is 7.5 or higher. Which PH situation calls for the BFF-3 usage.

(aj-12-01-05) pH is not really a consideration for choosing BFF-3. Sediment is.

> 3.) Please clarify if we also need to order the media separate or the media comes along with the filters when ordered. (rock, sand, silica, Ag, carbon  
> etc).

(aj-12-01-05) All systems come with the media. Residential models are pre-loaded because they are still easy to maneuver. Commercial systems are shipped unloaded for ease of maneuvering.

Hey, this would make for a great Forum Q & A ! Thanks.

>

> Hope to get your feedback soon.

>

> Rgds

> Ina U. Obasi

> Executive Director,

> TwinSet Ind. Ltd

> Aba. Abia State.

> Nigeria.

**120 Sent:** Wednesday, January 26, 2005 12:43 PM  
**Subject:** FORUM Q & A: SOFTENER RESIN COMING FROM FAUCETS

Dear Aquathin Dealer OnLine;

Our response to one of our newest Dealers and Aquathin U. grad, Neele Johnston of Aquathin of Idaho, concerns his first installation of a Soft & Clean with softener resin flowing downstream. Turns out (A) and (C) were the cause...and all is well. Please review the quick read trouble shoot below.

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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----- Original Message -----

**Sent:** Friday, January 14, 2005 12:49 PM

**Subject:** Re: Installation issues

Dear Neele;

Thank you for your email. Regarding resin in the house; the control valve has a top basket and should prevent this. Resin in the house means:

- (A) Top basket not installed correctly.
- (B) Distributor tube not fully inserted into head, or side loading o-rings, or cracked from pressure against the head if not installed fully into the head.
- (C) Failure to backwash prior to commissioning. After installation, always put the system into Regeneration and advise the Customer not to use water for about 90 minutes. This permits the unit to purge air from the tank (burping it !) that could percolate resin. However, the top basket would catch it (note the top basket for larger commercial systems has very large openings and would still permit resin to pass vs. the very narrow slits in the residential basket).
- (D) Reversing flow i.e. out at in and in at out.
- (E) Drain line plugged or kinked.

Sounds like a good Forum Q & A !

Warmest regards,

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**P.S. When responding please continue 'REPLY' to include all previous correspondences on this subject.**

----- Original Message -----

**Sent:** Friday, January 14, 2005 12:40 PM

**Subject:** Installation issues

Dear Alfie,

*I have some installation questions. When we first installed the water softener and MegaChar, a water tap was opened to let the resins exit that came into the pipe system when we first put the conditioner into service. However, the tap used was the kitchen sink and was not the closest one to the source. Hence, all kinds of resins got into the system. Last Monday, we shut it down and bled all the pipes. This time we restarted it, opening a tap in a utility bathroom, closest to the water conditioner and filter. Still there are resins in the system. They are at every point, including toilets. This morning I removed faucet heads all over the house and red resins were all over. What did we do wrong?*

*Very best regards,*

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*Neele Johnston*

*Aquathin of Idaho*



121 Sent: Thursday, February 10, 2005 1:55 PM

Subject: FORUM Q & A: UPDATE #3 PERCHLORATE...FOUND IN MANY AREAS NOW

*Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;*

*Below you will read perchlorate [ refer back to second perchlorate update on June 11, 2004 ] is now found in many areas...and many of which were unsuspected.*

*The truly important point to this article is the always subsequent string of events I call "evolution of awareness" that tracks identically with all pollutants, and which goes like this -- First its found...then thought to be localized...then discovered in many other areas...then reported slightly insignificant health risks...then labeled carcinogen or genetic disruptor.*

*The choices are roll with the evolution...or own an Aquathin. I LOVE MY AQUATHIN !!*

*Warmest regards to all...as well, your comments are always welcome and very much appreciated.*

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Environment - 2/10/2005 11:27:34 AM

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## Report: Perchlorate detected in 26 states

DENVER — Yesterday, the [American Water Works Association](#) (AWWA) released a [study](#) revealing the presence of perchlorate in the drinking water of 26 states and Puerto Rico.

The study shows that perchlorate, a chemical compound commonly used for rocket fuel, was detected at levels below 12 micrograms per liter (ug/l).

According to an AWWA [news release](#), the US Environmental Protection Agency (EPA) is currently assessing the need for a drinking water standard for perchlorate.

"The AWWA occurrence study helps define the scope of perchlorate contamination and its possible effects on drinking water systems and

communities," AWWA Deputy Executive Director Tom Curtis said in the release. "As more sensitive analytical methods are developed, perchlorate detection is likely to increase."

The occurrence of perchlorate in drinking water was analyzed and geographically mapped by compiling data from existing databases, including a national EPA study and studies by the states of Arizona, California, Texas and Massachusetts, the release said.

Aside from rocket fuel, perchlorate is also used for munitions, fireworks and air-bag inflators, and has been found to occur naturally, the AWWA reported.

Other highlights from the study include:

- The majority of detections were not associated with EPA-identified releases of perchlorate.
- Perchlorate was detected in approximately 5 percent of the nation's large community water systems.
- The highest density of perchlorate detection was found in Southern California, west central Texas, along the East Coast between New Jersey and New York's Long Island, and in Massachusetts.



**122**    **Sent:** Wednesday, February 23, 2005 12:49 PM  
          **Subject:** FORUM Q & A: LOW SOURCE WATER PRESSURE AND THE 100+ RO SERIES

*Dear Aquathin Dealer Online;*

*This Forum Q & A concerns a low source water pressure for an Aquathin 1200+24K installation which is approximately 20 psi and flows through a softener prior to the 1200+24K. Please note that normally there is a 5-10 psi pressure drop through a softener and same for carbon filters. Hence the actual pressure to the 1200+24K might be only 10+psi...or lower if the softener is in backwash. When the 1200+24K kicks into flush, you are experiencing a pressure drop below 5 psi that causes the 1200+24K to shut down to protect the stainless steel pump from cavitation. This is a feature of an Aquathin.*

*Also, installing on a water line that has higher flow dedicated elsewhere can be an issue. For example, a 3/4" water line feeding staff bathrooms in a factory, that when employees go on break, all toilets are flushed approximately at the same time causing an immediate in-line water pressure drop resulting in the RO system to action its failsafe protection.*

*To prove how far the source pressure drops at the 1200+24K (and all 100+ Series Models), we've incorporated a Pressure Gage with a "Min" red pointer on the inlet of the 1200+24K sediment prefilter. The red pointer is set to the "backside" of the black pressure needle. When the black pressure needle drops, it pushes the red needle to the lowest position so you and your Customer can identify the low source pressure problem when it occurs.*

*We would respectfully recommend that you use a booster pump / repressurizer in front of the softener to achieve a minimum pressure of 65 psi (refer to schematic on PPVM catalogue sheet).*

*Warmest regards,*

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**P.S. When responding please continue 'REPLY' to include all previous correspondences on this subject.**



**123** Sent: Tuesday, March 01, 2005 5:57 PM

**Subject:** FORUM Q & A: WATER SOFTENER CONTROL VALVE NOT METERING DOWN...WHAT'S UP?

*Dear Aquathin Dealer OnLine;*

*The following inquiry from my friend and longtime Aquathin Dealer, Dale Miller, is not covered in the Fleck Manuel.*

