Statement of Basis
Ascend Performance Materials Operations, LLC
Morgan County
712-0010

Ascend Performance Materials Operations, LLC (Ascend) has applied for a renewal of Major Source Operating Permit 712-0010. The initial Title V Major Source Operating Permit was issued on November 10, 2003 and this is the 2nd renewal. The renewal application was received on March 2, 2018. Additional information was submitted to the Department on the following dates: April 29, 2020, May 18, 2020 and February 19, 2021.This proposed Title V Major Source Operating Permit is issued under the provisions of ADEM Admin. Code R. 335-316. The above named applicant has requested authorization to perform the work or operate the facility shown on the application and drawings, plans and other documents attached hereto or on file with the Air Division of the Alabama Department of Environmental Management, in accordance with the terms and conditions of this permit.

Background

This facility is a Chemical Plant which manufactures nylon intermediate chemicals and has a specialty chemicals line of business with multiple products produced, including propionitrile (PN) and triaminononane (TAN). The facility is allowed to operate 8,760 hours per year unless otherwise specified. Based upon the Title V application, this facility is a major source for carbon monoxide (CO), nitrogen oxides (NO_x), particulate matter (PM), sulfur dioxide (SO_2), volatile organic compounds (VOCs), hazardous air pollutants (HAPs), and Green House Gases (CO_2e). The facility is located in Morgan County. Morgan County is currently listed in attainment with all National Ambient Air Quality Standards (NAAQS). There are no ongoing enforcement actions against Ascend necessitating additional requirements to achieve compliance with permit conditions.

Summary of Changes

- Added provisos for stationary reciprocating internal combustion engines (RICE) (7) for emergency services.

- Modified the name of the “Tetrabutyl Alkyl Amine (TAA) Unit” to “Tetrabutylhexamethylenediamine (TBHMD) Unit” to more accurately describe the process.

- Fuel oil tank (EP-054) incorporated into ADN storage tanks. EP-054 was originally in service to Boiler #7, which is no longer operational.

- Clarified the requirements of ADN Tank 382 referenced in 40 CFR Part 60, Subpart Kb.

- Removed Package Decontamination Vent (ADN113) from permit. Ascend has stated that this stack was demolished in 2019.

- Added requirements of the Adiponitrile (ADN) Manufacturing Unit (Air Permit No. 712-0010-X111) – Most recent issuance: April 13, 2021.

- Ascend retired Boiler No. 5 by returning the operating permit to ADEM on 10/24/2019. Boiler #5 has been removed from the final permit.

- Ascend retired Coker No. 2 by returning the operating permit to ADEM on 06/14/2021. Coker #2 has been removed from the final permit.

- Administratively fixed typos and errors contained within the permits.

- Incorporated current Air Permit for Boiler No. 6 (Air Permit No. 712-0010-X108). This permit was issued on January 26, 2016, and allowed the boiler to operate at an annual capacity factor of 10%.

- Incorporated current Air Permit for Boiler No. 7 (Air Permit No. 712-0010-X106) – Most recent issuance: September 20, 2019.

- Incorporated current Air Permit for Boiler R-1 (Air Permit No. 712-0010-X109) – Most recent issuance: August 21, 2018.

- Incorporated current Air Permit for Boiler R-2 (Air Permit No. 712-0010-X112) – Most recent issuance: August 21, 2018.

- Incorporated current Air Permit Nos. 712-0010-X107 (issued on March 27, 2017) & X110 (issued on November 20, 2017) for "305 HP Emergency Fire Water Pump Engine" and "158 HP Emergency Generator," respectively. These permits were consolidated along with 5 other stationary RICEs into a "RICE" section of the permit.

<u>Adiponitrile (ADN) Manufacturing Unit</u>

<u>Unit Specific Changes</u>

Package Decontamination Vent (ADN113) has been removed from the permit. Ascend has stated that this stack was demolished in 2019, and that the plates associated with this source are water rinsed while in the reactor housing as an alternative.

The emissions monitoring and recordkeeping sections of the permit have been updated to reflect the provisos included in the most recent issuance of this permit (April 13, 2021).

The provisos that reference requirements listed in 40 CFR Part 60, Subpart NNN have been listed in bullet points for clarity purposes throughout the permit.

The VOC emission limits for the A off-gas absorber (ADN104) have been updated to 3.00 lb/hr to reflect the limits in the most recent issuance of the permit for this unit. Emission standard provisos have been added to the permit that reference HON requirements in case the A off-gas absorber is determined to be a Group 1 process vent after testing at the new limit. The previous emission limit of 1.71 lb/hr was implemented as a result of a modification proposed in 1995 that included the installation of a new "E" System Reactor/Absorber that was never installed.

The VOC emission limits for the Area 411 Tank Farm Absorber (ADN109) have been updated to 2.19 TPY to reflect the limits in the most recent issuance of the permit for this unit. The facility has stated that the absorber emissions experience fluctuations in hourly emission rates based on loading/unloading in the 411 Tank Farm. The VOC emissions limits for this absorber are anti-PSD limitations and as such are based on a 12-month rolling total. The instantaneous rate (0.16 lb/hr) is the maximum potential rate from the unit, but loading/unloading rates vary for this unit.

