

Statement of Basis
 UOP LLC Mobile Plant
 Mobile County
 503-8010

UOP LLC Mobile Plant (UOP) has applied for renewal of Major Source Operating Permit No. 503-8010. This proposed Title V Major Source Operating Permit Renewal is issued under the provisions of ADEM Admin. Code r. 335-3-16. 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 the permit.

Background

This facility is a chemical production plant that produces synthetic materials to be used as adsorbents and/or catalyst in various manufacturing applications. The facility is allowed to operate 8,760 hours per year unless otherwise specified. Based on the Title V permit application, this facility is a major source for particulate matter (PM and PM₁₀), carbon monoxide (CO), nitrogen oxides (NO_x), and carbon dioxide equivalents (CO_{2e}). The facility is also a major source for PSD.

Changes from the existing permit:

1. Incorporated the following Air Permits:

Permit Number	Permit Description	Issued
X138	Process Unit #002, Bulk Bag Unloading System Venting to Emission Point EP-138 for Control	March 22, 2012
X140	Process Unit #004, P505 Modification (EP-136, EP-137, and EP-140)	May 16, 2014
X141	Process Unit #002, Crystallizer Dust Collection System (EP-141)	November 10, 2014
X073	Process Unit #008, Baghouse (EP-027), Rotary Kiln (EP-030), Replacement Baghouse (EP-073), and Baghouse (EP-074)	January 14, 2015
X112	Process Unit #010, Baghouse (EP-043), Wet Scrubber (EP-083), and Replacement Baghouse (EP-112)	March 13, 2015
X114	Process Unit #020, Molecular Sieve Production Line 14 Ion Exchange Dryer (EP-114A, EP-114B, and EP-114C)	July 21, 2016
X153	Process Unit #007, High Temperature Belt Dryer Wet Scrubber (EP-153)	February 18, 2020
X154	Process Unit #012, Molecular Sieve Production Line 6 Baghouse (EP-154)	April 28, 2020

2. Incorporated Permit Unit No. 023 (Emergency Engines).
3. Administratively updated the language in the applicability section for all permit units.
4. Administratively updated the language for visible emission (VE) checks in the emission monitoring section and the recordkeeping and reporting requirements section for all permit units.
5. Administratively added the state sulfur dioxide (SO₂) fuel combustion limit and requirements for multiple permit units.
6. Incorporated 40 CFR Part 63, Subpart VVVVVV requirements for multiple permit units.

Each of the significant emission units is described below:

Permit Unit No. 001 – Steam Generation Boilers

Unit Specific Changes

Boiler 8100 (EP-001) and Boiler 7900 (EP-062) are subject to the state particulate matter (PM) limit for fuel burning equipment. The PM limit for the two boilers has been clarified as the PM fuel burning equation ($E = 1.38H^{0.44}$).

Boiler 8020 (EP-107) is subject to the requirements of 40 CFR Part 60, Subpart Dc. The facility is required to maintain records of the natural gas combusted in each operating day. As an alternative, since the facility combusts only natural gas, the facility may elect to record and maintain records of the amount of fuel combusted during each calendar month. The recordkeeping and reporting requirements section has been updated to reflect the alternative.

Overview

Steam is generated from the combustion of natural gas in three process heat boilers (Boilers 7900, 8020, and 8100). Boiler 8020 (EP-107) is subject to the requirements of 40 CFR Part 60, Subpart Dc and to synthetic minor PSD emission limitations for particulate matter (PM) and sulfur dioxide (SO₂). Boilers 8100 (EP-001) and 7900 (EP-062) are not subject to 40 CFR Part 60, Subpart Dc because they were constructed prior to the applicability date of the subpart, June 9, 1989.

Emission Standards

Opacity

The three process heat boilers (Boilers 7900, 8020, and 8100) are subject to the state opacity standard.

Particulate Matter (PM)

The boilers are subject to the state allowable particulate limit for fuel burning equipment; however, in order to avoid PSD review, the facility has committed to a more stringent particulate limit on Boiler 8020 (EP-107) of 3.4 lb/hr.

Sulfur Dioxide (SO₂)

The boilers are subject to the state allowable sulfur dioxide (SO₂) limit for fuel combustion (1.8 lb/MMBtu). In order to avoid PSD review, the facility has committed to a more stringent SO₂ limit on Boiler No. 8020 (EP-107) of 9.0 lb/hr.

Periodic Monitoring

Opacity/Particulate Matter (PM)

As an indicator of compliance with the opacity and particulate limits associated with this unit, the facility is required to perform visual observations at least once per day on at least two days per calendar week. If visible emissions are noted, the facility must initiate corrective action within one (1) hour of discovery. Records of the visual inspections shall be maintained along with any corrective action taken.

Sulfur Dioxide (SO₂)

Since the three process heat boilers (Boilers 7900, 8020, and 8100) are permitted to fire natural gas only, the units would meet the SO₂ limits inherently. Therefore, no periodic monitoring is required.

Permit Unit No. 002 – General Material Handling

Unit Specific Changes

Incorporated Air Permit 503-8010-X138: This permit was issued on March 22, 2012. The permit was for the installation of a new bulk bag unloading system and an accompanying baghouse. The unloading system would be utilized to unload dry silicon dioxide.

Incorporated Air Permit 503-8010-X141: This permit was issued on November 10, 2014. The permit was for the installation of a new crystallizer with a solids addition system in the Intermediates Processing Area. Solid materials would be added to the new crystallizer via bags or super sacks, and would be controlled by a new dust collection system.

Overview

The General Material Handling (Permit Unit No. 002) includes areas of raw material delivery, unloading to storage silos, transfers to processes, and emission control baghouses. This unit involves the handling of general material that is not specific to any one individual process line. This unit is subject to the state requirements for opacity, particulate, and sulfur dioxide.

Emission Standards

Opacity

The General Material Handling Unit is subject to the state opacity standard.

Particulate Matter (PM)

The state process weight curve is applicable to all of the emission points associated with General Material Handling; however, in order to avoid PSD review, the facility has committed to more stringent particulate matter (PM) limits for EP-138 and EP-141. The limits for these emission points are listed in the table below.

Emission Point No.	Pollutant	Emission Limit (lb/hr)
EP-138	PM	0.30
EP-141	PM	0.10
EP-141	PM ₁₀	0.084
EP-141	PM _{2.5}	0.05

The dryer associated with EP-014, is not subject to the state allowable particulate limit for fuel burning equipment. Under ADEM Admin. Code r. 335-3-1-.02(ee) fuel-burning equipment applies only to indirect heating. Since the equipment is direct-fired the fuel-burning equipment definition does not apply.

Sulfur Dioxide (SO₂)

The dryer associated with EP-014 is subject to the state allowable sulfur dioxide (SO₂) limit for fuel combustion (1.8 lb/MMBtu). Under ADEM Admin. Code r. 335-3-5-.01(1)(a) any fuel burning installation in a Category I County is subject to the sulfur dioxide fuel combustion requirement.

Periodic Monitoring

Opacity/Particulate Matter (PM)

As an indicator of compliance with the opacity and particulate limits associated with this unit, the facility is required to perform visual observations at least once per day on at least two days per calendar week. If visible emissions are noted, the facility must initiate corrective action within one (1) hour of discovery. Records of the visual inspections shall be maintained along with any corrective action taken.

