Frequently asked questions regarding individual wells and contamination potential

Approximately 60% of residences in Carroll County receive their drinking water supply from individual wells located on their property. If your home is located within one of the County's eight municipalities or in the Sykesville/Eldersburg area, your water is more likely to be from a public water supply operated by a municipal government or by the County. When dealing with potential contamination sources it is important to understand what the source of your water is!

If you unsure of where your water comes from and are concerned about potential contamination, including MTBE, the following information should be of help to you. To see the answer to these questions just click on the question to be taken to the answer.

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Frequently asked questions regarding individual wells and contamination potential

How do I know if I have a well?

The first clue for having a well is not paying a water bill while you actually have drinking water coming from your taps. If you are still unsure, call the Town or Government office in the jurisdiction where you live to make sure they do not provide your drinking water.

Check to see if your water is coming from a spring. There will be a small building or enclosure/basin/tank, usually concrete, which has water and a pump in it and some sort of overflow pipe. There are only a few homes left that use springs as water supplies. Springs are now considered unacceptable for supplying consistently safe water to a home.

If you don't pay a water bill and don't have a spring, you probably have a well.

I have a well.

How can I find it?

If you do not know where your well is located, it can be a hard search, especially in cases of emergency when the yard is underneath two feet of snow. Therefore, always make sure that you know where your well is. Locate the wellhead in your yard. This is the top of your well. It should extend at least eight inches above the ground and have an appropriate cap to keep contaminants from entering the system. Surface water should drain away from the wellhead.

Some older wells are in pits. The pits often have concrete or wooden covers that are about 4 feet by 4 feet. The pit is usually 3 or 4 feet deep and can have the well, a

pressure tank and the pump in it. If there's water in the pit, there could be problems with the safety of the water in the well. You should call the Health Department to find out what to do.

If you're not able to find your well, contact the Health Department or the driller of your well if you have this information. If that doesn't work, use a metal detector to find the well. You can often determine the general location of the well by noting where the water line comes into the house. The plumber or well driller usually installs this line directly between the well and where the line enters the house.

How can I protect my well?

Periodically inspect exposed parts of the well for problems such as:
- cracked, corroded, or damaged well casing/pipe
- broken or missing well cap
- settling and cracking of surface seals

Slope the area around the well to drain surface runoff away from the well.
Install a sealed and vented well cap to keep contaminants from getting into the well.
Have the well tested every few years for bacteria and other constituents of concern.
Keep accurate records of any well maintenance.
Don't tie animals to the well.
Avoid mixing or using pesticides, fertilizers, fuels, and other pollutants near the well.
Don't run into the well with power equipment, such as lawn tractors.
Do not put wastes into dry or abandoned wells.
Do not cut off the well casing below the land surface.
Never put chemicals, solvents, petroleum products, or pesticides into a septic system.

How do I know if my water is safe?

Most water from drilled wells in our area is safe.
Wells installed since 1980 were tested before being used.
There are signs that you can look for:
- Unpleasant taste or odor (this does not necessarily mean your water is unsafe because some tastes and odors are caused by naturally occurring minerals)
- Change in appearance, e.g. becomes cloudy
- Family members ill and doctor suspects water
- Several neighbors with similar wells in your neighborhood have similar problems
- Public notice of contamination in the area.

What do I do if I believe my water is unsafe?

Contact the Health Department (Add contact info).
Depending on circumstances, we may sample your water or direct you to private firms that sample for a fee.
Drink bottled water until the problem is fixed or your concern is resolved.

How do germs and chemicals get into my water system?

Some germs and chemicals (for example iron) occur naturally because they are normally found in rocks and soil. Other contaminants that don't belong in your well (for example nitrates, benzene, MTBE) come from unusual situations like flooding, or man's activities. Working on the plumbing or well, gasoline spills, septic systems, and pesticide and fertilizer use are a few examples of man's activities.

What will happen if the water has Bacteria in it?