<u>Overview</u>

The equipment of the Adiponitrile (ADN) Manufacturing Unit (ADN unit) includes Reactor Systems A, B, C, and D and the associated refining and recovery equipment. Air Permit No. 712-0010-X111 for the Adiponitrile (ADN) Manufacturing Unit was most recently issued on April 13, 2021.

<u>Emission Standards</u>

VOC/HAP

This unit is subject to anti-PSD VOC emission limitations from the A-D off-gas absorbers (ADN 104 – 107), the non-sequestered absorber, the Area 403 Absorber, the Area 411 Tank Farm Absorber, and the Area Synthesis Vent Absorber.

The ADN unit is subject to the requirements of 40 CFR Part 63, Subpart F, G, and H (the HON). This unit is required to implement an LDAR program as specified in Subpart H of the HON for the components in OHAP service. There are 13 process vents in the ADN unit that are currently classified as Group 2 process vents. These vents are labeled as follows: Refining/Recovery Absorber (ADN102), A-D Off-gas Absorbers (ADN 104-107), and Non-sequestered Absorber (ADN114). Ascend's 08/19/1998 letter revised that each of the process vents were classified as Group 2 process vents with TREs greater than 4.0 (rather than based upon 50 ppm concentration).

The off-gas absorber A will be subject to the Group 1 process vent requirements referenced in the HON if the measurements outlined in 40 CFR 63.115(d)(2) demonstrate that this source is classified as a Group 1 process vent. If the A absorber is determined to be classified as a Group 1 process vent after these measurements, the organic HAP emissions from this source will be required to be reduced by 98 weight-percent or to a concentration of 20 ppmv, whichever is less stringent.

The wastewater streams in this unit, the AN Recovery Tails, and the Purge Evaporator Tails associated with this unit are also subject to the requirements of the HON. Ascend complies with these requirements by maintaining these sources as Group 2 process vents. As stated in §63.132(a)(3), since each of the streams is classified as Group 2, only the recordkeeping and reporting requirements of §63.146(b)(1) and §63.147(b)(8) are applicable.

This process vents within this unit are subject to the requirements of 40 CFR Part 60, Subpart NNN and Subpart RRR. The Precut Column, the Propionitrile (PN) Refiner Column, the PN Purge Distillation Column, and the Low Boiler Stripper Column are vented to the 403 Refining/Recovery Absorber. The North and South Prestripper Columns are vented to the Area 402 Nonsequestered Absorber.

This unit is subject to the LDAR requirements of 40 CFR Part 60, Subpart VVa. The facility is required to implement a Subpart VVa LDAR program for the VOC components which are not covered by the HON LDAR program.

The Quaternary Ammonium (QA) batch process associated with this unit is subject to the requirements of 40 CFR Part 63, Subpart FFFF (the MON). This source is required to maintain uncontrolled organic HAP emissions of less than 10,000 lb/year.

<u>Periodic Monitoring</u>

VOC/HAP

Previously, to show compliance with the anti-PSD VOC emission limits on the reactor A-D off-gas absorbers (ADN 104 – 107), the facility was required to limit the lean

solvent AN concentration to 500 ppm, the lean solvent temperature to the calculated maximum allowable temperature, and the lean solvent flow to the values reflected on a monitoring plan detailed in the Department's December 23, 1992. The current monitoring plan is based upon operating curves of the absorber solvent flow rate versus lean solvent temperature, and exceedances are defined as any period when the emission limitations are exceeded for a period of greater than 3 consecutive hours ("block" 3-hour averages). The facility is still required to continuously monitor the concentration, temperature, and flow of the lean solvent AN.

Compliance with the anti-PSD VOC emission limits on the Nonsequestered absorber (ADN114), the Area 403 Refining/Recovery absorber (ADN102), the Area 411 Tank Farm absorber (ADN109), and the Area 402 Synthesis Vent absorber were previously demonstrating by maintaining the monitoring plan submitted in a letter from Monsanto (now Ascend) to the Department on November 1, 1994. The monitoring plan required the facility to continuously monitor the actual temperature and flow rate of the lean solvent to determine a maximum lean solvent AN concentration. The requirements listed in this permit currently require the facility to develop a monitoring plan based on operating curves of the absorber flow rate versus lean solvent temperature based on process design parameters. Exceedances are defined as any period when the emission limitations are exceeded for a period of greater than 3 consecutive hours ("block" 3-hour averages).

Compliance with Subpart NNN is determined by maintaining the TRE index values of the sources associated with this unit at the values listed in §60.662(c) and §60.660(c)(4). Compliance with Subpart RRR is determined by maintaining the TRE index values of the A-D reactor systems at the values listed in §60.702(c) and §60.700(c)(2).