Sulfur Dioxide (SO₂)

Since the dryer associated with EP-014 is permitted to fire natural gas only, the unit would meet the SO₂ limits inherently. Therefore, no periodic monitoring is required.

Permit Unit No. 003 – Pneumatic Clay Transfer System

Overview

The Pneumatic Clay Transfer System (Permit Unit No. 003) involves the raw material transfer of clay from storage silos to various process lines throughout the facility. This unit is subject to the state requirements for opacity and particulate.

Emission Standards

Opacity

The Pneumatic Clay Transfer System is subject to the state opacity standard.

Particulate Matter (PM)

The state process weight curve is applicable to all of the emission points associated with the Pneumatic Clay Transfer System.

Periodic Monitoring

Opacity/Particulate Matter (PM)

As an indicator of compliance with the opacity and particulate limit associated with this unit, the facility is required to perform visual observations at least once per day on at least two days per calendar week. If visible emissions are noted, the facility must initiate corrective action within one (1) hour of discovery. Records of the visual inspections shall be maintained along with any corrective action taken.

Permit Unit No. 004 – Project 505

Unit Specific Changes

Incorporated Air Permit 503-8010-X140: This permit was issued on May 16, 2014. This permit was for the upgrades to the production line in the Project 505 Unit. The production line manufactures the product MO54 (molecular sieve powders and spheres) and is referred to as the P505 Modification.

Overview

The Project 505 (Permit Unit No. 004) produces new generation materials, including adsorbents and catalysts to be used in various manufacturing and operational applications. This unit is subject to the state requirements for opacity, particulate, sulfur dioxide and synthetic minor PSD emission limitations.

Emission Standards

Opacity

The Project 505 Unit is subject to the state opacity standard.

Particulate Matter (PM)

The state process weight curve is applicable to all of the emission points associated with the Project 505 unit; however, in order to avoid PSD review, the facility has committed to more stringent particulate matter (PM) limits for EP-069, EP-136, EP-137, and EP-140. The limits for these emission points are listed in the table below.

Emission Point No.	Pollutant	Emission Limit (lb/hr)
EP-069	PM	1.25
EP-069	PM ₁₀	1.05
EP-069	PM _{2.5}	0.63
EP-136	PM	0.44
EP-136	PM ₁₀	0.37
EP-136	PM _{2.5}	0.24
EP-137	PM	0.12
EP-137	PM ₁₀	0.10
EP-137	PM _{2.5}	0.06
EP-140	PM	0.51
EP-140	PM ₁₀	0.43
EP-140	PM _{2.5}	0.26

The P505 Heater (EP-081) is subject to the state allowable particulate limit for fuel burning equipment. Since the combustion equipment is rated under 10 MMBtu/hr the PM emission limit is 0.5 lb/MMBtu, as referenced in Table 4-1 of ADEM Admin. Code r. 335-3-4-.03. Under ADEM Admin. Code r. 335-3-1-.02(ee) fuel-burning equipment applies only to indirect heating. Since the dryer associated with EP-087 and the spray dryer associated with EP-136 are direct-fired the fuel burning equipment definition does not apply.

In order to avoid a PSD review, the facility has also limited the total amount of molecular sieve material that can be transferred to Project 505. The facility is limited to transferring 2,400,000 lbs. of molecular sieve material to Project 505, based on a twelve month rolling total.

Sulfur Dioxide (SO₂)

The P505 Heater (EP-081), the direct-fired dryer associated with EP-087, and the spray dryer associated with EP-136 are subject to the state allowable sulfur dioxide (SO₂) limit for fuel combustion (1.8 lb/MMBtu). Under ADEM Admin. Code r. 335-3-5-.01(1)(a) any fuel burning installation in a Category I County is subject to the SO₂ fuel combustion requirement.

Volatile Organic Compound (VOC)

There are no VOC numerical limits for the wet scrubber systems (EP-088A and EP-088B). The VOC emissions from the crystallizers and filtration system are routed to two scrubbers in series (EP-088A) for control. The packed tower scrubber (EP-088B) is used as an emergency backup for the crystallizers in case pressurization is lost. The design of the system shall constitute compliance and no periodic monitoring is required.

Periodic Monitoring

Opacity/Particulate Matter (PM)

As an indicator of compliance with the opacity and particulate limits associated with this unit, the facility is required to perform visual observations at least once per day on at least two days per calendar week. If visible emissions are noted, the facility must initiate corrective action within one (1) hour of discovery. Records of the visual inspections shall be maintained along with any corrective action taken.

As an indicator of compliance with the amount of molecular sieve material transferred to Project 505, the facility shall calculate the amount of material transferred per month and maintain a twelve month rolling total.

Sulfur Dioxide (SO₂)

The P505 Heater (EP-081), the direct-fired dryer associated with EP-087, and the spray dryer associated with EP-136 are permitted to fire natural gas only, the units would meet the SO₂ limits inherently. Therefore, no periodic monitoring is required.

Permit Unit No. 005 – MPI Process

Overview

The MPI Process (Permit Unit No. 005) involves processing raw materials with a direct-fired dryer. The process emissions from the direct-fired dryer are routed to baghouse (23220). This unit is subject to the state requirements for opacity, particulate, sulfur dioxide, and synthetic minor PSD emission limitations.

Emission Standards

Opacity

The MPI Process is subject to the state opacity standard.

Particulate Matter (PM)

The state process weight curve is applicable to all of the emission points associated with the MPI Process; however, in order to avoid PSD review, the facility has committed to a more stringent particulate matter (PM) limit of 3.4 lb/hr for Baghouse (23220) on Direct-Fired Dryer (EP-121).

The dryer associated with EP-121 is not subject to the state allowable PM limit for fuel burning equipment. Under ADEM Admin. Code r. 335-3-1-.02(ee) fuel-burning equipment applies only to indirect heating. Since the dryer associated with EP-121 is direct-fired the fuel burning equipment definition does not apply.

Sulfur Dioxide (SO₂)

The dryer associated with EP-121 is subject to the state allowable sulfur dioxide (SO₂) limit for fuel combustion (1.8 lb/MMBtu). Under ADEM Admin. Code r. 335-3-5-.01(1)(a) any fuel burning installation in a Category I County is subject to the SO₂ fuel combustion requirement.

Periodic Monitoring

Opacity/Particulate Matter (PM)

As an indicator of compliance with the opacity and particulate limits associated with this unit, the facility is required to perform visual observations at least once per day on at least two days per calendar week. If visible emissions are noted, the facility must initiate corrective action within one (1) hour of discovery. Records of the visual inspections shall be maintained along with any corrective action taken.

Sulfur Dioxide (SO₂)

The dryer associated with EP-121 is permitted to fire natural gas only, the unit would meet the sulfur dioxide (SO₂) limits inherently. Therefore, no periodic monitoring is required.

Permit Unit No. 006 – Catalyst Plant 6A

Overview

Catalyst Plant 6A (Permit Unit No. 006) produces pellets and activated powder to be used as catalysts in various manufacturing and operational applications. This unit is subject to the state requirements for opacity, particulate, sulfur dioxide, and synthetic minor PSD emission limitations.

Emission Standards

Opacity

The Catalyst Plant 6A is subject to the state opacity standard.

