

Erring on the Side of Caution

— Not Risk —

When it Comes to Your Health & Water Quality

**(Or, You DO NOT Have to Settle
for the Quality of Water Provided by the City)**

The Choice for Safer, Healthier,
Quality Water,
is YOURS!

Everything comes down to standards.

The big question is: Are these **standards** which are used today “the **standards**” that you want for you and your family? **Standards** are constantly changing and the **standards** they use today for determining the safety of your water may not be applicable in the future. Just as the **standards** change continually so does the assessment of the health risks from contaminants. Unfortunately, the health risk assessments take a long time to ascertain because of the studies required to prove the risk. So, until the risk is proved **we (the general public) are basically used as test subjects — Guinea pigs, so to speak.**

So, For your family’s “Peace-of-Mind”

Which *standard* would you prefer?

- (A) Yours (the **standards** that you set)?; *Or,*
- (B) The government’s (the **standards** someone else sets for you, that they constantly change)?

***We believe, ONCE YOU READ ALL THE FOLLOWING FACTS,
the evidence will lead you to choose a better STANDARD — YOURS!***

STANDARDS?????

POINT 1: The Federal and State governments have established “**Safe Drinking Water STANDARDS**”.

POINT 2: According to current **STANDARDS**, the state Department of Health and Board of Water Supply has represented that the water meets these **STANDARDS** and therefore, based on those **STANDARDS**, is safe to drink.

POINT 3: There are **TWO STANDARDS** — non-enforceable and enforceable.

POINT 4: How have these **STANDARDS** been established and what are they based on?

POINT 5: Some **STANDARDS** are established taking into account technological and economic limitations of the public water supplier.

POINT 6: Are the government **STANDARDS** that are considered “safe” today going to be considered “safe” tomorrow?

POINT 7: The Federal government has established **HEALTH EFFECTS & HEALTH RISKS** for exposure to certain water contaminants.

POINT 8: Are today’s government established **HEALTH EFFECTS & HEALTH RISKS** for exposure to certain water contaminants going to change and/or increase in the future?

POINT 9: Water, containing certain pesticides, herbicides, insecticides and other Volatile Organic Compounds (**VOCs**), **is just as much a health concern when you bathe in it as when you drink it.**

POINT 10: What it really comes down to is: **STANDARDS. STANDARDS. STANDARDS.**

Question: Are you willing to accept current government **STANDARDS**?

Question: Or, do you want your water to have better **STANDARDS** — the **STANDARDS** you set?

Question: Do you realize that you actually have a choice?

Question: Do you realize that you can choose better **STANDARDS** — your own **STANDARDS**?

Everything comes down to standards. The big question is: Are these **standards** which are used today “the **standards**” that you want for you and your family. **Standards** are constantly changing and the **standards** they use today for determining the safety of your water may not be applicable in the future. Just as the **standards** change continually so does the assessment of the health risks from contaminants. Unfortunately, the health risk assessments take a long time to ascertain because of the studies required to prove the risk. So, until the risk is proved **we (the general public) are basically used as test subjects... “Guinea Pigs”,** so to speak. So, which **standards** would you like to use? Yours (the **standards** that you set), or the governments (the **standards** someone else sets for you that they constantly change)? **We believe that once you have READ ALL THE FOLLOWING FACTS, the evidence will lead you to choose a better STANDARD — YOURS!**

Important Facts You Should Know:

Volatile Organic Contaminants (VOC's) can be absorbed through the skins pores and inhaled while taking a Hot Shower, Hot Bath, Washing Dishes, and Standing over a Heated Pot of Water While Cooking!

This is according to scientists and the EPA, as reported on National T.V. news programs recently, and at meetings at Village Park in the fall of 1999, attended by Village Park Resident's and their Attorney's Representatives, the Board of Water Supply's, and the State Dept. of Health's representatives.

Many of the types of Pesticides found in Oahu's ground water supplies are considered "VOLATILE" [Volatile Organic contaminants (VOC's)], and therefore will release from the water when they are heated and exposed to the air. In their volatile state, these contaminants can be absorbed through the skin and inhaled.

It has been said that while taking a hot shower, the amount of volatile contaminants inhaled or absorbed through the skin, can be the equivalent of drinking two quarts of water with the same level of contaminant. Even washing dishes in hot water, or standing over a pot of water while cooking, can give you the same exposure.

