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Poultry Industry Comments on Chesapeake Bay TMDL

November 8, 2010

Water Docket
Environmental Protection Agency
Mailcode: 28221T
1200 Pennsylvania Ave, NW.
Washington, DC 20460

Re: Comments on Draft Chesapeake Bay TMDL; Docket ID No. EPA–R03– OW–2010–0736

Dear Sir or Madam:

These comments are submitted by the US Poultry & Egg Association, the National Turkey Federation and the National Chicken Council in response to EPA's solicitation for comments on the Draft Total Maximum Daily Load (TMDL) for the Chesapeake Bay. 75 FR 57776

I. Industry Overview

The U.S. Poultry & Egg Association (USPOULTRY) is the world's largest poultry organization, whose membership includes producers of broilers, turkeys, ducks, eggs and breeding stock, as well as allied companies. USPOULTRY focuses on research, education and technical services, as well as communications to keep members of the poultry industry current on important issues.

The National Turkey Federation (NTF) is the national advocate for all segments of the turkey industry. NTF provides services and conducts activities which increase demand for its members' products by protecting and enhancing their ability to profitably provide wholesome, high-quality, nutritious products.

The National Chicken Council (NCC) is a nonprofit member organization representing companies that produce and process over 95 percent of the broiler/fryer chickens marketed in the United States. NCC promotes the production, marketing and consumption of safe, wholesome and nutritious chicken products both domestically and internationally. NCC serves as an advocate on behalf of its members with regard to the development and implementation of federal and state programs and regulations that affect the chicken industry.

The associations together have affiliations in the majority of U.S. states and member companies worldwide, and include many members within the Chesapeake Bay Watershed in Virginia, Maryland, Delaware, West Virginia and Pennsylvania. Of the approximately 1,700 poultry growers and 5,000 poultry houses in the Delmarva region, it is estimated that 1,300 are within the Bay watershed. The average family-run broiler farm has 2-3 houses with approximately 25,000 birds per house. The average turkey farm has two houses with approximately 12,000 birds per house. There is some variability in the size and number of broiler and turkey houses on these farms.

II. EPA Request for Comment on the Draft Chesapeake Bay TMDL

EPA announced in the September 22, 2010 Federal Register the availability of the Draft TMDL and request for review and public comment on the Chesapeake Bay-wide Total Maximum Daily Load (TMDL) for nutrients and sediment for all impaired segments in the tidal portion of the Chesapeake Bay watershed. Our comments on the Draft TMDL are organized in nine categories and include:

1. Issues Regarding Historical Background of the TMDL
2. EPA Legal Authority and Policy Issues
3. Watershed Implementation Plan (Examples of Specific State Concerns)
4. Incomplete Documentation on the Tools and Models Used to Develop the TMDL
5. Substantive Outstanding Concerns that Raised During the Chesapeake Bay TMDL Webinar for the Agricultural Community (March 22, 2010, Washington, D.C.) that were not Addressed in the TMDL
6. Additional Concerns with Assumptions Applied in the Chesapeake Bay Model Framework
7. Water Quality Standards and Wasteload Allocations
8. Issues raised by Conservation Effects Assessment Project (CEAP)
9. Expectations for Federal Entities

The comments below also reiterate some of the issues and concerns that we conveyed to EPA in our December 18, 2009 comments on the Notice and Initial Request for Public Input on the Preliminary Notice of the TMDL for the Chesapeake Bay, our comments on the Draft Strategy (January 8, 2010), and comments and issues discussed at the face-to-face meeting the US Poultry and Egg Association held with EPA on March 22, 2010.

1. Issues Regarding Historical Background of the TMDL

Early in 2009, EPA made it clear there was the intent to conduct a use attainability analysis (UAA) because the water quality standards were not attainable. In a discussion paper prepared for a March 9, 2009 conference call, EPA stated,

> *While it will be admittedly difficult to separate the financial achievability from the rest of this analysis, the MEF [maximum extent feasible] analysis underway is to only address the first two levels of do-ability. Recognizing that the cost component of this issue is important, it will be addressed as part of the Use Attainability Assessment at a later date.*
>
> (USEPA 2009)

Because EPA recognized that the water quality standards for the Bay were not able to be achieved, the Agency began a process to determine what might be achievable given current resource constraints. This process was designed to assess the maximum levels of control that could be achieved and this level would determine what was the "maximum extent feasible" (MEF) for load reductions.

During conference calls designed to discuss the process that would be used to determine what constituted the MEF for controlling point and nonpoint source loads, Rich Batiuk and Bob Koroncai of EPA both indicated that EPA recognized the current water quality standards could not be attained and a UAA would be necessary. The data collected during the MEF process would be used to conduct the UAA. Given the status of development in the watershed, it is unlikely the reductions can be achieved. This is particularly true because urban and suburban loads of nutrients and sediments are increasing even though total loads from agriculture and wastewater treatment plants are decreasing. In approximately June to July 2009 the development of a UAA was tabled which was the same time that the meeting minutes for the Water Quality Steering Committee also stopped. At a minimum, EPA should clearly explain why it stated that a UAA was needed but then abandoned the UAA with no explanation for the change.

2. EPA Legal Authority and Policy Issues

We question a number of the claims EPA has made on its authority to develop the Chesapeake Bay TMDL and to impose requirements on the jurisdictions. These issues are organized within four categories, below.

General Issues with Claims of Authority

In previous Federal Register Notices and in the TMDL document, EPA has claimed it is required to develop and issue the TMDL and also has authority to develop and issue the TMDL. Our associations have reviewed these claims and do not agree with EPA's position. The next section of comments includes an assessment of the statutory authority for issuing TMDLs. As an introduction to that section, we note that we believe EPA has significantly exceeded the authority provided the Agency by Congress through the Clean Water Act. The CWA clearly establishes the states as the entities responsible for listing waters as impaired under section 303(d) and issuing TMDLs to address those water quality issues. We recognize that EPA is under consent decrees and has entered into settlement agreements related to the Chesapeake Bay, however it is important to understand that consent decrees and settlements merely create "obligations" for EPA, they do not provide "authority." Authority can only be granted by Congress through the CWA, and Congress clearly provided the authority to the states, not to EPA.

Statutory Authority

EPA stated in the September 22, 2010 Federal Register (FR) Notice that "EPA is establishing the Draft TMDL for nitrogen, phosphorus, and sediment for each of the 92 segments in the tidal portion of the Chesapeake Bay watershed pursuant to Sections 117(g) and 303(d) of the Clean Water Act (CWA)."

The FR Notice goes on to say:

> *Section 303(d) of the CWA requires that each State identify those waters within its boundaries for which existing technology-based pollution controls required by the CWA are not stringent enough to attain or maintain state water quality standards.* ***A TMDL must be established for each of those 'impaired' waters.*** (emphasis added in bold)

It is interesting to note the same statement in the September 17, 2009 Federal Register Notice (74 FR 47792) clearly stated that it is the states responsibility, not EPA, to develop the TMDL:

> *Section 303(d) of the CWA requires that each State identify those waters within its boundaries for*

which existing technology-based pollution controls required by the CWA are not stringent enough to attain or maintain state water quality standards. ***States are required to establish TMDLs for those "impaired" waters.*** (emphasis added in bold)

Modification of this language does not veil the inherent discrepancy in the approach EPA is taking with regard to the authority afforded to it under the Act nor does the Federal Register explain "how" these sections of the Act actually provide the necessary authority for EPA to develop the TMDL.

The statutory requirement to develop TMDLs is found in section 303(d) of the Act. It states,

(d) IDENTIFICATION OF AREAS WITH INSUFFICIENT CONTROLS; MAXIMUM DAILY LOAD; CERTAIN EFFLUENT LIMITATIONS REVISION

(1)(A) Each State shall identify those waters within its boundaries for which the effluent limitations required by section 1311(b)(1)(A) and section 1311(b)(1)(B) of this title are not stringent enough to implement any water quality standard applicable to such waters. The State shall establish a priority ranking for such waters, taking into account the severity of the pollution and the uses to be made of such waters.

(C) Each State shall establish for the waters identified in paragraph (1)(A) of this subsection, and in accordance with the priority ranking, the total maximum daily load, for those pollutants which the Administrator identifies under section 1314(a)(2) of this title as suitable for such calculation. Such load shall be established at a level necessary to implement the applicable water quality standards with seasonal variations and a margin of safety which takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality.

(2) Each State shall submit to the Administrator from time to time, with the first such submission not later than one hundred and eighty days after the date of publication of the first identification of pollutants under section 1314(a)(2)(D) of this title, for his approval the waters identified and the loads established under paragraphs (1)(A), (1)(B), (1)(C), and (1)(D) of this subsection. The Administrator shall either approve or disapprove such identification and load not later than thirty days after the date of submission. If the Administrator approves such identification and load, such State shall incorporate them into its current plan under subsection (e) of this section. If the Administrator disapproves such identification and load, he shall not later than thirty days after the date of such disapproval identify such waters in such State and establish such loads for such waters as he determines necessary to implement the water quality standards applicable to such waters and upon such identification and establishment the State shall incorporate them into its current plan under subsection (e) of this section.

The Act is very clear; it is the responsibility of the state to establish TMDLs. EPA's role is to review and approve the TMDLs developed by the state. If EPA disapproves the TMDL, then EPA must establish the TMDL. The statute does not provide authority for EPA to conduct a TMDL at the request of the state. Nor does it provide the authority for EPA to do part of the TMDL while forcing the state via threats of "consequences" to develop watershed implementation plans.

EPA also cites 117(g) of the Clean Water Act as authority (Draft TMDL page 1-12). This is not an accurate characterization of section 117. Section 117 has no connection to section 303(d), and therefore no connection to the TMDL for the Bay. Section 117 is designed to ensure the EPA coordinates with the states for purposes of developing management plans. Management strategies under section 117 are not the same as TMDLs under section 303. Had Congress intended them to be the same, congress would have provided language to that effect, linking the two sections of the Act.