Particulate Matter (PM)

The state process weight curve is applicable to all of the emission points associated with Catalyst Plant 6A; however, in order to avoid PSD review, the facility has committed to more a stringent particulate matter (PM) limit for 11960 Bag Collector (EP-079) of 0.46 lb/hr.

The Line 6A Kiln (EP-078) is subject to the state allowable particulate limit for fuel burning equipment. Since the kiln is rated under 10 MMBtu/hr the PM emission limit is 0.5 lb/MMBtu, as referenced in Table 4-1 of ADEM Admin. Code r. 335-3-4-.03.

Sulfur Dioxide (SO₂)

The Line 6A Kiln (EP-078) is subject to the state allowable sulfur dioxide (SO₂) limit for fuel combustion (1.8 lb/MMBtu). Under ADEM Admin. Code r. 335-3-5-.01(1)(a) any fuel burning installation in a Category I County is subject to the SO₂ fuel combustion requirement.

Nitrogen Oxides (NO_x)

The Line 6A Kiln process emissions are routed to 11960 Bag Collector (EP-079). For certain products, process emissions can contain nitrogen oxides (NO_x) emissions. Since the bag collector has no numerical NO_x limits, no periodic monitoring is required.

Periodic Monitoring

Opacity/Particulate Matter (PM)

As an indicator of compliance with the opacity and particulate limits associated with this unit, the facility is required to perform visual observations at least once per day on at least two days per calendar week. If visible emissions are noted, the facility must initiate corrective action within one (1) hour of discovery. Records of the visual inspections shall be maintained along with any corrective action taken.

Sulfur Dioxide (SO₂)

The Line 6A Kiln (EP-078) is permitted to fire natural gas only, the unit would meet the sulfur dioxide (SO₂) limit inherently. Therefore, no periodic monitoring is required.

Permit Unit No. 007 – High Temperature Belt Dryer

Unit Specific Changes

Incorporated Air Permit 503-8010-X153: This permit was issued on February 18, 2020. This permit was for the installation of a scrubber to control total metal HAP process emissions from Zone 1 of the High Temperature Belt Dryer. This permit also incorporated the requirements of 40 CFR Part 63, Subpart VVVVVV.

Overview

The High Temperature Belt Dryer (Permit Unit No. 007) is utilized to dry catalyst products from the forming process prior to the activation in catalyst kilns. The high temperature belt dryer consists of four zones, each zone contains a natural gas fueled burner that is utilized to indirectly heat a catalyst material. The process emissions from Zone 1 are routed to an uncontrolled emission point (EP-089) or to the Zone 1 Scrubber (EP-153). The process emissions from Zone 2, Zone 3, and Zone 4 of the dryer are routed to the uncontrolled emission point (EP-089) or thru a baghouse to DeNO_x Unit (EP-105). This unit is subject to 40 CFR Part 63, Subpart VVVVVV and synthetic minor PSD emission limitations.

Emission Standards

Opacity

The High Temperature Belt Dryer is subject to the state opacity standard.

Particulate Matter (PM)

The state process weight curve is applicable to all of the emission points that are associated with the process emissions from dryer (EP-089, EP-105, and EP-153).

The natural gas burners associated with the dryer (EP-90, EP-91, EP-92, and EP-93) are subject to the state allowable particulate matter (PM) limit for fuel burning equipment. Since the dryer is rated under 10 MMBtu/hr the particulate matter (PM) emission limit is 0.5 lb/MMBtu, as referenced in Table 4-1 of ADEM Admin. Code r. 335-3-4-.03.

Sulfur Dioxide (SO₂)

The natural gas burners associated with the dryer (EP-90, EP-91, EP-92, and EP-93) are subject to the state allowable sulfur dioxide (SO₂) limit for fuel combustion (1.8 lb/MMBtu). Under ADEM Admin. Code r. 335-3-5-.01(1)(a) any fuel burning installation in a Category I County is subject to the SO₂ fuel combustion requirement.

Total Metal HAP

The High Temperature Belt Dryer (Process Unit No. 007) is subject to the requirements of 40 CFR Part 63, Subpart VVVVVV. Since the facility emits total metal HAP (nickel compounds) at a rate greater than 400 lb/hr, they must reduce collective uncontrolled emissions of total metal HAP emissions by ≥ 95 percent by weight from a sufficient number of the metal HAP process vents. The table below details the emission points from the High Temperature Belt Dryer that contain metal HAP, the type of control device associated with the emission point, the particulate matter removal efficiency of the control device, and the metal HAP emissions (TPY) from each point.

Emission Point No.	Type of Emission Control	Particulate Matter Removal Efficiency	Total Metal HAP Emissions (TPY)
EP-089	N/A	N/A	0.186
EP-153	Scrubber	95.0%	0.065

Nitrogen Oxides (NO_x)

The DeNO_x Unit (EP-105) is permitted under Molecular Sieve Production Line 6 (Process Unit No. 012). For certain products, process emissions from the dryer can be routed through a baghouse to the DeNO_x Unit. Since the high temperature dryer has no numerical NO_x limits, no periodic monitoring is required.

Periodic Monitoring

Opacity/Particulate Matter (PM)

As an indicator of compliance with the opacity and particulate limits associated with this unit, the facility is required to perform visual observations at least once per day on at least two days per calendar week. If visible emissions are noted, the facility must initiate corrective action within one (1) hour of discovery. Records of the visual inspections shall be maintained along with any corrective action taken.

Sulfur Dioxide (SO₂)

The natural gas burners associated with the dryer (EP-90, EP-91, EP-92, and EP-93) are permitted to fire natural gas only, the units would meet the sulfur dioxide (SO₂) limit inherently. Therefore, no periodic monitoring is required.

Total Metal HAP

As an indicator of compliance with the total metal HAP emission limitation, the facility is required to perform quarterly vessel inspections of process vessels and equipment for each chemical manufacturing process unit (CMPU) in metal HAP service to determine that the process vessels are sound and free of leaks, as required by §63.11495(a)(3). Records of the inspection shall be maintained along with any corrective action taken.

Permit Unit No. 008 – Molecular Sieve Production Line 1

Unit Specific Changes

Incorporated Air Permit 503-8010-X073: This permit was issued on January 14, 2015. This permit was for the replacement of Baghouse 4725 on 2 Mixers, Forming, and Predryer (No. 1 Line) (EP-073).

Overview

The Molecular Sieve Production Line 1 (Permit Unit No. 008) utilizes molecular sieves, clay, water, and/or caustic to produce beads to be used as adsorbents in various manufacturing and operational applications. This unit is subject to the state requirements for opacity, particulate, and sulfur dioxide.

Emission Standards

Opacity

The Molecular Sieve Production Line 1 is subject to the state opacity standard.

Particulate Matter (PM)

The state process weight curve is applicable to all of the emission points associated with Molecular Sieve Production Line 1.

The No. 1 Rotary Kiln (EP-030) is subject to the state allowable particulate limit for fuel burning equipment. Since the kiln is rated under 10 MMBtu/hr the particulate matter (PM) emission limit is 0.5 lb/MMBtu, as referenced in Table 4-1 of ADEM Admin. Code r. 335-3-4-.03. Under ADEM Admin. Code r. 335-3-1-.02(ee) fuel-burning equipment applies only to indirect heating. Since the dryer associated with EP-074 is direct-fired the fuel burning equipment definition does not apply.

