west virginia department of environmental protection

Division of Air Quality
601 57th Street, SE
Charleston, WV 25304
Phone: (304) 926-0475
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Harold D. Ward, Cabinet Secretary
dep.wv.gov

January 14, 2026

CERTIFICATION

**RE: West Virginia-Citizen Action Group, Inc. v.
Laura M. Crowder, Director, West Virginia Department of Environmental Protection,
Division of Air Quality**

MGS CNP 1, LLC; BECCS Plant

APPEAL NO: 25-04-AQB

I, Laura Crowder, Director, Division of Air Quality, Department of Environmental Protection, in compliance with Chapter 22B, Article 1, Section 7 (e), Code of West Virginia, as amended, do hereby certify that the enclosed is a true and accurate reproduction of the record of the proceedings out of which the appeal arises including documents and correspondence in the Director's file relating to the matter in question.

Division of Air Quality

Laura M. Crowder

Digitally signed by: Laura M. Crowder
DN: CN = Laura M. Crowder email = Laura.M.Crowder@wv.gov C = US O = WV DEP OU = DAQ
Date: 2026.01.14 11:58:46 -05'00'

Laura M. Crowder
Director

LMC/srm
Enclosures

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Permit Application R13-3708

Received
February 24, 2025
WV DEP/Div of Air Quality

Division of Air Quality Permit Application Submittal

Please find attached a permit application for : MGS CNP 1, LLC;BECCS Plant
[Company Name; Facility Location]

- DAQ Facility ID (for existing facilities only):
- Current 45CSR13 and 45CSR30 (Title V) permits associated with this process (for existing facilities only):

- Type of NSR Application (check all that apply):
  - ☑ Construction
  - ☐ Modification
  - ☐ Class I Administrative Update
  - ☐ Class II Administrative Update
  - ☐ Relocation
  - ☐ Temporary
  - ☐ Permit Determination

- Type of 45CSR30 (TITLE V) Application:
  - ☐ Title V Initial
  - ☐ Title V Renewal
  - ☐ Administrative Amendment**
  - ☐ Minor Modification**
  - ☐ Significant Modification**
  - ☐ Off Permit Change

****If the box above is checked, include the Title V revision information as ATTACHMENT S to the combined NSR/Title V application.**

- Payment Type:
  - ☑ Credit Card (Instructions to pay by credit card will be sent in the Application Status email.)
  - ☐ Check (Make checks payable to: WVDEP – Division of Air Quality)
    Mail checks to:
    WVDEP – DAQ – Permitting
    Attn: NSR Permitting Secretary
    601 57th Street, SE
    Charleston, WV 25304

Please wait until DAQ emails you the Facility ID Number and Permit Application Number. Please add these identifiers to your check or cover letter with your check.

- If the permit writer has any questions, please contact (all that apply):
  - ☐ Responsible Official/Authorized Representative
    - Name:
    - Email:
    - Phone Number:
  - ☑ Company Contact
    - Name: Jack Calhoun
    - Email: jack.calhoun@fidelisinfra.com
    - Phone Number:
  - ☑ Consultant
    - Name: Michael Dearing
    - Email: michael.dearing@erm.com
    - Phone Number:

February 20, 2025

Ms. Laura M. Crowder, Director
WVDEP – Division of Air Quality
601 57th Street SE
Charleston, WV 25304

RE: MGS CNP 1, LLC – R13 Air Permit Application

Dear Director Crowder:

MGS CNP 1, LLC herein submits the enclosed Minor Source Air Permit Application for the proposed Biomass Energy with Carbon Capture and Sequestration (BECCS) Plant to be located in Mason County, West Virginia. Section 2 of the application provides a detailed description of the project process. Based on the project emissions estimation, the facility will be considered a minor source. Therefore, MGS CNP 1, LLC is submitting this application to obtain a Permit to Construct for the BECCS Plant in accordance with West Virginia Code of State Rules (CSR), Title 45, Series 13 (45CSR13).

If you have any questions or comments regarding this air permit application, please contact Michael Dearing at michael.dearing@erm.com.

Sincerely,

Jack Calhoun
Vice President

cc: Michael Dearing, ERM (michael.dearing@erm.com)

Minor Source Air Quality Permit Application

For

MGS CNP 1, LLC
Biomass Energy and Carbon Capture and Sequestration Plant

Submitted to:
West Virginia Department of Environmental Protection
Division of Air Quality – Permitting Section
601 57th Street SE
Charleston, WV 25304

Submitted by
MGS CNP 1, LLC
109 North Post Oak Lane, Suite 140
Houston, TX 77024

February 2025

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1 Application Overview

MGS CNP 1, LLC (MGSCNP1) is planning to build and operate a greenfield biomass energy with carbon capture and sequestration (BECCS) facility located in Point Pleasant, Mason County, West Virginia. With this application, MGSCNP1 is requesting a Permit to Construct for the BECCS facility in accordance with West Virginia Code of State Rules (CSR), Title 45, Series 13 (45CSR13).

Mason County is currently designated as “attainment” or “unclassified” for all regulated New Source Review (NSR) pollutants. As provided in the facility-wide emissions summary in Section 3 of this application, the BECCS facility will be a minor source with respect to the NSR permit program and the Title V operating permit program.

Section 2 of this application contains a process description. Section 4 contains a state and federal regulatory applicability analysis for the proposed project.

The WVDAQ R13 application form and required Attachments A-S in the application form are included in Appendices A and B, respectively, at the end of the application. Appendix B contains the following WVDAQ application components:

Attachment A: West Virginia Business Certificate
Attachment B: Maps
Attachment C: Installation and Start Up Schedule
Attachment D: Regulatory Discussion
Attachment E: Plot Plan
Attachment F: Detailed Block Flow Diagram(s)
Attachment G: Process Description
Attachment H: Material Safety Data Sheets (MSDS)
Attachment I: Emission Units Table
Attachment J: Emission Points Data Summary Sheet
Attachment K: Fugitive Emissions Data Summary Sheet
Attachment L: Emissions Unit Data Sheet(s)
Attachment M: Air Pollution Control Device Sheet(s)
Attachment N: Supporting Emissions Calculations
Attachment O: Monitoring / Recordkeeping / Reporting / Testing Plans
Attachment P: Public Notice
Attachment Q: Business Confidential Claims (Not Applicable)
Attachment R: Authority Forms (Not Applicable)
Attachment S: Title V Permit Revision Information (Not Applicable)

2 Detailed Description of Proposed Operations

This section includes a detailed process description of the proposed BECCS facility. Appendix B provides a process flow diagram, as shown in Attachment F, for reference. The fluidized bed boiler in this BECCS facility will use clean woodchips as fuel during normal operation and burn natural gas during start up process. MGSCNP1 intends to commence construction of the BECCS facility in 2026 with startup operations in 2029. The proposed plant will include the following major processes:

- Receiving, storing, and handling raw materials such as wood chips, sand and sodium bicarbonate
- Biomass boiler and environmental train
- Post-combustion carbon capture unit (PCCU)
- Power generation
- Storage and handling of fly ash and bottom ash
- Balance of Plant (BoP) facilities including, but not limited to:
    - Raw Water / Utility Water
    - NG Startup Generator
    - Electric and Diesel Driven Fire Water Pumps
    - Cooling Tower
    - Storage Tanks
    - Wastewater Treatment

The major emission sources that will be present on-site include:

- Hoppers, Bins and Conveyors in Material Handling
- One Wood Chip Fired Bubbling Fluidized Bed (BFB)Boiler
- One Mechanical Draft Evaporative Cooling Tower
- Trucks Traveling on Paved In-plant Road
- Storage Silos for Fly Ash and Bottom Ash
- Equipment Leaks
- One NG Startup Generator
- One Fire Water Diesel Engine Pump
- Two Storage Tanks – an amine makeup tank, and a lean amine tank. The facility will also have two additional tanks, a diesel tank and a biodegraded amine tank, but according to Table 45-13B in 45CSR13, these two tanks are de minimis sources and do not need to be included in this permit application.

2.1 Raw Material Receiving and Transfer

2.1.1 Truck Traffic

Raw material used as fuel will be clean wood chips. The wood chips will be delivered to the site by trucks. The wood chips will be stored outdoor in piles until burned as fuel in the fluidized bed boiler. Other materials trucked to the facility include sand, sodium bicarbonate ($NaHCO_3$), ammonia and amine solutions. The substances trucked out of the facility include fly ash, bottom ash, and degraded amine.

The only emissions generated from truck traffic are particulate matters (PM, PM_{10}, and $PM_{2.5}$).

2.1.2 Raw Material Receiving and Handling

Biomass will be unloaded from the trucks by truck tippers which dump the biomass into two receiving hoppers. Dust is controlled by a slight negative pressure in the receiving hoppers. The extracted dust laden air will be directed through a baghouse before discharge to the atmosphere.

The only emissions generated from truck loading chips into the hopper are particulate matters (PM, PM_{10}, and $PM_{2.5}$).

2.1.3 Conveying and Processing

From the hoppers, biomass is conveyed via covered conveyors to an uncovered chip pile, which is large enough for at least 14 days of storage. From the storage pile, front end loaders will be used to load the biomass into a biomass receiving hopper and the subsequent conveyors will transport the material to the day bins at the biomass boiler for feed loading.

The chip pile will be surrounded by a drainage trench to catch storm water runoff for treatment and disposal.

2.2 Combustion Process

MGSCNP1 will construct one bubbling fluidized bed (BFB) boiler. BFB boiler has been proven to efficiently combust wood biomass. MGSCNP1 proposes to fuel the new boiler with woody biomass under normal operation. Natural gas will be used for startup operation of the boiler only.

As discussed in this section, the boiler will be capable of accommodating the following:

1) Natural gas for boiler startup; and
2) wood biomass for normal operation.

The boiler is not being designed to combust natural gas as a secondary fuel for power generation. The boiler heat input capacity for natural gas will be rated at 180 million British thermal units per hour (MMBtu/hr). The anticipated maximum design heat input of the boiler while combusting woody biomass will be 944 MMBtu/hr.

BFB boilers are capable of efficiently combusting woody biomass. A fluid-like mixture of solid fuel and other solids (such as sand) is suspended in the BFB boiler's combustion chamber by a turbulent upward air flow. The turbulent mixing provides for greater combustion efficiency in the BFB boiler.

Combustion of woody biomass (in normal operation) and natural gas (at startup only) in the proposed BFB boiler accounts for most of the potential to emit regulated air pollutants from the proposed facility. A discussion of the control technology and methods to be used and the associated estimates of air pollutant emission rates are discussed below.

Attachment F in Appendix B shows a detailed process flow diagram of the major equipment, control technologies, and material flows for the BFB boiler system. As depicted in the figures, natural gas will be provided via pipeline, woody biomass will be provided by wood suppliers via incoming trucks and stored on-site. Also, as part of the process, MGSCNP1 will be installing silos to store materials required to support the proposed woody biomass boilers. The silos anticipated to be installed are as follows:

- Sand storage silo with breather vent to support boiler operation; and
- Sorbent (Sodium Bicarbonate ($NaHCO_3$)) storage silo to support as needed dry in-duct sorbent injection.

  Both silos will vent to the boiler with particulate emissions controlled by the boiler PJFF.

- Fly ash silos with filters for storing the fly ash and economizer ash from biomass combustion.

2.2.1 Proposed Air Pollution Control Technologies / Techniques

The proposed boiler will utilize a combination of state-of-the-art control devices/techniques to minimize potential emissions of regulated air pollutants. A discussion of these devices/techniques, along with the air pollutant being controlled is provided below.

2.2.1.1 Pulse Jet Fabric Filter (Baghouse): Particulate Matter Control

Emissions of particulate matter (PM) will be controlled by a Pulse Jet Fabric Filter (PJFF) commonly referred to as a baghouse. Modern baghouses can provide a high level of control efficiency, in excess of 99% reduction of particulate emissions.

The fabric filter proposed for this project is a self-cleaning dry filtration system. Dust is collected on the external surface of the filter, where it commonly forms into a cake. When the dust cake is at an appropriate thickness (based on time) a pulse of compressed air is pushed through the interior of the filter, knocking the dust cake free to fall into the hopper below for removal. The dust from the pulse jet fabric filter is combined with the economizer ash for removal.

Emission factors for uncontrolled emissions of trace elements (metals) come from AP-42 Section 1.6. It is conservative to assume that baghouses will not control emissions of these compounds since some are in the gas phase in the flue gas.

2.2.1.2 Dry In-Duct Sorbent Injection: Hydrogen Chloride and Acid Gas Control

HCl is formed from the presence of chlorine in the wood. MGSCNP1 will be installing a dry in-duct sorbent injection system, which will utilize $NaHCO_3$ as the injection sorbent material. The dry sorbent is typically injected as a powder into the flue between the furnace of the boiler and baghouse. The dry sorbent reacts with the targeted air pollutants (i.e., hydrogen chloride (HCl) and other acid gases) and removes them from the flue gas before such pollutants are subsequently being filtered from the flue gas by the baghouse. The system is designed to reduce acid gases such as HCl and is also effective at reducing sulfur dioxide and sulfuric acid mist. Initial engineering estimates indicate that the incorporation of the BFB boiler design, baghouse, and the dry in-duct sorbent injection is sufficient to maintain HCl and other acid gases to minor source levels.

2.2.1.3 Selective Catalytic Reduction (SCR): Nitrogen Oxides (NO_X) Control

An SCR system will be utilized for controlling NO_X emissions. The SCR process chemically reduces the NO_X molecule into molecular nitrogen and water vapor. A nitrogen-based reactant such as ammonia is injected into the ductwork, downstream of the combust unit. The waste gas mixes with the reagent and enters a reactor module containing a catalyst. The hot flue gas reagent diffuses through the catalyst. The reagent reacts selectively with the NO_X within a specific temperature range and in the presence of the catalyst and oxygen.

A small amount of the ammonia will “slip” through the process without reacting and be emitted in the boiler’s exhaust. This emission of ammonia is termed “ammonia slip.”

2.2.1.4 Oxidation Catalyst: Carbon Monoxide (CO) and Volatile Organic Compounds (VOCs) Control

A properly designed firebox and burner coupled with effective operating controls will minimize CO and VOC generation by providing the proper residence time, temperature and combustion zone turbulence, as well as the proper air-to-fuel ratio. In addition to combustion controls such as proper boiler design and operation, CO oxidation catalyst will be applied to the BFB to control the CO and VOC emissions. The

oxidation catalyst is typically a precious metal catalyst (e.g. platinum), which has been applied over a metal or ceramic substrate. The catalyst lowers the activation energy required for the oxidation of CO to temperatures between 400 and 1100 °F. No chemical reagent addition is required.

2.2.1.5 Injection of Caustic (Wet Flue Gas Desulfurization): Sulfur Oxides (SO_X) Control

Caustic will be injected into the boiler flue gas to remove SO_X in a process known as wet flue gas desulfurization. The aqueous caustic solution is sprayed from the top of the polishing scrubber column. Blowdown from the wash water / caustic solution is sent to the wastewater treatment plant.

2.3 Ash Handling, Storage and Shipment Process

The combustion of biomass in the proposed boiler will result in the formation of bottom ash and fly ash. The resultant amount of ash is reflection of the ash in the fuel.

The fly ash is the particulates captured by the high efficiency baghouse. The generated fly ash will be transferred to two ash storage silos via two PJFF Ash Collection Drag Chain Conveyors, two PJFF Ash Collection Surge Bins, two PJFF Ash Transport Drag Chain Conveyors, an Ash Bucket Elevator, and an Ash Distribution Drag Chain Conveyor. Each fly ash storage silo will be equipped with a pulse jet filter to minimize any PM from the storage silo. When a sufficient volume has been collected, the fly ash will be mixed with utility water and then trucked off site. The fly ash will have a minimum moisture content of 10 wt% when loaded into trucks. The chute used to dispense fly ash into the truck will be designed to minimize PM emissions.

Bottom ash along with heavy non-combustible material will be collected in two metering conveyors and transferred to two vibrating conveyors. The bottom ash is separated from sand on the vibrating conveyor, after which it is moved outside of the boiler island and cooled. This material will be delivered to enclosed bins for storage and to be trucked away and disposed of.

2.4 Post-Combustion Carbon Capture

The Post-Combustion Carbon Capture Unit (PCCU) is designed to remove greater than 95% of the CO_2 in the combustion flue gas from the biomass boiler. This process description is for a generic amine carbon capture unit. Depending on the carbon capture licensor that is selected to move forward in the project, there may be slight modifications in the operation. The CO_2 that is captured is dehydrated and compressed to pipeline specifications prior to being permanently sequestered offsite of the BECCS facility.

2.4.1 Absorber

In the absorber, flue gas from the direct contact cooler containing CO_2 is fed to an absorption column where it's contacted with a downflowing amine-based solvent. The amine removes the CO_2 from the flue gas. The amine which contains the captured CO_2 exits the absorption column as rich amine bottoms liquid. The produced flue gas free of CO_2 is vented from the top of the absorber column to atmosphere.

2.4.2 Amine Regenerator

The rich amine stream leaving the amine absorber is routed to the regenerator column to regenerate amine. This is achieved by the regenerator column being operated at conditions that separate the CO_2 vapor from the liquid amine.

The amine feed flows to the top of the regenerator column. Separation of the CO_2 and amine occurs by a stripping effect created as amine comes in contact with the up-flowing CO_2 vapor. The heat required for regeneration will be supplied by low pressure (LP) Steam to a reboiler. The LP steam is provided from the biomass boiler steam system. The regenerated lean amine from the regenerator is pumped to the absorber column as feed to complete the cycle of CO_2 removal from the flue gas.

CO_2 vapors rise to the top of the column, where they are passed through a condenser. A reflux drum after the condenser separates the liquid amine from the CO_2 vapor. The liquid amine from the condenser is sent back to the regenerator column as reflux while the CO_2 vapor is sent to compression.

2.4.3 Reclaimed Amine

Degradation of amine solvents occurs over time due to the presence of oxygen and other impurities in the flue gas, resulting in deterioration of long-term performance. Purification of the amine solvent is therefore required to maintain operating efficiency. Reclamation includes both neutralization and regeneration steps. The contaminated amine solution is first mixed with a strong base, such as caustic, to reform the amine and separate it from degradation products. Heat is then applied to boil off the free amine and water and leaving behind sludge of degradation products. The degradation products are removed periodically from site by trucks. Reclaimed amine is sent to the lean amine tank for recirculation. Makeup amine will be brought to site using trucks, stored in the Amine Makeup Tank and then supplied to the amine absorber system to account for losses to the degradation products.

2.4.4 CO_2 Compression

CO_2 product from the reflux drum of amine stripper is dehydrated and compressed to 1,850 psig and 100°F for sequestration via an external pipeline.

2.4.5 Amine Storage

One Lean Amine Tank and one Amine Makeup Tank will be installed to store lean amine and makeup amine, respectively. Makeup amine will be delivered to the makeup amine tank by truck, while makeup demineralized water is provided from the demineralized water system for diluting the solvent.

2.5 Power Generation

2.5.1 Steam Turbine Generator

The steam turbine generator (STG) extracts the thermal energy from the superheated, pressurized steam produced by the biomass boiler and uses it to perform mechanical work. The mechanical work is then converted to electrical power by the generator. The resulting steam exhaust from the STG is then cooled in a surface condenser with cooling water. The steam condensate from the surface condenser is recirculated back to the deaerator.

2.5.2 Start-up Generator

A start-up generator is provided to support the Boiler and steam turbine start-up. Electrical power, generated by the start-up generator, is required to run various Boiler and steam turbine auxiliaries, such as boiler feedwater pumps, air compressors, cooling equipment, etc. and controls.

2.6 Auxiliary Processes and Balance of the Plant (BoP) Facilities

2.6.1 Emergency Engine

The proposed plant will require an emergency fire water pump. This piece of emergency equipment will be fueled with ultra-low sulfur distillate fuel oil (diesel) and operate only a limited number of hours (100 hours per year or less) for testing purposes under normal conditions. To support this emergency equipment, an above-ground tank with a maximum capacity of 1292 gallons (gal) will be installed. This tank will be designed to store the ultra-low sulfur distillate fuel oil. According to Table 45-13B in 45CSR13, the diesel tank is a de minimis source and does not need to be included in this permit application.

2.6.2 Cooling Tower

A dedicated cooling tower will be installed to supply cooling water to all plant users. The Cooling Tower makeup is supplied using Utility Water (Raw water that has been treated).

2.6.3 Storage Tanks

As described in sections 2.4.5, two storage tanks will be installed to support the operation of the facility – a lean amine tank and an amine makeup tank.

2.6.4 Waste Water Treatment Plant

The wastewater treatment plant will receive water from the direct contact cooler/polishing scrubber system. The scrubbing liquid will have direct contact with the flue gas exhaust from the boiler. The scrubber solution will adsorb ammonia, sulfuric acid and hydrochloric acid that could be present in the flue gas. The scrubbing solution will be sent to the Wastewater Treatment Plant for further processing before it is discharged to the outfall. It is conservatively assumed that 10% of the ammonia, sulfuric acid and hydrochloric acid in the flue gas could be emitted from the Wastewater Treatment plant. The wastewater treatment plant will also receive water from the demineralized water system, raw water treatment, flush pond water, cooling tower water and boiler blowdown water. These streams are not expected to contribute emissions from the wastewater treatment plant.

2.6.5 Others

To support the operation of the facility, other facilities will also be installed such as raw water/utility water, fire water, demineralized water generation, natural gas system, storm water pond, first flush pond, buildings, etc. These facilities are not expected to generate any air emissions.

3 Emission Sources and Emission Calculations

3.1 Emission Source Description

MGSCNP1 plans to install the following air emission units during the construction of the proposed BECCS facility. Please note that the design information discussed in this application is based on best available information provided by vendors at the time of this application. A process flow diagram is included in Appendix B that identifies each emission source. Table 3-1 below summarizes emission points at the proposed facility.

Table 3-1 Facility Emission Source ID and Description

Emission Source	Source ID	Type	Emission Source Description
Truck Traffic	PM-PlantRd	Fugitive	Paved Roads – Receiving wood chips, sand, sodium bicarbonate, and chemicals (ammonia and amine). Disposal of degraded amine and ash.
Bag House on Biomass Receiving Hoppers	121-PKG-1001	Point	Bag house on wood chips receiving hoppers (121-LS-1001 and 121-LS-1002) to control particulate matter emissions
Uncovered Wood Chip Pile	CHIP-1 CHIP-2	Fugitive	Wood chips storage pile loading fugitives (CHIP-1) and wind erosion emissions (CHIP-2)
Biomass Feed Hopper	121-S-1001	Fugitive	Emissions due to loading wood chips into the uncovered open hopper
Biomass Metering Bins Biomass Transfer System	121-S-2001 A/B 121-CV-1001 121-CV-1002 121-CV-1003 121-CV-2001 A/B	Point Fugitive	Venting due to loading wood chips into the bins Conveying of biomass from the biomass hoppers to the BFB Boiler
BFB Boiler Stack	121-PKG-3001	Point	BFB boiler stack used for boiler startup and when CCS is not in operation
CO_2 Absorber	122-T-1001	Point	Stack on the top of the CO_2 Absorber, through which CO_2-controlled biomass boiler flue gas is released to the atmosphere when CCS is operating
Fly Ash Storage Silos	121-S-4001 A/B	Point	Silo for storing economizer ash and fly ash captured by the Boiler PJFF (baghouse)
Fly Ash Truck Loading	121-TL-0001	Point	Venting due to loading the captured fly ash into trucks
Fly Ash Transfer System	121-CV-4001 A/B 121-CV-4002 121-CV-4003	Fugitive	Conveying of fly ash from the fly ash hoppers to enclosed storage silos

Emission Source	Source ID	Type	Emission Source Description
	121-CV-4004 121-CV-4005 121-CV-4006 A/B 121-CV-4007 A/B		
Cooling Tower	129-CT-9301	Fugitive	6-Cell mechanical draft cooling tower
Sand Transfer System	121-S-1002 121-CV-1004 121-CV-5001 A/B 121-CV-5002 A/B 121-CV-5003 A/B 121-CV-5004 A/B	Fugitive	Conveying of fresh sand from the uncovered open sand receiving hopper and the recycled sand from the recovering process to the BFB boiler
Sodium Bicarbonate Vent Hoppers	121-S-9902 A/B	Point	Hoppers with filters in $NaHCO_3$ transfer process
Start-up Generator	129-PKG-0001	Point	NG-fired generator used during facility startup
Fire Water Pump	129-P-9402	Point	Diesel-driven pump for emergency use
Truck Loading	VOC-Amine-Load	Point	Venting from truck during loading of biodegraded amine
Amine Makeup Tank	122-TK-9902	Point	Storage tank for storing makeup amine for the CCS process
Lean Amine Tank	122-TK-9901	Point	Storage tank for storing the regenerated lean amine in the CCS process
Waste Water Treatment	127-WTP-00	Fugitive	Treatment of water on site from various processes.