Compliance with Subpart FFFF is determined by calculating the 12 month rolling total of organic HAP emissions each month and submitting a semi-annual report detailing any changes to the group determination status for this source. The QA batch process is designated as a Group 2 process.

ADN Tanks Subject to Subpart Kb

Unit Specific Changes

Added the requirements of ADN Tank 382 referenced in 40 CFR Part 60, Subpart Kb. The previous Title V permit limited the vapor pressure in this tank to less than 3.5 kPa such that only the requirements of 60.116(a) and (b) are applicable. However, this tank has a storage capacity of 89.7 m^3 and stores an organic liquid having a maximum true vapor pressure of 28.6 kPa. Therefore, the appropriate control requirements for this tank have been amended.

Fuel oil tank (EP-054) was incorporated into ADN storage tanks. EP-054 was originally in service to Boiler #7, which is no long operational. A letter of non-applicability was issued on December 7, 2018, regarding the allowance of storing adiponitrile flasher tails (AFT) in this tank. It is noted that at the time of this application, Ascend submitted conservative emissions calculations assuming the tank would continue to store No. 2 fuel oil. Since the maximum true vapor pressure of AFT is less than 3.5 kPa, this tank will not be subject to Subpart Kb.

Overview

The following tanks associated with the ADN Unit are subject to 40 CFR Part 60, Subpart Kb.

Air Permit #	Tank ID
X038	ADN 315
X039	ADN 316
X040	ADN 318
X050	ADN 359
X029	ADN 382
X035	ADN 383
X036	ADN 384
X037	ADN 385
X030	ADN 301

Emission Standards

VOC

This unit is subject to the requirements of 40 CFR Part 60, Subpart Kb. The following tanks have capacities greater than or equal to 151 m^3 (39,889 gallons) and are therefore required to store VOLs of maximum true vapor pressures less than 3.5 kPa (0.5 psia) such that only the requirements of 60.116b(a) and (b) of Subpart Kb are applicable: ADN315, ADN316, ADN 359, ADN 382, and ADN385.

The following tanks have capacities greater than or equal to 75 m^3 (19,812 gallons) but less than 151 m^3 (39,889 gallons) and are therefore required to store VOLs of maximum true vapor pressures less than 15.0 kPa (2.1 psia) such that only the requirements of 60.116b(a) and (b) of Subpart Kb are applicable: ADN318, ADN383, ADN384.

Tank 382 is subject to the requirements of 40 CFR Part 60, Subpart Kb, and is therefore equipped with a closed vent system and control device in compliance with the

requirements of 50.112b(a)(3). This standard requires the closed vent system to collect all VOC vapors and gases discharged from the storage vessel as indicated by an instrument reading of less than 500 ppm above background and visual inspections. The control device is required to reduce inlet VOC emissions by 95 percent or greater.

Periodic Monitoring

VOC

Compliance with the requirements of 40 CFR Part 60, Subpart Kb is determined by performing periodic floating roof inspections for Tank ADN301, maintaining records of the type and duration of VOL stored in Tank ADN301, and maintaining records for vapor pressures of the materials stored for all tanks associated with this unit. This unit is subject to the applicable recordkeeping requirements of 40 CFR 60.115b and 60.116b.

ADN Group 1 Tanks

Unit Specific Changes

There were no significant changes made to this unit during the renewal period.

Overview

Ascend has indicated that the following are HON tanks. These tanks are classified as Group 1 HON Storage Tanks. These tanks are equipped with floating roofs to meet the requirements of the HON.

Emission Point #	Tank ID
028	ADN 302
097	ANT 63
094	ANT 59
046	ANT 60
Tanks 97 and 98	Tanks 97 and 98

The capacity, vapor pressure of the material stored, and control requirement of the tanks is included in the table below.

Emission Point	Capacity	Pollutant	Vapor Pressure	Control Requirement	Standard
ADN 302	$\geq$ 151 m^3	VOC	$\geq$ 5.2 kPa but < 76.6 kPa	External Floating Roof	335-3-11-.06(6)

ANT 63	≥ 151 m^3	VOC	≥ 5.2 kPa but < 76.6 kPa	External Floating Roof	335-3-11-.06(6)
ANT 59	≥ 151 m^3	VOC	≥ 5.2 kPa but < 76.6 kPa	Internal Floating Roof	335-3-11-.06(6)
ANT 60	≥ 151 m^3	VOC	≥ 5.2 kPa but < 76.6 kPa	Internal Floating Roof	335-3-11-.06(6)
Tanks 97 & 98	≥ 151 m^3	VOC	≥ 5.2 kPa but < 76.6 kPa	Internal Floating Roof	335-3-11-.06(6)

Boiler 6

Unit Specific Changes

Added provisos from the current Air Permit for this source (Air Permit No. 712-0010-X105). This permit was re-issued on January 26, 2016.

Removed the requirements from Air Permit No. 712-0010-X104. This permit was returned to the Department on 10/24/2019.

Removed the requirements that previously referenced these sources being subject to the NOx Trading Program.

