

Statement of Basis
LSB Chemical L.L.C.
(Formerly - Cherokee Nitrogen LLC)
Cherokee, AL
Colbert County
Facility No. 701-0013

A renewal application for Major Source Operating Permit (MSOP) 701-0013 was received on March 30, 2023 from Cherokee Nitrogen LLC, which is now LSB Chemical L.L.C. This proposed Title V MSOP renewal has been developed in accordance with 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 (ADEM), in accordance with the terms and conditions of this permit.

The facility originally began operations in 1961. The initial Title V MSOP was issued on November 29, 2001, and this is the fourth renewal. The current MSOP was issued on October 1, 2018, with an effective date of October 1, 2018, and an expiration date listed of September 30, 2023. The renewal application was received on March 30, 2023. ADEM Admin. Code r. 335-3-16-12(c) states “If a timely and complete application for a permit renewal is submitted, but the Department fails to take final action to issue or deny the renewal permit before the end of the term of the previous permit, then the permit shall not expire until the renewal permit has been issued or denied and any permit shield granted for the permit shall continue in effect during that time”; therefore, the current MSOP was administratively continued.

The facility is located in Colbert County, which is currently in compliance with all National Ambient Air Quality Standards (NAAQS).

There are no current or ongoing enforcement actions against Cherokee Nitrogen or LSB necessitating additional requirements to achieve compliance with the proposed permit conditions. The enforcement and compliance history for the facility can be found at <https://echo.epa.gov> (search using Facility ID AL 0000000103300013).

Background

The facility consists of one synthetic ammonia plant, two nitric acid plants, two ammonium nitrate neutralizers/plants, one urea plant, and a utility area with two boilers. The facility is allowed to operate 8,760 hours per year, unless otherwise specified. Based on the Title V permit application, LSB is a major source for nitrogen oxides (NO_x), carbon monoxide (CO), and volatile organic compounds (VOCs). Although the facility is a major source of Greenhouse Gas (GHG) emissions, there are no emission standards for GHG to which the facility is subject. Based on a decision by the United States Supreme Court in 2014 concerning the tailoring portion of the GHG permitting rule and the revisions to the Department’s regulations in November 2014, the facility would not be required to address the GHG emissions in the proposed permit.

Summary of Changes

- The facility has requested the removal of permit unit number 005 (Ammonium Nitrate Prilling Unit) for this renewal of the Title V permit because this unit has not operated since 2004. The equipment is still present and is being maintained. The facility would have to submit an application to restart this unit.
- On January 20, 2026, the Department received a request to remove permit unit number 002 (Nitric Acid Plant No. 1) for this renewal of the Title V permit. This unit has been removed from service and is no longer operational. The facility would have to submit an application to restart this unit.
- On January 20, 2026, the Department received a request to remove permit unit number 007 (No. 2 Fuel Oil Storage Tank) for this renewal of the Title V permit. This unit has been removed from service and no longer contains fuel oil. The facility would have to submit an application to restart this unit.
- On February 29, 2024, the Department received a name change request from Cherokee Nitrogen. The facility has requested to change their name from Cherokee Nitrogen LLC to LSB Chemical L.L.C. No changes in the operation of the facility are expected to occur.
- All references of the Department granting alternative test methods have been removed from the permit.

Each of the individual production units are described below:

Emission Unit No. 001: Synthetic Ammonia Plant

Unit Specific Changes

- There are no changes pertaining to this unit.

Overview

This unit was built in 1961 and can produce 189,800 tons per year of anhydrous ammonia. Ammonia is manufactured by reacting hydrogen with nitrogen. The facility obtains nitrogen from the air and obtains hydrogen by the catalytic steam reforming of natural gas. The process includes natural gas, which is desulfurized by passing through a bed of activated carbon. The carbon beds are regenerated with steam once a week, and that steam is vented to the atmosphere (Emission Point 001A). The desulfurized gas is mixed with steam and heated in the presence of a catalyst in a reformer, which is fired with natural gas. The natural gas combustion emissions from the primary reformer are vented to Emission Point 001B. Carbon monoxide from the process is converted to carbon dioxide, which is then used in the urea plant or sold to an outside source. The purified gas is converted to ammonia by catalytic reaction under pressure and heat, then cooled so that the ammonia condenses in the reformer. Condensed anhydrous ammonia is moved to storage vessels which are equipped with a flare. The flare is used in the event of maintenance or other outages, as well as to occasionally destroy inert waste gases from the ammonia production process (Emission Point 013). The ammonia flare was applied for on October 17, 2020 and the facility received a letter of non-applicability on December 30, 2020. Ammonia is used in the production of nitric acid, urea, and ammonium nitrate (which happens in other parts of the facility), while only some unreacted ammonia is sold.

