



Summary of Chesapeake Bay Program Approval of CMAC for the Enhancement and Conversion of Existing Best Management Practices

On the Chesapeake Bay Program, through deliberation and unanimous vote within the Urban Stormwater Workgroup (USWG), endorsed the use of Continuous Monitoring and Adaptive Control (CMAC) retrofits to obtain pollutant removal credits per the *Recommendations of the Expert Panel to Define Removal Rates for Urban Stormwater Retrofit Projects* (2015).

On October 20, 2015 Opti met with the USWG to formally discuss the merits and potential credit process for CMAC retrofits. Historically, the USWG has initiated Expert Panels to evaluate new BMPs and new retrofit practices. Under a new BMP decision request process, CMAC was approved as substantially similar to existing, approved retrofit approaches with existing, defined credit calculation strategies.

According to the USWG, CMAC retrofits map directly into two currently approved stormwater retrofit categories:

1. Enhancement of existing BMPs – increasing the treatment volume and/or increasing hydraulic retention time (i.e. upgrades to older stormwater ponds built in eras where water quality was not accounted for)
2. Conversion of existing BMPs – converting an existing BMP to a BMP that employs more effective treatment mechanisms (i.e. converting a dry pond to a wet pond; converting a wet pond to a wet extended detention pond, etc.)

The pollutant removal credits for these retrofit approaches can be calculated using the Retrofit Removal Adjustor Curves within the *Expert Panel to Define Removal Rates for Urban Stormwater Retrofit Projects* (2015), using the total volume potentially controlled by the forecast-integrated actuated valve to compute runoff depth captured. Two example credit approaches are provided in the attached, approved proposal:

1. Enhancement of an Underperforming Wet Pond
2. Dry Pond to Wet Pond Conversion

CMAC enables the stored volume in all ponds to be retained with an actively-controlled release valve to achieve water quality and channel protection improvements. The technique uses water level sensors, an actuated control point, and cloud-based software to make automated, real-time control decisions based on National Weather Service forecast data.

Next Page: *Transmittal of USWG-Approved Continuous Monitoring and Adaptive Control (CMAC) Retrofit Variation - November 23, 2016*

Attachment A: *Overview of Continuous Monitoring and Adaptive Control for Enhancing or Converting Approved Stormwater BMP Types in the Chesapeake Bay Watershed - As Approved by USWG on November 15, 2016*

Attachment B: *Recommendations of the Expert Panel to Define Removal Rates for Urban Stormwater Retrofit Projects*