Added requirements such that the annual capacity factor for these sources is limited to 10 percent.

Overview

Boiler #6 is a coal-fired unit with a heat content value of 320 MMBTU/hr. The Boiler is equipped with a selective non-catalyst reduction (SNCR) system, an electrostatic precipitator, and a continuous emissions monitoring system (CEMS) for opacity and NOx (and carbon dioxide for verification of NOx emissions).

Emission Standards

This unit is required to limit the annual capacity factor to 10 percent.

Opacity/PM

This unit is subject to the state opacity requirements and the state process weight curve for fuel burning equipment. The boiler is limited to 0.12 lb/MMBTU, which translates to a limit of 38.4 lb/hr for Boiler #6.

SO_2

This unit is subject to the requirements for SO2 emissions from fuel combustion. The SO2 emissions are limited to 4 lb/MMBTU based upon the state fuel burning regulations for Class II Counties. This unit is further restricted to an anti-PSD limit of 3.9 lb/MMBTU, which translates to a limit of 1248 lb/hr for Boiler #6.

HAP

This unit is subject to the requirements of 40 CFR Part 63, Subpart DDDDD. The boiler is subject to the management practices and would require a tune-up every 5 years.

BART

This unit was identified by Ascend as a Best Available Retrofit Technology (BART) eligible unit. The unit is required to be fitted with an electrostatic precipitator for control. No further requirements are applicable for control of particulate emissions other than those shown above (see *Opacity/PM*).

Boiler #6 is limited to SO2 emission rates of 1.4 lb/MMBTU and 448 lb/hr based on 24-hour averages.

. Boiler #6 is limited to NOx emission rates of 109.72 lb/hr based on 24-hour averages.

<u>Periodic Monitoring</u>

Opacity/PM

Compliance with the opacity and particulate limitations is indicated by the COMS in accordance with 40 CFR 60.13.

NOx

Compliance with the NOx requirements is indicated by the CEMS in accordance with 40 CFR Part 75 and the BART requirements for these units.

SO_2

Compliance with the SO2 emission limits for these units is determined by calculating the emission rates in lb/MMBTU based upon the sulfur content and BTU ratings of the coal utilized as fuel. Records of the calculated emissions are to be maintained in a permanent form for a period of at least 5 years.

HAP

Compliance with the HAP requirements is determined by test methods and procedures of §63.7520 of 40 CFR Part 63, Subpart DDDDD. A performance tune-up is required periodically by §63.7515(d).

Boiler 7

Unit Specific Changes

Updated proviso to allow the usage of natural gas and removed the reference of the usage of coal and No. 2 Fuel Oil.

Added provisos that reference anti-PSD limitations.

Added the emission limits for total selective metals (TSM) (or filterable PM) in accordance with 40 CFR 63, Subpart DDDDD.

Updated the SO_2 emission limits to match those in the current Air Permit for this unit.

Updated the NO_x emission limits to match those in the current Air Permit for this unit.

Added the CO emission limits to match those in the current Air Permit in accordance with the requirements referenced in 40 CFR 63, Subpart DDDDD.

Added the hydrochloric acid (HCL) emission limits to match those in the current Air Permit in accordance with the requirements referenced in 40 CFR 63, Subpart DDDDD.

Added the mercury (Hg) emission limits to match those in the current Air Permit in accordance with the requirements referenced in 40 CFR 63, Subpart DDDDD.

Added the anti-PSD combined CO emission limits of this source, Boiler R-1, and Boiler R-2 to match those in the current Air Permit for this unit.

Removed the requirement for Boiler #7 to be equipped with an electrostatic precipitator.

Removed reference of the requirements of the NO_x Budget trade program for this unit.

Clarified the requirements of fuel analysis for sulfur content for this unit.

Added the requirements of an oxygen analyzer system or continuous emission monitoring system (CEMS) for CO and oxygen for this unit in accordance with the requirements of 40 CFR 63.7525(a).

Clarified the requirements of regular performance testing in accordance with the requirements of 40 CFR 63.7515(a).

Replaced the fuel analysis requirements for analyzing the sulfur contents of coal with the requirements referenced in 63.7515(e).

Added further requirements referenced in 40 CFR 63, Subpart DDDDD.

Overview

Emissions from this unit are routed to a selective non-catalyst reduction (SNCR) system for control. This unit is also equipped with an opacity monitor and a continuous emissions monitoring system (CEMS) for NOx.

Emission Standards

Opacity/PM

Emission rates are determined by EPA Reference Methods. Emission rates determined from the reference methods are based upon the average emissions of three one hour tests; therefore, the emission limits listed below are based upon three-hour averages unless otherwise noted.

This unit is subject to the requirements referenced in 40 CFR Part 60, Subpart D. These requirements limit the opacity emissions from this source to less than 20% opacity, except for one six-minute period per hour of not more than 27% opacity.