*Enjoy !*

~~~~~  
Good Morning Alfie.

I am having a problem with a Fleck 5600 Economizer Softener Head.

The softener was installed 3 years ago.

The head is maintaining the proper time of day.

The valve completes the regen cycle properly when manually regenerated.

The valve **does not** automatically regenerate.

The valve's wheel which indicates the amount of water left before regeneration - **does not** move:

I checked the database but I did not see this issue addressed there.

Thank You,

Dale Miller
Health Net

Good Morning Dale;

Thank you for your email (rhymes!)

If the head is not metering down there are just a couple points to review:

- 1. The speedometer cable that leads from the back of the head to the meter may be loose from its connection either at the meter or internally within the head.*
- 2. The speedo cable is kinked preventing turning.*
- 3. The meter is filled with debris preventing the internal vane from spinning.*
- 4. The large dial on the front of the head was forced counterclockwise causing teeth to break on the gears.*
- 5. The unit was removed and reinstalled with the inlet outlet in reverse.*

Sounds like a great Forum Q&A !

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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124 Sent: Wednesday, March 02, 2005 1:01 PM
Subject: FORUM Q & A: UPDATE NITRATES

Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;

Aquathin has received an extraordinary amount of inquiries concerning "nitrates" in the past couple months. We've also supplied a nice amount of solutions !

I have pasted at bottom herewith, our original Forum Q & A Nitrates for your convenience; and just above that, you will find a Nitrate FAQ with information from Aquathin University. This FAQ is excellent to print out and provide your Customers concerned with nitrates.

RO by itself is not efficient for nitrates. Your patented RODI process is! (refer to Report Card and lab tests). Further, Aquathin deals with water treatment for farm animals and POE with the Aquathin SYN-N Synchronomatic Series Water Conditioner loaded with a nitrate specific resin.

I LOVE MY AQUATHIN !

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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FROM WATER & WASTE WATER DIGEST

Fact sheet: Nitrate in drinking water

This fact sheet from the Washington State Department of Health discusses nitrate as a drinking water contaminant - where it comes from, health effects, regulations and more.

What is nitrate?

Nitrate is a chemical found in most fertilizers, in manure and in the liquid waste discharged from septic tanks. Natural bacteria in soil can convert nitrogen into nitrate.

How can nitrate get into my well water?

Nitrate can be carried by rain or irrigation water down through the soil and into the groundwater. If your well draws water from this groundwater, your well water may contain nitrate.

Why is nitrate in drinking water a problem?

Nitrate can affect red blood cells and reduce their ability to carry oxygen to the body. In most adults and children these affected blood cells rapidly return back to normal. However the blood cells of infants can take much longer to return to normal. As a result, infants who are given water with high levels of nitrate (or foods made with nitrate contaminated water) may develop a serious health condition due to the lack of oxygen. This condition is called methemoglobinemia or "blue baby syndrome." Some scientists think that diarrhea can make this problem even worse.

How is nitrate in drinking water regulated?

The U.S. EPA has established a federal drinking water standard, called a Maximum Contaminant Level, of 10 milligrams per liter (mg/L), or 10 parts per million (ppm) for nitrate. Public water systems are required to sample for various contaminants, including nitrate, on a regular basis. There is no required sampling of private individual wells. However, private well owners are encouraged to test their well for nitrate on a regular basis.

Signs of "blue baby syndrome"

An infant with moderate to serious "blue baby syndrome" may have a brownish-blue color due to the lack of oxygen. This condition may be hard to detect in infants with dark skin. In mild to moderate cases babies may have the same symptoms as when they have a cold or another infection (fussy, tired, diarrhea or vomiting). While there is a simple blood test to see if an infant has "blue baby syndrome," doctors may not think to do this test for babies with mild to moderate symptoms.

What to do about "blue baby syndrome"

If your baby has a brownish-blue color, bring your baby to a hospital immediately. There is a medication (methylene blue) that will quickly return your baby's blood to normal.

Prevention of "blue baby syndrome"

The best way to prevent "blue baby syndrome" is to avoid giving your baby water that may be contaminated with nitrate. Infants under one year of age should not drink water exceeding the drinking water standard of 10 parts per million (ppm) of nitrate.

Boiling water will kill bacteria that are in well water, but it will not reduce the level of nitrate.

Nitrate in water will not have a long-lasting effect on your baby. If your baby does not have any of the symptoms of "blue baby syndrome" you do not need to bring your baby to the doctor.

Will breast-feeding give my infant "blue baby syndrome"?

Although nitrate has been found in breast milk, there are no confirmed reports of "blue baby syndrome" being caused by a nursing mother who consumed well water that contained nitrate.

Can nitrate affect adults?

Most older children and adults will not be affected because their red blood cells will be quickly converted back to normal. Some people have conditions that make them susceptible to having health problems from nitrate. This includes:

- Individuals who don't have enough stomach acids.
- Individuals with an inherited lack of the enzyme that converts affected red blood cells back to normal (methemoglobin reductase).

Some studies have found an increased risk of spontaneous abortion or certain birth defects if the mother drank water high in nitrate. Women who are pregnant or who are trying to become pregnant should not consume water that is high in nitrate.

How can I tell if my well water has nitrate?

Shallow wells, poorly sealed or constructed wells, and wells that draw from shallow aquifers are at the highest risk of having nitrate-contaminated water. The only way to know if your private well is contaminated with nitrate is to have it tested. Your county health department can give you information about where you can get your water tested. Nitrate tests usually cost \$25 to \$30 dollars. Nitrate levels can change over time so you should test your well yearly.

Manure and septic tank waste may also contain disease-causing microorganisms such as bacteria and viruses. It is a good idea to test your well for bacterial contamination (coliform bacteria test) when you test your well for nitrate.

Public water systems are tested routinely. Public water systems cannot have more than 10 parts per million (or milligrams per liter) of nitrate. Systems with this high a nitrate level are required to notify their customers.

----- Original Message -----

From: [AQUATHIN TECH SUPPORT](mailto:info@aquathin.com)

To: info@aquathin.com

Sent: Saturday, February 09, 2002 3:24 PM

Subject: FORUM Q & A: NITRATES

Dear Aquathin Dealer On-Line;

We receive numerous requests for nitrate concerns. Below you will read a timely article about nitrates, the negative health affects and source. Additionally nitrates reek havoc with farm animals i.e. cows will not calve and milk reduction. State legal MCL is 10 ppm.

RO by itself is not efficient for nitrates. Your patented RODI process is! (refer to Report Card and lab tests). Further, Aquathin deals with water treatment for farm animals and POE with the Aquathin SYN-N Synchromatic Series Water Conditioner loaded with a nitrate specific resin.

Warmest regards,

Alfie

U.S., China share nitrate problem

WASHINGTON -- The United States and the People's Republic of China share a common problem — elevated nitrate concentrations in water supplies used for drinking water, according to the US Geological Survey (USGS).

While elevated concentrations of nitrate in water have been known to cause illness in babies, there is also indirect evidence that they can cause cancer, officials said. Because of the increased use of fertilizers worldwide since the 1950s, drinking water derived from aquifers in both countries have seen increased levels of nitrate, a plant nutrient regulated by the Safe Drinking Water Act in the United States and by the Ministry of Water Resources in China, according to the report.

On average, similar levels of nitrate were found in both countries in areas where heavy agricultural use of nitrate fertilizers is common, said the report's author, Joseph Domagalski, a USGS hydrologist. However, the highest concentrations were measured in China.

The Ministry of Water Resources and the USGS agreed to study the groundwater quality of a heavily used agricultural region in northern Hebei Province, located southeast of the city of Beijing, and to compare the quality of that water with similar areas in the U.S. The areas studied in the U.S. included the Central Valley of California and the Delmarva Peninsula of Maryland, Virginia, and Delaware.

Despite the fact that the agricultural land in China has been farmed for a much longer time than US land, the patterns of nitrate contamination are similar, said Domagalski. The reason for this similarity includes the increasing worldwide availability of nitrogen fertilizer since the 1950s as part of the Green Revolution to increase agricultural production worldwide. Heavier use of nitrate fertilizer in China, and well construction techniques that allow for easy infiltration of rainwater or irrigation water, account for some of the higher concentrations there.

Pesticides were not detected in any of the wells sampled in China. Although it was assumed that similar types of pesticides would be used in both countries, the lower use of these types of chemicals in China probably accounts for the lack of detections in water, the report said.

125 Sent: Wednesday, April 06, 2005 12:30 PM

Subject: FORUM Q & A: UPDATE #4 PERCHLORATE...THE GENETIC DISRUPTOR

Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;

On February 10, 2005, I sent you Forum Q & A Update #3 (pasted at bottom herewith) with the following personal remarks from experience:

[The truly important point to this article is the always subsequent string of events I call "evolution of awareness" that tracks identically with all pollutants, and which goes like this -- First its found...then thought to be localized...then discovered in many other areas...then reported slightly insignificant health risks...then labeled carcinogen or genetic disruptor.]

Up till now all articles I've sent to you to update your knowledge, are easy reads. However, I am choosing to forward the article below which is a scientific study published this month, which brings the above referenced red paragraph into reality. Perchlorates are bad news.

One can wait for the evolution of awareness, or utilize common sense...that given the choice to consume perchlorates or not...we choose not. I LOVE MY AQUATHIN !!!

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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Alfred J. Lipshultz, President

P.S. "Splash NewsBulletins", "Forum Q & A", "Allergic Reaction", Biz Bank, Tech Bank and Quote Bank... ARE ALL FREE services to all Authorized Aquathin Dealers and their clients to keep you abreast of technology updates and industry news.

Research Article

Effects of Ammonium Perchlorate on Thyroid Function in Developing Fathead Minnows, *Pimephales promelas*

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- [Materials and Methods](#)
- [Results](#)
- [Discussion](#)
- [Conclusions](#)

Abstract

Perchlorate is a known environmental contaminant, largely due to widespread military use as a propellant. Perchlorate acts pharmacologically as a competitive inhibitor of thyroidal iodide uptake in mammals, but the impacts of perchlorate contamination in aquatic ecosystems and, in particular, the effects on fish are unclear. Our studies aimed to investigate the effects of concentrations of ammonium perchlorate that can occur in the environment (1, 10, and 100 mg/L) on the development of fathead minnows, *Pimephales promelas*. For these studies, exposures started with embryos of < 24-hr postfertilization and were terminated after 28 days. Serial sectioning of thyroid follicles showed thyroid hyperplasia with increased follicular epithelial cell height and reduced colloid in all groups of fish that had been exposed to perchlorate for 28 days, compared with control fish. Whole-body thyroxine (T₄) content (a measure of total circulating T₄) in fish exposed to 100 mg/L perchlorate was elevated compared with the T₄ content of control fish, but 3,5,3'-triiodothyronine (T₃) content was not significantly affected in any exposure group. Despite the apparent regulation of T₃, after 28 days of exposure to ammonium perchlorate, fish exposed to the two higher levels (10 and 100 mg/L) were developmentally retarded, with a lack of scales and poor pigmentation, and significantly lower wet weight and standard length than were control fish. Our study indicates that environmental levels of ammonium perchlorate affect thyroid function in fish and that in the early life stages these effects may be associated with developmental retardation. *Key words:* development, endocrine disruption, fathead minnow, perchlorate, thyroid, thyroxine, triiodothyronine. *Environ Health Perspect* 113:396-401 (2005). doi:10.1289/ehp.7333 available via <http://dx.doi.org/> [Online 10 January 2005]

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We thank M. Field and M. Canty at Brixham Environmental Laboratory and S. Frankling at Exeter

University for technical help.

This work was supported by AstraZenca and a Natural Environment Research Council Studentship (NER/S/C/1999/0453) awarded to H.M.C.

T.H.H. is employed by AstraZeneca, and H.M.C. and D.B.P. were employed by AstraZeneca during this study. J.A.B. declares she has no competing financial interests.

Received 17 June 2003; accepted 10 January 2005.

Introduction

In recent years there has been increasing concern about the presence of perchlorate in ground and surface waters and the percolation of perchlorate into drinking waters [Urbansky 1998; U.S. Environmental Protection Agency (EPA) 2002]. Ground and surface waters in several U.S. states have shown measurable concentrations of perchlorate at 8 $\mu\text{g/L}$ to 3.7 g/L (Urbansky 1998). The major source of ground and surface water contamination is ammonium perchlorate, the primary ingredient of the solid propellant in rockets and missiles (Logan 2001; U.S. EPA 2002). Perchlorate salts are also used in smaller amounts as components of air bag inflators, road flares, and fireworks; in electroplating and in tanning and finishing leathers; and as mordants for fabrics and in producing paints and enamels (Logan 2001; U.S. EPA 2002). Discharge from rocket fuel manufacturing plants, demilitarization of weapons, and the washing out and refueling of rockets are responsible for most of the ammonium perchlorate released into the environment (Urbansky 1998; U.S. EPA 2002). Indeed, at the Longhorn Army Ammunition Plant in Texas (USA), perchlorate has been measured at 30-31 mg/L in a water treatment holding pond (Smith et al. 2001).

Perchlorate has several chemical properties that make environmental contamination difficult to resolve and decontamination difficult to achieve (Logan 2001). The perchlorate anion is persistent because of its tetrahedral structure (Wolff 1998). Perchlorate salts completely ionize in solution, and the perchlorate anion is highly mobile (Logan 2001). As a result of these properties, groundwater contamination inevitably presents a risk to drinking water quality, and perchlorate has been detected in many drinking water supplies. In Nevada, 4-24 $\mu\text{g/L}$ was detected in drinking water (Xiao et al. 2001), and in California a number of drinking water wells showed peaks of 4-820 $\mu\text{g/L}$ (California Department of Health Services 2004). As a result, the U.S. EPA has estimated that perchlorate affects the quality of drinking water for 15 million people in the United States (Logan 2001).

Based on U.S. EPA guidance, and assessment of toxicity data, several U.S. states have set advisory levels for perchlorate in drinking water that vary between 1 and 18 $\mu\text{g/L}$. The most recent reappraisal in California set a public health goal for drinking water (maximum contaminant level) of 6 $\mu\text{g/L}$ (Office of Environmental Health Hazard Assessment 2004).

There is a long history of clinical use of perchlorate as a pharmacologic inhibitor of thyroid hormone synthesis (Hobson 1961; Wolff 1998). Thyroid gland follicles trap iodide required for the iodination of tyrosine molecules. The resulting iodothyronines are then reversibly combined with the storage protein, thyroglobulin, within the lumen of each of the thyroid follicles (Leatherland 1988, 1993). Perchlorate competitively inhibits iodide uptake by the sodium/iodide symporter at the basolateral membrane of the follicles (Capen 1997; Wolff 1998) and induces iodide efflux from the follicles by an as yet unexplained mechanism (Wolff 1998). These pharmacologic actions might be predicted to

reduce circulating levels of thyroid hormones, and several studies in mammals given drinking water containing perchlorate at target doses of 0.01-100 mg/kg/day support this idea (Siglin et al. 2000; York et al. 2001a). However, this has not been observed in all studies (York et al. 2001b).

Despite the known action of perchlorate on iodide uptake by the mammalian thyroid gland (Capen 1997; Wolff 1998) and evidence of perchlorate occurrence in aquatic ecosystems, remarkably few studies have investigated the effects of perchlorate on thyroid function of aquatic vertebrates. In the amphibian *Xenopus laevis*, 5 µg/L perchlorate inhibited forelimb emergence during thyroid-dependent metamorphosis (Goleman et al. 2002), and at 18 µg/L significantly fewer *Xenopus* completed tail resorption. Metamorphosis of larval sea lamprey *Petromyzon marinus* (an agnathan fish) is also affected by exposure to perchlorate (Manzon and Youson 1997, 2002; Manzon et al. 2001), but only two studies have investigated the impact of perchlorate on teleost fish that form key components of freshwater ecosystems. Potassium perchlorate (500 mg/L) was found to inhibit fin formation and skin pigment differentiation in early life stages of zebrafish, *Danio rerio* (Brown 1997), and in a study of adult zebrafish a high level of ammonium perchlorate (18 mg/L) resulted in thyroid hypertrophy, hyperplasia, and colloid depletion after 8 weeks of exposure (Patino et al. 2003). However, neither of these studies determined the changes in circulating thyroid hormones or whole-body thyroid hormone content. Our studies aimed to gain an integrated picture of the impacts of environmentally relevant concentrations of ammonium perchlorate on the thyroid axis of teleost fish by measuring whole-body thyroxine (T₄) and 3,5,3'-triiodothyronine (T₃) content, and examination of thyroid structure, together with investigation of changes in development and growth. For our studies we employed the fathead minnow as a model cyprinid species. Although this species has been widely used in ecotoxicologic studies, knowledge of its thyroid function and the normal levels and fluctuations of T₄ and T₃ has only recently been obtained (Crane 2003; Crane et al. 2004). These data have shown a surge in thyroid hormones during the early stages of development and indicate that exposure to thyroid disruptors may have greatest effect during early development. Therefore, in investigating the effects of perchlorate, we focused on the first 28 days of development from < 24 hr postfertilization through the transition to juvenile fish.

Materials and Methods

Semistatic exposure system. In a 28-day semistatic study, fathead minnow newly fertilized eggs were exposed to ammonium perchlorate in triplicate at 0 (control), 1, 10, and 100 mg/L (equivalent to 0.85, 8.47, and 84.7 mg/L perchlorate anion) with 0.15, 1.53, and 15.3 mg/L NH₄⁺ in the experimental systems. The presence of added NH₄⁺ would have resulted in 0.5 µg/L, 5.1 µg/L, and 51 µg/L un-ionized ammonia in the three experimental systems, but these levels of ammonia are well below the chronic-effects threshold concentration for un-ionized ammonia in fathead minnow larvae and adults (270 µg/L) based on a 2-year full-life cycle assessment of survival, growth, and reproductive success (Thurston et al. 1986).

From study day 0 to day 13, groups of fertilized eggs (*n* = 60) were exposed to perchlorate in 2-L Pyrex glass beakers (working volume, 1 L). Most embryos hatched on study day 5. On posthatch day 8 (study day 13), fish were transferred to 3-L Pyrex glass beakers (working volume, 2 L). Finally, on posthatch day 15 (study day 20) fish were transferred to 12-L glass tanks (working volume, 3 L) for the remainder of the study.

Preparation of stock concentrate and test solutions. One day before the start of the study, ammonium perchlorate stock concentrate (50 g/L) was made up in dechlorinated local tap water (filtered to 10 µm, maintained at 25 ± 2°C). The stock was renewed at 11-day intervals. Typical water

quality parameters were hardness, 44.7-49.3 mg/L; free chlorine, < 2.0 µg/L; calcium, 14.1 mg/L; sodium, 28.6 mg/L; potassium, 1.43 mg/L; aluminum, 4.73 µg/L; iron, < 3.0 µg/L; lead, < 2.0 µg/L. Test solutions (nominal concentrations of ammonium perchlorate, 0, 1, 10, and 100 mg/L) were made from the stock concentrate by dilution in dechlorinated water. Test and control solutions were renewed on study day 5 (principal hatch day) and then three times per week thereafter.

Embryo selection, maintenance, and exposure. On day 0, fathead minnow embryos ($n = 240$) at blastula and morula developmental stages were gathered from mating tiles in the husbandry unit at Brixham Environmental Laboratory. Healthy embryos were selected, in batches of five, under a dissection microscope and randomly assigned to incubation cups, until each contained 10 embryos. Incubation cups were hung on oscillating incubation units over the fish tanks, maintaining the embryos constantly moving up and down through the test water at 2 cycles/min. There were two egg cups per tank, each containing a total of 10 embryos (20 embryos per tank), and a total of 60 embryos per exposure concentration, in triplicate. Embryos were inspected on a daily basis, and dead ones were removed. Most of the larvae hatched on study day 5 and were transferred to new test solution.

Maintenance of fry. From posthatch day 0 to day 6, larvae were fed a suspension of rotifers (3,000 rotifers/mL; 2 mL three times per day on Monday-Friday and twice per day on weekends). On posthatch day 7, larvae were fed *Artemia nauplii* as well as rotifers. During posthatch days 8-15, fry were fed *Artemia* only, three times per day, and then from posthatch day 16 to the end of the study fry were fed *Artemia* twice per day and ground pellets (Ecostart 17; Biomar, Grangemouth, Scotland) once per day.

Sampling regime. On study day 28, fish were sacrificed between 06:00 and 10:00 hr by immersion in a lethal dose of neutrally buffered ethyl 3-amino-benzoate methane sulfonate (MS222). Each fish was measured using digital calipers to determine standard length, weighed, and then snap frozen on dry ice. >From each exposure concentration, 20 fish were sampled for whole-body thyroid hormone analyses, and a further 10 fish in each exposure group were fixed by immersion in 10% phosphate-buffered formalin for histologic examination of thyroid follicles, taking fish with an even distribution between the triplicate tanks. Fish for thyroid hormone assays were held at -80°C until analysis.

Histology. Whole fish ($n = 5$) fixed in formalin were decalcified for 14 days in 5% formic acid in 5% formaldehyde. Fish were wax embedded and serially sectioned (6 µm) through all the thyroid follicles. Each follicle in each fish (5-13 follicles/fish) was traced through its entirety, and epithelial cell height was measured at the largest point.

Thyroid hormone extractions. Thyroid hormones were extracted from fathead minnow larvae based on the technique described by Greenblatt et al. (1989). Larvae were placed in Teflon tubes on ice, and 2 mL 95% ethanol containing 1 mM 6-*N*-propyl-2-thiouracil (PTU) was added. Samples were homogenized (Ultra Turax T25; Janke and Kunkel, Staufen, Germany) and sonicated for 20 sec (Vibra-Cell, 50% output; Sonics and Materials, Meryin/Satigny, Switzerland). A further 2 mL of 95% ethanol with 1 mM PTU was added, and samples were vortexed. Samples were centrifuged for 10 min (10,000g, 4°C), the supernatant was decanted into clean Teflon tubes, and 2 mL 95% ethanol containing PTU was added to the pellets. Tubes were vortexed vigorously and recentrifuged for 10 min (10,000g, 4°C). Supernatants were pooled and evaporated to dryness under nitrogen, and desiccated samples were resuspended in 0.25 mL barbital buffer containing 2.5 mg/mL anilino naphthalene sulfonic acid (to disrupt the coupling between thyroid hormones and serum proteins, including lipoproteins), 0.25 mL ethanol, and 1 mL chloroform. Tubes were vigorously vortexed and then centrifuged for 10 min (1,500g, 4°C), producing two phases. The top ethanolic layer was

removed using a glass pipette for radioimmunoassay (RIA) of thyroid hormones. The recovery of thyroid hormones was determined by addition of radioiodinated T_4 or T_3 after homogenization of whole larvae ($n = 5$). The recovery of $59.5 \pm 3.25\%$ T_4 and $63.9 \pm 3.27\%$ T_3 was comparable with those recoveries reported for larvae of other fish species (Greenblatt et al. 1989).

Radioimmunoassay of T_3 and T_4 . The RIAs used in these studies were developed and validated for use with fathead minnows (Crane 2003). For these assays, thyroid hormone standards (0.22-160 ng/mL T_4 ; 0.06-10 ng/mL T_3) were prepared in barbital buffer. Lyophilized polyclonal anti- T_3 and anti- T_4 , raised in sheep (Diagnostics, Edinburgh, Scotland), were diluted in barbital buffer (1:7,000 for anti- T_4 , 1: 10,000 for anti- T_3). Radioiodinated T_3 (I^{125} - T_3) and T_4 (I^{125} - T_4 ; specific activities, 1,080-1,320 μ Ci/ μ g; New England Nuclear, Boston, MA, USA) were used at approximately 5,000 counts per minute (cpm) per tube for I^{125} - T_3 and 6,500 cpm per tube for I^{125} - T_4 .

Extracted samples or standard solutions (30 μ L) were incubated at 4°C overnight (in triplicate) with 100 μ L antiserum and 100 μ L radioiodinated solution, with additional "total counts" and "blank" tubes. The next morning, free and bound hormones were separated by addition of 100 μ L Sac-Cel (Immunodiagnostic Systems Limited, Tyne and Wear, UK) and a solution of cellulose-coupled antibodies (anti-sheep/goat); tubes were centrifuged, and the pellet of bound radiolabeled hormone was counted (Cobra gamma counter; Packard, Boston, MA, USA). Thyroid hormone levels were estimated using RIA software (RIASMART; Packard).

The thyroid hormone RIAs were validated for the estimation of thyroid hormones extracted from larvae, by running serial dilutions of an extracted pool of larvae in both T_3 and T_4 RIAs. These assays showed parallelism of larval extracts with the two standard curves (Figure 1). The cross-reaction of anti- T_3 and anti- T_4 with thyroid hormone metabolites [reverse triiodothyronine (rT_3), diiodothyronine, monoiodotyrosine, and tyrosine] was determined by running serial dilutions in the two thyroid hormone RIAs. Anti- T_4 showed 1.24% cross-reaction with T_3 and 2.38% cross-reaction with rT_3 . Anti- T_3 showed 5% cross-reaction with T_4 , 0.02% cross-reaction with rT_3 , and 3.4% cross-reaction with diiodothyronine. Other metabolites produced no displacement in the assay and thus exhibited negligible cross-reaction. The minimum detectable level of thyroid hormones, estimated as the mean plus two standard deviations of zero standards ($n = 18$ for T_4 , $n = 9$ for T_3) was 2.04 pg/tube for T_3 and 8.16 pg/tube for T_4 , which equates to whole-body contents of approximately 0.35 pg/mg T_3 and 1.41 pg/mg T_4 . All RIA measurements were acquired in a single T_3 assay and a single T_4 assay. Intra-assay variation for the T_3 RIA was 9.68% ($n = 12$), and for the T_4 RIA was 5.33% ($n = 15$).

Statistical analysis. All data shown are mean \pm SEM. Percentage survival and percentage hatch data were arcsine square root transformed before statistical analyses with modification where $n = 0$ or 1, as detailed by the U.S. EPA (1994), and analyzed by one-way analysis of variance (ANOVA) with post hoc Tukey honestly significantly different (Tukey HSD) tests. Wet weight, length, thyroid hormone content (adjusted for extraction efficiency), and follicular cell heights were analyzed using Kruskal-Wallis one-way ANOVA on ranks with Dunn's test for multiple comparisons.

Results

Hatch and survival. All test vessels showed hatching of at least 90% of the embryos (control, $98.3 \pm 1.67\%$; ammonium perchlorate at 1 mg/L, $96.7 \pm 1.67\%$; 10 mg/L, $98.3 \pm 1.67\%$; 100 mg/L, $93.3 \pm 1.67\%$). Thereafter, percentage survival was unaffected by exposure to ammonium perchlorate (control, $79.7 \pm 10.3\%$; ammonium perchlorate at 1 mg/L, $70.3 \pm 7.15\%$; 10 mg/L, $74.7 \pm 11.30\%$; 100

mg/L, $82.0 \pm 9.40\%$).

Development and growth. After 28 days (posthatch day 23), fish exposed to 10 mg/L and 100 mg/L ammonium perchlorate were visibly smaller than fish exposed to 1 mg/L ammonium perchlorate or controls. Wet weight ($p < 0.05$; Figure 2A) and standard length ($p < 0.05$; Figure 2B) were significantly lower in fish exposed to 10 mg/L and 100 mg/L ammonium perchlorate compared with fish exposed to 1 mg/L perchlorate and controls.

Perchlorate exposure at the two higher concentrations resulted in delayed development. On study day 28, fish exposed to 10 and 100 mg/L had minimal appearance of scales, and the gut was still visible through the sides of the fish. In contrast, control fish had developed scales and pigmentation such that their viscera were no longer visible externally.

Histology. Fish exposed to all ammonium perchlorate concentrations exhibited significantly greater thyroid follicular epithelial cell height than did control fish ($p < 0.05$; Figure 3). Control fish had cuboidal follicular epithelial cells (Figure 4A), and the central colloid was full or showed only slight vacuolation. Individual fish exposed to 1 mg/L ammonium perchlorate showed a range of states of follicular colloid, from full colloid to visible vacuolation of the lightly stained central colloid (Figure 4B). In fish exposed to 10 mg/L, all follicles had more columnar epithelial cells (Figures 3 and 4C) and reduced follicular colloid (Figure 4C). Fish exposed to 100 mg/L ammonium perchlorate showed greatly enlarged epithelial cells (Figures 3 and 4D) and reduction or apparent absence of colloid (Figure 4D).

Whole-body thyroid hormone content. Whole-body T_4 was significantly higher in fish exposed to 100 mg/L ammonium perchlorate than in either fish exposed to 1 mg/L or control fish ($p < 0.05$; Figure 5A). In contrast, there was no significant difference between the whole-body T_3 content of control fish and that of any group of fish exposed to ammonium perchlorate (Figure 5B). In line with these findings, thyroid hormone ratios ($T_3:T_4$) were significantly decreased in fish exposed to 100 mg/L perchlorate compared with control fish ($p < 0.05$; Figure 5C).

Discussion

Exposure of fathead minnow embryos to ammonium perchlorate had no significant effect on their hatching, in agreement with a similar lack of effect of ammonium perchlorate on hatching by the amphibian *Xenopus laevis* at concentrations of $< 1,000$ mg/L (Goleman et al. 2002). Thereafter, however, exposure to ammonium perchlorate resulted in developmental retardation, both in *X.laevis*, where a reduced snout to vent length was observed after 16 days exposure of larvae to 425 mg/L ammonium perchlorate (Goleman et al. 2002), and in the present studies of fathead minnows exposed to 10 and 100 mg/L ammonium perchlorate.

The transition from larvae to juvenile fish in cyprinids such as the zebrafish and fathead minnow is characterized by the formation of scales, alongside other developmental changes (Brown 1997). In the present studies, development of scales and pigmentation was delayed in fathead minnows exposed to 10 mg/L and 100 mg/L ammonium perchlorate, indicating that the larval to juvenile transition in these fish had not been completed within the 28-day study period, whereas control fish successfully completed this transition. Impeded development and growth of fathead minnows held in perchlorate solutions was also indicated by the significantly lower wet weight and body length of fish exposed for 28 days to 10 mg/L and 100 mg/L ammonium perchlorate.

The reduced growth and inhibited development of fathead minnows exposed to the two higher concentrations of perchlorate is highly likely to reflect the cumulative impacts of ammonium perchlorate on thyroid status over the time course of the 28-day period of exposure, and further studies are now needed to define the effects of perchlorate on growth and development at earlier time points as well as their longer-term implications. Thyroid hormones are well known to play an important role in larval metamorphosis in flatfish (de Jesus et al. 1993; Inui et al. 1995) and in other species, such as the grouper, that undergo similar dramatic morphologic changes during metamorphosis from planktonic larvae to bottom dwellers (Trijuno et al. 2002), but the specific roles of thyroid hormones in regulating developmental processes in other teleostan fishes are less well defined. Our studies of fathead minnows have shown a peak in both T_4 and T_3 at 9 and 16 days posthatch, respectively (Crane 2003; Crane et al. 2004), suggesting roles in regulating particular developmental processes at this time, such as cartilage and gut formation (Liu and Chan 2002). Furthermore, thyroid hormones have been implicated in regulating the growth of both larval and adult fish, acting either directly or indirectly, via stimulation of growth hormone or insulin-like growth factors (Boeuf et al. 1989; Deane et al. 2003; Ebbesson et al. 1998; Marti-Palanca and Perez-Sanchez 1994; Perez-Sanchez and Le Bail 1999; Woo et al. 1991).

Pharmacologic inhibition of thyroidal uptake of iodide by perchlorate (Capen 1997; Wolff 1998) has been associated with reduced circulating levels of thyroid hormones in studies of mammals and birds given ammonium perchlorate in drinking water (McNabb et al. 2004; Siglin et al. 2000; York et al. 2001a, 2004). Similarly, low circulating concentrations of T_4 and T_3 have been reported in fish exposed to potassium perchlorate at 100-500 mg/L (Manzon and Youson 1997; Manzon et al. 1998). However, in our studies, despite the observed effects of ammonium perchlorate on growth and development of fathead minnows achieved over the 28-day experiment, there was no evidence of a significant depression in whole-body thyroid hormones after this period of exposure.

Thyroid function involves a series of sequential steps, beginning with the acquisition of iodide. Fish have a well-developed capacity to take up iodide from the environmental medium across their gills and, unlike mammals, do not have to rely on the dietary supply (Eales and Brown 1993). As a result, there is little evidence of natural thyroid deficiencies. Nevertheless, it is possible that the changing supply of dietary iodide in our studies may have had significance when set against the perchlorate inhibition of iodide uptake. In our studies, the developing fathead minnows were initially fed on rotifers and later weaned onto brine shrimp hatched in saline and a resultant increase in dietary iodide could have contributed to an elevated iodide:perchlorate ratio, aiding in the regulation of whole-body T_4 despite perchlorate exposure.

A further major influence on circulating thyroid hormones during our study would have been the natural regulatory systems in fish that normally achieve stable circulating levels. In fish, circulating T_3 is almost exclusively determined by peripheral deiodination (Eales and Brown 1993; Van Putte et al. 2001), whereas T_4 levels are self-regulating via the pituitary-thyroid axis. T_4 plays a major role in regulating pituitary release of thyroid-stimulating hormone (TSH), whereas in fish, in contrast to the situation in mammals, T_3 has been found to exert no significant feedback regulation on TSH release (Eales and Brown 1993). Thus, the pituitary-thyroid axis responds to increases or decreases in plasma T_4 concentrations, initiating compensatory changes in the thyroid activity and potential restoration of the T_4 level. Therefore, the effects of perchlorate on the iodide uptake of thyroidal tissue in fathead minnows would be predicted to initially depress circulating levels of T_4 resulting in stimulation of the pituitary release of TSH and activation of thyroid tissue to attempt to regulate thyroid hormone levels. Despite the apparent lack of a depression in either T_4 or T_3 content after 28 days of exposure to perchlorate, our histologic results showed a marked hypertrophy of follicular epithelial

cells. Therefore, the observed thyroid hyperplasia after 28 days of exposure to perchlorate is very likely to have resulted from a hypothyroidism that occurred during the 28-day study period and hence a reduced negative feedback on the pituitary, stimulating release of TSH. Similar thyroid hyperplasia has been observed after treatment of fish with goitrogens such as thiourea and thiouracil that inhibit coupling and formation of iodotyrosines in the thyroid. These studies have, furthermore, shown dose-dependent effects with maintenance of circulating T_4 at low levels of goitrogen but depressed circulating T_4 , despite a more pronounced increase in epithelial cell height of thyroid tissue at higher doses (Eales and Brown 1993).

Thyroid gland hyperplasia during prolonged perchlorate exposure has also been reported in the amphibian *Bufo arenarum* exposed to potassium perchlorate at 340 mg/L for 5 months (Miranda et al. 1996). Our studies provide evidence of thyroid hyperplasia in fathead minnows at all concentrations of perchlorate investigated, and over a relatively short time frame. In fathead minnows, a 1-month period of exposure to as little as 1 mg/L initiated a significant increase in epithelial cell height. Exposure to 10 mg/L ammonium perchlorate increased the normally cuboidal epithelium with epithelial cell heights of $4 \pm 0.27 \mu\text{m}$ to a columnar epithelium with cell height of $7.6 \pm 0.35 \mu\text{m}$. In contrast, *B. arenarum* exposed for 5 months to 340 mg/L potassium perchlorate showed a more pronounced stimulation of thyroid hypertrophy with epithelial cell height increased from 7 to 23 μm .

