

FREQUENTLY ASKED QUESTIONS PERTAINING TO WASTEWATER TREATMENT

Can the Water Reclamation Center safely remove anything we put down our drains?

Definitely not! Remember, we rely on living bacteria to reclaim the water. There are many substances that will create problems in the sewer lines, kill the bacteria, or interfere with their ability to remove contamination.

What are some of the things that should not be put down our drains?

Even small amounts of **highly flammable liquids** that rapidly evaporate (such as gasoline) can cause an explosion in the sewer lines or at the Center thereby damaging or destroying property and endangering personnel.

Acids or caustic materials can damage sewer lines and shorten their operational life as well as kill the bacteria.

Antifreeze and other fluids with dissolved metals can cause problems because the bacteria cannot “break” metals down into simpler substances. If excessive amounts of metals come into the Water Reclamation Center, they will accumulate and become toxic to the bacteria.

In high enough volumes **animal and vegetable derived fat, oil, and grease** (cooking oil, fat poured off cooked meat, etc.) can cause problems. It can block your drains and in some cases it can even block the City sewer lines. If a lot of this material gets to the Center it often blocks channels and has to be removed. It also takes the bacteria a long time to “eat” this material which increases electricity consumption. In summary, the overall effect of excessive fat, oil, and grease is increased operating costs for the Center.

For these reasons, please do not pour **flammable liquids, motor oil or other automotive fluids, paint, pesticides, herbicides or other hazardous materials** down your drains.

If you have a question as to whether or not a particular material can be poured down the drain, please call the Water Reclamation Center at (937) 754-3075.

What should be done with animal and vegetable derived fat, oil, and grease if they're not supposed to go down the drain?

For households, they should be put in the trash. Fat from cooked meat will collect at the top of the poured off liquid and form a solid. This solid fat can be scraped off and put into the trash. The remaining liquid can then be poured down the drain. Putting the material in the refrigerator or freezer after it cools off can accelerate this whole solidification process. Also, consider keeping an empty plastic milk container with cap.

After liquid cooking oils or other oily cooking liquids have cooled they can be poured into the milk container. When the milk container is full, it can be capped and put in the trash.

Restaurants and other commercial food preparation activities generate a large enough quantity to make recycling economical. Therefore used fats and oils from cookers should be put in appropriate recycling receptacles.

After the contaminants have been removed from wastewater by the water reclamation process, is the water safe to drink?

No, it is not safe to drink because the quality of the water leaving the Center is required to be suitable for the Mad River's plants and animals. It does not have to meet drinking water standards.

Would the Mad River's water be safe to drink if human activity didn't contaminate it?

There would still be a considerable risk of contamination even without humans because there are numerous sources of natural contamination. For example, some animals and plants live in water, they release their wastes in water, and they die and decay in water. Storm run off carries additional dead and decaying animal and plant material into the water as well sediments and dissolved minerals and metals. In fact, the natural aquatic food chain in the Mad River is dependent on a certain level of contamination. It provides the starting point for a food chain with bacteria at the leading edge. The bacteria are eaten by larger organisms and so on up to large game fish and other animals that depend on the river for food. In fact, if the water in the river were pure, nothing would be able to live in it for very long!

There is also a cost issue. If the Water Reclamation Center were to modify its system to remove more of the contamination than we do now, our operating costs would increase. If our operating costs increase, sewer rates would ultimately need to be increased. Therefore, the real objective is to remove enough contamination to preserve the Mad River, but not to over do it to the extent that we waste your money.

If the reclaimed water doesn't have to be safe to drink, how does the Water Reclamation Center decide how much contamination to remove?

Ohio EPA has sufficient data on the Mad River to calculate how much and what type contamination the river can accept without adversely affecting the environment. Using this data, Ohio EPA has determined the amount of contamination each discharger can put into the river. Each discharger (such as the Water Reclamation Center) applies to Ohio EPA for a discharge permit. If it's granted, the discharger pays Ohio EPA a fee based on how much water is discharged. The permit lists the contaminants and how much of each can be discharged. Each discharger is required to test the water it discharges to ensure

the permit limits are not being exceeded. The results are reported to the Ohio EPA each month.