For your family's "Peace-of-Mind"

Filtering the water with the "proper type" of Granular Activated Carbon (GAC), **BEFORE** the water enters your household, is the safest way to reduce any potential exposure to the Volatile Organic Contaminants, and other chemicals found in Oahu's ground water and water distribution systems.

Your water quality . . .

Public Water Systems and EPA Standards

Because your water comes from a public system, it is tested regularly and must meet standards set by the U.S. Environmental Protection Agency. **Those standards *currently regulate only 85 substances.***

Of those 85 regulated substances, **only 52 are for *Organic Chemicals***— such as **pesticides, insecticides & herbicides.**

That's less than 52 of the 4,500 registered pesticides, insecticides & herbicides used in Hawaii.

(SOURCE: Supervisor of the State's Drinking Water Program, Honolulu, Sunday Star-Bulletin & Advertiser, November 16, 1986.)

And, *that's not counting all the other types of toxic substances used by business, industry and the military in Hawaii.*

For the balance of the 85 regulated substances: **4** are for ***Radionuclides***; **6** are for ***Microorganisms***— such as Viruses, Coliform bacteria & Giardia lamblia; and **only 17** are for ***Inorganic Chemicals***— such as Nitrate, Lead, Chromium, Arsenic, Cadmium, Asbestos.

These EPA regulations contain ***two standards*** for most of the 85 regulated substances.

Continued on next page

Your water quality . . .

Public Water Systems and EPA Standards

The first standard is non-enforceable. It is called the ***Maximum Contaminant Level Goal [MCLG].*** MCLG's are set at zero for contaminants that are known or probable **human carcinogens (cancer causing agents).**

For non-carcinogens, MCLG's are set at a level where, *it is assumed*, no adverse health effects would occur with a margin of safety.

The second standard is enforceable. It is called the ***Maximum Contaminant Level [MCL].*** MCL's are set as close to the MCLG's as possible, ***taking into account technological and economic limitations of the public water supplier.***

This is a partial list of some contaminants, from the EPA standards

Contaminants	Health Effects	*MCLG	*MCL (ppb)
Chlordane	Liver or Nervous System problems; Increased risk of CANCER	0	0.002
Carbon tetrachloride	Liver problems; Increased risk of CANCER	0	.005
DBCP (1,2-Dibromo-3-chloropropane)	Reproductive difficulties; Increased risk of CANCER	0	0.0002
TCE (Trichloroethylene)	Liver problems; Increased risk of CANCER	0	0.005
PCE (Tetrachloroethylene)	Liver problems; Increased risk of CANCER	0	0.005
EDB (Ethylene dibromide)	Stomach problems; Reproductive difficulties; Increased risk of CANCER	0	0.00005

*In Milligrams/Liter.

According to the State Dept. of Health and the Board of Water Supply, your water is safe, because the detected levels of contamination are below ***existing*** Federal and State drinking water ***standards*** established for the protection of public health. ***However . . .***

Which standard would you prefer?

More on the EPA STANDARDS:

You should also keep in mind that these are the **existing** EPA standards.

Those standards **could change**, just like they have for Lead.

Did you know? The Hawaii State Dept. of Health has stated that **“...what is considered safe today may not be considered safe tomorrow.”** (SOURCE: Director, State Dept. of Health Advertisement, The Honolulu Advertiser, June 29, 1988)

*For example, in 1991 the EPA determined that the MCL standard they had established for safe levels of lead in the water, **were no longer considered safe.** Therefore, they changed the standard to a **so-called “safer” lower MCL standard.***

And, most recently . . .

Continued on next page

More on the EPA STANDARDS:

The most recent example is, the EPA's *reassessment of chlorpyrifos (Dursban)*, one of the nation's most popular insecticides. Chlorpyrifos, has been used for 34 years, and considered safe for the past 34 years. However, as of October 27, 1999, it has been identified as a health risk by the Environmental Protection Agency, according to an agency report. Todd Hettenbach of the Environmental Working Group, called on the government to ban Dursban (chlorpyrifos). **“The risk from this, especially for kids, is off the chart,”** he said.

The EPA announced in August 1999, that it was reviewing its risk assessments of insecticides and other chemicals that pose the greatest potential threat to children. This *reassessment of chlorpyrifos (Dursban)*, is part of that ongoing review. (SOURCE: Knight Ridder newspapers, The Honolulu Advertiser, October 28, 1999.)

What this means, is just what our own State Dept. of Health has said, **“what is considered safe today may not be considered safe tomorrow.”** In other words, the current standards for the contaminants in our water supply could be re-evaluated as no longer safe for children, or even adults.

