From:	Benedict, Chris
To:	Jennings, Jonathan (ECY)
Subject:	Response to DRAFT CAFO Permit
Date:	Wednesday, September 30, 2015 11:41:48 AM
Attachments:	DOE Input on Buffer options.pdf

Mr. Jonathan Jennings,

Attached is a response to the proposed CAFO permit.

Let me know if you have any questions,

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Response to the Proposed WA Department of Ecology DRAFT CAFO Permit

Mr. Jonathan Jennings:

This letter does not represent the viewpoint of Washington State University, but rather is based on a thorough search of the publically available scientific literature.

It is well documented that a primary concern of farmers is that displacing arable land with riparian buffer would jeopardize the capacity of the farm to meet production goals and nutrient management plans (Breslow 2001, NRCS 2002, GEI Consultants 2002, Suess et al. 2012). The result is that fewer miles of waterways are protected in voluntary buffer programs because the perceived cost to the farm is too great (Smith 2005). Requiring setback widths of 100 feet would add to factors that force farmland conversion to urban use. It is strongly encouraged that the planners of the CAFO permit to review costs associated with new regulations and plan for ways to transition farms toward successfully complying with regulations without endangering their existence.

According to the American Farmland Trust, the farmland west of the Cascade Range in Washington State is extremely vulnerable to loss from development (1997). Each year, from 1950 to 2007, roughly 14,000 acres of farmland in the Puget Sound region were converted to urban use (Canty et al. 2012). It is a difficult compromise to enact policies which maintain surface and ground-water quality while protecting farmland.

There is a vested interest for environmentalists and farmers to work together to conserve farmland to maintain water quality and wildlife habitat. Agricultural lands represent about 50% of the total United States land area (Nickerson and Borchers 2012) and are displaced by development at twice the rate of population growth (Canty et al. 2012). The direct effects of displacing farmland with city infrastructure are increased impervious surfaces and elimination of streamside vegetation. Impervious surfaces alter stream flow regimes, water chemistry, and stream structure (Navratil et al. 2013, Connor et al. 2014). Research equates farmland with natural woodland areas in terms of percent impervious surfaces, which is about 2-4% (Dougherty et al. 2004). But, the threshold for the amount of impervious surface area that negatively affects fisheries in some areas is quite low. For example, in the eastern United States, it is estimated that once 10% of a watershed area is impervious surface, sensitive fish species are unable to survive (Wenger et al. 2008). In the same area, where medium density residential development occurs (5-20 dwellings/ha) the estimated quantity of impervious surface is 22%. So, at the very minimum, the quantity of land represented by agricultural use represents less impact to natural areas than the impervious surfaces in cities. As a consequence of urban sprawl, farmland and woodlands are destroyed, but both are important to maintaining a critical mass of land with low impact use.

Below is a review of the proposed changes to the CAFO permit. From the literature the following suggestions arise; 1) Buffer options 13a. and, 2) 13b.

1) The permit fails to disclose what specific objectives the 35 ft. vegetative buffer width will achieve. Is this for reducing nitrate completely, 75%, 50%, 25%? Generally, very wide widths (e.g. greater than 165 ft.) are required to achieve 75-100% subsurface nitrate reduction (Mayer et al. 2007). It has been shown that the gain in nitrate removal effectiveness is minimal between about 16 ft. and 82 ft. and within this narrow width other factors such as soil type, distance to groundwater, soil porosity, and slope have more control over nitrate removal effectiveness than buffer width (Mayer et al. 2007). In the right conditions even a 10 ft. buffer can remove 50% of the subsurface flow (Mayer et al. 2007). Even in sandy/loamy soil, narrow buffers can reduce nitrate levels to below 2ppm (Borin and Bigon 2002).

Recommendations for S413.a;

I) Define the specific objectives expected from establishing the 35 ft. buffer.
II) Reduce loss of land for existing dairy nutrient management plans,

a. Make an allowance for reduced buffer width of 15 ft. at sites with low slope and favorable soil conditions for nitrification to take place

In S4C13b. the goal is sediment and manure runoff prevention. Vegetation type influences nutrient reduction (Mankin et al. 2007; Mayer et al 2007) and a grass filter strip in combination with a riparian buffer is more effective than riparian buffer alone. An additional 65 ft. of filter strip in combination with the 35 ft. buffer strip is excessive.

Recommendations for S413b: 100’ setback

I) Allow for a combination of grass filter strip and woody vegetation buffer with the total width equaling 35 ft (Mankin et al. 2007).

II) Purpose/Goal: Prevent direct input of manure into surface water from application. Rather than a setback, focus on the type of application. Risk of direct runoff for manure guns are different than infusing manure directly into the soil.

References and Recommended Readings

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