This unit is subject to the requirements of 40 CFR Part 63, Subpart VVVVVV: National Emission Standards for Hazardous Air Pollutants for Source Categories. This unit is not subject to 40 CFR Part 60, Subpart D₆: Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units, due to the unit predating the federal applicability date. This unit is not subject to 40 CFR Part 63, Subpart DDDDD: National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters, due to the facility not being a major source of HAPs.

Permit History

- Emission unit number 001 (Synthetic Ammonia Plant) was constructed in 1961.
- On January 8, 1975, emission unit number 001 was included in permit no. 701-0013-Z003 (Boiler #1 288MM Btu/hr) which was issued to U.S.S. Agri-Chemicals.
- On November 29, 2001, emission unit number 001 was included in the initial Major Source Operating Permit.

Emission Standards

Opacity and Particulate Matter (PM)

The 288.5 MMBtu/hr Reformer (EP-001B) is subject to the requirements of ADEM Admin. Code r. 335-3-4-.01: Control of Particulate Emissions from Visible Emissions. The state opacity standard would apply at all times. Since the reformer would combust natural gas only, opacity is expected to be negligible during operation of the unit.

The 288.5 MMBtu/hr Reformer (EP-001B) is subject to the requirements of ADEM Admin. Code r. 335-3-4-.03: Control of Particulate Emissions from Fuel Burning Equipment. Since LSB is located in Colbert County, which is currently classified as a Class 1 County, as stated in Appendix A of ADEM Admin. Code r. 335-3. Therefore, the reformer is subject to the Class 1 County PM fuel burning equation:

$$E=1.38(H)^{-0.44}$$

Where: E = Emissions in lb/million Btu
 H = Heat input in millions of Btu/hr

Based on the above calculation, the reformer would be allowed to emit PM at a rate of 34.6 lb/hr. The facility has estimated the potential PM emissions from the reformer to be 2.1 lb/hr, based on Chapter 1 of AP-42 for natural gas combustion and an operating schedule of 8,760 hours per year. The Department acknowledges that AP-42 emission factors are considered to be average values developed and compiled from source test data, material balance studies, and engineering estimates. However, the potential PM emissions calculated using the AP-42 emission factors are significantly below the calculated allowable using the state PM fuel burning equation. Therefore, the Department has determined that the facility would be capable of meeting the state allowable based on the inherently low PM emissions associated with the combustion of natural gas.

Sulfur Dioxide (SO₂)

The 288.5 MMBtu/hr Reformer (EP-001B) is subject to the requirements of ADEM Admin. Code r. 335-3-5-.01: Control of Sulfur Compound Emissions from Fuel Combustion. LSB is located in Colbert County, which is currently classified as a Category II County, as stated in Appendix B of ADEM Admin. Code r. 335-3. Therefore, the reformer is subject to the Category II County SO₂ emission limit of 4.0 lb/MMBtu. Based on the state fuel combustion SO₂ emission limit, the reformer would be allowed to emit SO₂ at a rate of 1,152 lb/hr. The facility has estimated the potential SO₂ emissions from the reformer to be 0.2 lb/hr, based on Chapter 1 of AP-42 for natural gas combustion and an operating schedule of 8,760 hours per year. The Department acknowledges that AP-42 emission factors are considered to be average values developed and compiled from source test data, material balance studies, and engineering estimates. However, the potential PM emissions calculated using the AP-42 emission factors are significantly below the calculated allowable using the state PM fuel burning equation. Therefore, the Department has determined that the facility would be capable of meeting the state allowable based on the inherently low PM emissions associated with the combustion of natural gas.

Hazardous Air Pollutants

The following Synthetic Ammonia Plant chemical manufacturing processing units (CMPUs) are subject to the requirements of 40 CFR 63, Subpart VVVVVV: The Primary Reformer, Secondary Reformer, Methanator, Low Temperature Shift Converter, and High Temperature Shift Converter. These CMPUs use catalysts containing Table 1 Metal hazardous air pollutants (HAPs) in concentrations above the applicability threshold.