Authority with Regard to Watershed Implementation Plans and Reasonable Assurance

In EPA's September 11, 2008 letter to John Griffin, Secretary of Maryland Department of Natural Resources, EPA provided a definition of "reasonable assurance" and indicated it had authority to require this. In the letter to Secretary Griffin, EPA acknowledges that neither the CWA nor the federal regulations provide a definition for "reasonable assurance." The letter then goes on to state, "[t]he regulations do provide that less stringent wasteload allocations for point sources must be based on practicable load allocations for nonpoint sources and that EPA must find that TMDLs will implement water quality standards in order to approve them." The letter states the "regulations do provide", but the letter did not include a regulatory citation, rather they cite EPA guidance, which does not provide EPA this authority.

In the TMDL document, EPA continues to assert that it has authority to require the states to develop WIPs and asserts the TMDL must include "reasonable assurance." However, nowhere does EPA actually provide regulatory or statutory language to support these assertions.

In 2000, EPA issued regulations modifying the regulations at 40 CFR part 130 and 40 CFR part 122 related to the TMDL program. Those regulations never went into effect due to action by Congress to halt their implementation, and were subsequently revoked. The 2000 regulatory changes included requirements for reasonable assurance and implementation plans. If EPA already had this regulatory authority, why did it attempt this regulation change in 2000? EPA's Draft TMDL and the strategy to implement the TMDL will institute the regulations that never went into effect and provide EPA new authority over an area that Congress has clearly and expressly denied.

3. WIP Implementation (Examples of Specific State Concerns)

The approach that EPA has taken with the development of the Chesapeake Bay TMDL includes the requirement for the jurisdictions to develop TMDL implementation plans prior to the finalization of the TMDL. As the target loadings were not provided to the jurisdictions until July 1, 2010 (nutrients) and August 13, 2010 (sediment) the jurisdictions had a very short window of time to develop the WIPs by EPA's September 1st due date. EPA then incorporated implementation measures addressed in the state WIPs into the Draft TMDL. Consequently, the Draft TMDL consists not only of wasteload and load allocations, but detailed implementation measures identified by the jurisdictions. It is unclear if the data from the WIPs are the baseline data for incorporation into the TMDL or if they are intended for use in determining how the TMDL allocations will be met. It is unclear how these WIPs can serve both purposes which is what how it appears EPA is using them.

The WIPs and associated implementation measures are not lawfully part of the TMDL. Under current law, a TMDL is the sum of the wasteload and load allocations necessary to meet water quality standards [40 C.F.R. 130.2(i)]. Implementation plans are not part of the TMDL and are not subject to EPA approval. Section 303(d)(2) of the CWA requires states to incorporate approved TMDLs into the water quality management plans that the states maintain under section 303(e). This framework is carried through in EPA's existing TMDL regulations as well as its 1997 guidance document on TMDL implementation.

EPA's process has resulted in such an interconnected relationship between the TMDL and implementation plans (even before the TMDL is finalized) that is unclear how updates or modifications to either the final TMDL or WIPs will impact one another. Of particular concern is that the WIPs are being developed based on incomplete and inaccurate data and assumptions from EPAs modeling efforts.

There have been a number of comments raised on the state's WIPs regarding the agricultural sector. Because of the linkage to the draft TMDL, and EPA's role in these issues, they are outlined below.

Practices that are validated to show their effectiveness for conservation and improving water quality are largely included in the Natural Resource Conservation Service (NRCS) Environmental Quality Incentives Program (EQIP). A review of the model documentation indicates that some of the practices included in EQIP are giving credit for reducing the generation and transport of nitrogen, phosphorus and sediment. However, we are concerned that EPA is not allowing into the model the benefits from several on-farm best management practices. In fact, even within EPA there is disparity in positions. For instance, EPA enforcement personnel stress the desirability to use heavy use pads, constructed of concrete, at the ends of poultry houses, but individuals developing the TMDL within EPA do not accept them as useful and thus do not allow their water quality benefits to be included in the model. This is in spite of the fact that heavy use pads are included within the EQIP program in the states of Maryland and Delaware. EPA should provide pollution reduction credit for all on-farm practices whether they receive NRCS and conservation district cost-share dollars or not.

Additionally, the use of phytase in poultry feed has had a significant impact on phosphorus reduction. The expectation of additional water quality improvements through the use of phytase must be based on realistic conditions and must not create requirements that the poultry producers cannot meet. The Scenario Builder documentation indicates that for implementation, the values used are reported by the Chesapeake Bay jurisdictions each year as part of their annual progress reports. Although there are BMP effectiveness values included in the documentation, it is not clear what effectiveness values are actually used in the modeling and if the values were constant or if they vary by state. As poultry integrators in the various watershed jurisdictions have varying efficiencies, EPA should use state-specific efficiencies to ensure that those with higher efficiencies receive the credit that is applicable to them.

EPA's continued insistence on the development of more alternative use facilities and technologies fails to recognize effective BMPs such as the organic fertilizer plant in Sussex County, DE. This facility produces organic fertilizer from poultry litter generated within the Chesapeake Bay watershed. Perdue offers the service of removing poultry litter from grow out houses and processing this litter to produce an organic fertilizer. This service is offered, free of charge, to any poultry farmer that operates within the Delmarva Peninsula. Since 2001, Perdue AgriRecycle has handled approximately 694,000 tons of raw litter. 325,506 tons of finished product has been marketed and shipped out of the plant with roughly 50 percent being shipped outside of the Chesapeake Bay watershed. EPA's efforts could be better spent on helping with transportation costs of the finished Perdue AgriRecycle products than constantly calling for the development of high priced, complex, on-the-farm or centralized alternative use facilities. Money provided for government grants to research new technologies and the grants/loans available to farmers to install and operate such systems would be more efficiently used by providing transportation assistance to the finished products from the Perdue AgriRecycle plant.

4. Incomplete Documentation and Availability of the Tools and Models Used to Develop the TMDL

The draft Chesapeake Bay Total Maximum Daily Load (TMDL) package published on September 24, 2010 did not include complete documentation of the tools and models used to develop the TMDL. The public and the Chesapeake Bay stakeholders are entitled to have access to the Scenario Builder documentation, the Watershed Model Phase 5.3 (WSM Phase 5.3), and the Chesapeake Bay Water Quality and Sediment Transport Model (WQSTM) referenced in the draft TMDL and used to develop the TMDL. The lack of documentation prevents stakeholders from providing EPA with informed scientific and technical feedback on the use of the modeling tools in the development of the TMDL. This lack of transparency represents a critical flaw in the TMDL study conducted by EPA, as it effectively denies public oversight and comment on the technical effort that was conducted to develop the TMDL. Consequently, stakeholders receiving load allocations under the TMDL cannot have confidence that their allocations are realistic and appropriate with respect to the TMDL scenario assumptions. Below is a detailed description of the incomplete documentation.

Scenario Builder Documentation is Not Available for Public Review

The Scenario Builder tool has been referred to by EPA in the draft TMDL (p. 5-26) as a standalone pre-processor and as a model (p. 1-2) that is used to quantify sediment and nutrient loads and allocate them spatially and temporally across the Chesapeake Bay watershed. The sediment and nutrient loads generated by Scenario Builder can be input to the Chesapeake Bay Watershed Model to allow for a comprehensive simulation of water, sediment, and nutrient transport throughout the Chesapeake Bay watershed, culminating in the calculation of sediment and nutrient loadings to the Chesapeake Bay system. The role of the Scenario Builder tool is highly significant and consequential in the development of the TMDL as it provides the sediment and nutrient load inputs to the Chesapeake Bay Watershed Model l for a given source.

The Scenario Builder documentation referenced in the draft TMDL (p. 4-30, 4-31, 5-2, and 5-26) is not available for review. The Scenario Builder documentation cited in the draft TMDL reference section (p. 12-13) is referenced as:

> *USEPA (U.S. Environmental Protection Agency). 2010d. Estimates of County Level Nitrogen and Phosphorus Data for Use in Modeling Pollutant Reductions. September 2010 (Draft). U.S. Environmental Protection Agency, Region 3 Chesapeake Bay Program Office, Annapolis, MD.*

The draft TMDL (p. 1-2) states that the technical documentation for each model is provided via a URL in Section 5:

> *Technical documentation for each of the Chesapeake Bay TMDL models—airshed, land change, Scenario Builder, SPARROW, watershed, Bay water quality/sediment transport, oyster filter feeder and menhaden filter feeder—are provided via URL in Section 5.*

However, the links provided in the draft TMDL to the Scenario Builder documentation are incorrect. It is not possible for the reader to locate the Scenario Builder documentation using the links provided in the draft TMDL document. For example, on p. 4-31 of the draft TMDL the following is stated:

> *Additional information related to Scenario Builder and its application in Bay TMDL development (USEPA 2010d) is at http://www.chesapeakebay.net/modeling.aspx?menuitem=19303*

The link provided [accessed October 27, 2010] does not take the reader to the referenced Scenario Builder documentation. The link provided directs the reader to the Chesapeake Bay Program "Modeling" web page where there is no mention or link to the Scenario Builder documentation referenced in the draft TMDL.

A second example of an incorrect link to the Scenario Builder documentation can be found on p. 4-35 of the draft TMDL where the following is stated:

> *For additional information related to representation of biosolids in the Phase 5.3 Chesapeake Bay Watershed Model, see Section 7 of the Scenario Builder Documentation at http://www.chesapeakebay.net/model_phase5.aspx?menuitem=26169*

The link provided [accessed October 27, 2010] does not take the reader to the referenced Scenario Builder documentation. The link provided directs the reader to the Chesapeake Bay Program "Phase 5 Watershed Model" web page where there is no mention or link to the Scenario Builder documentation referenced in the draft TMDL.

A third example of an incorrect link to the Scenario Builder documentation can be found on p. 5-26 of the draft TMDL where the following is stated:

> *Additional information related to Scenario Builder and its application in Bay TMDL development (USEPA 2010d) is at*
>
> *http://www.chesapeakebay.net/modeling.aspx?menuitem=19303*

The link provided [accessed October 27, 2010] does not take the reader to the referenced Scenario Builder documentation. The link provided directs the reader to the Chesapeake Bay Program "Modeling" web page where there is no mention or link to the Scenario Builder documentation referenced in the draft TMDL.

