

DRAFT SYMPOSIUM REPORT SUMMARY
Water Softener Effects on Onsite Systems Symposium
December 2005

On October 13th, 2005, NOWRA and the Water Quality Association (WQA) convened a symposium to address the topic of water softeners and septic systems. At issue was the perception that these two critical appliances may have certain incompatibilities. Speakers from both industries addressed the issue. From the WQA, or softener side, data were presented that supported a claim of no harm to the tank, system biota, and receiving soil. From the onsite side, cases where systems were compromised due to the presence of water conditioning devices were presented. Research papers and testimonials comprised the morning session, followed by an afternoon session of discussion. There were at least 125 people present representing both industries.

Highlights of the symposium included learning that each industry provides equipment that is going to be used at the same site by system owners. This should not come as a surprise to anyone. Thus, these industries must learn from each other how best to make this situation workable. Workable means the onsite system works in concert with the input stream and thus protects human health, protects the environment and is a good value for the consumer.

*It was learned through presentation and discussion that an inadequate amount of discussion had taken place between these two industries. Two levels of need have emerged. 1) Immediate communication is needed to define what we already know about softeners and onsite systems and thus educate both industries on how to adjust each others systems to make them work harmoniously on site, and 2) through communication, research needs will be developed based on problems that persist in spite of the increased knowledge. This means there will likely be operational challenges that will be defined for which facts are simply lacking.

*Presentations were made dealing with the receiving soil environment. Data presented appeared to indicate that soils generally could assimilate softener inputs.

*Some advanced treatment units were presented to be impaired by the use of water conditioning equipment. After much discussion it was determined softeners and onsite systems could likely be adjusted to accommodate each other in many cases. This simply requires good knowledge of both appliances. There were cases discussed where slugs of regeneration wastewater may cause calcium carbonate precipitation in units under aerobic conditions. Several solutions were proposed such as by-passing such a sensitive system with the calcium laden regeneration water, as well as time dosing the regeneration waste into the system. Individual onsite treatment systems and devices likely have limits under which they can be operated. In areas where hard water or consumer choice

dictates that a softener is required, the onsite system needs to be installed to accommodate those inputs. In fact, where water is hard, the softener may enable the use of some aerobic onsite systems, by removing the calcium that would have fouled the system without the softener. In such cases, the regeneration water must bypass the aerobic or advanced treatment unit.

*Calcium influence and precipitation of calcium carbonate was thoroughly discussed. The Calcium that would cause the fouling effect is not generated by the softener, but is a consequence of local water hardness. Thus, the net precipitate should be the same, softener or not.

*Softener systems were described as hydraulically overloading onsite systems. Discussion revealed the relative small quantities of water in softener recharge. However, some softener water feed systems were described as possessing 'stuck valves', thus contributing large quantities of water to the onsite system. Discussion revealed the remedy was simply maintaining the softener systems correctly, and using better grades of salt. A stuck valve is an easily corrected problem, not unlike a failed toilet valve.

*A thorough discussion of how softener function was accomplished. Modern softener systems including 'demand initiated regeneration' units were introduced to the group. These units are programmed to regenerate only when water use demands the regeneration. Thus, the number of regeneration cycles is related to actual water use. Number of cycles is directly related to the amount of regeneration water inputting the onsite system. These may be very compatible with onsite systems.

*Questions likely remain. Challenging sites must be investigated. Both industries agreed, such investigations will help define the extent of the challenge. It was proposed the task force be involved in such investigations.

Follow-up from the symposium will include:

- Creation of a task group that will ensure that the WQA and NOWRA continue discussion. To accomplish this, the NOWRA and the WQA will select members for the group.
- Creation of a summary paper from the symposium. This paper will be a brief that describes highlights of the symposium in detail. It will be reviewed by the presenters from the symposium as well as WQA representatives and some members from NOWRA Technical Practices Committee.
- NOWRA members of the task force will attend the WQA meeting in March.
- Task force will generate guidance materials to assist practitioners in using both technologies at the same site with a high probability of success.
- A statement of research needs will be generated.

Through discussion, both industries will reveal to each other what is known and thus, what remains to be described. Research will likely yield a description of system limitations.

The symposium was successful in that it initiated an overdue meeting between these two industries. The discussion was very productive. Both industries agreed that our collective goal is system functionality and satisfied customers.

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