Manure Technologies Expert Panel Request for Proposals

I. Summary:

The U.S. Environmental Protection Agency Chesapeake Bay Program (CBP) through its Expert Panel Management Cooperative Agreement with Virginia Tech (VT) is seeking proposals to assemble an Expert Panel to determine pollution control performance measure estimates for several best management practices (BMPs) that fall under a broad umbrella of practices termed "manure technologies." Proposals should address the process of developing expert-based recommendations for nitrogen, phosphorus, and sediment reduction values or BMP efficiencies for the various manure technologies specified in the body of this request for proposals (RFP) and result in the delivery of a science-based, defensible report on the effectiveness of specified manure technology BMPs in reducing N, P and sediment loss to the Chesapeake Bay. Expert Panels are expected to adhere to the process and protocols contained in the document entitled *Protocol for the Development, Review, and Approval of Loading and Effectiveness Estimates for Nutrient and Sediment Controls in the Chesapeake Bay Watershed Model*[1] hereafter referred to as the "BMP Protocol." The selected expert panel will be assisted by Virginia Tech's Project Coordinator for Expert Panel BMP Assessment who is located in EPA's Chesapeake Bay Program Office in Annapolis, MD. Included in that assistance is logistical support for all Expert Panel conference calls (including providing a conference bridge) and meetings.

II. Background:

Agriculture is the second largest land use in the Chesapeake Bay watershed, second only to forests. Manure from animal agriculture is the largest source of phosphorus loadings to the Chesapeake Bay (Bay) and the second largest source of nitrogen loading. The need to rebalance the use of nutrients and protect water quality in the Bay region has led to interest and investment in manure treatment technologies and alternate uses of manure throughout the watershed. In an effort to expand the number of manure BMPs (manure technologies) included in the Chesapeake Bay Watershed Model, the Agricultural Workgroup formed an *ad hoc* sub-committee. This subcommittee identified and prioritized six (6) manure technologies to be addressed under this RFP.[2]

III. Scope of Work:

This RFP solicits proposals to assemble an Expert Panel to determine pollution control performance measure estimates for the following six (6) prioritized manure technology BMPs:

1. **Microbial Digestion (aerobic/anaerobic):** A microbially-mediated process whereby liquid manure is digested into either carbon dioxide or methane gas, and various other constituents.
2. **Chemical Treatments –Dry Manure: The process of amending dry** manure –particularly poultry litter– with dry amendments to reduce ammonia emission.
3. **Thermal (or Thermochemical) Treatment:** A term that encompasses a range of technologies that use thermal decomposition to treat manure and produce energy and other potentially useful co-products.
4. **Solid-Liquid separation:** The process of separating coarse solid particles from manure followed by use of solids and liquids for land application, transportation off the farm, or other value added purposes.
5. **Composting:** The process of facilitating microbial decomposition of manure solids that results in a final product that has reduced volume, density, odor, and pathogen content and can be used as a soil amendment.

[1] (http://www.chesapeakebay.net/documents/Nutrient-Sediment_Control_Review_Protocol_v7.14.2014.pdf).
[2] The subcommittee's full report is available at: http://www.chesapeakebay.net/channel_files/22012/manure_treatment_subgroup_final_report_approved_by_agwg_06_19_14.pdf

6. **Chemical Treatments – Wet Manure:** The process of precipitating inorganic phosphorus (and in some cases ammonia-nitrogen) from liquid wastewater using additives.

Proposals to establish the Manure Technologies Expert Panel should outline the proposed process of developing expert-based recommendations for nitrogen, phosphorus, and sediment reduction values or BMP efficiencies for the manure technologies listed above and result in an Expert Panel report that includes proposed BMP efficiencies. When conducting their business and reporting their findings, the Expert Panel is expected to adhere to the process and procedures detailed in the CBP's BMP Protocol[1].

IV. Content and Length:

Proposals submitted under this RFP may request funding up to $30,000 in total costs. No indirect, facilities & administration (F&A) or overhead charges are permitted on this project. The project duration is a maximum of one (1) year from the award date. Proposals should be no longer than five (5) 8 ½" x 11" pages, single-spaced, 12 pt Arial font. Two-page (maximum) CVs that document the qualifications of each of the proposed Expert Panel members, including the expert panel chair, should be included with the proposal submission. The CVs are in addition to the five page proposal limit. Proposals must specify/identify the following:

1. Expert Panel Chair.
2. Expert Panel membership. As specified in the BMP Protocol[1], the Panel must include at least eight individuals; three recognized topic experts, three individuals with expertise in environmental and water quality-related issues, a representative from the CBP's Watershed Technical Work Group (WTWG), and a representative from the CBP modeling team. The CBP will assign panel members from the WTWG and the CBP modeling team. Applicants need not include the CV's of these panel members in their proposal. These assigned panelists will lend specific expertise to each panel (e.g., the CBP modeling team panel member will lend a working knowledge of the CBP Watershed Model and potential ways the model can accommodate various BMPs). Panelists' areas of expertise may overlap. Suggested areas of expertise that may be applicable to the manure technologies panel include, but are not limited to; biological systems engineering, biogeochemistry, nutrient cycling dynamics in agricultural systems, agronomy, and livestock production (beef, dairy, poultry, swine). Panel members should not represent entities with potential conflicts of interest, such as entities that could receive a financial benefit from Panel recommendations or where there is a conflict between the private interests and the official responsibilities of those entities. All panelists are expected to identify any potential financial or other conflicts of interest prior to serving on the Panel.
3. Project Narrative/Scope of Work that details how the Expert Panel Chair and membership will go about developing their final report deliverable. This section should document how the proposed Expert Panel will execute the process and procedures detailed in the CBP's BMP Protocol[1].
4. Project timeline.
5. Project Budget including a detailed budget justification.

V. Proposal Review and Selection

Proposals will be reviewed by Chesapeake Bay Watershed Research and Outreach Collaborative (CBW-ROC) Steering Committee. Current CBW-ROC Steering Committee membership includes representatives from selected land grant universities within the Chesapeake Bay watershed (Table 1). Proposals will be scored and ranked using the criteria specified below. The proposals will also be shared with and reviewed by the CBP Program Officer responsible for oversight of the Expert Panel Management Cooperative Agreement with VT. Review comments made by the CBP Program Officer will be considered when selecting the winning proposal.

Table 1. Current Chesapeake Bay Watershed Research and Outreach Collaborative (CBW-ROC) Steering Committee

Jurisdiction	Team Member	Institution
Delaware	Jenn Volk	University of Delaware
Maryland	Frank Coale	University of Maryland
New York	Quirine Ketterings	Cornell University
Pennsylvania	Matt Royer	Penn State University
Virginia	Brian Benham (Chair)	Virginia Tech
Washington, D.C.	Tolessa Dekissa	University of the District of Columbia
West Virginia	Tom Basden	West Virginia University

V.i. *Evaluation Criteria:*

1. ***Organizational Capability and Program Description (40%):***

Proposals will be scored based on the overall quality of the proposal and how it demonstrates/illustrates the process/tasks that will be undertaken to successfully achieve the project's objectives in a timely manner. Reviewers will specifically assess the extent to which proposed project acknowledges and will adhere to the BMP Protocol[1]. As presented in the BMP Protocol, Expert Panels are expected to develop definitions and loading or effectiveness estimates for the nutrient- and sediment-reducing technologies and practices they have agreed to review. Each Expert Panel will work with the Project Coordinator (a VT employee stationed at the CBP office in Annapolis, MD), the appropriate CBP source Workgroup(s) and the CBP Watershed Technical Work Group to develop a final report that documents the following:

- Identity and expertise of Panel members
- Land Use or practice name/title
- Detailed definition of the land use or practice
- Recommended nitrogen, phosphorus, 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, unpublished, etc.)
  - Detailed discussion of how each reference was considered, or if another source was investigated, but not considered.
- Description of how best professional judgment was used, if applicable
- Land uses to which the BMP is 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)
- 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 will 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
- Documentation of any dissenting opinion(s) if consensus cannot be reached
- Operation and Maintenance requirements and how neglect alters performance

2. ***Past Performance and Programmatic Capability (20%)***
   Proposals should, to the extent possible, discuss how the applicant's past performance will ensure the successful completion of proposed activity (i.e., managing a panel of experts to seek out and review relevant data/information to produce a science-based, defensible report on a given topic or suite of topics).

3. ***Probability of success of the project (40%)***
   Proposals will be evaluated against the following criteria:
   a. Reasonableness of timeline,
   b. Qualifications of proposed Expert Panelists and their willingness to participate (can be demonstrated with a letter or collaboration appended to proposal),
   c. Appropriateness of requested budget and budget justification,
   d. Adequacy of available support personnel and facilities (if specified in proposal)

VI. Proposal Submission

Proposals are due by the close of business on October 3, 2014. Proposals may be submitted via email or via regular mail to:

Brian Benham
Professor and Extension Specialist
Virginia Tech
Biological Systems Engineering (MC0303)
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Questions about this RFP should also be directed to Dr. Benham.