Emissions from the sulfur removal process (Emission Point 001A) are not limited by the permit. Potential emissions from this process are estimated to be 316 pounds per hour of CO, 1.4 pounds per hour of SO₂, and 165 pounds per hour of VOCs.

Periodic Monitoring

Opacity and Particulate Matter (PM)

Due to the clean burning nature of natural gas, the reformer should inherently meet the state opacity standard and state PM fuel burning equation. Weekly visible emission inspections are required, using Method 9 of 40 CFR Appendix A.

Sulfur Dioxide (SO₂)

Due to the clean burning nature of natural gas, the reformer should inherently meet the state SO₂ fuel combustion emission limit. Therefore, no additional monitoring would be required to indicate compliance with these regulations.

Hazardous Air Pollutants

LSB is required to comply with the management practices in 40 CFR 63.11495. 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).

Reporting

Opacity and Particulate Matter (PM)

Records of the weekly visible emission inspections shall be maintained along with any corrective action taken for a period of at least five years.

Sulfur Dioxide (SO₂)

No recordkeeping is required to indicate compliance with the above-mentioned regulations.

Hazardous Air Pollutants

LBS is required to comply with the recordkeeping requirements of 40 CFR 63.11501. Records of the weekly visible emission inspections shall be maintained along with any corrective action taken for a period of at least five years.

Emission Unit No. 003: Nitric Acid Plant No. 2

Unit Specific Changes

- There are no changes pertaining to this unit.

Overview

The Nitric Acid Plant No. 2 was built in 1989 and moved to its current location in 1989. This plant is capable of 248,200 tons of 100% nitric acid production. Nitric Acid Plant No. 2 produces nitric acid by the high temperature catalytic oxidation of ammonia. There are three main steps in the process: 1) ammonia catalytic oxidation, 2) nitric oxide oxidation, 3) absorption of nitrogen dioxide in water to form the nitric acid. In the process, chilled air is mixed with ammonia before being passed through a catalytic converter, where the ammonia is oxidized to nitric oxide. This process gas is then cooled and condensed, and a portion of the nitric oxide reacts with oxygen to form nitrogen dioxide. The gas stream is then passed through an absorption tower where water is used to absorb the nitrogen dioxide to form the nitric acid product. The emissions from this process are primarily NO_x, CO, CO₂e and NH₃. A series of nitrogen oxide abatement systems, a non-selective catalytic reduction (NSCR) unit and a selective catalytic reduction (SCR) unit, ultimately minimize nitrogen oxide and nitrous oxide emissions. This unit is subject to the Standards of Performance for Nitric Acid Plants, 40 CFR 60 Subpart G: Nitric Acid Plants, as required by the consent decree.

On May 28, 2014, Civil Action No. CIV-14-271-F (a consent decree) was finalized between LSB Industries Inc. (LSB) and the United States EPA, Department of Justice, and the states of Alabama and Oklahoma. The consent decree resolved alleged violations of the Clean Air Act with respect to emissions of nitrogen oxides. The affected facilities under LSB include Cherokee Nitrogen LLC, El Dorado Chemical Company, and Pryor Chemical Company. On March 18, 2015, the Title V Permit was modified to incorporate the requirements of the Consent Decree.

Permit History

- Emission unit number 003 (Nitric Acid Plant No. 2) was constructed in 1989.
- On August 10, 1989, emission unit number 003 was included in air permit number 701-0013-X023 (Nitric Acid Plant – Plant No. 2 (600 TPD)) which was issued to LaRoche Industries, Inc.
- On November 29, 2001, emission unit number 003 was included in the initial Major Source Operating Permit.
- On July 6, 2012, air permit number 701-0013-X003 (Nitric Acid Plant No. 2) was issued, which detailed a change in nitrogen oxide limits.
- On March 4, 2013, the nitrogen oxide limits for emission unit number 003 were updated in the second renewal of the MSOP.

Emission Standards

Opacity

The Nitric Acid Plant No. 2 is subject to the nitrogen oxide emission limitations in 40 CFR Part 60, Subpart G: Nitric Acid Plants. The unit shall not discharge into the atmosphere opacity of greater than ten percent, as stated in the subpart.