Sulfur Dioxide (SO₂)

The No. 1 Rotary Kiln (EP-030) and the direct-fired dryer associated with EP-074 are subject to the state allowable sulfur dioxide (SO₂) limit for fuel combustion (1.8 lb/MMBtu). Under ADEM Admin. Code r. 335-3-5-.01(1)(a) any fuel burning installation in a Category I County is subject to the SO₂ fuel combustion requirement.

Periodic Monitoring

Opacity/Particulate Matter (PM)

As an indicator of compliance with the opacity and particulate limits associated with this unit, the facility is required to perform visual observations at least once per day on at least two days per calendar week. If visible emissions are noted, the facility must initiate corrective action within one

(1) hour of discovery. Records of the visual inspections shall be maintained along with any corrective action taken.

Sulfur Dioxide (SO₂)

The No. 1 Rotary Kiln (EP-030) and the direct-fired dryer associated with EP-074 are permitted to fire natural gas only, the units would meet the sulfur dioxide (SO₂) limits inherently. Therefore, no periodic monitoring is required.

Permit Unit No. 012 – Molecular Sieve Production Line 6

Unit Specific Changes

Incorporated Air Permit 503-8010-X154: This permit was issued on April 28, 2020. This permit was for the installation of Baghouse on P&S Dryer (EP-154). This baghouse was installed to control total metal HAP process emissions from the P&S Dryer.

Overview

The Molecular Sieve Production Line 6 (Permit Unit No. 012) utilizes molecular sieves, alumina, clay, additives, and/or proprietary metals to produce pellets and activated powder to be used as catalyst in various manufacturing and operational applications. This unit is subject to the requirements of 40 CFR Part 63, Subpart VVVVVV. The Pneumatic Transfer System Wet Scrubber (EP-028) and Baghouse on P&S Dryer (EP-154) are subject to Compliance Assurance Monitoring (CAM) requirements.

Emission Standards

Opacity

The Molecular Sieve Production Line 6 is subject to the state opacity standard.

Particulate Matter (PM)

The state process weight curve is applicable to all of the emission points associated with Molecular Sieve Production Line 6.

The No. 6 Rotary Kiln (EP-037) is subject to the state allowable particulate limit for fuel burning equipment. Since the kiln is rated under 10 MMBtu/hr the particulate matter (PM) emission limit is 0.5 lb/MMBtu, as referenced in Table 4-1 of ADEM Admin. Code r. 335-3-4-.03. Under ADEM Admin. Code r. 335-3-1-.02(ee) fuel-burning equipment applies only to indirect heating. Since the dryer associated with EP-016, pre-dryer associated with EP-028, and dryer associated with EP-154 are direct-fired the fuel burning equipment definition does not apply.

Sulfur Dioxide (SO₂)

The dryer associated with EP-016, pre-dryer associated with EP-028, No. 6 Rotary Kiln (EP-037), and dryer associated with EP-154 are subject to the state allowable sulfur dioxide (SO₂) limit for fuel combustion (1.8 lb/MMBtu). Under ADEM Admin. Code r. 335-3-5-.01(1)(a) any fuel burning installation in a Category I County is subject to the SO₂ fuel combustion requirement.

Total Metal HAP

The Molecular Sieve Production Line 6 (Process Unit No. 012) is subject to the requirements of 40 CFR Part 63, Subpart VVVVVV. Since the facility emits total metal HAP (nickel compounds) at a rate greater than 400 lb/hr, they must reduce collective uncontrolled emissions of total metal HAP emissions by ≥ 95 percent by weight from a sufficient number of the metal HAP process vents. The table below details the emission points from the Molecular Sieve Production Line 6 that contain metal HAP, the type of control device associated with the emission point, the particulate matter removal efficiency of the control device, and the metal HAP emissions (TPY) from each point.

Emission Point No.	Type of Emission Control	Particulate Matter Removal Efficiency	Total Metal HAP Emissions (TPY)
EP-024	Baghouse	99.9%	0.170
EP-028	Wet Scrubber	99.1%	0.422
EP-131	Baghouse	99.9%	0.486
EP-132	Baghouse	99.9%	0.486
EP-133	Wet Scrubber	99.9%	0.006
EP-135	Baghouse	99.9%	0.016
EP-154	Baghouse	99.9%	0.277

Nitrogen Oxides (NO_x)

The DeNO_x Unit (EP-105) was installed voluntarily to prevent visible emissions. During the production of products that contain nitrogen oxides (NO_x) emissions, the No. 6 Rotary Kiln (EP-037) process emissions are routed to a wet scrubber (EP-133) and then to the DeNO_x system (EP-105). The facility shall operate and maintain the DeNO_x Unit according to manufacturer's instructions.

Periodic Monitoring

Opacity/Particulate Matter (PM)

As an indicator of compliance with the opacity and particulate limits associated with this unit, the facility is required to perform visual observations at least once per day on at least two days per calendar week. If visible emissions are noted, the facility must initiate corrective action within one (1) hour of discovery. Records of the visual inspections shall be maintained along with any corrective action taken.

As an indicator of compliance with the CAM requirements, the facility is required to perform daily visual observations for the Pneumatic Transfer System Wet Scrubber (EP-028) and Baghouse of P&S Dryer (EP-154). If visible emissions are observed, corrective action shall be taken immediately.

Sulfur Dioxide (SO₂)

The dryer associated with EP-016, pre-dryer associated with EP-028, No. 6 Rotary Kiln (EP-037), and dryer associated with EP-154 are permitted to fire natural gas only, the units would meet the sulfur dioxide (SO₂) limits inherently. Therefore, no periodic monitoring is required.

Total Metal HAP

As an indicator of compliance with the total metal HAP emission limitation, the facility is required to perform quarterly vessel inspections of process vessels and equipment for each chemical manufacturing process unit (CMPU) in metal HAP service to determine that the process vessels are sound and free of leaks, as required by §63.11495(a)(3). Records of the inspection shall be maintained along with any corrective action taken.

Nitrogen Oxides (NO_x)

As an indicator of compliance with the requirement to minimize nitrogen oxides (NO_x) emissions from the DeNO_x Unit (EP-105), the facility is required to perform visual observations at least once per day on at least two days per calendar week. If visible emissions are noted, the facility must initiate corrective action immediately. Records of the visual inspections shall be maintained along with any corrective action taken.

Permit Unit No. 014 – Molecular Sieve Production Line 7

Overview

The Molecular Sieve Production Line 7 (Process Unit No. 014) utilizes alumina, silica, clay, and/or additives to produce pellets to be used as adsorbents in various manufacturing and operational applications. This unit is subject to the state requirements for opacity, particulate, and sulfur dioxide.

Emission Standards

Opacity

The Molecular Sieve Production Line 7 is subject to the state opacity standard.

Particulate Matter (PM)

The state process weight curve is applicable to all of the emission points associated with Molecular Sieve Production Line 7.

The No. 7 Rotary Kiln (EP-058) is subject to the state allowable particulate limit for fuel burning equipment. Since the kiln is rated under 10 MMBtu/hr the particulate matter (PM) emission limit is 0.5 lb/MMBtu, as referenced in Table 4-1 of ADEM Admin. Code r. 335-3-4-.03. Under ADEM Admin. Code r. 335-3-1-.02(ee) fuel-burning equipment applies only to indirect heating. Since the dryers associated with EP-053 are direct-fired the fuel burning equipment definition does not apply.