3.2 Emissions Rates and Calculation Methods

This section provides a project emission summary table and describes the method for determining the emissions. In all cases, air emissions were estimated by one of the following methods: emission factors from U.S. EPA Compilation of Emission Factors AP-42, vendor data, engineering calculations, engineering process knowledge. All emissions are based on maximum design capacity and operating 8760 hours per year. The detailed emission calculations are included in Appendix B, Attachment N.

3.2.1 Proposed Project Emissions

Table 3-1 provides a summary of the potential annual emissions including particulate matter, particulate matter with an aerodynamic diameter of 10 microns or less, and particulate matter with an aerodynamic diameter of 2.5 microns or less ($PM/PM_{10}/PM_{2.5}$), nitrogen oxides (NO_X), sulfur dioxide (SO_2), carbon

monoxide (CO), volatile organic compounds (VOC), and total hazardous air pollutants (HAPs). As mentioned above, the detailed emission calculations and supporting documentation is provided in Appendix B, Attachment N.

Table 3-2 Summary of Facility-Wide Potential Emissions in Tons Per Year

NO_X	CO	SO_2	VOC	PM	PM_{10}	$PM_{2.5}$	NH_3	Total HAPs
90.95	46.48	50.78	55.27	98.51	83.35	75.28	25.72	24.00

3.2.2 Emission Calculation Methods

Haul Road Traffic Fugitives

Emissions from haul roads due to traffic were estimated using the paved roads, size-specific emission calculation equation below:

$$E = k \times (sL)^{0.91} \times W^{1.02}$$

Where:

E = pounds per vehicle mile traveled (lb/VMT)

sL = silt loading grams per square meter (g/m^2) = 2.4 g/m^2

W = mean vehicle weight (tons)

k = constant (AP-42 Table 13.2-1.1)

The mean vehicle weight is calculated by averaging the loaded and unloaded vehicle weights. The "ubiquitous baseline" of 0.6 g/m^2 was selected from the less than 500 average daily traffic category in AP-42 Table 13.2.1-2; and the ubiquitous winter baseline multiplier during months with frozen precipitation (x4) was applied to this value to obtain a silt loading value of 2.4 g/m^2 for all paved roads. For paved roads, vehicle miles traveled (VMT) is calculated as follows:

$$VMT = length\ of\ path\ haul\ road\ vehicle\ travels * maximum\ trips\ (hourly\ or\ annual)$$

The estimate of the maximum hourly emission rate conservatively assumes 203 trucks (vehicles) each traveling 0.63 miles in a 10-hour workday, so the base for hourly emissions due to raw material vehicle traffic is 12.79 vehicle miles traveled per hour (VMT/hr). The estimate of the maximum annual emission rate conservatively assumes 107 trucks (vehicles) each traveling 0.63 miles in a 24-hour workday, so the base for annual emissions due to raw material vehicle traffic is 2.81 VMT/hr.

Detailed calculations of haul road emissions are provided in Tables N-10a and N-10b in Appendix B, Attachment N.

Biomass Receiving and Handling

Emission estimates for the biomass fuel receiving, handling and storage operations was based on US EPA established emission factors and methodologies and vendor estimates.

All conveyor systems in the fuel receiving, handling, storage, and processing system will be designed to minimize fugitive dust emissions by using best management practices, including covers and hoods of conveyors and, to the extent physically possible, enclosed chutes for dropping fuel to and from conveyors. Drop height will be minimized when dropping wood chips onto the outdoor storage areas to minimize excessive dust.

Due to the nature of fuel handling process, potential emissions may occur in the form of particulate matter (PM). However, the PM emissions will be kept to a minimum as the conveyors and drop points associated with this process will be covered to the extent physically possible. Pile drop points cannot be enclosed; however, due to the moisture content of the wood chips, fugitive dust should be minimal. Emission estimates have been performed for each individual drop points.

Potential fugitive dust emission rates were estimated using the methods developed by U.S. EPA (i.e., AP-42) and engineering design parameters. Details of the calculations and the resulting emission estimates can be found in Tables N-2 through N-5 in Appendix B, Attachment N.

Biomass Boiler

MGSCNP1 will construct a bubbling fluidized bed (BFB) boiler, which has been proven to efficiently combust woody biomass. MGSCNP1 proposes to fuel the new boiler with only woody biomass under normal operation. Natural gas will be used for startup operation only. The boiler will not be designed to combust natural gas as a secondary fuel for power generation. The boiler heat input capacity for natural gas will be rated at 180 million British thermal units per hour (MMBtu/hr). The anticipated maximum design heat input of the boiler while combusting woody biomass will be 944 MMBtu/hr.

Combustion of woody biomass (normal operation) and natural gas (startup only) in the proposed BFB boiler will produce regulated air pollutant emissions. To estimate the emissions from the biomass boiler, the emission calculation methodology involving emission factors in AP-42, engineering estimate, vendor guaranteed emissions rates and prior experience were utilized. MGSCNP1 obtained confirmation from boiler vendor on their commitment to specific air pollutant emission levels for the proposed biomass boiler. Potential Organic HAP emission rates were estimated based on U.S. EPA's AP-42 emission factors in Table 1.6-3 but were adjusted by multiplying them by the ratio of vendor guaranteed VOC emission factor to the AP-42 VOC emission factor. Potential metallic HAP emissions were estimated based on U.S. EPA's AP-42 emission factors in Table 1.6-4.

The operating scenarios defined for the boiler are based on the maximum number of hours annually which the boiler could operate in startup mode burning natural gas and normal mode burning woody mass. Estimate emission rates for the boiler combusting woody biomass were based on the vendor guaranteed emission factors, anticipated maximum design heat input of the boiler and maximum operating hours per year (i.e., 8760 hrs/yr minus the hours per year in startup mode). NO_X, CO, filterable $PM/PM_{10}/PM_{2.5}$, VOC emissions during startup were estimated based on vendor's guarantees. Condensable $PM/PM_{10}/PM_{2.5}$ emissions were estimated using an adjusted emission factor based on the condensable PM emission factor in Tale 1.6-1 of AP-42. The flue gas from the proposed boiler will pass through the amine absorber and the wash water column. These steps will reduce the temperature of the flue gas to approximately 110 °F before it is discharged to the atmosphere. Therefore, the data entries for stokers using a wet scrubber as PM control and with complete test data records were used to derive the average emissions factor of condensable PM.

Potential emissions of regulated HAPs, as defined under Section 112(b) of the Clean Air Act, were also estimated. Potential HAP emissions from combustion of woody biomass are based on emission factors for wood residue combustion in Section 1.6 of EPA AP-42. The annual HAPs emissions were conservatively estimated using the anticipated maximum design heat input of the boiler and maximum operating hours per year (i.e., 8760 hrs/yr). The organic HAPs emission factors in AP-42 are adjusted by multiplying the ratio of vendor guaranteed VOC emission factor to the AP-42 VOC emission factor. These adjusted emission factors are used to calculate the proposed boiler's organic HAP emissions.

The estimated PTE of regulated air pollutant emission rates are calculated in Table N-1.

Ash Handling, Storage and Shipment Process

The combustion of biomass in the proposed boiler will result in formation of bottom ash and fly ash. The resultant amount of ash is reflection of the ash in the fuel. Emission estimates for ash handling and storage, and shipment operations was based on US EPA established emission factors and methodologies, and engineering estimates.

The fly ash refers to the particulates captured by the high efficiency pulse jet fabric filter. The collected fly ash will be mechanically transferred to and held in two fly ash storage silos. The economizer ash will also be sent to the same ash storage silos. Each ash storage silo will be equipped with a filter on the vent designed to minimize particulate emissions. Potential PM emissions from the fly ash transfer conveyors and the storage silos are estimated using the amount of fly ash generated and the emissions factors calculated based on equation (1) in Section 13.2.4.3 of AP-42 V5 (November 2006).

When a sufficient volume has been collected, the ash will be mixed with utility water before being trucked offsite for disposal. The chute used to dispense fly ash into the trucks will be designed to minimize PM emissions. Potential PM emission rates from the truck loading operation are also estimated using the amount of fly ash generated and the emissions factors calculated based on equation (1) in Section 13.2.4.3 of AP-42 V5 (November 2006).

Details of the calculations and the resulting emission estimates can be found in Table N-6 in Appendix B, Attachment N.

Bottom ash will be in the form of large solid particles and be collected from the boiler in two metering conveyors and then transferred to two vibrating conveyors before being stored in enclosed bins to be trucked away and disposed of. The bottom ash is separated from sand on the vibrating conveyor, after which it is moved outside of the boiler island and cooled.

Due to the size of the bottom ash particles, no PM emissions are expected from the storage bins before removal and disposal off-site by truck.

Sodium Bicarbonate Receiving and Handling

Sodium Bicarbonate ($NaHCO_3$) will be delivered in bulk pneumatic tanker with a sealed pneumatic transfer mechanism. The $NaHCO_3$ will be pneumatically conveyed to a storage silo via a sealed pipe system. 4 full loads will be required per year, so this is a batch operation.

The storage silo will vent to the boiler flue gas system and the particulate emissions will be captured by the boiler PJFF.

From the storage silo, the $NaHCO_3$ will be gravity fed into two vent hoppers and subsequently into the grinding mills. Each vent hopper will be equipped with a filter and the grinding mills will be located in a building. Potential PM emissions from the two vent hoppers are estimated based on emission factors in Section 11.19.2 of AP-42 V5 (August 2004) and the amount of $NaHCO_3$ to be fed to the boiler flue gas.

Details of the calculations and the resulting emission estimates can be found in Table N-8 in Appendix B, Attachment N.

Sand Receiving and Handling

Sand will be used to help fluidize the biomass and acts as a heat transfer medium in the BFB. Bulk deliveries of fresh sand will be stored in an uncovered open sand receiving hopper. From the hopper, the sand will be conveyed to a storage silo that will discharge to the boiler and the particulate matter will be captured by the boiler PJFF. Fresh sand from the storage silo is transported to the boiler along with the recycled sand via conveyors and bucket elevators.

The recycled sand is recovered from the under-bed discharge. The underbed discharge contains sand and bottom ash. After separation, the recovered sand will be returned to the boiler along with the replenished fresh sand.

The uncontrolled emission factors for aggregate transfer in Table 11.12-2 of AP-42 are used to estimate particulate emissions from sand handling. Details of the calculations and the resulting emission estimates can be found in Table N-7 in Appendix B, Attachment N.

Cooling Tower

Emissions of total particulate matter were estimated using design circulation and drift elimination rates, as well as a worst-case Total Dissolved Solids (TDS) value for the water. Proposed emissions of PM are based on the expected TDS concentrations in the circulating cooling water and a design drift rate of 0.001% of the circulating water. Emissions of respirable and fine particulates (PM_{10}, $PM_{2.5}$) are not expected to be equal to total PM and were calculated based on the methodology by Reisman and Frisbie [1] for determining particulate size profiles from cooling towers.

The annual emissions for the cooling tower are based on operating service of 8,760 hours per year.

Details of the calculations and the resulting emission estimates can be found in Table N-9 in Appendix B, Attachment N.

Fixed Roof Tanks

Annual emissions from fixed roof storage tanks were estimated using equations and methodology in EPA Publication AP-42, Chapter 7[2]. AP-42 emission calculations require as inputs the physical properties of the material stored (i.e., molecular weight, vapor pressure function, and vapor phase molecular weight), meteorological conditions of the site, and the characteristics of the tank construction (e.g., paint color).

[1] Joel Reisman and Gordon Frisbie, Calculating Realistic PM_{10} Emissions from Cooling Towers. July 2002. Environmental Progress 21(2): 127-130.
[2] US EPA, AP-42 Section 7.1, Organic Liquid Storage Tanks. June 2020.

Maximum hourly emissions are determined based on TCEQ's guidelines for the use of AP-42 methodology to estimate short-term emissions from storage tanks.[3] The guideline generally requires the use of a maximum ambient temperature of 95 °F, which is conservative for this application. The calculations follow the TCEQ guideline in estimating emissions from storage tanks.

Detailed emission calculations are included in Appendix B Attachment N as Table N-11.

Fire Water Diesel Engine Pump

Emissions will occur from weekly testing of one 600-hp diesel-fired water pumps (129-P-9402). Maximum hourly emissions were calculated based on testing at the maximum engine capacity. Annual emissions were based on the maximum number of hours per year of operation (100 hrs/yr). Emissions for air contaminants other than SO_2 are calculated based on emission factors applying to diesel fire water pump engines after 2008 (Table 4 to 40 CFR 60 Subpart IIII (40 CFR § 60.4202(d) and § 60.4205(c)) and the rated brake horsepower of the engine. Emissions of SO_2 are estimated based on the use of Ultra-low Sulfur Diesel (ULSD) (40 CFR §60.4207 and 40 CFR §1090.305(b)) and the assumed brake-specific fuel consumption of the engine.

Detailed emission calculations are included in Appendix B Attachment N as Tables N-12.

Natural Gas (NG) Startup Generator

There will be a 3000-hp NG - fired startup generator. Since there is no grid power to start the process, the NG startup generator will provide the required power to run various boiler and steam turbine auxiliaries such as boiler feedwater pumps, air compressors, cooling equipment, etc. and controls before the BECCS plant can operate properly. This generator will only run 100 hours per year.

Maximum hourly emissions were calculated based on operating/testing at the maximum engine capacity. Annual emissions were based on the maximum number of hours per year of operation (100 hrs/yr). Emissions for air contaminants other than SO_2 are calculated based on emission factors applying to NG fire engines (Table 1 to 40 CFR 60 Subpart JJJJ (40 CFR § 60.4233(e)) and the rated brake horsepower of the engine. Emissions of SO_2 are estimated based on the sulfur content of the natural gas and the assumed brake-specific fuel consumption of the engine.

Detailed emission calculations are included in Appendix B Attachment N as Tables N-13.

Equipment Leaks

Potential fugitive emissions were estimated using factors from US EPA, 1995 Protocol for Equipment Leak Emission Estimates.[4] Since there is no LDAR program applicable to the proposed facility, no control efficiency was applied to these calculations.

Hourly emissions were estimated by taking the emissions factor and multiplying it by the number of components of each type and the weight percentage of each compound of concern in the gas stream.

[3] Estimating Short Term Emissions Rates from Fixed Roof Tanks. February 2020. TCEQ Publication APDG 6250v3.

[4] https://www.epa.gov/sites/default/files/2020-09/documents/protocol_for_equipment_leak_emission_estimates.pdf

Annual emissions were estimated assuming that these small fugitive emissions would be always occurring during operation, i.e., 8760 hours per year.

Detailed emission calculations are included in Appendix B Attachment N as Table N-14.

Liquid Loading

Emissions from truck loading of the biodegraded amine were estimated using the loading loss emission factor and maximum estimated loading rates. The loading losses emission factor is based on the following equation from EPA's AP-42, Chapter 5, Section 5.2.2.1 (dated July 2008):

$$L_L = 12.46^* \text{ SPM/T}$$

Where L_L is the loading losses (lb/Mgal), S is the saturation factor (dimensionless), P is the true vapor pressure of the liquid loaded (psia), M is the vapor molecular weight (lb/lbmol), and T is the absolute temperature of the liquid loaded (R). The saturation factors are found in Table 5.2-1 from EPA's AP-42, dated July 2008. The saturation factor for submerged loading of a dedicated normal service truck was used.

Table N-15 of Appendix B, Attachment N, provides detailed short-term and annual emission rate calculations for biodegraded amine truck loading.

Wastewater Treatment

The wastewater treatment plant will receive water from the direct contact cooler/polishing scrubber system. The scrubbing liquid will have direct contact with the flue gas exhaust from the boiler. The scrubber solution will adsorb ammonia, sulfuric acid and hydrochloric acid that could be present in the flue gas. The scrubbing solution will be sent to the Wastewater Treatment Plant for further processing before it is discharged to the outfall. It is conservatively assumed that 10% of the ammonia, sulfuric acid and hydrochloric acid in the flue gas could be emitted from the Wastewater Treatment plant. The wastewater treatment plant will also receive water from the demineralized water system, raw water treatment, flush pond water, cooling tower water and boiler blowdown water. These streams are not expected to contribute emissions from the wastewater treatment plant.

4 Regulatory Applicability

This section discusses the applicability of federal and state air permitting and regulatory requirements to the proposed BECCS plant. Specifically, this section discusses the applicability of Prevention of Significant Deterioration (PSD) Review, Nonattainment New Source Review (NNSR), New Source Performance Standards (NSPS), National Emission Standards for Hazardous Air Pollutants (NESHAP), and relevant regulatory requirements in West Virginia 45 Code of State Rules (CSR).

4.1 Construction Permit Requirement

Construction permitting programs regulate new sources of pollutants under the New Source Review program. The biomass boiler of this BECCS Plant will use natural gas for boiler startup only and the burners that will only combust natural gas are being designed to have a maximum heat input of 180 MMBtu/hr. This maximum heat input rating will result in the boiler not being classified as one the 28 listed source categories in 45 CSR Series 14 Section 2.43.a. (45CSR14-2.43.a) with a 100 tons per year (tpy) major source threshold. The source categories contained in 45CSR14-2.43.a involves fossil fuel combustion are as follows:

- Fossil Fuel-fired Steam Electric Plants of More than 250 Million Btu/hour Heat Input, and
- Fossil-fuel boilers (or combination thereof) Totaling More than 250 Million Btu/hour Heat Input

Since the BECCS Plant is not one of the 28 listed source categories in 45 CSR Series 14 Section 2.43.a., the applicable major source threshold is 250 tpy. Since the quantified emissions of each regulated NSR pollutant are less than 250 tpy, the project is not subject to PSD review.

The proposed BECCS facility will be in Mason County, which is currently designated as “attainment” or “unclassified” for all regulated New Source Review (NSR) pollutants (see 40 CFR 81.349). Therefore, BECCS is not subject to NNSR review under 40 CFR 51.165 and 45CSR19.

4.2 Title V Operating Permit Requirement

40 CFR Part 70 establishes the federal Title V operating permit program. WVDAQ is delegated by U.S. EPA to implement a fully approved Part 70 operating permit program under 45CSR30 (see 40 CFR 70, Appendix A). In attainment area, the major source threshold for any air pollutant other than HAPs in the Title V permit program is 100 tpy. The major source threshold for HAPs is 10 tpy for a single HAP or 25 tpy for any combination of HAP. The potential emissions of all the regulated pollutants will not exceed the corresponding threshold(s) at this facility.

4.3 New Source Performance Standards (NSPS)

The federal NSPS requires new, modified, or reconstructed sources to control emissions to the level achieved by the best demonstrated technology as specified in the applicable provisions of the rule. NSPS standards have been adopted by reference in 45CSR16 for standards in effect as of June 1, 2016. This section describes the applicability and non-applicability of NSPS subparts relevant to the BECCS Plant.

4.3.1 NSPS Subpart A – General Provisions

Certain provisions of 40 CFR Part 60 Subpart A apply to the owner or operator of any stationary source subject to a NSPS. Since the biomass boiler (Subpart Db), the startup generator (Subpart JJJJ) and the fire water pump (Subpart IIII) will be subject to a NSPS, the Project will be required to comply with all applicable provisions of Subpart A.

4.3.2 NSPS Subpart D – Standards of Performance for Fossil-Fuel-Fired Steam Generators

The affected facilities of this subpart are each fossil-fuel-fired steam generating unit of more than 73 MW heat input rate (250 MMBtu/hr) and each fossil-fuel and wood-residual-fired steam generating unit capable of firing fossil fuel at a heat input rate of more than 73 MW (250 MMBtu/hr). The biomass boiler will only burn natural gas during startup and the max. heat input from burning natural gas will not exceed 250 MMBtu/hr. Therefore, the biomass boiler will not be subject to 40 CFR 60 Subpart D.

4.3.3 NSPS Subpart Da – Standards of Performance for Electric Utility Steam Generating Units

The affected facility of this subpart is each electric utility steam generating unit that is capable of combusting more than 73 megawatts (MW) (250 MMBtu/hr) heat input of fossil fuel (either alone or in combination with any fuel) and for which construction, modification, or reconstruction is commenced after September 18, 1978.

As stated above in section 4.3.2, the biomass boiler will only burn natural gas during startup and the max. heat input from burning natural gas will not exceed 250 MMBtu/hr. Therefore, the biomass boiler will not be subject to 40 CFR 60 Subpart Da.

4.3.4 NSPS Subpart Db – Standards of Performance for Industrial, Commercial, Institutional Steam Generating Units

Per 40 CFR 60.40b(a), 40 CFR Subpart Db applies to any industrial, commercial or institutional steam generating unit that commences construction, modification, or reconstruction after June 19, 1984, and that has a heat input capacity from fuels combusted in the steam generating unit of greater than 29 MW (100 MMBtu/hr). The proposed boiler will have a burner design heat input rate of 180 MMBtu/hr when combusting natural gas. The proposed boiler will also be capable of combusting wood at an estimated maximum design heat input rate of 944 MMBtu/hr. Based on the fuels to be combusted and maximum heat inputs, the proposed boiler will meet the applicability requirements of NSPS Subpart Db. The following Subpart Db requirements are applicable to the proposed boiler:

Emission Limitations:

SO_2: Units firing gaseous fuels, or a mixture of gaseous fuel with other fuels with a potential SO_2 emission rate of 0.32 lbs/MMBtu heat input or less, are exempt from the SO_2 emission limit of 0.2 lbs/MMBtu (40 CFR 60.42b(k)(2)). The proposed boiler will achieve an SO_2 rate of less than 0.32 lbs/MMBtu, thus will satisfy the exemption criteria.

PM: (Filterable portion only) shall not exceed 0.030 lb/MMBtu (13 ng/J) as stipulated in 60.43b(h)(1), except during periods of startup, shutdown or malfunction as provided by 40 CFR 60.2, 60.11(c), 60.43b(g) and 60.46b(a). The proposed boiler will achieve a PM rate (filterable portion only) of less than 0.030 lbs/MMBtu utilizing a baghouse.

Opacity: 20% (6-minute average), except for one 6-minute period per hour of not more than 27% opacity pursuant to 40 CFR 60.43b(f). This standard shall apply at all times, except during periods of startup, shutdown or malfunction as provided by 40 CFR 60.2, 60.11(c), 60.43b(g) and 60.46b(a). The proposed boiler will achieve 20% opacity through good combustion practices and utilization of a baghouse.

NO_X: 0.30 lbs/MMBtu (130 ng/J) heat input on a 30-day rolling average, pursuant to 40 CFR 60.44b(d) and 40.44b(i). This NO_X limit has been determined to apply because during combustion of woody biomass, natural gas will be co-fired as the boiler goes through startup. MGSCNP1 is not proposing to

take a limitation to restrict natural gas to an annual capacity factor of 10 percent (0.10) or less. The NO_X standard applies at all times including periods of startup, shutdown, or malfunction (60.44b(h))

After February 27, 2006, an alternative output-based emission limit of 270 ng/J (2.1 lb/KWh) gross energy output based on a 30-day rolling average can be selected for units where more than 10% of total annual output is electrical or mechanical. (60.44b(l)(3)). Units complying with this output-based limit must demonstrate compliance according to the procedures of 40 CFR § 60.48Da(i), and must monitor emissions according to 40 CFR § 60.49Da(c), (k), through (n).

The fluidized bed boiler design in conjunction with a SCR system will achieve this NO_X limitation.