NO_x

Pursuant to the consent decree, the plant is subject to the Standards of Performance for Nitric Acid Plants, 40 CFR 60 subpart G, which limits NO_x emissions to 3 lbs/ton of 100% acid produced, and to 10% or less opacity. However, the facility has taken more stringent NO_x limits for this plant which were included in Air Permit 701-0013-X003 (issued July 6, 2012) requiring the use of a Selective Catalytic Reduction (SCR) unit. The plant's NO_x limits are 0.6 pounds per ton of 100% nitric acid produced, based on a rolling 365-day average, inclusive of startup, shutdown, and malfunction related emissions as well as 1.0 pound per ton of 100% nitric acid produced, based on a 3-hour rolling average, exclusive of startup, shutdown, and malfunction related emissions. These restrictions limit the potential NO_x emissions to 74.5 tons per year.

Periodic Monitoring

Opacity

In order to indicate compliance with the opacity limitation, weekly visual emission observations are required.

NO_x

This plant is required to continuously monitor nitrogen oxide emissions, which is to be installed, calibrated, maintained, and operated as stated in 40 CFR 60 Appendix B and Attachment C of the Consent Decree. The facility has demonstrated compliance with the NO_x limit through source stack testing (December 7, 2021). This unit is subject to Compliance Assurance Monitoring (CAM) as defined in 40 CFR Part 64. The continuous NO_x monitor meets the monitoring requirements for this unit.

Reporting

Opacity

Records of the weekly visible emission inspections shall be maintained along with any corrective action taken for a period of at least five years.

Nitrogen Oxide (NO_x)

A quarterly report detailing excess emissions is required to show compliance with the continuous monitoring requirements in accordance with 40 CFR 60.7. The monthly hours of operation should also be reported and included in the quarterly report.

Emission Unit No. 004: Ammonium Nitrate Plant Neutralization

Unit Specific Changes

- There are no changes pertaining to this unit.

Overview

This unit contains two ammonium nitrate plant neutralizers: No. 1 Ammonia Nitrate Neutralizer and the No. 2 Ammonia Nitrate Neutralizer. The neutralizers mix nitric acid and ammonia in a neutralization operation where the two substances react to form an aqueous ammonium nitrate (AN) solution. The aqueous solution then flows through multiple storage tanks and evaporators. Emissions from this neutralization process are controlled by a scrubber under normal operations. A condenser is used primarily when maintenance is performed on the scrubber. The No. 1 Ammonia Nitrate Neutralizer handles off-gas from the urea plant. When not operating, the No. 2 Ammonia Nitrate Neutralizer is equipped to handle the off-gas.

Permit History

- Emission unit number 004 (Ammonium Nitrate Neutralizer) was constructed in 1961 and went through reconstruction in 1976.
- Emission unit number 004 was first included in the permit to operate 7-01-0013-Z010 (Neutralizer NH₄NO₃) which was issued on January 11, 1973 to U.S.S. Agri-Chemicals.
- On November 29, 2001, emission unit number 004 was included in the initial Major Source Operating Permit.
- On October 1, 2018, there was an update included in the third renewal of the MSOP for the particulate matter emission limit for emission unit number 004.

Emission Standards

Opacity and Particulate Matter (PM)

The pollutants emitted at this unit are PM/PM10, ammonia, and nitric acid. The No. 1 Neutralizer is subject to the requirements of ADEM Admin. Code r. 335-3-4-.01: Control of Particulate Emissions from Visible Emissions. The state opacity standard would apply at all times.

The No. 1 Neutralizer is subject to the requirements of ADEM Admin. Code r. 335-3-4-.04: Control of Particulate Emissions from Process Industries – General. LSB is located in Colbert County, which is currently classified as a Class 1 County, as stated in Appendix A of ADEM Admin. Code r. 335-3. Therefore, the unit is subject to the process weight equation:

$$E = 3.59P^{0.62}$$

Where: E = Emissions in pound per hour
P = Process weight per hour in tons per hour

The process weight curve for particulate matter emissions found in ADEM Admin. Code R. 335-3-4-.04(1) limits PM/PM10 emissions to a maximum of 24.2 pounds per hour; however, the facility has requested a more stringent limit of 1.9 lb/hr based on the scrubber removal efficiency and maximum process capacity. Potential controlled emissions from this unit were calculated using a 99% removal efficiency of the scrubber and are expected to be 8.2 TPY of PM/PM10, 34.1 TPY of ammonia, and 37.9 TPY of nitric acid.

