



# Friends of the Muscatatuck River Society

Stewards of our natural resources

Volume 1, Issue 3

## Intermittent Sand Filters- Viable alternative for rural schools

Sand filter systems have been used for wastewater treatment in the U.S. since the late 1800's. They are a viable alternative to conventional methods when soil conditions are not conducive for proper treatment and disposal of wastewater through percolative beds/trenches. Sand filters can be used in sites that have shallow soil cover, inadequate permeability, high groundwater, and limited land area. An assessment conducted by the U.S. Environmental Protection Agency of intermittent sand filter (ISF) systems in 1985 revealed that sand filters are a low-cost, mechanically simple alterna-

tive. More recently, sand filter systems have been serving subdivisions, mobile home parks, rural schools, small communities, and other generators of small wastewater flows. In ISF's wastewater is applied in intermittent doses to a bed of sand or other suitable media. The wastewater first receives primary treatment in a septic tank or an aerobic treatment unit, and then is pumped from a screened vault in the septic tank or separate dosing tank to the sand bed where it is evenly distributed over the top of the sand filter bed. As the wastewater passes through the sand filter, treatment is

accomplished through physical and chemical means, but mainly by microorganisms attached to the filter media. The treated wastewater is collected in underdrains at the bottom of the sand filter and is then transported to a line for further treatment or disposal. One variety of buried ISF's, the gravity discharge ISF, is usually located on a hillside with the long axis perpendicular to the slope to minimize the excavation required. Because the effluent leaving the sand filter flows out by gravity, the bottom of the sand filter must be several feet higher than the drainfield area. To achieve that difference in

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### Special points of interest:

- *Intermittent Sand Filter Systems*
- *Report illegal dumping*
- *Flat tax rate idea*
- *Attention Teachers*
- *Conservation Awareness Festival*

## Intermittent Sand Filters continued

Elevations, a sand filter may be constructed partially above ground. Another type of buried sand filter, the pumped discharge sand filter, is usually sited on level ground, but its location in relation to the drainfield is not critical since a pump

located within the sand filter bed allows effluent to be pumped to a drainfield at any location or elevation. Discharge piping goes over-not through the sand filter liner, so the integrity of the liner is protected. A third type of buried sand filter has no

impermeable liner and does not discharge to a drainfield, but rather directly to the soil below the sand.

## Report illegal dumping

In a recent newspaper article issued in the Evansville talked about a campaign targeted to stop illegal trash dumps. 28 southern Indiana counties participated however, Jennings County was not listed as a participant. The program focused on letting people know it's an issue in their area. The dumps aren't just unpleasant to look at, they can be dangerous. Explosives, used syringes, dead animals, materials from methamphetamine labs and household pesticides have been found in dumps. Tires are among the most frequently dumped items. They easily fill with water and become a breeding ground for mosqui-

toes, which can carry disease. A quote from Judy Dicas Thomann said, "Throwing out trash, tires and household hazardous waste can spread disease, contaminate surface water and lead to rodent problems." **Dumping Facts**

- Officials estimate there are an average of 70 illegal dumps per Indiana county.
- In Kentucky a campaign

uses hidden cameras at dump sites and buys back items such as washing machines from residents.

- To Report illegal dumping go to [reportdumping.org](http://reportdumping.org)

Or call free 877-985-6556

## A flat tax for cleaner water in Minnesota

St Paul, Minn.— A diverse group of stakeholders has proposed a new tax to help assess and clean up Minnesota's lakes and rivers, a massive undertaking that would require \$75 million or more annually. The final decision on the proposal rests with Gov. Tim Pawlenty and the Minnesota legislature. "We thought a flat rate was the right way to start our," said Craig Johnson, a lobbyist for the League of Minnesota Cities, one of about 60 groups involved in developing the plan. The group is suggesting that

homeowners on public sewer systems pay an extra \$3 a month on their water bills, while homeowners with septic tanks pay an extra \$36 a year on their property tax bills. Businesses regardless of size, would pay \$150 each. Some critics say that polluters should shoulder most of the cost of cleaning up the state's waters. But they don't realize site-specific dischargers aren't the problem they once were. Today, about 86 percent of the state's pollution pours into surface waters from lawns, parking

lots and other developed areas. If the state approves the new tax, about 20 percent of the money would be used to monitor lakes and streams and determine how to improve water quality. The remainder would be used for "improvements," which could mean new wastewater treatment plants, upgraded storm water systems and improved agricultural practices. Could this be an idea for Indiana to adopt? I would be willing to pay an extra \$3 a month for cleaner water, how about you?

## Five types of non-point source pollution "Sediments"

There are at least five categories of non-point source pollution-- **Sediments, Nutrients, Toxins, Trash and Organic Debris, and Pathogens.**

Nutrients, pathogens and toxins can only be detected through laboratory testing. We are often unaware that their presence is having a negative impact on the water resources we value. However, we have a heightened aware-

ness of the impacts of trash and debris, and even sediment, since we can see these pollutants which often distract from the natural beauty of our resources.