A 2010 version of the Scenario Builder documentation is referenced in the draft TMDL as a footnote in Figure 5-12 (p. 5-26).

> *http://archive.chesapeakebay.net/pubs/SB_Documentation_Final_V22_9_16_2010.pdf*

However, the document reference information (e.g., author, affiliation, title) does not directly correspond to the reference citation provided in the draft TMDL (p. 12-13) and it is unclear whether this document reflects the version of the Scenario Builder tool used in the development of the TMDL.

The public and the Chesapeake Bay stakeholders are entitled to have access to the Scenario Builder documentation referenced in the draft TMDL. The lack of documentation prevents stakeholders from providing EPA with informed scientific and technical feedback on the use of the Scenario Builder tool in the development of the TMDL. This lack of transparency represents a critical flaw in the TMDL study conducted by EPA, as it effectively denies public oversight and comment on the technical effort that was conducted to develop the TMDL. While a 2010 version of the document is available, it not known whether the document provides accurate information on the version of the Scenario Builder tool used in the development of the TMDL. Consequently, stakeholders receiving load allocations under the TMDL cannot have confidence that their allocations are realistic and appropriate with respect to the TMDL scenario assumptions.

The Scenario Builder Tool is not Available for Public Review

The Scenario Builder tool is not available for testing or review by third parties. It is not possible to evaluate all of the data, assumptions and calculations in the Scenario Builder tool used to generate nutrient load inputs to the WSM Phase 5.3 for a given source.

The most recent version of the Scenario Builder documentation (Brosch 2010, p. 1-7) acknowledges that the development of the tool was and is not transparent:

> *Since the Bay Program staff will also use this tool, the methods used for tracking progress will become more transparent.*

In order to fully evaluate the Scenario Builder tool, all of the components that comprise the tool, which includes the source code, the database, the inputs and outputs, and complete up-to-date documentation for the calibration as well as all of the scenarios used to develop the TMDL should have been provided by EPA for public review.

After several requests, by various stakeholders, were made to EPA to provide the complete Scenario Builder tool, EPA responded on November 3, 2010 by providing the following information and files in an e-mail to the stakeholders (Subject: Chesapeake Bay Modeling Data, From: James Curtin, To: Paul

Bredwell, Susan Parker Bodine, Stephen Haterius, Glynn Roundtree, Sent: Tuesday, November 2, 2010 at 9:53 AM):

> *Thank you for your interest in, and comments on, the draft Chesapeake Bay TMDL. On October 15, 2010, you requested that EPA make public additional modeling information supporting the draft TMDL.*
>
> *Specificially, you requested that EPA include, as part of the TMDL public record, the Scenario Builder code, as well as Scenario Builder inputs and outputs for the draft WIP and TMDL scenarios.*
>
> *This email is to inform you that yesterday EPA made publicly available on its ftp site the Scenario Builder input decks and outputs for the Hybrid Backstop TMDL, the Full Backstop TMDL, and the Bay jurisdictions' draft Phase I Watershed Implementation Plans (WIPs) submitted to EPA on September 1-3. This information can be found at:*
>
> *ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase53_Loads-Acres-BMPs/DraftWip_DraftTMDL_Inputs_OutPuts/*
>
> *At that site you will find sub folders for each of seven Watershed Jurisdictions and for the two EPA backstop scenarios: EPA19 (Hybrid Backstop) and EPA20 (Full Backstop). These sub folders have Scenario Builder Input Decks, Scenerio Builder outputs, and Watershed Model outputs for each of the Draft WIP scenarios and EPA Backstop Scenarios 19 and 20.*
>
> *EPA is working to make the Scenario Builder code and requirements available for download by the end of this week. I'll send you a followup email as soon as that information is posted. This information will be found at:*
>
> *ftp://ftp.chesapeakebay.net/modeling/ScenarioBuilder/ScenarioBuilderSource/*
>
> *In addition to this new information, the following modeling information supporting the draft Bay TMDL was previously made available for public review:*
>
> *Scenario Builder model documentation:*
>
> *http://www.chesapeakebay.net/watershedimplementationplantools.aspx?menuitem=52044#52*
>
> *Scenario Builder documentation posted in mid-September:*
>
> *http://archive.chesapeakebay.net/pubs/SB_Documentation_Final_V22_9_16_2010.pdf*
>
> *Phase 5.3 Watershed Model:*
>
> *http://www.chesapeakebay.net/watershedimplementationplantools.aspx?menuitem=52044#5*

After performing a cursory review of the Scenario Builder input decks and outputs for the Hybrid Backstop TMDL, the Full Backstop, and Draft WIP scenarios that were provided by EPA, it was clear that it would not be possible to review the new data in the six days that remained between the time EPA posted the new information (November 3, 2010) and the end of the comment period (November 8, 2010). In addition, not all of the information that was requested in regard to the Scenario Builder tool had been provided by EPA (e.g., source code, database, inputs/outputs for the calibration and all of the scenarios used in the development of the TMDL). The Scenario Builder tool has been in development since 2003 (Chesapeake Bay Program Office (CBPO), 2009, Slide 35, History of Scenario Builder). It is unreasonable and unacceptable of EPA to expect stakeholders to determine if all of the data and Scenario

Builder components requested were produced and to then evaluate the data and the Scenario Builder tool for the calibration as well as all of the scenarios used to develop the TMDL over the span of six days.

The inclusion of the data and the complete Scenario Builder tool with the Chesapeake Bay TMDL package is vital and without it, a complete review of the Chesapeake Bay TMDL is not possible. Stakeholders receiving load allocations under the TMDL cannot have confidence that their allocations are realistic and appropriate with respect to the TMDL without the opportunity to review the data, assumptions, calculations, and the sediment and nutrient loads generated by the Scenario Builder tool for input to the watershed model in a realistic time frame.

Phase 5.3 Chesapeake Bay Watershed Model Documentation is Not Available for Public Review

The Chesapeake Bay Watershed Model (WSM) Phase 5.3 code and calibration inputs/outputs have been made available to the public by EPA (ftp://ftp.chesapeakebay.net/Modeling/phase5/community/P53/ [Accessed October 27, 2010]; however, the documentation of this version of the model is not available for review. The draft TMDL report references the WSM Phase 5.3 model documentation (p. 12-13) as follows:

> *USEPA (U.S. Environmental Protection Agency). 2010j. Phase 5.3 Chesapeake Bay Watershed Model Documentation. U.S. Environmental Protection Agency, Region 3 Chesapeake Bay Program Office, Annapolis, MD.*

The draft TMDL (p. 1-2) states that the technical documentation for each model is provided via a URL in Section 5:

> *Technical documentation for each of the Chesapeake Bay TMDL models—airshed, land change, Scenario Builder, SPARROW, watershed, Bay water quality/sediment transport, oyster filter feeder and menhaden filter feeder—are provided via URL in Section 5.*

The draft TMDL report provides a link to the WSM Phase 5.3 documentation on p. 4-39, 4-41, 5-20, 5-24, 5-30, and 5-34. For example, on p. 4-39 the following information and link is provided for the WSM Phase 5.3 documentation:

> *For additional information related to the representation of forest lands, see the Phase 5.3 Chesapeake Bay watershed model documentation at http://www.chesapeakebay.net/model_phase5.aspx?menuitem=26169.*

The link provided directs the reader to the Chesapeake Bay Program "Phase 5 Watershed Model" web page. The watershed model documentation provided on the web page is outdated and does not reflect the WSM Phase 5.3 documentation referenced in the draft TMDL. The documentation provided on the web page contains draft sections of the WSM Phase 5 that primarily dates back to 2008. Based on the document dates listed (latest draft March 21, 2008), most of the documentation (Section 3, Section 4, Section 7, and Section 9) was written two years before the WSM Phase 5.3 model calibration was completed and prior to the WSM Phase 5.2 model that EPA discarded in 2009. There are two Sections (Section 1 and Section 2) of the document that appear to be more current based on the document dates listed (latest draft dated March 1, 2010); however, the documentation does not appear to reflect the WSM Phase 5.3 calibration. Finally, sections of the outdated draft documentation may be missing entirely as several Sections (Section 5, Section 6, and Section 8) were not listed on the web page.

The public and the Chesapeake Bay stakeholders are entitled to have access to the WSM Phase 5.3 documentation, given that EPA cites this as an existing document in the draft TMDL report. The lack of documentation prevents stakeholders from providing EPA with informed scientific and technical feedback on the adequacy of the WSM model calibration and its application to support the development

of the TMDL. The lack of transparency represents a critical flaw in the TMDL study conducted by EPA, as it effectively denies public oversight and comment on the technical effort that was conducted to finalize the calibration and application of this important modeling tool. While the model itself may be available, it is of little value for review purposes without proper documentation of the model development, calibration, and application. Documentation is essential to provide context and understanding for how the model was developed, the assumptions made, the inherent limitation and the overall modeling effort that was conducted. EPA has denied stakeholders the opportunity to provide informed comments on the technical and scientific merits of the WSM Phase 5.3 model that was used in development of the TMDL simply due to the lack of model documentation. As such, many stakeholders receiving load allocations under the TMDL cannot have confidence that their allocations are realistic and appropriate with respect to the TMDL.

Chesapeake Bay Water Quality and Sediment Transport Model (WQSTM) Documentation is Not Available for Public Review

The Chesapeake Bay Water Quality and Sediment Transport Model (WQSTM) documentation is cited as "in preparation" in the draft TMDL and consequently, is not available for public review.

