

Innovative use of tire derived aggregate (TDA) in septic field

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In the new global economy, the management of waste tires has become a central issue for the landfills due to the overwhelming urgency to reduce unsightly tire stockpiles and their environmental hazards. One innovation resulted from the waste tires is tire derived aggregate (TDA) used in the onsite wastewater treatment systems to replace natural aggregate in septic field. The purpose of this study is to a better understanding of chemical and biological nutrient removal mechanisms of wastewater in septic field and if there is any differences in the wastewater treatment between the two aggregate used in this study. A full scale septic field was install in Moosehorn Manitoba, on September 16, 2016. The role of the septic field is to provide good distribution of the liquid wastewater to the surrounding soil where the majority of treatment occurs. In most septic field installations, natural aggregate (stone) is used to distribute the wastewater to the surrounding soil and support biological growth. The existing septic field was evacuated and eight new leaching trenches were constructed. Four trenches were constructed with TDA and the other four trenches were constructed with natural aggregate (lime stone). Bi-weekly sample were taken from the monitoring wells and surrounding soil to exam the chemical and microbial composition of the wastewater and soil. The following parameters were measured: ammonia, phosphorus, zinc, manganese, iron, magnesium, aluminum, copper, lead and silver. The temperature, PH and DO were also measured. The preliminary data showed that all the parameters were below secondary drinking water standards.