Despite the histologic evidence of hypothyroidism in all perchlorate-exposed fathead minnows, there was no evidence of a sustained depression in whole-body content of thyroid hormones, and by the end of the 28 days of exposure to 100 mg/L ammonium perchlorate, T_4 was significantly elevated compared with that of the control fathead minnows.

The stimulation of the thyroid follicles by increased TSH (Eales and Brown 1993) may have subsequently compensated for the perchlorate inhibition of iodide uptake, restoring (1 or 10 mg/L ammonium perchlorate) or even elevating T_4 (100 mg/L ammonium perchlorate). This regulation may have been aided by increased iodide gained from the diet of brine shrimp and a reduced perchlorate:iodide ratio. An increased release of stored thyroid hormone from the thyroid follicles (again stimulated by TSH) is also a possible contributory factor. Further studies using pronase digestions of thyroidal tissues could provide information of hormone stores bound to thyroglobulin (Kowalczyk and Sotowska-Brochocka 2000; Plohman et al. 2002) and the changes during perchlorate exposure. Our histologic studies showed a marked reduction in colloid within the follicles after 28 days of exposure to perchlorate, and in the longer term a more persistent depression in T_4 may therefore occur.

Although our studies indicated elevated whole-body T_4 content at the highest concentration of perchlorate (100 mg/L) after 28 days of exposure, T_3 , the hormone that exerts the principal physiologic effects (Eales and Brown 1993), was unchanged. As a result, $T_3:T_4$ ratios were significantly reduced. Regulation of plasma T_3 , despite depressed plasma T_4 , was reported in rabbits and rats given perchlorate in drinking water (York et al. 2001a), although time-related impacts of perchlorate in drinking water with longer-term depression of both circulating T_4 and T_3 may occur as regulation breaks down (Siglin et al. 2000). Our study of fathead minnows only extended for 28 days, and further studies over a longer time period are now warranted to gain a fuller picture of the potential impacts of this pervasive thyroid toxicant in the wild.

Conclusions

The results reported here indicate that environmentally relevant levels of ammonium perchlorate are

likely to affect the thyroid axis of teleost fish. Growth and development of the early life stages of fathead minnows were significantly retarded after a 28-day exposure to 10 or 100 mg/L perchlorate, and we suggest that these changes are the result of hypothyroidism during the early stages of exposure. Our histologic studies showed that thyroid follicular epithelial cell height is a sensitive and appropriate biomarker for perchlorate exposure in aquatic vertebrates. However, after 28 days of exposure to perchlorate, fathead minnows achieved homeostasis of the major physiologically active hormone T_3 and T_4 levels were similar in control fish and all perchlorate-exposed fish except at the highest concentration (100 mg/L). Further studies are needed to investigate whether there is up-regulation of T_4 production or increased release at this stage in exposure. It also remains to be determined how fathead minnows exposed to perchlorate would survive and function in the longer term and, given the impeded growth and development, whether these fish would reach sexual maturity.

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Last Updated: March 3, 2005

Study finds chemical used in rocket fuel present in milk

March 2005

U.S. Water News Online

LUBBOCK, Texas -- A toxic chemical used to make rocket fuel was found in virtually every sample taken in a new study of nursing mothers' milk, but researchers said it's too early to know whether the perchlorate levels are dangerous.

The multistate study by Texas Tech University researchers, found that breast milk samples were on average five times those detected in dairy milk pulled from grocery stores.

Perchlorate is a toxic chemical from rocket fuel and weapons production, and is also formed naturally through lightning. It has been linked to thyroid damage, learning disabilities, decreased IQ and attention deficit disorder in children. It leaches into the ground and has been found in drinking water supplies in 35 states and has also been found in vegetables.

The milk study is a concern, but its seriousness is still unclear, said Dr. Ed Urbansky, a former EPA chemist not involved with the study, who has published several papers on perchlorate.

"It's very difficult to determine what the findings might be other than to know it might be in so many milk samples," he said. "It's important not to raise undue alarm over the significance of the finding. We shouldn't be running through the streets screaming and not drinking milk because of this."

For the study, conducted over a two-year period, researchers obtained milk from more than 20 women selected at random and from stores in 23 states. It was funded out of researchers' pockets and published online in the journal Environmental Science and Technology.

The average reading in the study was 10.5 parts per billion, less than half of the EPA's newly established safe exposure level of 24.5 parts per billion in drinking water.

The highest reading among the mothers in the Tech study was 92 parts per billion. In dairy milk, all but one of 47 samples had detectable levels of the chemical. No samples were above 11 parts per billion.

Pernendu Dasgupta, a Tech chemistry professor who led the study, said it "raises more questions than answers" but hopes it helps people become more aware.

Previous studies have indicated that perchlorate inhibits the transport in the body of iodine, which in fetuses and children is necessary for brain development, Dasgupta said.

"I want people to be iodine active rather than crying wolf about perchlorate," he said. "The real issue is if you're getting enough iodine."

Perchlorate was detected in 10 West Texas counties in recent years and in California, which has extensive ties to the military, defense industry and the space program.

It has also been found in the Colorado River, the major source of drinking water and irrigation in Southern California and Arizona.

According to public health advocates, perchlorate has leaked into the drinking water supplies of more than 16 million Californians through unsafe disposal and storage methods practiced by the aerospace, defense, fireworks and road flare industries.

Sujatha Jahagirdar with Environment California called the finding "appalling."

"We need rocket fuel out of our drinking water now," she said. "And unless federal regulators act quickly, we're going to see this stuff popping up everywhere."

In July, the Pentagon announced it had found perchlorate contamination in groundwater and soil samples at defense at 14 abandoned or likely to be closed military bases sites in 10 states. In August, a Texas hydrologist claimed low levels of perchlorate from New Mexico's Los Alamos lab had reached the Rio Grande. The lab did not dispute that contaminants have entered the groundwater beneath its 40-square-mile property but said the conclusion that there is a quick pathway to the Rio Grande was in dispute.

----- Original Message -----

From: [AQUATHIN TECH SUPPORT](#)

To: info@Aquathin.Com

Sent: Thursday, February 10, 2005 1:55 PM

Subject: FORUM Q & A: UPDATE #3 PERCHLORATE...FOUND IN MANY AREAS NOW

Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;

Below you will read perchlorate [refer back to second perchlorate update on June 11, 2004] is now found in many areas...and many of which were unsuspected.

The truly important point to this article is the always subsequent string of events I call "evolution of awareness" that tracks identically with all pollutants, and which goes like this -- First its found...then thought to be localized...then discovered in many other areas...then reported slightly insignificant health risks...then labeled carcinogen or genetic disruptor.

The choices are roll with the evolution...or own an Aquathin. I LOVE MY AQUATHIN !!

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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"Alfie"

Alfred J. Lipshultz, President

*P.S. "Splash NewsBulletins", "Forum Q & A", "Allergic Reaction", Biz Bank, Tech Bank and Quote Bank... **ARE ALL FREE** services to all Authorized Aquathin Dealers and their clients to keep you abreast of technology updates and industry news.*

Environment - 2/10/2005 11:27:34 AM

Report: Perchlorate detected in 26 states

DENVER — Yesterday, the [American Water Works Association](#) (AWWA) released a [study](#) revealing the presence of perchlorate in the drinking water of 26 states and Puerto Rico.

The study shows that perchlorate, a chemical compound commonly used for rocket fuel, was detected at levels below 12 micrograms per liter (ug/l).

According to an AWWA [news release](#), the US Environmental Protection Agency (EPA) is currently assessing the need for a drinking water standard for perchlorate.

"The AWWA occurrence study helps define the scope of perchlorate contamination and its possible effects on drinking water systems and communities," AWWA Deputy Executive Director Tom Curtis said in the release. "As more sensitive analytical methods are developed, perchlorate detection is likely to increase."

The occurrence of perchlorate in drinking water was analyzed and geographically mapped by compiling data from existing databases, including a national EPA study and studies by the states of Arizona, California, Texas and Massachusetts, the release said.

Aside from rocket fuel, perchlorate is also used for munitions, fireworks and

air-bag inflators, and has been found to occur naturally, the AWWA reported.

Other highlights from the study include:

- The majority of detections were not associated with EPA-identified releases of perchlorate.
- Perchlorate was detected in approximately 5 percent of the nation's large community water systems.
- The highest density of perchlorate detection was found in Southern California, west central Texas, along the East Coast between New Jersey and New York's Long Island, and in Massachusetts.



126 Sent: Wednesday, April 06, 2005 6:54 PM

Subject: FORUM Q & A: UPDATE #3-- PI WATER, CLUSTERED WATER...AND OTHER WATER MYTHS

Here, check this link...

<http://www.thelatestmagazine.com/Articles/0804waterwater.htm>

Warm regards,

Bob Vineyard, President

Pure Water Systems, Inc.

----- Original Message -----

From: [AQUATHIN TECH SUPPORT](#)

To: info@Aquathin.Com

Sent: Wednesday, April 06, 2005 4:59 PM

Subject: FORUM Q & A: UPDATE #3-- PI WATER, CLUSTERED WATER...AND OTHER WATER MYTHS

Dear Aquathin Dealer Online;

In the past couple months, several new Dealers asked about "clustered water" to which I forwarded this Forum Q & A Update below. However, the www.sfu.ca/aqua site had been offline. It took awhile, but I found it at <http://www.chem1.com/CQ/>. This is so good, we are adding it to the Aquathin Learning Centre. ENJOY!

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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(visit the allnew www.aquathin.com)

"Alfie"

Alfred J. Lipshultz, President

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----- Original Message -----

From: [AQUATHIN TECH SUPPORT](#)

To: Info@Aquathin.Com

Sent: Wednesday, July 16, 2003 2:00 PM

Subject: FORUM Q & A: UPDATE-- PI WATER, CLUSTERED WATER...AND OTHER WATER MYTHS

----- Original Message -----

From: David Waddell

To: info@aquathin.com

Sent: Sunday, July 13, 2003 12:24 AM

Subject: Re: Inventory order

Alfie,

You have my permission to use this e-mail on the Q and A.
I am looking forward to placing my inventory order this week. Hopefully next month we can bring in an RO/DI unit or two.

Thanks,

Dave

----- Original Message -----

From: info@aquathin.com

To: [David Waddell](#)

Sent: Saturday, July 12, 2003 3:47 PM

Subject: Re: Inventory order

Hi David;

Thank you for your email and warm comments regarding our support. We make the best equipment in the world...and we make the best Dealers too !

Regarding your experience with magnetics; Absolutely correct. What allows these types of characters to sell, is that the reader must buy off on their first premise (now, only the uneducated on the subject would do so....but there are a lot of those people, including you and me, for many topics....that's why proper due diligence is imperative at all times), and when one does, they are lead astray completely.

May I have your permission to use your experience and comments concerning magnetics on the PI Water Forum Q & A reply?

*Awaiting your reply and warmest regards,
Alfie*

----- Original Message -----

From: [David Waddell](#)

To: info@aquathin.com

Sent: Friday, July 11, 2003 11:53 PM

Subject: Re: Inventory order

Alfie,

Thank you for your reply. I briefly read the Nikken website and was even more amused than before. They claim that electromagnetic fields are what cause lightning. I always thought it was static electricity. Magnetic flux can obviously generate electricity, but the magnetic fields within clouds couldn't be that strong, or an aircraft's compass wouldn't function inside them.

For a few years, I have helped a friend of mine, on occasion, that owns a non-destructive testing consultation business. In short, we go into power plants (coal-fired and nukes) and test the turbine rotor and diaphragms for signs of fatigue or cracking. We give the rotor a "headshot" test, which requires about 3,000 "magnetic amps" of current to generate a field strong enough to properly check it. This is surely more of an electromagnetic field than most clouds produce. We should have generated at least a small spark. No sparks, just heat. Also, after 3 days of generating intense electromagnetic fields and working next to an operational 60 megawatt generator, I feel no different than when I arrived (aside from obvious fatigue from the hard, hot work).

I appreciate your excellent support and the amount of information that is available to me through the e-mails, catalogues, etc. It is unusual for any manufacturer to offer such strong support to its distributors, retailers, and customers.

Have a great day!

Dave

----- Original Message -----

From: [AQUATHIN TECH SUPPORT](#)

To: info@Aquathin.Com

Sent: Tuesday, December 17, 2002 7:16 PM

Subject: FORUM Q & A: PI WATER, CLUSTERED WATER...AND OTHER WATER MYTHS

Dear Aquathin Dealer OnLine;

Goofy water claims, goofy science, goofy sales persons....and more. My friend Michael Schwindt of Purified Water To Go, an Authorized Aquathin Dealer in Toronto, received his introduction to PI water. Being a recent graduate of Aquathin University, Michael knew something was not really Kosher about this jazz and dropped me a note. Read on for some killer material on water myths. I have given this information to many Dealers over the past several years and thought it would make fun reading in a Forum Q & A. Enjoy !

Warmest regards to all,

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"Alfie"

Alfred J. Lipshultz, President

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----- Original Message -----

From: "Purified Water to Go"

To: <info@aquathin.com>

Sent: Tuesday, December 17, 2002 4:38 PM

Subject: RE: Your opinion please !

> I love it! Many THANKS

> Michael

>

>

> -----Original Message-----

> **From:** info@aquathin.com

> **Sent:** Tuesday, December 17, 2002 4:19 PM

> **To:** Purified Water to Go

> **Cc:** EMIL, GARRY--PURIFIED WATER TO GO

> **Subject:** Re: Your opinion please !

>

>

> Dear Michael;
>
> Thank you for your email...and your comments regarding "Alfie analysis". I
> am sure you know that our information is always backed by sound science and
> facts. Pi is in the sky.
>
> Here is information to provide potential clients concerning clustered water
> and other water myths.

> www.sfu.ca/aqua

> Warmest regards,
> Alf

> ----- Original Message -----

> From: "Purified Water to Go"

> To: "Aquathin" info@aquathin.com

> Sent: Tuesday, December 17, 2002 4:13 PM

> Subject: Your opinion please !

>> Sorry to waste your time but I could not resist ... This Japanese thing
>> mentions Ceramics,(we no they fail everything except a few chemicals)
>> magnetic (I think the US Army completely failed Magnetics as a
>> purification
>> system) Vortex oxigenation (spooky stuff) and "pi" ionization or
>> mineralization (is that a word?)... always enjoy the Alfie analysis!
>> As always
>> Michael

>> <http://office.5pillars.com/e-nikken/pimag/optimizer.htm>

>> Michael Schwindt
>> Purified Water To Go

127 Sent: Monday, July 25, 2005 1:18 PM
Subject: FORUM Q & A: NEWS ON FLUORIDE

Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;

Fluoride salts (either fluosilic acid, or sodium silicofluoride, or sodium fluoride) are added to municipal water supplies in a process called fluoridation to help prevent tooth decay. Fluoride is regulated by the U.S. Environmental Protection Agency at a concentration of 1 ppm. Fluoride can also naturally occur in well water of which the MCL permitted is only 4 ppm...chronic exposure to excessive concentrations will cause fluorosis, a mottling or browning of the teeth, and can contribute to brittle bones in older folk.

There is plenty of issues on the tables around the world for the pros and cons of fluoridation. I sent a Forum Q&A out on December 18, 2003 discussing removal capacities (see pasted at bottom for your convenience...and also published in the Banks section of the Aquathin website).

However, today appeared a very serious article and argument against fluoridation as you will read below. It will be interesting to watch the forthcoming science and to see how this plays out. But I will tell you about an incident from long ago when I was retailing Aquathin in 1980. I received a call from a local dentist, Marty, wanting to learn about Aquathin...and I visited with Marty, who by the way, is still a longstanding Aquathin Customer owning several models...and I demonstrated Aquathin's efficiency. When Marty confirmed his first order, I said, "Doc, you know the Patented Aquathin RODI Process also removes fluoride...how do you feel about that?" Marty replied, "Alfie, the dangers from all the other garbage in tap water far outweighs any benefits one might think they are getting from fluoride. If you want fluoride, come to my office and I'll paint your teeth twice a year". I spoke with Marty a few months back who remained steadfast in his opinion...for 25 years now.

I LOVE MY AQUATHIN !!!

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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*"Alfie"
Alfred J. Lipshultz, President*

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Industry Outlook - 7/25/2005 11:37:10 AM

Fluoridation questioned in cancer study

WASHINGTON — Questions about fluoridation have returned as a result of allegations of scientific misconduct against a prominent researcher at the Harvard School of Dental Medicine, according to a July 22 article in [The Wall Street Journal](#) (registration required).

Last month, the Washington, DC-based advocacy group Environmental Working Group alleged that Chester Douglass misrepresented an unpublished study about bone cancer and fluoridated tap water, the article said.

In written testimony to the National Research Council last year, Douglass said he had found no evidence that fluoridation increased the risk a rare bone cancer called osteosarcoma. However, the paper reported that a 2001 study he cited, and oversaw, found that boys who drink fluoridated water have a greater risk of developing the disease.

According to the paper, the study was conducted by one of Douglass' doctoral students, Elise Bassin. She started with the same raw data as her mentor — 139 people with osteosarcoma and 280 healthy "controls" — but saw a way to improve on it: Since most of the 400 people diagnosed in the US each year with osteosarcoma are kids, and since any ill effect of fluoride would likely come when bones are growing most quickly, she focused on the 91 patients who were under 20.

The study, cited by the paper, showed that among boys drinking water with 30 percent to 99 percent of the fluoride levels recommended by the US Centers for Disease Control and Prevention, the risk of osteosarcoma was estimated to be five times as great as among boys drinking nonfluoridated water.

From: AQUATHIN TECH SUPPORT [mailto:techsupport@aquathin.com]

Sent: Thursday, December 18, 2003 3:10 PM

To: Info@Aquathin.Com

Subject: FORUM Q & A: FLOURIDE REMOVAL & RO REJECTION RATES

Dear Aquathin Dealer OnLine;

Due to growing concerns over flouridation at the Consumer level, several Dealers have recently asked about flouride removal via RO alone, the Patented Aquathin RODI Process, and the Aquathin LeadOut.

Recall from A.U. that rating membrane rejection is based upon the test control water of 250 ppm NaCl at 60F to 70F at 60 to 70 psi. Sodium chloride is chosen because the elements are single charged (known as monovalent) i.e. Na⁺ and Cl⁻ and specifically that monovalents are the most difficult to remove which is why the standard rating. So if we rate our Aquathin TFC membranes at 97% based upon optimum temp and pressure, that means all monovalents are rejected at least 97% and anything higher in valence charge i.e. Pb⁺⁺ and AL⁺⁺⁺⁺ carries a higher

rejection percentage.

Flouride is monovalent. If a competitor rates their membrane at 95%, then flouride should be at that rate. BUT HERE'S THE KICKER....if the membrane is operating on lower pressure i.e. 30psi all claims are off for % reduction as removal efficiencies drop. Your patented RODI process's Deionization Module picks up what the RO is not. Therefore their claim of 95% needs the heavy aforementioned disclaimer because we all know that there are plenty of low pressure areas.

The Aquathin LeadOut's ABA2000 could care less about temp and pressure.

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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"Alfie"
Alfred J. Lipshultz, President

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128 **Sent:** Saturday, July 30, 2005 11:32 AM
Subject: FW: FORUM Q & A: NEWS ON FLUORIDE

FORUM Q&A ADDED COMMENT

Dear Aquathin Dealer Online;

Please read the additional and extremely important comments provided by Roger Wiltshire, Managing Director of Aquathin UK-The Pure H2O Company, concerning the inefficiencies of cheap RO. Start 3 messages below this email then head north !

*Warmest regards to all,
Alfie*

From: Roger Wiltshire
Sent: Tuesday, July 26, 2005 11:18 AM
To: techsupport@aquathin.com
Subject: RE: FORUM Q & A: NEWS ON FLUORIDE

Hi Alfie
By all means use the comments
Roger

From: AQUATHIN TECH SUPPORT [mailto:techsupport@aquathin.com]
Sent: 26 July 2005 14:55
To: Roger Wiltshire
Subject: RE: FORUM Q & A: NEWS ON FLUORIDE

Hey Rog;

Well done ! That chronic reduction in rejection is a major flaw in ordinary RO. I would like to use your commentary in a followup.

*Warmest regards,
Alfie*

From: Roger Wiltshire
Sent: Tuesday, July 26, 2005 4:45 AM
To: techsupport@aquathin.com
Cc: Nicki Woodward
Subject: RE: FORUM Q & A: NEWS ON FLUORIDE

Very interesting article Alfie
Re RO rejection%:

Don't forget the chronic reduction in rejection / bleed effect across the membrane when the storage tank reaches 20+psi and, worse still, on cheap RO equipment where the inefficient valve fails to close at 30psi resulting in extended periods of low pressure across the membrane not to mention the never ending waste of water.

Regards

Roger

From: AQUATHIN TECH SUPPORT [mailto:techsupport@aquathin.com]
Sent: 25 July 2005 18:18
To: info@aquathin.com
Subject: FORUM Q & A: NEWS ON FLUORIDE

Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;

Fluoride salts (either fluosilic acid, or sodium silicofluoride, or sodium fluoride) are added to municipal water supplies in a process called fluoridation to help prevent tooth decay. Fluoride is regulated by the U.S. Environmental Protection Agency at a concentration of 1 ppm. Fluoride can also naturally occur in well water of which the MCL permitted is only 4 ppm...chronic exposure to excessive concentrations will cause fluorosis, a mottling or browning of the teeth, and can contribute to brittle bones in older folk.

There is plenty of issues on the tables around the world for the pros and cons of fluoridation. I sent a Forum Q&A out on December 18, 2003 discussing removal capacities (see pasted at bottom for your convenience...and also published in the Banks section of the Aquathin website).

However, today appeared a very serious article and argument against fluoridation as you will read below. It will be interesting to watch the forthcoming science and to see how this plays out. But I will tell you about an incident from long ago when I was retailing Aquathin in 1980. I received a call from a local dentist, Marty, wanting to learn about Aquathin...and I visited with Marty, who by the way, is still a longstanding Aquathin Customer owning several models...and I demonstrated Aquathin's efficiency. When Marty confirmed his first order, I said, "Doc, you know the Patented Aquathin RODI Process also removes fluoride...how do you feel about that?" Marty replied, "Alfie, the dangers from all the other garbage in tap water far outweighs any benefits one might think they are getting from fluoride. If you want fluoride, come to my office and I'll paint your teeth twice a year". I spoke with Marty a few months back who remained steadfast in his opinion...for 25 years now.

I LOVE MY AQUATHIN !!!

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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Fluoridation questioned in cancer study

WASHINGTON — Questions about fluoridation have returned as a result of allegations of scientific misconduct against a prominent researcher at the Harvard School of Dental Medicine, according to a July 22 article in [The Wall Street Journal](#) (registration required).

Last month, the Washington, DC-based advocacy group Environmental Working Group alleged that Chester Douglass misrepresented an unpublished study about bone cancer and fluoridated tap water, the article said.

In written testimony to the National Research Council last year, Douglass said he had found no evidence that fluoridation increased the risk a rare bone cancer called osteosarcoma. However, the paper reported that a 2001 study he cited, and oversaw, found that boys who drink fluoridated water have a greater risk of developing the disease.

According to the paper, the study was conducted by one of Douglass' doctoral students, Elise Bassin. She started with the same raw data as her mentor — 139 people with osteosarcoma and 280 healthy "controls" — but saw a way to improve on it: Since most of the 400 people diagnosed in the US each year with osteosarcoma are kids, and since any ill effect of fluoride would likely come when bones are growing most quickly, she focused on the 91 patients who were under 20.

The study, cited by the paper, showed that among boys drinking water with 30 percent to 99 percent of the fluoride levels recommended by the US Centers for Disease Control and Prevention, the risk of osteosarcoma was estimated to be five times as great as among boys drinking nonfluoridated water.

From: AQUATHIN TECH SUPPORT [mailto:techsupport@aquathin.com]
Sent: Thursday, December 18, 2003 3:10 PM
To: Info@Aquathin.Com
Subject: FORUM Q & A: FLOURIDE REMOVAL & RO REJECTION RATES

Dear Aquathin Dealer OnLine;

Due to growing concerns over flouridation at the Consumer level, several Dealers have recently asked about flouride removal via RO alone, the Patented Aquathin RODI Process, and the Aquathin LeadOut.

Recall from A.U. that rating membrane rejection is based upon the test control water of 250 ppm NaCl at 60F to 70F at 60 to 70 psi. Sodium chloride is chosen because the elements are single charged (known as monovalent) i.e. Na⁺ and Cl⁻ and specifically that monovalents are the most difficult to remove which is why the standard rating. So if we rate our Aquathin TFC membranes at 97% based upon optimum temp and pressure, that means all monovalents are rejected at least 97% and anything higher in valence charge i.e. Pb⁺⁺ and AL⁺⁺⁺⁺ carries a higher rejection percentage.

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129 Subject: FORUM Q & A: ARSENIC UPDATE #6 -- NEW RESEARCH TIES ARSENIC TO TUMOR GROWTH

Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;

More and more is being learned about the effects from ingestion of arsenic which naturally occurs in various regional well waters both domestically and around the world. This quick read study below discusses that even the smallest concentrations will cause tumors to expand (by the way...the Bush Administration is seeking to elevate the arsenic MCL so municipalities can comply more easily...read more about the cost savings if achieved). This new study is in line with Update #5 (pasted at bottom for convenience).

What also is noteworthy are the accepted technologies to treat arsenic. Arsenic comes in a variety of forms. It would be up to the Customer to test to see which form of arsenic they have and then match the appropriate water treatment. What can occur is that a well can have forms change...come and go...which means that the water treatment chosen today may not be appropriate in just a few months.

But one thing that doesn't change is the Patented Aquathin RODI Process removes all forms of arsenic...and of course, everything else ! I LOVE MY AQUATHIN !!

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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The Water Quality Association : Members Only Section : Study: arsenic in water accelerates tumor growth

New research ties arsenic to tumor growth

Posted 08/09/05

A recent study on the effects of environmental arsenic at the University of Oklahoma Health Sciences Center indicates that arsenic in drinking water can both stimulate the growth of cancerous tumors and cause them to spread faster.

While researchers still do not know whether arsenic in drinking water increases the overall incidence of tumors, the study shows that arsenic levels as low as four parts per billion can stimulate blood vessel growth, and levels as low as 10 ppb cause tumors to expand. Many previous studies have linked arsenic ingestion and cancer — especially skin and bladder

cancers.

This report comes at a time when water systems across the US are struggling to conform to a new current federal arsenic standard of 10 parts per billion (ppb) by January 23, 2006. The previous standard had been 50 ppb. In the state of Oklahoma alone, it will cost between \$55 billion and \$163 billion to replace or upgrade the 25 systems to address the lower arsenic standard.

When water containing arsenic is ingested, the arsenic reacts with oxygen to create "free radicals" — highly reactive molecules — that stimulate the growth of blood vessels. More blood vessels result in an increase in blood supply to any tumors, which then grow faster and larger.

Some scientists have suggested that even the new standard of [10 ppb](#) is too high, and California considered setting the cap at [4 ppb](#).

Existing, proven POU/POE home products (point of use/point of entry) can reduce arsenic levels in water to below 4 ppb.

For Arsenic (+3) WQA recommends treatment with:

- Chemical Oxidation/Disinfection followed by Arsenic (+5) treatment technologies

For Arsenic (+5) you can treat water with:

- Iron-based or iron doped arsenic treatment media
- Anion Exchange
- Activated Alumina
- Reverse Osmosis
- Distillation
- Electrodialysis
- Other speciality media for arsenic treatment

For Arsenic (organic complexed) treat water with:

- Carbon Filtration.

Not all parts of the country have naturally occurring arsenic in the water. Consumers should check with a [water treatment specialist](#) and/or their municipal water system operators or county extension office. WQA urges those on private wells to have their water tested for arsenic and other possible contaminants.

From: AQUATHIN TECH SUPPORT [mailto:techsupport@aquathin.com]

Sent: Wednesday, December 22, 2004 1:08 PM

To: info@Aquathin.Com

Subject: FORUM Q & A: ARSENIC UPDATE #5 -- ARSENIC INCREASES RISK OF LUNG CANCER

Dear Aquathin Dealer OnLine;

This is the first article of its time that I can recall, discussing how a known carcinogen acts as a catalyst or supercharger if you will, for another carcinogen. What is incredibly important here is because we are so exposed to environmental pollutants in our atmosphere, the chances for increased lethal effect can possible come from other pollutants in our drinking water.

If ever there was a more serious reason for removal of water pollution, this Pandora's Box has to reign as king.

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Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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Industry Outlook - 12/22/2004 11:41:30 AM

Study: Arsenic-laden water increases lung cancer risk

CHICAGO — In a study published in this week's [Journal of the American Medical Association](#) (JAMA), researchers in Taiwan reported that high levels of arsenic-laden water increased the risk of lung cancer in combination with cigarette smoking, [Reuters](#) reported.

The study said people living on the Southwestern and Northeastern coasts of Taiwan had been exposed to arsenic in high concentrations in well water before a public tap water system was established, Reuters said.

Between 32 percent and 55 percent of lung cancer cases were estimated to be caused by the combined effect of cigarette smoking and ingested arsenic, depending on the levels of both exposures, the study said.

The study came from the College of Public Health, National Taiwan University, Taipei. It covered more than 10,000 people who were tracked for eight years, the article said.

130. Subject: FORUM Q & A FLUORIDE UPDATE: EPA UNIONS CALL FOR MORATORIUM ON FLUORIDE IN DRINKING WATER

Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;

On July 25th and 30th, 2005, I sent you Forum Q & A Updates concerning a potential link between fluoridation processes and cancer. My friends and Authorized Aquathin Dealers, Ron Wiedoff, President of Natural Choice Int'l. on Florida's west coast, and Troy Higgenson, President of Aquathin Air and Water of Evansville in Indiana, are deep into the anti-fluoridation move...and with just cause as you will read in the article provided by Ron today.

WE LOVE OUR AQUATHIN !!!

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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EPA unions call for moratorium on fluoride in drinking water

By Matthew Daly, Associated Press Writer | August 31, 2005

WASHINGTON --Eleven unions representing more than 7,000 workers at the Environmental Protection Agency are calling for a national moratorium on programs to add fluoride to drinking water, citing what they call a possible cancer risk.

In a letter to EPA Administrator Stephen Johnson, the unions say the agency should act even before a committee of the National Academy of Sciences completes a report on the issue early next year.

J. William Hirzy, an EPA scientist and vice president of the National Treasury Employees Union, Local 280, said Johnson should act now in light of allegations that a Harvard University dentistry professor downplayed research showing an increased risk of bone cancer for boys who drink fluoridated tap water.

Harvard said in June it is investigating the allegations against Chester Douglass, who heads the school's Department of Oral Health Policy and Epidemiology.

Douglass led a seven-year study of fluoride exposure and osteosarcoma, a rare form of bone cancer. The study found that the odds of having osteosarcoma for those who drink fluoridated water were "not statistically different" from those who drank non-fluoridated water.

But Elise Bassin, a doctoral student supervised by Douglass, reported in her 2001 thesis that boys who drink fluoridated water appear to have an increased risk of developing the cancer.

Her findings were based on some of the same people who participated in Douglass' study.

Hirzy, the union leader, said EPA employees "don't think it serves the public or the image of the EPA for us to be sitting on our hands in the face of increased epidemiological risk of sarcoma in young boys."

EPA unions have pressed the agency to limit fluoride since the 1990s.

Eryn Witcher, a spokeswoman for Johnson, said the agency is "committed to protecting human health -- basing our decisions on sound scientific data -- which is why we have requested an independent review, evaluating all of the new data on fluoride, from the National Academy of Sciences, the nation's highest science review panel."

The group's recommendations are expected by February.

The Environmental Working Group, a Washington-based advocacy group, filed an ethics complaint against Douglass in June, citing his position as editor-in-chief of The Colgate Oral Health Report, a quarterly newsletter funded by Colgate-Palmolive Co., which makes fluoridated toothpaste.

On the Net:

EPA: <http://www.epa.gov>

NAS: <http://www.nasonline.org/>

EPA union: <http://www.nteu280.org/> ■

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131. **Sent:** Friday, September 23, 2005 11:41 AM
Subject: FORUM Q & A: WHAT IS CHLORACNE?

Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;

Most often, Forum Q & A NewsBulletins are limited to Aquathin Dealers and their Teams. This is one of those times that I have included Splash NewsBulletin recipients (Customers) in this Forum Q & A because of the growing amount of questions received concerning chloracne.

Chloracne is a form of skin eruption (i.e. acne) that is induced by some, but not all, chlorinated compounds. The effect is most commonly associated with 2,3,7,8-tetrachlorodibenzodioxin (commonly called dioxin) and compounds with similar toxicological effects. You may recall one of the sad effects of Agent Orange used in the Viet Nam War...and most recently, the poisoning of Ukraine's President Victor Yushchenko resulting in the disfigurement of a handsome man (<http://www.worldpress.org/Europe/1995.cfm>).

Chloracne was first described in 1897 and was originally thought to be caused by exposure to newly formed chlorine... hence the name "chloracne". With time, chloracne was recognized as being caused by over-exposure to chlorinated aromatic hydrocarbons, such as dioxins and furans. The first time I saw it was almost 25 years ago, in The Netherlands where Bert Boelens, my friend and the first International Authorized Aquathin Dealer, sent me pictures of his Customer who suffered from these eruptions over most of his body. A local doctor sent the gentlemen to Bert prescribing washing with and drinking dechlorinated water...Bert installed a Kitchentop (remember those original large boxy units in harvest gold and avocado green!). Within a few months, the Customer was completely cleared.