Sulfur Dioxide (SO₂)

The dryers associated with EP-053 and No. 7 Rotary Kiln (EP-058) are subject to the state allowable sulfur dioxide (SO₂) limit for fuel combustion (1.8 lb/MMBtu). Under ADEM Admin. Code r. 335-3-5-.01(1)(a) any fuel burning installation in a Category I County is subject to the SO₂ fuel combustion requirement.

Periodic Monitoring

Opacity/Particulate Matter (PM)

As an indicator of compliance with the opacity and particulate limits associated with this unit, the facility is required to perform visual observations at least once per day on at least two days per calendar week. If visible emissions are noted, the facility must initiate corrective action within one (1) hour of discovery. Records of the visual inspections shall be maintained along with any corrective action taken.

Sulfur Dioxide (SO₂)

The dryers associated with EP-053 and No. 7 Rotary Kiln (EP-058) are permitted to fire natural gas only, the units would meet the sulfur dioxide (SO₂) limits inherently. Therefore, no periodic monitoring is required.

Permit Unit No. 015 – Molecular Sieve Production Line 8

Overview

The Molecular Sieve Production Line 8 (Permit Unit No. 015) utilizes molecular sieves, alumina, and clay to produce pellets to be used as adsorbents in various manufacturing and operational applications. This unit is subject to the state requirements for opacity, particulate, and sulfur dioxide.

Emission Standards

Opacity

The Molecular Sieve Production Line 8 is subject to the state opacity standard.

Particulate Matter (PM)

The state process weight curve is applicable to all of the emission points associated with Molecular Sieve Production Line 8.

The No. 8 Rotary Kiln (EP-082) is subject to the state allowable particulate limit for fuel burning equipment. Since the kiln is rated under 10 MMBtu/hr the particulate matter (PM) emission limit is 0.5 lb/MMBtu, as referenced in Table 4-1 of ADEM Admin. Code r. 335-3-4-.03. Under ADEM Admin. Code r. 335-3-1-.02(ee) fuel-burning equipment applies only to indirect heating. Since the dryers associated with EP-056 are direct-fired the fuel burning equipment definition does not apply.

Sulfur Dioxide (SO₂)

The dryers associated with EP-056 and No. 8 Rotary Kiln (EP-082) are subject to the state allowable sulfur dioxide (SO₂) limit for fuel combustion (1.8 lb/MMBtu). Under ADEM Admin. Code r. 335-3-5-.01(1)(a) any fuel burning installation in a Category I County is subject to the SO₂ fuel combustion requirement.

Periodic Monitoring

Opacity/Particulate Matter (PM)

As an indicator of compliance with the opacity and particulate limits associated with this unit, the facility is required to perform visual observations at least once per day on at least two days per calendar week. If visible emissions are noted, the facility must initiate corrective action within one (1) hour of discovery. Records of the visual inspections shall be maintained along with any corrective action taken.

Sulfur Dioxide (SO₂)

The dryers associated with EP-056 and No. 8 Rotary Kiln (EP-082) are permitted to fire natural gas only, the units would meet the sulfur dioxide (SO₂) limits inherently. Therefore, no periodic monitoring is required.

Permit Unit No. 016 – Molecular Sieve Production Line 9

Overview

Molecular Sieve Production Line 9 (Permit Unit No. 016) processes preformed beads or mesh through ion exchangers to produce a product utilized in various manufacturing and operational applications. This unit is subject to the state requirements for opacity, particulate, and sulfur dioxide. The Baghouse on No. 9 Line Product Recovery (EP-106) is subject to Compliance Assurance Monitoring (CAM) requirements.

Emission Standards

Opacity

The Molecular Sieve Production Line 9 is subject to the state opacity standard.

Particulate Matter (PM)

The state process weight curve is applicable to all of the emission points associated with Molecular Sieve Production Line 9.

The Contactor Post Dryer (EP-108) is subject to the state allowable particulate limit equation for fuel burning equipment in Class I counties.

Sulfur Dioxide (SO₂)

The Contactor Post Dryer (EP-108) is subject to the state allowable sulfur dioxide (SO₂) limit for fuel combustion (1.8 lb/MMBtu). Under ADEM Admin. Code r. 335-3-5-.01(1)(a) any fuel burning installation in a Category I County is subject to the SO₂ fuel combustion requirement.

Periodic Monitoring

Opacity/Particulate Matter (PM)

As an indicator of compliance with the opacity and particulate limits associated with this unit, the facility is required to perform visual observations at least once per day on at least two days per calendar week. If visible emissions are noted, the facility must initiate corrective action within one (1) hour of discovery. Records of the visual inspections shall be maintained along with any corrective action taken.

Sulfur Dioxide (SO₂)

The Contactor Post Dryer (EP-108) is permitted to fire natural gas only, the unit would meet the sulfur dioxide (SO₂) limits inherently. Therefore, no periodic monitoring is required.

Permit Unit No. 017 – Molecular Sieve Production Line 10

Overview

The Molecular Sieve Production Line 10 (Permit Unit No. 017) utilizes molecular sieves, clay and/or additives to produce beads to be used as adsorbents in various manufacturing and operational applications. This unit is subject to the state requirements for opacity, particulate, sulfur dioxide, and synthetic minor PSD emission limitations.

Emission Standards

Opacity

The Molecular Sieve Production Line 10 is subject to the state opacity standard.

Particulate Matter (PM)

The state process weight curve is applicable to all of the emission points associated with the Molecular Sieve Production Line 10; however, in order to avoid PSD review, the facility has committed to more stringent particulate matter (PM) limits for EP-096, EP-097, EP-098, EP-099, EP-102, EP-103, and EP-104. The limits for these emission points are listed in the table below.

Emission Point No.	Pollutant	Emission Limit
EP-096	PM	0.42 lb/hr
EP-097	PM	0.30 lb/hr
EP-098	PM	0.42 lb/hr
EP-099	PM	0.37 lb/hr
EP-102	PM	0.63 lb/hr
EP-103	PM	0.4 lb/ton of material transferred
EP-104	PM	0.4 lb/ton of material transferred

The No. 10 Dryer (EP-100) and No. 10 Kiln (EP-101) are subject to the state allowable particulate limit for fuel burning equipment. Since the combustion equipment is rated under 10 MMBtu/hr the PM emission limit is 0.5 lb/MMBtu, as referenced in Table 4-1 of ADEM Admin. Code r. 335-3-4-.03; however, in order to avoid PSD review, the facility has committed to more stringent PM limits for EP-100 and EP-101. The limits for these emission points are listed in the table below.

Emission Point No.	Pollutant	Emission Limit (lb/hr)
EP-100	PM	0.58
EP-101	PM	0.53

In order to avoid a PSD review, the facility has also limited the total amount of clay material that can be transferred to Molecular Sieve Production Line 10. The facility is limited to transferring 3,160,000 lbs. of clay material to Line 10, based on a twelve month rolling total.

Sulfur Dioxide (SO₂)

The No. 10 Dryer (EP-100) and No. 10 Kiln (EP-101) are subject to the state allowable sulfur dioxide (SO₂) limit for fuel combustion (1.8 lb/MMBtu). Under ADEM Admin. Code r. 335-3-5-.01(1)(a) any fuel burning installation in a Category I County is subject to the SO₂ fuel combustion requirement.