The WQSTM model documentation cited in the draft TMDL reference section (p. 12-3) is referenced as:

> *Cerco, C. 2010. The Chesapeake Bay Water Quality and Sediment Transport Model. In preparation.*

The draft TMDL (p. 1-2) states that the technical documentation for each model is provided via a URL in Section 5:

> *Technical documentation for each of the Chesapeake Bay TMDL models—airshed, land change, Scenario Builder, SPARROW, watershed, Bay water quality/sediment transport, oyster filter feeder and menhaden filter feeder—are provided via URL in Section 5.*

However, the links provided for documentation of the WQSTM in the draft TMDL are to an earlier version of the water quality model. For example, on p. 5-37 the following information and link is provided for documentation on the WQSTM:

> *Detailed documentation on the Chesapeake Bay Water Quality/Sediment Transport Model is at http://www.chesapeakebay.net/content/publications/cbp_26167.pdf.*

However, the link goes to documentation on the 2002 Chesapeake Bay Eutrophication Model, which is cited in the draft TMDL reference section (p. 12-3) as:

> *Cerco, C.F., and M.R. Noel. 2004. The 2002 Chesapeake Bay Eutrophication Model. EPA 903-R-04-004. U.S. Environmental Protection Agency, Chesapeake Bay Program Office, Annapolis, MD.*

The 2004 model documentation reflects an earlier version of the model and does not reflect the version of the model that was used in the development of the TMDL. The 2002 Chesapeake Bay Eutrophication Model uses a different (much coarser) model grid, and more importantly, does not include the sediment transport capability that has been incorporated into the current version of the WQSTM.

The public and the Chesapeake Bay stakeholders are entitled to have access to documentation on the WQSTM as this is one of the primary models used in the development of the TMDL. The lack of documentation prevents stakeholders from providing EPA with informed scientific and technical feedback on the adequacy of the WQSTM model calibration and its application to support the

development of the TMDL. The lack of transparency represents a critical flaw in the TMDL study conducted by EPA, as it effectively denies public oversight and comment on the technical effort that was conducted to finalize the calibration and application of this important modeling tool. Documentation is essential to provide context and understanding for how the model was developed, the assumptions made, the inherent limitation and the overall modeling effort that was conducted. EPA has denied stakeholders the opportunity to provide informed comments on the technical and scientific merits of the WQSTM model that was used in development of the TMDL simply due to the lack of model documentation. As such, many stakeholders receiving load allocations under the TMDL cannot have confidence that their allocations are realistic and appropriate with respect to the TMDL.

The Chesapeake Bay Water Quality Sediment Transport Model (WQSTM) is not Available for Public Review

The final Chesapeake Bay Water Quality and Sediment Transport Model (WQSTM) model calibration (code, inputs, etc.) used to support the development of TMDL scenarios has not been made publically available by EPA, and documentation of the model is also unavailable as described above.

EPA has deprived stakeholders, and the public at large, of the opportunity to conduct a thorough review to provide informed comment on the on the technical and scientific merits of the calibrated WQSTM that was subsequently applied in developing TMDL scenarios and for the determination of draft load allocations for sediment and nutrients. Stakeholders that have been assigned allocation loads have a direct interest in being assured that any load allocations they receive are fair and equitable and based on scientifically defensible modeling tools. This assurance cannot exist when the WQSTM and documentation is unavailable for review during the TMDL public comment period.

5. Substantive Concerns Raised During the Chesapeake Bay TMDL Webinar for the Agricultural Community (March 22, 2010, Washington, D.C.) were not Addressed in the TMDL

EPA has identified animal agriculture and associated manure impacts as having some of the greatest relative responsibility for pollution loads to Chesapeake Bay (USEPAa 2010, p. 4-32).The association's are committed to full involvement in providing better data to inform these assumptions and participating in the development of the TMDL. USPOULTRY met with EPA Chesapeake Bay Program Office and EPA Region 3 on March 22, 2010 in Washington, D.C., along with senior USDA staff, to discuss questions and concerns USPOULTRY and USDA had in regard to the data, assumptions, and methods used to calculate sediment and nutrient input loads from the agriculture sector. During the meeting, EPA was able to provide answers to some of the questions that were posed; however, several issues and concerns that were raised during the meeting have not been addressed and consequently, have an impact on the development of load allocations for the agriculture sector. Below is a description of the issues that were raised during the March 22nd meeting, but have not been addressed to date.

Testing and Verification/Validation of Scenario Builder is Inadequate

Detailed testing and validation of the sediment and nutrient loads generated by the Scenario Builder tool has not been conducted and the level of testing to date is inadequate. The level of testing and validation described in the Scenario Builder document (Brosch 2010, p. 9-94) is as follows (emphasis added in bold):

> *There were* ***no set quality assurance procedures*** *and* ***no predetermined acceptable level of variability among the data****. Data were compared to those that were produced from the Watershed Model Phase 4.3. However, no* ***acceptable level of variability was determined in advance****. There was* ***no set procedure for evaluating the Scenario Builder data****.*

*Test cases were developed and conducted parallel to the actual Watershed Model-HSPF calibration. The data from the Agricultural Census was **spot checked** by John Clune of USGS. His analysis was presented at the aforementioned joint workgroup meeting on 12/11/2009.*

***Further quality control and quality assurance procedures could not be implemented due to deadlines that were set for this project completion**.*

Based on the Scenario Builder documentation, the only validation effort undertaken for the Scenario Builder tool was to compare data to results produced from an outdated version of the watershed model (WSM Phase 4.3) and some "spot checking" by a single USGS staff member. The findings from these minimal efforts are not incorporated into the Scenario Builder tool. EPA has failed to demonstrate to stakeholders that the current version of the Scenario Builder tool is a properly functioning data pre-processor and modeling tool. Scenario Builder may be an adequately performing tool; however, this has not be demonstrated with either previous documentation (Devereux 2009) or current documentation (Brosch 2010). In addition, stakeholders have no way to test the tool themselves since the complete Scenario Builder tool is not available for public review.

During the meeting between USPOULTRY, USDA, and EPA (March 22, 2010, Washington, D.C) this issue was raised by USPOULTRY. The action item from the meeting was that EPA would provide documentation to USPOULTRY on the process and steps undertaken to test and verify Scenario Builder output; however, the documentation has not been provided by EPA.

Given that the Scenario Builder tool is an integral factor in the development of the draft TMDL with respect to both the calibration of the other models and the development of TMDL scenarios, stakeholders receiving load allocations under the TMDL cannot have confidence that their allocations are realistic and appropriate with respect to the TMDL.

The Internal and External Review of Scenario Builder is Inadequate

Based on the Brosch (2010) Scenario Builder documentation, the level of internal and external review conducted for the Scenario Builder tool is inadequate. A brief summary of the internal and external review process is provided in the Scenario Builder documentation (Brosch 2010, p. 9-93 to 9-94). The document does not provide a comprehensive description of the internal and external review efforts. The documentation indicates that the reviews consisted of "internal reviews" and "external guidance" (p. 9-93), which suggests the Scenario Builder tool, has only undergone internal review. The internal review information provided in the documentation is insufficient and it is not possible to determine if an adequate internal review was conducted. In addition, the external review information provided in the documentation indicates that there has not been an external review of the complete Scenario Builder tool and that only external guidance was provided on the data sources and calculation methods during the development process.

The Scenario Builder tool plays a prominent role in developing loading estimates for input to the Chesapeake Bay Watershed Model Phase 5.3 (WSM Phase 5.3). Given the apparent lack of internal and external review of the Scenario Builder tool, many stakeholders receiving load allocations under the TMDL cannot have confidence that their allocations are realistic and appropriate with respect to the TMDL.

The Scenario Builder Tool has not been Subjected to a Peer Review

The Scenario Builder tool has not undergone a comprehensive, detailed, and objective peer review. The level of external or outside review that has been conducted for the Scenario Builder tool is inadequate

given the essential and important role the tool serves in providing sediment and nutrient load inputs to the watershed model. EPA describes the Scenario Builder as a tool used to provide inputs to the watershed model (p. 1-7):

> *The Scenario Builder is also used to provide the inputs to the Chesapeake Bay Program's Watershed Model – Hydrological Simulation Program in Fortran (HSPF), which was recently updated to Phase 5.3. In order to take advantage of the improvements in the Phase 5 Watershed Model, the intent is to have the model inputs fully developed in Scenario Builder.*

However, the Scenario Builder is also described as a process-based model and not just a simple data preprocessor in the most recent documentation (Brosch 2010, p. 1-7, 1-9, 4-25, 4-29, 5-33, 5-35, 5-40, etc.). For example, on p. 1-7 the following is stated:

> *The underlying model to the Nutrient and Sediment Scenario Builder is process-based.*

In addition, Section 1.3 in the Scenario Builder documentation (Brosch 2010, p. 1-8) is titled "Process-Based Model". This section describes how the tool was designed to follow the nutrient generation process from the animal through storage and application and model farm scale operations.

The draft TMDL (p. 1-2) also lists the Scenario Builder as model:

> *Technical documentation for each of the Chesapeake Bay TMDL models—airshed, land change, Scenario Builder, SPARROW, watershed, Bay water quality/sediment transport, oyster filter feeder and menhaden filter feeder—are provided via URL in Section 5.*

As a "model", the Scenario Builder tool should be peer reviewed and should have been developed in accordance with an EPA approved modeling Quality Assurance Project Plan (QAPP), which EPA requires for other modeling studies that utilize EPA funds. As a "model", the Scenario Builder tool should be subjected to the same level of peer review as the watershed model and the water quality model.

During the meeting between USPOULTRY, USDA, and EPA (March 22, 2010, Washington, D.C) this issue was raised by USPOULTRY. EPA acknowledged that the Scenario Builder tool has not undergone or received any level peer review. EPA stated that the assumptions, data, and calculations that go into the Scenario Builder tool have been peer reviewed and felt that the review that occurred during the development process constituted a sufficient review. EPA stated that they believe it is not necessary to have a peer review of the Scenario Builder tool. EPA also stated that there will be at least three more phases of development for the tool and are not sure how to conduct a peer review.

