GOVERNMENT OF THE DISTRICT OF COLUMBIA
Department of Energy and Environment

CHAPTER 2 TECHNICAL SUPPORT MEMORANDUM

TO: File

THROUGH: Stephen S. Ours, P.E. SSO
Chief, Permitting Branch

FROM: John Nwoke SSO For JCN
Environmental Engineer

SUBJECT: Permit (No. 6347-R2) to Operate Modified Enhanced Nitrogen Removal System at the District of Columbia Water and Sewer Authority (DC Water), Blue Plains Advanced Wastewater Treatment Plant

DATE: November 28, 2017

Background

On December 2, 2013, during the public review process for the previous version of the permit for the modified enhanced nitrogen removal system (ENR) (Permit 6347-R1, the District of Columbia Water and Sewer Authority (DC Water) requested some revisions to the draft permit, effectively amending their application. The Air Quality Division (AQD) determined that these were not appropriate for processing during the public comment period and, as such, they were treated as an amendment request to the construction permit. Various other correspondence followed, including a request for renewal of the construction permit, received by AQD on January 15, 2015, additional requested revisions, received March 17, 2016, a combined renewal/revision request dated July 28, 2016, and a request for an operation permit dated September 26, 2016.

The main revisions requested included the following:

1) A request that sections of the permit related to certain operating parameters for the methanol scrubbers be revised on the basis of performance testing conducted on December 10, 2014;
2) Several minor modifications to the permit conditions related to the Leak Detection and Repair (LDAR) Plan of November 26, 2013, as revised on October 2015 and March 30, 2016, be made; and
3) An operating permit be issued based on the modifications discussed and agreed upon through several face-to-face meetings and conference calls, including the meeting of June 29, 2016, that culminated in an updated LDAR plan of March 30, 2016 mentioned above, and the fact that the ENR facility construction is now complete.

The resulting proposed permit action has been prepared and submitted for publication in the to Stephen Ours for review and publication in the December 8, 2017, D.C. Register. Public comment for the permit action will be solicited through January 8, 2018.

Issues

The Blue Plains facility needed to make changes in the denitrification of the influent wastewater, by introducing methanol and methanol/glycerol composite as carbon sources in the nutrient removal process. The ENR project involved the addition of eight new reactors, two new post aeration tanks, and four new methanol vapor wet scrubbers. The packed bed methanol scrubbers are capable of removing 99.9 percent of the methanol vapor/VOC from the methanol storage tanks.

The completion of the permitting was delayed, largely due to the complexity of LDAR plan. The plan required careful review by AQD to ensure that adequate leak detection and repair or prevention plan was in place. Several meetings and conference calls took place over more than a year to arrive at the acceptable modifications to the permit conditions relating to leaks of any methanol vapor and any other objectionable pollution.

With the completion of the construction and in accordance with permit Condition I.g of Permit 6347-R1, it is necessary to prepare an operating permit for the ENR System.

Regulatory Review

Both federal and District of Columbia regulations and applicable requirements apply (or do not apply) to this project as discussed below:

1. NSPS: 40 CFR 60 Subpart Kb applies to the proposed 60,000 gallon storage tanks because both the capacity and vapor pressure thresholds are exceeded. In complying with the requirements of Subpart Kb, the four affected methanol storage tanks will be of the closed vent type with a control device. The methanol vapor scrubbers that were proposed would be capable of achieving a 99.9% reduction of VOC emission from these tanks, thus satisfying the requirements of this subpart.

2. Nonattainment NSR: 40 CFR 51.165 - The major source threshold for the DC-MD-VA nonattainment area for volatile organic compound (VOC) is 25 tpy. VOC is a precursor of ground level ozone, a criteria pollutant under the NAAQS. Methanol, non-methane hydrocarbon is considered a VOC. The project is expected to generate less than 1 tpy of methanol emissions. This emission is below the major source threshold hence NSR is not triggered by ENR project.

3. National Standards for Hazardous Air Pollutants (NESHAPs): 40 CFR 61 and 63 – The project is estimated to generate 1 tpy of Methanol, a hazardous air pollutant (HAP). The major source standard for a single HAP is 10 tpy or 25 tpy of a combination of HAP's. Since the project's estimate of HAP emission is less than the major source, the ENR is not subject

to 40 CFR 61. Based on an EPA determination letter, dated March 2, 2012, 40 CFR 63 Subparts VVV and EEEE are also not applicable.

4. CAM Plan: 40 CFR 64 – The project is not subject to this Part because the pre-control emissions of methanol and VOC for all sources are less than 10 tpy and 25 tpy, respectively. See also the EPA applicability determination confirming this, dated December 8, 2011.

6. District Regulations for: (1) Reporting downtime of emission control equipment, (2) Stage 1 vapor recovery, and (3) Pump and Compressor handling VOC, were reviewed. The project has adequately put forth measures to address and comply with the applicable provisions of the pertinent DCMR (i.e, 20 DCMR 107, 704 and 711).

Conclusion

Subject to no adverse comment regarding the project during the public comment period, a permit to operate should be issued upon the conclusion of that comment period. The comment period will end on January 8, 2018.

JCN