

GOVERNMENT OF THE DISTRICT OF COLUMBIA

District Department of the Environment

Air Quality Division



CHAPTER 2 TECHNICAL SUPPORT MEMORANDUM

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

FROM: John Nwoke *JN*
Engineer

SUBJECT: **Blue Plains – Modified Enhanced Nitrogen Removal System**

DATE: November 19, 2013

Background

On April 18, 2013 the District of Columbia Water and Sewer Authority (DC Water) submitted a construction permit renewal letter for the modified enhanced nitrogen removal system. In the letter, DC Water requested that:

- 1) The permit expiration date be extended to December 31, 2014;
- 2) That sections of the permit related to U.S Environmental Protection Agency (EPA) regulation applicability determinations be removed as these determinations had been made and it was determined that the regulations in question were not applicable; and
- 3) That several minor modifications to the equipment list in the permit be made to reflect the addition of several additional magnetic sealless pumps to the design of the project.

The permit action was prepared and submitted to Stephen Ours for review and publication in the November 22, 2013, D.C. Register. Public comment for the permit action will be solicited through December 23, 2013.

Issues

The Blue Plains facility needs 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 project involves 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 storage tanks will be a significant source of methanol vapor and/or glycerol emissions and are therefore to be controlled with the use of the scrubbers. The emissions estimates of methanol from the storage tanks submitted by the applicant were based on the EPA TANKS (V.4.09.d) model.



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At the time of issuance of the original permit (January 26, 2011), estimates of emissions from the reactors and treatment basins were an area of dispute between the EPA and the applicant. EPA had asserted that the facility was a major source of methanol, but had not made an official applicability determination for the MACT standards as it has not been requested by the applicant.

As a requirement of the permit, DC Water sought official determinations regarding the applicability of 40 CFR 63, Subpart VVV, National Emission Standards for Hazardous Air Pollutants (NESHAP) for Publicly Owned Treatment Works (POTW), 40 CFR 63, Subpart EEEE, NESHAP for Organic Liquids Distribution (Non-Gasoline), and 40 CFR 64, Compliance Assurance Monitoring.

In a letter to the facility dated March 1, 2012 (which superseded an earlier December 8, 2011 letter), EPA formally responded that the latter two were not applicable. In a separate letter dated November 5, 2012, EPA formally determined that Subpart VVV was not applicable.

As such, as part of this renewal, references to the requirement to obtain such determinations and requirements to comply if they are applicable have been removed.

Regulatory Review

Both the federal and District of Columbia regulations and applicable requirements apply to this project as noted 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 proposed 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 the EPA determinations referenced above, 40 CFR 63 Subparts VVV and EEEE are also not applicable.
4. CAM Plan: 40 CFR 64 – The project appears not to be subject to this Part because the pre-control emissions of methanol and VOC for all sources are less than 10 tpy and 25 tpy,

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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 from the public regarding the project during the public comment period, a renewal permit to construct should be issued.

JCN