The Health Department will check the well construction.
After any problems have been fixed, the Health Department will give you directions on how to disinfect/chlorinate the well.
The well water will then be retested.
If the results are good, there will be no further action.
If the results still show a problem, you may need to:
disinfect again and retest several times or
install treatment, or in certain types of contamination,
the Health Department will begin an investigation.

What will happen if the water has Chemical/petroleum contamination?

Within 24 hours of finding out about chemical or petroleum contamination (can be up to 30 days from date of collection); the Health Department will call you with the results (written notice is usually mailed within 5 days). We will advise what steps to take to protect your health, such as drinking bottled water. We also begin an investigation to determine where the chemical is coming from and how it can be eliminated. We will inform you of new information as it becomes available.

I'm especially concerned about Gasoline, fuel oil and other petroleum products.

If the contamination is related to petroleum products, we also notify other agencies, such as the Maryland Department of the Environment and decide if additional agencies and the public should be notified.

Because petroleum products have special requirements, there are additional steps that are taken. They are:

We begin reviewing properties on a map and determine the next properties to be sampled, send out any needed notice/press release and arrange a public meeting, if needed.

We then coordinate and collect samples from other properties (this may include a visual assessment of the area), research our files, and collect field data (well locations, well construction, and ID potential sources of contamination with Maryland Department of the Environment's Oil Control Division).

After the results from the most recent sampling are evaluated, we start the process again. Each round of samples generally extends further out from the previous group until the area of impact has been determined. Once the area has been identified, the properties with chemicals detected are put on a sampling schedule based on the potential exposure and health risks. If a responsible party (RP) has been named, they are typically charged with the sampling. If no RP is determined or they are unable to do the sampling, CCHD will assume the sampling responsibility.

This represents the general procedures taken by the Carroll County Health Department in response to petroleum releases. However, the real world doesn't always cooperate. All too often inspectors have difficulty reaching property owners, obtaining vital information, and receiving laboratory results as quickly as desired. In general, it can be expected that it may take as long as five weeks from the time of sampling until a property owner receives verbal notification of their results. The time to determine the area affected may range from five weeks, up to a year depending on the complexity of the case and number of samples needed.

What about cleaning up the water?

The Maryland Department of the Environment has responsibility for tracing petroleum contamination to its source and determining what cleanup actions are warranted and feasible. Sometimes the source is a company and sometimes it's an individual. Identifying and proving the source and getting them to do something can take years if it can be done at all. Similarly, the time it takes to clean up such sites is usually measured in years.

Cleaning up groundwater is complicated. You have to find out where the contamination started, how it moved and moves through the groundwater, where it has spread and where it could spread. Then you have to figure out the best way of removing the contamination from the water and the rock and soil around it. In some cases, water is pumped out of the ground, cleaned and then pumped back into the ground. In other cases, special bacteria are placed into the water to "eat" the contaminants. In other situations, air is pumped into the ground so the contaminant can be evaporated and treated.

All of these things take time and depend on so many different things that no one can tell how long a cleanup will take.

Where can I find out more information about wells and well water?

http://www.carrollhealthdepartment.dhmh.md.gov/envirohealth.html
http://www.epa.gov/safewater/faq/faq.html
http://www.nrcce.wvu.edu/programs/nesc/docs/SFPLNL30.pdf,
http://pubs.usgs.gov/gip/gw_ruralhomeowner/gw_ruralhomeowner_new.html
http://www.wellowner.org/
http://wateroutreach.uwex.edu/drinking/search.cfm

Recently, numerous cases involving contamination from the fuel additive MTBE have been identified. Those cases and the affected communities have been a prominent subject of news reports. As a result, many residents may be concerned over whether their water may be affected and if so, what can be done to correct the problem. The following questions concern MTBE contamination.

***I'm concerned about MTBE*.**

The information in "I'm especially concerned about Gasoline, fuel oil and other petroleum products." will answer some questions related to MTBE. What follows is specific to this chemical.

What is MTBE?

