

Hi:

I attended your Dec 6<sup>th</sup> meeting concerning the phosphorus control strategy that the DEEP is developing. The talk on the 6<sup>th</sup> focus on WWTP discharges to fresh water/non-tidal watercourses. What I took away from the discussions was that municipal discharges will have tighter and tighter discharge limitations for total P. You felt that this was appropriate because costs for treatment seemed to suggest a lower cost than for other sources of total P. I can generally agree with that; however, there are a number of things that may need to be considered that may limit the investment needed is WWTP to achieve the aggressive total P discharge limits.

First, one of the speakers mentioned that Phosphorus is a population driven problem. Discharge rate from WWTP vary based on the population served. The inference is that the best way to control total P discharged is to control population discharging to WWTP. This raises the specter of Landuse density controls. This issue was not discussed at all during the meeting. This issue needs to be part of the discussion so that people can see that Landuse density control/ economic development meddling by a State Agency is not a hidden motive.

Nutrient harvesting and recycling needs to be given a more prominent role in your discussion of P removal technologies. Development of P removal as a resource management on a scale that is broader than just the receiving stream should be given consideration. P is imported to serve our population. Especially with organic goods that Phosphorus needs to be returned to areas where it is being removed from in order to maintain a healthy nutrient cycle. Land application of sludge and re-use of discharge water rich in nutrients needs to be part of the technologies encouraged and permitted by the DEEP.

In the November 28<sup>th</sup> meeting, the DEEP pointed out that on-site systems are generally protective of water quality when designed to current standards. On-site systems require more land than is required by central sewers. So, it seems as if the sewer avoidance policies that the DEEP and DPH have in place may play a role in the management of P. This policy encourages the use of one of our overlooked resources - soils. A greater reliance on the use of distributed/decentralized soil based treatment and dispersal systems seems appropriate to include as part of a P control strategy. Community systems have been under used because of uncertain path to obtaining permits. A cleaner permit process that encourages these systems will help reduce our reliance on centralized sewers and the technology to remove total P.

Even with as much work the DEEP and the USGS have done to sample nutrient in our waters, my opinion is that we still have a limited understanding of how P behaves in the environment. There is an unspoken expectation that once we implement severe limits on our discharges of P, we should see a corresponding decrease in its levels in our water ways. This might not be the case. We have been discharging higher levels of P for some time. We have seen a significant reduction of P in our waters. However, as we seek to reduce levels further, we may see a pattern of nutrient cycling/release from phosphorus "sinks" that have developed in our watershed. I'm not aware of any research on this issue, but, it may be wise to temper our expectations of immediate impact on total P unless there is some case history to show how specific watersheds may behave. That is not a reason to stop trying to improve things, it is a reason to manage expectations both from the regulatory community and those that are regulated. Exercise a little humility because our knowledge is at best imperfect and restraint when implementing a sweeping policy where results are uncertain may be appropriate.

Thanks for the opportunity to offer a few thoughts.

Bart Clark, P.E.  
Oakwood Environmental Associates  
27 Reverie Lane  
Warren, Connecticut 06754-1513  
Phone and Fax: 860-868-1367