Periodic Monitoring

Opacity and Particulate Matter (PM)

The neutralizer solution shall be monitored every two hours during operation to maintain the acidity reading from -0.10 (acidic) to +0.30 (basic) to monitor the control of particulate emissions.

Reporting

CAM is applicable because this unit uses a control device (neutralizer scrubber) to achieve compliance with an emission limitation. Monitoring the Ph of the neutralizer solution every two hours when the unit is operating is sufficient for CAM. The acidity of the solution is indicative of the scrubber operating in a manner as to comply with the particulate emission rates.

Emission Unit No. 006: 97.6 MMBtu/hr Boiler

Unit Specific Changes

- There are no changes pertaining to this unit.

Overview

The chemical reactions in the production of nitrous based fertilizer are exothermic. The heat recovered from these reactions is recovered to generate steam used in the process. Steam from the 97.6 MMBTU/hr utility boiler is primarily for start-up of the production units. This boiler is fired by natural gas with No. 2 fuel oil as backup. This unit is subject to the requirements of 40 CFR Part 60, Subpart Dc: Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units.

Permit History

- Emission unit number 006 (97.6 MMBtu/hr Boiler) has a manufacturing date of 1997 and was installed in 1999.
- On July 30, 1999, emission unit number 006 was included in air permit number 701-0013-X024 (97.6 MMBtu/hr Start-up Boiler, Natural Gas Fired with Low NOx Burners, and with #2 Fuel Oil Backup) which was issued for LaRoche Industries, Inc.
- On November 29, 2001, emission unit number 006 was included in the initial Major Source Operating Permit.
- On March 4, 2014, the second renewal of the MSOP included the addition of a sulfur dioxide limit on emission unit number 006. This emission limit was included in the facilities previous statement of basis, but not in the permit.

Emission Standards

Opacity and Particulate Matter (PM)

The 97.6 MMBtu/hr Boiler is subject to the requirements of ADEM Admin. Code r. 335-3-4-.01: Control of Particulate Emissions from Visible Emissions. The state opacity standard would apply at all times.

The 97.6 MMBtu/hr Boiler is subject to the requirements of ADEM Admin. Code r. 335-3-4-.03: Control of Particulate Emissions from Fuel Burning Equipment. Since LSB is located in Colbert County, which is currently classified as a Class 1 County, as stated in Appendix A of ADEM Admin. Code r. 335-3. Therefore, the reformer is subject to the Class 1 County PM fuel burning equation:

$$E=1.38(H)^{-0.44}$$

Where: E = Emissions in lb/million Btu
H = Heat input in millions of Btu/hr

Particulate emissions from this unit are limited to 0.18 lb/MMBtu by ADEM Admin. Code R. 335-3-4-.03, which equates to 18 lb/hr of PM/PM10. Based on updated AP-42 emission factors, potential PM/PM10 emissions from this boiler are 1.0 lb/hr. The Department acknowledges that AP-42 emission factors are considered to be average values developed and compiled from source test data, material balance studies, and engineering estimates. However, the facility has requested a PM/PM10 emission limit of 1.0 lb/hr. Therefore, the Department has determined that the facility would be capable of meeting the state allowable based on the inherently low PM emissions associated with the combustion of natural gas.

This boiler is subject to the requirements of 40 CFR 60, Subpart Dc. As stated, when firing fuel oil, opacity is limited to 20%, except for one 6-minute period every 60 minutes not to exceed 27% opacity.

Sulfur Dioxide (SO₂)

Fuel oil usage for the 97.6 MMBTU/hr boiler is limited to 71,604 gallons in any consecutive 12-month period to limit sulfur content. Natural gas usage is also limited to 855 MMSCF in any consecutive 12-month period. This boiler is subject to the requirements of 40 CFR 60, Subpart Dc. As stated in 40 CFR 60.42c(d), SO₂ emissions are limited to 0.5 lb/MMBtu.

Periodic Monitoring

Opacity and Particulate Matter (PM)

In order to indicate compliance with the opacity limitation, weekly visual emission observations are required.