A large (and growing) number of Aquathin Dealers support local physicians / allergists who recommend to their patients that one method to detoxify is by removing themselves from chlorinated and chloraminated water to alleviate symptoms of asthma and skin rashes...including the appearance chloracne, especially where fair skinned patients are in contact with municipal water with high concentrations of chlorine / chloramines and high pH.

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"Alfie"
Alfred J. Lipshultz, President

132. Sent: Tuesday, November 08, 2005 11:44 AM
Subject: FORUM Q & A: WHAT IS "PAH"?

Dear Aquathin Dealer OnLine;

PAH = Polynuclear (or Polycyclic) Aromatic Hydrocarbons. This acronym seems to be popping up more and more in our industry...so here's the "skinny" (cool word from the 1920's meaning down and dirty definition...!). PAH's are a chemistry of a complex aromatic ring system built by fusing two (or more) rings usually of the benzene-oid type to one or more common sides. For example, naphthalene is a fusion of 2 rings. These molecules are usually highly carcinogenic (cancer causing)...but they are also very common i.e. standard biproduct of combustion in automobiles, airplanes, wild fires...and even present in charcoaled hamburgers (so try to avoid very well done!). Some PAHs are manufactured. These pure PAHs usually exist as colorless, white, or pale yellow-green solids. PAHs are found in coal tar, crude oil, creosote, and roofing tar, but a few are used in medicines or to make dyes, plastics, and pesticides.

Some PAH's can be reduced or removed by GAC. But your Patented Aquathin RODI Process is guaranteed removal. I LOVE MY AQUATHIN !!!

Here is a little more "skinny" below:



What happens to polycyclic aromatic hydrocarbons (PAHs) when they enter the environment?

- PAHs enter the air mostly as releases from volcanoes, forest fires, burning coal, and automobile exhaust.
- PAHs can occur in air attached to dust particles.
- Some PAH particles can readily evaporate into the air from soil or surface waters.
- PAHs can break down by reacting with sunlight and other chemicals in the air, over a period of days to weeks.
- PAHs enter water through discharges from industrial and wastewater treatment plants.
- Most PAHs do not dissolve easily in water. They stick to solid particles and settle to the bottoms of lakes or rivers.
- Microorganisms can break down PAHs in soil or water after a period of weeks to months.
- In soils, PAHs are most likely to stick tightly to particles; certain PAHs move through soil to contaminate underground water.
- PAH contents of plants and animals may be much higher than PAH contents of soil or water in which they live.

How might I be exposed to polycyclic aromatic hydrocarbons (PAHs)?

- *Breathing air containing PAHs in the workplace of coking, coal-tar, and asphalt production plants; smokehouses; and municipal trash incineration facilities.*
- *Breathing air containing PAHs from cigarette smoke, wood smoke, vehicle exhausts, asphalt roads, or agricultural burn smoke.*
- *Coming in contact with air, water, or soil near hazardous waste sites.*
- *Eating grilled or charred meats; contaminated cereals, flour, bread, vegetables, fruits, meats; and processed or pickled foods.*
- *Drinking contaminated water or cow's milk.*
- *Nursing infants of mothers living near hazardous waste sites may be exposed to PAHs through their mother's milk.*

How can polycyclic aromatic hydrocarbons (PAHs) affect my health?

Mice that were fed high levels of one PAH during pregnancy had difficulty reproducing and so did their offspring. These offspring also had higher rates of birth defects and lower body weights. It is not known whether these effects occur in people.

Animal studies have also shown that PAHs can cause harmful effects on the skin, body fluids, and ability to fight disease after both short- and long-term exposure. But these effects have not been seen in people.

How likely are polycyclic aromatic hydrocarbons (PAHs) to cause cancer?

The Department of Health and Human Services (DHHS) has determined that some PAHs may reasonably be expected to be carcinogens.

Some people who have breathed or touched mixtures of PAHs and other chemicals for long periods of time have developed cancer. Some PAHs have caused cancer in laboratory animals when they breathed air containing them (lung cancer), ingested them in food (stomach cancer), or had them applied to their skin (skin cancer).

Is there a medical test to show whether I've been exposed to polycyclic aromatic hydrocarbons (PAHs)?

In the body, PAHs are changed into chemicals that can attach to substances within the body. There are special tests that can detect PAHs attached to these substances in body tissues or blood. However, these tests cannot tell whether any health effects will occur or find out the extent or source of your exposure to the PAHs. The tests aren't usually available in your doctor's office because special equipment is needed to conduct them.

Has the federal government made recommendations to protect human health?

The Occupational Safety and Health Administration (OSHA) has set a limit of 0.2 milligrams of PAHs per cubic meter of air (0.2 mg/m³). The OSHA Permissible Exposure Limit (PEL) for mineral oil mist that contains PAHs is 5 mg/m³ averaged over an 8-hour exposure period.

The National Institute for Occupational Safety and Health (NIOSH) recommends that the average workplace air levels for coal tar products not exceed 0.1 mg/m³ for a 10-hour workday, within a 40-hour workweek. There are other limits for workplace exposure for things that contain PAHs, such as coal, coal tar, and mineral oil.

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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"Alfie"

Alfred J. Lipshultz, President



133. Sent: Friday, November 11, 2005 10:15 AM
Subject: FORUM Q & A: SUPERCHLORINATION IN BRIEF

Dear Aquathin Dealer OnLine;

We received a prospective Dealer inquiry on the Aquathin Website from Tennessee who is interested in air induction vs. greensand or in-well chlorination for treating sulphur and iron. Our response below will be a review for those of you who enjoy working with well water...but since we have only done Quote Bank for Superchlorination, I thought posting a Forum Q&A would be nice.

-----:AQUATHIN WEBSITE INQUIRY FORM:-----

1.) Are you presently an Aquathin customer? no

2.) Would you like to be on our mailing list? yes

3.) Are you interested in becoming a DISTRIBUTOR? yes

4.) Purchase direct or from a local Aquathin Dealer? factory Direct Comments:I am a Licensed Master Plumber here in Tennessee.

Our main water issue is well water problems. SULPHUR, IRON, CALCIUM.

How does your systems work concerning SULPHUR. I do not want to have to inject Chlorine or Potassium into the well. I am looking for an air induction type filter. Thank You,

[AQUATHIN RESPONSE BELOW]

Dear Mr. Hall:

Thank you for your email. Regarding sulphur and iron issues; McClean is a manufacturer of air induction...and there are other manufacturers of ozone systems. The problem with air induction is that iron is a schizophrenic paranoid pain in the "@ _ _", changing forms and concentrations. Once the air induction is set for the iron tested today, your Customer will call within weeks or months that either the treated water is milky looking (iron concentration decreased hence more air than necessary) or brown again (iron concentration decreased or bacterial iron now introduced)...resulting in ongoing service calls to tweak and nurse this system. Ozonation is expensive because of the necessity for off gas tank and ozone kill tank...and of course, the ozone corona discharge machine itself.

Regarding chlorination; I concur, we do not like chlorine pellet drops into the well because (A) its not a good practice to chlorinate the aquifer...and illegal in some areas; (B) the well will fill with precipitate and pump a muddy sludge. But we do like superchlorination after the well. Superchlorination is inexpensive, easy to operate & maintain (the Aquathin way) and treats all forms of iron (ferrous = clearwater iron; ferric = precipitated/colloidal; heme = bacterial), and also precipitates manganese, oxidizes organic matter i.e. tannins, oxidizes algae, bacteria, virus, and odor produced by H₂S and / or dead and dying bacteria.

Please let me know if you remain interested to receive further information. The above referenced information is compliments of Aquathin University.

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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"Alfie"

Alfred J. Lipshultz, President



134. *Sent: Monday, November 28, 2005 4:42 PM*

Subject: FORUM Q & A UPDATE: TRIHALOMETHANE (THM)

Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;

Our first Forum Q & A concerning carcinogenic THM's (Trihalomethane) dates back to May 2002 in which we discussed the municipal use of chloramines to try to control and reduce THM's to the MCL (Maximum Contaminate Level of Acceptance) of 100 ppb (parts per billion = micrograms per litre). Subsequent Forum Q & A Updates on this subject further delved into problems surrounding the use of chloramine as a germicide. It seemed there is a lateral trade off and the Consumer is not winning.

The quick read article below however, concerns a new THM study...and this is in line with Aquathin's major point for many years concerning contaminants i.e. "given the choice to consume any level, we choose not". The study demonstrates that THM exposure to fetus's at levels of only 70 ppb (or greater) may affect fetal growth. Note that 70 ppb is significantly lower than the 100 ppb regulated limit.

Again and in review, your Aquathin MegaChar removes both THM and chloramines for Total Home Water Protection...hence no concerns for bathing, showering or inhaling during showers. And of course, the patented Aquathin RODI Process removes these concerns as well as all others, from your tap.

I live in an area where both chloramines and THM's are present...but I also live in our home protected by the Aquathin MegaChar and Aqualite ! I LOVE MY AQUATHINS !!!

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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(visit the allnew www.aquathin.com)

"Alfie"

Alfred J. Lipshultz, President

135. Sent: Wednesday, December 14, 2005 1:47 PM
Subject: FORUM Q & A: WHAT IS BACTERIAL "GROW THRU" IN RO?

Dear Aquathin Dealer OnLine;

Today we received an email from a prospective Dealer who asked about bacterial grow through in RO. Read below:

We carry a line of water filtration equipment, both countertop and undercounter units, but are looking at the possibility of expanding or replacing our range. This is what brought us to you. One of our most pressing questions has to do with the state of RO technology today in avoiding the potential for bacterial "growth" through the membrane as stated in the quote below. I had some impression that your technology solved this potential problem or addressed it in some way.

"It has been reported that bacteria can "grow" through membranes. The mechanism by which bacteria pass through a RO membrane is not known and no correlation exists between a dye leak test of the membrane and its bacterial retention efficiency. Researchers at the Center for Disease Control (CDC) conducted extensive investigations on the bacterial contamination of RO systems used in producing purified water for dialysis (15). They reported: 1. certain naturally occurring Gram- negative bacteria can multiply in relatively pure RO water; 2. thorough periodic disinfection of the entire RO system is essential in producing water with acceptable bacterial counts; 3. stagnant water in pipes down stream of the membrane is the major source of bacteria and endotoxin in the product water; and 4. the efficiency of a membrane in rejecting bacteria is better in continuous operation than in intermittent use."

Original source:
http://www.fda.gov/ora/inspect_ref/itg/itg36.html

Our reply:

Regarding grow through; Dialysis RO is a technology called "hollow fibre" made of tiny capillary tubules. They are to be disposed of with each treatment, but many dialysis centers sanitize and reuse for that patient...in other words, patients are not subjected to sharing membranes. Grow through is a problem due to sanitizing procedures and the complexity of the hollow fibre tubules...these RO should be discarded. However, grow through is also a problem in the standard spiral wound RO technology...but not because of the membrane...it is because of their system's inferior hardware and design that supports (or lack thereof) the membrane. Aquathin's patented and proprietary design has built-in failsafes to remove the capacity to cause grow through in our membranes (yes, we make them). Hence, Aquathin had early on acquired an EPA Registration for removal of disease causing waterborne microorganisms...with plenty of test data...whilst ordinary RO vendors include disclaimers in their literature stating "Do not install on microbiologically unsafe water".

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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"Alfie"
Alfred J. Lipshultz, President

136. *Sent: Thursday, December 15, 2005 5:29 PM*

Subject: FORUM Q & A UPDATE #4 FOR CHLORAMINES-- NOT EFFECTIVE ENOUGH

Dear Aquathin Dealer OnLine;

Previous Forum Q & A discussed newly discovered chloramine issues of DBP (disinfection byproducts), corrosivity, toxicity to dialysis patients and tropical fish...now you will read that chloramines does not prevent slimy biofilm buildup in water pipes. Here's what common sense should be saying to the public; "well if bacterial slime is growing in water pipes to my house, what is stopping this from growing in the pipes in my house...and can the bacteria slime every fall off in chunks resulting in a high dose of this stuff to my family...and even though this change to chlorine will clean up the slime, I presume you are asking my family to drink dead bacteria?"

The quick read article below and the above referenced common sense questions are excellent reasons to prescribe AquaShield for POE Total Home AntiMicrobial Protection with the POU Patented Aquathin RODI Process. I LOVE MY AQUATHIN !

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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"Alfie"

Alfred J. Lipshultz, President

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Disinfecting of water due on Dec. 22

By Terry Rodgers

UNION-TRIBUNE STAFF WRITER

December 14, 2005

Making San Diego government transparent apparently applies to drinking water, too.

Newly sworn-in Mayor Jerry Sanders has scheduled a press briefing for today to assure the public that its drinking water will be safe – but perhaps will taste and smell slightly different – when the water department begins a special disinfecting process Dec. 22.

About 1.3 million people from Del Mar to Imperial Beach use drinking water treated by the city of San Diego.

Sanders decided to help publicize the monthlong switch to a different anti-bacterial treatment for the city's reservoirs and pipes after water officials were told to postpone the procedure. The water department originally set the project to begin Nov. 28, the Monday after Thanksgiving.

The delay was prompted by complaints from City Attorney Michael Aguirre and Councilwoman Donna Frye, who said the public had not received adequate notice. The water department's Web site had advised anyone with health concerns to consult their doctors. Most people would not be able to do so during a holiday week, Aguirre and Frye contended.

Sanders, who took office on Dec. 5, learned of the controversy and agreed that a more extensive public-outreach effort was necessary, said mayoral spokesman Fred Sainz.

"To make sure we're doing it right, (the mayor) is getting involved," Sainz said. "It relates to the mayor's pledge for transparency in government."

The same disinfecting process last took place in 1999, with little public fanfare. It was conducted annually before that year.

"It was a fairly mundane process when we did it every year, but now that we're only doing it every five years or so, it deserves more attention," said Charles Yackly, the water department's acting director.

From Dec. 22 through Jan. 19, the water department will switch from using chloramine, a blend of chlorine and ammonia, to a pure form of chlorine. The result is a stronger disinfectant that helps dissolve "biofilm," a microscopic slime that has been building up inside the city's 3,200 miles of pipelines and water tanks.

Water officials also need the disinfectant change to maintain the strength of their system's residual chlorine level, which limits bacterial growth in the network for storing and delivering water.

The water department has been using chloramine as its everyday disinfectant because it is more stable and lasts longer than chlorine alone, said Mark Stone, the department's deputy director.

Over time, bacteria begin to feed on the ammonia. If left unchecked, such bacterial growth – or nitrification – could compromise the purity of the water.



PEGGY PEATTIE / Union-Tribune
Owners of aquariums will take precautions against chlorine when city water is disinfected. So will operators of dialysis machines. This tank is at Pet Kingdom.

Cleaning the biofilm involves turning off the ammonia that is injected in gas form along with chlorine. The chlorine level in the water will remain at 2.5 to 3 parts per million, the same concentration as before, Stone said. Operators of kidney dialysis machines and owners of aquariums and ponds containing fish will have to use chemicals or take other precautions to remove the chlorine.

Most aquarium owners change water about once a month, but many fastidious fish enthusiasts refresh their tanks every week, said Bill Bennett, owner of Pet Kingdom, a pet supply store in the Midway area.

Bennett applauded the city's efforts to take more time to notify the public about the switch to pure chlorine.

"There are people who have thousands and thousands of dollars worth of fish to protect," he said.

Besides getting help from Sanders, water officials have bought \$10,000 worth of newspaper ads, sent notices along with water bills to all 270,000 customers, updated information about the disinfecting project on the city's Web site and shown an informational video on the city's cable channel. In addition, more than 300 letters have been resent to big users of water, from Coca-Cola to the military.

■ Terry Rodgers: (619) 542-4566; terry.rodgers@uniontrib.com




SOURCE: City of San Diego Water Department

PETECHENARD/Union-Tribune

Find this article at:

<http://www.signonsandiego.com/news/metro/20051214-9999-6m14water.html>

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☐ Check the box to include the list of links referenced in the article.



137. Sent: Monday, January 30, 2006 11:38 AM

Subject: FORUM Q & A: AQUATHIN REPORT CARD VS. BOILING WATER

Dear Aquathin Dealer OnLine;

My friend Brandon Barbour of Pure Water Solutions / Aquathin East Africa, sends this email today concerning what are the merits of boiling water as a form of water treatment, and how would it relate on the Aquathin Report Card. When we first published the Aquathin Report Card we considered listing Boiling Water, but elected not to since boiling is not a "product sold / related" as are the products listed.

Please read our reply for each contaminate listed on the Aquathin Report Card and how it is positively or negatively affected in the boiling process...and review with your Sales and Tech Team so that in the event, they receive this inquiry from your Customer, your skilled Sales & Tech Team are able to delivery this very complete and detailed reply.

*aaaaaaaaaaaaAAAAAAAAAAAAAND pay excellent attention to how Brandon so astutely signs off each email message, taking advantage of **26 Years Pure Excellence !***

Enjoy !

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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From: Brandon Barbour

Sent: Monday, January 30, 2006 9:30 AM

To: 'Alfred J. Lipshultz'

Subject: RE: Report Card

Thanks Alfie,

This is good ammunition against boiling!

Regards

Brandon

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Pure Water Solutions Ltd,
P.O. Box 66437, Nairobi - 00800,
Kenya, East Africa.*

Tel: +254 (0) 20 4180016.

From: Alfred J. Lipshultz [mailto:alfie@aquathin.com]
Sent: 30 January 2006 17:10
To: Brandon@purewaterafrica.com
Subject: RE: Report Card

Hi Brandon;

Thank you for your email. I am "x-cel challenged" and Matt is out today. Besides, some of the pollutants require a bit detailed explanation. So here goes it:

Fecal Coliform: Killed.

Cysts: Boiling 20+ minutes is required to kill.

Virus: Killed. But there are some bacteria and virus called pyrogens. These critters will cause deep fever and inflammation whether living or dead.

Heavy Metals: Concentrated. For example, boil 1 litre of water with TDS [which includes heavy metals] of 500 ppm, and you boil off half...the TDS is now 1000 ppm.

Asbestos: Concentrated...and some of the fibers can become airborne and inhaled from percolation.

Arsenic: Concentrated.

Fluoride: Concentrated.

Nitrate: Concentrated.

Sodium: Concentrated.

Chemical Solvents: Mostly off gassed.

Pesticides: Some will be off gassed...some may be concentrated.

Herbicides: Some will be off gassed...some may be concentrated.

Total Dissolved Solids: Concentrated.

Hardness: Concentrated.

Iron: Concentrated.

Taste: Can become "flat" or "dull". But "cooking effect" may cause taste due to mineral concentration and type of kettle [aluminum] and its cleanliness.

Colour: Can become clouded due to concentrating minerals.

Odor: H₂S will off gas. But "cooking effect" may cause taste due to mineral concentration and type of kettle [aluminum] and its cleanliness.

Sediment: No effect.

Chlorinated Compounds: Mostly off gassed...and some may concentrate depending on the organic that chlorine bound with.

Hey, this makes for a great Forum Q & A !

Have a great week and warmest regards,

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"Alfie"

Alfred J. Lipshultz, President

P.S. When responding please continue 'REPLY' to include all previous correspondences on this subject.

From: Brandon Barbour

Sent: Monday, January 30, 2006 3:10 AM

To: 'Alfred J. Lipshultz'

Subject: Report Card

Dear Alfie,

Would you mind giving me the ratings as on the report card for boiling as a water treatment method to aid our marketing? Many people here rely on boiling their water.

I have attached an excel spread sheet with the columns that appear on the report card so you can easily insert A-F.

Kind Regards

Brandon

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138. Sent: Thursday, February 02, 2006 11:55 AM

Subject: FORUM Q & A: TWO ITEMS -- SECONDARY WATER SYSTEM ISSUES AND WHY CAN'T I PRINT OUT FORUM Q & A'S FROM THE AQUATHIN WEBSITE

Dear Aquathin Dealer OnLine;

This Forum Q & A is prompted by my friend Bergis Smith, President of E. Smith Plumbing, a 40 year old well respected (as you can imagine from 40 years in business!) plumbing contractor and Authorized Aquathin Dealer in central Louisiana. Bergis makes great use of The Friendly Six (as you will read), Aquathin Splash NewsBulletins and Forum Q & A's in his residential presentations and government bids.

Below you will read our response for why a very low hard water can be problematic....and why the Banks are locked on the Aquathin Website. Two great topics for a Forum Q & A today !!!

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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-----Original Message-----

From: Alfred J. Lipshultz

Sent: Tuesday, January 31, 2006 8:34 AM

To: bsmith

Subject: RE: VARIOUS

Hi Bergis;

Thank you for your email. You are partially correct in that age, scowering agents, has taken its toll. We can also assume from time to time, the source water has changed hardness...remember secondary water supplies do not have the demanding regs as primary municipal supplies. As well, elevated pH exacerbates any amount of hardness making it easier to form scale. And he may have occassional sediment issues. Recommend an Aquathin Soft & Clean ASC25K/F plus an AquaShield ASTF10-PSW/10M for total home antimicrobial protection and filtration to 10 micron.

Regarding printing Forum Q & A; Yes, we locked this up for viewing only, to prevent anyone from being able to print and change (yes, that has happened before with other Aquathin articles manipulated by competitors for their own use). All you need to do is email or call me with the Q & A's you would like, and I 'll be pleased to email them to you.

Hey this would make for a great Forum Q & A !

Warmest regards,

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-----Original Message-----

From: bsmith001@centurytel.net [<mailto:bsmith001@centurytel.net>]

Sent: Monday, January 30, 2006 10:27 PM

To: alfie@aquathin.com

Subject:

Alfie, we are about to do a bath remodeling for a customer of mine. The house is about twenty years old. He told me he is tired of the crud on his faucets and he wants a softener before we install new faucets and they are ruined. I performed the tests and I am confused why he is complaining about crud on his faucets other than age. His results are Fe-0, Hd-1, Cl-0, Ph-7.5 to 8.0, and TDS of 167. His water comes from a rural water system. Please advise. Bergis.

One other thing. I tried to print the Q and A forum from the website. I wanted to put it in catalogue form for ease of reference. It would not print. Do you set it up for printing not to be possible or would it be a problem on my end?
Thanks

139. **Sent:** Monday, February 13, 2006 11:44 AM
Subject: FORUM Q & A: WHAT IS MICROCYSTIN ?

Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;

This Forum Q & A comes from my good friend, Gordon Bastiaans, Managing Director of Aquathin South Africa. Gordon has a Customer whose source water is lake / reservoir water containing hordes of algae. This particular strain of algae, whether living, dead, chlorinated, releases a serious toxin known as microcystin...and every open ground water supply in the world is subject to it. Your Patented Aquathin RODI Process readily removes microcystin. Attached herewith is the Aquathin RODI Efficiency Chart (prepared in collaboration with Aquathin UK many many years ago!) used in Aquathin University. See "endotoxin". Interestingly, Gordon also had a similar issue several years ago, where the main municipal water supply contained these endotoxins causing deaths of hospital patients. A hospital lab isolated the presence of endotoxins in water used in their autoclave sterilizers. Even though the temperature of the water and heat was high enough and long enough to destroy microorganisms and cleanse surgical tools, the "naked DNA" of the toxin is unaffected by heat. The heat dried / plated the endotoxin onto stainless steel surgical tools which introduced the deadly toxin into the patients during surgery. The hospital tried several water treatment processes with no success...until they met Aquathin South Africa !!! The same Patented Aquathin RODI Process in your residential systems is the same design in our Commercial Models...and many labs and clinics all over appreciate Aquathin's quality and efficiencies.

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Let me know what you AquathinK !

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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From: info@aquathin.com [mailto:info@aquathin.com]

Sent: Wednesday, February 01, 2006 4:22 PM

To: 'Aquathin South Africa'

Subject: RE: MICROCYSTIN

Dear Gordon;

Thank you for your email. The correct spelling is microcystin which is a protein easily removed by your patented Aquathin RODI Process...not distillation...not boiling. It is the "naked DNA" similar to endotoxin (recall my quasi analogy of a squished cockroach...dead bug but the ooze you see would be lethal if this were this strain of algae). Check it out at

http://www.sigmaaldrich.com/Area_of_Interest/Biochemicals/Enzyme_Explorer/Cell_Signaling_Enzymes/Cyanobacterial_Toxins.html.

You could get some reduction with GAC for POE, but never drink this filter water when the known source contains microcystin. Only RODI.

Makings of another excellent Forum Q & A.

Warmest regards,

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"Alfie"

Alfred J. Lipshultz, President

P.S. When responding please continue 'REPLY' to include all previous correspondences on this subject.

From: Aquathin South Africa

Sent: Wednesday, February 01, 2006 2:37 PM

To: Alfie Lipshultz

Subject:

Dear Alfie

I have just faxed you two sheets on water analysed that comes from Pecanwood Estate which obtains its water from Hartebeespoort Dam. This dam water is highly polluted and a lot of algae can be seen in it at all times. This water also flows past several informal settlements. These 2 analyses were conducted by different laboratories. The water they use comes from Pecanwood's purification plant but we have no details on what they do other than that they chlorinate the water. My potential customer says that his family have all lost weight and are sickly after using this water for a period of 2 years.

He states that they have been advised that the treated water also contains "microcystoxin" and that this is very dangerous and can result in damaged to the liver. Please enlighten me about this toxin and its effects also advise how we can get rid of it with both Point of Entry and Point of Use Aquathin products.

With best regards

Gordon

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140. **Sent:** Tuesday, May 02, 2006 12:19 PM
Subject: FORUM Q & A: WHAT IS A POLLUTION PLUME ?

Dear Aquathin Dealer OnLine;

A "pollution plume" is a mass of water that contains undesirable concentrations of some pollutant(s). Water at the periphery of the mass may also contain the pollutant but at lesser concentrations that water authorities may term "acceptable", and not part of the plume (Aquathin would not agree with that philosophy). Plumes are often elliptical or teardrop shaped, with the long axis aligned with the direction of the flow. Pollution plumes move with a tendency to grow in all directions. Surface plumes are easy to recognize as in oceanic tanker oil spills. Subsurface plumes have the same motion but rather than caused by waves or wind, are caused by soil and rock make up, ground water pressure, land elevations. A history of sources of pollution plumes include improper manufacturing and plating disposal, improper dry cleaning fluid disposal, illegal and legal industrial waste, farm runoff of fertilizers and manures, land fills, underground gasoline storage tanks.

Now, the feathery plume in your cap is that your Patented Aquathin RODI Process will deal with it !!!

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Let me know what you AquathinK !

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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Alfred J. Lipshultz, President*

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141. Sent: Monday, May 22, 2006 3:07 PM

Subject: FORUM Q & A: WHAT ARE THE VARIOUS TYPES OF HEPATITIS?

Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;

Summer is coming and that usually means traveling and vacation time for most. Hepatitis is not just a concern when traveling, but also can be equally a concern just taking the family to eat around the corner. Most of us know about 1 or 2 types of hepatitis...there are others, and thankfully with good hygiene, a few shots (meaning injections, not Tequila)...and of course, your Aquathin Portabouts for easy on the spot water purification, we can all have a great traveling experience.

***Hepatitis** is an inflammation of the liver that can be produced directly or indirectly by a number of chemical contaminants of drinking water, as well as infectious agents. A severe case, such as in fulminant viral hepatitis, can be fatal. Damage from milder hepatitis is largely reversible, however, as long as it is not sustained or repeated.*

***Hepatitis A Virus (HAV)** is a ribonucleic acid (RNA) virus that is also known as infectious hepatitis. It is transmitted by fecal-oral person-to-person contact, by ingestion of contaminated food i.e. shellfish, by fecally contaminated water, or by contaminated blood products.*

***Hepatitis B Virus (HBV)** is a form of hepatitis virus also known as serum hepatitis. It is transmitted through the use of contaminated needles, syringes, and blood products. Hepatitis B virus causes a more severe form of hepatitis than other hepatitis viruses.*

***Hepatitis C Virus (HCV)** is a virus that is transmitted through contaminated blood. Hepatitis C virus is a major cause of hepatitis following blood transfusions.*

***Hepatitis D Virus (HDV)** is a circular single-stranded ribonucleic acid virus also known as hepatitis delta agent. The ribonucleic acid of the delta agent requires help from another virus, the deoxyribonucleic acid-containing (DNA) hepatitis B virus, for transmission.*

***Hepatitis E Virus (HEV)** is a virus that resembles a Norwalk (as seen on cruise ships recently) virus of calicivirus (this one causes gastroenteritis) in size and structure but causes hepatitis. Transmission is by the fecal-oral route, with fecally contaminated water being the most common vehicle of transmission.*

Stay safe & have a wonderful summer.

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142. **Sent:** Friday, July 28, 2006 4:27 PM
Subject: FORUM Q & A: TCE UPDATE -- NAS SAYS STOP WASTING TIME

Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;

*Since August 2002, I have sent you articles concerning the chemical contaminate known as TCE (see previous Forum Q & A pasted below for convenience) and its severe carcinogenic (cancer causing) potential. The following article continues with the deepest concern for...and I quote... **NAS recommends that the EPA revise its assessment of TCE's risks using "currently available data" so no more time is wasted.** So let's see, today marks almost 4 years since I sent the first set of articles.... THE POINT IS 4+ YEARS CONTINUE TO BE WASTED. You have heard me state numerous times the great importance for each of us protecting our families via POU and POE whilst our global governments await actioning.*

Regulatory Matters - 7/28/2006 2:25:44 PM

TCE-laden water linked to cancer

WASHINGTON — The National Academy of Sciences (NAS) report suggests the most widespread industrial contaminant in drinking water — trichloroethylene (TCE), a solvent used in adhesives, paint and spot removers — can cause cancer in people, according to July 28 Associated Press (AP) article in [The Sun Herald](#).

TCE, which is also widely used to remove grease from metal parts in airplanes and to clean fuel lines at missile sites, is a possible cause of kidney cancer, reproductive and developmental damage, impaired neurological function and autoimmune disease, the newspaper reported.

According to the article, in its 379-page report, the **NAS recommends that the EPA revise its assessment of TCE's risks using "currently available data" so no more time is wasted.**

That step could lead to stricter regulations; currently the EPA requires limiting TCE to no more than 5 parts per billion (PPB) in drinking water, the newspaper reported.

According to the article, a stricter regulation could force more thorough cleanups at military and other sites.

To read the entire article, click [here](#).

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Alfred J. Lipshultz, President

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From: AQUATHIN TECH SUPPORT [mailto:techsupport@aquathin.com]

Sent: Saturday, February 15, 2003 1:37 PM

To: info@Aquathin.Com

Subject: FORUM Q & A: TCE UPDATE -- 65 TIMES MORE TOXIC THAN ORIGINALLY SUSPECTED

Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;

There are two extremely relevant points in the quick read below. For convenience we've included the original Forum Q & A on TCE from August 1, 2002 towards the bottom of this message.

- 1. TCE is up to 65 more times deadly when inhaled as originally thought. This highly volatile solvent easily comes out of solution when heated and / or sprayed i.e. your showers and baths.*
- 2. 750 of the worst Superfund toxic dump sites contain TCE. You know what these sites and most managed garbage landfill sites have in common? No under liners thus permitting leachate direct to our environment.*

Point of entry protection for our homes as we know is achieved with through the Aquathin MegaChar....and of course the Patented Aquathin RODI Process ready removes this and any solvent from our drinking water. I would urge your Team to review this information and enhance their knowledge of the problem and the solutions. I love my Aquathins !

Warmest regards to all,

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"Alfie"

Alfred J. Lipshultz, President

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Industry Outlook - 2/14/2003 11:49:14 AM

TCE more toxic than suspected, study says

BEAVERTON, OR — The US Environmental Protection Agency (EPA) has new information that says the solvent trichloroethylene (TCE) is more dangerous than previously thought.

According to [*The Oregonian*](#), the information comes on top of state and private tests that found some of the most TCE-contaminated drinking water in the nation at the now-shuttered View-Master plant in Beaverton, which served 25,000 workers with industrial solvent-laced water.

The EPA report on TCE is not final, said the article, but has passed an independent review.

It is based on existing TCE studies and exposures says **the chemical is five to 65 times more toxic than previously thought when inhaled and two to 40 times more toxic when ingested**, the newspaper said.

The report says the dangers vary by the health and age of the person exposed to the chemical.

TCE is suspected of causing an increased risk of illnesses from nerve damage to cancer is also highlighted in the report, according to the article.

Last month, federal officials began a national reassessment of the long-term impact of possible TCE exposure on residents living near Superfund cleanup sites contaminated with the chemical, the newspaper reported.

As many as half of the 1,499 sites on the Superfund list — the worst toxic dumps under federal jurisdiction — contain varying levels of TCE, which has been used by companies from aircraft- to computer-chip-makers, said the article. .

The EPA report comes on the heels of a preliminary study released by the Oregon Department of Human Services two weeks ago. **The study compared 459 workers from a company database to death records — records show that those workers died of pancreatic cancer twice as frequently as the general population and of kidney cancer three times as frequently,** according to the article.

State researchers say they need more money and time to prove TCE caused those cancers, the newspaper said.

----- Original Message -----

From: [AQUATHIN TECH SUPPORT](mailto:info@Aquathin.Com)