Particulate emissions from Boiler #7 would be limited to no greater than 0.12 lb/MMBTU and 63.33 lb/hr based upon the state fuel burning equipment regulations. Subpart D also requires particulate emissions to be less or equal to 0.10 lb/MMBTU.

This source is limited to a total selective metals (TSM) (or filterable PM) emission rate of $2.0*10^{-4}$ (or $6.2*10^{-2}$) lb/MMBTU in accordance with the requirements for units designed to burn heavy liquid fuel in Table 2 of 40 CFR 63, Subpart DDDDD.

NOx

This unit is subject to NOx emission limits of 0.20 lb/MMBTU heat input as derived from burning gaseous fossil fuel only, as required by 40 CFR Part 60, Subpart D. Based

upon the heat input value for this unit, this unit is subject to a NOx emission limit of 375.27 lb/hr.

SO_2

This unit is subject to SO_2 emission limits of 1.17 lb/MMBTU and 628.17 lb/hr for anti-PSD purposes.

VOC/HAP

This source is subject to a hydrochloric acid (HCL) emission limit of 0.0011 ($1.1*10^{-3}$) lb/MMBTU in accordance with the requirements for units designed to burn fuel in Table 2 of 40 CFR 63, Subpart DDDDD.

This source is subject to a mercury (Hg) emission limit of $2.0*10^{-6}$ lb/MMBTU in accordance with the requirements for units designed to burn fuel in Table 2 of 40 CFR 63, Subpart DDDDD.

CO

This source is subject to a carbon monoxide (CO) emission limit of 130 ppm by volume on a dry basis corrected to 3% oxygen on a 3-run average in accordance with the requirements for units designed to burn heavy liquid fuel in Table 2 of 40 CFR 63, Subpart DDDDD.

This source is subject to an anti-PSD combined CO emission limit from this source, Boiler R-1, and Boiler R-2 of 162 tons per year as calculated by a 12-month rolling total.

BART

Boiler 7 was identified by Ascend as Best Available Retrofit Technology (BART) eligible units. NOx, SO_2, and PM_{10} are the pollutants of concern. The following emission limits and standards are applicable to this source due to BART limitations.

- NOx: 0.36 lb/MMBTU and 193 lb/hr computed from 24-hour averages.

- SO_2: 0.47 lb/MMBTU and 252 lb/hr.

- PM_{10}: 0.10 lb/MMBTU and must be measured in accordance with 40 CFR Part 60, Method 5.

- This source must be equipped with a continuous NOx monitoring system for determination of compliance with the NOx emission rate.

Periodic Monitoring

Opacity/PM

Compliance with the opacity and particulate limitations of this source is determined by Method 9 and Method 5, respectively. Compliance with the opacity and particulate limitations of this source is also determined by utilizing a continuous opacity monitoring system (COMS).

NOx

Compliance with the NOx limitations is determined by Method 7 or Method 7E or by utilizing a continuous emission monitoring system (CEMS). This CEMS is also used to determine compliance for BART.

SO_2

Compliance with the SO2 limitations is determined by Method 6.

VOC/HAP

Compliance with the HCL, Hg, and TSM limitations are determined in accordance with the performance testing requirements of 40 CFR 63, Subpart DDDDD Table 5 or the fuel testing requirements of 40 CFR 63, Subpart DDDDD Table 6. All limits must be determined in accordance with Table 6 of 40 CFR 63, Subpart DDDDD.

CO

Compliance with the CO limitations is determined by Method 10, and the CO emission factors are determined and reported concurrently with the CO performance testing defined in 40 CFR 63.7515.

Compliance with the CO limitations is also determined by using an oxygen analyzer system or CEMS for CO and oxygen. This control device must be operated, maintained, and certified in accordance with the requirements of 40 CFR 63.7525(a).

Coker 1

Unit Specific Changes

The requirements for Coker No. 2 were removed from the permit. The permit was returned to the Department on 6/14/2021.

Overview

Coker #1 is a coal-fired unit equipped with an opacity monitor, an electrostatic precipitator for the coal spreader stoker, and a baghouse for the coke storage. The Coker has a heat content value of 384 MMBTU/hr.

Emission Standards

Opacity/PM

This unit would be subject to the state opacity requirements and the state process weight curve for fuel burning equipment. The particulate emissions from the unit would be limited to no greater than 0.12 lb/MMBTU based upon the state fuel burning equipment regulations.

SO_2

This unit is subject to the requirements for SO2 emissions from fuel combustion. The SO2 emissions are limited to 4 lb/MMBtu. The sulfur dioxide emissions from this unit is further restricted to anti-PSD limitations of 3.57 lb/MMBTU and 1370.1 lb/hr.

BART

Coker #1 was identified by Ascend as a Best Available Retrofit Technology (BART) eligible unit. The unit is required to be fitted with an electrostatic precipitator for control. No further requirements are applicable for control of particulate emissions other than those shown above (see *Opacity/PM*).

This unit is subject to BART limitations of 3.57 lb/MMBTU and 1,370.1 lb/hr for SO2.

