



Nancy Deal

Compiled by Stephanie Harris

Shedding Light on the Water Softener Study

Last month, Water Quality Products (WQP) reported on the debate surrounding the effects of water softeners in onsite septic systems. This month, Stephanie Harris, managing editor of WQP, gained insight to the recent North Carolina water softener study from Nancy Deal, extension associate with the North Carolina State University's Department of Soil Science, who assisted with administering the study in conjunction with David Lindbo, associate professor, NC State, and Tom Konsler, environmental health supervisor, Orange County, N.C.

Stephanie Harris: What was the premise of last July's water softener study in the participating North Carolina community?

Nancy Deal: Researchers from North Carolina performed an independently funded pilot survey of septic tanks with and without associated water treatment devices in an effort to develop a basic protocol for future research.

Representatives of both water and wastewater treatment professional associations were present as observers. Persons who assisted with or observed the study included Tom Konsler; Albert Mills, Orange County Health Dept.; David Lindbo; Roland Coburn, NC State; Joseph Harrison, Water Quality Association; Barbara Grimes, N.C. Division of Environmental Health; Bruce Lesikar, Texas A&M University; John Buchanan, University of Tennessee; Matthew Byers, National Onsite Wastewater Recycling Association; Jim Frankenfield, Culligan of the Triangle; Ray Wilson, Triangle Water Services; and myself.

Harris: Describe how the study was conducted—what was done?

Deal: Samples were collected and observations were made at 13 residences in a subdivision in Orange County, N.C. Sourcewater was analyzed for inorganic constituents, and sourcewater treatment devices were evaluated for resin-bed size and regeneration configuration. Settings for backwash duration, salt volume and calendar override on demand-initiated regeneration units (where appropriate) were documented.

Samples for chemical and biological analyses were collected from the scum, clear zone and sludge layer of

each septic tank compartment. These were analyzed for sodium, potassium, magnesium, calcium, TKN, ammonia-N, chloride TSS, TDS and BOD.

On-site measurements were taken in the three layers in the tank as well as in the source water and regeneration water. These included pH, dissolved oxygen, temperature, conductivity and density. Tank profiles were documented and a flow-through test was conducted to evaluate the nature of effluent screen performance.

A unique feature of this study is the detailed homeowner survey refined from a survey originally developed for the Consortium of Institutes for Decentralized Wastewater Treatment (CIDWT) Operation and Maintenance Service Provider program (CIDWT, 2006) and used to interview the system user regarding their water-use habits and input to the system. The instrument allows collection of data that reveal significant information on how consumers use water in today's world.

Harris: What did the results of this study reveal?

Deal: Results from this small sample group were used to first identify the number of sites needed to provide a reasonable level of confidence in a broader study, and second, to test the sampling protocol in the field.

The data revealed interesting observations at individual sites, but essentially a lot of variability, which is not surprising with such a small number of test sites. The results also were often skewed by a single observation.

Researchers plan to return to the original 13 sites this summer to resample tanks and observe tank profiles. The flow-through test will be

repeated to observe conditions after one year of operation with a clean effluent screen in place. Those results will be used to finalize the protocol.

Efforts currently are underway to identify a larger number of sites in and around Orange County. Current plans are to evaluate and sample these sites in fall 2008. Financial support from multiple industry sectors is anticipated and welcomed.

Harris: What is hoped to be the outcome of this study and similar studies in the future?

Deal: Both water and wastewater industries will benefit as the protocol is used more widely. The homeowner survey instrument is a unique feature that allows us to view the sampling results in light of specific user inputs. Variables such as potential abuse or other important characteristics of use can be identified and controlled as the data are analyzed.

Continued research using the fully developed protocol should reveal trends that will guide future management of system components used for both water and wastewater treatment.

Additionally, the cooperative effort of the water and wastewater treatment industries is a positive outcome that can only be viewed as beneficial to both groups and to the consumer. *wqp*

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CALENDAR

June

8-12 AWWA Annual Conference & Exposition

Georgia World Congress Center
Atlanta, GA
tel: 303.794.7711
www.awwa.org

19-20 Indiana WQA Convention

Holiday Inn at the Pyramids
Indianapolis, IN
tel: 574.522.4159
www.iwqa.org

July

9-12 Texas WQA Annual Convention

San Antonio's Menger Hotel
San Antonio, TX
tel: 361.573.6707
www.twqa.org

14-17 AMTA/SEDA Joint Conference & Exposition

Naples Grande Resort & Club
Naples, FL
tel: 772.463.0820
www.membranes-amta.org

26-28 53rd South Atlantic Well Drillers Jubilee

Myrtle Beach Convention Center
Myrtle Beach, SC
tel: 540.740.3329
www.well-drillers.com

August

24-27 IOA-Pan American Group 2008 Annual Conference

Coronado Springs Resort
Orlando, FL
tel: 480.529.3787
www.io3a.org

September

10-12 WQA Mid-Year Leadership Conference

Silverado Resort
Napa Valley, CA
tel: 630.505.0160
www.wqa.org

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