The Scenario Builder tool is not simply a model pre-processing utility or a data preprocessor, but is a tool that incorporates mass balance principles and represents mechanistic processes to construct input files for WSM Phase 5.3. However, even if the tool was a simple data preprocessor, it should still be subjected to a comprehensive, detailed, and objective peer review given the significant role the tool serves in generating sediment and nutrient inputs to the watershed model. Stakeholders receiving load allocations under the TMDL cannot have confidence that their allocations are realistic and appropriate with respect to the TMDL given the lack of a peer review of the Scenario Builder tool.

The Scale of Resolution in Scenario Builder is on the County Level or Greater

The scale and resolution of the Scenario Builder tool is not representative of a single farm; however, the tool is intended to be used to evaluate farm scale practices. It is unrealistic to assume that farm scale and field scale operations can be accurately represented and modeled on a county level basis. The Scenario Builder documentation describes the model scale and assumptions made in regard to single farms in the Scenario Builder tool on p. 1-9 in Brosch (2010) (emphasis added in bold):

*Even though the **model is at a county scale or greater**, these more specific questions may be asked if we **assume a county as a single farm**. This is **not an optimal solution to the lack of a farm scale model**, but it does provide **an interim tool** until such a model is available.*

County land areas are significantly larger and different from the land areas of individual farms or fields and do not accurately represent the hydrology, soils, and topography of the fields from which sediment and nutrient loads actually originate. For example, the total area of Lancaster County, Pennsylvania is 983 square miles (629,119 acres) (US Census Bureau 2000). In contrast, the average area of a farm in Lancaster County, Pennsylvania is 0.12 square miles (78 acres) (USDA 2007). In another example, the Center for Agricultural and Natural Resource Policy (University of Maryland) conducted a study where data were collected and summarized for broiler farms within the Delmarva Peninsula. The average area of a county in the state of Delaware is 830 square miles (531,200 acres) compared to the average area of a farm, which was found to be 1.9 square miles (1,215 acres) (Lichtenbert et. al 2002). Comparison between county size and farm size in this region clearly shows the discrepancy in assuming a county can be used to represent a farm.

A field scale model assumes that a field (or a single farm) has the same land use, soil, precipitation, and agricultural practices, which is a reasonable assumption for a single farm. However, the assumption that the area of a county can be used to represent a single farm is unrealistic and unreasonable. In the real world, the area of a single county would be comprised of different land uses (e.g., urban, forest, pasture), soils, precipitation, and agricultural practices. The area of a county is too large to accurately represent the local conditions that would influence nonpoint source runoff of sediment and nutrients to edges of individual fields and consequently, cannot accurately represent nonpoint source runoff from local sources.

It is completely unrealistic to extrapolate a single farm or field scale area to a county area. The consequence of this assumption is that sediment and nutrient loads from agricultural sources may be inaccurate and not representative of the actual source load to the Chesapeake Bay watershed.

The Assumed Poultry Manure Loss Rate of 15 Percent is Unrealistic and Erroneous

The assumption that 15percent of poultry manure is lost during handling and storage is unrealistic and erroneous. The most recent version of the Scenario Builder documentation (Brosch 2010, p. 5-32) states that 15 percent of all poultry manure generated is assumed to be lost during storage (emphasis added in bold):

***Loss of manure** and other nutrient sources occurs **during storage due to physical processes**. The physical loss occurs when some **manure falls out of the bucket of a front-end loader, leaks out of a spreader in unintended locations, or inadvertently slips off a concrete pad where it is stored**. However, storage loss is most common when manure is absorbed or incorporated into the soil in animal concentration areas (Doug Goodlander, PA DEP, personal communication, 2008).*

Storage loss will vary by animal type, since management practices associated with animal concentration areas and storage facilities vary by animal type. Storage loss does not account for the type of storage system used on any particular farm or the angle of repose for dry heaps of manure. Rather, storage loss applies the average annual loss across the dominant storage systems in use throughout the simulation period.

***For all poultry and swine, 15 percent of manure is lost during storage.** For beef, dairy, sheep and lambs, goats, and horses, 20 percent is lost (CBP Watershed Technical Workgroup and CBP Agricultural and Nutrient Sediment Reduction Workgroup approval, 2008).*

The mass of nutrients lost during storage and handling is applied to the land use that includes the animal production area (animal feeding operation, or AFO).

The scientific basis and rationale for the selection of the 15 percent loss factor for poultry litter lost during storage is not provided in the documentation and the only support provided for the use of the 15 percent loss rate is approval in 2008 from a Chesapeake Program Technical Workgroup and a Chesapeake Bay Program Agricultural and Nutrient Sediment Reduction Workgroup (Brosch 2010, p. 5-32). No reference or information is provided in the documentation on what was discussed during these workgroups, how the workgroups arrived at the 15 percent loss rate, or the scientific basis to support the 15 percent loss rate. During the meeting between USPOULTRY, USDA, and EPA (March 22, 2010, Washington, D.C.) this issue was raised by USPOULTRY. The action item from the meeting was that EPA would direct USPOULTRY to the meeting minutes where the 15 percent loss rate was discussed and decided upon to provide documentation of the 15 percent loss rate for use in the modeling effort; however, the documentation has not yet been provided by EPA.

The assumption of a 15 percent loss rate is of critical importance given that all manure lost during storage is applied to the Animal Feeding Operation (AFO) land surface, where it is subsequently made available for runoff and transport to receiving streams. The assumption of the 15 percent loss rate is unfounded and biased. EPA assumes that 15 percent of the poultry litter generated each year on a farm is "lost" (e.g., land applied) in the "production area" around the houses. For example, if you assume a poultry house generates approximately 120 tons of poultry litter per year, the model currently assumes 18 tons is lost and applied to the AFO land area. This means a volume of litter that measures 10 foot by 10 foot by 10 foot is "lost" during cleanout per house if you assume a density of roughly 34 pounds per cubic foot. In addition to the unfounded 15 percent loss rate and application of poultry litter to the AFO, the watershed model represents AFO land areas as "impervious." This means that the watershed model is simulating hundreds of tons of litter per acre applied each year on pavement. When it rains, the model essentially routes this exaggerated load directly to the streams as indicated in the Scenario Builder documentation (Brosch 2010, p. 6-49):

> *Manure is applied to AFO in the county in which it was produced and 100 % of the nutrients in lost manure are applied to the edge of stream load where no BMPs exist.*

These assumptions, which include the 15 percent loss rate, the impervious AFO land use classification, and the lost manure applied to the edge of stream load where no BMPs exist, is erroneous and unfounded and contradicts standard practices in which litter spillage is minimized during cleanout. In fact, direct experience has found that in the "cake-out" procedure (where a machine is pulled through the poultry house separating large pieces of litter from fine litter) there is little loss of the "cake" material as it is moved to a storage barn or spread directly on agricultural or forest land. The rate of loss is less than one to two percent.

In a situation where litter is loaded directly from growing barns or storage barns to large 18-wheeler transport trucks or spreader trucks, there can be some loss of litter. This is very dependent on how the operation is carried out. Typically the litter is moved from the grow barn into a large stack or pile using some kind of "skid steer loader". The litter is then loaded on the large transports trailers using a large wheel loader or some type of conveyor belt (i.e., Chandler Litter Conveyor). There is usually some loss around the hopper end of the litter conveyor. Depending on how this operation is organized and the skill of the machine operators the loss can be less than one or two percent.

Additionally, litter that is lost around the grow barns would not go directly to a creek or water way. There is usually very good vegetative cover around the grow out barns and this would act as a vegetative filter strip, preventing most, if not all, of the litter from spills or loss from reaching a creek. Regardless of practices used at a poultry facility the 15 percent loss rate is too high. Real world losses would be closer to one to two percent maximum and this would not all go to a nearby stream. The monetary value of the litter and the desire of the grower to "not have a pile of wet litter at the end of a grow-out barn helps insure that losses are very low.

The Center for Agriculture and Natural Resource Policy at the University of Maryland compiled data on broilers in the Delmarva Peninsula for 2000. In this study, the number of farms, the number of broilers, and the amount of poultry litter was quantified.

Delmarva Peninsula Broiler Data, Lichtenberg et. al. 2002

Farms in Delmarva Peninsula	1,821
Number of Broilers in Delmarva Peninsula	589,205,105
Poultry Litter (tons)	706,399
Litter per Farm	388 tons of litter per farm in 2000
Assumption of 15 percent loss	58 tons of litter per farm in 2000

Based on the Delmarva data, if you assume that 388 tons of litter per farm is generated over the span of one year and a 15 percent loss rate, it would mean that 58 tons of poultry litter is lost at each farm in the region in a single year, which is clearly not possible. The assumption that there is an automatic 15 percent loss of poultry litter due to storage and handling significantly overestimates the contribution of poultry litter to nutrient loading in the Chesapeake Bay watershed. Consequently, the nutrient loads attributed to poultry litter are potentially inaccurate, erroneous and inflated as a result of this incorrect assumption

Manure Transport Assumptions are Contradictory and Indecipherable

During the meeting between USPOULTRY, USDA, and EPA (March 22, 2010, Washington, D.C) the issue was raised by USPOULTRY that the approach described in the Scenario Builder documentation (Devereux 2009, p. 6-56) did not consider the potential for transport of poultry manure across state lines or outside of the Chesapeake Bay watershed. EPA noted that the Agriculture Workgroup had a meeting scheduled on March 29, 2010 to discuss manure transport and nutrient management versus non-nutrient management application rates.

Based on the presentations from the Agriculture Workgroup meeting (Hansen 2010a; Hansen 2010b; Shenk 2008), it appears that manure transport assumptions may have been revised in an updated version of the Scenario Builder tool from the previous version described in Devereux (2009). The comments made by the Agriculture Workgroup regarding manure "model" transport assumptions in Scenario Builder included the following (Hansen 2010a):

> *–There should not be "model" (automatic) transport of manure to adjacent counties*
>
> *–Manure should stay in the originating county unless transport is reported by the state*
>
> *–If there is "model" transport it should consider transportation-related differences between wet (e.g. liquid dairy) and dry (e.g. poultry litter)*

However, despite the indication that manure transport assumptions have been revised in an updated version of Scenario Builder, the description of manure transport assumptions in the most recent version of the Scenario Builder documentation (Brosch 2010, p. 6-51) is essentially unchanged from the description in Devereux (2009, p. 6-56) with the exception of the following paragraph:

> *Manure is more likely to be applied in the county in which it was produced. Should excess manure be available after all application rates are met, manure is no longer eligible for in model transport. This transport function is not the same as, and is subsequent to, any manure transport reported by the Chesapeake Bay Program's regional partners as a best management practice.*

Based on the paragraph above, it is not clear what assumptions are being made in regard to manure transport. The text seems to indicate that manure transport is not allowed or accounted for in the model. However, this contradicts several other statements made in the Scenario Builder documentation and is

inconsistent with present-day practices within the Chesapeake Bay watershed, which includes the transport of poultry litter to locations outside the Chesapeake Bay watershed.

