Appendix: Technical Requirements for Entering the Denitrifying Ditch Bioreactors into Scenario Builder and the Watershed Model

Background: In June, 2013 the Water Quality Goal Implementation Team (WQGIT) agreed that each BMP expert panel would work with CBPO staff and the Watershed Technical Workgroup (WTWG) to develop a technical appendix for each expert panel report. The purpose of this technical appendix is to describe the Agriculture Workgroup's recommendation to provide an efficiency value for Denitrifying Ditch Bioreactors for jurisdictional planning purposes, in expectation of a full Expert Panel recommendation report on agricultural ditch management practices in 2018. The information below explains how Denitrifying Ditch Bioreactors will be integrated into the modeling tools including NEIEN, Scenario Builder and the Watershed Model.

Q1. What are the reductions a jurisdiction can claim for planning purposes under Denitrifying Ditch Bioreactors in the Phase 6 Watershed Model?

A1. Based on preliminary recommendations provided by the Expert Panel on agricultural ditch management practices, jurisdictions can claim an efficiency value of 20% for total nitrogen leaving the indicated drainage area.

Q2. What types of projects are eligible to receive credit in the Phase 6.0 Watershed Model?

A2. This BMP represents the edge-of-field treatment for tile-drained cropland areas through practices that reduce nitrogen pollutant loads by diverting tile-line flow through a carbon-source filter to enhance denitrification. The carbon material, typically wood chips, serves as a food source for microorganisms in the low-oxygen environment of the bioreactor, converting nitrate-N in drainage water into nitrogen gas (N_2).

Q3. **What do jurisdictions need to submit to NEIEN in order to qualify for reductions?**

A3. Below is a complete list of the parameters that should be submitted to NEIEN for each project.

- BMP Name: Denitrifying Ditch Bioreactor
- Measurement Name and associated unit amount: acres
- Land Use Group: CROP
- Location: Approved NEIEN geographies: Latitude/Longitude (preferred); County; County (CBWS Only); Hydrologic Unit Code (HUC12, HUC10, HUC8, HUC6, HUC4), State (CBWS Only)
- Date of Implementation: year the project was completed

Q4: Should states report upland acres draining to the practice?

A4: Yes. The credit is given to each upslope acre that drains into the practice.

Q5: How will the modeling tools simulate reductions from Denitrifying Ditch Bioreactors?

A5: Reductions from Denitrifying Ditch Bioreactors will be credited as efficiency reductions to the cropland pollution loads. These efficiency reductions can be combined with efficiency reductions from other practices.

Q6. Is this BMP an annual or cumulative practice?

A6. The BMP is a cumulative practice. Jurisdictions should report all measurement names only at the time of installation. The practice will continue to receive credit in the model in future years, based on a 10 year credit duration.

Q7. How will the existing Denitrifying Ditch Bioreactors be accommodated?

A7. To date, no jurisdiction has submitted Denitrifying Ditch Bioreactors in a progress or planning scenario.

Q8. Is there a cap on the potential reductions from Denitrifying Ditch Bioreactors?

A8. Reductions from all cropland BMPs, including Denitrifying Ditch Bioreactors cannot exceed the existing load from cropland.

Q9. Where do projects need to be located to receive credit for this BMP?

A9. Jurisdictions can submit projects for newly constructed or existing denitrifying ditch bioreactors that qualify under the cropland acres land use definition throughout the watershed. However, an interim BMP cannot be used for progress reporting purposes.

Q10. Can jurisdictions submit historic Denitrifying Ditch Bioreactor for credit?

A10. Yes. Jurisdictions may update their historical record of all approved BMPs in the Phase 6.0 Model at any time. However, an interim BMP cannot be used for progress reporting purposes.