March 19, 2014

To: Rick Hill, Water Plan Writer, VA-DEQ Central Office, PO Box 1105, Richmond, VA 23218
Cc: Nicholas DiPasquale, Director CBPO, 410 Severn Ave, Suite 109, Annapolis MD 21403
From: Dr. Lynton S. Land, PO Box 539, Ophelia VA 22530
Re: Comments on “Chesapeake Bay Milestones”

If "restore" means returning to the condition experienced by Europeans when they first arrived in the New World, restoration is impossible. DEQ (and everybody else) must stop using that word. It is impossible to "restore" the North American Great Plains grassland prairies except on tiny plots. It is impossible to "restore" artesian groundwater in the Coastal Plain because water is being withdrawn unsustainably and recharge is insignificant. It is impossible to "restore" Bay water quality and the Bay ecosystem (including oysters) given the huge amounts of nitrogen (N) and phosphorus (P) released today from heavily fertilized crops and permanent urbanization compared to pre-Colonial times. Neither the prairie nor the Bay ecosystem can ever return to their previous states. Restoration is impossible.

Agricultural practices cause most Bay nutrient pollution and must receive the most attention, something never emphasized by Virginia DEQ, and not emphasized in this latest verbiage. Bay water quality can only improve when crop fertilization becomes considerably more efficient. According to Section 4 of EPA's final TMDL, the magnitudes of the pollution caused by actionable anthropogenic processes within the watershed (not including acid rain or forests) are:

	%N	%P	% sediment
Municipal Wastewater (page 4-10)	22	19	
Industrial wastewater (page 4-13)	4	10	
Stormwater (page 4-22)	10	18	20
Agriculture (page 4-29)	56	53	80
Septic (page 4-37)	8		

Frame 15 of VA’s Chesapeake Bay Progress and Milestones presentation under-reports agricultural nitrogen pollution compared to estimates by both EPA and USGS (Scientific Investigations Report 2006-5012, esp. p. 1 (” For nitrogen, the largest source was farm fertilizer...”). This must be corrected. Forests should not be included because there is very little that can (or should) be done to reduce nitrogen and phosphorus pollution. Forests are only included when it is desirable to make the contribution from agriculture look smaller. Virginia’s estimates of sediment pollution (Frame 17) are very different from EPA’s, again under-representing the agricultural contribution. This must also be corrected.

Frames 16 and 16 show, correctly, that progress to date has mostly been due to reductions in wastewater and CSO. Those reductions are nearing their limit. Reductions needed to reach 2017 and 2025 goals must come almost entirely from agriculture. Despite this uncontested fact, the “Preliminary Draft Programmatic 2-year Milestones” lists only 15 milestones for agriculture but 32 for the other, smaller sectors (14 for Urban, 8 for Onsite and 10 for Forest). The proposed “Milestones” are not proportional to the pollution from the identified sources. The “Milestones” are replete with buzz words like “conduct, determine needs, develop, enhance, continue promotion, work with, track, renew, report, develop” etc. Milestones have no specifically stated nutrient reduction goals. Many milestones are contingent on funding whereas they should be required.

According to EPA's Jeffrey Lape, in a letter to me dated 03/25/09 and posted on www.VaBayBlues.org, "We estimate that agricultural animal manure and poultry litter contribute about half of the agricultural nutrient load to the Chesapeake Bay." All the money we have spent upgrading wastewater facilities has not translated into improved Bay water quality because wastewater pollution is smaller than the pollution caused by the cheap disposal of animal waste by land application, and smaller still than all of agricultural pollution. I previously demonstrated that Virginia’s nutrient reduction TMDL goals could be reached simply by banning the land application of animal waste (www.bayjournal.com/article.cfm?article=2969) and that assertion has not changed since the article was written in 2006. I also documented the nutrient pollution of Chesapeake Bay just from the land application of sewage sludge in Virginia (2012 Marine Pollution Bulletin 64: 2305-2308 - http://dx.doi.org/10.1016/j.marpolbul.2012.07.003).

Two things must be done to change agricultural practices if there is ever to be a serious intent to improve water quality in the Bay in the face of the powerful and wealthy agricultural lobby and the pressure it exerts on the political and regulatory process.

1) The disposal of animal waste by land application must be Phosphorus-based, supplying the Phosphorus needs of the crop and no more, although an outright ban and use of the waste as biofuel is preferable. Any strategy other than strict scientifically determined Phosphorus-based application is merely an excuse for cheap waste disposal and certifies that in Virginia, the profits of special interests trump Bay water quality.

2) Replace conventional chemical fertilizers with controlled- (timed- or slow-) release products. Nitrogen fertilization efficiency must be increased from 65%, as is true today of conventional chemical fertilizers (it is 30% for sludge), to at least 80%. A “pollution tax” based on fertilization efficiency may be needed.

Until these two things are done, Bay water quality cannot possibly improve, and it can never be "restored." Reducing pollution from the Municipal Wastewater sector has not resulted in improved Bay water quality, and reducing pollution from the remaining small sectors cannot possibly improve water quality measurably. Unless the “Milestones” focus on the major pollution source, agriculture, this document does not constitute (again) a serious attempt to meaningfully reduce the nutrient pollution of Chesapeake Bay.

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