Periodic Monitoring

Opacity/Particulate Matter (PM)

As an indicator of compliance with the opacity and particulate limits associated with this unit, the facility is required to perform visual observations at least once per day on at least two days per calendar week. If visible emissions are noted, the facility must initiate corrective action within one (1) hour of discovery. Records of the visual inspections shall be maintained along with any corrective action taken.

As an indicator of compliance with the amount of clay material transferred to Molecular Sieve Production Line 10, the facility shall calculate the amount of material transferred per month and maintain a twelve month rolling total.

Sulfur Dioxide (SO₂)

The No. 10 Dryer (EP-100) and No. 10 Kiln (EP-101) are permitted to fire natural gas only, the units would meet the sulfur dioxide (SO₂) limits inherently. Therefore, no periodic monitoring is required.

Permit Unit No. 018 – Molecular Sieve Production Line 11

Overview

The Molecular Sieve Production Line 11 (Permit Unit No. 018) produces activated powder from a wet cake charge to be used in various manufacturing and operational applications. The wet charge of molecular sieves is introduced into a dryer and then moved through a calciner and then collected as the final product. This unit is subject to the state requirements for opacity, particulate, sulfur dioxide, and synthetic minor PSD emission limitations.

Emission Standards

Opacity

The Molecular Sieve Production Line 11 is subject to the state opacity standard.

Particulate Matter (PM)

The state process weight curve is applicable to all of the emission points associated with the Molecular Sieve Production Line 11; however, in order to avoid PSD review, the facility has committed to more stringent particulate matter (PM) limits for EP-109 and EP-110. The limits for these emission points are listed in the table below.

Emission Point No.	Pollutant	Emission Limit (lb/hr)
EP-109	PM	2.49
EP-110	PM	0.66

The Process Air Heater (EP-111) is subject to the state allowable particulate limit for fuel burning equipment. Since the combustion equipment is rated under 10 MMBtu/hr the PM emission limit is 0.5 lb/MMBtu, as referenced in Table 4-1 of ADEM Admin. Code r. 335-3-4-.03; however, in order to avoid PSD review, the facility has committed to more stringent PM limit for EP-111 of 0.25 lb/hr.

Sulfur Dioxide (SO₂)

The Process Air Heater (EP-111) is subject to the state allowable sulfur dioxide (SO₂) limit for fuel combustion (1.8 lb/MMBtu). Under ADEM Admin. Code r. 335-3-5-.01(1)(a) any fuel burning installation in a Category I County is subject to the SO₂ fuel combustion requirement.

Periodic Monitoring

Opacity/Particulate Matter (PM)

As an indicator of compliance with the opacity and particulate limits associated with this unit, the facility is required to perform visual observations at least once per day on at least two days per calendar week. If visible emissions are noted, the facility must initiate corrective action within one (1) hour of discovery. Records of the visual inspections shall be maintained along with any corrective action taken.

Sulfur Dioxide (SO₂)

The Process Air Heater (EP-111) is permitted to fire natural gas only, the unit would meet the sulfur dioxide (SO₂) limits inherently. Therefore, no periodic monitoring is required.

Permit Unit No. 019 – Molecular Sieve Production Line 12

Overview

The Molecular Sieve Production Line 12 (Permit Unit No. 019) utilizes molecular sieves, clay, and additives to produce beads to be used as adsorbents in various manufacturing and operational applications. This unit is subject to the state requirements for opacity, particulate, sulfur dioxide, and synthetic minor PSD emission limitations.

Emission Standards

Opacity

The Molecular Sieve Production Line 12 is subject to the state opacity standard.

Particulate Matter (PM)

The state process weight curve is applicable to all of the emission points associated with the Molecular Sieve Production Line 12; however, in order to avoid PSD review, the facility has committed to more stringent particulate matter (PM) limits for EP-115, EP-116, EP-117, EP-118, and EP-119. The limits for these emission points are listed in the table below.

Emission Point No.	Pollutant	Emission Limit
EP-115	PM	0.4 lb/ton of material transferred
EP-116	PM	0.4 lb/ton of material transferred
EP-117	PM	0.54 lb/hr
EP-118	PM	2.17 lb/hr
EP-119	PM	0.43 lb/hr

The No. 12 Kiln (EP-120) is subject to the state allowable particulate limit for fuel burning equipment. Since the combustion equipment is rated under 10 MMBtu/hr the PM emission limit is 0.5 lb/MMBtu, as referenced in Table 4-1 of ADEM Admin. Code r. 335-3-4-.03; however, in order to avoid PSD review, the facility has committed to a more stringent PM limit for EP-120 of 0.22 lb/hr.

The direct-fired equipment associated with EP-117 and the direct-fired equipment associated with EP-119 are not subject to the state allowable particulate limit for fuel burning equipment. Under ADEM Admin. Code r. 335-3-1-.02(ee) fuel-burning equipment applies only to indirect heating. Since the dryers associated with EP-117 and EP-119 are direct-fired the fuel burning equipment definition does not apply.

In order to avoid a PSD review, the facility has also limited the total amount of clay material that can be transferred to Molecular Sieve Production Line 12. The facility is limited to transferring 1,600,000 lbs. of clay material to Line 12, based on a twelve month rolling total.

Sulfur Dioxide (SO₂)

The direct-fired equipment associated with EP-117, direct-fired equipment associated with EP-119, and No. 12 Kiln (EP-120) are subject to the state allowable sulfur dioxide (SO₂) limit for fuel combustion (1.8 lb/MMBtu). Under ADEM Admin. Code r. 335-3-5-.01(1)(a) any fuel burning installation in a Category I County is subject to the SO₂ fuel combustion requirement.

Periodic Monitoring

Opacity/Particulate Matter (PM)

As an indicator of compliance with the opacity and particulate limits associated with this unit, the facility is required to perform visual observations at least once per day on at least two days per calendar week. If visible emissions are noted, the facility must initiate corrective action within one

(1) hour of discovery. Records of the visual inspections shall be maintained along with any corrective action taken.

As an indicator of compliance with the amount of clay material transferred to Molecular Sieve Production Line 12, the facility shall calculate the amount of material transferred per month and maintain a twelve month rolling total.

Sulfur Dioxide (SO₂)

The direct-fired equipment associated with EP-117, direct-fired equipment associated with EP-119, and No. 12 Kiln (EP-120) are permitted to fire natural gas only, the units would meet the sulfur dioxide (SO₂) limits inherently. Therefore, no periodic monitoring is required.

Permit Unit No. 020 – Molecular Sieve Production Line 14

Unit Specific Changes

Incorporated Air Permit 503-8010-X114: This permit was issued on July 21, 2016. This permit was for the replacement of three ion exchange columns and the indirect heater burners on the Ion Exchange Dryer (EP-114A, EP-114B, and EP-114C).

Overview

The Molecular Sieve Production Line 14 (Permit Unit No. 20) processes preformed molecular sieve products through ion exchangers to produce a product utilized in various manufacturing and operational applications. This unit is subject to the state requirements for opacity, particulate, sulfur dioxide, and synthetic minor PSD emission limitations. Baghouse 13748 (EP-113) is subject to Compliance Assurance Monitoring (CAM) requirements.

Emission Standards

Opacity

The Molecular Sieve Production Line 14 is subject to the state opacity standard.

