

April 24, 2008

Dear Chesapeake Resident,

Health Information about Your Well Test Results

The first results of well water tests conducted for you will begin arriving via postal mail soon. To help you better understand the results, we are providing the following answers to questions you might have. Samples have been collected over several weeks, and we estimate it will take three weeks from the date of collection for your results to arrive.

As you know, the City of Chesapeake has expertise in operating a municipal water system and ensuring that the public water supply meets all safe drinking water specifications. However, the City does not regulate private wells and therefore, is not an expert on the issue of groundwater quality. The City encourages you to consult the websites of the Environmental Protection Agency, the Virginia Department of Environmental Quality and the Virginia Department of Health for information regarding water quality and fly ash.

Environmental Protection Agency drinking water website: http://www.epa.gov/safewater/dwinfo/va.htm	Environmental Protection Agency private well website: http://www.epa.gov/safewater/privatewells/index2.html
Virginia Department of Environmental Quality http://www.deq.state.va.us	Virginia Department of Health http://www.vdh.state.va.us

Why did you pick these elements for your test?

The selection of elements was made based upon a review of the literature to identify the substances that can exist in the presence of fly ash. These elements are specifically mentioned in several studies that have been conducted. Most of the elements for which your water is being tested occur naturally in the ground. It would be misleading to state what is "normal" since soil conditions can vary greatly from one area to another. The occurrence of elements can also vary as a function of well depth and they tend to be site-specific.

How much is too much?

In small amounts substances such as selenium and chromium are a necessary part of a healthy diet. There is a wide variation in the maximum amount of substances your body can tolerate. Substances known to cause or which are *suspected of causing* adverse health effects are regulated by the Environmental Protection Agency as *Primary Contaminants*. Limits known as *Primary Maximum Contaminant Levels* are established based upon the level at which there is no known adverse health effect.

Some of the elements that are being checked for in your water are also regulated as Primary Contaminants (PC), which is a drinking water contaminant with health-related effects. You may wish to write the levels shown on your individual lab report in the table for easy reference.

Elements Tested

Fill in your information to compare.

Name	Primary Contaminant?	EPA Drinking Water Limit (PPM)	Your Level	Baseline Level from 2001-02 (if available)
Arsenic	Yes	0.010		
Barium	Yes	2		
Boron	No	Not regulated at this time		
Cadmium	Yes	0.005		
Chromium	Yes	0.1		
Lead	Yes	0.015 (Action Level)		
Mercury	Yes	0.002		
Selenium	Yes	0.05		
Silver	No	Not regulated at this time		
Vanadium	No	Not regulated at this time		

Note that some test results show elevated levels of Boron, which is often used for agricultural purposes. The levels of Boron shown so far do not indicate any threat to human health. We are exploring the implications of the elevated readings. We will share any information we find with you as soon as possible.

The amount of exposure varies with the amount of water you drink. How much do you have to drink for the results to apply to you?

This is an excellent question but it is impossible to provide a precise response. Most of the contaminants being analyzed in your water are regulated to provide a margin of safety against adverse health effects based on long term consumption (many years) or a lifetime of consuming a given volume of water- typically one to two liters per day.

Some substances, such as lead, could have an acute effect (over a short period of time) to the mental and physical development of infants and children. Long term exposure by adults can result in problems with the kidneys and cause high blood pressure.

My neighbor had a test done by the developer before the golf course was built but I didn't. Can I look at my neighbor's results and have a good idea of what my water contained at that time?

It is common for groundwater from the same aquifer within a small geographical area to exhibit similar water quality characteristics. However, since each test is site specific, it would not be wise to rely on that assumption. Certain conditions may exist in your well system to cause the water from your home to exhibit different characteristics from that of your neighbor. This could include differences in the materials of well construction, well depth, age, the amount of water typically used and the type of materials in your household plumbing.

This test report looks different from the ones I've previously gotten. Why?

There is no standard format for lab reports- they can differ in appearance from one certified laboratory to another. It is not uncommon for one laboratory to express a concentration in *parts per million* (see question below) and for another laboratory to express the same test result in *parts per billion*- both are correct; the levels are simply expressed using different units. For example one person may express a measurement as "12 inches" and another may say "1 foot."

There may be other differences as well. Symbols such as "<" (less than, meaning below the level the equipment could detect) can be confusing. A test result expressed in this manner does not mean that a particular substance was not present. It could mean that the testing equipment could not provide a specific value.

Advances in technology may allow current laboratory equipment to detect much lower levels than could previously be found. This could cause unnecessary alarm by making it appear that an increase in the concentration of a contaminant has occurred when there may have been no actual increase at all.

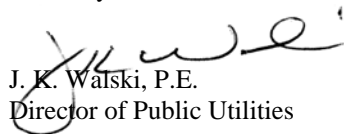
Why do you sometimes use *parts per million* (PPM) and sometimes *parts per billion* (PPB)?

Many of the substances analyzed in drinking water can be present in extremely small quantities. As analytical methods have become more sophisticated, it has become possible to accurately measure substances in smaller and smaller concentrations. Two common units of measure in the waterworks industry are "milligrams per liter" (the weight, in milligrams, of a substance in a liter of water, written as mg/L or PPM) and "micrograms per liter" (the weight, in micrograms, of a substance in a liter of water, written as ug/L or PPB). In the same way that the length of a football field is typically expressed in yards instead of inches, an appropriate unit of measure is used when describing the ratio of substances in water.

To put this in perspective, 1 mg/L (1 PPM) is the equivalent of one minute in two years or one penny in \$10,000. 1 ug/L (1 PPB) is 1,000 times smaller than 1 mg/L and is equivalent to one minute in 2,000 years or one penny in \$10,000,000.

The City will continue working closely with you to develop as clear an understanding as possible about the groundwater quality in your area. Should you have any particular questions you should contact Lizz Gunnufsen at 382-6241.

Sincerely,



J. K. Walski, P.E.
Director of Public Utilities

cc: Lizz Gunnufsen, Public Communications Department
Maria Nold, DEQ
Jeff Goodchild, Chesapeake Health Department
Junius H. Williams, Jr., Dominion Virginia Power