To: info@Aquathin.Com

Sent: Thursday, August 01, 2002 1:38 PM

Subject: FORUM Q & A: WHAT IS TCE AND WHAT DISEASE(S) CAN IT CAUSE

Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;

Compliments of Aquathin Tech Bank

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1,1,1-Trichloroethane (1,1,1-TCE) is an organic liquid with a chloroform-like odor. It is largely used as a solvent removing grease from machined metal products, in textile processing and dyeing and in aerosols.

Demand for 1,1,1-trichloroethane was 705 million lbs. in 1989. 1,1,1-TCE is likely to enter the environment by evaporation or in wastewater from its production or use in metal cleaning. It can also enter the environment in leachates and volatile emissions from landfills.

From 1987 to 1993, according to EPA's Toxic Chemical Release Inventory, releases to water and land totalled over 1 million lbs. These releases were primarily from metal fabrication industries. The largest releases occurred in California and Georgia. The largest direct releases to water occurred in Utah and Indiana.

What happens to 1,1,1-TCE when it is released to the environment? 1,1,1-TCE will evaporate rapidly from water and soil. It does not bind to soils nor is it broken down by microbial action, so it may leach to ground water. It has little tendency to accumulate in aquatic life.

Effect:

Short-term: EPA has found 1,1,1-TCE to potentially cause the following health effects when people are exposed to it at levels above the MCL for relatively short periods of time: damage to the liver, nervous system and circulatory system.

Long-term: 1,1,1-TCE has the potential to cause the following effects from a lifetime exposure at levels above the MCL: liver, nervous system and circulatory system damage.

Environment - 8/1/2002 11:53:22 AM

State studies suspected link between TCE, cancer

SOUTHAMPTON, MA — The state Department of Public Health is studying to see if the higher incidence of male bladder cancer can be linked to environmental sources or to particular neighborhoods in this city.

Trichloroethylene (TCE) contamination of groundwater in the Barnes Aquifer could be a factor, according to public health officials, the [*Union-News*](#) reported.

The Barnes Aquifer provides water to Westfield, Southamptton, Easthampton and Holyoke, and traces of TCE started showing up in private wells in Southamptton and Holyoke in 1997, according to state officials, the article said.

TCE, a suspected carcinogen, is believed to be associated with six different kinds of cancer, including bladder cancer; the other five are Hodgkin's disease, kidney cancer, leukemia, liver cancer and non-Hodgkins lymphoma, health officials said in the article.

A statistical study of cancer rates, from 1982-1997, showed that 98 Westfield men were diagnosed with bladder cancer during that period when only 78 cases were expected, state officials said, according to the article, which said Southamptton's rate is even higher with 16 diagnoses of bladder cancer for men when only nine were expected.

A Department of Public Health letter sent to Health Director Geraldine R. Swanson earlier this year, according to the article, states that the incidence of kidney cancer in Southamptton females is more than expected but not significantly elevated with five cases diagnosed over the 16-year period, with only three expected.

The incidence of leukemia in Holyoke during that same period

was also higher than expected, but also not termed as significantly elevated. There were 80 cases observed with only 66 expected, the letter states, according to the article.

Swanson said in the *Union-News* that residents of the Pequot Pond area should hook into municipal water whenever they can.

Water Commissioner Edward J. Cauley estimated that about 150 homes in the Southampton portion of Pequot Pond still use private wells, including "four or five" with well water that tested positive for TCE.

Charles L. Darling, Westfield's Water Superintendent, said about 30 of the city's Pequot Pond residents remain on well water, the *Union-News* said.



143. **Sent:** Thursday, August 03, 2006 4:52 PM
Subject: FORUM Q & A: WHAT IS BRACKISH WATER?

Dear Aquathin Dealer OnLine;

In the last couple months, we have had inquiries to treat "brackish water" and in actuality, the water was not brackish by "modern day technology" standards. So here's the mean skinny (Roaring 1920's lingo for the truth).

Brackish water is water having a mineral content in the range between fresh water and seawater. Fresh or potable water according to the World Health Organization (WHO) is 1800 ppm max TDS...and in the U.S. and Europe is 500 ppm max TDS. Seawater generally has a salinity of approximately 35,000 to 55,000 ppm TDS (and the main reason that desal requires such high pressures of operation). For many years, in water desalting practices, brackish water is generally considered to be water containing 1000 to 10,000 ppm TDS.

Average brackish water by "modern day technology" standards for treatment by commercially repressurized RO of 100 to 250 psi is average 2000 ppm to 6500 ppm respectively. By modern day technology I mean that today's RO membranes are more efficient in production and rejection at higher TDS source waters than 20 years ago.

You cannot tell brackish by color. For example, we treat a crystal clear deep well residential water in central Michigan where the TDS ranges from 6500 ppm to 9000 ppm...and get this...it's naturally soft...that's right, zero hardness. 99% of the TDS is pure salt, NaCl sodium chloride because the wells are located over old salt mines. I live on the water in Florida in a canal system fed by both ocean and mostly Everglades (a lot of aquatic birds and a few gators now and then...great bass fishing). That canal is dark green colored from mangroves...and the TDS is only 300 ppm whilst my clear in-home tap water (would be yellowish from chloramines if not for my Soft & Clean and MegaChar) is 350 ppm!...yes, more minerals than the canal !! (of course the Aqualite reads 0-1 ppm).

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144. **Sent:** Tuesday, August 22, 2006 5:48 PM
Subject: FORUM Q & A: WHAT IS BOD & COD?

Dear Aquathin Dealer OnLine'

In addition to "dissolved solids" (=TDS), water also contains dissolved gasses and the most important is O₂ = oxygen, for without it, fish and other marine life cannot breath...and its concentrations are monitored as a resource for understanding presence of pollution. BOD (Biological Oxygen Demand) is a measure of the quantity of oxygen consumed in the biochemical oxidation of organic matter in a specified time and at a specific temperature. It is determined entirely by the availability of the organic matter (anything from decayed vegetation and industrial waste water to chopped up liquefied garbage from your kitchen sink's disposal) as a biological food and by the amount of oxygen the microorganisms use during oxidation. In other words, a whole lot of organic matter in waste water severely depletes dissolved oxygen. There is a city in Pennsylvania that has outlawed residential and commercial garbage disposals and embalming processes due to the slug loading of organic matter i.e. emulsified veggies, blood and aldehydes (COD) down the drain. COD (Chemical Oxygen Demand) is a measure of the quantity of oxygen consumed by strong chemical oxidants.

There are some industrial processes that require removal of dissolved oxygen from their process water. The method requires a specific resin...and is outside Aquathin's Business Focus.

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145. **Sent:** Thursday, August 24, 2006 11:05 AM

Subject: FORUM Q & A UPDATE: WHAT IS BOD & COD? & WHAT IS TOD & TOC..A BIT MORE TECHNICAL

Dear Aquathin Dealer OnLine;

This is the first Forum Q & A to be loaded onto Banks without having first emailed to all Dealers because of the heavier technical content that will not be of interest or use to most Dealers. I did consider adding TOC and TOD (Total Oxygen Demand) and subsequently omitted so as not to make the Forum Q & A of BOD and COD too much of a technical snoozer. When first preparing all Dealer NewsBulletins, I choose what is and what isn't a Forum Q & A item by what a Dealer asked and then add in what % of Dealers would benefit...and then I re and re and re-edit all the Forum Q & A's and Splash NewsBulletins for hours before emailing to be certain they are entertaining in easy to understand language whilst remaining educational. Please review the TOC and TOD commentary...your comments for sending as a Forum Q & A would be appreciated.

TOD (Total Oxygen Demand) is a quantitative measure of all oxidizable material in a sample of water, as determined instrumentally by measuring the depletion of oxygen after high temperature combustion.

The world, including water chemistry is filled with far too many and confusing anacronyms. TOC (Total Organic Carbon) is not to be confused with oxygen depletion as discussed in BOD and COD. TOC is a measure of the concentration of organic carbon in water determined by oxidation of the organic matter into carbon dioxide (CO₂). Total organic carbon includes all the carbon atoms covalently bonded in organic molecules. Most of the organic carbon in drinking water supplies is dissolved organic carbon, with the remainder referred to as particulate organic carbon. In natural waters, TOC is composed primarily of nonspecific humic materials i.e. decayed vegetation. TOC is used as a surrogate measurement resource for disinfection by-product precursors i.e. THM (trihalomethane) and halo acetic acid, although only a small fraction of the organic carbon will react to form these by-products. Quantitatively, TOC is determined by removing interfering inorganic carbon, such as bicarbonate (HCO₃-), and oxidizing the organic carbon to carbon dioxide. Typically, the carbon dioxide is then measured with a nondispersive infrared detector.inf

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From: AQUATHIN TECH SUPPORT [mailto:techsupport@aquathin.com]
Sent: Tuesday, August 22, 2006 5:48 PM
To: Info@Aquathin.Com (info@aquathin.com)
Subject: FORUM Q & A: WHAT IS BOD & COD?

Dear Aquathin Dealer OnLine'

In addition to "dissolved solids" (=TDS), water also contains dissolved gasses and the most important is O₂ = oxygen, for without it, fish and other marine life cannot breath...and its concentrations are monitored as a resource for understanding presence of pollution. BOD (Biological Oxygen Demand) is a measure of the quantity of oxygen consumed in the biochemical oxidation of organic matter in a specified time and at a specific temperature. It is determined entirely by the availability of the organic matter (anything from decayed vegetation and industrial waste water to chopped up liquefied garbage from your kitchen sink's disposal) as a biological food and by the amount of oxygen the microorganisms use during oxidation. In other words, a whole lot of organic matter in waste water severely depletes dissolved oxygen. There is a city in Pennsylvania that has outlawed residential and commercial garbage disposals and embalming processes due to the slug loading of organic matter i.e. emulsified veggies, blood and aldehydes (COD) down the drain. COD (Chemical Oxygen Demand) is a measure of the quantity of oxygen consumed by strong chemical oxidants.

There are some industrial processes that require removal of dissolved oxygen from their process water. The method requires a specific resin...and is outside Aquathin's Business Focus.

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146. **Sent:** Friday, September 01, 2006 3:30 PM

Subject: FORUM Q & A UPDATE: KOSHER CERTIFICATION AN EQUAL TO GOOD HOUSEKEEPING SEAL OF APPROVAL

Dear Aquathin Dealer OnLine;

If you are not taking advantage of pointing out your Kosher Certification...you are just plain missing out on a huge bullet in your bandoleer! The OU Kosher Mark is one of the most recognized and respected Brands for identifying Quality Integrity Purity and Health of a product...recognized by all walks of faith and nationalities. In the attached article you will read the heavy use of Kosher Marked products by Wal-Mart, Publix, Albertson's, Kroger, Safeway, and more. So, understand this... "you don't have to be Jewish to eat at Izzy's !"

Please print and review the attached article by Orthodox Union's Rabbi Safran (whom I know and work with) with each of your Sales and Tech Teammates. The first paragraph identifies FIVE MARKETS you should be calling on and making it key to point out your Kosher Certification....aaaaaaaaaaaaand be certain to include that your company is the only manufacturer of water purification systems that has achieved Kosher Certification. The OU Kosher Symbol has come to be as universally recognized as the Good Housekeeping Seal of Approval...and today Kosher is perceived as chic!

For your convenience, below I have pasted the first 'Forum Q & A: Kosher, What Is It and Why Did We Become Certified' .

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From: AQUATHIN SALES & MARKETING [mailto:salesandmarketing@aquathin.com]

Sent: Monday, June 03, 2002 5:09 PM

To: Info@Aquathin.Com

Subject: FORUM Q & A; KOSHER, WHAT IS IT AND WHY DID WE BECOME CERTIFIED ?

Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;

This Forum Q & A deals with inquiries as to what the Kosher Certification means to our products and for our customers, and why Aquathin chose to acquire this tremendous achievement. The text below is taken from my reply to an Aquathin Dealer in Central America that is also Arab and devout Muslim.

It is important to note that there are a number of certification entities that are not recognized as legitimate or respectable due to either their lack of testing, enforcement and other affiliations. Aquathin has achieved certification from The Orthodox Union, the most respected organization...and recently also received certification from Badatz which vies for the esteemed position as leading certification organization.

Warmest regards to all,

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Acquiring Kosher certification was my father's idea. We know that the Orthodox Jewish market is very small. But there are almost 2 billion people, like your family, that subscribes to the Biblical dietary laws, which is the root of Kosher. This is how we entered into the Saudi region.

Some people think that Kosher is a prayer or blessing, but it is much more than that. In fact I have a video on Kosher certification and would be pleased to bring it during my visit if you wish. Aquathin was visited by Rabbi's from Orthodox Union, who were also professional engineers and chemists. They inspected our manufacturing facilities and each raw component and how they are processed and assembled into the final products. They also recorded all of our test data. The process took many hours, expense and six months to achieve...which we did the first time. Many companies must make changes to comply. We did not! Orthodox Union Rabbi's have 2 surprise (unannounced) inspections at Aquathin per year.

Here's something very interesting. About 15 years ago, there were only 400 products (mostly foods) certified Kosher. Today there are over 20,000. The public has come to identify Kosher with quality, integrity, purity and health. Your company, Aquathin, is the first and only manufacturer of water treatment equipment to have achieved Kosher certification to date.

I respectfully recommend that you use the Kosher logo and marketing to full advantage with Muslims, Christians, Jews and all others interested in health.

And for those who do not know, educate them about this terrific benefit. Anyone can go to the internet and visit the Orthodox Union at www.ou.org to see who is certified.



147. **Sent:** Saturday, September 02, 2006 1:22 PM

Subject: FORUM Q & A UPDATE; WHERE'S ALL THE WATER? ITS IN YOUR SOCKS MATE !...AND CHECK OUT HOW MUCH WATER IT TAKES TO MAKE A CAR AND A COUPLE POUNDS OF WOOL !!!

Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;;

I received the following most interesting information from a Peter Jacobson of Purified Water To Go, new friend...recent Aquathin University Graduate and new Authorized Aquathin Dealer in Annapolis, Maryland. For all you Yanks... 1 gallon = 3.785 litres. And pasted below, is the original Aquathin Forum Q&A on the subject. Enjoy!

Quick Water Facts

Source: LOHAS Weekly Newsletter 8/25/2006

Author: Financial Times

According to United Nations figures, 2.6 billion people consume unsafe and polluted water every day. As the population blooms, the issue of access to fresh water is literally one of life or death. Last weekend's Financial Times pointed out some interesting facts about everyday water consumption:

- It takes 53 liters of water to produce one orange.
- 1 pint of milk: 250 liters
- 1 egg: 450 liters
- 1kg of potatoes: 500 liters
- 1 loaf of bread: 550 liters
- 1 kg of butter: 18,000 liters
- 1kg of wool: 200,000 liters
- 1 car: 150,000 liters

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From: AQUATHIN TECH SUPPORT [mailto:techsupport@aquathin.com]
Sent: Friday, March 22, 2002 11:02 AM
To: info@Aquathin.Com
Subject: FORUM Q & A; WHERE'S ALL THE WATER? ITS IN YOUR SOCKS MATE !

Dear Aquathin Dealer OnLine;

The drought concerns and lowered aquifers are serious issues. Incidentally, when aquifers diminish in volume, minerals and pollutants increase in concentration! Even more reason to own an Aquathin !!

Below you will read my response to an inquiry. This would actually make for an excellent school science project. If anyone presents this idea to a student who uses this them for a school project, I would love to have the results of their calculations.

Enjoy!

*Warmest regards,
Alfie*

Dear Jeff;

What some bright lad ought to state is that the water shortage is caused by more than just lack of rain. Build out and build up is sucking Florida and many other areas dry. There are now 6 billion people on Earth. 70% of the human body is water. At an average body weight of 125 lbs. per person = 10.5 gallons of water = **63 billion gallons just walking (actually taken out of the resource pool) !** Consider about 10,000 times more than that required to grow crops and raise animals to feed the population (and that's not counting water to produce

needs i.e. housing, clothing, band-aids, packaging, cleaning goods).

Warmest regards,
Alf



148. **Sent:** Tuesday, September 12, 2006 11:39 AM
Subject: FW: FORUM Q & A UPDATE: KOSHER CERTIFICATION AN EQUAL TO GOOD HOUSEKEEPING SEAL OF APPROVAL

Dear Aquathin Dealer Online;

*On September 1, I sent you an update concerning the heightened awareness for the reputation of Kosher Certification...on par with Good Housekeeping's Seal of Approval. Please read and enjoy the commentary below dated 9/5 and further below dated 9/2 **in bold** from my longtime friend and Authorized Aquathin Dealer in Canada, Noel Douglas of Aquascience. Noel makes it a practice to point out Kosher Certification to confirm the sale...re-edify the Customer's positive decision...and acquire referrals...even to his largest commercial Customers !*

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From: AquaScience Intl.

Sent: Tuesday, September 05, 2006 8:20 PM

To: salesandmarketing@aquathin

Subject: Re: FORUM Q & A UPDATE: KOSHER CERTIFICATION AN EQUAL TO GOOD HOUSEKEEPING SEAL OF APPROVAL

Alfie; By all means please forward to as many as possible. I firmly believe that we are blessed to have such an organization that is the "Guardian," for millions of people around the world. The products sold that have the kosher label will undoubtedly increase the life expectancy of each and every one of us, that use them where ever possible. Your friend, Noel

----- Original Message -----

From: AQUATHIN SALES & MARKETING

To: 'AquaScience Intl.

Sent: Tuesday, September 05, 2006 3:38 PM

Subject: RE: FORUM Q & A UPDATE: KOSHER CERTIFICATION AN EQUAL TO GOOD HOUSEKEEPING SEAL OF APPROVAL

Hi Noel;

Thank you for your email. With your permission, I would like to pass your comments on to all Aquathin Dealers later this week.

Awaiting your reply and warmest regards,

Alfie

From: AquaScience Intl.

Sent: Saturday, September 02, 2006 9:51 AM

To: salesandmarketing@aquathin

Subject: Re: FORUM Q & A UPDATE: KOSHER CERTIFICATION AN EQUAL TO GOOD HOUSEKEEPING SEAL OF APPROVAL

Alfie: Hi, You won;t believe this, but I now supply several large farms with 35% Food Grade Hydrogen Peroxide with the Kosher label attached, and show them the extra quality built into this product the same as their Quality Water Purification from Aquathin. Your friend, Noel

----- Original Message -----

From: [AQUATHIN SALES & MARKETING](#)

To: Info@Aquathin.Com

Sent: Friday, September 01, 2006 3:30 PM

Subject: FORUM Q & A UPDATE: KOSHER CERTIFICATION AN EQUAL TO GOOD HOUSEKEEPING SEAL OF APPROVAL

Dear Aquathin Dealer OnLine;

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Please print and review the attached article by Orthodox Union's Rabbi Safran (whom I know and work with) with each of your Sales and Tech Teammates. The first paragraph identifies FIVE MARKETS you should be calling on and making it key to point out your Kosher Certification....aaaaaaaaaand be certain to include that your company is the only manufacturer of water purification systems that has achieved Kosher Certification. The OU Kosher Symbol has come to be as universally recognized as the Good Housekeeping Seal of Approval...and today Kosher is perceived as chic!

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Alfred J. Lipshultz, President

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From: AQUATHIN SALES & MARKETING [mailto:salesandmarketing@aquathin.com]

Sent: Monday, June 03, 2002 5:09 PM

To: Info@Aquathin.Com

Subject: FORUM Q & A; KOSHER, WHAT IS IT AND WHY DID WE BECOME CERTIFIED ?

Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;

This Forum Q & A deals with inquiries as to what the Kosher Certification means to our products and for our customers, and why Aquathin chose to acquire this tremendous achievement. The text below is taken from my reply to an Aquathin Dealer in Central America that is also Arab and devout Muslim.

It is important to note that there are a number of certification entities that are not recognized as legitimate or respectable due to either their lack of testing, enforcement and other affiliations. Aquathin has achieved certification from The Orthodox Union, the most respected organization...and recently also received certification from Badatz which vies for the esteemed position as leading certification organization.

Warmest regards to all,

FOR THE BEST TASTE IN LIFE

Think Aquathin..AquathinK !!

Celebrating our 22nd birthday in 2002 !!!

(visit the allnew <http://www.aquathin.com>)

"Alfie"

Alfred J. Lipshultz, President

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Acquiring Kosher certification was my father's idea. We know that the Orthodox Jewish market is very small. But there are almost 2 billion people, like your family, that subscribes to the Biblical dietary laws, which is the root of Kosher. This is how we entered into the Saudi region.

Some people think that Kosher is a prayer or blessing, but it is much more than that. In fact I have a video on Kosher certification and would be pleased to bring it during my visit if you wish. Aquathin was visited by Rabbi's from Orthodox Union, who were also professional engineers and chemists. They inspected our manufacturing facilities and each raw component and how they are processed and assembled into the final products. They also recorded all of our test data. The process took many hours, expense and six months to achieve...which we did the first time. Many companies must make changes to comply. We did not! Orthodox Union Rabbi's have 2 surprise (unannounced) inspections at Aquathin per year.

Here's something very interesting. About 15 years ago, there were only 400 products (mostly foods) certified Kosher. Today there are over 20,000. The public has come to identify Kosher with quality, integrity, purity and health. Your company, Aquathin, is the first and only manufacturer of water treatment equipment to have achieved Kosher certification to date.

I respectfully recommend that you use the Kosher logo and marketing to full advantage with Muslims, Christians, Jews and all others interested in health. And for those who do not know, educate them about this terrific benefit. Anyone can go to the internet and visit the Orthodox Union at www.ou.org to see who is certified.



149. **Sent:** Monday, February 13, 2006 11:44 AM
Subject: FORUM Q & A: WHAT IS MICROCYSTIN ?

Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;

This Forum Q & A comes from my good friend, Gordon Bastiaans, Managing Director of Aquathin South Africa. Gordon has a Customer whose source water is lake / reservoir water containing hordes of algae. This particular strain of algae, whether living, dead, chlorinated, releases a serious toxin known as microcystin...and every open ground water supply in the world is subject to it. Your Patented Aquathin RODI Process readily removes microcystin. Attached herewith is the Aquathin RODI Efficiency Chart (prepared in collaboration with Aquathin UK many many years ago!) used in Aquathin University. See "endotoxin". Interestingly, Gordon also had a similar issue several years ago, where the main municipal water supply contained these endotoxins causing deaths of hospital patients. A hospital lab isolated the presence of endotoxins in water used in their autoclave sterilizers. Even though the temperature of the water and heat was high enough and long enough to destroy microorganisms and cleanse surgical tools, the "naked DNA" of the toxin is unaffected by heat. The heat dried / plated the endotoxin onto stainless steel surgical tools which introduced the deadly toxin into the patients during surgery. The hospital tried several water treatment processes with no success...until they met Aquathin South Africa !!! The same Patented Aquathin RODI Process in your residential systems is the same design in our Commercial Models...and many labs and clinics all over appreciate Aquathin's quality and efficiencies.

I LOVE MY AQUATHIN ! AND REMEMBER, THE NEXT BEST THING TO OWNING AN AQUATHIN IS RECOMMENDING ONE TO A FRIEND !!

Let me know what you AquathinK !

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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"Alfie"

Alfred J. Lipshultz, President

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From: info@aquathin.com [mailto:info@aquathin.com]

Sent: Wednesday, February 01, 2006 4:22 PM

To: 'Aquathin South Africa'

Subject: RE: MICROCYSTIN

Dear Gordon;

Thank you for your email. The correct spelling is microcystin which is a protein easily removed by your patented Aquathin RODI Process...not distillation...not boiling. It is the "naked DNA" similar to endotoxin (recall my quasi analogy of a squished cockroach...dead bug but the ooze you see would be lethal if this were this strain of algae). Check it out at

http://www.sigmaaldrich.com/Area_of_Interest/Biochemicals/Enzyme_Explorer/Cell_Signaling_Enzymes/Cyanobacterial_Toxins.html.

You could get some reduction with GAC for POE, but never drink this filter water when the known source contains microcystin. Only RODI.

Makings of another excellent Forum Q & A.

Warmest regards,

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"Alfie"

Alfred J. Lipshultz, President

P.S. When responding please continue 'REPLY' to include all previous correspondences on this subject.

From: Aquathin South Africa
Sent: Wednesday, February 01, 2006 2:37 PM
To: Alfie Lipshultz
Subject:

Dear Alfie

I have just faxed you two sheets on water analysed that comes from Pecanwood Estate which obtains its water from Hartebeespoort Dam. This dam water is highly polluted and a lot of algae can be seen in it at all times. This water also flows past several informal settlements. These 2 analyses were conducted by different laboratories. The water they use comes from Pecanwood's purification plant but we have no details on what they do other than that they chlorinate the water. My potential customer says that his family have all lost weight and are sickly after using this water for a period of 2 years.

He states that they have been advised that the treated water also contains "microcystoxin" and that this is very dangerous and can result in damaged to the liver. Please enlighten me about this toxin and its effects also advise how we can get rid of it with both Point of Entry and Point of Use Aquathin products.

With best regards

Gordon

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150. **Sent:** Friday, October 27, 2006 3:15 PM
Subject: FORUM Q & A: WILL FREEZING PLASTIC BOTTLES RELEASE "DIOXIN"?

Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;

Over the past couple months, we received calls from Dealers and Customers concerning an "urban legend" that freezing PET plastic bottles will create dioxin...and that is not possible. Please read the white paper report below from the IBWA (International Bottled Water Association) of which Aquathin is also a Member.

Additionally, Aquathin Dealers utilize superior polycarbonate bottles (see attached) that are virtually inert...meaning nothing leaches, Aquathin Pure tastes great. So Moms, it's OK to freeze water and juices in Aquathin bottles!!!

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Let me know what you AquathinK !

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**IBWA Position Summary  
PET Plastic Bottled Water Containers and DEHA**

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***IBWA Position Summary  
PET Plastic Bottled Water Containers and DEHA***

*The US Food and Drug Administration (FDA) regulates bottled water as a packaged food product and, for bottled water and all other foods and their packaging, FDA has determined that PET meets standards for food contact materials. The basis for a widely circulated e-mail, which questioned the safety of PET plastic containers, was based on a college student's master's thesis that was not subject to peer review and did not reflect a level of scientific rigor that would provide accurate and reliable information about the safety of these products. Fortunately, FDA requires a much higher standard to make decisions about food contact packaging.*

*Di(2-ethylhexyl)adipate (DEHA) is neither regulated nor classified as a human carcinogen. Further, DEHA is not inherent in PET plastic as raw material, byproduct or decomposition product. DEHA has been cleared by FDA for food contact applications and would not pose a health risk even if present. DEHA is a common plasticizer used in many plastic items, many of which are found in the lab setting. For this reason, the student's detection (see comment above) is likely to have been the result of inadvertent lab contamination.*

*Further, there is simply no scientific basis to support the claim that water bottles will release dioxins when frozen; this is the subject of an e-mail hoax. This fact is confirmed by the Johns Hopkins Bloomberg School of Public Health, where its web site states, "This is an urban legend. Freezing actually works against the release of chemicals... [freezing] would limit chemical release if there were dioxins in plastic, and we don't think there are." See [www.jhsph.edu/Press\\_Room/articles/Halden\\_dioxins.html](http://www.jhsph.edu/Press_Room/articles/Halden_dioxins.html) for full citation.*

*Dioxins are a family of chemical compounds that are produced by combustion at extremely high temperatures. They can only be formed at temperatures well above 700 degrees Fahrenheit; they cannot be formed at room temperature or in freezing temperatures. Moreover, there is not reasonable scientific basis for expecting dioxins to be present in plastic beverage or food containers in the first place.*

*Also note that PET plastics used for bottled water containers are not unique to this product type and is the same as PET plastics used to package other common foods and beverages.*

*###*

*The International Bottled Water Association (IBWA) is the authoritative source of information about all types of bottled waters. Founded in 1958, IBWA's membership includes U.S. and international bottlers, distributors and suppliers. IBWA is committed to working with the U.S. Food and Drug Administration, which regulates bottled water as a packaged food product, and state governments to set stringent standards for safe, high quality bottled water products. Bottler members must also adhere to the IBWA Model Code, which mandates additional standards and practices. Contact IBWA at 1-*



800-WATER-11 or [www.bottledwater.org](http://www.bottledwater.org) for more information about bottled water and a list of members' brands. Media inquiries can be directed to V. Tom Gardners at 703-683-5213 ext. 107.

September 14, 2004



151. **Sent:** Friday, December 01, 2006 3:49 PM

**Subject:** FORUM Q & A UPDATE #3: WHAT'S UP WITH OXYGENATED WATER...nothing, nada, zilch....

*Dear Aquathin Dealer OnLine;*

*Since 2002 (pasted below for immediate convenience), I have reported to you, the various vagaries and flawed science of "oxygenated water". Enjoy its latest hammering published today and pay particular attention to the links to review those added articles. I would respectfully recommend that you review with your Sales & Tech Team so that they are able to provide informed responses whenever asked about hokey mumbojumbo oxygenated water. Lastly, you cannot believe the imbecile remarks from the Netherlands oxygen water representative...*

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*Let me know what you AquathinK !*

*Warmest regards to all...as well, your comments are always welcome and very much appreciated.*

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Bottled Water - 12/1/2006 1:16:38 PM

'Oxygen waters' make airy claims, expert says

Bottled waters infused with extra oxygen may provide no more exercise benefits than breathing ordinary air, a medical expert told the Beveragedaily.com news service earlier this year, as also reported this week by the The Water Connoisseur newsletter.

Dr. Claude Piantadosi, director of the Center for Hyperbaric Medicine and Environmental Physiology at Duke University Medical Center, wrote in the British Journal of Sports Medicine that there is more oxygen in a breath of fresh air than in a liter of the

most "hyperoxygenated" bottled waters, according to the report.

Piantadosi said several studies suggest that the body can ingest only very small amounts of oxygen from drinking water compared with the amount required for exercise and that no significant amount of oxygen is absorbed through the intestine, according to Beveragedaily.com.

Bottled waters promoting their added oxygen, some at premium prices, have been big sellers in recent years; one such brand, Netherlands-based OGO, claims to have 35 times the oxygen of ordinary water.

The OGO [Web site](#) says this: "OGO oxygen products, in the form of water or oxygen canisters, enhance your everyday life. Use them to awaken your senses for the busy day ahead, whether you need to stay alert during meetings or whether you are in preparation for active sports. OGO helps you perform to the best of your abilities by enabling faster recovery from fatigue."

An OGO spokesman earlier this year told Beveragedaily.com that the company makes no medical claims "because we haven't done that kind of research," but he added that there was considerable anecdotal and documentary evidence that the water improved customers' well-being, although the effects could be partly psychological.

Supplementary oxygen in air is used in medical situations to aid breathing and may have benefits during exercise, according to the report.

To find the Beveragedaily.com report, click [here](#).

From: AQUATHIN TECH SUPPORT [mailto:techsupport@aquathin.com]

Sent: Friday, November 19, 2004 6:00 PM

To: info@Aquathin.Com

Subject: FORUM Q & A UPDATE #2: WHAT'S UP WITH OXYGENATED WATER FROM MEDICAL NEWS TODAY

Dear Aquathin Dealer OnLine;

*Here is another 9" nail in the coffin of the oxygenated water mini-fad. This medical article discusses the discovery of what regulates oxygen in blood. Drop down to the last paragraph in bold and note the newly discovered oxygen sensing molecule triggers the signal to increase ventilation **not thirst**...meaning once again, obtaining oxygen direct into blood and muscle is from lungs and not from the phony claims for increasing or even the capacity to obtain oxygen from water.*

Whenever anyone decides to espouse their grand knowledge of hyper O2 H2O, hand over this Forum Q & A with all updates. GOTTALUVIT !

I LOVE MY AQUATHIN (news wires !)

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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Discovery reveals how the body regulates blood oxygen

16 Nov 2004

Findings have implications for treatment - A team of researchers, led by a Cardiff University professor, has discovered how the body regulates the amount of oxygen in the bloodstream.

The findings, by Professor Paul Kemp of the Cardiff School of Biosciences, and colleagues at both Cardiff and Leeds Universities, will be published in the journal Science later this month.

"The discovery could have important implications for understanding how the body adjusts to major changes in oxygen levels, such as when babies are born or following a stroke," said Professor Kemp. "It will certainly lead to the development of new therapeutic

cascade of signals that ultimately increases ventilation," explained Professor Kemp. "Until now, it has been unclear exactly how these channels sense oxygen."

The scientists discovered that the oxygen-sensing molecule is the enzyme "hemoxxygenase-2". Under normal conditions, this enzyme uses oxygen to generate carbon monoxide. Under low-oxygen conditions, the enzyme produces less carbon monoxide, thus inhibiting the channels and triggering the signal to increase ventilation.

Contact: Professor Paul Kemp
KempPJ@cardiff.ac.uk
44-292-087-9347
Cardiff University

----- Original Message -----

From: [AQUATHIN TECH SUPPORT](mailto:Info@Aquathin.Com)

To: Info@Aquathin.Com

Sent: Wednesday, November 12, 2003 1:58 PM

Subject: FORUM Q & A UPDATE: WHAT'S UP WITH OXYGENATED WATER ?

Dear Aquathin Dealer OnLine;

Here's one for the "I Told You So" column. On June 17, 2002, I sent you a Forum Q & A (pasted below for your convenience) concerning the 'hyperventilated claims' made by the 'marketeers' of oxygenated bottled water. Enjoy the quick read below from the Journal of the American Medical Association.

Please reprint this message for your Sales Team to have on hand when anyone asks about this 'puffery'.

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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Bottled Water - 11/12/2003 11:54:49 AM

Medical journal: Bottled water's added oxygen not healthier