In addition to the unclear and contradictory assumptions referenced above, the Scenario Builder documentation contains several other statements regarding manure transport assumptions that are contradictory and indecipherable.

On p. 6-51 of the Scenario Builder documentation (Brosch 2010) the following is stated in regard to transport outside the watershed:

> *Manure is transported only to another county if it shares a county border and is in the home state. Manure may not be transported across state lines in this function.*

In contrast, on p. 8-78 of the Scenario Builder documentation (Brosch 2010) the following is stated in regard to manure transport outside the watershed as a BMP:

> *Manure is transported by truck from the county of origin to another or out of the watershed. Manure transported to another county in the watershed results in increased manure mass in the receiving county.*

Also, on p. 10-96 of the Scenario Builder documentation (Brosch 2010) the following is stated in regard to manure transport outside the watershed:

> *Manure transport cannot cross state lines.*

The Scenario Builder documentation contains contradictory and indecipherable statements on the assumptions made regarding manure transport outside the watershed. It is not possible, based on this documentation, to determine with complete certainty whether that manure is allowed to be transported across counties, across state lines, or outside the watershed. It is also not clear what assumptions were made regarding manure transport in the calibration of the watershed model and in the TMDL scenarios. It is important for stakeholders to understand the assumptions made regarding manure transport in order to have confidence that manure transport is accounted for in the modeling and that the assumptions are an accurate representation of real-world practices. If the manure transport assumptions are incorrect, there is potential to significantly overestimate the amount of poultry manure applied to cropland areas within the Chesapeake Bay watershed.

Manure is Applied on a Nitrogen Based Nutrient Plan

Manure is applied to the land on a nitrogen based nutrient management plan for the calibration of the watershed model. On p. 6-52 of the Scenario Builder documentation (Brosch 2010) the following is stated (emphasis added in bold):

> *Manure nutrients may be applied on either an N or P-based nutrient management plan acres. Depending on whether an N or P-based plan is selected, then the opposite nutrient (P for an N-based plan) may be over or under applied depending on manure content of an animal type and crop application rate requirements.*
>
> ***Manure and biosolids are applied on an N-based plan for calibration of the Watershed Model-HSPF**. The nitrogen application mass is compared to the plant available nitrogen applied. **Phosphorus can be over or under applied**. Remaining phosphorus need is only considered when applying fertilizer.*

Concern regarding this issue was raised by USPOULTRY during the meeting between USPOULTRY, USDA, and EPA (March 22, 2010, Washington, D.C) while discussing concerns regarding assumptions on nutrient management versus non-nutrient management practices. EPA responded that they felt that the nitrogen based application rate assumption should not be an issue for calibration, but may be considered in scenarios. However, due to the lack of detailed information and documentation (e.g., Scenario Builder, Watershed Model Phase 5.3, and the draft TMDL), it is not clear what assumptions were made in the TMDL scenarios in regard to nitrogen-based versus phosphorus-based application rate implementation.

The nitrogen based application rate assumption is not realistic and is not representative of current practices in the Chesapeake Bay Watershed. Nutrient management plans implemented in the Chesapeake Bay watershed are predominantly phosphorus based in several states and phosphorus or nitrogen based in several other states. For example, Delaware's nutrient management plans are phosphorus based (25 PA Code CHS 91 & 92), Virginia's nutrient management plans are phosphorus based (10.1-104.2 of the Code of Virginia), Pennsylvania nutrient management plans are phosphorus and nitrogen based (Act 38 of 2005), and Maryland's nutrient management plans are phosphorus and nitrogen based (COMAR 15.20.07) as well. The phosphorus based nutrient management plans have specific guidelines regarding phosphorus application that are not currently represented and accounted for in the models used to develop the TMDL. For example, the Virginia Nutrient Management Standards and Criteria does not allow the application of phosphorus if the calculated phosphorus index value exceeds 100.. Likewise, the Delaware Nutrient Management Act of 1999 stipulates that for soils that have high phosphorus levels, the application of phosphorus from any source, including poultry litter cannot exceed the three year crop phosphorus removal rate.

The use of a nitrogen based nutrient management plan for the application of poultry litter in the model will result in a phosphorus application rate that exceeds crop nutrient requirements. Assuming a nitrogen based application rate in the models may significantly overestimate the phosphorus load attributed to poultry litter and consequently, the amount of phosphorus load delivered to the Chesapeake Bay from the poultry industry.

Accounting for Nutrient Management Field Practices in the Models

The WSM Phase 5.3 did not show a significant nutrient reduction benefit for agricultural nutrient management plans (Hansen 2010c). Problems simulating nutrient management practices were also noted in earlier model runs based on the Devereux (2009) Scenario Builder documentation (p. 6-59) as described below:

> *The Watershed Model-HSPF Phase 5.2 was calibrated with crops grouped into sets that matched the Watershed Model-HSPF land uses. Since land uses are distinguished by nutrient management, and the crop sets were grouped so that nutrient management land uses were first in the sequence, then the nutrient management land was more likely to have manure applied than inorganic fertilizer. This, combined with the mineralization factor, means that the total nutrients applied on nutrient management land appear higher than those on non-nutrient management land even though the application rate is higher for non-nutrient management land.*

The older Scenario Builder documentation (Devereux 2009) indicates that under certain situations, there are cases where total nutrients applied to nutrient management land were higher than non-nutrient management land. Concern regarding this issue was raised by USPOULTRY during the meeting between USPOULTRY, USDA, and EPA (March 22, 2010, Washington, D.C). EPA noted that the Agriculture Workgroup had a meeting scheduled on March 29, 2010 to discuss manure transport and nutrient management versus non-nutrient management application rates.

The Agriculture Workgroup was convened and comments were provided by the group on the nutrient management assumptions (Hansen 2010b). The Agriculture Workgroup requested the Water Quality Goal Implementation Team (WQGIT) consider the comments and implement changes in Scenario Builder and the WSM Phase 5.3 as soon as practical (Hansen 2010b). This issue was discussed by the Chesapeake Bay Program partners and a briefing paper on the issue was developed (Hansen 2010c). The partners developed recommendations to address the issue and identified three recommendations that were to be implemented immediately (Hansen 2010c). The recommendations included the following:

> *3.) Stop the automatic (non-reported) transport of manure from counties with excess to adjoining counties within the models; manure stays in the county where it was generated unless the state reports manure transport.*
> *4.) Change the process of allocating excess manure within the originating county on nonNM land uses.*
> *5.) Increase the nonNM inorganic (fertilizer) application rate to be consistent with the nonNM organic (manure) application rate.*

Based on the latest version of the Scenario Builder documentation (Brosch 2010) it is not clear whether these issues have been addressed in the Scenario Builder and the WSM Phase 5.3 and whether the changes were incorporated in the model runs used to develop the draft TMDL.

In addition to the unclear Scenario Builder documentation (Brosch 2010) regarding nutrient management assumptions applied in the models, the draft TMDL indicates that nutrient management pastures will receive nutrient applications in excess of crop nutrient requirements. In Table 5-2 on p. 5-30 of the draft TMDL, the following statement is made (emphasis added in bold):

> *Pasture that is part of a farm plan where crop nutrient management is practiced.* ***Nutrient management pasture*** *is pasture that* ***receives manures that are excess on a farm after all crop nutrient needs are satisfied****.*

Table 5-2. Phase 5.3 Chesapeake Bay Watershed Model land uses

Land use type	Land use	Description	Source
Agricultural	Pasture	Based on pastureland areas from the agricultural census	USDA Agricultural Census
	Degraded riparian pasture	Unfenced riparian areas where livestock have stream access; represents a portion of the pasture use	A unique area designated by each state as the acres of planned riparian pasture fencing in their Tributary Strategies
	Nutrient management pasture	Pasture that is part of a farm plan where crop nutrient management is practiced. Nutrient management pasture is pasture that receives manures that are excess on a farm after all crop nutrient needs are satisfied.	Derived from the pasture land use and state nutrient management BMP tracking data

This statement does not make sense and is contradictory to the definition nutrient management field practices. An incorrect and inaccurate representation of nutrient management field practices will likely result in an overestimation of nutrient loads from manure and will not show a benefit to nutrient practices, which is highly important in reducing nutrient loading to Chesapeake Bay.

6. Additional Concerns with Assumptions Applied in the Chesapeake Bay Model Framework

The comments listed below address additional concerns regarding assumptions applied in the Chesapeake Bay Model Framework. These comments are not comprehensive and USPOULTRY reserves the right to update these comments as missing documentation, information, and models are made available for review.

Impervious Surface Land Use Representation of Animal Feeding Operations (AFO) is Unrealistic

The land use representation of AFOs as an impervious surface is unrealistic and inaccurate. On p. 4-34 in the draft TMDL (USEPA 2010a) the following is stated:

> *The model simulates AFO acres similarly to urban impervious areas*.

