

As I was reflecting yesterday on my ride home, concerning Mr Dan Lock's comments of human exposures, I thought I would take a few minutes to address that apparent lack of environmental fate and contaminant transport understanding. In order to head off the next argument from the county I would like to make sure all of us have an understanding. I would suspect that next argument to be that the chemical concentrations are low. The Science Speak is.. We are talking microgram per liter in measurement..or closely correlated to parts per billion..ppb kinda like 2ppb equaling 2 pennies out of a billion..thats a bit simplistic but close enough without getting into molecular chemistry calculations.

There are 2 terms in environmental science that are basic when discussing what happens to various chemical compounds in the environment; **Bioaccumulation and Biomagnification.**

**Bioaccumulation** chemicals tend to exist in organisms and accumulate in organs and lipids (fat) they don't flush through or out..they stay...and the more we are exposed the more we get and keep. So in our circumstance, chemicals that we may be exposed to in the ppb range will accumulate in organisms over time.

You may be familiar with this term being used for discussions about the metal-mercury and the chlorinated hydrocarbon-DDT...and ohh i should mention that both of those are present in the water samples from the landfill.

Bioaccumulation occurs within a trophic level. such as cows eating contaminated grass...

**Biomagnification** occurs across a trophic level.

Simplistic math...eat 10 fish with 1 ppb of mercury you have 10 ppb of mercury in you..not quite but again for example sake its close enough....you get the point.

This phenomenon occurs across the trophic system...ie bigguns eating the little ones..or little fish getting eaten by the big fish..getting eaten by humans...

Ok so lets bring this home....as you recall the common theme we have heard is concerning the water contamination is that well people don't drink the water from there so there is no exposure path...or vector..

**WRONG ANSWER----!!!!** first of all as we all know the water runs into the creek and into the potomac --cheasapeake ect contaminating fish and sediments...BUT here is another circumstance....in our neighborhood park currently there is a deer eradication program. Now these deer are being feed to homeless and needy...right....NOW I WONDER WHERE THOSE DRANK>>>>

have a nice day and a good meeting tomorrow.

and for sake of reference this information is available in environmental engineering textbooks, Silent Spring and

also in "Environmental Ecology" pages 232-249 by Dr Bill Freedman.

Dean Dozier  
Derwood Station