WHY SHOULD WE CONCERN OURSELVES WITH WATER FILTRATION?

• The U.S. Centers for Disease Control and Prevention estimates that nearly a million Americans become sick and as many as a thousand died every year from contaminated water.

• The U.S. Government has for years listed contaminated drinking water as a top environmental health threat - the Centers for Disease Controls and Prevention says people with immune deficiencies should consider boiling all tap water.

• The most common symptoms of waterborne illness, nausea and diarrhea, usually get blamed on stomach flus or bad food. One in three cases of "flu" has been determined to be caused by water contamination.

• The National Resources Defense Council contends that the number of Americans exposed to water contaminated above U.S. Environmental Protection Agency standards is growing.

• About 40,000 of the 170,000 water systems, serving about 58 million Americans, violated testing requirements and purity standards last year.

• About 9,500 water systems, serving 25 million Americans, had 'significant' violations, which the Environmental Protection Agency defines as posing the 'most serious threats to public health.'

• Eleven states have yet to implement all of the Safe Drinking Water Act's contamination limits.

• At least 13 states don't meet federal guidelines dictating that they inspect water systems every three to five years.

• Mr. James Elder, former head of the EPA's Office of Ground Water and Drinking Water has said: "The attitude is, 'Until there's a big body count, there's not a problem.' We haven't documented many major outbreaks, so everybody claims the (regulatory) system is working."

• In recent years, Boston, MA, has failed to meet requirements that it filter its water.

• Ottawa County, Ohio, the Gem Beach Utility Co., has refused since 1994 to meet treatment requirements for the water it draws directly from nearby Lake Erie.

• According to a 1997 EPA study, the nation's 55,000 water systems that serve residential communities need $12 billion in new equipment and pipelines to meet legal requirements.

• "Some utilities willfully violate (drinking water rules) because they don't like the regulations, but usually it's a matter of not having resources to fix a problem", says Bevin Beaudet, past chief of Palm Beach County, Florida, Water Utilities and a board member at the American Water Works Association.

• The EPA lacks the resources to step in when states fail. In 1998, the agency devoted $5.1 million and roughly 80 staff members to enforcing drinking water laws - about one fourth of what it allocates to policing air pollution.

• States vary on opinions regarding acceptable levels of MTBE contamination. For example, California dictates that 13 ppb is an acceptable MTBE contamination level, while Michigan claims 240 ppb is acceptable.

Recent Notorious Water News

• At least **21 deaths and 2,000 persons ill** have been attributed to E-Coli contamination in the water system found in Walkerton, Ontario.

• The water system in **Pineville, Louisiana,** was inadvertently hooked up to the raw sewage line which brought sewage into the homes of its residents. (These home owners did not know what the white, stringy substance was coming from their faucets until they learned it was used toilet tissue.)

• This year **E-Coli was found in the water systems** of Seattle and Tacoma, Washington as well as Strafford, Missouri and the residents were ordered to boil their water.

• California continues to work on their program for turning **toilet water back into tap water.**

• **Drinking water sources in 49 states** have been found to be contaminated with the oxygenate MTBE, found to cause serious adverse health conditions.

• **USGS finds pesticides and more in US streams** More than half of the streams sampled near agricultural and urban areas have concentrations of at least one pesticide that exceeds guidelines for the protection of aquatic life, according to the US Geological Survey (USGS).

• **Link found between TTHMs and stillbirths** Researchers in Canada report a link between total trihalomethane (TTHM) levels in Nova Scotia water supplies and incidences of stillbirths. According to a comparison of more than 90,000 pregnancy health records in Nova Scotia communities between 1988 and 1995, exposure to TTHM during pregnancy increased the risk of stillborn births. Last year, researchers in California found an association between spontaneous abortion and exposure to five or more glasses of public water per day with high TTHM levels.

• In a study from the Natural Resources Defense Council in Washington, one-third of tested bottled water contained levels of bacteria exceeding some US EPA standards to tap water.

• **According to the CDC, Giardia lamblia, a waterborne parasite** is one of the most common causes of intestinal illness in the United States and has doubled in occurence over the past five years. (28,000 known outbreaks in 1997.)

• **Prescription drugs have been found in the rivers of New Mexico.** Officials can only guess they entered via the sewer systems.

AQUARAIN Gravity Water Filters

225 Route One • Schell City, MO 64783

(800) 572-2051

Fax (417) 432-3302

Questions & Answers

Question: ***How much water will the AquaRain® Natural Water Filter produce?***

Answer: Our factory testing has established a water production rate of approximately one gallon per hour for the **AquaRain® Model 400**. This maximum production figure has been established with clean fully wetted elements and relatively clear water. Keeping the upper vessel as full as possible, perhaps refilling every fifteen minutes, is essential to reach the maximum production potential.