SEATTLE — A study published in the *Journal of the American Medical Association* (JAMA) has found that each of the five brands of oxygenated water the researchers tested contained less oxygen in 12 ounces than is contained in a single human breath, [The Seattle Times](#) reported.

The study was conducted by researchers at Seattle's Virginia Mason Medical Center and at Duke University in North Carolina. Testing 11 adults, they also found "no significant differences in exercise results" based on whether the person drank oxygenated bottled water or ordinary tap water, the article stated.

Two Northwest producers of oxygenated water responded to the study in different ways. A spokeswoman for Talking Rain, of Preston, WA, said the company makes no health claims for its product, called airwater, while Aqua Rush, of Coeur d'Alene, ID, told the paper that its oxygen-infusing technique gives its product a higher level of "stable" oxygen than any others.

The researchers would not identify any of the five brands they tested, nor whether either of the Northwest brands was included in the study, according to the paper.

----- Original Message -----

From: [AQUATHIN TECH SUPPORT](#)

To: info@Aquathin.Com

Sent: Monday, June 17, 2002 10:08 AM

Subject: FORUM Q & A: WHAT'S UP WITH OXYGENATED WATER ?

Dear Aquathin Dealer OnLine;

One of the newest "fads" to hit the industry is bottled water with oxygen added called "oxygenated water" (Note I did not capitalize the O and W to lend credence and was even reluctant to use the " " !).

The providers make very nebulous general claims i.e. athletes perform better. Even if oxygenated water had any benefit, it would have dissipated by the time it reached you and / or the cap was opened similar to H₂S. And surely any attempt to make coffee, tea or to cook with would get rid of any excess gases.

One could never get any definitive result of oxygenated water because we are not built to get any definitive result through ingestion. The only way to get any definitive result is to sprout gills. And said conversely, if oxygenated water did increase the oxygen uptake, that must mean anyone who drinks 3-4 sodas a day would be suffocating from the CO₂ carbon dioxide bubbles !

The testimonials of enhanced well being promoted by the sellers of oxygenated water, are more likely due the benefits received from better hydration due to increased water consumption and / or substituting copious quantities of water for whatever one had been drinking i.e. sodas, coffee, alcohol.

SO WHAT'S THE REAL BENEFIT----Increased public awareness for another alternative to tap water which grows the market. When the user realizes the contents of the bottle are not what they expected, the user does not go back to the tap.....they will change bottled waters or hit the Yellow Pages for a water treatment professional.

Have a great week and warmest regards to all,

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"Alfie"

Alfred J. Lipshultz, President

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152. **Sent:** Tuesday, January 09, 2007 2:02 PM
Subject: FORUM Q & A: WHAT MEANS "NTU" IN A TURBIDITY TEST?

Dear Aquathin Dealer OnLine;

Most often in every "complete" test of municipal and well water, you will see "Turbidity" with a value something like "< 1 NTU". After almost 27 years in the biz, I've finally been asked what kindasorta measurement is that!?! Interestingly, the question came in from a non-Aquathin water treatment retailer. Turbidity is an item reviewed at Aquathin University. So, I thought it would be a nice review again for you and your Sales & Tech Team.

Turbidity is caused by erosion, runoff, wastewater discharges (yech!...and remember that everyone lives downstream from somebody else!) and it is important to measure because cloudiness interferes with chlorine or chloramine or UV or ozone's disinfection efficiency. Maximum turbidity MCL is 0.5 - 1.0 NTU. NTU stands for Nephelometric Turbidity Unit and is measured by a Nephelometer...coming from the Greek word 'nephel' meaning 'cloud'. Hence a Nephelometer is measuring cloudiness of water. Cloudiness is not to be confused with sediment. The nephelometer measures the amount of light scattered by particles in a water sample. It is the only instrument approved by the U.S. Environmental Protection Agency to measure turbidity in treated drinking water. It operates by passing light deflected (usually at a 90 degree angle).

For those of us suffering from insomnia: A Turbidity Unit of 1 NTU is equivalent to the turbidity / cloudiness created by a lab controlled 1:4000 dilution of a stock solution of 5 ml of a 1 gram hydrazine sulfate in 100 ml of deionized water plus 5 ml of a 10 gram hexamethylenetetramine in 100 ml deionized water solution that has stood for 24 hours at 25 +/- 3 degrees Celsius. mmmmmmmmmmm, I do feel like taking a nap now!

Bottom line...cloudy water prevents complete disinfection and that's not good...and since the cloudiness can come from run off and wastewater, it can contain everything from clay, bacteria and cysts held in suspension and could also lead to higher TDS, metals, nitrates and organics.

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Let me know what you Aquathink !

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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153. **Sent:** Tuesday, February 06, 2007 10:28 AM

Subject: FORUM Q & A UPDATE #3 FLUORIDE: REVIEW POU & POE REMOVAL METHODS

Dear Aquathin Dealer OnLine;

We have had numerous inquiries since the beginning of the year concerning removal of fluoride (4 mg/l MCL)...and all Customer driven. I have pasted below the previous Forum Q & A's on the subject for your convenience...and of course, all are easily located in the BANKS on the Aquathin Website...exclusive to all Authorized Aquathin Dealers. The public's growing interest includes removal via POU and POE.

Since fluoride is the buzzword of the hour, I thought it would be a good idea to review the methods of treatment from Aquathin University.

FOR POU

1. The Patented Aquathin RODI Process.
2. The Aquathin LeadOut Filter.
3. Distillation.

FOR POE

1. The Aquathin Soft & Clean Water Conditioning Series with Fluoride Anion floated on top of the softening cation.
2. The Aquathin MiniMegaChar with half cuft of LeadOut.
3. The Aquathin MegaChar mixed bed with half cuft LeadOut.

I LOVE MY AQUATHIN ! AND REMEMBER, THE NEXT BEST THING TO OWNING AN AQUATHIN IS RECOMMENDING ONE TO A FRIEND !!

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**From:** AQUATHIN TECH SUPPORT [mailto:techsupport@aquathin.com]

**Sent:** Thursday, September 01, 2005 4:13 PM

**To:** Info@Aquathin.Com

**Subject:** FORUM Q & A FLUORIDE UPDATE: EPA UNIONS CALL FRO MORATORIUM ON FLUORIDE IN DRINKING WATER

*Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;*

*On July 25th and 30th, 2005, I sent you Forum Q & A Updates concerning a potential link between fluoridation processes and cancer. My friends and Authorized Aquathin Dealers, Ron Wiedoff, President of Natural Choice Int'l. on Florida's west coast, and Troy Higgenson, President of Aquathin Air and Water of Evansville in Indiana, are deep into the anti-fluoridation move...and with just cause as you will read in the article provided by Ron today.*

*WE LOVE OUR AQUATHIN !!!*

*Warmest regards to all...as well, your comments are always welcome and very much appreciated.*

*FOR THE BEST TASTE IN LIFE &*

***25 Years Pure Excellence***

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*( visit the allnew [www.aquathin.com](http://www.aquathin.com) )*

*"Alfie"*

*Alfred J. Lipshultz, President*

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**boston.com**

THIS STORY HAS BEEN FORMATTED FOR EASY PRINTING

## ***EPA unions call for moratorium on fluoride in drinking water***

*By Matthew Daly, Associated Press Writer | August 31, 2005*

*WASHINGTON --Eleven unions representing more than 7,000 workers at the Environmental Protection Agency are calling for a national moratorium on programs to add fluoride to drinking water, citing what they call a possible cancer risk.*

*In a letter to EPA Administrator Stephen Johnson, the unions say the agency should act even before a committee of the National Academy of Sciences completes a report on the issue early next year.*

*J. William Hirzy, an EPA scientist and vice president of the National Treasury Employees Union, Local 280, said Johnson should act now in light of allegations that a Harvard University dentistry professor downplayed research showing an increased risk of bone cancer for boys who drink fluoridated tap water.*

*Harvard said in June it is investigating the allegations against Chester Douglass, who heads the school's Department of Oral Health Policy and Epidemiology.*

*Douglass led a seven-year study of fluoride exposure and osteosarcoma, a rare form of bone cancer. The study found that the odds of having osteosarcoma for those who drink fluoridated water were "not statistically different" from those who drank non-fluoridated water.*

*But Elise Bassin, a doctoral student supervised by Douglass, reported in her 2001 thesis that boys who drink fluoridated water appear to have an increased risk of developing the cancer.*

*Her findings were based on some of the same people who participated in Douglass' study.*

*Hirzy, the union leader, said EPA employees "don't think it serves the public or the image of the EPA for us to be sitting on our hands in the face of increased epidemiological risk of sarcoma in young boys."*

*EPA unions have pressed the agency to limit fluoride since the 1990s.*

*Eryn Witcher, a spokeswoman for Johnson, said the agency is "committed to protecting human health -- basing our decisions on sound scientific data -- which is why we have requested an independent review, evaluating all of the new data on fluoride, from the National Academy of Sciences, the nation's highest science review panel."*

*The group's recommendations are expected by February.*

*The Environmental Working Group, a Washington-based advocacy group, filed an ethics complaint against Douglass in June, citing his position as editor-in-chief of The Colgate Oral Health Report, a quarterly newsletter funded by Colgate-Palmolive Co., which makes fluoridated toothpaste.*

-----

*On the Net:*

*EPA: <http://www.epa.gov>*

NAS: <http://www.nasonline.org/>

EPA union: <http://www.nteu280.org/> ■

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**From:** AQUATHIN TECH SUPPORT [mailto:techsupport@aquathin.com]  
**Sent:** Saturday, July 30, 2005 11:32 AM  
**To:** info@aquathin.com  
**Subject:** FW: FORUM Q & A: NEWS ON FLUORIDE

**FORUM Q&A ADDED COMMENT**

Dear Aquathin Dealer Online;

Please read the additional and extremely important comments provided by Roger Wiltshire, Managing Director of Aquathin UK- The Pure H2O Company, concerning the inefficiencies of cheap RO. Start 3 messages below this email then head north !

Warmest regards to all,  
Alfie

---

**From:** Roger Wiltshire  
**Sent:** Tuesday, July 26, 2005 11:18 AM  
**To:** techsupport@aquathin.com  
**Subject:** RE: FORUM Q & A: NEWS ON FLUORIDE

Hi Alfie

By all means use the comments

Roger

---

**From:** AQUATHIN TECH SUPPORT [mailto:techsupport@aquathin.com]  
**Sent:** 26 July 2005 14:55  
**To:** Roger Wiltshire  
**Subject:** RE: FORUM Q & A: NEWS ON FLUORIDE

Hey Rog;



*Well done ! That chronic reduction in rejection is a major flaw in ordinary RO. I would like to use your commentary in a followup.*

*Warmest regards,*

*Alfie*

---

**From:** Roger Wiltshire  
**Sent:** Tuesday, July 26, 2005 4:45 AM  
**To:** techsupport@aquathin.com  
**Cc:** Nicki Woodward  
**Subject:** RE: FORUM Q & A: NEWS ON FLUORIDE

*Very interesting article Alfie*

*Re RO rejection%:*

*Don't forget the chronic reduction in rejection / bleed effect across the membrane when the storage tank reaches 20+psi and, worse still, on cheap RO equipment where the inefficient valve fails to close at 30psi resulting in extended periods of low pressure across the membrane not to mention the never ending waste of water.*

*Regards*

*Roger*

---

**From:** AQUATHIN TECH SUPPORT [mailto:techsupport@aquathin.com]  
**Sent:** 25 July 2005 18:18  
**To:** info@aquathin.com  
**Subject:** FORUM Q & A: NEWS ON FLUORIDE

*Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;*

Fluoride salts (either fluosilic acid, or sodium silicofluoride, or sodium fluoride) are added to municipal water supplies in a process called fluoridation to help prevent tooth decay. Fluoride is regulated by the U.S. Environmental Protection Agency at a concentration of 1 ppm. Fluoride can also naturally occur in well water of which the MCL permitted is only 4 ppm...chronic exposure to excessive concentrations will cause fluorosis, a mottling or browning of the teeth, and can contribute to brittle bones in older folk.

There is plenty of issues on the tables around the world for the pros and cons of fluoridation. I sent a Forum Q&A out on December 18, 2003 discussing removal capacities (see pasted at bottom for your convenience...and also published in the Banks section of the Aquathin website).

However, today appeared a very serious article and argument against fluoridation as you will read below. It will be interesting to watch the forthcoming science and to see how this plays out. But I will tell you about an incident from long ago when I was retailing Aquathin in 1980. I received a call from a local dentist, Marty, wanting to learn about Aquathin...and I visited with Marty, who by the way, is still a longstanding Aquathin Customer owning several models...and I demonstrated Aquathin's efficiency. When Marty confirmed his first order, I said, "Doc, you know the Patented Aquathin RODI Process also removes fluoride...how do you feel about that?" Marty replied, "Alfie, the dangers from all the other garbage in tap water far outweighs any benefits one might think they are getting from fluoride. If you want fluoride, come to my office and I'll paint your teeth twice a year". I spoke with Marty a few months back who remained steadfast in his opinion...for 25 years now.

I LOVE MY AQUATHIN !!!

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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Think Aquathin...AquathinK !!

( visit the allnew [www.aquathin.com](http://www.aquathin.com) )

"Alfie"

Alfred J. Lipshultz, President

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*Industry Outlook - 7/25/2005 11:37:10 AM*

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## *Fluoridation questioned in cancer study*

*WASHINGTON — Questions about fluoridation have returned as a result of allegations of scientific misconduct against a prominent researcher at the Harvard School of Dental Medicine, according to a July 22 article in [The Wall Street Journal](#) (registration required).*

*Last month, the Washington, DC-based advocacy group Environmental Working Group alleged that Chester Douglass misrepresented an unpublished study about bone cancer and fluoridated tap water, the article said.*

*In written testimony to the National Research Council last year, Douglass said he had found no evidence that fluoridation increased the risk a rare bone cancer called osteosarcoma. However, the paper reported that a 2001 study he cited, and oversaw, found that boys who drink fluoridated water have a greater risk of developing the disease.*

*According to the paper, the study was conducted by one of Douglass' doctoral students, Elise Bassin. She started with the same raw data as her mentor — 139 people with osteosarcoma and 280 healthy "controls" — but saw a way to improve on it: Since most of the 400 people diagnosed in the US each year with osteosarcoma are kids, and since any ill effect of fluoride would likely come when bones are growing most quickly, she focused on the 91 patients who were under 20.*

*The study, cited by the paper, showed that among boys drinking water with 30 percent to 99 percent of the fluoride levels recommended by the US Centers for Disease Control and Prevention, the risk of*

*osteosarcoma was estimated to be five times as great as among boys drinking nonfluoridated water.*

---

**From:** AQUATHIN TECH SUPPORT [mailto:techsupport@aquathin.com]  
**Sent:** Thursday, December 18, 2003 3:10 PM  
**To:** Info@Aquathin.Com  
**Subject:** FORUM Q & A: FLOURIDE REMOVAL & RO REJECTION RATES

Dear Aquathin Dealer OnLine;

Due to growing concerns over flouridation at the Consumer level, several Dealers have recently asked about flouride removal via RO alone, the Patented Aquathin RODI Process, and the Aquathin LeadOut.

Recall from A.U. that rating membrane rejection is based upon the test control water of 250 ppm NaCl at 60F to 70F at 60 to 70 psi. Sodium chloride is chosen because the elements are single charged (known as monovalent) i.e. Na<sup>+</sup> and Cl<sup>-</sup> and specifically that monovalents are the most difficult to remove which is why the standard rating. So if we rate our Aquathin TFC membranes at 97% based upon optimum temp and pressure, that means all monovalents are rejected at least 97% and anything higher in valence charge i.e. Pb<sup>++</sup> and AL<sup>++++</sup> carries a higher rejection percentage.

Flouride is monovalent. If a competitor rates their membrane at 95%, then flouride should be at that rate. BUT HERE'S THE KICKER....if the membrane is operating on lower pressure i.e. 30psi all claims are off for % reduction as removal efficiencies drop. Your patented RODI process's Deionization Module picks up what the RO is not. Therefore their claim of 95% needs the heavy aforementioned disclaimer because we all know that there are plenty of low pressure areas.

The Aquathin LeadOut's ABA2000 could care less about temp and pressure.

Warmest regards to all...as well, your comments are always welcome and very much appreciated.



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*( visit the allnew [www.aquathin.com](http://www.aquathin.com) )*

*"Alfie"*

*Alfred J. Lipshultz, President*

*P.S. "Splash NewsBulletins", "Forum Q & A", "Allergic Reaction", Biz Bank, Tech Bank and Quote Bank... ARE ALL FREE services to all Authorized Aquathin Dealers and their clients to keep you abreast of technology updates and industry news.*



154. **Sent:** Wednesday, February 14, 2007 3:09 PM  
**Subject:** FORUM Q & A UPDATE #4 FLUORIDE: EXCESSIVE TAP WATER FLUORIDE NOT GOOD FOR BABIES...ALSO CHECK OUT YOUR TOOTHPASTE

Dear Aquathin Dealer OnLine;

The article below concerns the Centers For Disease Control's new negative position of fluoride for infants. Click through and read the entire article and note the comments also concerning fluoridated toothpastes. Please review with your fine Sales & Tech Teams so that they may continue to educate your Customers.

I LOVE MY AQUATHIN ! AND REMEMBER, THE NEXT BEST THING TO OWNING AN AQUATHIN IS RECOMMENDING ONE TO A FRIEND !!

Let me know what you AquathinK !

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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"Alfie"  
Alfred J. Lipshultz, President

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Regulatory Matters - 2/13/2007 8:20:15 PM

Excessive tap-water fluoride not good for babies

CHICAGO — The Centers for Disease Control and Prevention (CDC) and the American Dental Association (ADA) are now urging parents to carefully monitor the amount of fluoride given to their babies through tap water, because too much exposure can cause enamel fluorosis, a condition that affects a tooth's surface, a February 7 story in the [Atlanta Journal-Constitution](#) reported.

CDC's Division of Oral Health Director William Maas said in the article, "Since the beginning we knew there was a trade-off between preventing

tooth decay and enamel fluorosis." The two organizations still acknowledge the value of having recommended levels of fluoride in tap water for preventing tooth decay in the general population, the article said.

Health officials are recommending that parents use fluoride-free or low-fluoride bottled water instead of tap water when mixing formula, to cut down on infants' exposure to fluoride, according to the story.

The story said about 4 percent of children in the US will develop moderate or severe forms of enamel fluorosis from extended exposure to naturally high fluoride levels in water.

Enamel fluorosis ranges from faint, chalk-like white marks on the surface of a tooth, to lines, to pitting and staining, according to the article.

To read the entire article, click [here](#).

From: AQUATHIN TECH SUPPORT [mailto:techsupport@aquathin.com]
Sent: Tuesday, February 06, 2007 10:28 AM
To: Info@Aquathin.Com (info@aquathin.com)
Subject: FORUM Q & A UPDATE #3 FLUORIDE: REVIEW POU & POE REMOVAL METHODS

Dear Aquathin Dealer OnLine;

We have had numerous inquiries since the beginning of the year concerning removal of fluoride (4 mg/l MCL)...and all Customer driven. I have pasted below the previous Forum Q & A's on the subject for your convenience...and of course, all are easily located in the BANKS on the Aquathin Website...exclusive to all Authorized Aquathin Dealers. The public's growing interest includes removal via POU and POE.

Since fluoride is the buzzword of the hour, I thought it would be a good idea to review the methods of treatment from Aquathin University.

FOR POU

1. The Patented Aquathin RODI Process.
2. The Aquathin LeadOut Filter.
3. Distillation.

FOR POE

1. The Aquathin Soft & Clean Water Conditioning Series with Fluoride Anion floated on top of the softening cation.
2. The Aquathin MiniMegaChar with half cuft of LeadOut.
3. The Aquathin MegaChar mixed bed with half cuft LeadOut.

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From: AQUATHIN TECH SUPPORT [mailto:techsupport@aquathin.com]

Sent: Thursday, September 01, 2005 4:13 PM

To: Info@Aquathin.Com

Subject: FORUM Q & A FLUORIDE UPDATE: EPA UNIONS CALL FOR MORATORIUM ON FLUORIDE IN DRINKING WATER

Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;

On July 25th and 30th, 2005, I sent you Forum Q & A Updates concerning a potential link between fluoridation processes and cancer. My friends and Authorized Aquathin Dealers, Ron Wiedoff, President of Natural Choice Int'l. on Florida's west coast, and Troy Higgenson, President of Aquathin Air and Water of Evansville in Indiana, are deep into the anti-fluoridation move...and with just cause as you will read in the article provided by Ron today.

WE LOVE OUR AQUATHIN !!!

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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boston.com

THIS STORY HAS BEEN FORMATTED FOR EASY PRINTING



EPA unions call for moratorium on fluoride in drinking water

By Matthew Daly, Associated Press Writer | August 31, 2005

WASHINGTON --Eleven unions representing more than 7,000 workers at the Environmental Protection Agency are calling for a national moratorium on programs to add fluoride to drinking water, citing what they call a possible cancer risk.

In a letter to EPA Administrator Stephen Johnson, the unions say the agency should act even before a committee of the National Academy of Sciences completes a report on the issue early next year.

J. William Hirzy, an EPA scientist and vice president of the National Treasury Employees Union, Local 280, said Johnson should act now in light of allegations that a Harvard University dentistry professor downplayed research showing an increased risk of bone cancer for boys who drink fluoridated tap water.

Harvard said in June it is investigating the allegations against Chester Douglass, who heads the school's Department of Oral Health Policy and Epidemiology.

Douglass led a seven-year study of fluoride exposure and osteosarcoma, a rare form of bone cancer. The study found that the odds of having osteosarcoma for those who drink fluoridated water were "not statistically different" from those who drank non-fluoridated water.

But Elise Bassin, a doctoral student supervised by Douglass, reported in her 2001 thesis that boys who drink fluoridated water appear to have an increased risk of developing the cancer.

Her findings were based on some of the same people who participated in Douglass' study.

Hirzy, the union leader, said EPA employees "don't think it serves the public or the image of the EPA for us to be sitting on our hands in the face of increased epidemiological risk of sarcoma in young boys."

EPA unions have pressed the agency to limit fluoride since the 1990s.

Eryn Witcher, a spokeswoman for Johnson, said the agency is "committed to protecting human health -- basing our decisions on sound scientific data -- which is why we have requested an independent review, evaluating all of the new data on fluoride, from the National Academy of Sciences, the nation's highest science review panel."

The group's recommendations are expected by February.

The Environmental Working Group, a Washington-based advocacy group, filed an ethics complaint against Douglass in June, citing his position as editor-in-chief of The Colgate Oral Health Report, a quarterly newsletter funded by Colgate-Palmolive Co., which makes fluoridated toothpaste.

On the Net:

EPA: <http://www.epa.gov>

NAS: <http://www.nasonline.org/>

EPA union: <http://www.nteu280.org/> ■

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From: AQUATHIN TECH SUPPORT [mailto:techsupport@aquathin.com]
Sent: Saturday, July 30, 2005 11:32 AM
To: info@aquathin.com
Subject: FW: FORUM Q & A: NEWS ON FLUORIDE

FORUM Q&A ADDED COMMENT

Dear Aquathin Dealer Online;

Please read the additional and extremely important comments provided by Roger Wiltshire, Managing Director of Aquathin UK- The Pure H2O Company, concerning the inefficiencies of cheap RO. Start 3 messages below this email then head north !

Warmest regards to all,
Alfie

From: Roger Wiltshire
Sent: Tuesday, July 26, 2005 11:18 AM
To: techsupport@aquathin.com
Subject: RE: FORUM Q & A: NEWS ON FLUORIDE

Hi Alfie

By all means use the comments

Roger

From: AQUATHIN TECH SUPPORT [mailto:techsupport@aquathin.com]
Sent: 26 July 2005 14:55
To: Roger Wiltshire
Subject: RE: FORUM Q & A: NEWS ON FLUORIDE

Hey Rog;

Well done ! That chronic reduction in rejection is a major flaw in ordinary RO. I would like to use your commentary in a followup.

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Regards

Roger

From: AQUATHIN TECH SUPPORT [mailto:techsupport@aquathin.com]
Sent: 25 July 2005 18:18
To: info@aquathin.com
Subject: FORUM Q & A: NEWS ON FLUORIDE

Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;

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Industry Outlook - 7/25/2005 11:37:10 AM

Fluoridation questioned in cancer study

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According to the paper, the study was conducted by one of Douglass' doctoral students, Elise Bassin. She started with the same raw data as her mentor — 139 people with osteosarcoma and 280 healthy "controls" — but saw a way to improve on it: Since most of the 400 people diagnosed in the US each year with osteosarcoma are kids, and since any ill effect of fluoride would likely come when bones are growing most quickly, she focused on the 91 patients who were under 20.

The study, cited by the paper, showed that among boys drinking water with 30 percent to 99 percent of the fluoride levels recommended by the US Centers for Disease Control and Prevention, the risk of

osteosarcoma was estimated to be five times as great as among boys drinking nonfluoridated water.

From: AQUATHIN TECH SUPPORT [mailto:techsupport@aquathin.com]
Sent: Thursday, December 18, 2003 3:10 PM
To: Info@Aquathin.Com
Subject: FORUM Q & A: FLOURIDE REMOVAL & RO REJECTION RATES

Dear Aquathin Dealer OnLine;

Due to growing concerns over flouridation at the Consumer level, several Dealers have recently asked about flouride removal via RO alone, the Patented Aquathin RODI Process, and the Aquathin LeadOut.

Recall from A.U. that rating membrane rejection is based upon the test control water of 250 ppm NaCl at 60F to 70F at 60 to 70 psi. Sodium chloride is chosen because the elements are single charged (known as monovalent) i.e. Na⁺ and Cl⁻ and specifically that monovalents are the most difficult to remove which is why the standard rating. So if we rate our Aquathin TFC membranes at 97% based upon optimum temp and pressure, that means all monovalents are rejected at least 97% and anything higher in valence charge i.e. Pb⁺⁺ and AL⁺⁺⁺⁺ carries a higher rejection percentage.

Flouride is monovalent. If a competitor rates their membrane at 95%, then flouride should be at that rate. BUT HERE'S THE KICKER....if the membrane is operating on lower pressure i.e. 30psi all claims are off for % reduction as removal efficiencies drop. Your patented RODI process's Deionization Module picks up what the RO is not. Therefore their claim of 95% needs the heavy aforementioned disclaimer because we all know that there are plenty of low pressure areas.

The Aquathin LeadOut's ABA2000 could care less about temp and pressure.

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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155. **Sent:** Tuesday, February 20, 2007 4:58 PM
Subject: FORUM Q & A UPDATE: IONIZERS

this is a Dealer Sensitive newsletter...only to Authorized Aquathin Dealers.

Dear Aquathin Dealer OnLine;

June 10, 2002, I sent you a Forum Q & A entitled "WHAT ARE ALKALYNITY IONIZERS?" and their marketing appeal (see pasted at bottom for convenience) to only those that are "science ignorant". Well, yesterday, Water Technology e-Magazine's featured product was the Aquathin Soft & Clean Water Conditioner (very nicely done, indeed!...see below) and they also published a side linking article on ionizers. I wrote to Mike Hilts, Publisher of the magazine, whom I've known for awhile concerning the article...and received the professional response expected as you will enjoy.

Both Mike's and my comments should be discussed with your Sales & Tech Team whenever hokey science ionizers come to their attention...as they seem to have a periodic life cycle. Additionally, I know many of you have directed your Customers to "Water Myths" appearing in the Aquathin Learning Centre on the Aquathin Website...another great tool.

I LOVE MY AQUATHIN ! AND REMEMBER, THE NEXT BEST THING TO OWNING AN AQUATHIN IS RECOMMENDING ONE TO A FRIEND !!

Let me know what you AquathinK !

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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From: info@aquathin.com [mailto:info@aquathin.com]

Sent: Tuesday, February 20, 2007 9:26 AM

To: Mike Hilts

Subject: RE: New Yorkers cool to uncarbonated deposit

Hi Mike;

Your are welcome. Thank you...and very pleased for your reply.

Warmest regards,
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"Alfie"
Alfred J. Lipshultz, President

P.S. When responding please continue 'REPLY' to include all previous correspondences on this subject.

From: Mike Hilts [mailto:MHilts@ntpmedia.com]
Sent: Tuesday, February 20, 2007 9:11 AM
To: info@aquathin.com
Subject: RE: New Yorkers cool to uncarbonated deposit

Alfie,

Thank you for your note. Indeed, we should have pulled this item out of the news stack. It does not meet our standards for publication, with advisory board review or just staff review.

Regards,

Michael Hilts
Publisher
Water Technology
13 Century Hill Drive
Latham, NY 12110
518-783-1281 x 3125
mhilts@ntpmedia.com

From: info@aquathin.com [mailto:info@aquathin.com]
Sent: Monday, February 19, 2007 6:14 PM
To: Mike Hilts
Subject: FW: New Yorkers cool to uncarbonated deposit

Hi Mike;

The Soft & Clean looks great.

However, I wish to respectfully recommend that Water Tech should scrutinize technologies with your advisory counsel before publishing such articles as the ionizer. It is my opinion that a science ignorant reader will assume

your esteemed organization's endorsement of this technology resulting in potential damage to your reputation. Again, my opinion.

Warmest regards,

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"Alfie"

Alfred J. Lipshultz, President

P.S. When responding please continue 'REPLY' to include all previous correspondences on this subject.

From: WaterTech e-News Daily [mailto:ntp_wt@informz.net]

Sent: Monday, February 19, 2007 5:04 PM

To: info@aquathin.com

Subject: New Yorkers cool to uncarbonated deposit

WaterTech e-News Daily™ From the WaterTech
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From: AQUATHIN TECH SUPPORT [mailto:techsupport@aquathin.com]

Sent: Monday, June 10, 2002 1:56 PM

To: info@Aquathin.Com

Subject: FORUM Q & A: WHAT ARE ALKALYNITY IONIZER MACHINES ?

Dear Aquathin Dealer OnLine;

Recently I have been asked about the benefits of an alkalizing ionizing water treatment system. This product came on the scene about 7 or 8 years ago and is manufactured in Japan or Korea. It is designed to take tap or well water and increase the alkalinity. The manufacturer purports that it is important that a person consumes high amounts of alkalized water since low pH causes disease. You must buy off on the philosophy to make the machine sound worthy. If you do, they ask you to suck on a piece of litmus paper and guess what, saliva is acidic so you are in trouble.

When I was in Korea I had the chance to meet the factory rep of the ionizer who had made an appointment to call on our Dealer to sell his machine. I asked the rep, if we are to believe in your philosophy (and we don't as I will detail further below), how does your machine treat for salts, heavy metals, radioactivity, nitrates, the over 700 chemicals found in tap water such as pesticides, solvents, hormonal residue, drugs i.e. chemotherapy et. al., and disease causing waterborne microorganisms? His reply, it does not. I asked if he believed the benefit of alkalinity outweighed the consumption of the aforementioned pollutants. No answer. I asked if one's tap water was alkaline to begin with, why would they need the machine? No answer. I asked if I might be able to meet the inventor while I was traveling through Korea and Japan to personally pose these inquiries, to which the rep said he would make the arrangement. He did not. However, interestingly about two years after the meeting...and possibly after receiving numerous similar questions, the manufacturer began to recommend to use "bottled water" versus tap or well. Great...now you have to buy the machine and the expense of bottled water...and it still does not answer the question, why use the machine if the bottled water is already alkaline.

WHY DID SALIVA SHOW ACIDITY? Digestion begins in the mouth with mastication and softening from saliva juices. The chewed mixture drops into the stomach where pH is a whopping low of 1.0-2.0 (click <http://www.madsci.org/posts/archives/may98/892927858.Ch.r.html>). The result of metabolism is alkalinity. Therefore in order to remain in a homeostasis, or good health, we must eat foods that help the stomach i.e. citric fruits, vegetables...onions and garlic are low in pH.

Several years ago I was one of a group of speakers at a hospital giving a course entitled Controversial Aspects of Nutrition for nurses to receive credit hours. There I met Dr. James J. Cerda from Jacksonville who specializes in HIV, AIDS and immuno suppressed patients. In Dr. Cerda's lecture entitled "AIDS: Is Nutrition Necessary", he stated crypto and giardia even in the smallest concentration can be lethal to HIV and AIDS patients where a normal healthy person's stomach acid would destroy the bugs. This is because as the immune suppressing disease progresses, the patient's stomach acid pH level elevates to 4.0-4.5 and cannot deal with the cysts. Doctors can tell how far along the HIV or AIDS patient is in the disease by testing the stomach acidity.

Bill Tanner, my friend and Authorized Aquathin Dealer in Boise, Idaho is one of the Dealers who recently called me about the ionizer machine. He performed tests on the alkalinity ionizer machine at a client's home with the following observations. The tap source water TDS = 214 ppm, hardness of 6 gr/g and pH = 7.5. Product water from the Aquathin KT90 showed TDS of 0 ppm, 0 hardness, pH 6.9. The product water from the ionizer treating the source water had a TDS of 540 ppm, hardness of 17 gr/g and pH of 13.5. Interestingly bleach is 11.5.

From Aquathin University, we learned that pH above 7.2 causes deposition of calcium and magnesium. And we know that the reason for the higher rate of cardiovascular problems and kidney stones in the northern Texas and Oklahoma area is predominately due to high pH combined with high levels of hardness. As Aquathin Water Treatment Professionals you know the name of the game is take it out...not put it in.

OK, SO WHAT'S THE BENEFIT OF THE IONIZER MACHINE? They are helping to grow the market by creating awareness, albeit wrong. When the client discovers the machine does not purify (just like NSA..remember those boys?), the client does not go back to tap water...they go straight to the Yellow Pages to find a company with better knowledge, a better product with better service.

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156. **Sent:** Friday, March 16, 2007 12:39 PM

Subject: FORUM Q & A: ARSENIC UPDATE #7 -- LINKED TO MISCARRIAGES AND SUDDEN INFANT DEATH SYNDROME

Dear Aquathin Dealer OnLine;

For 25 years, Aquathin Dealers have provided their knowledge to local health officials as an added resource. I am pleased to continue to receive great Dealer feedback regarding a growing number of Aquathin Dealers adding their local physicians and health officials to the Forum Q & A emails to help them respectively educate their patients and citizens.

Below you will read the Arsenic Update linking arsenic to miscarriages and SIDS. The article unintentionally slants its focus on poor nations because arsenic is prevalent including many first world nations. For example, Oregon is loaded with it.

Please share the article with you fine Sales & Tech Teams so that they may continue to remain at the top of their game!

I LOVE MY AQUATHIN ! AND REMEMBER, THE NEXT BEST THING TO OWNING AN AQUATHIN IS RECOMMENDING ONE TO A FRIEND !!

Let me know what you AquathinK !

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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Environment - 3/15/2007 3:20:38 PM

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## **Arsenic in water linked to miscarriages, SIDs**

BALTIMORE — New research shows that arsenic-tainted drinking water



increases the risk of fetal loss among pregnant women and contributes to infant death during the first year, according to a study published in the Advanced Access online version of the [American Journal of Epidemiology](#).

The authors of the study gathered data from more than 29,000 pregnancies; results for the first time demonstrate a significant correspondence between arsenic and ill effects on fetus and infant health, according to the study, which has been accepted for publication in American Journal of Epidemiology but has not yet been paginated for publication.

The study notes that a number of poor countries have arsenic in their well water, and Bangladesh, the country from which statistical data was drawn, is one of them.

To read the full article abstract, click [here](#).

