

Additional Qs for Elke Ursin – June 17, 2013

With Dr. Roeder out of town, I spoke with Gerald Briggs, who was chief in 2006 of the FL-DOH onsite sewage programs and probably still is. He got me connected to the FL-DOH septics page, which includes an informative table on capabilities of advanced systems:

http://www.myfloridaeh.com/ostds/pdfiles/forms/PBTS_components.pdf

This table can be accessed through the EPD documents page. First, link to “FL-DOH – Onsite sewage programs”, then to “Product Listings”, then to “Performance Based Treatment Systems (PBTS), including Innovative”. The table only includes performance data, not cost data.

I didn't understand the discrepancy between the Roeder/Ursin paper delivered at the May 2013 SFRSWG meeting and the data presented in the FL-DOH table. The R/U paper documented N-removal rates of about 33% in tests of non-standard septic systems currently installed in FL. The table, on the other hand, shows many systems which demonstrated N-removal rates of 60% and higher – some in fact exceeding 80%.

Ursin clarified the discrepancy. There are various designations for systems more advanced than standard septics. The Roeder/Ursin study of 17,000 installed advanced systems in FL included about 76% **aerobic treatment units (ATU)**, 7% **PBTS (non-innovative)**, about 1% **innovative PBTS**, and 15% unknown. ATUs include a blower to enhance conversion of N-compounds to nitrate. They are good at lowering total suspended solids and biological oxygen demand, but poor at reducing nitrogen. PBTS are engineer-designed to achieve target performance levels, which could include greatly reduced N. “Innovative” simply means PBTS that have an approved status because they meet certain FL state requirements.

In the R/U study, most of the systems tested were ATUs, and the average rate of N-removal was low (33%) because ATUs aren't designed to remove N. This also explains why the systems shown in the FL-DOH table show good to excellent rates of N-removal – it's because they are all PBTSs designed to remove certain constituents from the effluent. It also explains why there is very little overlap between the most common installed systems documented in the R/U paper (Consolidated, Aquaclean, Clearstream, Delta) and the systems listed in the table which are most effective at removing N (Advantex, Aerocell, FAST, Hoot, Norweco, Nitrex, Puraflo, Septitech).

Applying the percentages shown above, it would appear that only about 1,300 PBTS have been installed in FL. Some may be in jurisdictions where they are mandated (e.g. Wakulla). Others may be on properties where there is a very big house on a very small lot and the only way to get the necessary variance is by installing advanced septic technology.