New, dry elements will need several gallons of water run through them, sometimes 10 or 12, before they are fully wetted and reach their maximum flow rate. In normal usage, water for filtration is placed in the upper vessel in the evening and allowed to filter through overnight. In the morning, most of the water should have filtered through into the lower dispensing container. Additional water may then be added to the upper container for filtration during the day. If maximum production is desired, it will be necessary to keep the upper vessel as full as possible, perhaps refilling every fifteen minutes.

Over time, small particulates and bacteria may accumulate on the walls of the elements and slow the production of water through the filter. When this occurs, simply remove each of the filter elements and lightly clean the hard surface of the ceramic with a brush or the scrub pad provided. Proper cleaning will restore the filter to full flow rates, each and every time.

Question: ***How long do the filter elements last?***

Answer: There are two parts to the filter elements; the ceramic shell, and the granulated carbon filling. Cleaning of the ceramic shell is what wears out the ceramic portion of the filter. Over time, particulates and bacteria clog the microscopic pores of the ceramic, slowing down the flow rate. Occasional cleaning with a small brush or the enclosed green scrub pad will restore the original flow rates. Eventually, cleaning of the ceramic will wear the walls down, making them thinner. When the attached gauge can fit over the diameter of the ceramic, you know it is time to replace the element. Our ceramic formulation is very hard and will endure many cleanings, perhaps over 200 if moderate care is taken and light pressure is used. In normal usage this equates to thousands of gallons of water that can be filtered.

The inner carbon filter works by adsorbing and/or reducing certain chemicals, and has a finite lifetime based on the concentration of the compounds being reduced. Generally speaking, the carbon capacity should exceed the life of the ceramic portion of the filter when processing water from most sources. Annual replacement of cartridges should guarantee sufficient carbon capacity for maximum protection. Please note that should the carbon become exhausted, that the elements are still fully effective for the removal of protozoic cysts and harmful bacteria, provided the remaining ceramic wall thickness still has useful life.

Question: ***How do you clean the ceramic elements?***

Answer: The ceramic elements are very easy to clean. You simply remove them from the upper container, and while holding the threaded end of the filter upright, brush lightly downward toward the end cap. After you have lightly cleaned the surface, simply rinse and reinstall the element . Occasionally it will be necessary to lightly abrade the surface with the supplied green pad to restore full flow rate, perhaps after 3 to 5 brush cleanings.

Question: ***How do you store the filter system?***

Answer: If you wish to store the **AquaRain® Natural Water Filter,** simply remove the filter elements and allow them to completely air dry for at least 24 hours or more. Dry the containers and all parts, then slide the lower container into the upper container to nest them together for compact storage.

Question: ***Has the AquaRain® Natural Water Filter been laboratory tested?***

Answer: Extensive independent testing is the key to proving the performance of any water filter product. The ceramic filter media used in the **AquaRain® Natural Water Filter** has been thoroughly tested by independent laboratories and government agencies. In fact, an especially difficult testing program has been used where expended "worn out" elements have been tested to positively demonstrate that the ceramic elements remain fully effective throughout their entire life. To the best of our knowledge, no other manufacturer has dared to test in this manner.

There still remain special additional state testing and filing requirements as yet not completed that prohibit us from making specific health claims in the states of California, Iowa or Wisconsin.

The AquaRain Natural Water Filter

800-572-2051 ~ FAX 417-432-3302

AquaRain Filter Systems ~ 225 Route One ~ Schell City, MO 64783

The AquaRain Natural Water Filter

Center for Disease Control Report…

The Centers for Disease Control and Prevention (CDC), located in Atlanta, Georgia, USA, is an agency of the Department of Health and Human Services. This agency employs thousands of people, in a number of locations throughout the United States, as well as working closely with other governments around the world. When seeking information on health and well being, many of us turn to information released by the CDC, knowing it will be accurate, enlightening, and beneficial.

Since 1971, the Center for Disease Control and the U.S. Environmental Protection Agency have maintained a collaborative surveillance system for collecting and periodically reporting data that relate to occurrences and causes of waterborne-disease outbreaks. The surveillance system includes data provided by state, territorial, and local health departments covering outbreaks associated with drinking water and recreational water. *This reporting to the CDC is on a voluntary basis*. While we all understand that statistics released are not necessarily as current as we would like them to be, when the CDC issues information, it is always informative, pertinent, and revealing. The following information was provided for a two year period, 1995 – 1996, and was released in a December 1998 article by the CDC.

The statistics found in this report is representative of a bigger picture and does not reflect the true number of waterborne-disease outbreaks. The report is limited by the fact that not all outbreaks are recognized, investigated, or reported. This particular surveillance report of 22 waterborne-disease outbreaks was compiled from the volunteer reporting of only 13 states. During this time, over thousands of people became ill but fortunately there were no deaths reported. Of the 22 outbreaks, the cause of 14 could be identified while the other 8 outbreaks were described as “AGI: Acute gastrointestinal illness of unknown etiology.” (It is interesting to note that the number of outbreaks, as described in this report, were comparable to those reported for each year during 1987-1994, *except for an increase in 1992*. The CDC primarily uses number of outbreaks rather than persons effected, thus, the 400,000 people who became ill in 1993 from Cryptosporidium in the drinking water counts as one outbreak.) The bottom line on this report reveals the startling fact that here in the United States the quality of our drinking water is also compromised by the very same things in the water of our third-world neighbors…bacteria, parasites, viruses!