~~~~~

From: AQUATHIN TECH SUPPORT [mailto:techsupport@aquathin.com]
Sent: Thursday, August 11, 2005 5:56 PM
To: 'info@aquathin.com'
Subject: FORUM Q & A: ARSENIC UPDATE #6 -- NEW RESEARCH TIES ARSENIC TO TUMOR GROWTH

Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;

More and more is being learned about the effects from ingestion of arsenic which naturally occurs in various regional well waters both domestically and around the world. This quick read study below discusses that even the smallest concentrations will cause tumors to expand (by the way...the Bush Administration is seeking to elevate the arsenic MCL so municipalities can comply more easily...read more about the cost savings if achieved). This new study is in line with Update #5 (pasted at bottom for convenience).

What also is noteworthy are the accepted technologies to treat arsenic. Arsenic comes in a variety of forms. It would be up to the Customer to test to see which form of arsenic they have and then match the appropriate water treatment. What can occur is that a well can have forms change...come and go...which means that the water treatment chosen today may not be appropriate in just a few months.

But one thing that doesn't change is the Patented Aquathin RODI Process removes all forms of arsenic...and of course, everything else ! I LOVE MY AQUATHIN !!

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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*The Water Quality Association : Members Only Section : **Study: arsenic in water accelerates tumor growth***

New research ties arsenic to tumor growth

Posted 08/09/05

A recent study on the effects of environmental arsenic at the University of Oklahoma Health Sciences Center indicates that arsenic in drinking water can both stimulate the growth of cancerous tumors and cause them to spread faster.

While researchers still do not know whether arsenic in drinking water increases the overall incidence of tumors, the study shows that arsenic levels as low as four parts per billion can stimulate blood vessel growth, and levels as low as 10 ppb cause tumors to expand. Many previous studies have linked arsenic ingestion and cancer — especially skin and bladder cancers.

This report comes at a time when water systems across the US are struggling to conform to a new current federal arsenic standard of 10 parts per billion (ppb) by January 23, 2006. The previous standard had been 50 ppb. In the state of Oklahoma alone, it will cost between \$55 billion and \$163 billion to replace or upgrade the 25 systems to address the lower arsenic standard.

When water containing arsenic is ingested, the arsenic reacts with oxygen to create "free radicals" — highly reactive molecules — that stimulate the growth of blood vessels. More blood vessels result in an increase in blood supply to any tumors, which then grow faster and larger.

Some scientists have suggested that even the new standard of [10 ppb](#) is too high, and California considered setting the cap at [4 ppb](#).

Existing, proven POU/POE home products (point of use/point of entry) can reduce arsenic levels in water to below 4 ppb.

For Arsenic (+3) WQA recommends treatment with:

- Chemical Oxidation/Disinfection followed by Arsenic (+5) treatment technologies

For Arsenic (+5) you can treat water with:

- Iron-based or iron doped arsenic treatment media
- Anion Exchange
- Activated Alumina
- Reverse Osmosis
- Distillation
- Electrodialysis
- Other speciality media for arsenic treatment

For Arsenic (organic complexed) treat water with:

- Carbon Filtration.

Not all parts of the country have naturally occurring arsenic in the water. Consumers should check with a [water treatment specialist](#) and/or their municipal water system operators or county extension office. WQA urges those on private wells to have their water tested for arsenic and other possible contaminants.

From: AQUATHIN TECH SUPPORT [mailto:techsupport@aquathin.com]
Sent: Wednesday, December 22, 2004 1:08 PM
To: info@Aquathin.Com
Subject: FORUM Q & A: ARSENIC UPDATE #5 -- ARSENIC INCREASES RISK OF LUNG CANCER

Dear Aquathin Dealer OnLine;

This is the first article of its time that I can recall, discussing how a known carcinogen acts as a catalyst or supercharger if you will, for another carcinogen. What is incredibly important here is because we are so exposed to environmental pollutants in our atmosphere, the chances for increased lethal effect can possible come from other pollutants in our drinking water.

If ever there was a more serious reason for removal of water pollution, this Pandora's Box has to reign as king.

I LOVE MY AQUATHIN !!