### **Sediments**

Erosion, or the wearing away of land surface by wind or moving water, causes a tremendous amount of sedi-

ments to enter our waterways. Sediment results in:

- Alterations to the depth of rivers and streams, causing flooding;
- Blockage of light necessary for aquatic life;
- Destruction of needed habitat for fish and aquatic insects.

## Non-Point Source Pollution

**Nutrients**– Low doses of phosphorus, nitrogen, and potassium are beneficial for plants and animals. However, these nutrients, in high doses, can be dangerous to a healthy stream or lake. High doses of nutrients cause increased algae and plant growth, blocking sunlight and depleting the oxygen needed by aquatic life. Sources of nutrients are many, including:

- Fertilizer from cropland and lawn maintenance;
- On-site sewage disposal systems (septic systems) or wastewater discharge pipes;

- Detergent;
- Animal wastes.

Recognizing nutrient sources, and controlling the amount entering our waterways, reduces the potential for fish kills and a slow death to the whole water body.

**Trash and Organic Debris**– another contributor to non-point source pollution. Decaying trash and organic debris depletes oxygen needed for a balanced aquatic system. The natural beauty or aesthetic value of our water resources is also depleted as these materials accu-

mulate. Once thrown into a water body, materials such as:

- Household garbage and waste;
- Grass clippings, leaves, and yard wastes;
- Unwanted furniture, automotive parts, toys and ornaments

These either float down stream, and clog the natural flow of the water body, or use up more oxygen as the material begins to decompose. Next issue we will look at toxins and pathogens and how these affect our watershed.

## Advantages of using an intermittent sand filter systems

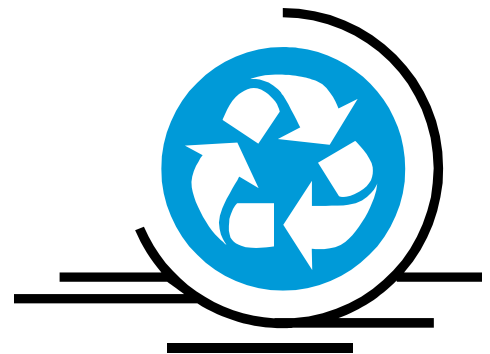
- ISF's produce a high quality effluent that can be used for drip irrigation or can be surface discharged after disinfection.
- Drainfields can be small and shallow
- ISF's have low energy requirements
- ISF's are easily accessible for monitoring and do not require skilled personnel to operate.
- No chemicals are required
- If sand is not feasible, other suitable media could be substituted that may be found locally.
- Construction costs for ISF's are moderately low, and the labor is mostly manual.
- The treatment capacity can be expanded through modular design.
- ISF's can be installed to blend into the surrounding landscape.
- The soil cover prevents odors.
- This system may be a great alternative for any rural school or community experiencing trouble with their current septic system or looking for an affordable option to remedy a wastewater problem.

## Attention Teachers and Volunteers

The Friends of the Muscatatuck River Society have an office and display located within the Jennings County Visitors Center. The display contains information about our organization and our efforts of stewardship. There are educational curriculum brochures to look through, a water quality survey to take and sample workbooks, The Friends of the Muscatatuck will offer within their

education curriculum. We encourage you to please fill out one of the water quality surveys. The other publications are for you to take home and share with family and friends.

If you would like more information on how to be involved with our group call 346-2953 or email [simstearns@hotmail.com](mailto:simstearns@hotmail.com)



Stewards of our natural  
resources

325 N. State Hwy 7  
North Vernon, IN 47265

Phone: 812-346-2953  
Fax: 812-346-8928  
E-mail: simstearns@hotmail.com

We're on the web!

[www.muscatatuckpark.com](http://www.muscatatuckpark.com)

Educating and Promoting  
Environmental Stewardship



FMRS

Events for 2004

River Clean-Ups

- October 2nd

All clean-ups will be held at the Vernon Commons located behind the Vernon courthouse. Registration will be from 8-9 a.m.

Recycle Days held at J.C. Fairgrounds

- September 18th Scrap Metal Collection
- September 28th Special Collection

## Conservation Awareness/Volunteer Appreciation Day October 2nd 6-10p.m

Please join us on October the 2nd for a day of fun at the Muscatatuck County Park. In the morning The Friends of the Muscatatuck River Society will hold their annual fall river sweep. In the evening Clifty Creek Watershed and The Friends

will combine to host an Environmental Awareness and Volunteer Appreciation Festival. We will have live music, food and displays of how you can help your watershed. T-shirts will be given away for the event as well. Please join us to celebrate

what God has so richly blessed us with. If you have any questions about the particulars please call the Muscatatuck Park @ 346-2953.

We look forward to seeing you there.