The assumption that an AFO production area is completely impervious means that there is no vegetation on the land that can utilize the nutrients in the area, which is not a realistic assumption (Brosch 2010, p. 10-95):

> *AFO has no crops. Therefore, AFO has no N and P application mass.*

Representing AFO land areas as an impervious surface means that the watershed model is simulating hundrends of tons of litter per acre applied each year on pavement. When it rains, the model essentially routes this exaggerated load directly to the streams as indicated in the Scenario Builder documentation (Brosch 2010, p. 6-49):

> *Manure is applied to AFO in the county in which it was produced and 100% of the nutrients in lost manure are applied to the edge of stream load where no BMPs exist.*

In reality a very small percentage of AFO land area is impervious to runoff. While poultry grow out houses, litter storage sheds and mortality composting sheds have roofs that are impervious, the area immediately surrounding these structures are grassed to allow stormwater runoff to infiltrate into the soil. Consequently, assuming that an AFO land area is impervious will result in inaccurate, erroneous and inflated nutrient loads attributed to poultry litter.

As-Excreted Manure Assumption for Poultry Litter is Invalid

The amount of manure accounted for in the modeling is based on the as-excreted value, which includes urine. Applying this broad assumption to poultry litter is invalid an incorrect. In the most recent version of the Scenario Builder documentation (Brosch 2010, p. 3-22) the following is stated:

> *The amount of manure is the as-excreted value, so it is the wet weight and includes urine.*

The use of wet weight values for animals that deposit wet manure directly onto the surface of the land (e.g., grazing cattle) or for manure that is generally liquid when applied (e.g., hog lagoon effluent) may be appropriate, but it is not appropriate for broiler litter. Broiler litter is subject to absorption and drying while in the house. When it is applied as fertilizer it is generally dry. Most of the moisture is gone by the time a house is cleaned out and the litter used as fertilizer. The RUSLE2 Guidelines for Calculating Manure Dry Weight and Effectiveness summarizes the Agricultural Waste Management Field Handbook's values of percent moisture content of manure by animal type, which lists the percent moisture content of broiler manure as 24 percent (USDA 2005). By assuming wet weight values for all poultry litter, EPA is greatly overestimating the quantity of litter actually applied to the land. This assumption results in an inflation of poultry litter contribution to the manure "source" on input to the

watershed model and consequently, artificially inflates the potential impact of this source delivered to the streams and to the Chesapeake Bay.

Unexplained Revision in Quantity of Manure Generated by Poultry

The amount of manure per day per animal unit for poultry was revised in the most recent version of the Scenario Builder documentation without justification or explanation for the revision. On p. 3-23, of the Scenario Builder documentation (Brosch 2010) the quantity of manure generated by poultry was revised in Table 3-1 from the values used in the previous version of the Scenario Builder documentation (Devereux 2009, p. 3-19, Table 3-1).

Brosch 2010, Table 3-1, p. 3-23

Table 3-1: Animal types, animal units, and pounds of manure/day/animal unit

Animal type	*Live animal weight (lbs)*	*No. of animals per animal unit (animal unit=1000 lbs)*	*Manure (lbs) per day per animal unit*	*Animal weight and manure (lbs) data source*
beef	877.19	1.14	58	Kellogg et. al. (2000)
dairy	1351.35	0.74	86	Kellogg et. al. (2000)
other cattle	480.77	2.08	64.39	Kellogg et. al. (2000)
broilers	2.20	455	85	Kellogg et. al. (2000)
layers	4.00	250	64	Kellogg et. al. (2000)
pullets	2.84	352.5	45.56	Kellogg et. al. (2000)
turkeys	14.93	67	47	Kellogg et. al. (2000)
hogs and pigs for breeding	374.53	2.67	33.46	Kellogg et. al. (2000)
hogs for slaughter	110.01	9.09	84	Kellogg et. al. (2000)

Devereux 2009,Table 3-1, p. 3-19

Table 3-1: Animal types, animal units, and pounds of manure/day/animal unit

Animal type	**Live animal weight (lbs)**	**No. of animals per animal unit (animal unit=1000 lbs)**	**Manure (lbs) per day per animal unit**	**Animal weight and manure (lbs) data source**
beef	877.19	1.14	57.96	Kellogg et. al. (2000)
dairy	1351.35	0.74	83.41	Kellogg et. al. (2000)
other cattle	480.77	2.08	64.38	Kellogg et. al. (2000)
broilers	2.20	455	81.94	Kellogg et. al. (2000)
layers	4.00	250	62.67	Kellogg et. al. (2000)
pullets	2.84	352.5	45.54	Kellogg et. al. (2000)
turkeys	14.93	67	44.78	Kellogg et. al. (2000)
hogs and pigs for breeding	374.53	2.67	33.44	Kellogg et. al. (2000)
hogs for slaughter	110.01	9.09	80.41	Kellogg et. al. (2000)
horses	1000.00	1	50	USDA-NRCS National Engineering Handbook Part 651, Agricultural Waste Management Field

In general, the manure generation rates have increased slightly for different categories of poultry in the most recent Scenario Builder documentation (Brosch 2010, p. 3-23). No explanation is provided in the documentation to justify the increase in manure generated per animal unit for poultry. The increase in the manure generation rates for poultry should be explained and a justification should be provided. Inflated manure generation rates have the potential to significantly overestimate the amount of poultry manure applied to AFO's and cropland areas within the Chesapeake Bay watershed.

Phytase Implementation and Best Management Practice (BMP) Effectiveness Estimates Assumptions

Based on the most recent version of the Scenario Builder documentation (Brosch 2010), it is not clear what assumptions are being applied in the model regarding the level of phytase implementation by the poultry industry and what BMP effectiveness values are assumed in the calibration and in the TMDL scenarios.

On p. 4-28 in the Scenario Builder documentation (Brosch 2010) the following is stated:

> *Phytase is an enzyme added to poultry-feed that helps poultry absorb phosphorus. The addition of phytase to poultry feed allows more efficient nutrient uptake by poultry, which in turn allows decreased phosphorus levels in feed and less overall phosphorus in poultry waste. The use of phytase is a best management practice (BMP). In Scenario Builder, no poultry automatically have the phytase feed additive. The values of implementation are reported by the Chesapeake Bay jurisdictions each year as part of their annual progress reports*.

The Scenario Builder documentations states that the use of phytase is a BMP (Brosch 2010, p. 4-28). It is not clear if this BMP is accounted for in the calibration of the WSM Phase 5.3 used in the development of the TMDL. If this BMP is accounted for in the calibration, it is not clear how the level of implementation was determined. As for the BMP effectiveness values, the BMP section in Scenario Builder lists the following default values for poultry phytase: Broilers 16 percent; Layers 21 percent; Pullets 21 percent; Turkeys 16 percent (Brosch 2010, p. 8-77). It is not clear what effectiveness values are actually used in the modeling and if the values were constant or varied by state. It is also not clear if the default effectiveness values were used in the calibration of the WSM Phase 5.3. Finally, it is also not clear what effectiveness values were used in the TMDL scenarios.

Scenario Builder input decks for some of the TMDL scenarios were released on November 2, 2010, six days before the deadline to submit comments on the draft TMDL to the docket. Presumably, the Scenario Builder input decks will specify how phytase is addressed in the modeling; however, the lack of time (six days) and detailed documentation did not provide USPOULTRY with the opportunity to perform a thorough and meaningful review to allow us to understand how the efficiency of phytase is addressed in the modeling.

7. Water Quality Standards and Wasteload Allocations

There are a number of questions we have regarding the allocations that are included in the TMDL and the WQS upon which they are based.

For example, Section 3.2.3 of the TMDL states:

> *Several tidal Bay segment-specific applications of DO criteria are unique to Maryland. In the middle-central Chesapeake Bay segment (CB4MH), restoration variances[18] of 7 and 2 percent apply to the application of the deep-water and deep-channel designated use DO criteria, respectively. In the Patapsco River segment (PATMH), a restoration variance of 7 percent applies to the application of the deep-water criteria (COMAR 26.08.02.03-3(c)(8)(e)(vi). Such restoration variances are consistent with EPA-published guidance (USEPA 2003c) and were approved by EPA on August 29, 2005.*

Additionally, footnote 18 that is referenced in this paragraph states:

> *A restoration variance is the percentage of allowable exceedance based on water quality modeling incorporating the best available data and assumptions. The restoration variances are temporary and will be reviewed at a minimum every 3 years, as required by the CWA and EPA*

regulations. The variances could be modified on the basis of new data or assumptions incorporated into the water quality model. COMAR 26.08.02.03-3(C)(8)(h).

It is not clear whether these "restoration variances" were the water quality standards used in establishing the TMDL. TMDLs must be developed to meet current established water quality standards, not "variances" which are temporary standards. Additionally, as stated in the EPA memorandum entitled *Guidance for 2004 Assessment, Listening and Reporting Requirements Pursuant to Sections 303(d) and 305(b) of the Clean Water Act,* from the Director of Wetlands, Oceans, and Watershed, Diane Regas states:

> *States should be aware that a TMDL should be developed to meet the existing WQS, not a temporary variance that is less stringent than the existing WQS.*
>
> *http://www.epa.gov/owow/tmdl/tmdl0103/2004rpt_guidance.pdf*

We know EPA developed the target allocations with the restoration variances based on what was presented during various WQGIT meetings. The text of the TMDL infers that EPA approved the original variances as a WQS. Variances are part of a WQS action – but they are still considered variances and not the applicable WQS.

Additionally, there are no WLAs based on current WQS at all. EPA has allocations applied to segments, but no aggregate or individual WLAs for "sources." The regulation clearly requires the development of a WLA for these sources.