This unit is subject to BART limitations of 104.43 lb/hr for NOx.

Periodic Monitoring

Opacity/PM

Compliance with the opacity and particulate limitations is indicated by the COMS in accordance with 40 CFR 60.13.

SO_2

Compliance with the SO2 emission limits for this unit is determined by calculating the emission rates in lb/MMBTU based upon the sulfur content and BTU ratings of the coal utilized as fuel. Records of the calculated emissions are to be maintained in a permanent form for a period of at least 5 years.

BART

The unit is required to be fitted with an electrostatic precipitator for control.

Boilerhouse Coke Handling and Loading System with Baghouse and Ash Handling Storage with Bagfilters and Baghouses

Unit Specific Changes

Two bagfilters for the #2 ash silo and a baghouse for the #2 ash silo transport system were removed from the permit. The corresponding units have been retired from service (Boiler 5 and Coker #2).

Overview

There are 6 vents from the coke handling and loading system and the ash handling and storage system. These vents consist of a bagfilter for the #1 ash silo, a baghouse for the #1 ash silo transport system, a bagfilter for the #3 ash silo, a baghouse for the #3 ash silo transport system, a baghouse for flyash loading, and a baghouse for the coke handling and loading system.

Emission Standards

Opacity/PM

This source and its associated emission points would be subject to the state opacity requirements and the state process weight curve.

Periodic Monitoring

Opacity/PM

Compliance with the opacity and particulate limitations is determined by Method 9 and Method 5, respectively. Compliance is indicated by daily visual observations of each of the 6 baghouse and bagfilter vents associated with this unit.

Boilerhouse NSPS Kb Tank

Unit Specific Changes

This permit has been removed from the operating permit during this renewal.

Overview

The following tank associated with the boilerhouse (Boiler Fuel Oil Tank) was previously subject to 40 CFR Part 60, Subpart Kb.

Air Permit #	Tank ID
X054	054

The 100,000-gallon fixed roof #2 fuel oil tank for service to Boiler #7 has been incorporated into the ADN storage tanks (see ADN Tanks Subject to Subpart Kb), as Boiler #7 no longer uses #2 fuel oil for start-up.

Hexamethylenediamine (HMD) Synthesis Unit with Hydrogen Synthesis Unit

Unit Specific Changes

Added provisos from most recent issuance of permit for HMD Unit (Air Permit No. 712-0010-X117, issued on July 14, 2020).

Added provisos from Air Permit No. 712-0010-X108, "Two (2) 30 MMBtu/hr Liquid, Heavy-Liquid, and Gas Fired Hydrogen Reformers ("B" and "C")." These units are associated with the HMD Unit. The most recent issuance of this permit was on May 18, 2017.

Overview

This unit is permitted under the following Air Permits, which cover units within the HMD Unit (excluding tanks):

Air Permit #	Description
X043	Hydrogen Synthesis Unit

X117	Hexamethylenediamine (HMD) Manufacturing
X055	250,000 gallon fixed roof crude HMD storage tank
X060	15,320 gallon BHMT storage tank (HMD 527)
X108	Two (2) 30 MMBtu/hr Liquid, Heavy-Liquid, and Gas Fired Hydrogen Reformers ("B" and "C")

Emission Standards

Opacity/PM

This unit would be subject to the state opacity requirements and the state process weight curve for fuel burning equipment. Particulate emissions from each of the B – C Hydrogen Synthesis Reformers would be limited to no greater than 0.31 lb/MMBTU, based upon the state fuel burning equipment regulations.

SO_2

This unit is subject to the requirements for SO2 emissions from fuel combustion. The SO2 emissions are limited to 4 lb/MMBTU.

VOC/HAP

The HMD Refiner #1 within this unit is subject to 40 CFR Part 60, Subpart NNN and Subpart VVa. Compliance with Subpart NNN is shown by maintaining the TRE index value at greater than 8.0.

The Hydrogen Reformers associated with this unit are subject to 40 CFR Part 63, Subpart DDDDD (the "Boiler MACT"). Since the heaters are permitted to fire gas 1 fuels, a tune-up shall be conducted on the heaters at the frequency specified in §63.7515 for all applicable pollutants.

The Hydrogen Reformers associated with this unit are limited to a firing rate of adiponitrile flasher tails (AFT) of 23,532,750 lb/yr based on a 12-month rolling total for anti-PSD purposes. This unit is also subject to the following anti-PSD limitations for VOC:

Emission Point	VOC Emission Limit (TPY)
HMD 218 water scrubber	0.006
HMD 219 water scrubber	0.03
HMD 220 water scrubber	0.19
HMD 221 water scrubber	0.19

HMD 222 water scrubber	0.006

The Hydrogen Reformers B – C are subject to 40 CFR Part 63, Subpart DDDDD. In accordance with the requirements for units designed to burn liquid fuel in Table 2 of this subpart, the following emission limits are applicable for these reformers:

Pollutant	Emission Limit
Hydrogen Chloride (HCL)	1.1e-3 lb/MMBTU
Mercury (Hg)	2.0e-6 lb/MMBTU
Carbon Monoxide (CO)	130 ppmvd @ 3% O2
Total Selective Metals (TSM) (or filterable PM)	$2.0*10^{-4}$ (or $6.2*10^{-2}$) lb/MMBTU

<u>Periodic Monitoring</u>

Opacity/PM

Compliance with the opacity and particulate limitations is determined by Method 9 and Method 5, respectively. Compliance is indicated by maintaining the flue gas oxygen content of this source between 1.5% and 5.0% when burning fuels other than natural gas, and maintaining the flue gas temperature at or below 1093 °C, both based upon 3 hour rolling averages.