Particulate Matter (PM)

The state process weight curve is applicable to all of the emission points associated with Molecular Sieve Production Line 14; however, in order to avoid PSD review, the facility has committed to a more stringent particulate matter (PM) limit for Baghouse 13748 (EP-113) of 3.18 lb/hr.

The Ion Exchange Dryer (EP-114A, EP-114B, and EP-114C) is subject to the state allowable particulate limit equation for fuel burning equipment in Class I counties. Since the combustion equipment is rated under 10 MMBtu/hr the PM emission limit is 0.5 lb/MMBtu, as referenced in Table 4-1 of ADEM Admin. Code r. 335-3-4-.03; however, in order to avoid PSD review, the

facility has committed to more stringent PM limits for EP-114A, EP-114B, and EP-114C. The limits for these emission points are listed in the table below.

Emission Point No.	Pollutant	Emission Limit
EP-114A	PM	0.23 lb/hr
EP-114B	PM	0.23 lb/hr
EP-114C	PM	0.23 lb/hr

Sulfur Dioxide (SO₂)

The Ion Exchange Dryer (EP-114A, EP-114B, and EP-114C) is subject to the state allowable sulfur dioxide (SO₂) limit for fuel combustion (1.8 lb/MMBtu). Under ADEM Admin. Code r. 335-3-5-.01(1)(a) any fuel burning installation in a Category I County is subject to the SO₂ fuel combustion requirement.

Periodic Monitoring

Opacity/Particulate Matter (PM)

As an indicator of compliance with the opacity and particulate limits associated with this unit, the facility is required to perform visual observations at least once per day on at least two days per calendar week. If visible emissions are noted, the facility must initiate corrective action within one (1) hour of discovery. Records of the visual inspections shall be maintained along with any corrective action taken.

Sulfur Dioxide (SO₂)

The Ion Exchange Dryer (114A, EP-114B, and EP-114C) is permitted to fire natural gas only, the unit would meet the sulfur dioxide (SO₂) limits inherently. Therefore, no periodic monitoring is required.

Permit Unit No. 021 – Molecular Sieve Production Line 15

Overview

The Molecular Sieve Production Line 15 (Permit Unit No. 021) utilizes molecular sieves, clay, and additives to produce beads to be used as adsorbents in various manufacturing and operational applications. This unit is subject to the requirements of 40 CFR Part 63, Subpart VVVVVV.

Emission Standards

Opacity

The Molecular Sieve Production Line 15 is subject to the state opacity standard.

Particulate Matter (PM)

The state process weight curve is applicable to all of the emission points associated with Molecular Sieve Production Line 15; however, in order to avoid PSD review, the facility has committed to more stringent particulate matter (PM) limits for EP-123 and EP-128. The limits for these emission points are listed in the table below.

Emission Point No.	Pollutant	Emission Limit
EP-123	PM	0.4 lb/ton of material transferred
EP-128	PM	0.3 lb/hr

The No. 15 Kiln (EP-127) is subject to the state allowable particulate limit for fuel burning equipment. Since the kiln is rated under 10 MMBtu/hr the PM emission limit is 0.5 lb/MMBtu, as referenced in Table 4-1 of ADEM Admin. Code r. 335-3-4-.03; however, the facility has committed to a more stringent PM limit for No. 15 Kiln (EP-127) of 0.3 lb/hr. Under ADEM Admin. Code r. 335-3-1-.02(ee) fuel-burning equipment applies only to indirect heating. Since the direct-fired equipment associated with EP-122 and the dryer associated with EP-124 are direct-fired the fuel burning equipment definition does not apply.

In order to avoid a PSD review, the facility has also limited the total amount of material that can be transferred to Molecular Sieve Production Line 15. The facility is limited to transferring 10,000,000 lbs. of material to Line 15, based on a twelve month rolling total.

Sulfur Dioxide (SO₂)

The direct-fired equipment associated with EP-122, the dryer associated with EP-124, and No. 15 Kiln (EP-127) are subject to the state allowable sulfur dioxide (SO₂) limit for fuel combustion (1.8 lb/MMBtu). Under ADEM Admin. Code r. 335-3-5-.01(1)(a) any fuel burning installation in a Category I County is subject to the SO₂ fuel combustion requirement.

Total Metal HAP

The Molecular Sieve Production Line 15 (Process Unit No. 021) is subject to the requirements of 40 CFR Part 63, Subpart VVVVVV. Since the facility emits total metal HAP (nickel compounds) at a rate greater than 400 lb/hr, they must reduce collective uncontrolled emissions of total metal HAP emissions by ≥ 95 percent by weight from a sufficient number of the metal HAP process vents. The table below details the emission points from the Molecular Sieve Production Line 15 that contain metal HAP, the type of control device associated with the emission point, the particulate matter removal efficiency of the control device, and the metal HAP emissions (TPY) from each point.

Emission Point No.	Type of Emission Control	Particulate Matter Removal Efficiency	Total Metal HAP Emissions (TPY)
EP-122	Baghouse	99.9%	0.243
EP-125	Baghouse	99.99%	0.972
EP-126	Baghouse	99.9%	0.243

Nitrogen Oxides (NO_x)

The DeNO_x Unit (EP-129) was installed voluntarily to prevent visible emissions. During the production of certain products that contain nitrogen oxides (NO_x) emissions, the No. 15 Kiln (EP-127) process emissions are routed to the DeNO_x Unit (EP-129). The facility shall operate and maintain the DeNO_x Unit according to manufacturer's instructions.

Periodic Monitoring

Opacity/Particulate Matter (PM)

As an indicator of compliance with the opacity and particulate limits associated with this unit, the facility is required to perform visual observations at least once per day on at least two days per calendar week. If visible emissions are noted, the facility must initiate corrective action within one (1) hour of discovery. Records of the visual inspections shall be maintained along with any corrective action taken.

As an indicator of compliance with the amount of clay material transferred to Molecular Sieve Production Line 15, the facility shall calculate the amount of material transferred per month and maintain a twelve month rolling total.

Sulfur Dioxide (SO₂)

The direct-fired equipment associated with EP-122, the dryer associated with EP-124, and No. 15 Kiln (EP-127) are permitted to fire natural gas only, the units would meet the sulfur dioxide (SO₂) limits inherently. Therefore, no periodic monitoring is required.

Total Metal HAP

As an indicator of compliance with the total metal HAP emission limitation, the facility is required to perform quarterly vessel inspections of process vessels and equipment for each chemical manufacturing process unit (CMPU) in metal HAP service to determine that the process vessels are sound and free of leaks, as required by §63.11495(a)(3). Records of the inspection shall be maintained along with any corrective action taken.

Nitrogen Oxides (NO_x)

As an indicator of compliance with the requirement to minimize nitrogen oxides (NO_x) emissions from the DeNO_x Unit (EP-129), the facility is required to perform visual observations at least once per day on at least two days per calendar week. If visible emissions are noted, the facility must initiate corrective action immediately. Records of the visual inspections shall be maintained along with any corrective action taken.

Permit Unit No. 022 – Molecular Sieve Production Line 2-3-5

Unit Specific Changes

Over the lifetime of the facility, certain equipment associated with Molecular Sieve Production Line 2, Molecular Sieve Production Line 3, and Molecular Sieve Production Line 5 has been demolished. The facility requested to consolidate the three production lines to one permitted unit since the production lines utilized common control equipment and a single production line would more accurately reflect the operations at the facility. No production changes are associated with this consolidation.