Monitoring

SO_2 – Since the boiler will be demonstrating compliance under 60.45b(k), it is not subject to the emission monitoring requirements under 60.47b(a) if the owner or operator maintains fuel records as described in 60.49b(r) (60.47b(f)).

PM - Compliance with the PM emission standards under 60.43b shall be determined through performance testing (60.46b(b)). Performance testing is required within 60 days after achieving maximum output and no later than 180 days after commencing operation of the boiler.

Performance testing shall be performed for PM using EPA Reference Method 5, 5B, or 17 of appendix A (60.46b(d) (2).

Opacity – MGSCNP1 will use a bag-leak detection system to monitor the performance of the fabric filter (baghouse) according to the most current requirements in 40 CFR 60.48Da; therefore, a CEMS is not mandatory. MGSCNP1 will conduct initial performance test as required under 40 CFR 60.8 and will conduct subsequent performance test as requested (60.46b(d)). According to 40 CFR 60.46b(d)(7), Method 9 of Appendix A of 40 CFR Part 60 will be used for determining the opacity of stack emissions.

NO_X - To determine compliance with the emission limits for NO_X required under 60.44b, the owner or operator shall conduct performance test as required under 60.8 using the continuous system for monitoring NO_X under 60.48b (60.46b(c) and (e)).

Affected facilities subject to NO_X standards under 60.44b shall install, calibrate, maintain and operate CEM for measuring NO_X and O_2 (or CO_2) emission discharged to the atmosphere (60.48b (b)(1)).

MGSCNP1 will install CEMS for measuring NO_X and O_2 (or CO_2).

Compliance Testing

60.46b(d) - To determine compliance with the PM emission limits and opacity limits under 60.43b, the owner or operator of an affected facility shall conduct an initial performance test as required under 60.8, and shall conduct subsequent performance tests as requested by the Administrator.

60.46b(c) and 60.46b(e) - To determine compliance with the emission limit for NO_X required under 60.44b, the owner or operator of an affected facility shall conduct the performance test as required under 60.8 using the continuous system for monitoring NO_X under 60.48(b).

Recordkeeping

60.45b(k) and 60.49b(r) – record from fuel supplier certifying gaseous fuel meets the definition of natural gas as defined in 60.41b and applicable sulfur limit. Reports shall be submitted to Administrator certifying that only natural gas and wood were combusted in the boiler during the reporting period.

60.49b(d) - Record and maintain records of the amounts of each fuel combusted during each day and calculate the annual capacity factor.

60.49b(f) - Maintain records of opacity.

60.49b(g) – maintain records of the information for each steam generating unit operating day listed in 40 CFR 60.49b(g).

60.49b(o) - All records required under this section shall be maintained by the owner or operator of the affected facility for a period of 2 years following the date of such record.

Reporting

60.49b(a) - Submit notification of the date of initial startup.

60.49b(b) - Submit to the Administrator the performance test data from the initial performance test and the performance evaluation of the CEMS using the applicable performance specifications in appendix B of 40 CFR Part 60. Submit to the Administrator the maximum heat input capacity data from the demonstration of the maximum heat input capacity of the affected facility.

60.49b(h) - Submit excess emission reports for any excess emissions (i.e., opacity and NO_X emissions) that occurred during the reporting period.

60.49b(w) - The reporting period for the reports required under this subpart is each 6 month period. All reports shall be submitted to the Administrator and shall be postmarked by the 30th day following the end of the reporting period.

4.3.5 NSPS Subpart Kc – Performance Standards for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for which Construction, Reconstruction, or Modification Commenced After October 4, 2023

This subpart applies to each storage vessel with a capacity greater than or equal to 20,000 gallons (gal) (75.7 cubic meters (m^3)) that is used to store volatile organic liquids (VOL) for which construction, reconstruction, or modification is commenced after October 4, 2023. Of the storage tanks to be installed at this facility, only the Lean Amine Tank (122-TK-9901) will have a capacity greater than 20,000 gal and may potentially be subject to this subpart. However, the Lean Amine Tank will store a VOL with a maximum true vapor pressure less than 0.25 psia (1.7 kPa absolute). Therefore, it will not be subject to any requirements of 40 CFR Subpart Kc, pursuant to 40 CFR 60.110c(b)(8).

Based on the above, NSPS Subpart Kc does not apply to the facility.

4.3.6 NSPS Subpart OOO – Standards of Performance for Nonmetallic Mineral Processing Plants

As part of the proposed in-duct sorbent injection system, milling of the sorbent may be required prior to injection into the biomass combustion system. The type of sorbent to be used could meet the definition of a nonmetallic mineral as defined in 40 CFR Part 60.671.

Applicability of Subpart OOO applies to affected facilities in fixed or portable nonmetallic processing plants, including each crusher, grinding mill, screening operation, bucket elevator, belt conveyor, bagging operation, storage bin, and enclosed truck or railcar loading station. Nonmetallic mineral processing plant means any combination of equipment that is used to crush or grind any nonmetallic mineral at any type of plant.

This subpart contains standards for particulate matter, monitoring of operations, test methods and procedures as well as reporting and recordkeeping requirements.

Based on the design of the proposed in-duct sorbent injection system, the sodium bicarbonate storage silo appears to be subject to a 7% opacity limitation (40 CFR 60.672(f)). Since the storage silo will discharge into the boiler flue gas system and the particulates will be captured by the PJFF, the 7% opacity limitation will apply to the boiler stack 121-PKG-3001 and the absorber stack 122-T-1001. Since the milling operation will be totally enclosed within a building, it will also be subject to a 7% opacity limitation (40 CFR 60.672(e)).

MGSCNP-1 is aware of the requirements contained in Subpart OOO and will meet these requirements. The storage silo will vent to the boiler flue gas system which will be controlled by the PJFF. The use of the PJFF and enclosure of the milling operation should easily satisfy the 7% opacity limitation.

4.3.7 NSPS Subpart IIII – Performance Standards for Stationary Compression Ignition Internal Combustion Engines

This subpart applies to stationary compression ignition (CI) internal combustion engines (ICE) that commence construction after July 11, 2005, where the CI ICE are manufactured after April 1, 2006 (and are not fire pump engines), or manufactured after July 1, 2006 (for certified National Fire Protection Association fire pump engines).

NSPS Subpart IIII specifies emission limitations, monitoring, reporting, and recordkeeping requirements for NOX, CO, nonmethane hydrocarbons (NMHC), and PM.

Applicable NSPS IIII emission standards for the firewater pump CI ICEs are summarized as follows:

• 40 FR 60.4205(c) - Owners and operators of fire pump engines with a displacement of less than 30 liters per cylinder must comply with the emission standards in Table 4 to NSPS Subpart IIII, for all pollutants. The applicable emission limits are:

  - NMHC + NO_X: 4.0 g/kW-hr (3.0 g/hp-hr)
  - CO: 3.5 g/kW-hr (2.6 g/hp-hr)
  - $PM/PM_{10}/PM_{2.5}$: 0.2 g/kW-hr (0.15 g/hp-hr)

- 40 CFR 60.4207 - NSPS Subpart IIII also stipulates specific sulfur requirements for diesel fuels. Beginning October 1, 2010, engines with a displacement of less than 30 liters/cycle and use a diesel fuel must meet a sulfur content of 0.0015% by weight.

MGSCNP1 will be utilizing a diesel fuel with a sulfur content of 0.0015 % by weight or less.

The proposed emergency engines must also meet the operating hour requirements of 40 CFR 60.4211(f) which include:

- No time limit on use in emergency situations
- Up to 100 hours per year for maintenance checks / readiness testing
- 50 hours (of the 100) per year can be for non-emergency operation. The 50 hours per calendar year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to an electric grid or otherwise supply power as part of a financial arrangement with another entity. Detailed requirements on use of the 50 hours for non-emergency operation is contained in 40 CFR 60.4211(f)(3)(i).

The firewater pump CI ICE will comply with the applicable requirements of NSPS Subpart IIII.

4.3.8 NSPS Subpart JJJJ – Performance Standards for Stationary Spark Ignition Internal Combustion Engines

40 CFR 60 Subpart JJJJ applies to stationary spark ignition (SI) internal combustion engines. The provisions of this subpart are applicable to a SI ICE with a maximum engine power greater than or equal to 500 HP manufactured on or after July 1, 2007. The startup generator is driven by a 3000-hp natural gas engine.

40 CFR 60.4233(e) – Owners and operators of stationary SI ICE with a maximum engine power greater or equal to 75 kW (100 HP) must comply with the emission standards in Table 1 to 40 CFR 60 Subpart JJJJ for their stationary SI ICE. The applicable emission limits are:

Engine Type and Fuel	Emission Standards					
	g/HP-hr			ppmvd at 15% O_2		
Non-Emergency SI Natural Gas	NO_X	CO	VOC [1]	NO_X	CO	VOC
	1.0	2.0	0.7	82	270	60

[1] As indicated in *40 CFR 60 Subpart JJJJ, Table 1, Note d,* the VOC in 40 CFR 60 Subpart JJJJ does not include formaldehyde. However, as shown in Table N-5 in Appendix B, for completeness, the VOC emissions from NG starter generators do include formaldehyde.

60.4243(b) – demonstrate compliance according to one of the methods specified in paragraphs (b)(1) and (2).

(1) Purchasing an engine certified according to procedures for the same model year and demonstrating compliance according to one of the methods specified in 60.4243(a).

(2) Purchasing a non-certified engine and demonstrate compliance with the applicable emission standards and according to the requirements specified in 60.4244, as applicable, and must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, must conduct an initial performance test within 1 year of

engine startup and conduct subsequent performance testing every 8,760 hours or 3 years, whichever comes first.

MGSCNP1 will purchase an engine certified engine to comply with 40 CFR 60 Subpart JJJJ.

4.4 National Emission Standards for Hazardous Air Pollutants

NESHAP promulgated prior to the Clean Air Act Amendments (CAAA) of 1990, found in 40 CFR Part 61, apply to specific compounds emitted from specific processes. None of the pollutant specific Part 61 NESHAPs apply to the Project.

Maximum achievable control technology (MACT)-based NESHAPs contained in 40 CFR Part 63 require sources that are "major" for HAPs to control emissions to the level achievable by the best demonstrated technology as specified in the applicable provisions. A major source is defined in 40 CFR 63.2 as follows,

"…any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit considering controls, in the aggregate, 10 tons per year or more of any hazardous air pollutant or 25 tons per year or more of any combination of hazardous air pollutants…"

Generally available control technology (GACT)-based NESHAPs contained in 40 CFR Part 63 require area (i.e., non-major) sources to control emissions to the level achievable using generally available control technologies or management practices to reduce HAPs emissions.

As demonstrated in Section 3 above, the BECCS Plant does not have the potential to emit more than ten (10) tpy of a single HAP or 25 tpy of combined HAPs. As such, the BECCS Plant is considered an area source of HAPs. Therefore, MGSCNP1 has evaluated the potential applicability of GACT requirements for area sources for the proposed BECCS Plant.

4.4.1 40 CFR 63 Subpart ZZZZ – National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE)

40 CFR 63 Subpart ZZZZ applies to facilities that operate stationary reciprocating internal combustion engines (RICE). The natural gas startup generator (129-PKG-0001) and the emergency diesel fire water pump (129-P-9402) at the BECCS Plant will satisfy the requirements of Subpart ZZZZ by complying with the applicable requirements of NSPS Subparts IIII and JJJJ. No other requirements apply under this subpart.

4.4.2 40 CFR 63 Subpart JJJJJJ – Area Sources: Industrial, Commercial, and Institutional Boilers

40 CFR 63 Subpart JJJJJJ applies to industrial, commercial, and institutional boilers located at area sources of HAP emissions. The proposed boiler will burn natural gas during startup and will burn biomass during normal operation. The boiler will be subject to 40 CFR 63 Subpart JJJJJJ.

According to 40 CFR 63.11201 and Table 1 of Subpart JJJJJJ, for new biomass-fired boilers with heat input capacity of 30 MMBtu/hr or greater that do not meet the definition of seasonal or limited-use boiler, the applicable filterable PM emission limit is 0.03 lb/MMBtu.

4.5 Compliance Assurance Monitoring (CAM)

Pursuant to requirements concerning enhanced monitoring and compliance certification under the Clean Air Act Amendments of 1990, the EPA promulgated regulations codified at 40 CFR Part 64 to implement

compliance assurance monitoring (CAM) for major stationary air pollution sources. The proposed BECCS Plant is a minor stationary air pollution source; therefore, the CAM requirements do not apply. Cross-State Air Pollution Rule (CSAPR) – 40 CFR Part 97

The CSAPR replaced EPA's 2005 Clean Air Interstate Rule (CAIR), following the direction of a 2008 court decision that required EPA to issue a replacement regulation. CSAPR implementation began on January 1, 2015. On September 7, 2016, the EPA revised the CSAPR ozone season NO_X program by finalizing an update to CSAPR for the 2008 ozone National Ambient Air Quality Standards, known as the CSAPR Update. The CSAPR Update ozone season NO_X program will largely replace the original CSAPR ozone season NO_X program starting on May 1, 2017.

The CSAPR requires fossil fuel-fired electric generating units at coal-, gas-, and oil-fired facilities in 27 states to reduce SO_2 and NO_X emissions to help downwind areas attain fine particle and/or ozone NAAQS. West Virginia is required to reduce emissions of NO_X during the ozone season for 2008 Ozone NAAQS and is required to reduce annual emissions of SO_2 and NO_X for both 1997 annual $PM_{2.5}$ NAAQS and 2006 24-hr $PM_{2.5}$ NAAQS).

According to 40 CFR 97.702, a fossil-fuel-fired unit means a unit combusting any amount of fossil fuel in 2005 or any calendar year thereafter. The BECCS Plant will be subject to the requirements listed under the CSAPR program. MGSCNP1 will hold enough allowances to cover emissions and comply with the permitting, monitoring, recordkeeping and reporting requirements set forth by CSAPR, including the installation and certification of continuous emission monitors.

4.6 Chemical Accident Prevention Provisions – 40 CFR Part 68

EPA has promulgated specific regulations to prevent chemical accidents from occurring at industrial type facilities. These regulations are contained in 40 CFR Part 68 of the Code of Federal Regulations.

This regulation applies to any owner or operator of a stationary source that has more than a threshold quantity of a regulated substance in a process. The threshold quantity is listed in 40 CFR 68.130. A process is defined as any activity involving a regulated substance including any use, storage, manufacturing, handling, or on-site movement of such substances, or combination of these activities. Compliance with the requirements established by the regulation must be achieved by the date on which a regulated substance is first present above a threshold quantity in a process.

MGSCNP1 is proposing to use the following chemicals that are listed substances in this regulation:

- Ammonia will be utilized in the SCR control technology system being proposed for the biomass boiler. MG will be utilizing an aqueous ammonia which will contain greater than 20 % ammonia. Subsequently, use of the aqueous ammonia will meet the applicability requirements of this regulation.

Table 4-1 Accidental Release Program Threshold Quantities

Compound	Threshold Quantity (lbs)
Ammonia, aqueous (conc. ≥ 20% by wt.)	20,000

4.7 Greenhouse Gas Reporting Program

The Greenhouse Gas Reporting Program (GHGRP), codified in 40 CFR Part 98, requires facilities belonging to certain source categories to report their annual GHG emissions to EPA. Such affected facilities must report their annual GHG emissions from all stationary fuel combustion sources (excluding portable and emergency equipment) located at the facility.

4.8 State of West Virginia Regulatory Applicability

The facility is required to comply with the requirements contained in the applicable provisions of the following regulations.

4.8.1 45CSR2 – To Prevent and Control Particulate Matter Air Pollution from Combustion of Fuel in Indirect Heat Exchangers

45CSR2 establishes emission limitations for smoke and particulate matter which are discharged from fuel burning units. "Fuel Burning Unit" means and includes any furnace, boiler apparatus, device, mechanism, stack or structure used in the process of burning fuel or other combustible material for the primary purpose of producing heat or power by indirect heat transfer. The biomass boiler is categorized as a type 'a' fuel burning unit because its primary purpose is to generate steam to produce electric power for sale. Emission of smoke and/or particulate matter into the open air from the biomass boiler will not exceed ten (10) percent opacity based on a six-minute block average. Per §45-2-4.1.1, 47.20 lb/hr (0.05 * 944 MMBtu/hr) of particulate matter is allowed to be discharged to the open air. This limit represents filterable PM only and does not include condensable PM. The biomass boiler will be controlled by pulse jet fabric filters (PJFF) with a proposed filterable particulate matter emission rate of 7.99 lb/hr, which is well below the amount allowed by this rule.

MGSCNP1 will comply with all the applicable monitoring, reporting, recordkeeping and testing requirements contained in this rule and 45CSR2A. Furthermore, the boiler must also meet the requirements for start-ups, shutdowns, and malfunction provided in 45CSR2-9.2.

4.8.2 45CSR4 – To Prevent and Control the Discharge of Air Pollutants into the Open Air which Causes or Contributes to an Objectionable Odor or Odors.

45 CSR 4 prohibits the discharge of air pollutants that cause or contribute to an objectionable odor at any location occupied by the public. The Project will comply with the provisions of this regulation through good operating practices.

4.8.3 45CSR7- To Prevent and Control Particulate Matter Air Pollution from Manufacturing Processes and Associated Operations.

45CSR7 sets state-imposed opacity and particulate matter mass emission standards for manufacturing process and associated operations. "Manufacturing Process" means any action, operation or treatment, embracing chemical, industrial or manufacturing efforts … that may emit smoke, particulate matter or gaseous matter.

The boiler-related process at the facility does not meet the definition of "source operation" contained in 45CSR7-2.40. The biomass is used as fuel and 45CSR2 already establishes an opacity limit for the biomass boiler. Therefore, the boiler-related process is not subject to the standards provided in 45CSR7-3 and 45CSR7-4 for opacity and emissions of particulate matter.

The requirements of 45CSR7-5 apply to sources of fugitive particulate matter, including the paved/unpaved roadways and the cooling tower. MGSCNP1 complies with the requirements of 45CSR7-5.2 by applying appropriate control measures (i.e., paving and/or water/chemical dust suppressants) to plant roadways to minimize particulate emissions. MGSCNP1 will also comply with the requirements of 45CSR7 for the cooling tower. 45CSR7-5.1 stipulates that the cooling tower is equipped with a system (which may include process equipment design, control equipment design, or operation and maintenance procedures) to minimize emissions of fugitive particulate emissions. MGSCNP1 will utilize drift eliminator installed on the cooling tower to minimize the particulate emissions.

4.8.4 45CSR10 – Prevention and Control of Sulfur Oxide Emissions

45 CSR 10 establishes emission standards for sulfur oxides from fuel burning units and sets forth the registration, permitting, reporting, testing, recordkeeping and exemption requirements. “Fuel Burning Unit” means and include any furnace, boiler apparatus, device, mechanism, stack or structure used in the process of burning fuel or other combustible material for the primary purpose of producing heat or power by indirect heat transfer.

The primary fuel burning unit at the proposed Project is the biomass boiler. The primary purpose of the biomass boiler is to generate steam to produce electricity for sale which defines the biomass boiler as type ‘a’ fuel burning units under 45 CSR 10. For type ‘a’ units, 45 CSR 10 lists SO_2 limits for specific existing units but does not have a generic limit for new units. Therefore, there is no SO_2 mass emission standard for the biomass boiler under 45 CSR 10.

4.8.5 45CSR11 – Prevention of Air Pollution Emergency Episodes

45 CSR 11 sets forth actions that must be taken in the event of air pollution episodes. Because the project will not emit 100 tpy or more of any pollutant, the Project will, if requested by the Director, prepare a Standby Plan, that will outline procedures to be taken to comply with the provisions of this regulation.

4.8.6 45CSR13 – Permitting Requirements for the Construction, Modification, Relocation and Operation of Minor Stationary Sources

45 CSR 13 sets forth the criteria and procedures for obtaining an air permit for a minor modification or relocation of an existing stationary source or for the construction of a new minor stationary source of air pollutants. This regulation does not apply to “de minimis” sources identified in Table 45-13B or sources which have emissions of regulated air pollutants below the thresholds established in 45-13-2.24. The Project is submitting this permit application pursuant to the permitting provisions of 45CSR13 because emissions of all NSR pollutants are below the major source thresholds.

As required under 45CSR45-13-8.3 (“Notice Level A”), MGSCNP1 will place a Class I legal advertisement in a “newspaper of general circulation in the area where is the source is … located.” The advertisement shall contain at a minimum, the name of the applicant, the type and location of the source, the type and amount of air pollutants that will be discharged, the nature of the permit being sought, the proposed start-up date for the source and a contact telephone number for more information.

4.8.7 45CSR14- Prevention of Significant Deterioration Permitting Requirements for the Construction of a Major Stationary Source

The proposed Project is not a "major stationary source" since it potentially emits of all regulated air pollutant less than 100 tons per year. As a result, the Project is not subject to PSD requirements under 45CSR14.

4.8.8 45 CSR16- Standards of Performance for New Stationary Sources

45CSR16 adopts the federal emission standards for new stationary sources (40 CFR Part 60) by reference. As stated in section 4.3, the Project's biomass boiler, NG startup generator and emergency firewater pump engine will be subject to Subparts Db, IIII and JJJJ, respectively.

4.8.9 45CSR17 – Fugitive Emissions from Material Handling / Fugitive Sources

The purpose of the rule is to prevent and control particulate matter air pollution from material handling, preparation, storage and other sources of fugitive particulate matter. Sources that are subject to the fugitive particulate matter emission requirements of 45CSR2, 45CSR3, 45CSR5 and 45CSR7 shall be exempt from the provisions of this rule, provided that such sources shall not be exempt from the provisions of W. Va. Code §§22-5-1 et seq., including the provisions of §22-5-3 relating to statutory air pollution.

Since 45CSR2 and 45CSR7 apply to the facility, the facility is exempt from 45CSR17.

4.8.10 45CSR19- Permits for Construction and Major Modification of Major Stationary Sources Which Cause or Contribute to Nonattainment Areas

The proposed facility will be located in Mason County, which is designated attainment for all criteria pollutants. Therefore, the proposed project is not subject to NA-NSR for any pollutants.

4.8.11 45CSR22 – Air Quality Management Fee Program

45 CSR 22 specifies a program to collect fees for certificates to operate and for permits to construct, modify or relocate sources. The fees are assessed based on to which regulations the new or modified source is subject. According to the requirements of 45-22-3, the fee for the permit-to-construct is $4,500 which includes 45CSR13, NSPS and NESHAPS fee requirements (Application fee $1,000, NSPS Requirements $1,000, and NESHAPS Requirements $2,500).

4.8.12 45CSR27 – To Prevent and Control the Emissions of Toxic Air Pollutants

The facility will not have a chemical processing unit that will discharge an air toxic pollutant in excess of the amount listed on Table A, therefore Best Available Technology (BAT) does not apply.

4.8.13 45CSR30 – Title V Operating Permit Requirements

45CSR30 applies to the requirements of the federal Title V operating permit program (40 CFR 70). The major source thresholds with respect to the West Virginia Title V operating permit program regulations are 10 tons per year (tpy) of a single HAP, 25 tpy of any combination of HAP, and 100 tpy of all other regulated pollutants. The facility is not a major source with respect to Title V Operating Permit Program.

4.8.14 45CSR34 – Emission Standards for Hazardous Air Pollutants

45 CSR 34 adopts the federal emission standards for hazardous air pollutants (40 CFR Parts 61 and 63 and Section 112 of the Clean Air Act) by reference. Please see Section 4.4 for the MACT standards that may apply to the BECCS Plant.