Sulfur Dioxide (SO₂)

In order to indicate compliance with the sulfur limitation, as set by 40 CFR Part 60, Subpart Dc, sulfur content of No. 2 fuel oil will be certified by the vendor with each shipment.

Reporting

In order to indicate compliance with the sulfur limitation, as set by 40 CFR Part 60, Subpart Dc, fuel usage will be recorded daily, and records of vendor certification of sulfur content of No. 2 fuel oil shall be kept for at least five years.

Emission Unit No. 009: 2,000 Gallon Gasoline Storage Tank

Unit Specific Changes

- There are no changes pertaining to this unit.

Overview

This 2,000-gallon gasoline tank is used to fuel on-site vehicles and equipment. This tank is subject to 40 CFR 63, Subpart CCCCCC National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Dispensing Facilities.

Permit History

- On March 4, 2013, emission unit number 009 (2,000 Gallon Gasoline Storage Tank) was included in the initial Major Source Operating Permit.

Emission Standards

Hazardous Air Pollutant (HAP)

This tank is subject to 40 CFR 63, Subpart CCCCCC National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Dispensing Facilities. This tank is limited to a monthly throughput of 10,000 gallons.

Volatile Organic Compounds (VOC)

This tank is also subject to ADEM Admin. Code R.335-3-6-.03: Loading and Storage of VOC. The facility is required to have a vapor loss control device equipped in order to reduce VOC emissions.

Periodic Monitoring

No periodic monitoring is required under the regulations that this unit is subject to.

Reporting

Hazardous Air Pollutant (HAP)

Under 40 CFR Part 63, Subpart CCCCCC, records of the monthly gasoline throughput shall be kept for at least five years.

Emission Unit No. 010: Diesel Fired Engine for Water Pump

Unit Specific Changes

- There are no changes pertaining to this unit.

Overview

The facility utilizes a diesel fired engine to power a water pump for emergency fire-fighting water. This pump is also used for non-emergency situations, such as pressure washing; therefore, it is classified as non-emergency. The engine was manufactured and installed in 1999, and has a maximum brake horsepower of 287 Hp. This unit is subject to 40 CFR Part 63, Subpart ZZZZ: National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines – Area Source.

Permit History

- Emission unit number 010 (Diesel Fired Engine for Water Pump) has a manufacturing date of 1999.
- On March 4, 2013, emission unit number 010 was included in the second renewal of the Major Source Operating Permit.

Emission Standards

Opacity and Particulate Matter (PM)

The Diesel Fired Engine is subject to the requirements of ADEM Admin. Code r. 335-3-4-.01: Control of Particulate Emissions from Visible Emissions. The state opacity standard would apply at all times.

Hazardous Air Pollutant (HAP)

This unit is subject to 40 CFR Part 63, Subpart ZZZZ, which requires that the unit be operated and maintained in accordance with the manufacturer's emission-related written instructions, if available, or develop a maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions. The unit is also required to limit startup/idle time to 30 minutes.

Periodic Monitoring

Opacity and Particulate Matter (PM)

The opacity is limited to 20% by ADEM Admin. Code R. 335-3-4-.01, and will be observed on a weekly basis, if the unit is operated during that week.

Reporting

Opacity and Particulate Matter (PM)

Records of the weekly visible emission inspections shall be maintained along with any corrective action taken for a period of at least five years.

Hazardous Air Pollutant (HAP)

Records will be kept of operational times and purpose, as well as the maintenance and visible emissions observations for a period of at least five years.

Emission Unit No. 011: 16.5 MMBtu/hr Natural Gas Fired Boiler

Unit Specific Changes

- There are no changes pertaining to this unit.

Overview

The 16.5 MMBtu/hr natural gas fired boiler provides steam to the ammonia plant when the steam demand is low enough that this boiler can provide the required amount; therefore, allowing the current, larger boiler to be idled down at times. This boiler is fired by natural gas only. The 16.5 MMBtu/hr natural gas fired boiler is subject to 40 CFR Part 60, Subpart DC: Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units, since the boiler capacity size is greater than 10 MMBtu/hr and less than 100 MMBTU/hr and was constructed after the effective date (June 9, 1989) of the regulation.