When lead was taken out of gasoline in the 1970's, manufacturers replaced it with methyl tertiary-butyl ether (MTBE). In the 1990's, the federal Clean Air Act mandated that gasoline burn cleaner. The manufacturers added more MTBE until it made up between 11% and 15% of the gasoline. The reason for putting this chemical in gasoline has always been to improve air quality.

During the spring and summer of 2006, distributors stopped using MTBE in this area and replaced it with ethanol. Part of the reason for this change was concern about groundwater contamination.

How did it get in my water?

The pipelines and trucks that carry gasoline also carry heating oil and other petroleum products, so MTBE is in almost all of them. That means that if tanks or piping for gasoline or home heating leak, MTBE can get into the groundwater. Evaporation from underground storage tanks can also be a source.

MTBE easily mixes with water. Most of the other compounds in gasoline and heating oil do not. This allows it to travel fast and far through the groundwater. It is the first and often the only chemical that shows up in a well after a petroleum spill. Unless you can taste or smell it, there is no way to know without testing if MTBE is in your water.

What are the health effects of drinking water that has MTBE in it?

In short, we don't know. MTBE's potential for human health effects have not been fully established, but a fair amount is known. The most significant effect at low levels appears to be its pungent odor and taste. EPA has concluded that water with "concentrations in the range of 20 to 40 micrograms per liter [also referred to as parts per billion or ppb]

would likely avoid unpleasant taste and odor effects" for a large majority of people. According to EPA, there is little likelihood that MTBE concentrations between 20 and 40 ppb will cause adverse health effects. This is because concentrations in this range are 20,000 to 100,000 times smaller than the concentrations causing health effects in animal studies. EPA has concluded that treating water for unpleasant taste and odor as recommended will also protect consumers from potential health effects.

The presence of "detectable" MTBE, usually 5 parts per billion (ppb) or more, does not necessarily mean a harmful human-health effects will occur. There are many factors that influence an individual's risk such as the amount in the water, how long and how often they drink the water, and personal factors like age and health status. The available evidence on cancer indicates that MTBE does not damage the genes and that cancers in laboratory animals occur only at high levels of exposure. It is unlikely that cancer effects occur at the low levels of MTBE encountered from groundwater pollution. There is currently no evidence that bathing in the water is a health risk. More studies are needed to help answer these questions.

Based on what is known, the US EPA draft drinking water lifetime health advisory for MTBE is estimated to fall within the range of 20-200 ppb. Maryland has set a 20 ppb as a level for treating water to remove MTBE based on recommendations from the Maryland MTBE Task Force and because some people begin to smell and taste it at this level. MDE adopted 20 ppb as an action level. Action levels in other states range from 5 to 200 ppb.

How do I get MTBE out of my water?

There are only two options available right now to ensure safe drinking water. The first is to use bottled water instead of water out of the faucet. This is only a short-term solution. The other option is to have a treatment unit installed where the water enters the house. There are usually two or more carbon filters installed in the basement. Their cost is in the thousands of dollars. The Maryland Department of the Environment has funds to pay for treatment units if the level of MTBE in your water is 20 ppb or more. Sometimes a company is responsible for the contamination and will pay the cost. Otherwise, treatment is paid for by the property owner. Maintenance of the filter and who pays for it is based on individual circumstances.

The type of carbon used in the filter is very important. It is recommended the virgin coconut shell carbon be used. Other types of carbon may cause plumbing problems in the home and may not remove the MTBE.

Research is being conducted to figure out how to remove MTBE from the air, soil and water. There has been some success in cleaning up the soil, but the major problem is getting it out of the drinking water. MTBE is very mobile, does not break down easily and is more soluble in water than other gasoline compounds, which makes it harder to remove. The only real solutions right now seem to be time and dilution.

Where can I find out about MTBE?

www.epa.gov/mtbe

www.atsdr.cdc.gov/tfacts91.html

http://www.epa.gov/waterscience/criteria/drinking/mtbefact.pdf

http://www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/doc_sup-appui/mtbe/index_e.html