

## Why Wastewater Treatment

Why? To protect our streams for fishing, swimming, and our drinking water supply. Without wastewater treatment, the environment would degrade over time to where pathogenic (disease causing) bacteria and chemicals would contaminate our water supply to the point it would become unusable.

The Wastewater Treatment Plant is a major investment. The treatment plant itself covers many acres, has thousands of square feet of buildings, and requires twenty-four hour a day staffing by highly-trained personnel. The operations personnel are required by state law to be licensed.



The Wastewater Treatment Plant mimics nature in its processes. In preliminary treatment, the treatment facility removes large objects from the wastewater stream. These are typically inorganic in nature, for example; tires, logs, bricks, etc. From that point, the wastewater goes into a primary treatment phase. In the primary treatment phase we use a process called clarification. Primary clarifiers work by slowing the flow down to where it appears to almost stand still. In the primary clarifiers, fats, oils, and grease are floated to the surface and are skimmed off for further treatment. Settable solids fall to the bottom of the clarifiers and are pumped off for treatment in our solids treatment process.

The flow leaving our primary clarifiers is pumped to roughing filters. This is the start of our secondary treatment process. In the secondary treatment process, we try to concentrate and accelerate the processes of nature. In the roughing filters, the wastewater is sprayed over a plastic media where we grow microorganisms that feed on pollutants in the water. This mimics nature similar to where you see a green moss growth in fast moving streams. The organisms growing off these rocks are feeding off contaminants in the water. The water leaves this process then enters the activated sludge process.

In the activated sludge process we provide heavy concentrations of oxygen, microorganisms, and food (contaminants) to finish cleaning the water. From this process the flow is then sent to the secondary clarifiers. What remaining solids that are left in the wastewater settle to the bottom and are recycled to the treatment plant. The effluent leaving these clarifiers discharges to the Missouri River and is typically clean enough that you can see at least to a depth of three to four feet compared to a clarity of only inches in the river.