VOC/HAP

Compliance with the process vent requirements for HMD Refiner #1 is shown by maintaining the TRE index value at greater than 8.0, such that only the requirements of §60.664(d), (e), and (f), and §60.665(h) and (l) of Subpart NNN are applicable.

The Hydrogen Reformers B – C are subject to the Boiler MACT Part 63, Subpart DDDDD. A performance tune-up is required periodically by §63.7515(d). Compliance with the HCL, Hg, CO, and TSM emission limits are demonstrated by the methods listed in 40 CFR 63, Subpart DDDDD Table 5 or the fuel testing requirements of 40 CFR 63, Subpart DDDDD Table 6, as applicable. Fuel analysis for each type of fuel burned is to be conducted at the intervals stated in 40 CFR 63.7515(e). An oxygen analyzer system or CEMS for CO and oxygen is required to be operated, maintained, and certified in accordance with 40 CFR 63.7525(a).

Compliance with the VOC emission rates is shown by Reference Method 18 in Appendix A of 40 CFR Part 60. Compliance with the anti-PSD VOC limits is indicated by maintaining the water scrubber flow rate at greater than 1.0 gpm by use of a rotameter

for the following water scrubbers: HMD 218-222, and HMD 208. HMD 223 and 224 must maintain a water scrubber flow rate at greater than 0.8 gpm.

Tetrabutyl Alkyl Amine (TAA) Unit

Unit Specific Changes

There were no significant changes made to the provisos for this unit during the renewal period. However, Ascend has requested that the name of this unit be changed from "Tetrabutyl Alkyl Amine (TAA) Unit" to "Tetrabutylhexamethylenediamine (TBHMD) Unit." The facility has stated that this name more accurately identifies its purpose, and that this is how the facility refers to this process.

Overview

In this process, Hexamethylenediamine (HMD) is batch-reacted with various materials to produce Tetrabutlyhexamethylenediamine (TBHMD). TBHMD is a precursor for a directional salt used in ADN synthesis.

Emission Standards

This unit vents through emission point HMD 204, the low pressure diamine stack in the HMD Unit. There are no particulate sources in this unit and there are no emission standards for this unit other than those listed in the General Permit Provisos. No periodic monitoring is necessary.

Boiler R-1

Unit Specific Changes

Added provisos from Air Permit No. 712-0010-X109, "99.9 MMBtu/hr Natural Gas Fired Boiler (Boiler R-1)." This permit was initially issued on November 20, 2017, and was re-issued on August 21, 2018 to account for modifications involving the installation of Boiler R-2, issued on the same date.

Overview

The Boiler R-1 is a 75,000 lb/hr (99.9 MMBTU/hr) steam boiler. This unit is limited to burning natural gas. This unit was previously authorized to operate for a period of less than 12 months. However, following an application submitted to the Department on July

25, 2017, the facility has been permitted to operate the boiler for an indefinite period of time in order to provide process flexibility.

Emission Monitoring

Opacity/PM

This boiler is subject to the state opacity requirements and the state process weight curve for fuel burning equipment. The particulate emissions from this boiler would be limited to no greater than 0.18 lb/MMBTU, based upon the state fuel burning equipment regulations. This source is limited to the use of natural gas only.

NOx

This unit is subject to NSPS, Subpart Dc. Since only natural gas is utilized, no monitoring is required in addition to the applicable fuel record requirements.

SO_2

This boiler is subject to the requirements for SO2 emissions from fuel combustion. The SO2 emissions are limited to 1.8 lb/MMBTU.

VOC/HAP

This boiler is subject to the requirements of 40 CFR Part 63, Subpart DDDDD.

This source is subject to an anti-PSD combined CO emission limit from this source, Boiler 7, and Boiler R-2 of 162 tons per year as calculated by a 12-month rolling total.

Periodic Monitoring

Opacity/PM

Compliance with the opacity and particulate limitations is determined by Method 9 and Method 5, respectively. Compliance with the opacity and particulate limitations is indicated by limiting this source to firing natural gas.

NOx

Compliance with the NOx requirements is determined by maintaining monthly records of the total amount of fuel combusted in this source as required by Subpart Dc.

VOC/HAP

Compliance with the VOC requirements is determined by the test methods and procedures of 40 CFR Part 63, Subpart DDDDD. A tune-up is required periodically by §63.7540.