Section 9 of the TMDL is suppose to contain the Chesapeake Bay TMDLs. Section 9.1 includes the Chesapeake Bay segment annual and daily allocations to meet "Proposed Amended" WQS. In section 9.1 there are four tables (emphasis added in bold):

- Table 9-1. Draft Chesapeake Bay TMDL total nitrogen (TN) annual allocations (pounds per year) by Chesapeake **Bay segment** for the **proposed amended** Chesapeake Bay WQS
- Table 9-2. Draft Chesapeake Bay TMDL total phosphorus (TP) annual allocations (pounds per year) by Chesapeake **Bay segment** for the **proposed amended** Chesapeake Bay WQS
- Table 9-3. Draft Chesapeake Bay TMDL sediment (SED) annual allocations (thousands of pounds per year) by Chesapeake **Bay segment** for the **proposed amended** Chesapeake Bay WQS
- Table 9-4. Individual WLAs (Annual) for the 483 significant permitted dischargers to meet TMDLs to address the **proposed amended** Chesapeake Bay WQS

Section 9.2 includes the Bay segment annual and daily allocations to meet "Current" WQS. In Section 9.2 there are three tables (emphasis added in bold):

- Table 9-5. Draft Chesapeake Bay TMDL total nitrogen (TN) annual allocations (pounds per year) by Chesapeake **Bay segment** for **the current Chesapeake Bay WQS**
- Table 9-6. Draft Chesapeake Bay TMDL total phosphorus (TP) annual allocations (pounds per year delivered to tidal waters) by Chesapeake **Bay segment** for the **current Chesapeake Bay WQS**
- Table 9-7. Draft Chesapeake Bay TMDL sediment (SED) annual allocations (thousands of pounds per year) by Chesapeake **Bay segment** for the **current Chesapeake Bay WQS**

Section 9 does not include a table with individual WLAs for the 483 significant permitted dischargers to address the current Chesapeake Bay WQS.

Additionally, Section 9 explains that additional information is included in the appendices. From Section 9.1

> *More detailed annual LAs by sector and annual WLAs by individual facility are provided in Appendix Q. Daily LAs and WLAs for the areas draining to the 92 segments are provided in Appendix R.*

From Section 9.2

> *More detailed annual LAs by sector and annual WLAs by individual facility are provided in Appendix Q. Daily LAs and WLAs for the areas draining to the 92 segments are provided in Appendix R.*

A review of the appendices is very difficult. Appendix Q1 is a file created using pdf technology and is 480 pages long with no formatting of the table. Many of the pages consist of one or two columns of numbers. Column headers are located if reviewing the file page-by-page. The headers indicate the data are for "ProposedWQS".

The same search was conducted in Appendix Q2. Appendix Q2 also had 480 pages, most of which were two to three columns of numbers and approximately 20 pages with no data. The headers in Q2 indicate the data are for "FullBackStopTMDL." There is no information to indicate whether this is for "Proposed" or "Current" WQS.

Appendix R included an introduction on the first page of the file explaining the data in the appendix.

> *Appendix R includes detailed nitrogen, phosphorus, and sediment daily allocations to achieve the proposed amended WQS (Section 8)*

A review of the available information in the TMDL indicates EPA has failed to provide the individual WLAs for the current WQS. As noted in Section 1 of the TMDL:

> *A TMDL specifies the maximum amount of a pollutant that a waterbody can receive and still meet applicable WQS. A mathematical definition of a TMDL is written as the sum of the individual WLAs for point sources, the LAs for nonpoint sources and natural background, and a margin of safety [CWA section 303(d)(1)(C)]:*
>
> *$TMDL = \Sigma WLA + \Sigma LA + MOS$*
>
> *where*
>
> > *WLA = wasteload allocation, or the portion of the TMDL allocated to existing and/or future point sources.*
> >
> > *LA = load allocation, or the portion of the TMDL attributed to existing and/or future nonpoint sources and natural background.*
> >
> > *MOS = margin of safety, or the portion of the TMDL that accounts for any lack of knowledge concerning the relationship between effluent limitations and water quality, such as uncertainty about the relationship between pollutant loads and receiving water quality, which can be provided implicitly by applying conservative analytical assumptions or explicitly by reserving a portion of loading capacity.*

The regulations at 40 CFR 130.2 and 130.7 define what constitutes a TDML and how the TMDL is to be developed by the state. The regulations clearly require that a WLA be included in the TMDL and the TMDL clearly be established to meet the current water quality standards, not proposed water quality standards. The regulations note:

> *the term "water quality standard applicable to such waters" and "applicable water quality standards" refer to those water quality standards established under section 303 of the Act, including numeric criteria, narrative criteria, waterbody uses, and antidegradation requirements.*

"Proposed" water quality standards are not water quality standards "established under section 303." Therefore, this TMDL needs to be withdrawn and re-proposed in the Federal Register and include WLAs designed to meet the "applicable" water quality standard.

EPA must withdraw the TMDL and re-draft the report to clearly explain how the "variances" were used or not used in establishing the TMDL and to provide WLA for applicable sources based on current WQS.

8. Issues raised by Conservation Effects Assessment Project (CEAP)

The US Department of Agriculture Natural Resources Conservation Service released the draft CEAP report entitled *Assessment of the Effects of Conservation Practices on Cultivated Cropland in the Chesapeake Bay Watershed* (October 2010). As detailed in this document:

> *The original goals of CEAP were to estimate conservation benefits for reporting at the national and regional levels and to establish the scientific understanding of the effects and benefits of conservation practices at the watershed scale. As CEAP evolved, the scope was expanded to provide research and assessment on how to best use conservation practices in managing agricultural landscapes to protect and enhance environmental quality.*

As stated in this draft report, 28 percent of the land within the Chesapeake Bay watershed is agricultural and produces 42 percent of the phosphorus to the Bay. Urban land makes up only eight percent of total land area in the watershed, but contributes over 50 percent of phosphorus to the Bay. (USDA NRCSa 2010)

This latest draft report also shows that conservation practices in the Chesapeake Bay are working. Through partnerships with local landowners, progress has been made in reducing sediment, nutrient and pesticide losses from farm fields by implementing a variety of conservation approaches. For example, conservation practices in use on cultivated cropland within the watershed are responsible for reducing total loads delivered to the Bay by 14 percent for sediment, 15 percent for phosphorus and 15 percent for nitrogen.

The CEAP also includes 41 watershed studies to provide in-depth assessments of water quality and other conservation practice effects at a watershed scale. Two recent studies that were conducted were in the Choptank River and the Spring Creek watersheds – both located within the larger Chesapeake Bay watershed. In the Choptank watershed project, researchers used remote sensing, cover crop program data from Maryland, and field observations to determine nitrogen uptake by cover crops. Results from the cover crop study indicate that planting cover crops earlier (in the two weeks before the regional average first frost date of October 15) improves nitrogen uptake significantly. Because nitrogen uptake is improved with the more effective earlier planting date, practice cost-share costs per unit of nitrogen abated are reduced. In addition, experiments determined that rye and barley are far more effective cover crops in terms of nitrogen uptake than is wheat, which is currently more widely used as a cover crop. (USDA NRCSb 2010)

Spring Creek, in central Pennsylvania, drains into the Susquehanna River, the main northern tributary of the Chesapeake Bay. The Penn State University research team is organizing data on streams, fish, macroinvertebrates, and landscapes to assess conservation practice performance systematically and document impacts from agricultural activities. A necessary criterion for practice effectiveness is adoption and proper implementation by farmers. Thus, the research team is examining the factors that have affected practice implementation, performance, and maintenance throughout the watershed. The team has pioneered ways to integrate ecological and socio-economic data as they assess the condition of watersheds. Intense implementation of conservation practices in Cedar Run, a tributary of Spring Creek, has demonstrated the potential for voluntary conservation efforts to yield desired environmental benefits. Preliminary findings from monitoring water quality in Cedar Run show that from 1992 (pre-treatment) to 2007 (post treatment):

- Fine sediment declined more than 50 percent after riparian restoration and fencing
- Brown trout populations increased significantly—more than double in some sampling locations in some years—after BMP implementation
- Macroinvertibrate densities increased downstream from treatment areas by up to 500 percent in some areas.

  (USDA NRCSb 2010)

These pollutant reductions and benefits to the environment are significant, but the industry recognizes that there is opportunity to do more. We would like to emphasize to EPA that the draft CEAP report and the research promoted through USDA NRCS provides appropriate and applicable information for identifying where future Bay restoration efforts should be concentrated and how to most efficiently and cost effectively accomplish this.

9. Expectations for Federal Entities

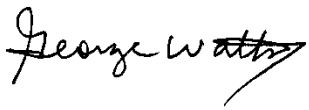
EPA has repeatedly made it clear that there will be "consequences" for jurisdictions that do not develop and/or sufficiently implement watershed implementation plans or meet milestones. EPA's intent is for these "consequences" to be placed on the Bay States and District of Columbia, but in reality most of the consequences will impact point sources and the general public. To date; however, it is still unclear what the consequences will be for federal entities. This question was raised at the October 21, 2010 Principals' Staff Committee meeting in Baltimore, MD. Shawn Garvin, PSC Chair, stated that this was still under discussion and EPA would resolve the issue of consequences for federal entities during the development of the 2-year milestones. Given the significant burden the Chesapeake Bay TMDL will be putting on those affected, including our own industry, the federal government must be held to the same standards as other sectors. It is imperative that this inequity between the requirements for federal entities (including EPA) and everyone else is addressed in the same "equitable" manner that EPA has been touting during this TMDL development process.

III. **Summary**

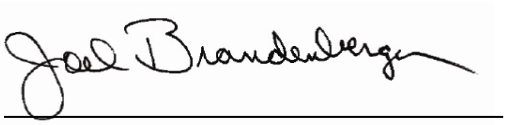
The US Poultry & Egg Association, the National Turkey Federation and the National Chicken Council appreciate the opportunity provided by EPA to comment on the Draft Chesapeake Bay TMDL. As noted earlier, we strongly support the goals and objectives of the Chesapeake Bay restoration; however, as explained above, we have serious concerns regarding the assumptions and data that are used in

developing the TMDL and whether EPA has the authority to take the approach that is has. Thank you for the opportunity to submit these comments. If you have questions or comments, please contact Paul Bredwell (pbredwell@poultryegg.org) or Christian Richter (crichter@thepolicygroup.com).

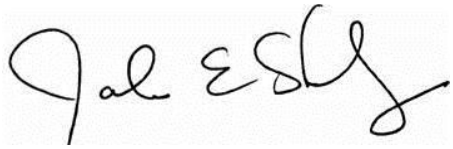
Sincerely,



George Watts, President
National Chicken Council



Joel Brandenberger, President
National Turkey Federation



John Starkey, President
U.S. Poultry & Egg Association

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