

## LTBB Environmental Services

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You can make a difference



Name  
your return address here  
April 30, 2004

Recipients address

Dear recipients name,

I am writing to ask you to support for ongoing research for wastewater treatments that filter out pharmaceuticals, hormones and other contaminants. I think that this is an important emerging subject. ( You can also include any ideas, options, laws you think should be placed in support of finding ways to solve this problem.) Thank you for your support.

Sincerely,  
Print and sign your name

## Contact Information

EPA Contact information  
U.S. Environmental Protection  
Agency Region 5  
Peter Howe Water Division WS 15J  
77 West Jackson Blvd.  
Chicago, IL 60604

USGS Contact information  
Herb Buxton  
Toxic Substances Hydrology Program  
412 National Center, 12201 Sunrise  
Valley Drive  
Reston, VA 20192

FDA Contact Information  
Food and Drug Administration  
5600 Fishers Lane  
Rockville, Maryland, 20857

National Center for Toxicological  
Research  
3900 NCTR Road  
Jefferson, AR 72079

Michigan Senators  
Senator Jason Allen  
P.O. Box 30036  
Lansing, MI 48909-7536  
You can also contact Senator Ken  
Sikkema, Senator Bob Emerson &  
Carol Morey Viventi at the above  
address. To find your Senator you can  
look on the web, senate.michigan.gov

Governor Granholm  
P.O. Box 30013  
Lansing, MI 48909  
Fax: 517.335.6863

If you want to learn more you  
can look at the reports online:

<http://toxics.usgs.gov>

[Http://ads.specificpop.com](http://ads.specificpop.com)



## What's in Your Glass?



LTBB Environmental Services

## How Clean is Our Treated Wastewater?

With the continuing increase in human population growth comes the corresponding increase in demands on our natural resources, such as the limited supply of freshwater. Freshwater consists of lakes, streams, rivers, groundwater, water stored in wetlands, and water trapped in ice caps and glaciers. Only 2.5% of the earth's water is considered freshwater and only 1% of that 2.5% is accessible to humans. Humans use freshwater for multiple everyday functions such as drinking, bathing, cleaning, recreation, and in human waste disposal processes. One person will use up to 150 gallons of water per day for these functions. Not only do humans need clean freshwater but fish, insects, amphibians, plants, trees, and wildlife also need it for survival. When freshwater is not free of contaminants



it is the smaller living things that are more vulnerable to the effects of these chemicals and inevitably suffer the consequences. There have also been studies indicating that hormonally active

compounds found in pharmaceuticals are affecting some fish species ability to spawn. Furthermore, there has been much debate on whether chemicals that have not been filtered out of treated wastewater are causing deformities in frogs. In the year 1999 and 2000, the U.S Geological Survey (USGS) collected and analyzed water samples from 139 streams in 30 states including the Boardman River located in Traverse City, Michigan for 95 chemicals that are susceptible to contamination from intense urbanization, fish hatcheries, livestock production, and various wastewater sources. One or more of the 95 chemicals tested for were found in 80% of the streams sampled. Although, wastewater treatment plants are designed to remove contaminants found in wastewater that are harmful to human health or can damage the environment, there is an overwhelming concern about pharmaceuticals, personal hygiene products, steroids, insect repellents, detergent metabolites, plasticizers, antibiotics, and herbicides which are not filtered out of the treatment process due to the design of sewage treatment plants.

## Waste Water Treatment Plants continued on next page

According to the USGS, 2590 millions of gallons of treated wastewater are discharged back into the environment in Michigan per day. In order to put this treated water back into the environment sewage treatment plants must comply with federal Environmental Protection Agency (EPA) and Food and Drug Administration (FDA) regulatory drinking water standards and Michigan Department of Environmental Quality (MDEQ) discharge and permit regulations. The current wastewater treatment technologies are designed to remove organic materials, nutrients like nitrogen and phosphorus, suspended solids, and pathogenic (disease-producing) organisms. Although treatment plants may vary in the type of equipment used to comply with their wastewater discharge regulations, all typically follow five treatment components.



## Waste Water Treatment Plants cont.

The first treatment process is the preliminary treatment where the large solids are removed to prevent damage to other treatment process equipment. The second treatment process is the primary treatment where all other solids are removed by physically settling out the particles. The third treatment process is the secondary treatment where organic materials are removed so the natural demand for oxygen is not increased in the receiving water body of the discharge. The fourth treatment process is the tertiary treatment, which is a variety of processes that are used to remove additional pollutants such as nitrogen or phosphorus, this treatment can be an assortment of chemical, biological or physical processes. The final process is solids disposal

where solids that were removed by the processes listed above are collected, stabilized, and disposed .

In the USGS publication "Pharmaceutical, Hormones, and Other Organic Wastewater Contaminants in U.S. Streams", it is stated that only 14 of the 95 chemicals found in U.S streams have regulated drinking-water standards or other human or ecological health criteria. Thirty-three of these 95 chemicals are known to be hormonally active while another 46 of the 95 chemicals are pharmaceutically active. Due to minimal regulation standards, technology restraints, and cost-effectiveness, wastewater treatment plants do not filter out these chemicals. Michael Smith, manager of the R.M. Clayton Wastewater Treatment Plant stated

"Trying to enhance this facility to remove those items would probably require some reverse osmosis or some kind of further ultra-filtration system; it would require a lot more construction and a lot more cost to remove those items." In order to prioritize this issue cost-effective technologies must be sought, regulation standards must be set for frequently detected chemicals, and more research must be done.