Permit History

- Emission unit 011 (16.5 MMBtu/hr Natural Gas Fired Boiler) has a manufacturing date of 2012 and an installation date of 2012.
- On July 6, 2012, emission unit number 011 was included in air permit number 701-0013-X011 (16.5mMMBtu/hr Natural Gas Fired Boiler) which was issued to Cherokee Nitrogen LLC.
- On March 4, 2013, emission unit number 011 was included in the second renewal of the Major Source Operating Permit.
- On October 1, 2018, there was an update included in the third renewal of the MSOP for the particulate matter emission limit for emission unit number 011.

Emission Standards

Opacity and Particulate Matter (PM)

This boiler is also subject to ADEM Admin. Code 335-3-4-.03: Control of Particulate Emissions from Fuel Burning Equipment. Since LSB is located in Colbert County, which is currently classified as a Class 1 County, as stated in Appendix A of ADEM Admin. Code r. 335-3. Therefore, the reformer is subject to the Class 1 County PM fuel burning equation:

$$E=1.38(H)^{-0.44}$$

Where: E = Emissions in lb/million Btu
H = Heat input in millions of Btu/hr

This regulation limits particulate emissions to 0.40 lb/MMBtu (6.6 lb/hr), which is much greater than the potential emission rate of 0.20 lb/hr; however, the facility has requested a PM/PM10 emission limit of 0.20 lb/hr.

Sulfur Dioxide (SO₂)

This boiler is also subject to ADEM Admin. Code 335-3-5-.01: Control of Sulfur Compound Emissions from Fuel Combustion. LSB is located in Colbert County, which is currently classified as a Category II County, as stated in Appendix B of ADEM Admin. Code r. 335-3. Therefore, the 16.5 MMBtu/hr natural gas fired boiler is subject to the Category II County SO₂ emission limit of 4.0 lb/MMBtu. The potential emission rate of 0.01 lb/hr was calculated by the facility, so the facility has requested an SO₂ emission limit of 0.01 lb/hr.

Periodic Monitoring

Opacity and Particulate Matter (PM)

The opacity is limited to 20% by ADEM Admin. Code R. 335-3-4-.01 and will be observed on a weekly basis if the boiler is operating.

Reporting

Opacity and Particulate Matter (PM)

Records of the weekly visible emission inspections shall be maintained along with any corrective action taken for a period of at least five years.

Sulfur Dioxide (SO₂)

Since this unit fires only natural gas it is subject to only the initial notification and monthly fuel recordkeeping of 40 CFR 60.48c(a) and 40 CFR 60.48c(g), respectively. Records will be kept of operational times and purpose.

Emission Unit NO. 012: 1495 hp Diesel Fired Emergency Generator

Unit Specific Changes

Overview

Air Permit 701-0013-X012 was issued on August 26, 2014 for this 1495hp Tier 1 Certified Emergency Diesel-Powered Generator. The emissions from the generator are based on a maximum of 480 hours of operation per year. The 1495 HP emergency diesel engine is subject to 40 CFR 60 Subpart IIII: New Source Performance Standards (NSPS) for Stationary Compression Ignition (CI) Internal Combustion Engines. The diesel engine is also subject to 40 CFR 63 Subpart ZZZZ: National Emissions Standards for Hazardous Air Pollutants Stationary Reciprocating Internal Combustion Engines.

Permit History

- Emission unit 012 (1495 hp Diesel Fired Emergency Generator) has a manufacturing date of 2000.
- On August 26, 2014, emission unit number 012 was issued in air permit number 701-0013-X012 (Synthetic Ammonia Plant Emergency Power Generator – Tier 1 Certified Emergency Diesel-Powered Generator (1495 hp)) to Cherokee Nitrogen LLC.
- On October 1, 2018, emission unit number 012 was included in the third renewal of the Major Source Operating Permit.

Emission Standards

Opacity and Particulate Matter (PM)

The emergency generator is subject to the requirements of ADEM Admin. Code r. 335-3-4-.01: Control of Particulate Emissions from Visible Emissions. The state opacity standard would apply at all times.

Applicable Regulations (NESHAP/ NSPS)

The emission factors for NO_x, CO, VOC, and PM used for calculating the proposed annual emissions for the generator are based on the manufacturer's guarantee that this unit meets the requirements of 40 CFR 60 Subpart IIII. The SO₂, Formaldehyde, CO₂ and Total HAPs emission factors are based on AP-42 for large stationary diesel and all stationary diesel-fired engines.