Appendix A WVDAQ Application Form for NSR Permit

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF AIR QUALITY

601 57th Street, SE
Charleston, WV 25304
(304) 926-0475
www.dep.wv.gov/daq

APPLICATION FOR NSR PERMIT AND TITLE V PERMIT REVISION (OPTIONAL)

PLEASE CHECK ALL THAT APPLY TO **NSR (45CSR13)** (IF KNOWN):

☒ **CONSTRUCTION** ☐ **MODIFICATION** ☐ **RELOCATION**
☐ **CLASS I ADMINISTRATIVE UPDATE** ☐ **TEMPORARY**
☐ **CLASS II ADMINISTRATIVE UPDATE** ☐ **AFTER-THE-FACT**

PLEASE CHECK TYPE OF **45CSR30 (TITLE V)** REVISION (IF ANY):

☐ **ADMINISTRATIVE AMENDMENT** ☐ **MINOR MODIFICATION**
☐ **SIGNIFICANT MODIFICATION**

IF ANY BOX ABOVE IS CHECKED, INCLUDE TITLE V REVISION INFORMATION AS **ATTACHMENT S** TO THIS APPLICATION

FOR TITLE V FACILITIES ONLY: Please refer to "Title V Revision Guidance" in order to determine your Title V Revision options (Appendix A, "Title V Permit Revision Flowchart") and ability to operate with the changes requested in this Permit Application.

Section I. General

1. Name of applicant *(as registered with the WV Secretary of State's Office):*
MGS CNP 1, LLC

2. Federal Employer ID No. ***(FEIN):***
92 0923775

3. Name of facility *(if different from above):*
BECCS Plant

4. The applicant is the:
☐ **OWNER** ☐ **OPERATOR** X **BOTH**

5A. Applicant's mailing address:
109 N. Post Oak Ln,
Ste 140
Houston TX, 77024

5B. Facility's present physical address:
5801 Ohio River Rd
Point Pleasant WV, 25550

6. **West Virginia Business Registration.** Is the applicant a resident of the State of West Virginia? ☐ **YES** ☒ **NO**

- If **YES,** provide a copy of the **Certificate of Incorporation/Organization/Limited Partnership** (one page) including any name change amendments or other Business Registration Certificate as **Attachment A.**
- If **NO,** provide a copy of the **Certificate of Authority/Authority of L.L.C./Registration** (one page) including any name change amendments or other Business Certificate as **Attachment A.**

7. If applicant is a subsidiary corporation, please provide the name of parent corporation: Fidelis New Energy, LLC

8. Does the applicant own, lease, have an option to buy or otherwise have control of the *proposed site?* ☒ **YES** ☐ **NO**

- If **YES,** please explain: The site is under option to buy

- If **NO,** you are not eligible for a permit for this source.

9. Type of plant or facility (stationary source) to be **constructed, modified, relocated, administratively updated** or **temporarily permitted** (e.g., coal preparation plant, primary crusher, etc.): biomass electric power generation with carbon capture and sequestration.

10. North American Industry Classification System **(NAICS)** code for the facility:
221117

11A. DAQ Plant ID No. (for existing facilities only):
–

11B. List all current 45CSR13 and 45CSR30 (Title V) permit numbers associated with this process (for existing facilities only):
NA

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

12A.

- For **Modifications, Administrative Updates** or **Temporary permits** at an existing facility, please provide directions to the *present location* of the facility from the nearest state road;
- For **Construction** or **Relocation permits,** please provide directions to the *proposed new site location* from the nearest state road. Include a **MAP** as **Attachment B**.

The site can be reached by heading north on WV-62 N / Jefferson Blvd and turning left on the access road for Steel Specialties approximately 0.79 miles north of the armory at University Ln. The entrance of the site is located on the right of the access road.

12.B. New site address (if applicable):	12C. Nearest city or town:	12D. County:
5801 Ohio River Rd Point Pleasant WV, 25550	Point Pleasant	Mason County
12.E. UTM Northing (KM): 4308.982	12F. UTM Easting (KM): 403.934	12G. UTM Zone: 17

13. Briefly describe the proposed change(s) at the facility:
NA

14A. Provide the date of anticipated installation or change: 08/01/2026 – If this is an **After-The-Fact** permit application, provide the date upon which the proposed change did happen: / /	14B. Date of anticipated Start-Up if a permit is granted: 11/01/2029

14C. Provide a **Schedule** of the planned **Installation** of/**Change** to and **Start-Up** of each of the units proposed in this permit application as **Attachment C** (if more than one unit is involved).

15. Provide maximum projected **Operating Schedule** of activity/activities outlined in this application:
Hours Per Day 24 Days Per Week 7 Weeks Per Year 52

16. Is demolition or physical renovation at an existing facility involved? ☐ **YES** ☒ **NO**

17**. Risk Management Plans.** If this facility is subject to 112(r) of the 1990 CAAA, or will become subject due to proposed changes (for applicability help see www.epa.gov/ceppo), submit your **Risk Management Plan (RMP)** to U. S. EPA Region III.

18**. Regulatory Discussion.** List all Federal and State air pollution control regulations that you believe are applicable to the proposed process *(if known).* A list of possible applicable requirements is also included in Attachment S of this application (Title V Permit Revision Information). Discuss applicability and proposed demonstration(s) of compliance *(if known).* Provide this information as **Attachment D.**

Section II. Additional attachments and supporting documents.

19. Include a check payable to WVDEP – Division of Air Quality with the appropriate **application fee** (per 45CSR22 and 45CSR13).

20. Include a **Table of Contents** as the first page of your application package.

21. Provide a **Plot Plan,** e.g. scaled map(s) and/or sketch(es) showing the location of the property on which the stationary source(s) is or is to be located as **Attachment E** (Refer to ***Plot Plan Guidance***) **.**

– Indicate the location of the nearest occupied structure (e.g. church, school, business, residence). 0.05 miles Business
0.1 miles Residence

22. Provide a **Detailed Process Flow Diagram(s)** showing each proposed or modified emissions unit, emission point and control device as **Attachment F.**

23. Provide a **Process Description** as **Attachment G.**

– Also describe and quantify to the extent possible all changes made to the facility since the last permit review (if applicable).

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

24. Provide **Material Safety Data Sheets (MSDS)** for all materials processed, used or produced as **Attachment H.**

– For chemical processes, provide a MSDS for each compound emitted to the air.

25. Fill out the **Emission Units Table** and provide it as **Attachment I.**

26. Fill out the **Emission Points Data Summary Sheet (Table 1 and Table 2)** and provide it as **Attachment J.**

27. Fill out the **Fugitive Emissions Data Summary Sheet** and provide it as **Attachment K.**

28. Check all applicable **Emissions Unit Data Sheets** listed below:

☐ Bulk Liquid Transfer Operations	☒ Haul Road Emissions	☐ Quarry
☐ Chemical Processes	☐ Hot Mix Asphalt Plant	☐ Solid Materials Sizing, Handling and Storage Facilities
☐ Concrete Batch Plant	☐ Incinerator	☒ Storage Tanks
☐ Grey Iron and Steel Foundry	☒ Indirect Heat Exchanger	

☒ General Emission Unit, specify Biomass storage and handling, biomass electric power generation, emergency generator, fire water pump

Fill out and provide the **Emissions Unit Data Sheet(s)** as **Attachment L.**

29. Check all applicable **Air Pollution Control Device Sheets** listed below:

☐ Absorption Systems	☒ Baghouse	☐ Flare
☒ Adsorption Systems	☐ Condenser	☐ Mechanical Collector
☐ Afterburner	☐ Electrostatic Precipitator	☐ Wet Collecting System

☒ Other Collectors, specify SCR System, CO Oxidation Catalyst, Wet Flue Gas Desulfurization, and bin vent filters.

Fill out and provide the **Air Pollution Control Device Sheet(s)** as **Attachment M.**

30. Provide all **Supporting Emissions Calculations** as **Attachment N,** or attach the calculations directly to the forms listed in Items 28 through 31.

31. **Monitoring, Recordkeeping, Reporting and Testing Plans.** Attach proposed monitoring, recordkeeping, reporting and testing plans in order to demonstrate compliance with the proposed emissions limits and operating parameters in this permit application. Provide this information as **Attachment O.**

➢ Please be aware that all permits must be practically enforceable whether or not the applicant chooses to propose such measures. Additionally, the DAQ may not be able to accept all measures proposed by the applicant. If none of these plans are proposed by the applicant, DAQ will develop such plans and include them in the permit.

32. **Public Notice.** At the time that the application is submitted, place a **Class I Legal Advertisement** in a newspaper of general circulation in the area where the source is or will be located (See 45CSR§13-8.3 through 45CSR§13-8.5 and ***Example Legal Advertisement*** for details). Please submit the **Affidavit of Publication** as **Attachment P** immediately upon receipt.

33. **Business Confidentiality Claims.** Does this application include confidential information (per 45CSR31)?

☐ **YES** ☐ **NO**

➢ If **YES,** identify each segment of information on each page that is submitted as confidential and provide justification for each segment claimed confidential, including the criteria under 45CSR§31-4.1, and in accordance with the DAQ's ***"Precautionary Notice – Claims of Confidentiality"*** guidance found in the ***General Instructions*** as **Attachment Q.**

Section III. Certification of Information

34. **Authority/Delegation of Authority.** Only required when someone other than the responsible official signs the application. Check applicable **Authority Form** below:

☐ Authority of Corporation or Other Business Entity	☐ Authority of Partnership
☐ Authority of Governmental Agency	☐ Authority of Limited Partnership

Submit completed and signed **Authority Form** as **Attachment R.**

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

35A. **Certification of Information.** To certify this permit application, a Responsible Official (per 45CSR§13-2.22 and 45CSR§30-2.28) or Authorized Representative shall check the appropriate box and sign below.

Certification of Truth, Accuracy, and Completeness

I, the undersigned ☐ **Responsible Official** / ☐ **Authorized Representative,** hereby certify that all information contained in this application and any supporting documents appended hereto, is true, accurate, and complete based on information and belief after reasonable inquiry I further agree to assume responsibility for the construction, modification and/or relocation and operation of the stationary source described herein in accordance with this application and any amendments thereto, as well as the Department of Environmental Protection, Division of Air Quality permit issued in accordance with this application, along with all applicable rules and regulations of the West Virginia Division of Air Quality and W.Va. Code § 22-5-1 et seq. (State Air Pollution Control Act). If the business or agency changes its Responsible Official or Authorized Representative, the Director of the Division of Air Quality will be notified in writing within 30 days of the official change.

Compliance Certification

Except for requirements identified in the Title V Application for which compliance is not achieved, I, the undersigned hereby certify that, based on information and belief formed after reasonable inquiry, all air contaminant sources identified in this application are in compliance with all applicable requirements.

SIGNATURE _____ DATE: 2/7/2025

(Please use blue ink) *(Please use blue ink)*

35B. Printed name of signee: William D. Calhoun		35C. Title: Vice President HSE
35D. E-mail: jack.calhoun@fidelisinfra.com	36E. Phone: 2819178571	36F. FAX:
36A. Printed name of contact person (if different from above):		36B. Title:
36C. E-mail:	36D. Phone:	36E. FAX:

PLEASE CHECK ALL APPLICABLE ATTACHMENTS INCLUDED WITH THIS PERMIT APPLICATION:

☒ Attachment A: Business Certificate
☒ Attachment B: Map(s)
☒ Attachment C: Installation and Start Up Schedule
☒ Attachment D: Regulatory Discussion
☒ Attachment E: Plot Plan
☒ Attachment F: Detailed Process Flow Diagram(s)
☒ Attachment G: Process Description
☒ Attachment H: Material Safety Data Sheets (MSDS)
☒ Attachment I: Emission Units Table
☒ Attachment J: Emission Points Data Summary Sheet
☒ Attachment K: Fugitive Emissions Data Summary Sheet
☒ Attachment L: Emissions Unit Data Sheet(s)
☒ Attachment M: Air Pollution Control Device Sheet(s)
☒ Attachment N: Supporting Emissions Calculations
☒ Attachment O: Monitoring/Recordkeeping/Reporting/Testing Plans
☒ Attachment P: Public Notice
☐ Attachment Q: Business Confidential Claims
☐ Attachment R: Authority Forms
☐ Attachment S: Title V Permit Revision Information
☒ Application Fee

Please mail an original and three (3) copies of the complete permit application with the signature(s) to the DAQ, Permitting Section, at the address listed on the first page of this application. Please DO NOT fax permit applications.

FOR AGENCY USE ONLY – IF THIS IS A TITLE V SOURCE:

☐ *Forward 1 copy of the application to the Title V Permitting Group and:*
☐ *For Title V Administrative Amendments:*
- ☐ *NSR permit writer should notify Title V permit writer of draft permit,*

☐ *For Title V Minor Modifications:*
- ☐ *Title V permit writer should send appropriate notification to EPA and affected states within 5 days of receipt,*
- ☐ *NSR permit writer should notify Title V permit writer of draft permit.*

☐ *For Title V Significant Modifications processed in parallel with NSR Permit revision:*
- ☐ *NSR permit writer should notify a Title V permit writer of draft permit,*
- ☐ *Public notice should reference both 45CSR13 and Title V permits,*
- ☐ *EPA has 45 day review period of a draft permit.*

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

Appendix B West Virginia Permit Application Attachments

Attachment A: West Virginia Business Certificate

Attachment B: Maps

Attachment C: Installation and Start-up Schedule

Attachment D: Regulatory Discussion

Attachment E: Plot Plan

Attachment F: Detailed Block Flow Diagrams

Attachment G: Process Description

Attachment H: Material Safety Data Sheets (MSDS)

Attachment I: Emission Units Table

Attachment J: Emission Points Data Summary Sheet

Attachment K: Fugitive Emissions Data Summary Sheet

Attachment L: Emission Unit Data Sheets

Attachment M: Air Pollution Control Device Sheets

Attachment N: Supporting Emission Calculations

Attachment O: Monitoring/Recordkeeping/Reporting/Testing Plans

Attachment P: Public Notice

Attachment Q: Business Confidential Claims (Not Applicable)

Attachment R: Authority Forms (Not Applicable)

Attachment S: Title V Permit Revision Information (Not Applicable)

Attachment A: West Virginia Business Certificate

State of West Virginia

Certificate

I, Mac Warner, Secretary of State of the State of West Virginia, hereby certify that

MGS CNP 1, LLC

Control number: 9B6C8

a limited liability company formed under the laws of Delaware

has filed its "Application for Certificate of Authority" in my office according to the provisions of West Virginia Code §31B-10-1002. I hereby declare the organization to be registered as a foreign limited liability company from its effective date of August 31, 2023 until the expiration of the term or dissolution of the company.

Therefore, I hereby issue this

CERTIFICATE OF AUTHORITY OF A FOREIGN LIMITED LIABILITY COMPANY

to the limited liability company authorizing it to transact business in West Virginia

Given under my hand and the Great Seal of the State of West Virginia on this day of August 31, 2023

Mac Warner

Secretary of State

565174

Attachment B: Maps

Figure on next page provides a general map of the proposed facility location, showing roads and major geographical features such as the Ohio River.

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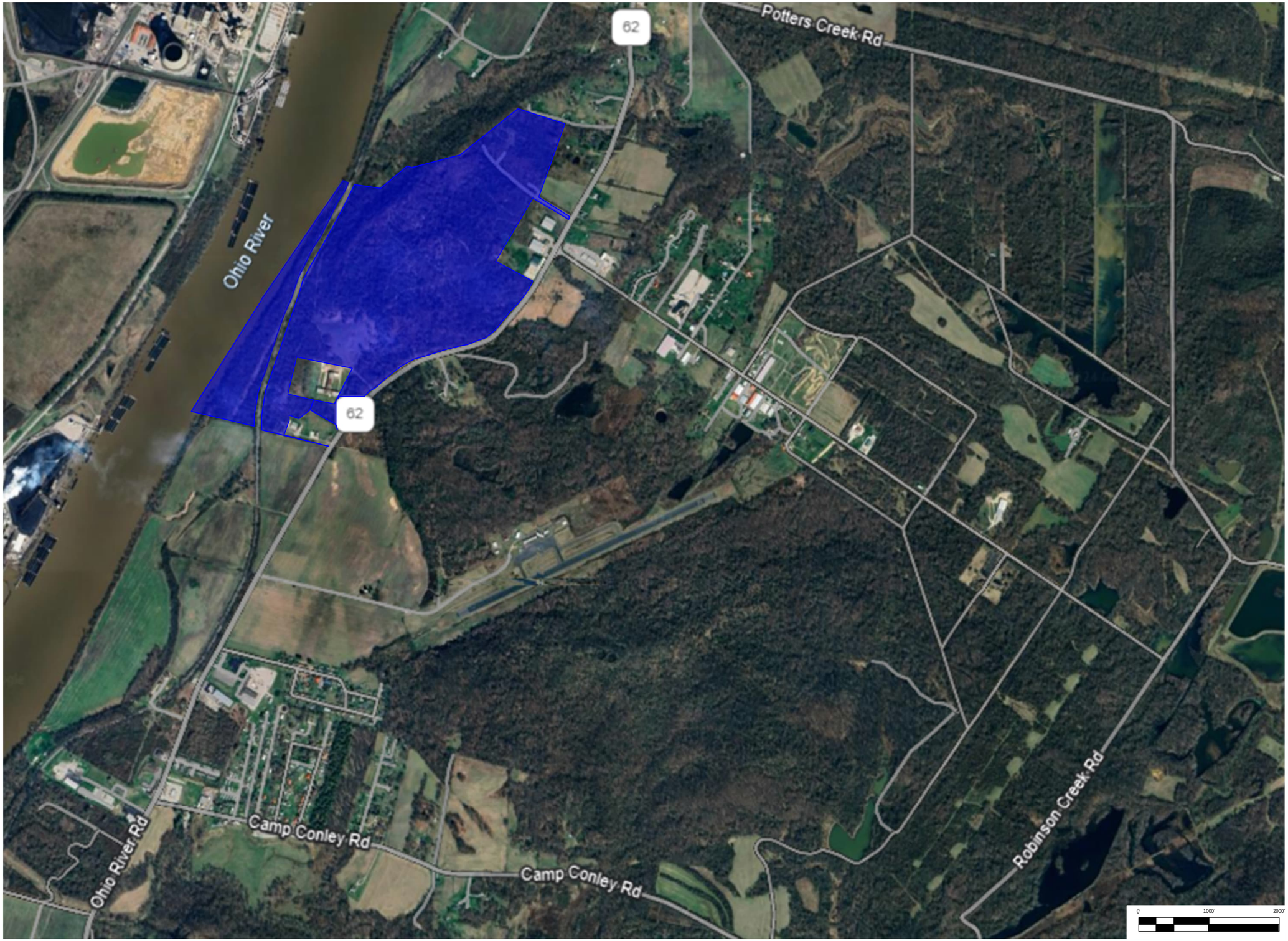

NOTES

1. The Unit spaces are approximate and based on earlier studies and will be checked and optimized in the next phase of the project after a site has been chosen.
2. Equipment shown within unit boxes are shown for illustrative purposes only. Equipment location / spacing within individual units have not been optimized.

Prevailing Wind

Graphic Legend

- Site Boundary
- Piperack
- Road

X		Draft (for Review)	DC					
	DATE	DESCRIPTION	BY	CHK	ENG	PEM	PM	

DRAWN BY: D. Contino — DATE
CHECKED BY — DATE
ENGINEER — DATE
PROJECT ENGINEERING MANAGER — DATE
PROJECT MANAGER — DATE

worley consulting

THE MOUNTAINEER GIGASYSTEM

CLIENT/PROJECT TILE
Mountaineer Gigasystem - Fidelis

PROJECT NO.
418162-47975

Site Boundary – BECCS Plant

SCALE

DWG.NO.

REVISION
X

Attachment C: Installation and Start-up Schedule

Section 2 of the application narrative provides a summary of the proposed emission units with the proposed installation and start-up schedule for the BECCS Plant. Specifically, MGSCNP1 wishes/expects to obtain WVDAQ air permit approval by June 1, 2025 to provide sufficient/adequate time for financing, equipment ordering, fabrication, construction (2026), and installation, and to achieve commercial operation by 2029.

Attachment D: Regulatory Discussion

Section 4 of the application narrative provides a federal and state regulatory applicability analysis and summary of regulatory requirements that will apply to the BECCS Plant.

Attachment E: Plot Plan

Figure E-1 BECCS Plant Plot Plan (Site Layout Plan)

NOTE: THIS DRAWING AND THE DATA CONTAINED HEREIN ARE OF A CONFIDENTIAL NATURE AND SHALL BE USED ONLY FOR THE ORIGINAL PURPOSE INTENDED. COPYING IN ANY FORM OR DISTRIBUTION OF THE ORINGIAL OR COPIES SHALL REQUIRE WRITTEN PERMISSION FROM THE DRAWING OWNER.

NOTES

1. The Unit spaces are approximate and and at the conceptual study level. Site and equipment locations will be optimized in the pre-FEED and FEED stages of the project.
2. Equipment shown within unit boxes are shown for illustrative purposes only. Equipment location / spacing within individual units have not been optimized.
3. Piping right of way has not been determined. Hydrogen, Carbon Dioxide, natural gas and raw water final disposition and source to be determined in the next phase of engineering.

Prevailing Wind

Graphic Legend

- Site Boundary
- Piperack
- Road

B1	17-Dec-24	Re-Issued for Permit	DC	DM			AR
B	30-Aug-24	Issued for Permit	DC	DM			AR
A1	08-Aug-24	Re-Issued for Review	DC	DM			AR
A	26-Jun-24	Issued for Review	DC	DM			AR
	DATE	DESCRIPTION	BY	CHK	ENG	PEM	PM

DRAWN BY: D. Contino	DATE: 17-Dec-24
CHECKED BY: D. Minicucci	DATE: 17-Dec-24
ENGINEER	DATE
PROJECT ENGINEERING MANAGER	DATE
PROJECT MANAGER: A. Rockwell	DATE: 17-Dec-24

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THE MOUNTAINEER GIGASYSTEM

CLIENT/PROJECT TILE

Mountaineer Gigasystem

PROJECT NO.

418162-54129

Conceptual Plot Layout – BECCS Plant

SCALE

DWG.NO.

MNT1-MB1-120-PR-PLT-00-0101

REVISION

B1

Attachment F: Detailed Block Flow Diagrams

NOTE: THIS DRAWING AND THE DATA CONTAINED HEREIN ARE OF A CONFIDENTIAL NATURE AND SHALL BE USED ONLY FOR THE ORIGINAL PURPOSE INTENDED. COPYING IN ANY FORM OR DISTRIBUTION OF THE ORINGIAL OR COPIES SHALL REQUIRE WRITTEN PERMISSION FROM THE DRAWING OWNER.