More on the EPA STANDARDS:

When the EPA gives a particular MCL for a particular contaminant, it is just that, the Maximum Contaminant Level allowed. *That is*, the EPA's safety standard is on the basis that, **your water is *presumed* safe *if it only has that one contaminant* not exceeding its MCL, AND . . . assuming there are no other contaminants in the water supply.**

The EPA is not saying, *for example*, that your water is safe if you have 2, 3, 4, 5, 6, etc. different contaminants in the water at the same time, even if each of those contaminants are within its MCL.

There are NO EPA established standards for human health or safety, *when there is more than ONE contaminant in the water supply.*

As a matter of fact, a team of scientists at Tulane University found in their study that, **pesticides that have been linked individually to breast cancer and male birth defects are as much as 1,000 TIMES MORE DANGEROUS WHEN COMBINED.**

Continued on next page

More on the EPA STANDARDS:

A federal environmental official called the study's finding "astonishing" and said if it is confirmed in other laboratories, it could force a revolution in the way environmental effects of chemicals are measured.

Before the study, scientists thought that combinations of the chemicals would be additive. *That is*, the effects of two chemicals together would equal the sum of the effects of the chemicals alone.

"Instead of one plus one equaling two, we found in some cases that one plus one equals a thousand."

John A. McLachlan of Tulane University, leader of a team that tested the chemicals.

(SOURCE: The Honolulu Advertiser and Star Bulletin, June 7, 1996.)

Therefore, if your water supply has each of these contaminants combined: **Atrazine, Benzene, Desethyl Atrazine, DBCP, DCP, CTC-Carbon tetrachloride, Dieldrin, EDB, TCE, & TCP** (10 contaminants). **Does that mean that the effects are 10 Trillion-plus times as bad, or just 10,000 times as bad???**

Continued on next page

Pesticide combinations add up to big trouble

Associated Press

WASHINGTON - **Pesticides that by themselves have been linked to breast cancer and male birth defects are up to 1,000 times more potent when combined, according to a study.**

A federal environmental official called the finding astonishing and said if it is confirmed in other labs, it could force a revolution in the way environmental effects of chemicals are measured.

The study centered on endosulfan, **dieldrin**, toxaphene and **chlordan**e, all **pesticide chemicals that are known to turn on a gene that makes estrogen in animals.**

Estrogen is a hormone that controls formation of female organs. **A surplus of the hormone has been linked to breast cancer** and, to **malformation of male sex organs.**

By themselves, the pesticides have only a very weak effect on the estrogen gene, said John A. McLachlan of Tulane University, leader of a team that tested the chemicals. "If you test them individually, you could almost conclude that they were non-estrogenic, almost inconsequential," he said.

**"These findings are
Astonishing"**

Dr. Lynn Goldman,
Environmental Protection Agency

"But when we put them in combination, their potency jumped up 500 to 1,000-fold."

McLachlan said it was expected that combinations of the chemicals would be additive; that is, the effects of two chemicals together would equal the sum of the effects of the chemicals alone.

"Instead of one plus one equaling two, we found in some cases that one plus one equals a thousand."

The study is being published today in the journal Science.

"These findings are astonishing," said Dr. Lynn Goldman, **chief of the Environmental Protection Agency's Office of Prevention, Pesticides and Toxic Substances.**

"The policy implications are enormous about how we screen environmental chemicals for estrogen effects."

More on the EPA STANDARDS:

In December 1998, the EPA enacted the stage 1 Disinfectants and Disinfection By-Products Rule. **This rule lowered the maximum contaminant level (MCL) for TTHMs (Total Trihalomethanes) from 100 ppb to 80 ppb.** Ground water systems were requested to comply with Stage 1 Disinfectants and Disinfection By-Products Rule by January 2004.

CHLORINE: Many countries around the world have banned Chlorine, because it is a known Cancer Causing substance, **but the U.S. still uses it!**

An environmental group says **federal drinking water standards are too loose to protect newborns from a chemical that may cause something called "blue baby syndrome."** It can be caused by a chemical called **nitrate** sometimes found at unsafe levels in tap water that is used to mix powdered formula. **A research group called the Environmental Working Group says federal standards for nitrate in drinking water should be tougher.**

The group says the U.S. standard for nitrate should be twice as protective as it is now. That would put it in line with Germany, Denmark, and South Africa.