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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Industry Outlook - 12/22/2004 11:41:30 AM

Study: Arsenic-laden water increases lung cancer

risk

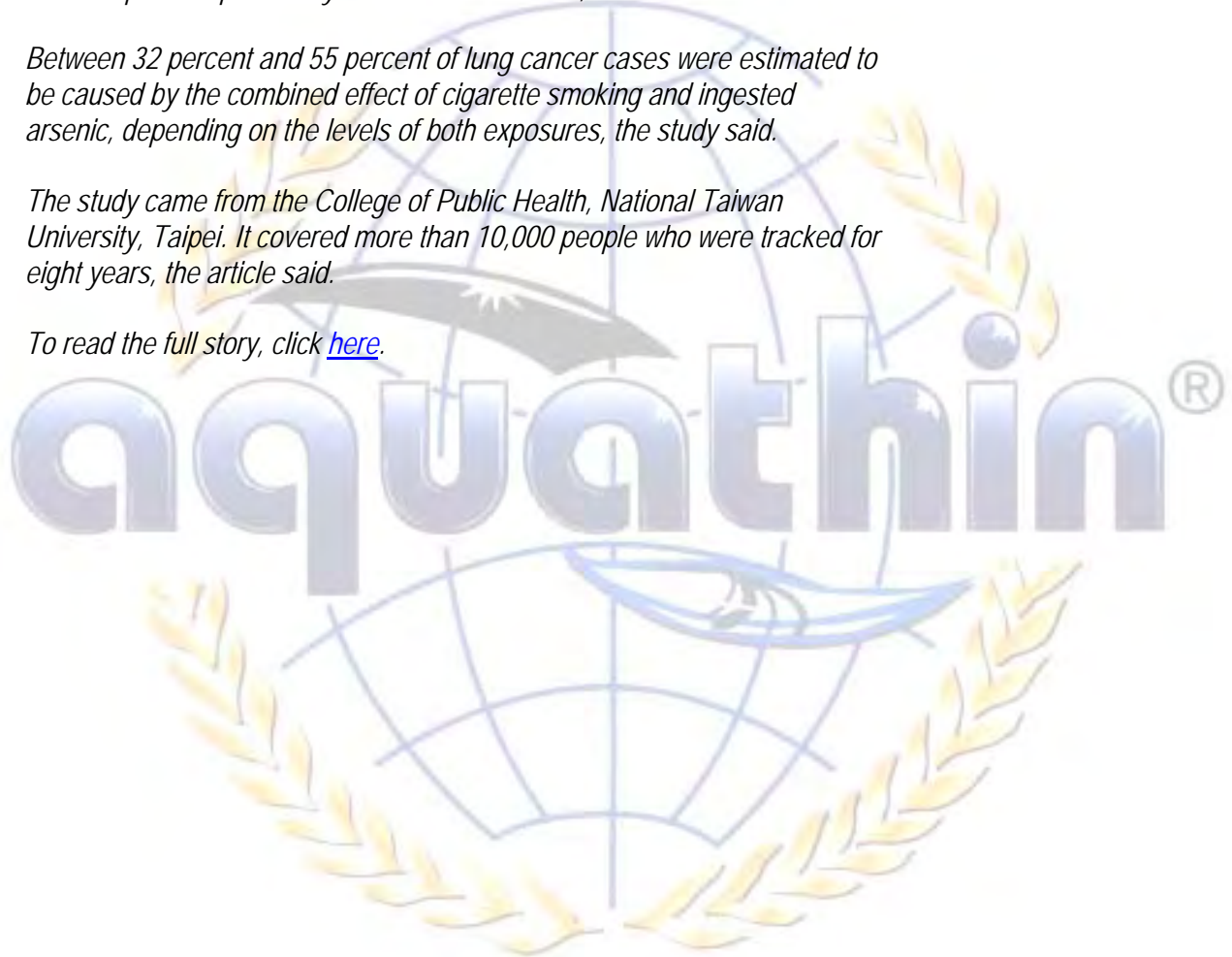
CHICAGO — In a study published in this week's [Journal of the American Medical Association](#) (JAMA), researchers in Taiwan reported that high levels of arsenic-laden water increased the risk of lung cancer in combination with cigarette smoking, [Reuters](#) reported.

The study said people living on the Southwestern and Northeastern coasts of Taiwan had been exposed to arsenic in high concentrations in well water before a public tap water system was established, Reuters said.

Between 32 percent and 55 percent of lung cancer cases were estimated to be caused by the combined effect of cigarette smoking and ingested arsenic, depending on the levels of both exposures, the study said.

The study came from the College of Public Health, National Taiwan University, Taipei. It covered more than 10,000 people who were tracked for eight years, the article said.

To read the full story, click [here](#).



157. **Sent:** Wednesday, May 09, 2007 4:45 PM

Subject: FORUM Q & A: WHAT'S THAT BROWN FUZZY LOOKING SLIMY JUNK IN MY [non Aquathin] SOFTENER !?

Dear Aquathin Dealer OnLine;

Recently, several owners of "non" Aquathin water softeners emailed the Aquathin Website asking why their softened water had a "stinky odor" and "what is the brown, fuzzy looking, slimy stuff in the salt tank?"...and most importantly, they both stated they were not happy with the explanation from their present water treatment dealer. That brown, fuzzy looking, slimy junk has a name... "halophilic bacteria" meaning capable of thriving in a salty environment. But at Aquathin U., I just call it cruddy, brown, fuzzy junk, like most because it has more meaning.

So, this is a good Tech & Sales Review from Aquathin U. and the AquaQ's! The ordinary garbage-can style salt brine tanks of ordinary softeners are notorious for bacterial slime formation in them. That cruddy, mungy, brownish, fuzzy junk is created from contaminated rock or solar salt (not fully kiln dried), or exposed to unsanitary conditions. The halophilic bacteria gets sucked into the resin tank during regeneration, can breed in the resin pores and grow downstream, causing foul odors...not to mention the thought of bathing in that isn't too nice. The Aquathin Sodialite Soft & Clean includes the patented Aquathin Clip Cabinet with AquaShield Antimicrobial vs. ordinary garbage can style brine tanks. AquaShield Antimicrobial, integrated during the molding process, keeps the Clip Cabinet's water and salt clean and pristine.

Additional system review: the Clip Cabinet is produced using the rotomold process = thicker walled and no seams. Your Clip Cabinet contains a built in sediment trapper to help prevent dirt and bacteria from contaminated salt being sucked into the control valve's screen and injectors. Your Clip Cabinet is environmentally friendly in that it contains recycled virgin polyethylene and UV inhibitor. Ordinary garbage-can style or tank-in-cabinet model is thin walled blow molded with a seam and known for cracking...cause we used to use them too. Your Soft & Clean system includes a black brine draw tube with UV protection. Theirs does not and will crack causing leaks and service calls. There are no failsafe features to buy. Your Soft & Clean Clip Cabinet system includes a backup safety float to protect against overflow when making brine...and comes with a protective brine well to keep the safety float from coming in contact with salt that could potentially prevent the float's operation. Your Clip Cabinet also includes a "J Tube Air Check" to prevent the control valve from potentially sucking all the water and pulling in air that could create water hammers in the plumbing.

Like all Aquathin components and products, your Customer gets the best in thought, design, technique and efficiencies...and no brown, fuzzies !

I LOVE MY AQUATHIN ! AND REMEMBER, THE NEXT BEST THING TO OWNING AN AQUATHIN IS RECOMMENDING ONE TO A FRIEND !!

Let me know what you AquathinK !

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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158. **Sent:** Thursday, May 31, 2007 3:52 PM
Subject: FORUM Q & A: UPDATE CHROMIUM 6 ESTABLISHED AS CARCINOGEN

Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;

*Back in August 2002, I emailed you the first Forum Q & A discussing Chromium 6 (pasted below for your convenience, and published on the Aquathin Website at Banks). Chromium 6 has evolved from "causing nosebleeds, etc." to "proven carcinogen" as you will read below in the article from the National Institute of Health Sciences. It is yet another example, as I have previously discussed, how our protection system handles newly discovered contaminants. To review, a new revolutionary chemical is produced to enhance a process or product > that chemical later shows up in the environment outside its intended use > that government agencies advise no concern because of low concentrations and low potential for harm > then discovers increasing concentrations that may cause i.e. rashes > then given MCL status and value > followed by lower MCL values due to carcinogenic concerns now in study > to carcinogen. And during these years, we continue to be exposed. **The Patented Aquathin RODI Process easily removes Chromium 6.***

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Let me know what you AquathinK !

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Source: [NIH/National Institute of Environmental Health Sciences](http://NIH/National Institute of Environmental Health Sciences)

Date: May 17, 2007

## **Chromium 6 In Drinking Water Causes Cancer In Lab Animals**

*Science Daily* — Researchers announced recently that there is strong evidence a chemical referred to as hexavalent chromium, or chromium 6, causes cancer in laboratory animals when it is consumed in drinking water. The two-year study conducted by the National Toxicology Program (NTP) shows that animals given hexavalent chromium developed malignant tumors.

*"Previous studies have shown that hexavalent chromium causes lung cancer in humans in certain occupational settings as a result of inhalation exposure," said Michelle Hooth, Ph.D., NTP study scientist for the technical report. "We now know that it can also cause cancer in animals when administered orally."*

*The study findings were announced at the National Institute of Environmental Health Sciences (NIEHS) after the NTP Board of Scientific Counselors Technical Reports Review Subcommittee completed its independent peer review of the sodium dichromate dihydrate research report. Sodium dichromate dihydrate is an inorganic compound containing hexavalent chromium that was used in the NTP studies. The NTP is located at the NIEHS, part of the National Institutes of Health.*

*Hexavalent chromium compounds are often used in electroplating, leather tanning, and textile manufacturing and have been found in some drinking water sources.*

*Male and female rats and mice were given four different doses of sodium dichromate dihydrate in their drinking water ranging from 14.3 mg/l to 516 mg/l for two years. The lowest doses given to the animals in the study were ten times higher than what humans could consume from the most highly contaminated water sources identified in California.*

*The researchers report finding significant increases in tumors at sites where tumors are rarely seen in laboratory animals. Male and female rats had malignant tumors in the oral cavity. The studies conducted in mice found increases in the number of benign and malignant tumors in the small intestine, which increased with dose in both males and females.*

*"We found that hexavalent chromium is absorbed from the gastrointestinal tract," said Hooth. "After it is orally administered, it is taken up by the cells in many tissues and organs."*

*Hexavalent chromium has been brought to the public's attention in many ways, most notably in the movie "Erin Brockovich." Eleven members from the California Congressional Delegation sent a letter to the NTP Director requesting the NTP conduct the studies. Nominations for studying this compound also came from the California Environmental Protection Agency and the California Department of Health Services. The NTP began work on this compound after gaining input from the public and a panel of scientific experts about the study design.*

*The two-year study is one of several studies that NTP has completed on this chemical.*

*Note: This story has been adapted from a news release issued by NIH/National Institute of Environmental*

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From: AQUATHIN TECH SUPPORT [mailto:techsupport@aquathin.com]

Sent: Tuesday, August 27, 2002 9:09 AM

To: Info@Aquathin.Com

Subject: FORUM Q & A: WHAT IS CHROMIUM 6 AND WHAT DISEASE(S) DOES IT CAUSE

Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;

Due to a recent inquiry concerning the pollutant Chromium 6, I thought it would be a good idea to create a Forum Q & A from an email sent to an Authorized Aquathin Dealer about a year ago, at time the movie entitled Erin Brokovich hit theatres, which dealt with Chromium 6 devastation and cover ups. NOTE: in the first article below within the Highlights section, you will see that this problem exists at 2/3s of the priority toxic clean up sites

across the nation. Also, below is a very timely quick read concerning costs to clean up. Your Aquathin patented RODI system readily removes this contaminate. I love my Aquathin.

Warmest regards to all,

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ToxFAQs™ for

Chromium

CAS#

Chromium (III) 16065-83-1

Chromium (IV) 18540-29-9

February 2001

This fact sheet answers the most frequently asked health questions about chromium. For more information, you may call the ATSDR Information Center at 1-888-422-8737. This fact sheet is one in a series of summaries about hazardous substances and their health effects. This information is important because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

HIGHLIGHTS: Exposure to chromium occurs from ingesting contaminated food or drinking water or breathing contaminated workplace air. Chromium(VI) at high levels can damage the nose and can cause cancer. Chromium has been found at 1,036 of the 1,591 National Priority List sites identified by the Environmental Protection Agency (EPA).

What is chromium?

Chromium is a naturally occurring element found in rocks, animals, plants, soil, and in volcanic dust and gases. Chromium is present in the environment in several different forms. The most common forms are chromium(0), chromium(III), and chromium(VI). No taste or odor is associated with chromium compounds.

Chromium(III) occurs naturally in the environment and is an essential nutrient. Chromium(VI) and chromium(0) are generally produced by industrial processes.

The metal chromium, which is the chromium(0) form, is used for making steel. Chromium(VI) and chromium(III) are used for chrome plating, dyes and pigments, leather tanning, and wood preserving.

What happens to chromium when it enters the environment?

- *Chromium enters the air, water, and soil mostly in the chromium(III) and chromium(VI) forms.*
- *In air, chromium compounds are present mostly as fine dust particles which eventually settle over land and water.*
- *Chromium can strongly attach to soil and only a small amount can dissolve in water and move deeper in the soil to underground water.*
- *Fish do not accumulate much chromium in their bodies from water.*

How might I be exposed to chromium?

- *Eating food containing chromium(III).*
- *Breathing contaminated workplace air or skin contact during use in the workplace.*
- *Drinking contaminated well water.*
- *Living near uncontrolled hazardous waste sites containing chromium or industries that use chromium.*

How can chromium affect my health?

Chromium(III) is an essential nutrient that helps the body use sugar, protein, and fat.

Breathing high levels of chromium(VI) can cause irritation to the nose, such as runny nose, nosebleeds, and ulcers and holes in the nasal septum.

Ingesting large amounts of chromium(VI) can cause stomach upsets and ulcers, convulsions, kidney and liver damage, and even death.

Skin contact with certain chromium(VI) compounds can cause skin ulcers. Some people are extremely sensitive to chromium(VI) or chromium(III). Allergic reactions consisting of severe redness and swelling of the skin have been noted.

How likely is chromium to cause cancer?

Several studies have shown that chromium(VI) compounds can increase the risk of lung cancer. Animal studies have also shown an increased risk of cancer.

The World Health Organization (WHO) has determined that chromium(VI) is a human carcinogen.

The Department of Health and Human Services (DHHS) has determined that certain chromium(VI) compounds are known to cause cancer in humans.

The EPA has determined that chromium(VI) in air is a human carcinogen.

How does chromium affect children?

We do not know if exposure to chromium will result in birth defects or other developmental effects in people. Birth defects have been observed in animals exposed to chromium(VI).

It is likely that health effects seen in children exposed to high amounts of chromium will be similar to the effects seen in adults.

How can families reduce the risk of exposure to chromium?

- *Children should avoid playing in soils near uncontrolled hazardous waste sites where chromium may have been discarded.*
- *Although chromium(III) is an essential nutrient, you should avoid excessive use of dietary supplements containing chromium.*

Is there a medical test to show whether I've been exposed to chromium?

Since chromium(III) is an essential element and naturally occurs in food, there will always be some level of chromium in your body. There are tests to measure the level of chromium in hair, urine, and blood. These tests are most useful for people exposed to high levels. These tests cannot determine the exact levels of chromium that you may have been exposed to or predict how the levels in your tissues will affect your health.

Has the federal government made recommendations to protect human health?

EPA has set a limit of 100 µg chromium(III) and chromium(VI) per liter of drinking water (100 µg/L).

The Occupational Safety and Health Administration (OSHA) has set limits of 500 µg water soluble chromium(III) compounds per cubic meter of workplace air (500 µg/m³), 1,000 µg/m³ for metallic chromium(0) and insoluble chromium compounds, and 52 µg/m³ for chromium(VI) compounds for 8-hour work shifts and 40-hour work weeks.

Source of Information

Agency for Toxic Substances and Disease Registry (ATSDR). 2000. Toxicological profile for chromium (Update). Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

Where can I get more information?

ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

For more information, contact:

*Agency for Toxic Substances and Disease Registry
Division of Toxicology
1600 Clifton Road NE, Mailstop E-29
Atlanta, GA 30333
Phone: 1-888-422-8737
FAX: (404)498-0057*

Chromium 6 removal could cost \$315 million

LOS ANGELES — Removal of chromium 6, arsenic and other pollutants from county-owned drinking water wells in northern Los Angeles County could cost \$315 million, according to a report from the county Department of Public Works.

The [Los Angeles Times](#) reported that a review was ordered by county supervisors after more than two dozen wells in the Santa Clarita and Antelope valleys tested positive for higher-than-normal concentrations of chromium 6.

In addition to the capital costs of developing new storage capacity, expanding distribution, and implementing new technology and water treatment systems, the report by McGuire Environmental Consultants Inc. estimates that the annual cost of maintaining the infrastructure could reach \$28.6 million, the newspaper said.

The cost of a less aggressive approach to removing chemical pollutants would range from \$27 million to \$63.2 million, the report said, and maintaining the system under the more modest plan would cost \$360,000 to \$1.2 million annually, according to the Times.

Chromium 6, used in paint, chrome plating and other manufacturing processes, has been detected in water systems throughout California. The chemical is considered carcinogenic when inhaled, but its danger to people when ingested is unclear, the newspaper said.

State and federal governments limit chromium in water as a means of regulating chromium 6. Federal guidelines hold total chromium to 100 parts per billion (ppb), while the state limit is 50 ppb.

The state Office of Environmental Health Hazard Assessment recommended in 1999 that the amount of chromium allowed in drinking water be lowered to 2.5 ppb.

The same agency later withdrew that recommendation, acknowledging that its initial risk assessment was flawed, according to the article.

159. **Sent:** Friday, June 08, 2007 3:54 PM

Subject: FORUM Q & A UPDATE: WILL PET BOTTLES LEACH CHEMICALS IN WARM ENVIRONMENT...& WILL FREEZING PLASTIC BOTTLES RELEASE "DIOXIN"?

Dear Aquathin Dealer OnLine;

On October 26, 2006, I sent you the Forum Q & A concerning an urban legend that freezing plastic bottles releases dioxin (pasted at bottom for your convenience). The IBWA released a Position Paper today (see attached) concerning the potential to leach chemicals from the plastic under elevated temps over prolonged periods i.e. storage in warehouse, are unsubstantiated. They quote the FDA's statement that "the levels of migration expected...have been determined by the agency to be well within the margin of safety."

I wish to refer you to Forum Q & A of October 27, 2003 entitled "XENOBIOTICS, XENOESTROGENS, DIOXIN" in which the topic of massive amounts of plastic bottles degrading in landfills (aftermarket) are releasing foreign substances. I'll also remind you that the FDA, while performing excellent work, has also changed position on several medications once approved. Aquathin goes to great lengths in researching each and every raw material and / or component before integrating into our water purification, filtration and softening models for a host of safety measures including "non leaching", and that includes our choice of polycarbonate bottles. The name of the game in water purification is "take it out - not put it in"...and NO ONE DOES IT BETTER THAN YOU!

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"Alfie"

Alfred J. Lipshultz, President

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From: AQUATHIN TECH SUPPORT [mailto:techsupport@aquathin.com]

Sent: Friday, October 27, 2006 3:15 PM

To: Info@Aquathin.Com (info@aquathin.com)

Subject: FORUM Q & A: WILL FREEZING PLASTIC BOTTLES RELEASE "DIOXIN"?

Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;

Over the past couple months, we received calls from Dealers and Customers concerning an "urban legend" that freezing PET plastic bottles will create dioxin...and that is not possible. Please read the white paper report below from the IBWA (International Bottled Water Association) of which Aquathin is also a Member.

Additionally, Aquathin Dealers utilize superior polycarbonate bottles (see attached) that are virtually inert...meaning nothing leaches, Aquathin Pure tastes great. So Moms, it's OK to freeze water and juices in Aquathin bottles!!!

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**IBWA Position Summary  
PET Plastic Bottled Water Containers and DEHA**

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***IBWA Position Summary  
PET Plastic Bottled Water Containers and DEHA***

*The US Food and Drug Administration (FDA) regulates bottled water as a packaged food product and, for bottled water and all other foods and their packaging, FDA has determined that PET meets standards for food contact materials. The basis for a widely circulated e-mail, which questioned the safety of PET plastic containers, was based on a college student's master's thesis that was not subject to peer review and did not reflect a level of scientific rigor that would provide accurate and reliable information about the safety of these products. Fortunately, FDA requires a much higher standard to make decisions about food contact packaging.*

*Di(2-ethylhexyl)adipate (DEHA) is neither regulated nor classified as a human carcinogen. Further, DEHA is not inherent in PET plastic as raw material, byproduct or decomposition product. DEHA has been cleared by FDA for food contact applications and would not pose a health risk even if present. DEHA is a common plasticizer used in many plastic items, many of which are found in the lab setting. For this reason, the student's detection (see comment above) is likely to have been the result of inadvertent lab contamination.*

*Further, there is simply no scientific basis to support the claim that water bottles will release dioxins when frozen; this is the subject of an e-mail hoax. This fact is confirmed by the Johns Hopkins Bloomberg School of Public Health, where its web site states, "This is an urban legend. Freezing actually works against the release of chemicals... [freezing] would limit chemical release if there were dioxins in plastic, and we don't think there are." See [www.jhsph.edu/Press\\_Room/articles/Halden\\_dioxins.html](http://www.jhsph.edu/Press_Room/articles/Halden_dioxins.html) for full citation.*

*Dioxins are a family of chemical compounds that are produced by combustion at extremely high temperatures. They can only be formed at temperatures well above 700 degrees Fahrenheit; they cannot be formed at room temperature or in freezing temperatures. Moreover, there is not reasonable scientific basis for expecting dioxins to be present in plastic beverage or food containers in the first place.*

*Also note that PET plastics used for bottled water containers are not unique to this product type and is the same as PET plastics used to package other common foods and beverages.*

*###*

*The International Bottled Water Association (IBWA) is the authoritative source of information about all types of bottled waters. Founded in 1958, IBWA's membership includes U.S. and international bottlers, distributors and suppliers. IBWA is committed to working with the U.S. Food and Drug Administration, which regulates bottled water as a packaged food product, and state governments to set stringent standards for safe, high quality bottled water products. Bottler members must also adhere to the IBWA Model Code, which mandates additional standards and practices. Contact IBWA at 1-*

800-WATER-11 or [www.bottledwater.org](http://www.bottledwater.org) for more information about bottled water and a list of members' brands. Media inquiries can be directed to V. Tom Gardners at 703-683-5213 ext. 107.

September 14, 2004



160. **Sent:** Tuesday, June 19, 2007 6:47 PM  
**Subject:** FORUM Q & A UPDATE #2: WILL PET BOTTLES LEACH CHEMICALS IN WARM ENVIRONMENT...& WILL FREEZING PLASTIC BOTTLES RELEASE "DIOXIN"?

*Dear Aquathin Dealer Online;*

*I received a very good question from my longtime friend Gordon Bastiaans, Managing Director Aquathin South Africa, concerning "reuse" of PET bottles. Continual reuse of PET is inappropriate and potentially unhealthy. Please read my additional comments and opinions below at the [June 11 response in blue](#). As Gordon recommends, I respectfully urge you to share this information with your Sales & Tech Team and Customers.*

*Warmest regards to all,  
Alfie*

---

**From:** Aquathin SA  
**Sent:** Monday, June 11, 2007 11:39 AM  
**To:** techsupport@aquathin.com  
**Subject:** RE: FORUM Q & A UPDATE: WILL PET BOTTLES LEACH CHEMICALS IN WARM ENVIRONMENT...& WILL FREEZING PLASTIC BOTTLES RELEASE "DIOXIN"?

Dear Alfie,

You certainly do! Please proceed!!!

With best regards,

Gordon  
-----Original Message-----

**From:** AQUATHIN TECH SUPPORT [mailto:techsupport@aquathin.com]  
**Sent:** Monday, June 11, 2007 4:05 PM  
**To:** 'Aquathin SA'  
**Subject:** RE: FORUM Q & A UPDATE: WILL PET BOTTLES LEACH CHEMICALS IN WARM ENVIRONMENT...& WILL FREEZING PLASTIC BOTTLES RELEASE "DIOXIN"?

*Dear Gordon;*

*Thank you for your email. You have a very good idea for informing readers to avoid this practice. I think its best served by forwarding our correspondences below. May we have your permission?*

*Awaiting your reply and warmest regards,  
Alfie*

---

**From:** Aquathin SA  
**Sent:** Monday, June 11, 2007 10:00 AM  
**To:** techsupport@aquathin.com  
**Subject:** RE: FORUM Q & A UPDATE: WILL PET BOTTLES LEACH CHEMICALS IN WARM ENVIRONMENT...& WILL FREEZING PLASTIC BOTTLES RELEASE "DIOXIN"?

Dear Alfie



Thanks for your information. We thought that this was the case.

In South Africa the re-use of plastic bottles preceded by washing is very wide spread. Perhaps therefore you may consider advising customers via one of your excellent Splash Bulletins about the hazards involved in this practise.

With best regards

Gordon

-----Original Message-----

**From:** AQUATHIN TECH SUPPORT [mailto:techsupport@aquathin.com]

**Sent:** Monday, June 11, 2007 3:50 PM

**To:** Aquathin SA

**Subject:** RE: FORUM Q & A UPDATE: WILL PET BOTTLES LEACH CHEMICALS IN WARM ENVIRONMENT...& WILL FREEZING PLASTIC BOTTLES RELEASE "DIOXIN"?

Dear Gordon;

Thank you for your email. PET bottles (i.e. water and soda containers) are meant for disposal vs. reuse. I presume that the users are cleansing with detergents and hot water which result in plastic degradation. Also, the chronic practice of "squeezing" the bottle ( and you can hear the plastic make a crinkle noise) to enhance rapid drinking from sport tips accelerates tiny stresses; chronic cycles through dishwashers to freezers and back (plastic expansion / contraction)...all result in generating plastic degradation. Odor is a good indicator of leaching. Phthalates ( the T in PET = terephthalate) are potential carcinogens.

Molded into the base of the bottles is the "recyclable" icon, which means that the bottle can be turned over to waste collection sites for shredding and melting down for "other" plastic uses (expressly prohibited from molded into products that contact with food and drink)...and never to be reused for commercial water or soda packaging.

Warmest regards,  
Alfie

---

**From:** Aquathin SA

**Sent:** Monday, June 11, 2007 9:01 AM

**To:** techsupport@aquathin.com

**Subject:** RE: FORUM Q & A UPDATE: WILL PET BOTTLES LEACH CHEMICALS IN WARM ENVIRONMENT...& WILL FREEZING PLASTIC BOTTLES RELEASE "DIOXIN"?

Dear Alfie

Thank you for this good information. One aspect that is not commented on here relates to the odour given off after repeated use and subsequent washing of PET bottles. We have noticed this condition and so have many of our customers. Please advise what causes this odour and why it occurs???

With best regards

Gordon

-----Original Message-----

**From:** AQUATHIN TECH SUPPORT [mailto:techsupport@aquathin.com]

**Sent:** Friday, June 08, 2007 9:54 PM

**To:** Info@Aquathin.Com

**Subject:** FORUM Q & A UPDATE: WILL PET BOTTLES LEACH CHEMICALS IN WARM ENVIRONMENT...& WILL FREEZING PLASTIC BOTTLES RELEASE "DIOXIN"?

*Dear Aquathin Dealer OnLine;*

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**From:** AQUATHIN TECH SUPPORT [mailto:techsupport@aquathin.com]

**Sent:** Friday, October 27, 2006 3:15 PM

**To:** Info@Aquathin.Com (info@aquathin.com)

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**IBWA Position Summary
PET Plastic Bottled Water Containers and DEHA**

1700 Diagonal Road, Suite 650
Alexandria, VA 22314
Phone: 703-683-5213
Fax: 703-683-4074
Web: www.bottledwater.org

IBWA Position Summary PET Plastic Bottled Water Containers and DEHA

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