

Green SRF Wastewater Projects

Left Fork Watershed of the Mud River



Lincoln County Commission ~ US EPA ~ **WV DEP ~ WV DHHR Cooperative Projects**

Peat System pH Report 10-2015

The sampling focus on all phases of the Green Wastewater Project has been bacterial analysis because bacterial contamination is the most pressing concern for the county and the community. High bacterial levels from direct discharge systems and from tributaries generally indicate that systems are not functioning properly which in turn leads to research and remediation. In some instances this also generated changes in component and system designs.

All wastewater systems which are direct discharge (where treated effluent goes into creeks and streams) must have an NPDES (National Pollutant Discharge Elimination System) permit. These are issued by the WV DEP. Starting in 2015, the process of renewing a 5 year permit included sampling of that final effluent. Samples had to meet minimum levels in Fecal, BOD (biological oxygen demand), TSS (total suspended solid), and pH. These are based on federal and NFS-40 standards. NSF/ANSI 40 certification is a standard for residential wastewater treatment systems independently certified by NSF International (formerly National Sanitation Foundation). NSF is accredited by ANSI (the American National Standards Institute).

Working with the Left Fork Wastewater Association, the Project agreed to sample effluent from the 72 direct discharge systems whose owners are members in good standing with the Association. As sampling began early in 2015, results started coming back showing that some of the direct discharge peat systems had **lower than acceptable** pH results. All of the peat systems (Puraflo Peat Biofilter) with low pH readings were manufactured by Anua (formerly Bord na Mona).

By April, 38% of the peat systems sampled had lower than 6.0 pH readings. At this point, we had a conference call with representatives from Anua, WV DEP, and the Project. In the course of the call, Anua explained that when their peat system was approved by the state sewage advisory board in the late 1990's, there was no requirement that they meet NSF-40 certification. Later, Anua explained that they actually manufacture two types of peat systems: one which meets NFS-40 standards and one which does not. All of the systems sold in West Virginia, including those in the Left Fork Watershed, are systems which do not meet NSF-40 certification. The key difference between the two types of systems is the rock in the bottom of the peat

modules. Those meeting NFS-40 have limestone; those which don't, have granite. The limestone raises the pH of the final effluent to acceptable levels.

Representatives from Anua suggested that the low pH could be caused by homeowner actions inside their houses such as manufacturing drugs or by well water. The Project tested 7 different homes for pH at kitchen faucets and septic pump tanks. None of the samples from either location at any homes had pH lower than 6.7; yet all homes had a direct discharge pH of under 6.0 and three had a pH reading of under 4.0. The Project does not believe the problem is with either homeowner actions or well water.

Anua did send the Green Wastewater Project four proto-type baskets filled with limestone and seashells. They suggested these be attached to the final discharge pipes as a way to achieve acceptable pH levels. Because most discharge lines in the watershed have less than a one-foot separation between discharge pipe and creek, these baskets were only useful at a few locations. Unfortunately high water sheared off one basket and twisted another so it does not function. These proto-types were just not appropriate technology fixes for the problem.

At this point all Anua direct discharge systems have been sampled. 24 homes out of 58 or **41% have pH readings under 6.0, below federal acceptable limits.** (See: Results Left Fork Homes pH Sampling)

Recently, the WV Department of Health and Human Resources found a **letter from June 1998** sent to Bord na Mona's state distributor. It stated that the Puraflo Peat Biofilter could not be considered for surface discharge in WV until it received NSF/ANSI approval. The implications of this letter have yet to be resolved.