1 x 572 klb/hr Steam Biomass Energy Plant

Sodium Bicarbonate Trucks / Truck Unloading (12110)
Sodium Bicarbonate Storage (12199)
Vent
Vent
Ammonia Storage (12199)
Caustic Solution Storage (12199)
To atm
Stack (12130)
To atm
DMW
Amine Sorage (12299)
Amine Scrubber Vent
Sand Trucks / Truck Unloading (12110)
Sand Storage and Filter (12150)
Pulse Jet Fabric Filter (12130)
SCR/CO Catalyst (12130)
Direct Contact Cooler/ Polishing Scrubber (12130)
318.2 MMSCFD
Amine Absorber / Stripper (12210 / 12220)
Flue Gas
To atm
Ash Storage and Filter (12140)
Ash Disposal (by truck)
Utility Water
Makeup Sand
Reclaimed Sand
Blowdown to WWTP
CO2 Compression (12230)
2,234 MTPD
CO2 to Pipeline
To atm
Receiving Hoppers / Baghouse (12110)
Fuel Screening (12110)
Biomass Storage (12110)
Biomass Feed (12110)
Conveyor
212.1 klb/hr
Air
Boiler (12120)
Steam
572 klb/hr
STG (12150)
Biomass Trucks / Truck Unloading (12110)
Blowdown to WWTP
Sand Reclaim (12150)
Bottom Ash (12160)
Ash Disposal (by truck)
Electrical Power
HPS
CWS
CWR
NNF
Amine Drain / Collection System (12299)
Condensate Polishing (HOLD 1) (12992)
Condensate
Chemical System (12999)
Potable Water (12994)
From H2 Plant ASU
Plant Nitrogen System (12997)
Plant / Instrument Air System (12996)
Clean Condensate
To atm
Natural Gas (81010)
Natural Gas System (12998)
Demineralized Water System (12991)
DMW
Treated Condensate
Deaerator (12992)
BFW
Steam Distribution (ISBL/OSBL) (12992)
Buildings
Sanitary Waste
Sanitary Water Treatment (12000)
Well Water (19991)
843 klb/h
Raw Water Treatment (12991)
To atm
Infrastructure (Roads, Fences, Lighting, etc) (12000)
Utility Water Distribution (12994)
Fire Water System / Diesel Pump (12994)
Cooling Water Tower (12993)
Blowdown
Reject
Reject
Wastewater Treatment (12700)
First Flush
First Flush Pond (12910)
Waste Oil (by truck)
To atm
To atm
Storm Water Sewers (12000)
Diversion Block (12000)
Storm Water Pond (12910)
To Outfall
322 klb/h
Water Return (19910)
Electrical Distribution (12900)
Startup Generator (11900)
MAC Contract / Automation (12900)
Telecommunication / Security System (12900)

BALANCE OF PLANT

Licensor Scope
Balance of Plant
Infrastructure
Buildings

NOTES:

HOLDS:

1. Condensate Polishing requirement to be confirmed in the next stage of engineering.

B4	10-Dec-24	Re-issued for Permit	DC	DM			AR
B3	24-Sep-24	Re-issued for Permit	DC	DM			AR
B2	23-Aug-24	Re-issued for Permit	DC	DM			AR
B1	14-Jun-24	Re-issued for Permit	DC	DM			AR
B	29-Apr-24	Issued for Permit	DC	DM			AR
A	17-Apr-24	Issued for Review	AR	DM			AR
	DATE	DESCRIPTION	BY	CHK	ENG	REM	PM

DRAWN BY D. Contino 10-Dec-24
CHECKED BY D. Minicucci 10-Dec-24
ENGINEER
PROJECT ENGINEERING MANAGER
PROJECT MANAGER A. Rockwell 10-Dec-24

worley consulting
THE MOUNTAINEER GIGASYSTEM

CLIENT/PROJECT TILE
Mountaineer Gigasystem

PROJECT NO.
418162-54129

Block Flow Diagram
BECCS

SCALE

DWG.NO.
418162-54129-PR-DBD-20001
MNT1-MB1-120-PR-BFD-00-0101

REVISION
B4

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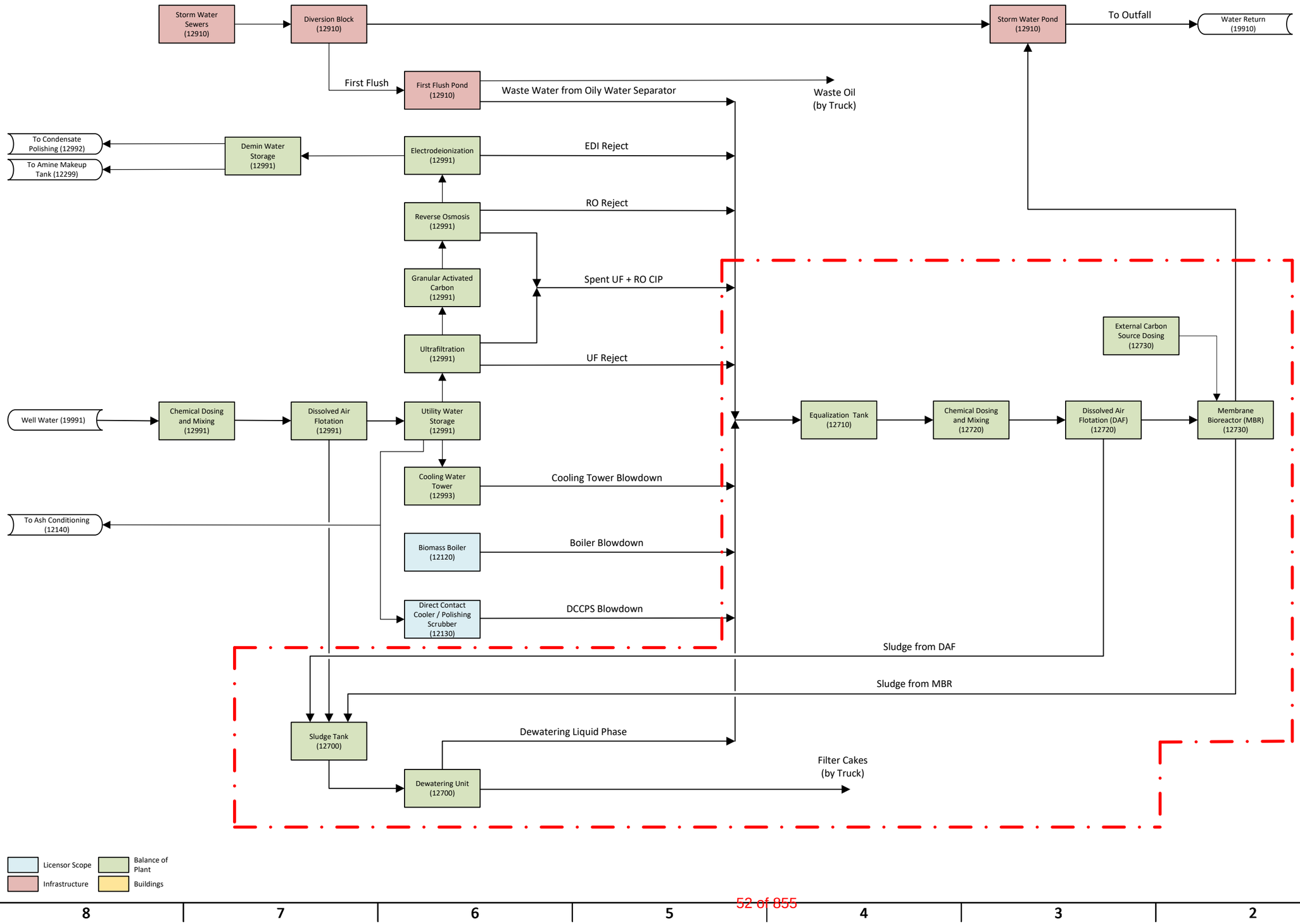
BECCS WATER TREATMENT



B2	20-Sep-24	Re-issued for Permit	AR	DC			AR
B1	23-Aug-24	Re-issued for Permit	AR	DC			AR
B	14-June-24	Issued for Permit	AR	DC			AR
A	24-May-24	Issued for Review	AR	DC			AR
	DATE	DESCRIPTION	BY	CHK	ENG	PEM	PM

DRAWN BY	DATE
A. Rockwell	20-Sep-24
CHECKED BY	DATE
D. Contino	20-Sep-24
ENGINEER	DATE
PROJECT ENGINEERING MANAGER	DATE
PROJECT MANAGER	DATE
A. Rockwell	20-Sep-24

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THE MOUNTAINEER GIGASYSTEM

CLIENT/PROJECT TILE

Mountaineer Gigasystem

PROJECT NO.

418162-54129

Block Flow Diagram
BECCS Water Treatment

SCALE

DWG.NO.

418162-54129-PR-DBD-20002
MNT1-MB1-127-PR-BFD-00-0101

REVISION

B2

Attachment G: Process Description

Section 2 of the application narrative provides a detailed process description for each of the proposed BECCS Plant emission units.

Attachment H: Material Safety Data Sheets (MSDS)

Diesel

NH3

NG

Amines used in PCCU

SAFETY DATA SHEET

Aqua Ammonia (20-30%)

Airgas
an Air Liquide company

Section 1. Identification

GHS product identifier : Aqua Ammonia (20-30%)

Other means of identification : Aqua Ammonia, Ammonium Hydroxide

Product type : Liquid.

Product use : Synthetic/Analytical chemistry.

Synonym : Aqua Ammonia, Ammonium Hydroxide

SDS # : 001195

Supplier's details : Airgas USA, LLC and its affiliates
259 North Radnor-Chester Road
Suite 100
Radnor, PA 19087-5283
1-610-687-5253

24-hour telephone : 1-866-734-3438

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : SKIN CORROSION - Category 1B
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
AQUATIC HAZARD (ACUTE) - Category 1

GHS label elements

Hazard pictograms :

Signal word : Danger

Hazard statements : May displace oxygen and cause rapid suffocation.
Causes severe skin burns and eye damage.
May cause respiratory irritation.
Very toxic to aquatic life.

Precautionary statements

General : Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand.

Prevention : Wear protective gloves. Wear protective clothing. Wear eye or face protection. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Avoid breathing vapor.

Response : Collect spillage. Immediately call a POISON CENTER or doctor. IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Storage : Store locked up. Store in a well-ventilated place. Keep container tightly closed.

Disposal : Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazards not otherwise classified : None known.

Section 3. Composition/information on ingredients

Substance/mixture : Substance

Other means of identification : Aqua Ammonia, Ammonium Hydroxide

Product code : 001195

CAS number/other identifiers

CAS number : Not available.

Ingredient name	%	CAS number
ammonium hydroxide	100	1336-21-6
ammonia	20-30	7664-41-7
WATER	70-80	7732-18-5

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician.

Inhalation : Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Skin contact : Get medical attention immediately. Call a poison center or physician. Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Inhalation : May cause respiratory irritation.

Skin contact : Causes severe burns.

Frostbite : Try to warm up the frozen tissues and seek medical attention.

Section 4. First aid measures

Ingestion : No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following:, pain, watering, redness

Inhalation : Adverse symptoms may include the following:, respiratory tract irritation, coughing

Skin contact : Adverse symptoms may include the following:, pain or irritation, redness, blistering may occur

Ingestion : Adverse symptoms may include the following:, stomach pains

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : In a fire or if heated, a pressure increase will occur and the container may burst. This material is very toxic to aquatic life. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
nitrogen oxides

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

Section 6. Accidental release measures

Methods and materials for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Do not get in eyes or on skin or clothing. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Avoid release to the environment. Do not ingest. Empty containers retain product residue and can be hazardous. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Do not reuse container. Do not breathe vapor or mist.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
ammonium hydroxide	None.

Appropriate engineering controls : Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Section 8. Exposure controls/personal protection

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

Appearance

Physical state : Liquid.

Color : Clear.

Odor : Pungent.

Odor threshold : 5 ppm

pH : Approx. 11.6 for 1 N Sol'n. in water

Melting point : -35ºF (20% solution) to -115ºF(30% solution)

Boiling point : Lowest known value: 38°C (100.4°F) (ammonium hydroxide).

Critical temperature : Not available.

Flash point : Not available.

Evaporation rate : Not available.

Flammability (solid, gas) : Extremely flammable in the presence of the following materials or conditions: Oxidizing

Lower and upper explosive (flammable) limits : Lower: 16%
Upper: 25%

Vapor pressure : 3-10 PSI @ 16 ◦C

Vapor density : Vapor density 0.6 (Air = 1) (ammonia)

Specific Volume (ft ^{3}/lb) : 20.79

Gas Density (lb/ft ^{3}) : 0.0481

Relative density : 0.6

Solubility : Soluble in water. Soluble in alcohol and ether.

Solubility in water : Complete 540 g/l

Partition coefficient: n-octanol/water : Not available.

Auto-ignition temperature : 651°C (1203.8°F)

Decomposition temperature : Not available.

Viscosity : Not available.

Flow time (ISO 2431) : Not available.

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : No specific data.

Incompatible materials : Yellow Metals (brass & copper)

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Hazardous polymerization : Under normal conditions of storage and use, hazardous polymerization will not occur.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
ammonium hydroxide	LD50 Oral	Rat	350 mg/kg	-

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
ammonium hydroxide	Eyes - Severe irritant Eyes - Severe irritant	Rabbit Rabbit	- -	250 ug 0.5 minutes 1 mg	- -

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
ammonium hydroxide	Category 3	-	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Section 11. Toxicological information

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Inhalation : May cause respiratory irritation.

Skin contact : Causes severe burns.

Ingestion : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:, pain, watering, redness

Inhalation : Adverse symptoms may include the following:, respiratory tract irritation, coughing

Skin contact : Adverse symptoms may include the following:, pain or irritation, redness, blistering may occur

Ingestion : Adverse symptoms may include the following:, stomach pains

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
ammonium hydroxide	Acute LC50 37 ppm Fresh water	Fish - Gambusia affinis - Adult	96 hours

Persistence and degradability

Not available.

Bioaccumulative potential

Section 12. Ecological information

Not available.

Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	DOT	TDG	Mexico	IMDG	IATA
UN number	UN2672	UN2672	UN2672	UN2672	UN2672
UN proper shipping name	Ammonium Hydroxide or Ammonia solutions	AMMONIA SOLUTION	AMMONIA SOLUTION	AMMONIA SOLUTION	Ammonia solution
Transport hazard class(es)	8	8	8	8	8
Packing group	III	III	III	III	III
Environmental hazards	No.	Yes.	Yes. The environmentally hazardous substance mark is not required.	Yes.	Yes. The environmentally hazardous substance mark is not required.

"Refer to CFR 49 (or authority having jurisdiction) to determine the information required for shipment of the product."

Additional information

DOT Classification : **Reportable quantity** 1000 lbs / 454 kg [2493.4 gal / 9438.7 L]. Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.

TDG Classification : Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.40-2.42 (Class 8), 2.7 (Marine pollutant mark).
The marine pollutant mark is not required when transported by road or rail.

IMDG : The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg.

IATA : The environmentally hazardous substance mark may appear if required by other transportation regulations.

Section 14. Transport information

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to IMO instruments : Not available.

Section 15. Regulatory information

U.S. Federal regulations : **TSCA 8(a) CDR Exempt/Partial exemption**: Not determined

Clean Water Act (CWA) 311: ammonium hydroxide

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Refer to Section 2: Hazards Identification of this SDS for classification of substance.

SARA 313

	Product name	CAS number	%
Form R - Reporting requirements	ammonium hydroxide	1336-21-6	100
Supplier notification	ammonium hydroxide	1336-21-6	100

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

State regulations

Massachusetts : The following components are listed: AMMONIUM HYDROXIDE; AMMONIUM WATER

New York : The following components are listed: Ammonium hydroxide

New Jersey : The following components are listed: AMMONIUM HYDROXIDE

Pennsylvania : The following components are listed: AMMONIUM HYDROXIDE

California Prop. 65

This product does not require a Safe Harbor warning under California Prop. 65.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Section 15. Regulatory information

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

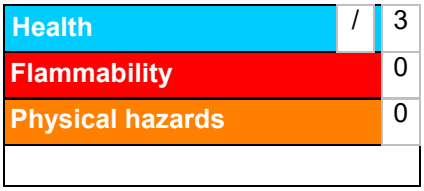
Not listed.

Inventory list

Australia	:	All components are listed or exempted.
Canada	:	All components are listed or exempted.
China	:	All components are listed or exempted.
Europe	:	All components are listed or exempted.
Japan	:	**Japan inventory (ENCS)**: All components are listed or exempted. **Japan inventory (ISHL)**: All components are listed or exempted.
New Zealand	:	All components are listed or exempted.
Philippines	:	All components are listed or exempted.
Republic of Korea	:	All components are listed or exempted.
Taiwan	:	All components are listed or exempted.
Thailand	:	Not determined.
Turkey	:	All components are listed or exempted.
United States	:	All components are active or exempted.
Viet Nam	:	All components are listed or exempted.

Section 16. Other information

Hazardous Material Information System (U.S.A.)



Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings and the associated label are not required on SDSs or products leaving a facility under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered trademark and service mark of the American Coatings Association, Inc.

The customer is responsible for determining the PPE code for this material. For more information on HMIS® Personal Protective Equipment (PPE) codes, consult the HMIS® Implementation Manual.

National Fire Protection Association (U.S.A.)

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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

Procedure used to derive the classification

Section 16. Other information

Classification	Justification
SKIN CORROSION - Category 1B SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 AQUATIC HAZARD (ACUTE) - Category 1	Expert judgment Calculation method Calculation method

History

Date of printing : 1/14/2021

Date of issue/Date of revision : 1/14/2021

Date of previous issue : 2/15/2018

Version : 1

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

References : Not available.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

SAFETY DATA SHEET

SECTION 1) CHEMICAL PRODUCT AND SUPPLIER'S IDENTIFICATION

CAS Number:	105-59-9		
Product Name:	Methyldiethanolamine (MDEA)		
Revision Date:	Apr 03, 2018	**Date Printed:**	Apr 03, 2018
Version:	1.0	**Supersedes Date:**	N.A.
Manufacturer's Name:	Thames River Chemical Corp.		
Address:	5230 Harvester Road Burlington, ON, CA, L7L 4X4		
Emergency Phone:	CHEMTREC (800) 424-9300		
Information Phone Number:	905-681-5353		
Fax:	905-681-5377		

Product/Recommended Uses: Feed additive and diet supplement

SECTION 2) HAZARDS IDENTIFICATION

Classification

Eye Irritation - Category 2A

Pictograms

Signal Word

Warning

Hazard Statements - Health

Causes serious eye irritation

Precautionary Statements - General

If medical advice is needed, have product container or label at hand.

Keep out of reach of children.

Read label before use.

Precautionary Statements - Prevention

Wash thoroughly/Wash hands thoroughly after handling.

Wear protective gloves/protective clothing/eye protection/face protection.

Precautionary Statements - Response

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

If eye irritation persists: Get medical advice/attention.

Precautionary Statements - Storage

No precautionary statement available.

Precautionary Statements - Disposal

No precautionary statement available.

Physical Hazards Not Otherwise Classified

No Data Available

Health Hazards Not Otherwise Classified

No Data Available

SECTION 3) COMPOSITION/INFORMATION ON INGREDIENTS

CAS	Chemical Name	% By Weight
0000105-59-9	METHYL DIETHANOLAMINE	98% - 100%

Specific chemical identity and/or exact percentage (concentration) of the composition has been withheld to protect confidentiality.

SECTION 4) FIRST-AID MEASURES

Inhalation

Remove source of exposure or move person to fresh air and keep comfortable for breathing. If experiencing respiratory symptoms: Call a POISON CENTER/doctor.

Eye Contact

Direct contact with liquid or vapor will cause serious eye irritation. Immediately flush the contaminated eye(s) with lukewarm, gently flowing water for several minutes, while holding the eyelid(s) open. Neutral saline solution may be used as soon as it is available. Take care not to rinse contaminated water into the unaffected eye or onto face. If irritation persists, obtain medical attention.

Skin Contact

Take off contaminated clothing, shoes and leather goods (e.g. watchbands, belts). Rinse/wash with lukewarm, gently flowing water and mild soap for 5 minutes or until product is removed. If skin irritation occurs or you feel unwell: Get medical advice/attention.
Wash contaminated clothing before re-use or discard.

Ingestion

Swallowing can cause irritation of the digestive tract with abdominal and chest pain, nausea, vomiting and diarrhea.
Never give anything by mouth if victim is rapidly losing consciousness, or is unconscious or convulsing. Have victim rinse mouth thoroughly with water. DO NOT INDUCE VOMITING. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. Have victim rinse mouth with water again. Immediately obtain medical advice.

Most Important Symptoms and Effects, Both Acute and Delayed

No Data Available

Indication of Any Immediate Medical Attention and Special Treatment Needed

No Data Available

SECTION 5) FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Small Fire : Dry chemical, foam, carbon dioxide, water-spray or alcohol-resistant foam. Carbon dioxide can displace oxygen. Use caution when applying carbon dioxide in confined spaces. Large Fire: Water spray, fog or alcohol-resistant foam.

Unsuitable Extinguishing Media

Do not use straight stream of water. High pressure water streams may scatter hot liquid.

Specific Hazards in Case of Fire

During a fire, the chemical components may vaporize; these components can be severely irritating to eyes and respiratory tract. Hazardous combustion products may include and are not limited to: nitrogen oxides, hydrogen cyanide, carbon monoxide, and carbon dioxide.

Fire-fighting Procedures

Isolate immediate hazard area and keep unauthorized personnel out. Move undamaged containers from immediate hazard area if it can be done safely.

Special Protective Actions

Wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear.

SECTION 6) ACCIDENTAL RELEASE MEASURES

Emergency Procedure

Isolate hazard area and keep unauthorized personnel away. Stay uphill and/or upstream. Do not touch damaged containers or spilled materials unless wearing appropriate protective clothing. Ventilate closed spaces before entering.

Recommended Equipment

Wear chemical protective clothing.

Personal Precautions

Avoid breathing vapor or mist. Avoid contact with skin, eye or clothing.

Environmental Precautions

Stop spill/release if it can be done safely. Prevent spilled material from entering sewers, storm drains, other unauthorized drainage systems and natural waterways by using sand, earth, or other appropriate barriers. Dike far ahead of liquid spill for later disposal.

Methods and Materials for Containment and Cleaning up

Absorb Liquids in vermiculite, dry sand, earth, or similar inert material and deposit in sealed containers for disposal.

SECTION 7) HANDLING AND STORAGE

General

Avoid contact with eyes, skin and clothing. Avoid generating mists and vapors. Avoid breathing vapors. Ensure that engineering controls are operating and that protective equipment requirements are being followed.

Inspect containers for leaks before handling. Prevent damage to containers. Keep containers closed when not in use. Assume that empty containers contain residues which are hazardous.

Discard all contaminated leather items such as watchbands, shoes and belts.
Never perform any welding, cutting, soldering, drilling or other hot work on an empty vessel, container or piping until all liquid and vapors have been cleared.

Ventilation Requirements

Use only with adequate ventilation to control air contaminants to their exposure limits.

Storage Room Requirements

Store in dry, cool areas, out of direct sunlight and away from other sources of heat. Empty container retain residue and may be dangerous.

Keep containers tightly closed.

SECTION 8) EXPOSURE CONTROLS/PERSONAL PROTECTION

Eye protection

Wear indirect-vent, impact and splash resistant goggles when working with liquids

Skin Protection

Use of gloves approved to relevant standards made from the following materials may provide suitable chemical protection: PVC, neoprene or nitrile rubber gloves. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, glove thickness, dexterity. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory Protection

If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker, a respiratory protection program that meets or is equivalent to OSHA 29 CFR 1910.134 should be followed. Check with respiratory protective equipment suppliers.

Appropriate Engineering Controls

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value.

Chemical Name	CANsmg	CANsppm	CANtmg	CANtppm	OSHA STEL (mg/m3)	OSHA STEL (ppm)	OSHA TWA (mg/m3)	OSHA TWA (ppm)	OSHA Carcinogen	OSHA Tables (Z1, Z2, Z3)	OSHA Skin designation	ACGIH STEL (mg/m3)
No applicable chemical	-	-	-	-	-	-	-	-	-	-	-	-

Chemical Name	ACGIH STEL (ppm)	ACGIH TWA (mg/m3)	ACGIH TWA (ppm)	ACGIH TLV Basis	ACGIH Carcinogen	ACGIH Notations
No applicable chemical	-	-	-	-	-	-

SECTION 9) PHYSICAL AND CHEMICAL PROPERTIES

Physical and Chemical Properties

Density	8.66 lb/gal
Specific Gravity	1.04

Appearance	pale yellow viscous liquid
Odor Description	amine odor
Odor Threshold	N/A
pH	strong base
Melting Point	No Data Available
Low Boiling Point	240 °C
High Boiling Point	N/A
Flash Point	131 °C
Vapor Pressure	0.000262 (25°C) hPa
Vapor Density	4
Evaporation Rate	N/A
Upper Explosion Level	N/A
Lower Explosion Level	N/A
Water Solubility	completely soluble
Coefficient Water/Oil	Kow = -1.08 (25°C)
Viscosity	No Data Available

SECTION 10) STABILITY AND REACTIVITY

Reactivity

No Data Available

Stability

Stable under normal storage and handling conditions.

Conditions to Avoid

Avoid high temperatures and contact with sources of ignition. Avoid direct sunlight.

Hazardous Reactions/Polymerization

Contact with nitrosating agents, under acidic conditions such as nitrous acid, nitrite or nitrogen oxides, can form nitrosamines some of which are potent carcinogens.

Alkanolamine substances are oxidized by air slowly with evolution of heat. This reaction may lead to spontaneous combustion if the substance is on an adsorbent or on a high surface area material (e.g. absorbent material or thermal insulation).

Incompatible Materials

Avoid contact with strong acids, strong oxidizing agents, halogenated hydrocarbons and nitrating agents.

Hazardous Decomposition Products

Decomposition products may include nitrogen oxides, ammonia, irritating aldehydes and ketones. Hazardous decomposition products depend upon temperature, air supply and the presence of other materials.

