TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Alternative Method of Control (AMOC) Plan, AMOC No.: AMOC232
Topsoe, Inc.
TK3 Catalyst Plant
Pasadena, Harris County
Regulated Entity Number: RN101211498

A. General Requirements

1. This AMOC Plan Authorization shall apply at the Topsoe, Inc., TK3 Catalyst Plant located in Pasadena, Harris County and identified by Regulated Entity Number RN101211498**.** Under Title 30 Texas Administrative Code (TAC) Section 117.325 (§ 117.325) this plan authorizes the alternate compliance demonstrations for the Hot Water Heater System.

2. A copy of the AMOC application, Test Report, and AMOC Plan provisions must be kept on-site or at a centralized location and made available at the request of personnel from the TCEQ or any pollution control agency with jurisdiction. The AMOC application is defined by the application initially received November 30, 2023, and supporting documentation submitted through January 31, 2025.

3. This authorization is granted under § 117.325 for emissions sources regulated by:
   30 TAC Chapter 117, Control of NOx, Subchapter B Combustion Control at Major Industrial, Commercial, and Institutional Sources in Ozone Nonattainment Areas, Division 3 Houston-Galveston-Brazoria Ozone Nonattainment Areas;
   30 TAC Chapter 117, Control of NOx, Subchapter G, General Monitoring and Testing Requirements, Division 1 Compliance Stack Testing and Report Requirements; and
   30 TAC Chapter 101 General Air Quality Rules, Subchapter H Emissions Banking and Trading, Division 3 Mass Emissions Cap and Trade Program.

   This AMOC shall apply in lieu of the requirements in these state regulations, as applicable. Compliance with this AMOC is independent of Topsoe's obligation to comply with all other applicable requirements of 30 TAC Chapters 101 and 117, TCEQ permits, and applicable state and federal laws.

4. All representations submitted for this AMOC, as well as the provisions listed here, become conditions upon which this AMOC Plan is issued. It is unlawful to vary from the emission limits, control requirements, monitoring, testing, reporting or recordkeeping requirements of this Plan.

B. Specific Requirements

1. **NOx Performance Testing & MECT Annual Demonstration**

   a. Following the procedures of NSR Permit No. 9203, Special Condition No. 21, an initial NOx and O_2 performance test was performed with an alternative sample-port location of the Hot Water Heater exhaust prior to comingling with the other process streams or any control portion of the DeNOx Unit on October 31-November 1, 2024. This testing was in addition to the DeNOx exhaust stack testing required by NSR Permit No. 9203, Special Condition No. 21 [§§ 117.325(a) and 117.335(b)].

   b. The average measured NOx concentration (ppmv) at this alternative sample location demonstrated that the Hot Water Heater uncontrolled exhaust concentration was 47.5 ppmvd @ 3% O_2 and is less than or equal to the NSR Permit No. 9203 Hot Water Heater burner representation of 70 ppmv (@ 3% O_2.

c. The measured NOx concentration (ppmv) from the initial stack testing at the DeNOx outlet as required by NSR Permit No. 9203, Special Condition No. 21 and all associated operating parameters of the Hot Water Heater and DeNOx system are sufficient and demonstrate initial compliance [§ 117.355(b)].

d. The heater's combustion settings determined during the initial tuning and performance testing shall be maintained at all times and any adjustments shall be documented. If any combustion parameter is adjusted greater than 10%, testing shall be repeated.

e. The measured NOx outlet (47.5 ppmvd @ 3% O_2 or 0.0577 lb/MM Btu) shall be used in conjunction with actual annual fuel usage of the Hot Water Heater to meet the annual MECT allowance (0.3 tpy) [§§ 117.340(l)(2) and 117.340(a)]. A copy of the AMOC Approval and Plan shall be attached to each annual MECT report [§§ 101.352(b) and 101.354(b)(1)].

2. **CO Performance Testing**

a. Following the procedures of NSR Permit No. 9203, Special Condition No. 21, an initial CO performance test was performed at an alternative sample-port location of the Hot Water Heater exhaust prior to comingling with the other process streams or any control portion of the DeNOx Unit. This testing was in addition to the CO testing at the exhaust of the DeNOx co-mingled exhaust stack as required by NSR Permit No. 9203, Special Condition No. 21 [§§ 117.325(a) and 117.335(b)].

b. The measured CO concentration (ppmv) at the alternative sample location demonstrates that the Hot Water Heater uncontrolled exhaust concentration was 12.6 ppmvd @ 3% O_2 and is less than or equal to 400 ppmv corrected to 3% O_2 [§§ 117.335(b) and 117.310(c)(1)].

c. The measured CO concentration (ppmv) from the initial stack testing at the DeNOx outlet as required by NSR Permit No. 9203, Special Condition No. 21 and all associated operating parameters of the Hot Water Heater and DeNOx system demonstrated initial compliance [§§ 117.335(b) and 117.310(c)(1)].

d. On-going compliance requirements will be met by rechecking the CO concentrations when any DeNOx system exhaust NOx CEMS RATA are subsequently performed [§ 117.8120(2)(B)].

3. **NH_3 Initial Performance Testing and Monitoring**

a. The NOx concentrations from the alternate location performance testing demonstrates compliance with § 117.310(c)(2) without reliance on any ammonia-based control system, therefore NH_3 monitoring under §117 is not required.