NOTE

U.S. mcl Standard for Nitrate: **10 ppm** (Maximum Contaminant Level)

Germany mcl Standard for Nitrate: **4.4 ppm** (Maximum Contaminant Level)

S. Africa mcl Standard for Nitrate: **4.4 ppm** (Maximum Contaminant Level)

European Economic Community mcl Standard for Nitrate: **5.6 ppm** (MCL)

The U.S. STANDARD is Half as Protective

As Other Countries' Standards!!!!

Now what do you think of the U.S. Government's STANDARDS?

Continued on next page

Group says unsafe U.S. water causing 'blue baby syndrome'

February 22, 1996

Web posted at: 11:40 p.m. EST

From Correspondent Eugena Hals

WASHINGTON (CNN) An environmental group says **federal drinking water standards are too loose to protect newborns from a chemical that may cause something called "blue baby syndrome."**

Blue baby syndrome is a rare but sometimes fatal disease that occurs primarily during the first four months of life. Symptoms include a blue discoloration of the lips, nose, and ears. Other symptoms include crying, vomiting and diarrhea.



Powdered baby formula mixed with tap water could contain nitrate

It can be caused by a chemical called nitrate sometimes found at unsafe levels in tap water that is used to mix powdered formula.

Nitrate is widely used in fertilizer applied to crops in the corn belt, Texas, and California, and it can run off into water supplies.

A research group called the Environmental Working Group says federal standards for nitrate in drinking water should be tougher. "We don't want to become a nation of bottled water, and we are rapidly becoming that," says Ken Cook of EWG.

The group says the U.S. standard for nitrate should be twice as protective as it is now. That would put it in line with Germany, Denmark, and South Africa.



Sullivan

But spokesmen for the Environmental Protection Agency and the nation's water systems say the current standard is sufficient to protect infants. The standard is really not in question, and to cast aspersions on it is misleading," says Jack Sullivan with the American Water Works Association.

Sullivan agrees that more steps are needed to prevent pollution by farmers but says there is no widespread public health threat.

The Environmental Working Group says that in 1994, about 500,000 people, many of them in the Midwest, drank tap water from systems that exceeded the federal standard for nitrate.

Water systems experts say when violations occur, they notify the public so pregnant women and infants will switch to bottled water. They say nitrate contamination is generally a bigger problem in drinking water from private wells.



Paulson

Pediatricians say parents who are worried should check with their local water company or get their water tested. "If parents have kids under a year of age and live in part of the country where the water system has been contaminated and is at risk, then they ought to consider use of bottled water," says Dr. Jerome Paulson with the [George Washington University](#) Medical center.

Boiling tap water does not eliminate the problem because nitrate is a chemical, not a form of bacteria.

Erring on the Side of Caution

— Not Risk —

When it Comes to Your Health & Water Quality

**(Or, You DO NOT Have to Settle
for the Quality of Water Provided by the City)**

The Choice for Safer, Healthier,
Quality Water,
is YOURS!

Everything comes down to standards.

The big question is: Are these **standards** which are used today “the **standards**” that you want for you and your family? **Standards** are constantly changing and the **standards** they use today for determining the safety of your water may not be applicable in the future. Just as the **standards** change continually so does the assessment of the health risks from contaminants. Unfortunately, the health risk assessments take a long time to ascertain because of the studies required to prove the risk. So, until the risk is proved **we (the general public) are basically used as test subjects — Guinea pigs, so to speak.**

So, For your family’s “Peace-of-Mind”

Which *standard* would you prefer?

- (A) Yours (the **standards** that you set)?; *Or,*
- (B) The government’s (the **standards** someone else sets for you, that they constantly change)?

***We believe, now that you have ALL THE FACTS,
the evidence will lead you to choose a better STANDARD — YOURS!***

HOW THE **AAA-Pure GAC Down-Flow Filter/Purification System with OPTI-CARB 1200+™** WORKS:

Activated Carbon has been designated by the U. S. EPA as the best available technology for reducing all types of synthetic chemicals.

STEP 1: City water enters the control valve and flows down through the media tank.