Ohio EPA also samples and analyzes Ohio's water and checks the health and abundance of the plant and animal life. It then uses this data to determine if permit limits need to be changed. If change is required, Ohio EPA directs dischargers to meet the revised standards. In this way the environment is improved or maintained.

What happens to the contaminants that are removed from the wastewater?

Before the contaminated water is mixed with the bacteria, the relatively small amount of material that cannot be "eaten" by the bacteria is screened out of the system, dewatered, hauled away, and disposed of in accordance with solid waste regulations. The bacteria then convert most of the remaining contaminants into biosolids, a compost like material. Currently the Center produces about 4500 wet tons of this material.

What happens to the biosolids?

The City currently has 2 options: the biosolids can be loaded on to trucks and hauled to a landfill or they can be further processed to produce a soil amendment. In the past the City produced a soil amendment called N-Viro Soil. However, due to the increased cost of material, increased fuel costs associated with N-Viro production, and the quality assurance testing, it is now much more cost effective to simply landfill the biosolids cake. As a result, the City no longer produces N-Viro Soil.

Does all water discharged into the sewer system go through the reclamation process before it goes into our streams and rivers?

The answer to this question depends on the type sewer system. Water that goes into a sanitary sewer goes to the Water Reclamation Center and is reclaimed before its release to the Mad River. However, storm sewer water and any contamination in it goes directly to a stream, river, or some other body of water.

How can you tell the difference between a sanitary sewer and a storm sewer?

Indoor drains (sinks, bathtubs, washing machines, toilets, etc.) go to a sanitary sewer. Floor drains are a possible exception to this guideline. Many floor drains and sump pumps in basements, garages, and storage buildings do not go to a sanitary sewer. They may discharge to the surface just outside the building or they may discharge to a storm sewer.

Outdoor drains (drains along the side of a street that take in storm water, storm water detention ponds, etc.) discharge directly to a stream, river, or some other body of surface

water. Unfortunately, some people do not realize this and they pour motor oil and other hazardous contaminants into storm drains thereby contaminating our water with toxic materials. In fact, a major source of toxic contamination still entering our water comes from storm sewers and other types of runoff water that do not go through the Water Reclamation Center.

If you see something other than water running into a storm sewer, please report it to the City. Call the Water Reclamation Center at 754-3075. If no one answers leave a message on voice mail. If no one answers at the Water Reclamation Center and you think the situation requires immediate attention, please call the Police at 754-3000 or the Fire Department at 754-3080.

Why don't we just route all the storm sewers through the Water Reclamation Center?

Fairborn cannot afford to process storm water run off through the Center. During heavy rains the volume of water that would pass through the Center would increase enormously. To accommodate this additional flow we would have to build a much larger reclamation system, dramatically increase pumping capacity, and consume far more electricity than we do at present. If this were done, your sewer rates would more than double.

The massive inflow of storm water would also upset the biological treatment system even if there were enough tanks and pumps to handle the increased flow. The bacteria present in the treatment system are dependent upon a certain concentration of water borne material as their food source. If storm water were processed through the treatment system the bacteria's food concentration would fall to a very low level after a storm event and many of the bacteria would starve searching for food. As a result, an excessive amount of this food (water borne material) would be released to the Mad River and the effectiveness of the remaining bacteria population would be reduced. When flows returned to normal it would take a considerable time before the bacteria became "healthy" enough to adequately reclaim the water.

It's obvious a great deal of effort has gone into improving and maintaining the quality of our water. Are these efforts paying off?

Yes, water quality has improved a great deal since the 1970's. For example, an article in the February 1997 issue of "WATER Engineering & Management" quotes a US EPA estimate that industrial pollutants discharged into our nations streams and rivers have been reduced by 96% since 1972. Closer to home, consider the Great Miami River. In 1980 only 5% of the river miles from Dayton to Middletown were in full attainment of the Warmwater Habitat criteria (which is what the river is supposed to be). The results of a 1995 Ohio EPA study of the same area revealed that 75% of the river miles were in attainment. We still have a way to go, but we are making progress.

Where can I get more information about our water and water reclamation?

For additional information visit the following sites:

Water Environment Federation at <http://www.wef.org>

Ohio's Water Professionals at <http://www.ohiowater.org>