The engine is equipped with a non-resettable hour meter. Operating hours are limited to 100 hours per year for testing and maintenance. The engine may operate up to 50 hours per year in non-emergency situations, but those 50 hours are counted towards the 100 hours per year provided for maintenance and testing. As required by 40 CFR 60.4205(a), this emergency stationary CI must comply with the emission standards found in Table 1 to Subpart IIII. The emission standards for this engine are 1.3 g/kW·hr for HC, 9.2 for g/kW·hr NOX, 11.4 g/kW·hr for CO, and 0.54 g/kW·hr for PM. The facility has provided documentation indicating that the proposed generator is certified and capable of meeting these emission standards.

Since the unit is a new stationary engine and the facility is an area source for HAPs, the requirements of Subpart ZZZZ will be met by complying with the requirements of 40 CFR 60 Subpart IIII. No further requirements would apply for this unit under this subpart.

Periodic Monitoring

Opacity and Particulate Matter (PM)

The opacity is limited to 20% by ADEM Admin. Code R. 335-3-4-.01 and will be observed on a weekly basis if the boiler is operating.

Applicable Regulations (NESHAP/ NSPS)

Under 40 CFR Part 60, Subpart IIII, the facility shall operate and maintain the generator according to the manufacturer's procedures.

Reporting

Opacity and Particulate Matter (PM)

Records of the weekly visible emission inspections shall be maintained along with any corrective action taken for a period of at least five years.

Applicable Regulations (NESHAP/ NSPS)

Under 40 CFR Part 63, Subpart ZZZZ, records of the operation of the generator, emergency and non-emergency, shall be recorded through the non-resettable hour meter. These records shall be kept for a period of at least five years.

Compliance Assurance Monitoring (CAM)

This facility is subject to the provisions of 40 CFR Part 64, Compliance Assurance Monitoring (CAM). Both nitric acid plants and the ammonia nitrate neutralization plant, are subject to the CAM provisions, and CAM monitoring is required. The post-control potential emissions from the flares and scrubbers are less than 100 tons per year and are thus classified as “other pollutant-specific emission units” per 40 CFR 64.5(b). The following are the Compliance Assurance Monitoring requirements for the facility:

CAM Plan for Nitric Acid Plant No. 2 – Selective Catalytic Reduction Unit (Emission Point 003)

	Indicator 1	Indicator 2
I. Indicator	NOx hourly emissions	N/A
Measurement Approach	Continuously monitor NOx emissions	N/A
II. Indicator Range	1.0 lb NOx/ton 100% nitric acid produced (3-hour rolling average basis, excluding SSM)	N/A
III. Performance Criteria		
Representative Data	Emission measurements being made at the emission point	N/A
Verification of Operation Status	CEMS is in place and operating, verification not applicable	N/A
QA/QC Practices and Criteria	Calibration of the CEMS will be performed in accordance with the QA/QC Plan	N/A
Monitoring Frequency	Continuously monitor NOx emissions using a CEMS	N/A
Data collection Procedures	CEMS device	N/A
Averaging Period	3-hour average basis	N/A

CAM Plan for Ammonium Nitrate Plant No. 1 Neutralizer - Scrubber (Emission Point 004)

	Indicator 1	Indicator 2
I. Indicator	Acidity of neutralizer solution	N/A
Measurement Approach	Neutralizer solution will be monitored every 2 hours during operation to maintain the acidity	N/A
II. Indicator Range	-0.10 (acidic) to +0.30 (basic)	N/A
III. Performance Criteria		
Representative Data	Measurements being made at the emission point	N/A
Verification of Operation Status	N/A	N/A
QA/QC Practices and Criteria	Lab QA/QC procedures will be followed	N/A
Monitoring Frequency	The acidity will be measured and recorded every 2 hours during operation	N/A
Data collection Procedures	A sample of the neutralizer solution will be collected manually, and the acidity of the solution will be tested. The measured acidity will be recorded manually in a log book.	N/A
Averaging Period	N/A	N/A

Recommendations

The proposed Title V Major Source Operating Permit (701-0013) fourth renewal 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.

Gabby Sautter
 Chemical Branch
 Air Division

February 5, 2026
 Date