

CONTAMINANTS OF EMERGING CONCERN (CECs) & WELL WATER

What are Contaminants of Emerging Concern?

Modern water testing methods give scientists the ability to detect the smallest amounts of chemicals in our water supplies. As a result, new studies are revealing the presence of food additives, pharmaceuticals, personal care products, natural & synthetic hormones, and 1,4-Dioxane. These substances are present in everyday products that are used at home, work, and on farms. These substances are commonly referred to as “contaminants of emerging concern” or “CECs”.

Potential water quality contaminants are flushed into groundwater from a variety of sources. The most common are wastewater from sewage treatment plants, run-off from agricultural land uses, particularly from industrial scale livestock facilities, and discharge from individual septic systems. Conventional sewage treatment varies greatly in its ability to eliminate drug or personal care product residues.

For example, antibiotics are common in the general population and are used on farms to prevent disease in livestock and poultry. It is not surprising to find antibiotics in the wastewater from a local sewage treatment plant, from your own septic tank, or in water sources near a farm where livestock or poultry are regularly dosed.

What are the Health Effects of Contaminants of Emerging Concern?

Research and studies have shown that CECs may cause direct or indirect health effects. Some examples of direct health effects would be eye and skin irritation, liver damage, or reproductive issues. An example of an indirect health effect would be the build up of pharmaceuticals in groundwater and drinking water which has caused bacterial strains that cause infectious diseases to evolve differently. As a result, the bacterial strains become resistant to current antibiotics. Other studies, particularly regarding fish in streams contaminated by steroids, have shown hormone disruption.

Reports and studies indicate that the many CECs are present only in very low concentrations, with many detected in parts per trillion (ppt). The U.S. Environmental Protection Agency (EPA) regulates most substances in drinking water based on parts per million (ppm) or parts per billion (ppb), which represent much greater concentrations. There is no federal maximum contaminant level (MCL) established for CECs. However, some states may have developed a maximum level for CECs in drinking water in which well owners are encouraged to use this as a guideline for when to treat their well water. Check with your local health department or state environmental agency for more information.

If you suspect contamination or experience illness, stop drinking and cooking with the water immediately and do not resume until testing has proven it to be safe to use. Always seek advice from your medical doctor if you have any health concerns.

How Do I Test for Contaminants of Emerging Concern?

Testing for contaminants of emerging concern can be expensive. Therefore, it is important to research the potential for such contamination in your groundwater from nearby sources (farms, water bodies such as streams, septic systems or sewage plants), consider any health issues you might have, and if you are taking medications.

Your local or state health department can provide guidance on whether you should test for common drugs or chemicals from personal care products. These agencies can also refer you to laboratories capable of conducting the tests in your area or you can use [our interactive map](#).

How Do I Treat Well Water for Contaminants of Emerging Concern?

It is very difficult to remove CECs at these low concentrations. However, treatment such as reverse osmosis or carbon filters can potentially treat chemicals detected in your drinking water. Contact a certified water treatment professional for guidance. To locate a certified water treatment professional in your area, visit [WQA's](#) website.

Treatment systems should be certified by NSF or Water Quality Association (WQA) when available. To find treatment systems that are certified visit [NSF](#) or [WQA](#) websites. It is necessary to maintain treatment devices as specified by the manufacturer or your water treatment professional. You should also retest your water after treatment is installed and after maintenance to confirm the effectiveness of the device.

There are also steps every household can take to reduce the substances released into the environment and to limit exposure to pharmaceuticals and personal care products:

- Don't dispose of unused drugs in the toilet.
- Avoid clothing and furniture with stain-resistant chemicals.
- Limit use of personal care products.
- Reduce consumption of pre-package foods.
- Eat less fatty meat and dairy products.
- Avoid reusable plastic bottles.

This sheet is for informational purposes only. WSC and its programs make every effort to keep wellcare® information sheets up to date. Information and resources may have changed after this sheet was published. Check with your local or state agencies for the most accurate information. Information and guidance provided by your local and state agencies supersedes this sheet.

For More Information on Contaminants of Emerging Concern

Contact your licensed well contractor, local health department, state environmental agency, or the wellcare® Hotline.



Information to help maintain and protect your water well system:

wellcare® is a program of the Water Systems Council (WSC). WSC is the only national organization solely focused on protecting the health and water supply of an estimated 23 million households nationwide who depend on private wells (according to the U.S. EPA).

This publication is one of more than 100 wellcare® information sheets available FREE at www.watersystemscouncil.org.

Well owners and others with questions about wells and well water can contact the wellcare® Hotline at 1-888-395-1033 or visit www.wellcarehotline.org to fill out a contact form or chat with us live!

JOIN THE WELLCARE® WELL OWNERS NETWORK!

By joining the FREE wellcare® Well Owners Network, you will receive regular information on how to maintain your well and protect your well water.

Contact us at 1-888-395-1033 or visit www.wellcarehotline.org to join!