SECTION 11) TOXICOLOGICAL INFORMATION

Likely Route of Exposure

Inhalation, ingestion, skin absorption

Acute Toxicity

LD50 Oral(rat): 1945 mg/kg
LD50 Dermal(rabbit): 6230 mg/kg
LC50 Inhalation(4 hrs.): Not available

Aspiration Hazard

No Data Available

Carcinogenicity

No Data Available

Germ Cell Mutagenicity

No Data Available

Reproductive Toxicity

No Data Available

Respiratory/Skin Sensitization

No Data Available

Serious Eye Damage/Irritation

Causes serious eye irritation

Skin Corrosion/Irritation

No Data Available

Specific Target Organ Toxicity - Repeated Exposure

No Data Available

Specific Target Organ Toxicity - Single Exposure

No Data Available

SECTION 12) ECOLOGICAL INFORMATION

Toxicity

Algae:

72 Hr EC50 Desmodesmus subspicatus: 37 mg/L
96 Hr EC50 Desmodesmus subspicatus: 20 mg/L
Freshwater fish:
96 Hr LC50 Leusciscus idus: 1000-2200 mg/L
96 Hr LC50 Pimephales promelas: >1000 mg/L
48 Hr EC50 Daphnia magna: 230 mg/L

Mobility in Soil

Henry's Law Constant (H) is estimated to be 3.38E-19 atm m^3/mole at 25°C.
Potential for mobility in soil is very high (Koc between 0 and 50).
Log soil organic carbon partition coefficient (log Koc) is estimated to be 0.48.

Bio-accumulative Potential

Bioconcentration potential is low (BCF <100; and log Pow <3). Log Pow is estimated using the Pomona-MedChem structural fragment method to be -1.202.

Persistence and Degradability

Product is expected to biodegrade readily under aerobic conditions.

Other Adverse Effects

No Data Available

SECTION 13) DISPOSAL CONSIDERATIONS

Waste Disposal

Empty Containers retain product residue which may exhibit hazards of material, therefore do not pressurize, cut, glaze, weld or use for any other purposes. It is the responsibility of the user of the product to determine at the time of disposal whether the product meets local criteria for hazardous waste. Waste management should be in full compliance with national, provincial and local laws.

SECTION 14) TRANSPORT INFORMATION

Transport Canada Information

UN number: Not Regulated

Proper shipping name: N/A

Hazard class: N/A

Packaging group: N/A

U.S. DOT Information

UN number: Not Regulated

Proper shipping name: N/A

Hazard class: N/A

Packaging group: N/A

SECTION 15) REGULATORY INFORMATION

CAS	Chemical Name	% By Weight	Regulation List
0000105-59-9	METHYL DIETHANOLAMINE	98% - 100%	DSL,TSCA

SECTION 16) OTHER INFORMATION

Glossary

ACGIH- American Conference of Governmental Industrial Hygienists; ANSI- American National Standards Institute; Canadian TDG- Canadian Transportation of Dangerous Goods; CANsmg or CANsppm - Canadian Short Term Exposure Level in mg/L or in ppm; CANtmg or CANtppm - Canadian Time Weighted Average in mg/L or in ppm; CAS- Chemical Abstract Service; Chemtrec- Chemical Transportation Emergency Center(US); CHIP- Chemical Hazard Information and Packaging; DSL- Domestic Substances List; EC- Equivalent Concentration; EH40 (UK)- HSE Guidance Note EH40 Occupational Exposure Limits; EPCRA- Emergency Planning and Community Right-To-Know Act; ESL Effects screening levels; HMIS- Hazardous Material Information Service; LC- Lethal Concentration; LD- Lethal Dose; NFPA- National Fire Protection Association; OEL- Occupational Exposure Limits; OSHA- Occupational Safety and Health Administration, US Department of Labor; PEL- Permissible Exposure Limit; SARA (Title III)- Superfund Amendments and Reauthorization Act; SARA 313- Superfund Amendments and Reauthorization Act, Section 313; SCBA- Self Contained Breathing Apparatus; STEL-Short Term Exposure Limit; TCEQ Texas Commission on Environmental Quality; TLV- Threshold Limit Value; TSCA- Toxic Substances Control Act Public Law 94-469; TWA Time Weighted Value; US DOT- US Department of Transportation; WHMIS- Workplace Hazardous Materials Information System.

Version 1.0:

Revision Date: Oct 04, 2017

Version 1.0

DISCLAIMER

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist. The above information pertains to this product as currently formulated, and is based on the information available at this time. Addition of reducers or other additives to this product may substantially alter the composition and hazards of the product. Since conditions of use are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information.

Section 1: IDENTIFICATION

Product Name: Natural Gas (Sweet)

Synonyms: Marsh Gas; Methane (CH4); Fuel Gas.

Product Use: Fuel Gas.

Restrictions on Use: Not available.

[redacted]

Manufacturer/Supplier: [redacted]

Emergency Phone:

Date of Preparation of SDS: March 8, 2022

Section 2: HAZARD(S) IDENTIFICATION

GHS INFORMATION

Classification:
Flammable Gases, Category 1
Gases Under Pressure - Compressed Gas
Simple Asphyxiant, Category 1

LABEL ELEMENTS

Hazard Pictogram(s):

Signal Word: Danger

Hazard Statements:
Extremely flammable gas.
Contains gas under pressure; may explode if heated.
May displace oxygen and cause rapid suffocation.

Precautionary Statements

Prevention: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Response: Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
In case of leakage, eliminate all ignition sources.

Storage: Store in a well-ventilated place.
Protect from sunlight.

Disposal: Not applicable.

Hazards Not Otherwise Classified: Not applicable.

Ingredients with Unknown Toxicity: None.

This material is considered hazardous by the OSHA Hazard Communication Standard, (29 CFR 1910.1200). This material is considered hazardous by the Hazardous Products Regulations.

Section 3: COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous Ingredient(s)	Common name / Synonyms	CAS No.	% vol./vol.
Natural gas	Not available.	8006-14-2	100
Methane	Not available.	74-82-8	90 - 99
Ethane	Not available.	74-84-0	0 - 6
Propane	Not available.	74-98-6	0 - 3
Butane	Not available.	106-97-8	0 - 3
Propane, 2-methyl-	Isobutane	75-28-5	0 - 3
Pentane	Not available.	109-66-0	0 - 3
Butane, 2-methyl-	Isopentane	78-78-4	0 - 3
Nitrogen	Not available.	7727-37-9	0 - 3
Carbon dioxide	Not available.	124-38-9	0 - 3
Helium	Not available.	7440-59-7	0 - 3

Section 4: FIRST-AID MEASURES

Inhalation:

If inhaled: Call a poison center or doctor if you feel unwell.

Acute and delayed symptoms and effects: May displace oxygen and cause rapid suffocation. Central nervous system depression can occur if product is present in concentrations that will reduce the oxygen content of air below 18 % (vol). Symptoms may include headache, lightheadedness, drowsiness, disorientation, vomiting and seizures. Unconsciousness and death may occur with severe oxygen deprivation. May cause respiratory irritation. Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

Eye Contact:

If in eyes: Rinse cautiously with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center or doctor.

Acute and delayed symptoms and effects: Contact with rapidly expanding or liquefied gas may cause irritation and/or frostbite. The pain after contact with liquid can quickly subside. Permanent eye damage or blindness could result.

Skin Contact:

Contact with rapidly expanding or liquefied gas may cause irritation and/or frostbite. If on skin: Wash with plenty of water. Get immediate medical advice/attention. Thaw frosted parts with lukewarm water. Do not rub affected area. Remove non-adhering contaminated clothing. Do not remove adherent material or clothing.

Acute and delayed symptoms and effects: Contact with rapidly expanding or liquefied gas may cause irritation and/or frostbite. Symptoms of frostbite include change in skin color to white or grayish-yellow. The pain after contact with liquid can quickly subside.

Ingestion:

Not a normal route of exposure.

General Advice:

Acute and delayed symptoms and effects: Not a normal route of exposure. In case of accident or if you feel unwell, seek medical advice immediately (show the label or SDS where possible).

Note to Physicians: Symptoms may not appear immediately.

Section 5: FIRE-FIGHTING MEASURES

FLAMMABILITY AND EXPLOSION INFORMATION

Extremely flammable gas. Contains gas under pressure; may explode if heated. Will be easily ignited by heat, sparks or flames. Will form explosive mixtures with air. Vapors from liquefied gas are initially heavier than air and spread along ground. Methane is lighter than air and will rise. Vapors may travel to source of ignition and flash back. Cylinders exposed to fire may vent and release flammable gas through pressure relief devices. Containers may explode when heated. Ruptured cylinders may rocket. DO NOT EXTINGUISH A LEAKING GAS FIRE UNLESS LEAK CAN BE STOPPED.

If tank, rail car or tank truck is involved in a fire, ISOLATE for 1600 meters (1 mile) in all directions; also, consider initial evacuation for 1600 meters (1 mile) in all directions.

Fire involving Tanks: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Cool containers with flooding quantities of water until well after fire is out. Do not direct water at source of leak or safety devices; icing may occur. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. ALWAYS stay away from tanks engulfed in fire. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

Sensitivity to Mechanical Impact: This material is not sensitive to mechanical impact.
Sensitivity to Static Discharge: This material is sensitive to static discharge.

MEANS OF EXTINCTION

Suitable Extinguishing Media: Small Fire: Dry chemical or CO2.

Large Fire: Water spray or fog. Move containers from fire area if you can do it without risk.

Unsuitable Extinguishing Media: Not available.

Products of Combustion: Oxides of carbon.

Protection of Firefighters: Leaking gas fire: Do not extinguish, unless leak can be stopped safely. In case of leakage, eliminate all ignition sources. Vapors may cause dizziness or asphyxiation without warning. Contact with gas or liquefied gas may cause burns, severe injury and/or frostbite. Fire may produce irritating and/or toxic gases. Wear positive pressure self-contained breathing apparatus (SCBA). Structural firefighters' protective clothing will only provide limited protection. Always wear thermal protective clothing when handling refrigerated/cryogenic liquids.

Section 6: ACCIDENTAL RELEASE MEASURES

Emergency Procedures: As an immediate precautionary measure, isolate spill or leak area for at least 100 meters (330 feet) in all directions. Keep unauthorized personnel away. Stay upwind. Many gases are heavier than air and will spread along ground and collect in low or confined areas (sewers, basements, tanks). Keep out of low

	areas. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). All equipment used when handling the product must be grounded.
Personal Precautions:	Do not touch or walk through spilled material. Use personal protection recommended in Section 8.
Environmental Precautions:	Not normally required.
Methods for Containment:	Stop leak if you can do it without risk. If possible, turn leaking containers so that gas escapes rather than liquid. Use water spray to reduce vapors or divert vapor cloud drift. Avoid allowing water runoff to contact spilled material. Do not direct water at spill or source of leak.
Methods for Clean-Up:	Prevent spreading of vapors through sewers, ventilation systems and confined areas. Isolate area until gas has dispersed.
Other Information:	See Section 13 for disposal considerations.

Section 7: HANDLING AND STORAGE

Handling:
Avoid breathing gas. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Do not pierce or burn, even after use. See Section 8 for information on Personal Protective Equipment.

Storage:
Store in a well-ventilated place. Protect from sunlight. Store away from incompatible materials. See Section 10 for information on Incompatible Materials. Keep out of the reach of children.

Section 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Guidelines
Component

Natural gas [CAS No. 8006-14-2]
ACGIH: Simple asphyxiant; Explosion hazard
OSHA: No PEL established.

Methane [CAS No. 74-82-8]
ACGIH: Simple asphyxiant; Explosion hazard
OSHA: No PEL established.

Ethane [CAS No. 74-84-0]
ACGIH: Simple asphyxiant; Explosion hazard
OSHA: No PEL established.

Propane [CAS No. 74-98-6]
ACGIH: Simple asphyxiant; Explosion hazard
OSHA: 1000 ppm (TWA), 1800 mg/m³ (TWA);

Butane [CAS No. 106-97-8]

ACGIH: 1000 ppm (STEL); Explosion hazard (2012)
OSHA: 800 ppm (TWA) [Vacated];

Isobutane [CAS No. 75-28-5]

ACGIH: 1000 ppm (STEL); Explosion hazard (2012)
OSHA: No PEL established.

Pentane [CAS No. 109-66-0]

ACGIH: 1000 ppm (TWA); (2013)
OSHA: 1000 ppm (TWA), 2950 mg/m³ (TWA);
600 ppm (TWA); 750 ppm (STEL) [Vacated];

Isopentane [CAS No. 78-78-4]

ACGIH: 1000 ppm (TWA); (2013)
OSHA: No PEL established.

Nitrogen [CAS No. 7727-37-9]

ACGIH: Simple asphyxiant
OSHA: No PEL established.

Carbon dioxide [CAS No. 124-38-9]

ACGIH: 5000 ppm (TWA); 30000 ppm (STEL); (1983)
OSHA: 5000 ppm (TWA), 9000 mg/m³ (TWA);

Helium [CAS No. 7440-59-7]

ACGIH: Simple asphyxiant
OSHA: No PEL established.

PEL: Permissible Exposure Limit
TLV: Threshold Limit Value
TWA: Time-Weighted Average
STEL: Short-Term Exposure Limit

Engineering Controls: Use ventilation adequate to keep exposures (airborne levels of dust, fume, vapour, gas, etc.) below recommended exposure limits.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Eye/Face Protection: Wear safety glasses. Use equipment for eye protection that meets the standards referenced by CSA Standard CAN/CSA-Z94.3:20 and OSHA regulations in 29 CFR 1910.133 for Personal Protective Equipment.

Hand Protection: Wear protective gloves. Wear cold insulating gloves. Consult manufacturer specifications for further information.

Skin and Body Protection: Wear protective clothing. Flame resistant clothing that meets

	the NFPA 2112 and CAN/CGSB 155.20-2017 standards is recommended in areas where material is stored or handled.
Respiratory Protection:	If engineering controls and ventilation are not sufficient to control exposure to below the allowable limits then an appropriate NIOSH/MSHA approved air-purifying respirator that meets the requirements of CSA Standard CAN/CSA-Z94.4-18, or self-contained breathing apparatus must be used. Supplied air breathing apparatus must be used when oxygen concentrations are low or if airborne concentrations exceed the limits of the air-purifying respirators.
General Hygiene Considerations:	Handle according to established industrial hygiene and safety practices. Consult a competent industrial hygienist to determine hazard potential and/or the PPE manufacturers to ensure adequate protection.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Colourless gas.
Colour:	Colourless.
Odour:	Slight hydrocarbon odour not detectable by all people.
Odour Threshold:	Not available.
Physical State:	Gas.
pH:	Not available.
Melting Point / Freezing Point:	-187 to -182 °C (-304.6 to -295.6 °F)
Initial Boiling Point:	Not available.
Boiling Range:	-162 °C (-259.6 °F)
Flash Point:	Not available.
Evaporation Rate:	> 1 (n-BuAc = 1) at 20 °C (68 °F)
Flammability (solid, gas):	Extremely flammable gas.
Lower Flammability Limit:	4.4 % (Natural Gas) 5% (Methane) 3% (Ethane) 2.1% (Propane) 1.8% (Butane & Isobutane)
Upper Flammability Limit:	16.4 % (Natural Gas) 15% (Methane) 12.5% (Ethane) 9.5% (Propane) 8.4% (Butane & Isobutane)
Vapor Pressure:	> 1000 mmHg at 20 °C (68 °F)

Vapor Density:	0.6 (Air = 1) at 20 °C (68 °F) (Methane)
Relative Density:	Not available.
Solubilities:	Negligible solubility in water.
Partition Coefficient: n-Octanol/Water:	Not available.
Auto-ignition Temperature:	537 °C (998.6 °F)
Decomposition Temperature:	Not available.
Viscosity:	Not available.
Percent Volatile, wt. %:	100
VOC content, wt. %:	Not available.
Density:	Not available.
Coefficient of Water/Oil Distribution:	Not available.

Section 10: STABILITY AND REACTIVITY

Reactivity:	Contact with incompatible materials. Sources of ignition. Exposure to heat.
Chemical Stability:	Stable under normal storage conditions.
Possibility of Hazardous Reactions:	None known.
Conditions to Avoid:	Contact with incompatible materials. Sources of ignition. Exposure to heat.
Incompatible Materials:	Strong oxidizers.

Hazardous Decomposition Products: Not available.

Section 11: TOXICOLOGICAL INFORMATION

EFFECTS OF ACUTE EXPOSURE

Product Toxicity

Oral: Not available.

Dermal: Not available.

Inhalation: Not available.

Component Toxicity

Component	CAS No.	LD_{50} oral	LD_{50} dermal	LC_{50}
Natural gas	8006-14-2	Not available.	Not available.	Not available.
Methane	74-82-8	Not available.	Not available.	Not available.
Ethane	74-84-0	Not available.	Not available.	Not available.
Propane	74-98-6	Not available.	Not available.	Not available.
Butane	106-97-8	Not available.	Not available.	658000 mg/m³ (rat); 4H
Isobutane	75-28-5	Not available.	Not available.	570000 ppm (rat); 15M

Pentane	109-66-0	400 mg/kg (rat)	Not available.	364000 mg/m³ (rat); 4H
Isopentane	78-78-4	Not available.	Not available.	Not available.
Nitrogen	7727-37-9	Not available.	Not available.	Not available.
Carbon dioxide	124-38-9	Not available.	Not available.	Not available.
Helium	7440-59-7	Not available.	Not available.	Not available.

Likely Routes of Exposure: Eye contact. Skin contact. Inhalation.

Target Organs: Skin. Eyes. Respiratory system. Cardiovascular system. Bone marrow. Liver. Kidneys. Central nervous system.

Symptoms (including delayed and immediate effects)

Inhalation: May displace oxygen and cause rapid suffocation. Central nervous system depression can occur if product is present in concentrations that will reduce the oxygen content of air below 18 % (vol). Symptoms may include headache, lightheadedness, drowsiness, disorientation, vomiting and seizures. Unconsciousness and death may occur with severe oxygen deprivation. May cause respiratory irritation. Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

Eye: Contact with rapidly expanding or liquefied gas may cause irritation and/or frostbite. The pain after contact with liquid can quickly subside. Permanent eye damage or blindness could result.

Skin: Contact with rapidly expanding or liquefied gas may cause irritation and/or frostbite. Symptoms of frostbite include change in skin color to white or grayish-yellow. The pain after contact with liquid can quickly subside.

Ingestion: Not a normal route of exposure.

Skin Sensitization: Not available.

Respiratory Sensitization: Not available.

Medical Conditions Aggravated By Exposure: Not available.

EFFECTS OF CHRONIC EXPOSURE (from short and long-term exposure)

Target Organs: Skin. Eyes. Respiratory system. Cardiovascular system. Bone marrow. Liver. Kidneys. Central nervous system.

Chronic Effects: Prolonged exposure to Natural gas can lead to hypoxia, bluish colouration to the skin, numbness, damage to the nervous system, heart sensitization, reduced consciousness and death. Prolonged or repeated inhalation of Isopentane may cause dizziness, weakness, weight loss, anemia, nervousness, pains in the limbs and peripheral numbness.

Carcinogenicity: This product does not contain any carcinogens or potential carcinogens above reportable thresholds as listed by ACGIH, IARC, OSHA, or NTP.

Mutagenicity: Not available.

Reproductive Effects: Not available.

Developmental Effects

Teratogenicity: Not available.

Embryotoxicity: Not available.

Toxicologically Synergistic Materials: Not available.

Section 12: ECOLOGICAL INFORMATION

Ecotoxicity: Not available.

Persistence / Degradability: Not available.

Bioaccumulation / Accumulation: Not available.

Mobility in Environment: Not available.

Other Adverse Effects: Not available.

Section 13: DISPOSAL CONSIDERATIONS

Disposal Instructions: Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

Section 14: TRANSPORT INFORMATION

U.S. Department of Transportation (DOT)

Proper Shipping Name: UN1971, NATURAL GAS, COMPRESSED, 2.1

Class: 2.1

UN Number: UN1971

Packing Group: Not applicable.

Label Code:

Canada Transportation of Dangerous Goods (TDG)

Proper Shipping Name: UN1971, NATURAL GAS, COMPRESSED, 2.1

Class: 2.1

UN Number: UN1971

Packing Group: Not applicable.

Label Code:

Section 15: REGULATORY INFORMATION

Chemical Inventories

US (TSCA)

The components of this product are in compliance with the chemical notification requirements of TSCA.

Canada (DSL)
The components of this product are in compliance with the chemical notification requirements of the NSN Regulations under CEPA, 1999.

Federal Regulations

United States
This SDS has been prepared to meet the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200.

SARA Title III

Component	Section 302 (EHS) TPQ (lbs.)	Section 304 EHS RQ (lbs.)	CERCLA RQ (lbs.)	Section 313	RCRA CODE	CAA 112(r) TQ (lbs.)
Methane	Not listed.	Not listed.	Not listed.	Not listed.	Not listed.	10000
Ethane	Not listed.	Not listed.	Not listed.	Not listed.	Not listed.	10000
Propane	Not listed.	Not listed.	Not listed.	Not listed.	Not listed.	10000
Butane	Not listed.	Not listed.	Not listed.	Not listed.	Not listed.	10000
Isobutane	Not listed.	Not listed.	Not listed.	Not listed.	Not listed.	10000
Pentane	Not listed.	Not listed.	Not listed.	Not listed.	Not listed.	10000
Isopentane	Not listed.	Not listed.	Not listed.	Not listed.	Not listed.	10000

State Regulations
Massachusetts
US Massachusetts Commonwealth's Right-to-Know Law (Appendix A to 105 Code of Massachusetts Regulations Section 670.000)

Component	CAS No.	RTK List
Natural gas	8006-14-2	Listed.
Methane	74-82-8	Listed.
Ethane	74-84-0	Listed.
Propane	74-98-6	Listed.
Butane	106-97-8	Listed.
Isobutane	75-28-5	Listed.
Pentane	109-66-0	Listed.
Isopentane	78-78-4	Listed.
Nitrogen	7727-37-9	Listed.
Carbon dioxide	124-38-9	Listed.
Helium	7440-59-7	Listed.

Note: E = Extraordinarily Hazardous Substance

New Jersey
US New Jersey Worker and Community Right-to-Know Act (New Jersey Statute Annotated Section 34:5A-5)

Component	CAS No.	RTK List
Methane	74-82-8	SHHS
Ethane	74-84-0	SHHS
Propane	74-98-6	SHHS
Butane	106-97-8	SHHS
Isobutane	75-28-5	SHHS
Pentane	109-66-0	SHHS

Isopentane	78-78-4	SHHS
Nitrogen	7727-37-9	Listed.
Carbon dioxide	124-38-9	Listed.
Helium	7440-59-7	Listed.

Note: SHHS = Special Health Hazard Substance

Pennsylvania

US Pennsylvania Worker and Community Right-to-Know Law (34 Pa. Code Chap. 301-323)

Component	CAS No.	RTK List
Natural gas	8006-14-2	Listed.
Methane	74-82-8	Listed.
Ethane	74-84-0	Listed.
Propane	74-98-6	Listed.
Butane	106-97-8	Listed.
Isobutane	75-28-5	Listed.
Pentane	109-66-0	Listed.
Isopentane	78-78-4	Listed.
Nitrogen	7727-37-9	Listed.
Carbon dioxide	124-38-9	Listed.
Helium	7440-59-7	Listed.

California

California Prop 65: This product does not contain chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

Section 16: OTHER INFORMATION

Disclaimer:

The information contained in this document applies to this specific material as supplied. It may not be valid for this material if it is used in combination with any other materials. It is the user's responsibility to satisfy oneself as to the suitability and completeness of this information for their own particular use.

