

“Risk Assessment of Water Impairment from Heavy Use Areas/Animal Concentration Areas”

November 2011

Background

Nutrient enrichment of surface and groundwater in the Chesapeake Bay Watershed and throughout Virginia is a major water quality resource concern. Livestock Heavy Use Areas/Animal Concentration Areas (HUA/ACA) have long been suspected to contribute to the nutrient enrichment of water. For the purpose of this technical note a (HUA/ACA) is defined as an area of land which will have high concentration of livestock, large amounts of waste deposition, inability to maintain vegetation, and is located close proximity to water. Examples may include winter feeding areas in pastures, concentrated loafing areas, exercise lots, barn yards, and animal holding areas.

HUA/ACA have the potential to receive large amounts of nutrients in the form of manure and urine. The amount of nutrients within the concentrated/feeding area may be estimated mathematically by considering a number of variables such as number, weight and type of livestock, manure production, manure analysis, number of days in concentrated/feeding area, size of concentrated/feeding area, freedom of movement and management techniques.

The risk of transport of these nutrients from the HUA/ACA area to surface and groundwater is unique to each concentrated/feeding area. Transport potential is dependent on an array of “on site” variables such as location, soil type, distance to water feature, buffer adjacent to water feature, slope, drainage, soil leaching, etc.

The determination of a concentration area’s potential to impair water quality is a two-step approach.

(1) Determining the nutrient loading rate from the concentrated area, and

(2) Evaluating the on-site features that affect the potential transport of nutrients from the concentrated/feeding area to the water feature.

Purpose

To provide an evaluation tool for conservation planners to assess the risk of water quality impairment of both surface and ground water from a HUA/ACA area.

Attached is a Risk Assessment for Water Impairment from HUA/ACA. This worksheet is in a fillable Excel spreadsheet format. It consists of three parts: title page, manure/nutrient estimation and “on site” information for transport potential.

The values used in this worksheet are standard and accepted values that appear in the USDA NRCS Agricultural Waste Management Field Handbook.

Completion of the Form

Step 1 – Complete the title page.

Step 2 – Complete input section of the “manure estimator”. Outputs will be calculated and appear automatically.

Step 3 –The output results of the manure estimator will be used to determine the loading points from Table 2. The loading points are then transferred to the scoring box.

Step 4 – Record the site information for the four site categories following the guidance in the comment section. Place the appropriate point amount in the corresponding scoring box.

Step 5 – The total score will be automatically calculated. If the total score is 120 or greater, there is a significant risk of water quality impairment for the concentrated/feeding area evaluated. Follow planning procedure to address the resource concern.

Step 6 - Document alternatives discussed and indicate selective alternative on the title page.

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