## What is the Current Status of this Issue?

This issue was sparked when USGS published its study "Pharmaceuticals, Hormones, and Other Organic Wastewater Contaminants in U.S. Streams." This is not to assume that there have not been other agencies, countries, universities, and private entities researching this issue prior to the publication of this study. However, the study provides site selection and sampling methods, analytical methods, quality assurance protocols, references, and a complete listing of



all chemicals and levels detected in the streams sampled. The study targeted organic wastewater contaminants that had little data available

for levels in U.S streams, giving a better understanding of what contaminants are priorities and at what levels. The most frequently found chemicals were an assortment of steroids, non-prescription drugs, and insect repellent. Chemicals found with the highest concentrations were detergent metabolites, steroids, and plasticizers. A complete list of the chemicals tested for and detected is available in the USGS study; the web address is available in this brochure under "Contact Information." This study provided baseline data for these 95 chemicals, new analytical methods for measuring these contaminants at these levels, and raising awareness to other entities and the public about how the use of chemicals and disposal methods affect our freshwater resources.

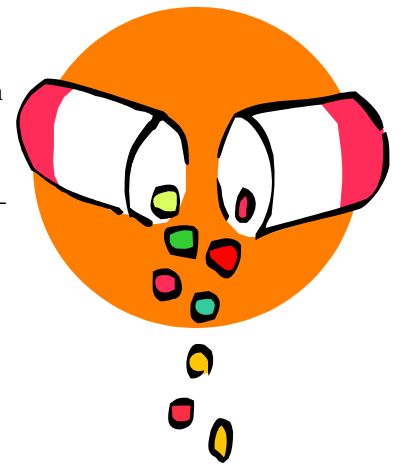
The USGS has shared their results with local governments, industry, public, and federal government entities. In fact, ongoing research projects have resulted from these findings. Not only is the Environmental Protection Agency doing their own research, they have also awarded grants to universities such as John Hopkins University to redress critical aspects of this current state of near-ignorance by providing an assessment of the prevalence of important pharmaceuticals and antiseptics in drinking water, sewage treatment plants, and waters that receive treated wastewater. There are research projects at numerous universities such as Michigan State and University of Missouri-Columbia that are focusing on specific contaminants and their effects on

## What is the Current Status of this Issue? cont.

specific living things. For example, Erin Snyder from Michigan State University published her findings on using fish to monitor for reproductive endocrine disrupting compounds in environmental waters.

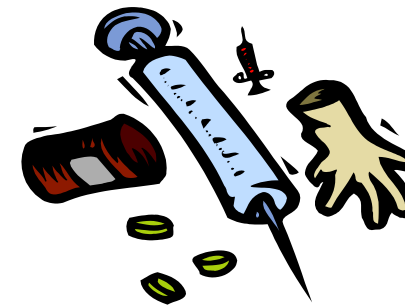
Fortunately, ongoing research is being conducted on this emerging issue. Analytical methods to measure these compounds have been developed. The compounds have been identified and prioritized, allowing more chemically specific research pro-

jects to evolve. Baseline data is now available for comparison to data collected in the future. The Environmental Protection Agency, the Food and Drug Administration, and state governments are aware of the results and could now seek more legislation on these 81 chemicals that do not have regulated standards. The most important aspect is that the public is now aware that this is a problem They need to know it exists nation-wide and vital steps need to be taken to address the issue.



## So how Can I help?

There are several ways you can help stop pharmaceuticals, hormones, and other organics from getting into our water. The first step is education; know the common contaminants that leach into our water. The second step is prevention: do not flush your medicine down the toilet. The Emmet County Department of Public Works and the Transfer Station work together with volunteers to hold several Household Hazardous Waste Days. They accept prescription and non-prescription medication with labels removed, all veterinarian medication, insecticides, pesticides, herbicides, and fire retardants. They **do not** take modern latex paint (after 1980), explosives, ammunition, or radioactive material (found in smoke detectors). There are several dates throughout the year for hazardous waste disposal; you need to make an appointment before you drop off any hazardous waste. You can do so by calling the Emmet County Department of Public Works at 231.348.0660.



A biohazardous waste is a discarded material that is a biological agent or a condition that constitutes a hazard to man or his environment (such as an infectious organism). A substance that contains material or organisms that cause injury or disease to man or his environment, that is not regulated as controlled industrial waste, is also a biohazardous waste.

Under Michigan's littering law it is illegal for anyone to improperly dispose of sharps. Sharps are considered a biohazardous waste product. Sharps are syringes (with or without the attached needle), needles, and lancets used for medical purposes such as insulin to treat diabetes. Sharps are a hazard because they can be contaminated with hepatitis, HIV, AIDS, or other potentially fatal diseases. If not disposed of properly in a puncture-resistant container, sharps can injure family and waste haulers, increase the risk of infection, and pollute our environment. The LTBB Health Clinic will provide any tribal household with a sharps container and dispose of it for you after it is full. If you cannot get access to the LTBB Health Clinic, you can use an empty coffee can, laundry detergent bottle, or an empty bleach bottle until you can get a sharps container. When the container is full, just tape the lid with duct or packing tape, label the container "medical waste" or "Sharps container", and let your waste hauler know you are placing it in the trash. You can also drop it off at a local clinic or hospital. Never place your sharps container with your recyclables, or in reach of children, never flush your sharps down the toilet. If you are traveling, package them up and bring them home with you so you can dispose of them properly.

Another way you can help stop pharmaceuticals, hormones, and other organic contaminants from getting into our water is by writing a letter of support and concern to the Environmental Protection Agency, Food and Drug Administration, USGS, Michigan Senators and the Governor. In your letter, include support for more research and technology to keep contaminants out of our treated drinking water. All contact information is on page four of this newsletter.