Date of Preparation of SDS: March 8, 2022

Version: 2.1

GHS SDS Prepared by: [redacted]

1. IDENTIFICATION

Product Identifier: Diesel Fuel

Synonyms: Diesel Fuel, Motor Vehicle Diesel Fuel, Dyed Diesel, * DieselOne®, * DieselOne® w/Platinum Plus DFX, Low Sulfur Diesel (LSD), Ultra Low Sulfur Diesel (ULSD)

Intended use of the product: Fuel

Contact:
Global Companies LLC
Water Mill Center
800 South St.
Waltham, MA 02454-9161
www.globalp.com

Contact Information: EMERGENCY TELEPHONE NUMBER (24 hrs): CHEMTREC (800) 424-9300
COMPANY CONTACT (business hours): 800-542-0778

2. HAZARD IDENTIFICATION

According to OSHA 29 CFR 1910.1200 HCS

Classification of the Substance or Mixture

Classification (GHS-US):

Flam. Liquid	Category 3	H226
Skin Corrosion/Irritation	Category 2	H315
Aspiration Hazard	Category 1	H304
STOT SE	Category 3	H336
Carcinogenicity	Category 2	H350
Aquatic Chronic	Category 2	H411
Serious Eye Damage/ Irritation	Category 2B	H319

Labeling Elements

Signal Word (GHS-US): **Danger**

Hazard Statements (GHS-US):
H226 – Flammable liquid and vapor.
H315 – Causes Skin irritation.
H304 – May be fatal if swallowed and enters airways.
H336 – May cause drowsiness or dizziness.
H350 – May cause cancer.
H411 – Toxic to aquatic life with long lasting effects.
H319 – May cause eye damage/irritation.

Precautionary Statements (GHS-US):
P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P233 - Keep container tightly closed.
P240 – Ground/bond container and receiving equipment.

P241 – Use explosion-proof electrical/ventilating/lighting equipment pursuant to applicable electrical code.
P242 – Use only non-sparking tools.
P243 – Take precautionary measures against static discharge.
P261 – Avoid breathing dust/fume/gas/mist/vapors/spray.
P264 – Wash skin thoroughly after handling.
P271 – Use only outdoors or in a well-ventilated area.
P273 – Avoid release to the environment.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P303+361+353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse with water/shower.
P308+311 - If exposed or concerned: Get medical advice/attention.
P301+310 - If swallowed: Immediately call a poison center/doctor/…
P331 - Do NOT induce vomiting.
P370+P378 – In case of fire use firefighting foam or other appropriate media for Class B fires to extinguish.
P403+235 - Store in a well-ventilated place. Keep cool.
P405 - Store locked up.
P501 – Dispose of contents/container in accordance with local/regional/national/international regulation.

Other information:

NFPA 704
Health: 1
Fire: 2
Reactivity: 0

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Composition Information
Mixture

Name	Product Identifier (CAS#)	% (w/w)	Classification
Diesel Fuel	68476-34-6	100	Flam Liq. 3, H226; Skin Irrit. 2, H315; Aspiration 1, H304; STOT SE 3, H336; Carc.2. H350; Aquatic chronic 2, H411
Naphthalene	91-20-3	<0.1	Carc. 2, H351; Acute Tox. 4, H302; Aquatic Acute 1, H400; Aquatic Chronic 1, H410

Additional Formulation Information:
Diesel Fuel consists of C9+ hydrocarbons resulting from distillation of crude oil.

Low Sulfur Diesel Fuel typically contains less than 500 ppm of sulfur

Ultra Low Sulfur Diesel Fuel typically contains less than 15 ppm of sulfur

4. FIRST AID MEASURES

Route	Measures
Inhalation	Remove person to fresh air. If person is not breathing, ensure an open airway and provide artificial respiration. If necessary, provide additional oxygen once breathing is restored if trained to do so. Seek medical attention immediately.

Route	Measures
Ingestion	Aspiration Hazard: DO NOT INDUCE VOMITING. Do not give liquids. Obtain immediate medical attention. If spontaneous vomiting occurs, lean victim forward to reduce the risk of aspiration. Ingestion may cause gastrointestinal disturbances including irritation, nausea, vomiting, and diarrhea, and central nervous system (brain) effects similar to alcohol intoxication. In severe cases, tremors, convulsions, loss of consciousness, coma, respiratory failure, and death.
Eye Contact	In case of contact with eyes, immediately flush with clean, low-pressure water for at least 15 min. Hold eyelids open to ensure adequate flushing. Seek medical attention. In case of contact lenses, remove immediately.
Skin Contact	Remove contaminated clothing and shoes. Wash contaminated areas thoroughly with soap and water or waterless hand cleanser. Obtain medical attention if irritation or redness develops. Thermal burns require immediate medical attention depending on the severity and of the area of the body burned.

Most Important Symptoms
Contact with eyes and face may cause irritation. Long-term exposure may cause dermatitis (itching, irritation, pain and swelling).

Inhalation may cause irritation and significant or long term exposure could cause respiratory insufficiency and pulmonary edema.

Ingestion may cause aspiration, gastrointestinal disturbance, and CNS effects.

Immediate Medical Attention and Special Treatment
For contact with skin or eyes, immediately wash or flush contaminated eyes with gently flowing water. If possible, irrigate each eye continuously with 0.9% saline (NS). If ingested, rinse mouth. Do NOT induce vomiting, as this may cause chemical pneumonia (fluid in the lungs).

If inhaled, administer oxygen or establish a patent airway if breathing is labored. Suction if necessary. Monitor closely, anticipate seizures. Consider orotracheal or nostracheal intubation of airway control if patient is unconscious or is in severe respiratory distress.

Discard any clothing or shoes contaminated as they may be flammable.

5. FIRE-FIGHTING MEASURES

Extinguishing Media
Foam, carbon dioxide, dry chemical are most suitable

SMALL FIRES: Any extinguisher suitable for Class B fires, dry chemical, C02, water spray, firefighting foam, or Halon. Small fires in the incipient (beginning) stage may typically be extinguished using handheld portable fire extinguishers and other firefighting equipment.

LARGE FIRES: Foam, carbon dioxide, dry chemical. Water may be ineffective for fighting the fire, but may be used to cool fire-exposed containers.

Specific Hazards / Products of Combustion
Moderate fire hazard when exposed to heat or flame with a very low flash point. Product is flammable and easily ignited when exposed to heat, spark, open flame or other source of ignition. Flowing product may be ignited by self-generated static electricity. When mixed with air and exposed to an ignition source, flammable vapors can burn in the open or explode in confined spaces. Being heavier than air, vapors may travel long distances to an ignition source and flash back. Runoff to sewer may cause fire or explosion hazard.

Combustion may produce smoke, carbon monoxide and other products of incomplete combustion.

Special Precautions and Protective Equipment for Firefighters
Isolate area around container involved in fire. Cool tanks, shells, and containers exposed to fire and excessive heat with water. For massive fires the use of unmanned hose holders or monitor nozzles may be advantageous to further minimize personnel exposure. Major fires may require withdrawal, allowing the tank to burn. Large storage tank fires typically require specially trained personnel and equipment to extinguish the fire, often including the need for properly applied firefighting foam.

Fighting Equipment/Instructions
Firefighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion should require NIOSH- approved pressure-demand self-contained breathing apparatus with full face piece and protective clothing.

Refer to Section 9 for fire properties of this chemical including flash point, auto ignition temperature, and explosive limits.

6. ACCIDENTAL RELEASE MEASURES

ACTIVATE FACILITY SPCC, SPILL CONTINGENCY or EMERGENCY PLAN.

Personal Precautions
Due to high vapor density, flammable / toxic vapors may be present in low lying areas, dikes, pits, drains, or trenches. Vapors may accumulate in low lying areas and reach ignitable concentrations. Ventilate the area. Use of non-sparking tools and intrinsically safe equipment is recommended. Potential for flammable atmosphere should be monitored using a combustible gas indicator positioned downwind of the spill area. Refer to Sections 2 and 7 for further hazard warnings and handling instructions.

Use appropriate personal protective equipment to prevent eye/skin contact and absorption. Use NIOSH approved respiratory protection, if warranted, to prevent exposures above permissible limits. Refer to Section 8. Contaminated clothing should not be near sources of ignition.

Emergency Measures
As an immediate precautionary measure, isolate spill or leak area for at least 50 meters (150 feet) in all directions. Consider wind direction. Secure all ignition sources (flame, spark, hot work, hot metal, etc.) from area. Evaluate the direction of product travel, diking sewers, etc. to confirm spill areas. Do not touch or walk-through spilled material. For large spills, isolate initial action distance downwind 1,000 ft. (300 m).

Environmental Precautions
Stop the spill to prevent environmental release if it can be done safely. Product is toxic to aquatic life. Take action to isolate environmental receptors including drains, storm sewers and natural water bodies. Keep on impervious surface if at all possible. Use water sparingly to prevent product from spreading. Foam and absorbents may be used to reduce / prevent airborne release.

Spills may infiltrate subsurface soil and groundwater; professional assistance may be necessary to determine the extent of subsurface impact.

Follow federal, state or local requirements for reporting environmental release where necessary. Refer to Section 15 for further information.

Containment and Clean-Up Methods
Carefully contain and stop the source of the spill, if safe to do so. Protect bodies of water by diking absorbents, or absorbent boom, if possible. Do not flush down sewer or drainage systems, unless system is designed and permitted to handle such material. The use of firefighting foam may be useful in certain situations to reduce vapors. The proper use of water spray may effectively disperse product vapors or the liquid itself, preventing contact with ignition sources or areas/equipment that require protection.

Take up with dry earth, sand or other non-combustible, inert oil absorbing materials. Carefully shovel, scoop or sweep up into a waste container with clean, non-sparking tools for reclamation or disposal. Response and cleanup crews must be properly trained and must utilize proper protective equipment. Refer to Section 8 for appropriate protective equipment.

7. HANDLING AND STORAGE

USE ONLY AS A FUEL.
DO NOT SIPHON BY MOUTH.

Handling Precautions
Handle as a flammable liquid. Keep away from heat, sparks, and open flame. No smoking. Electrical equipment should be approved for classified area. Bond and ground containers during product transfer pursuant to NFPA 70 and API RP 2003 to reduce the possibility of static-initiated fire or explosion. Follow precautions to prevent static initiated fire.

Use good personal hygiene practices. Use only with protective equipment specified in Section 8. Avoid repeated and/or prolonged skin exposure. Use only outdoors or in well ventilated areas. Wash hands before eating, drinking, smoking, or using toilet facilities. Do not use as a cleaning solvent on the skin. Do not use solvents or harsh abrasive skin cleaners for washing this

product from exposed skin areas. Waterless hand cleaners are effective. Promptly remove contaminated clothing and launder before reuse. Use care when laundering to prevent the formation of flammable vapors which could ignite via washer or dryer. Consider the need to discard contaminated leather shoes and gloves. Emergency eye wash capability should be available in the near proximity to operations presenting a potential splash exposure.

Special slow load procedures for "switch loading" must be followed to avoid the static ignition hazard that can exist when higher flash point material (such as fuel oil) is loaded into tanks previously containing low flash point products (such as this product) - see API RP 2003, "Protection Against Ignitions Arising Out Of Static, Lightning and Stray Currents."

Storage

Large quantities of diesel fuel are stored in tanks or portable containers at an ambient storage temperature. Separate from incompatible chemicals (Refer to Section 10) by distance or secondary containment. Keep away from flame, sparks, excessive temperatures and open flame. Use approved vented containers that are clearly labeled. Label all secondary containers that this material is transferred into with the chemical name and associated hazard(s). Empty product containers or vessels may contain flammable vapors. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition.

Storage tanks should have a venting system. If stored in small containers, the area should be well ventilated, away from ignition sources and protected from potential damage or vehicular traffic. Post “No Smoking” signs in product storage areas. This storage area should comply with NFPA 30 “Flammable and Combustible Liquid Code” or applicable building code. The cleaning of tanks previously containing this product should follow API Recommended Practice (RP) 2013 “Cleaning Mobile Tanks in Flammable and Combustible Liquid Service” and API RP 2015 “Safe Entry and Cleaning of Petroleum Storage Tanks”.

Incompatibles

Keep away from strong oxidizers, ignition sources and heat.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Occupational Exposure Limits

Component	CAS #	List	Value
Diesel Fuel	68476-34-6	ACGIH TLV-TWA	100 mg/m3*
Naphthalene	91-20-3	ACGIH TLV-TWA OSHA PEL ACGIH STEL	10 ppm 10 ppm 15 ppm

*Critical effects; Skin; A3; CNS impairment.

Engineering Controls

Use adequate ventilation to keep vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces. Intrinsically safe equipment and non-sparking tools shall be used in circumstances where concentrations may exceed lower flammable limits. Grounding and bonding shall be used to prevent accumulation and discharge of static electricity. Emergency shower and eyewash should be provided in proximity to handling areas in the event of exposure to decontaminate.

Personal Protective Equipment

Exposure	Equipment
Eye / Face	Wear appropriate chemical protective glasses or goggles or face shields to prevent skin and eye contact especially caused from splashing.
Skin	Wear appropriate personal protective clothing to prevent skin contact. Gloves constructed of nitrile, neoprene or PVC are recommended when handling this material. Chemical protective clothing such as of E.I. DuPont TyChem®, Saranex® or equivalent recommended based on degree of exposure. Note: The resistance of specific material may vary from product to product as well as with degree of exposure.

Exposure	Equipment
Respiratory	A NIOSH/MSHA-approved air-purifying respirator with organic vapor cartridges or canister may be permissible under certain circumstances where airborne concentrations are or may be expected to exceed exposure limits or for odor or irritation. Protection provided by air-purifying respirators is limited. Refer to OSHA 29 CFR 1910.134, ANSI Z88.2-1992, NIOSH Respirator Decision Logic, and the manufacturer for additional guidance on respiratory protection selection and limitations. Use a positive pressure, air-supplied respirator if there is a potential for uncontrolled release, exposure levels are not known, in oxygen-deficient atmospheres, or any other circumstance where an air-purifying respirator may not provide adequate protection.
Thermal	Product is stored at ambient temperature. No thermal protection is required except for emergency operations involving actual or potential for fire. Use adequate ventilation to keep vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces.

9. PHYSICAL AND CHEMICAL PROPERTIES

Property	Value	
Appearance	Clear or straw-colored liquid. May be dyed red for distribution.	
Odor	Mild characteristic petroleum distillate odor.	
Odor Threshold	<1 ppm	
pH	Not available	
Melting Point	-22 to -0.4 ˚F (-30 to -18 ˚C)	
Boiling Point Range	320 to 690 ˚F (160 to 366 ˚C)	
Flash Point	> 125.6 ˚F (52 ˚C) PMCC	
Evaporation Rate	Slow, varies with conditions	
Flammability	Flammable liquid (OSHA defined)	
Flammable Limits	0.6 % - 6.5%	
Vapor Pressure	0.009 psia @ 70 ˚F	
Vapor Density	> 1	(air=1)
Specific Gravity	0.83-0.86 @ 60 ˚F (16 ˚C)	(water=1)
Solubility	Insoluble in water; miscible with other petroleum solvents.	
Partition Coefficient (N-octanol/water)	Log Kow range of 3.3 to >.6.0	
Autoignition Temperature	494 ˚F (257 ˚C)	
Decomposition Temperature	When heated it emits acrid smoke and irritating vapors.	
Viscosity	<3 cSt	
Percent Volatiles	100	

10. STABILITY AND REACTIVITY

Stability
This is a stable material that is flammable liquid (OSHA/GHS hazard category 3). Stable during transport.

Reactivity
Material is not self-reacting. Flammable concentrations may be present in air. Compound can react with oxidizing materials.

Possibility of Hazardous Reactions
Hazardous polymerization will not occur.

Incompatibility
Keep away from strong oxidizers such as nitric and sulfuric acids.

Conditions to Avoid
Avoid high temperatures, open flames, sparks, static electricity, welding, smoking and other ignition sources.

Hazardous Decomposition Products
Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke).

11. TOXICOLOGICAL INFORMATION

Acute Toxicity:
Acute Toxicity (Inhalation LC50)
Diesel Fuel (68476-34-6)
LC50 Inhalation Rat >6 mg/l/4h

Acute Toxicity (Dermal LD50)
Diesel Fuel (68476-34-6)
LD50 Dermal Rabbit >5000 mg/kg

Acute Toxicity (Oral LD50)
Diesel Fuel (68476-34-6)
LD50 Oral Rabbit >5000 mg/kg

Skin Corrosion/Irritation: Prolonged and repeated contact may cause skin irritation leading to dermatitis. Liquid may be absorbed through the skin in toxic amounts if large areas of skin are exposed repeatedly.

Serious Eye Damage/Irritation: Causes serious eye irritation.

Respiratory or Skin Sensitization: Not classified

Germ Cell Mutagenicity: Not classified

Teratogenicity: Not available

Carcinogenicity: OSHA: NO, IARC: Group 3, NTP: NO, ACGIH: NOIC:A3, NIOSH: NO

IARC: Group 3 – Not classifiable as to their carcinogenicity to humans ACGIH: A3 – Confirmed animal carcinogen with unknown relevance to humans

Studies have shown that similar products produce skin tumors in laboratory animals following repeated applications without washing or removal. The significance of this finding to human exposure has not been determined. Other studies with active skin carcinogens have shown that washing the animal's skin with soap and water between applications reduced tumor formation.

IARC classifies whole diesel fuel exhaust particulates (byproduct of combustion of this material) carcinogenic to humans (Group 1) and NIOSH regards diesel fuel exhaust particulate as a potential occupational carcinogen.

Reproductive Toxicity: Not classified

Specific Target Organ Toxicity (Repeated Exposure): Not classified

Specific Target Organ Toxicity (Single Exposure): Inhalation exposure may cause drowsiness or dizziness by inhalation exposure.

Aspiration Hazard: The major health threat of ingestion occurs from the danger of aspiration (breathing) of liquid drops into the lungs, particularly from vomiting. Aspiration may result in chemical pneumonia (fluid in the lungs), severe lung damage, respiratory failure and even death.

Potential Health Effects: Vapor irritating to skin, eyes, nose, and throat. Ingestion may cause gastrointestinal disturbances, including irritation, nausea, vomiting and diarrhea, and central nervous system (brain) effects similar to alcohol intoxication. In severe cases, tremors, convulsions, loss of consciousness, coma, respiratory arrest, and death may occur.

WARNING: The burning of any hydrocarbon as a fuel in an area without adequate ventilation may result in hazardous levels of

combustion products, including carbon monoxide, and inadequate oxygen levels, which may cause unconsciousness, suffocation, and death.

12. ECOLOGICAL INFORMATION

Toxicity:
This material is expected to be toxic to aquatic organisms and may cause long-term adverse effects in the aquatic environment.

Data for Component: Diesel Fuel (68476-34-6)

Material is toxic to aquatic organisms based on an acute basis (LC50/EC50 >1 but ≤ 10 mg/L in the most sensitive species tested).

Material is a long-term aquatic hazard based on a chronic basis (LC50/EC50 >1 but ≤ 10 mg/L in the most sensitive species tested).

Persistence and Degradation: This material is not expected to be readily biodegradable.

Bioaccumulative Potential: Not available

Mobility in Soil: Not available

Other Adverse Effects: None known

Other Information: Avoid release to the environment.

13. DISPOSAL CONSIDERATIONS

Consult federal, state and local waste regulations to determine appropriate disposal options. May be considered a hazardous waste if disposed. Direct solid waste (landfill) or incineration at a solid waste facility is not permissible. Do not discharge to sanitary or storm sewer. Personnel handling waste containers should follow precautions provided in this document.

Shipping containers must be DOT authorized packages. Follow licensure and regulations for transport of hazardous material and hazardous waste as applicable.

14. TRANSPORT INFORMATION

US DOT

UN Identification Number	NA 1993
Proper Shipping Name	Diesel fuel
Hazard Class and Packing Group	3, PGIII
Shipping Label	Flammable liquid
Placard / Bulk Package	Flammable liquid, 1993
Emergency Response Guidebook Guide Number	128

This product may be re-classified as a “Combustible Liquid” meeting the definition in 49 CFR 173.120 unless transported by vessel or aircraft.
Specific placard requirements must be met for shipments of this product as a Combustible Liquid by rail (See 49 CFR 172.332).
Non-bulk packages (<= 119 gal) of Combustible Liquids in package sizes less than the product reportable quantity are not regulated as hazardous materials if the material does not meet any other hazard class.

IATA Information

UN Identification Number	UN 1202
Proper Shipping Name	Diesel fuel
Hazard Class and Packing Group	3, PGIII
ICAO Label	3
Packing Instructions Cargo	310
Max Quantity Per Package Cargo	220L
Packing Instructions Passenger	309Y
Max Quantity per Package Passenger	60L

ICAO

UN Identification Number	UN 1202
Shipping Name / Description	Diesel fuel
Hazard Class and Packing Group	3, PG III
IMDG Label	3

IMDG

UN Identification Number	UN 1202
Shipping Name / Description	Diesel fuel
Hazard Class and Packing Group	3, PGIII
IMDG Label	3
EmS Number	F-E-S-E
Marine Pollutant	Yes

15. REGULATORY INFORMATION

U.S. Federal, State, and Local Regulatory Information
Any spill or uncontrolled release of this product, including any substantial threat of release, may be subject to federal, state and/or local reporting requirements. This product and/or its constituents may also be subject to other federal, state, or local regulations; consult those regulations applicable to your facility/operation.

OSHA Hazard Communication Standard
This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning And Community Right-to-Know Act of 1986) Sections 311 and 312

Immediate (Acute) Health Hazard	Yes
Delayed (Chronic) Health Hazard	Yes
Fire Hazard	Yes
Reactive Hazard	No
Sudden Release of Pressure Hazard	No

Clean Water Act (Oil Spills)
Any spill or release of this product to “navigable waters” (Essentially any surface water, including certain wetlands) or adjoining shorelines sufficient to cause a visible sheen or deposit of a sludge or emulsion must be reported immediately to the National Response Center (1-800-424-8802) or, if not practical, the U.S. Coast Guard with follow up to the National Response Center, as required by U.S. Federal Law. Also contact appropriate state and local regulatory agencies as required.

CERCLA Section 103 and SARA Section 304 (Release to the Environment)
The CERCLA definition of hazardous substances contains a “petroleum exclusion” clause which exempts this material. This product does not contain any chemicals subject to the reporting requirements of CERCLA Section 103 or SARA 304.

SARA Section 313- Supplier Notification
This product does not contain any chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and of 40 CFR 372.

EPA Notification (Oil Spills)
If the there is a discharge of more than 1,000-gallons of oil into or upon navigable waters of the United States, or if it is the second spill event of 42 gallons or more of oil into water within a twelve (12) month period, a written report must be submitted to the Regional Administrator of the EPA within sixty days of the event.

Pennsylvania Right to Know Hazardous Substance list:
The following product components are cited in the Pennsylvania Special Hazardous Substance List, and are present at levels which require reporting.

Component	CAS	Amount
Diesel Fuel	68476-34-6	100%

New Jersey Right to Know Hazardous Substance list:
The following product components are cited in the New Jersey Right to Know Hazardous Substance List, and are present at levels which require reporting.

Component	CAS	Amount
Diesel Fuel	68476-34-6	100%

California Proposition 65 WARNING: This product contains chemicals known to the State of California to cause Cancer or Reproductive Toxicity.

Component	CAS	Amount
Naphthalene	91-20-3	<0.1%

U.S. Toxic Substances Control Act
All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements under 40 CFR 720.30.

CEPA - Domestic Substances List (DSL)
All substances contained in this product are listed on the Canadian Domestic Substances List (DSL) or are not required to be listed.

Canadian Regulatory Information (WHMIS)
Class B3 – Combustible Liquid
Class D2A – Materials causing other toxic effects. (Very Toxic)

16. OTHER INFORMATION

Version	5
Issue Date	June 26, 2019
Prior Issue Date	May 20, 2016

Description of Revisions
Update viscosity information in Section 9. Update transportation information in Section 14 to clarify US DOT re-classification option as a Combustible Liquid.