Incorporated Air Permit 503-8010-X112: This permit was issued on March 13, 2015. This permit was for the replacement and resizing of the Dust Collector System (EP-112).

Overview

The Molecular Sieve Production Line 2-3-5 (Permit Unit No. 022) utilizes molecular sieves, clay, acid, and/or additives to produce pellets, beads, and powders to be used as adsorbents in various manufacturing and operational applications. This unit is subject to the state requirements for opacity, particulate, and sulfur dioxide.

Emission Standards

Opacity

The Molecular Sieve Production Line 2-3-5 is subject to the state opacity standard.

Particulate Matter (PM)

The state process weight curve is applicable to all of the emission points associated with Molecular Sieve Production Line 2-3-5.

The No. 2 Rotary Kiln (EP-032/033) and No. 5 Rotary Kiln (EP-066/067) are subject to the state allowable particulate limit for fuel burning equipment. Since the kilns are rated under 10 MMBtu/hr the particulate matter (PM) emission limit is 0.5 lb/MMBtu, as referenced in Table 4-1 of ADEM Admin. Code r. 335-3-4-.03. Under ADEM Admin. Code r. 335-3-1-.02(ee) fuel-burning equipment applies only to indirect heating. Since the direct-fired equipment associated with EP-083 and the dryer associated with EP-112 are direct-fired the fuel burning equipment definition does not apply.

Sulfur Dioxide (SO₂)

The No. 2 Rotary Kiln (EP-032/033), No. 5 Rotary Kiln (EP-066/067), the direct-fired equipment associated with EP-083, and the dryer associated with EP-112 are subject to the state allowable sulfur dioxide (SO₂) limit for fuel combustion (1.8 lb/MMBtu). Under ADEM Admin. Code r.

335-3-5-.01(1)(a) any fuel burning installation in a Category I County is subject to the SO₂ fuel combustion requirement.

Periodic Monitoring

Opacity/Particulate Matter (PM)

As an indicator of compliance with the opacity and particulate limits associated with this unit, the facility is required to perform visual observations at least once per day on at least two days per calendar week. If visible emissions are noted, the facility must initiate corrective action within one (1) hour of discovery. Records of the visual inspections shall be maintained along with any corrective action taken.

Sulfur Dioxide (SO₂)

The No. 2 Rotary Kiln (EP-032/033), No. 5 Rotary Kiln (EP-066/067), the direct-fired equipment associated with EP-083, and the dryer associated with EP-112 are permitted to fire natural gas only, the units would meet the sulfur dioxide (SO₂) limits inherently. Therefore, no periodic monitoring is required.

Permit Unit No. 023 – Emergency Engines

Overview

The description, date installed, operating capacity, and ignition type of the emergency generators and firewater pumps utilized by the facility are listed in the table below. All engines are utilized as emergency use only. All of the emergency engines are subject to the requirements of 40 CFR Part 63, Subpart ZZZZ. The Firewater Pump (EP-146) is subject to the requirements of 40 CFR Part 60, Subpart IIII and compliance with this subpart will constitute compliance with Subpart ZZZZ.

Engine ID	Engine Description	Operating Capacity (HP)	Ignition Type	Installation Date
EP-146	Firewater Pump Emergency Engine	517	Compression Ignition	2010
EP-147	Standby Generator Emergency Engine	64	Compression Ignition	2006
EP-148	Water Supply Booster Emergency Engine	215	Spark Ignition	Pre-1993

Emission Standards

Opacity

All emergency engines associated with this facility are subject to the state opacity requirement.

40 CFR Part 60, Subpart III

The Firewater Pump Emergency Engine (EP-146) is subject to the requirements of 40 CFR Part 60, Subpart III. In order for the Firewater Pump Emergency Engine (EP-146) to remain classified as emergency, the engines would be required to operate according to the requirements of 40 CFR 60.4211(f)(1)-(3). This subpart requires the facility to comply with the emission standards listed in Table 4 of Subpart III.

Non-methane Hydrocarbon + Nitrogen Oxide (NMHC + NO_x)

As listed in Table 4 of 40 CFR Part 60, Subpart III, for a 2009 and newer model year engine with a maximum horsepower of $300 \leq \text{HP} < 600$, the sum of non-methane hydrocarbon (NMHC) and nitrogen oxide (NO_x) emission rate shall not exceed 4.0 g/KW-hr.

Particulate Matter (PM)

As listed in Table 4 of 40 CFR Part 60, Subpart III, for a 2009 and newer model year engine with a maximum horsepower of $300 \leq \text{HP} < 600$, the particulate matter (PM) emission rate shall not exceed 0.20 g/KW-hr.

Hazardous Air Pollutants (HAPs)

According to §63.6603(a), the Standby Generator Emergency Engine (EP-147) and the Water Supply Booster Emergency Engine (EP-148) shall meet the requirements listed in Table 2d of Subpart ZZZZ for emergency stationary CI RICE.

According to §63.6625(e), the facility shall operate the Standby Generator Emergency Engine (EP-147) and the Water Supply Booster Emergency Engine (EP-148) according to manufacturer's emission specifications or develop a site specific maintenance plan.

In order for the Standby Generator Emergency Engine (EP-147) and the Water Supply Booster Emergency Engine (EP-148) to remain classified as emergency, the engines would be required to operate according to the requirements of 40 CFR 63.6640(f)(1)-(4).

Periodic Monitoring

Opacity/Particulate Matter (PM)

Since all of the engines are classified as emergency, no additional monitoring requirements for the opacity standard are required.

40 CFR Part 60, Subpart III

To indicate compliance with the emission limitations for Firewater Pump (EP-146), the facility shall operate and maintain the stationary CI internal combustion engine according to the manufacturer's emission-related written instructions, change only those emission-related settings

that are permitted by the manufacturer, and meet the requirements of 40 CFR Parts 89, 94 and/or 1068, as applicable.

The facility shall install a non-resettable hour meter on the Firewater Pump (EP-146) to record emergency and non-emergency operation hours. The facility shall also maintain records of any maintenance performed on Firewater Pump (EP-146).

Hazardous Air Pollutants (HAPs)

As an indicator of compliance with the requirements listed in Table 2d of Subpart ZZZZ, for Standby Generator (EP-147) and the Water Supply Booster (EP-148) records of operations of the engines in emergency and non-emergency service, which is recorded through a non-resettable hour meter, are required to be maintained.

Compliance Assurance Monitoring (CAM) Requirements

This facility is subject to the provisions of 40 CFR Part 64, Compliance Assurance Monitoring (CAM). Since the potential pre-control device particulate matter (PM) emissions from the Pneumatic Transfer System Wet Scrubber (EP-028), the Baghouse on No. Line Product Recovery (EP-106), Baghouse 13748 (EP-113), Baghouse on P&S Dryer (EP-154) are greater than the major source threshold for PM (100 TPY), the scrubber and three baghouses are subject to the CAM provisions, and monitoring is required. The potential post-control device emissions from the scrubber and three baghouses are less than the major source threshold for PM (100 TPY) and are thus classified as “other pollutant-specific emission units” per 40 CFR 64.5(b).

Recommendation

The renewal Major Source Operating Permit (503-8010) shall be issued with the requirements above pending resolution of any comments received during a 30-day public comment period and a 45-day EPA review.