THE PROBLEM

We do have a problem with chemical contamination in our drinking water. According to the CDC, “Infectious or suspected infectious etiology” far outweighs chemicals in water contamination. These infections have names: Giardia lamblia, Shigella sonnei, Escherichia coli (E. coli), Cryptosporidium, Fecal Coliforms. There are three basic categories of pathogen that can be found in water. The first is protozoa. Protozoa include the well-known Giardia, and the not-so-well-known Cryptosporidium. **These two have been detected in 90% of U.S. surface water**. Protozoa are the largest organisms of our three categories, ranging in size from 1-16 microns. They are more resistant to disinfection by iodine or chlorine than either bacteria or virus, but can be effectively filtered. Giardia is relatively large and easy to catch, but Crypto is smaller and more difficult to eliminate. The second category is bacteria. Bacteria include such commonly known organisms as Campylobacter, E. coli, Vibrio cholera, and Salmonella. Bacteria are intermediate sized organisms, ranging from .2 to about 10 microns. The third category is viruses. Commonly known viruses include Rotavirus, Hepatitis A, Norwalk, and Polio. Viruses are truly tiny; they range in size between .02 and .085 microns.

WHAT HAPPENED?

In the study released, we also learned that reporting of different types of water systems in the United States and where deficiencies were discovered with regards to outbreaks of illness. We found that there very small number of systems classified as 'individual'. The following are definitions used by the Center for Disease Control:

"Community Water System: A public water system that serves year-round residents of a community, subdivision, or a mobile-home park that has greater than or equal to 15 service connections or an average of greater than or equal to 25 residents."

"Noncommunity Water System: A public water system that a) serves an institution, industry, camp, park, hotel, or business that is used by public for greater than or equal to 60 days per year; b) has greater than or equal to 15 service connections or serves an average of greater than or equal to 25 persons; and c) is not a community water system."

The report gave startling and frightening information: the cause outbreaks showed that chemical contamination equaled bacteria, viral, and parasitic contamination, with unknown sources leading the outbreaks. But the truly sobering facts remain that the water quality we depended upon was shown lacking when it was reported that nearly 70% of the outbreaks came when the distribution/treatment systems failed the very ones who were depending upon them.

WHAT IS IT?

Although recreational water is not necessarily viewed as a source of illness, unfortunately that is not the case. Water souces associated as "water play" had been linked to many outbreaks of illness. The greatest percentage of contaminated water is found in a lake or a spring… and it was reported that these were used as our water sources in over 40 percent of illness outbreaks….*and* shows the deficiency of the dispensing or treatment systems. (This graph also shows the seriousness of the types of contamination, for example, cryptosporidium parvum which CANNOT be killed with chlorine. One single oocyst will make a person very ill.)

WHAT MADE US SICK

MTBE, chlorine, pesticides, chemicals are found in our drinking water. It is common knowledge that these agents pose a health threat and that over long periods of exposure can cause cancer as well as heart disease. However, never to diminish these dangers, it is still prudent for us to take note of the causes of waterborne-disease outbreaks as illustrated in the graph found in Figure 4. The dangers of bacteria and parasites in our water are very real and cannot be ignored.

WHAT DOES ALL THIS MEAN TO ME?

When it comes to water and what must be done to improve its quality, may be a confusing issue and a frustrating one. Without disinfecting, water can be the cause of serious illnesses ultimately effecting thousands. History has shown that many times, the disinfecting procedures fail the very ones that are depending upon it. The failure has come in the form of not true decontamination and also the chemicals used to clean the water have been demonstrated to cause serious health problems as well. What do we do? It is prudent that we all take control of our health and that of our family's and seek the solution ourselves.

The AquaRain™ Water Filtration System has been engineered to provide safe drinking water from raw water sources such as rivers, lakes, streams, creeks, ponds, wells, and cisterns. At the heart of the AquaRain™ Water Filtration System are state-of-the-art ceramic elements utilizing a long-proven filtration

process that is over 100 years old which will safely remove dangerous waterborne pathogens such as cysts *(Cryptospordium, Giardia lamblia)* and bacteria *(E. coli, Samonelli typhus, etc...)*. These innovative ceramic elements are also filled with a high grade silvered granulated activated carbon (GAC). The GAC reduces pesticides, chemicals, chlorine, color, tastes and odors, while leaving the naturally occurring minerals found in the water unaffected.

Reports continue to come in and rather than improvement, water quality continues to deteriorate. What could be more important than clean, safe water? The AquaRain Natural Water Filter will provide your family with water you can trust, all without having to boil your water, use potentially dangerous chemicals, or rely on man-made energy.