Compliance with the CO limitations is determined by Method 10, and the CO emission rates are required to be maintained for a period of five years.

Boiler R-2

Unit Specific Changes

Added provisos from Air Permit No. 712-0010-X112, "99.9 MMBtu/hr Natural Gas Fired Boiler (Boiler R-2)." This permit was issued on August 21, 2018.

Overview

The Boiler R-2 is a 75,000 lb/hr (99.9 MMBTU/hr) steam boiler. This unit is limited to burning natural gas.

Emission Monitoring

Opacity/PM

This boiler is subject to the state opacity requirements and the state process weight curve for fuel burning equipment. The particulate emissions from this boiler would be limited to no greater than 0.18 lb/MMBTU, based upon the state fuel burning equipment regulations. This source is limited to the use of natural gas only.

NOx

This unit is subject to NSPS, Subpart Dc. Since only natural gas is utilized, no monitoring is required in addition to the applicable fuel record requirements.

SO_2

This boiler is subject to the requirements for SO2 emissions from fuel combustion. The SO2 emissions are limited to 1.8 lb/MMBTU.

VOC/HAP

This boiler is subject to the requirements of 40 CFR Part 63, Subpart DDDDD.

This source is subject to an anti-PSD combined CO emission limit from this source, Boiler 7, and Boiler R-2 of 162 tons per year as calculated by a 12-month rolling total.

Periodic Monitoring

Opacity/PM

Compliance with the opacity and particulate limitations is determined by Method 9 and Method 5, respectively. Compliance with the opacity and particulate limitations is indicated by limiting this source to firing natural gas.

NOx

Compliance with the NOx requirements is determined by maintaining monthly records of the total amount of fuel combusted in this source as required by Subpart Dc.

VOC/HAP

Compliance with the VOC requirements is determined by the test methods and procedures of 40 CFR Part 63, Subpart DDDDD. A tune-up is required periodically by §63.7540.

Compliance with the CO limitations is determined by Method 10, and the CO emission rates are required to be maintained for a period of five years.

Utilities

Unit Specific Changes

Added provisos from Air Permit No. 712-0010-X107, "305 HP Emergency Fire Water Pump Engine." This permit was issued on March 27, 2017.

Added provisos from Air Permit No. 712-0010-X110, "158 HP Emergency Generator." This permit was issued on November 20, 2017.

Added provisos for the remaining six existing generators that the facility included in the Title V application.

Overview

The engine identification, rated power, ignition type, service, emission standards, and standard for which the engine is subject to is listed below for each engine.

Emission Point	Rated Power (hp)	Ignition Type (CI or SI)	Service	Emission Standards	Standard
#5 Fire Pump Engine	300	CI	Emergency	3.0 g/HP-hr NMHC + NOx	335-3-10-.02(87) 335-3-11-.06(103)
				0.15 g/HP-hr PM	
#6 Fire Pump Engine	305	CI		3.0 g/HP-hr NMHC + NOx	335-3-10-.02(87) 335-3-11-.06(103)
				0.15 g/HP-hr PM	
#7 Fire Pump Engine	300	CI		3.0 g/HP-hr NMHC + NOx	335-3-10-.02(87) 335-3-11-.06(103)
				0.15 g/HP-hr PM	
#10 Fire Pump Engine	425	CI		3.0 g/HP-hr NMHC+NOx	335-3-10-.02(87) 335-3-11-.06(103)
				0.15 g/HP-hr PM	
#11 Fire Pump Engine	425	CI		3.0 g/HP-hr NMHC + NOx	335-3-10-.02(87) 335-3-11-.06(103)
				0.15 g/HP-hr PM	
Emergency Diesel Engine	158	CI		4.0 g/kW-hr NMHC +NOx	335-3-10-.02(87) 335-3-11-.06(103)
				0.30 g/kW-hr PM	
				5.0 g/kW-hr CO	
Emergency Generator – LP	200	SI		0.54 g/kW-hr PM	335-3-10-.02(88) 335-3-11-.06(103)
				11.4 g/kW-hr CO	

Compliance Assurance Monitoring (CAM) Plan

The application for the current renewal did not contain a CAM Plan. The facility has stated that most of the emission points contained within the operating permit are exempted from CAM requirements because they are equipped with material recovery devices, rather than control devices, or are subject to monitoring requirements in a federal standards (NSPS or MACT). It is noted that the facility submitted monitoring requirements that meet 40 CFR Part 64 with Form 103 of the application.

Environmental Justice

ADEM utilized EJSCREEN screening tool to help identify areas that may warrant additional consideration, analysis, or outreach (see Appendix A).

Items Deleted from Previous Title V Permit

BoilerHouse Tank (EP054) ("Boilerhouse NSPS Kb Tank")

Requirements referencing the previously voided unit, Boiler #5.

Requirements referencing the previously voided unit, Coker #2.

Appendix A

Environmental Justice Screening
Ascend Performance Materials Operations, LLC
Decatur