Charge and Scope of Work

BMP Expert Panel on Animal Waste Management Systems and Poultry Heavy Use Area Concrete Pads

Prepared for the Chesapeake Bay Program Partnership's Agriculture Workgroup by the Animal Waste Management Systems and Poultry Heavy Use Area Concrete Pads Expert Panel Establishment Group

Background

In the current version of the Chesapeake Bay Program (CBP) partnership's Watershed Model (version 5.3.2), Animal Waste Management Systems (AWMS) are defined as "practices designed for proper handling, storage, and utilization of wastes generated from confined animal operations. Reduced storage and handling loss is conserved in the manure and available for land application." In the current Watershed Model, an AWMS reduces the environmental loss of nitrogen and phosphorus from improperly stored livestock manures through surface runoff, by the implementation of federal and state recognized engineered storage and handling systems.

The Phase 5.3.2 modeling tools incorporate a standard estimate of baseline environmental nutrient losses from improper storage and handling based on the consistency of the livestock manure; e.g. solid or liquid. Nutrient losses are applied as a base environmental load irrespective of the potential impacts of the livestock housing facility, from which the AWMS BMP effectiveness values are applied. Atmospheric ammonia losses are not directly affected by AWMS BMPs, but managed through a separate atmospheric management BMP.

Poultry Heavy Use Area Concrete Pads represent the current industry standard of placing concrete pads at the primary doors of poultry housing facilities to reduce environmental litter handling losses during crust out and total house cleanup operations. These structures are not currently recognized as an existing or interim BMP by the Phase 5.3.2 models, and thus are not simulated in the Watershed Model for either implementation credit or for planning purposes until recommendations from an expert panel are adopted by the CBP partnership.

Virginia Tech, through its Expert Panel Management Cooperative Agreement with the CBP, will issue a Request for Proposals to convene an expert panel for these BMPs following adoption of this Charge and Scope of Work by the Agriculture Workgroup (AgWG).

Recommendations for Expert Panel Member Expertise

- Biological/bio-systems engineering
- Livestock production and manure management systems typical in the Chesapeake Bay region.
    - Knowledge of dairy and poultry practices required
    - Knowledge of swine, beef, and equine practices preferred
- Knowledge of how BMPs are tracked and reported, and the Chesapeake Bay Program partnership's modeling tools.
- Knowledge of relevant NRCS practice codes or standards.

Expert Panel Scope of Work

The panel will review the Phase 5.3.2 definition and loading or effectiveness estimates for the AWMS practices listed above and make adjustments as needed for Phase 6.0. In addition, the panel will review and provide recommendations on the current standard baseline estimates of environmental nutrient losses associated with various types of livestock manures for the Phase 6 modeling tools. The Panel will consider different loss factors for different animal types. The Panel will also develop a recommendation on the partnership request for a definition and loading or effectiveness estimates for Poultry Heavy Use Area Concrete Pads.

The Panel will have help from the Virginia Tech coordinator to ensure that the recommendations are complimentary with but not overlapping the recommendations of the panel reviewing Manure Treatment Technologies.

The Expert Panel will be provided a project timeline for the development of the panel recommendations based on the Phase 6 development schedule. This timeline may include the development of a provisional recommendation for this BMP prior to the finalization of a fully documented recommendation report with effectiveness values. Provisional panel recommendations will be used only for initial Phase 6 model development and calibration, and not for future implementation progress reporting by the jurisdictions.

The panel will develop a report that includes information as described in the Water Quality Goal Implementation Team's *Protocol for the Development, Review, and Approval of Loading and Effectiveness Estimates for Nutrient and Sediment Controls in the Chesapeake Bay Watershed Model*, hereafter referred to as the BMP Protocol[1]:

- Identity and expertise of Panel members.
- Detailed definition of the practice.
- Recommended N, P, and sediment loading or effectiveness estimates.
    - Discussion may include alternative modeling approaches if appropriate.
- Justification for the selected effectiveness estimates, including:
    - List of references used (peer-reviewed, grey literature, etc.).
    - Detailed discussion of how each reference was considered and, if applicable, which sources of potential relevance were not considered.
- Description of how best professional judgment was used, if applicable, to supplement available literature and data.
- Expected Phase 6 Watershed Model land uses to which the BMP will be applied.
- Load sources that the BMP will address and potential interactions with other practices.
- Description of pre-BMP and post-BMP circumstances, including the baseline conditions for practices.
- Conditions under which the BMP works:
    - Should include conditions where the BMP will not work, or will be less effective. An example is large storms that overwhelm the design.
    - Any variations in BMP effectiveness across the watershed due to climate, hydrogeomorphic region, or other measureable factors.
- Temporal performance of the BMP including lag times between establishment and full functioning (if applicable).
- Unit of measure for the BMP and its effectiveness estimate (e.g., feet, acres).

[1] http://www.chesapeakebay.net/documents/Nutrient-Sediment_Control_Review_Protocol_v7.14.2014.pdf

- Locations within the Chesapeake Bay watershed where this practice is applicable.
- Useful life; effectiveness of practice over time.
- Cumulative or annual practice.
- Description of how the BMP will be tracked, reported, and verified.
    - Include a clear indication that this BMP should be used and reported by jurisdictions;
- Suggestion for a review timeline; when will additional information be available that may warrant a re-evaluation of the estimate.
- Outstanding issues that need to be resolved in the future and a list of ongoing studies, if any, that may inform future reviews of the practice.
- Documentation of any dissenting opinion(s) if consensus cannot be reached.
- Operation and Maintenance requirements and how neglect alters performance.

Additional Guidelines

- Identify ancillary benefits and unintended consequences
- Include negative results
    - Where studies with negative pollution reduction data are found (i.e. the BMP acted as a source of pollutants), they should be considered the same as all other data.
- Include results where the practice relocated pollutants to a different location. An example is where a practice eliminates a pollutant from surface transport but moves the pollutant into groundwater.

In addition, the Expert Panel will follow the "data applicability" guidelines outlined in Table 1 of the Water Quality Goal Implementation Team's BMP Protocol.

[Subgroup to fill in additional guidelines]