STEP 2: With a “DOWNFLOW” process, your water is filtered and purified as it passes through acres and acres of surface area of AAA BestWater Co.’s exclusive **OPTI-CARB 1200+™**, a specially graded, *highly-activated* Granular Activated COCONUT SHELL BASED Carbon, to achieve optimum performance in reducing a wide range of chemical substances. With its enhanced adsorption of synthetic organic chemicals & Volatile Organic Compounds (VOCs), like Atrazine, Alachlor, Ametryn, Benzene, Carbon tetrachloride (CTC), Chlordane, DBCP, DCP, Desethyl Atrazine, Dieldrin, EDB, PCE, TCE, TCP, and other Pesticides, Herbicides, Termiticides, Fumigants, Solvents, & Gas Additives, as well as Chlorine, & DBPs, such as Chloroform, Trihalomethanes (THMs), and HAA5 (Total Haloacetic Acid), as well as LEAD, & Taste & Odor — the Carbon, thereby purifies all the water for bathing, cooking & drinking in the home. — *Then*, in addition, as the water passes through the system with its “DOWNFLOW” process, it also filters and clarifies the water by trapping dirt, rust, and sediment, in both the Carbon bed and a special Filter Media at the bottom of the bed. — and therefore, a wide range of health concerns can be addressed.



STEP 3: *After the water has been completely filtered it exits the Media tank through the riser pipe and out the control valve.* It then enters the Whole-House Water Softening System, providing quality conditioned water through-out your home.

STEP 4: **When** necessary, at selected intervals, the **VALVE** — Backwashes the charcoal bed — all **AUTOMATICALLY** — while you are sleeping. This process **re-grades the carbon**, and **flushes out trapped dirt, rust and sediment**, which are **back washed** and **flushed** out of the system and **down the drain**. This will help insure that your carbon always performs to its maximum efficiency and capacity. Gives you **clear, polished, purified water** without time-consuming manual maintenance. **AUTO-MATIC BYPASS** — Diverts water to bypass the treatment tank during backwashing. Gives you uninterrupted water flow — so you’re never without water.

What You Should Know About Coconut Shell Based Carbons In Water Treatment Applications

This note addresses the issue of using highly microporous carbons in water treatment applications.

Coconut shell based activated carbons properly sized for water treatment applications have significantly higher surface areas and smaller average pore diameters when compared to coal based carbons and will on a pound for pound basis out perform the coal based carbons by between 20—40%. *The significant advantages of the coconut shell carbons over coal based carbons with respect to contaminant adsorption capacity and retentivity can result in a significant cost savings to the user.*

Coconut shell activated carbons are the premium carbon for use in both liquid and gas phase adsorption applications. They have surface areas that are typically greater than 1200 m²/g. This is significantly more than the 900—1050 m²/g surface areas exhibited by good quality coal based carbons. The greater the surface area of an activated carbon means more sites will be available for adsorption. The greater the number of sites, the higher the loading capacity of the carbon and, consequently, the lower will be the GAC usage rate. **The effectiveness of coconut shell carbons when compared to coal based carbons becomes greater as the concentration of the contaminant in the water stream is decreased and as the contaminant becomes more water soluble and more difficult to adsorb.** This is because as a result of having a higher surface area, coconut shell carbons also exhibit smaller average pore diameters. ***The smaller pores mean a stronger interaction between the carbon surface and the contaminant being adsorbed. The result is a higher retentivity of the contaminant by the carbon, i.e., what has adsorbed has more of a tendency to stay adsorbed.***

People have expressed concerns that the micropores present in coconut shell carbons are too small to accommodate the many organics that are present in a water stream and therefore only a coal based carbon should be selected for these applications. ***Most constituents present in water stream are readily adsorbed by coconut shell carbon. Coconut shell carbons typically have a surface area that is significantly greater than what is seen with a typically coal based carbon.*** Most of this increased surface area is in the micropore region of the coconut shell carbon. The average pore diameter for a high quality coconut shell carbon is between 15 and 20-angstrom units, coal based carbon are typically 2—4-angstrom units larger. The average molecular sizes for many typical organics found in water are between 4 and 8-angstrom units (estimated based on Van der Waals radii) ***and therefore would be easily accommodated by the micropore structure of the coconut shell carbon.***

The presence of humic acids and other large macromolecules in a water stream present a problem for both microporous and macroporous carbons because these large molecules diffuse very slowly in water and have a tendency to adsorb on the outer surface of the carbon particle. By adsorbing in the surface of the carbon particle, these molecules can reduce access to the internal micropore structure and thereby decrease the adsorption capacity of the carbon. While coconut shell carbons are more sensitive to surface adsorption and lose capacity more quickly when compared to coal carbons, **studies have shown the ultimate capacity of the coconut shell carbons is still greater because of its higher initial adsorption capacity.**

Except where color removal or the removal of large molecules from a water stream is required, **coconut shell activated carbons can almost always be substituted for coal based carbons and the result will be higher adsorption capacities and lower GAC usage rates.**

James R. Graham, Ph.D.,* August 1999