Abbreviations

˚F	Degrees Fahrenheit (temperature)
<	Less than
=	Equal to
>	Greater than
AP	Approximately
C	Centigrade (temperature)
kg	Kilogram
L	Liter
mg	Milligrams
mL	Milliliter
mm^2	Square millimeters
mmHg	Millimeters of mercury (pressure)
N/A	Not applicable
N/D	Not determined
ppm	Parts per million
sec	Second
ug	Micrograms

Acronyms

ACGIH	American Conference of Governmental Industrial Hygienists
AIHA	American Industrial Hygiene Association
AL	Action Level
ANSI	American National Standards Institute
API	American Petroleum Institute
CAS	Chemical Abstract Service
CERCLA	Comprehensive Emergency Response, Compensation, and Liability Act
DOT	U.S. Department of Transportation
EC50	Ecological concentration 50%
EPA	U.S. Environmental Protection Agency
ERPG	Emergency Response Planning Guideline
GHS	Global Harmonized System

HMIS	Hazardous Materials Information System
IARC	International Agency for Research On Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
Koc	Soil Organic Carbon
LC50	Lethal concentration 50%
LD50	Lethal dose 50%
MSHA	Mine Safety and Health Administration
NFPA	National Fire Protection Association
NIOSH	National Institute of Occupational Safety and Health
NOIC	Notice of Intended Change
NTP	National Toxicology Program
OPA	Oil Pollution Act of 1990
OSHA	U.S. Occupational Safety & Health Administration
PEL	Permissible Exposure Limit (OSHA)
RCRA	Resource Conservation and Recovery Act Reauthorization Act of 1986 Title III
REL	Recommended Exposure Limit (NIOSH)
RVP	Reid Vapor Pressure
SARA	Superfund Amendments and
SCBA	Self Contained Breathing Apparatus
SPCC	Spill Prevention, Control, and Countermeasures
STEL	Short Term Exposure Limit (generally 15 minutes)
TLV	Threshold Limit Value (ACGIH)
TSCA	Toxic Substances Control Act
TWA	Time Weighted Average (8 hr.)
UN	United Nations
UNECE	United Nations Economic Commission for Europe
WEEL	Workplace Environmental Exposure Level (AIHA)
WHMIS	Canadian Workplace Hazardous Materials Information System

Disclaimer of Expressed and Implied Warranties

Information presented herein has been compiled from sources considered to be dependable, and is accurate and reliable to the best of our knowledge and belief, but is not guaranteed to be so. Since conditions of use are beyond our control, we make no warranties, expressed or implied, except those that may be contained in our written contract of sale or acknowledgment.

Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, vendor assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material, even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in their use of the material.

** End of Safety Data Sheet **

Attachment I: Emission Units Table

Attachment I
Emission Units Table
(includes all emission units and air pollution control devices
that will be part of this permit application review, regardless of permitting status)

Emission Unit ID [1]	Emission Point ID [2]	Emission Unit Description	Year Installed/Modified	Design Capacity	Type[3] and Date of Change	Control Device [4]
BFB Boiler						
121-H-2001 121-S-5001 121-S-9901	121-PKG-3001	Wood Chip Fired Fluidized Bed Boiler Makeup Sand Silo Sodium Bicarbonate Storage Silo		**121-H-2001**: 180 MMBtu/hr during startup 944 MMBtu/hr during normal operation; **121-S-5001**: 50 tons/hr 1752 tons/yr; **121-S-9901**: 100 lbs/hr 4380 tons/yr	New	H2001-1C - Pulse Jet Fabric Filter H2001-2C - SCR H2001-3C - CO Oxidation Catalyst H2001-4C - Wet Flue Gas Desulfurization H2001-5C - Dry Sorbent Injection
121-H-2001 121-S-5001 121-S-9901	122-T-1001	Wood Chip Fired Fluidized Bed Boiler Makeup Sand Silo Sodium Bicarbonate Storage Silo		**121-H-2001**: 944 MMBtu/hr **121-S-5001**: 50 tons/hr 1752 tons/yr; **121-S-9901**: 100 lbs/hr 4380 tons/yr	New	H2001-1C - Pulse Jet Fabric Filter H2001-2C - SCR H2001-3C - CO Oxidation Catalyst H2001-4C - Wet Flue Gas Desulfurization H2001-5C - Dry Sorbent Injection

Emission Unit ID [1]	Emission Point ID [2]	Emission Unit Description	Year Installed/Modified	Design Capacity	Type[3] and Date of Change	Control Device [4]
Biomass Handling Process						
121-LS-1001	121-PKG-1001	Biomass Receiving Hopper 1001		212.13 tons/hr 929,147 tons/yr	New	Baghouse 121-PKG-1001
121-LS-1002	121-PKG-1001	Biomass Receiving Hopper 1002		212.13 tons/hr 929,147 tons/yr	New	Baghouse 121-PKG-1001
121-CV-1001	121-CV-1001	Conveyor #1 from Biomass Receiving Hopper 1001 to Storage Pile		106.07 tons/hr 929,147 tons/yr	New	Covered
121-CV-1002	121-CV-1002	Conveyor #2 from Biomass Receiving Hopper 1002 to Storage Pile		106.07 tons/hr 929,147 tons/yr	New	Covered
CHIP-1	CHIP-1	Biomass Storage Pile Loading Fugitives		106.07 tons/hr 929,147 tons/yr	New	NA
121-S-1001	121-S-1001	Biomass Feed Hopper		106.07 tons/hr 929,147 tons/yr	New	NA
121-CV-1003	121-CV-1003	Conveyor from Feed Hopper to 121-CV-2001 A/B		106.07 tons/hr 929,147 tons/yr	New	Covered
121-CV-2001 A	121-CV-2001 A	Screw Conveyor from Biomass Feed Hopper A to Biomass Fuel Metering Bin 121-S-2001 A		106.07 tons/hr 929,147 tons/yr	New	Covered
121-CV-2001B	121-CV-2001B	Screw Conveyor from Biomass Feed Hopper B to Biomass Fuel Metering Bin 121-S-2001 B		106.07 tons/hr 929,147 tons/yr	New	Covered
121-S-2001 A	121-S-2001 A	Biomass Fuel Metering Bin A		106.07 tons/hr 929,147 tons/yr	New	NA
121-S-2001 B	121-S-2001 B	Biomass Fuel Metering Bin B		106.07 tons/hr 929,147 tons/yr	New	NA
CHIP-2	CHIP-2	Wood Chips Storage Pile Wind Erosion		-	New	NA

Emission Unit ID [1]	Emission Point ID [2]	Emission Unit Description	Year Installed/Modified	Design Capacity	Type[3] and Date of Change	Control Device [4]
Fly Ash / Economizer Ash Handling Process						
121-CV-4001 A	121-CV-4001 A	PJFF Ash Collection Drag Chain Conveyor A (From boiler hopper to surge bin A)		4.5 tons/hr	New	Covered
121-CV-4001 B	121-CV-4001 B	PJFF Ash Collection Drag Chain Conveyor B (from boiler to surge bin B)		4.5 tons/hr	New	Covered
121-CV-4002	121-CV-4002	PJFF Ash Transport Drag Chain Conveyor (From Surge Bins #1 and #2 to PJFF Ash Transfer Drag Chain Conveyor)		4.5 tons/hr	New	Covered
121-CV-4003	121-CV-4003	PJFF Ash Transfer Drag Chain Conveyor (to Ash Bucket Elevator)		4.5 tons/hr	New	Covered
121-CV-4004	121-CV-4004	Ash Bucket Elevator		4.5 tons/hr	New	Covered
121-CV-4005	121-CV-4005	Ash Distribution Drag Chain Conveyor (From Ash Bucket Elevator to Fly Ash Storage Silos)		4.5 tons/hr	New	Covered
121-CV-4006 A	121-CV-4006 A	Economizer Hopper Ash Drag Chain Conveyor A (From Economizer Hopper to Economizer Hopper Ash Surge Bin A)		3.3 tons/hr	New	Covered
121-CV-4006 B	121-CV-4006 B	Economizer Hopper Ash Drag Chain Conveyor B (From Economizer Hopper to Economizer Hopper Ash Surge Bin B)		3.3 tons/hr	New	Covered
121-CV-4007 A	121-CV-4007 A	Economizer Ash Transport Conveyor A (From Economizer Ash Surge Bin A to Fly Ash Silo A)		3.3 tons/hr	New	Covered
121-CV-4007 B	121-CV-4007 B	Economizer Ash Transport Conveyor B (From Economizer Ash Surge Bin B to Fly Ash Silo B)		3.3 tons/hr	New	Covered
121-S-4001 A	121-F-4001 A	Fly Ash Storage Silo A		7.8 tons/hr	New	Pulse Jet Filter 121-F-4001 A
121-S-4001 B	121-F-4001 B	Fly Ash Storage Silo B		7.8 tons/hr	New	Pulse Jet Filter 121-F-4001 B
121-TL-0001	121-TL-0001	Fly Ash Truck Loading		8.6 tons/hr	New	Wet fly ash, with a moisture content of at least 10%

Emission Unit ID [1]	Emission Point ID [2]	Emission Unit Description	Year Installed/Modified	Design Capacity	Type[3] and Date of Change	Control Device [4]
Bottom Ash and Sand Handling Process						
121-CV-5001 A	121-CV-5001 A	Metering Conveyor A (Bed Ash Screw A)		2250 lbs/hr	New	Covered
121-CV-5001 B	121-CV-5001 B	Metering Conveyor B (Bed Ash Screw B)		2250 lbs/hr	New	Covered
121-CV-5002A	121-CV-5002A	Vibrating Screener A (to separate bottom ash and sand)		2250 lbs/hr	New	Trough hood (Partial enclosure)
121-CV-5002B	121-CV-5002B	Vibrating Screener B (to separate bottom ash and sand)		2250 lbs/hr	New	Trough hood (Partial enclosure)
121-S-1002	121-S-1002	Sand Receiving Hopper		50 tons/hr 1752 tons/yr	New	NA
121-CV-1004	121-CV-1004	Inclined Sand Hopper Conveyor		50 tons/hr 1752 tons/yr	New	Covered
121-S-5001	121-PKG-3001; 122-T-1001	Makeup Sand Silo		50 tons/hr 1752 tons/yr	New	Vent piping to the BFB
121-CV-5003 A	121-CV-5003 A	Transfer Conveyor A (Recycled Sand) (From Vibrating Screener A to Sand Bucket Elevator A)		6000 lbs/24 hours	New	Cover assembly (partial enclosure)
121-CV-5003 B	121-CV-5003 B	Transfer Conveyor B (Recycled Sand) (From Vibrating Screener B to Sand Bucket Elevator B)		6000 lbs/24 hours	New	Cover assembly (partial enclosure)
121-CV-5004 A	121-CV-5004 A	Sand Bucket Elevator A (Recycled Sand + Fresh Sand)		650	New	Covered
121-CV-5004 B	121-CV-5004 B	Sand Bucket Elevator B (Recycled Sand + Fresh Sand)		650	New	Covered

Emission Unit ID [1]	Emission Point ID [2]	Emission Unit Description	Year Installed/Modified	Design Capacity	Type[3] and Date of Change	Control Device [4]
NaHCO3 Handling Process						
121-S-9901	121-PKG-3001; 122-T-1001	Sodium Bicarbonate Storage Silo		1400 scfm gas flow (intermittent, 86 hrs/yr)	New	Vent routed to PJFF
121-S-9902 A	121-F-9902 A	Sodium Bicarbonate Vent Hopper A		126 lbs/hr (549.40 tons/yr)	New	Pulse Jet Filter 121-F-9902 A
121-S-9902 B	121-F-9902 B	Sodium Bicarbonate Vent Hopper B		126 lbs/hr (549.40 tons/yr)	New	Pulse Jet Filter 121-F-9902 B
Others Point Sources						
129-CT-9301	129-CT-9301	Cooling Tower		80,762 gpm	New	NA
PM-PlantRd	PM-PlantRd	Truck Road Fugitive Particulate Emissions		Max 203 vehicles per day; On average 107 vehicles per day	New	NA
122-TK-9902	122-TK-9901	Amine Makeup Tank		8812 gal (max)	New	NA
122-TK-9901	122-TK-9901	Lean Amine Tank		375,986 gal (max)	New	NA
129-P-9402	129-P-9402	Fire Water Pump		600 HP	New	NA
129-PKG-0001	129-PKG-0001	NG Startup Generator		3000 HP	New	NA
VOC-Amine-LOAD	VOC-Amine-LOAD	Truck Loadout of Degraded Amine		6.3 Mgal/hr 84 Mgal/yr	New	NA
127-PKG-0001	127-PKG-001	Wastewater Treatment Plant		0.17 Mgal/yr 1,517.49 Mgal/yr	New	NA
De Minimis Tanks						
129-TK-9402	129-TK-9402	Diesel Tank		1616 gal (max)	New	NA
122-PKG-2001	122-PKG-2001	Biodegraded Amine Tank		4,488 gal (max)	New	NA

[1] For Emission Units (or Sources) use the following numbering system: 1S, 2S, 3S, … or other appropriate designation.

[2] For Emission Points use the following numbering system: 1E, 2E, 3E, … or other appropriate designation.

[3] New, modification, removal.

[4] For Control Devices use the following numbering system: 1C, 2C, 3C, … or other appropriate designation.

Attachment J: Emission Points Data Summary Sheet

MGSCNP1 - BECCS Plant
Attachment J - Emission Points Data Summary Sheet

Emission Point ID	Emission Point Type [1]	Emission Units Vented Through this Point		Air Pollution Control Device		Vent Time for Emission Unit (chemical processes only)		Pollutant Chemical Name/CAS (See Emission Calculations for Speciate VOCs & HAPs) [3]	Maximum Uncontrolled Emissions [4]		Maximum Controlled Emissions [5]		Emission Form or Phase (At Exit Condition)	Est. Method Used [6]	Emission Concentration [7]	Inner Diameter	Exit Gas Temp.	Exit Gas Volumetric Flow [8]	Exit Gas Velocity	Ground Level (Height above Mean Sea Level)	Stack Height above Ground Level [9]	UTM Northing	UTM Easting
		Emission Unit ID	Emission Unit Description	Control Device ID	Control Device Type	Short Term [2]	Max (hr/yr)		lb/hr	tpy	lb/hr	tpy			(ppmv or mg/m^3)	(ft)	(°F)	(ACFM)	(fps)		(ft)	(km)	(km)
121-PKG-3001	Upward Vertical Stack (for boiler startup and when CCU is offline)	121-H-2001 121-S-5001 121-S-9901	Wood Chip Fired Fluidized Bed Boiler	H2001-1C H2001-2C H2001-3C H2001-4C H2001-5C	H2001-1C - Baghouse H2001-2C - SCR H2001-3C - CO Oxidation Catalyst H2001-4C - Wet Flue Gas Desulfurization H2001-5C - Dry Sorbent Injection	C	C	NO_X	202	80.1	20.20	10.26	Gas	EE	13.55 ppmvd @ 5.23% O2	11.5	104	252874	40.58	680	199	4308.991	403.862
								CO	102	40.45	10.20	5.17	Gas		11.24 ppmvd@ 5.23% O2								
								SO_2	31.30	12.38	11.58	4.82	Gas		5.58 ppmvd @ 5.23% O2								
								VOC	4.73	1.82	1.89	0.74	Gas		0.069 mg/dscf @ 5.23% O2 and 1 atm & 68 °F								
								PM	808.08	320.51	15.54	6.16	Solid/Gas		0.57 mg/dscf @ 5.23% O2 and 1 atm & 68 °F								
								PM_{10}	808.08	320.51	15.54	6.16	Solid/Gas		0.57 mg/dscf @ 5.23% O2 and 1 atm & 68 °F								
								$PM_{2.5}$	808.08	320.51	15.54	6.16	Solid/Gas		0.57 mg/dscf @ 5.23% O2 and 1 atm & 68 °F								
								Lead	0.05	0.02	0.05	0.02	Solid		0.002 mg/dscf @ 5.23% O2 and 1 atm & 68 °F								
								NH_3	2.01	0.77	2.01	0.77	Gas		3.65 ppmvd @ 5.23% O2								
								H_2SO_4	17.16	6.52	6.35	2.65	Gas		2.00 ppmvd @ 5.23% O2								
								HCl	42.45	17.16	1.18	0.97	Gas		1.00 ppmvd @ 5.23% O2								
								Total HAPs	47.49	18.66	3.37	1.46	Gas		0.053 mg/dscf @ 5.23% O2 and 1 atm & 68 °F								
122-T-1001	Upward Vertical Stack (when CCU is in operation)	121-H-2001 121-S-5001 121-S-9901	Wood Chip Fired Fluidized Bed Boiler	H2001-1C H2001-2C H2001-3C H2001-4C H2001-5C	H2001-1C - Baghouse H2001-2C - SCR H2001-3C - CO Oxidation Catalyst H2001-4C - Wet Flue Gas Desulfurization H2001-5C - Dry Sorbent Injection	C	C	NO_X	202	801.6	20.20	80.16	Gas	EE	15.96 ppmvd @ 5.55% O2	6	148	208000	122.61	680	145	4308.929	403.911
								CO	102	404.8	10.20	40.48	Gas		13.24 ppmvd@ 5.55% O2								
								SO_2	31.30	124.22	11.58	45.96	Gas		6.57 ppmvd @ 5.55% O2								
								VOC	11.08	43.975	4.43	17.59	Gas		0.19 mg/dscf @ 5.55% O2 and 1 atm & 68 F								
								PM	808.08	3207.36	15.54	61.68	Solid/Gas		0.66 mg/dscf @ 5.55% O2 and 1 atm & 68 F								
								PM_{10}	808.08	3207.36	15.54	61.68	Solid/Gas		0.66 mg/dscf @ 5.55% O2 and 1 atm & 68 F								
								$PM_{2.5}$	808.08	3207.36	15.54	61.68	Solid/Gas		0.66 mg/dscf @ 5.55% O2 and 1 atm & 68 F								
								Lead	0.05	0.18	0.05	0.18	Solid		0.002 mg/dscf @ 5.55% O2 and 1 atm & 68 F								
								NH_3	5.09	20.21	5.09	20.21	Gas		4.02 ppmvd @ 5.55% O2								
								H_2SO_4	17.16	68.14	6.35	25.21	Gas		2.35 ppmvd @ 5.55% O2								
								HCl	42.45	168.35	1.18	4.68	Gas		1.17 ppmvd @ 5.55% O2								
								Total HAPs	49.55	196.94	5.43	21.53	Gas		0.23 mg/dscf @ 5.55% O2 and 1 atm & 68 F								

Emission Point ID	Emission Point Type [1]	Emission Units Vented Through this Point		Air Pollution Control Device		Vent Time for Emission Unit (chemical processes only)		Pollutant Chemical Name/CAS (See Emission Calculations for Speciate VOCs & HAPs) [3]	Maximum Uncontrolled Emissions [4]		Maximum Controlled Emissions [5]		Emission Form or Phase (At Exit Condition)	Est. Method Used [6]	Emission Concentration [7]	Inner Diameter	Exit Gas Temp.	Exit Gas Volumetric Flow [8]	Exit Gas Velocity	Ground Level (Height above Mean Sea Level)	Stack Height above Ground Level [9]	UTM Northing	UTM Easting
		Emission Unit ID	Emission Unit Description	Control Device ID	Control Device Type	Short Term [2]	Max (hr/yr)		lb/hr	tpy	lb/hr	tpy			(ppmv or mg/m^3)	(ft)	(°F)	(ACFM)	(fps)		(ft)	(km)	(km)
121-PKG-1001	Upward Vertical Stack	121-LS-1001 121-LS-1002	Receiving Hopper 1001; Receiving Hopper 1002	121-PKG-1001	Baghouse	C	C	NO_X	-	-	-	-	-	-	-	2	Ambient	12,566	66.66	680	15	4308.981	403.567
								CO	-	-	-	-	-	-	-								
								SO_2	-	-	-	-	-	-	-								
								VOC	-	-	-	-	-	-	-								
								PM	108.00	472.00	1.08	4.72	Solid	EE	0.65 mg/acf								
								PM_{10}	108.00	472.00	1.08	4.72	Solid		0.65 mg/acf								
								$PM_{2.5}$	108.00	472.00	1.08	4.72	Solid		0.65 mg/acf								
								Lead	-	-	-	-	-	-	-								
								Total HAPs	-	-	-	-	-	-	-								
121-S-2001 A	Horizontal Stack	121-S-2001 A	Biomass Fuel Metering Bin A	N/A	N/A	C	C	NO_X	-	-	-	-	-	-	-	TBD	Ambient	TBD	TBD	680	TBD	4039.046	403.781
								CO	-	-	-	-	-	-	-								
								SO_2	-	-	-	-	-	-	-								
								VOC	-	-	-	-	-	-	-								
								PM	0.06	0.19	0.06	0.19	Solid	EE	0.32 mg/cf								
								PM_{10}	0.03	0.09	0.03	0.09	Solid		0.16 mg/cf								
								$PM_{2.5}$	0.004	0.01	0.004	0.01	Solid		0.024 mg/cf								
								Lead	-	-	-	-	-	-	-								
								Total HAPs	-	-	-	-	-	-	-								
121-S-2001 B	Horizontal Stack	121-S-2001 B	Biomass Fuel Metering Bin B	N/A	N/A	C	C	NO_X	-	-	-	-	-	-	-	TBD	Ambient	TBD	TBD	680	TBD	4039.046	403.781
								CO	-	-	-	-	-	-	-								
								SO_2	-	-	-	-	-	-	-								
								VOC	-	-	-	-	-	-	-								
								PM	0.06	0.19	0.06	0.19	Solid	EE	0.01 gr/dscf								
								PM_{10}	0.03	0.09	0.03	0.09	Solid		0.01 gr/dscf								
								$PM_{2.5}$	0.004	0.01	0.004	0.01	Solid		0.01 gr/dscf								
								Lead	-	-	-	-	-	-	-								
								Total HAPs	-	-	-	-	-	-	-								
121-F-4001 A	Upward Vertical Stack	121-S-4001 A	Fly Ash Storage Silo 1	121-F-4001 A	Filter	C	C	NO_X	-	-	-	-	-	-	-	0.67	Ambient	1400	66.90	680	100	4309.058	403.812
								CO	-	-	-	-	-	-	-								
								SO_2	-	-	-	-	-	-	-								
								VOC	-	-	-	-	-	-	-								
								PM	2.00	6.00	0.02	0.06	Solid	EE	0.32 mg/cf								
								PM_{10}	1.00	3.00	0.01	0.03	Solid		0.16 mg/cf								
								$PM_{2.5}$	0.10	0.45	0.001	0.0045	Solid		0.024 mg/cf								
								Lead	-	-	-	-	-	-	-								
								Total HAPs	-	-	-	-	-	-	-								
121-F-4001 B	Upward Vertical Stack	121-S-4001 B	Fly Ash Storage Silo 2	121-F-4001 B	Filter	C	C	NO_X	-	-	-	-	-	-	-	0.67	Ambient	1400	66.90	680	100	4309.058	403.812
								CO	-	-	-	-	-	-	-								
								SO_2	-	-	-	-	-	-	-								
								VOC	-	-	-	-	-	-	-								
								PM	2.00	6.00	0.02	0.06	Solid	EE	0.01 gr/dscf								
								PM_{10}	1.00	3.00	0.01	0.03	Solid		0.01 gr/dscf								
								$PM_{2.5}$	0.10	0.45	0.001	0.0045	Solid		0.01 gr/dscf								
								Lead	-	-	-	-	-	-	-								
								Total HAPs	-	-	-	-	-	-	-								
121-F-9902 A	Upward Vertical Stack	121-S-9902 A	Sodium Bicarbonate Vent Hopper A	121-F-9902 A	Filter	C	C	NO_X	-	-	-	-	-	-	-	TBD	Ambient	TBD	TBD	680	TBD	4309.03	430.814
								CO	-	-	-	-	-	-	-								
								SO_2	-	-	-	-	-	-	-								
								VOC	-	-	-	-	-	-	-								
								PM	0.002	0.009	1.95E-04	8.54E-04	Solid	EE	0.32 mg/cf								
								PM_{10}	0.001	0.003	7.50E-05	3.29E-04	Solid		0.16 mg/cf								
								$PM_{2.5}$	0.001	0.003	7.50E-05	3.29E-04	Solid		0.024 mg/cf								
								Lead	-	-	-	-	-	-	-								
								Total HAPs	-	-	-	-	-	-	-								
121-F-9902 B	Upward Vertical Stack	121-S-9902 B	Sodium Bicarbonate Vent Hopper B	121-F-9902 B	Filter	C	C	NO_X	-	-	-	-	-	-	-	TBD	Ambient	TBD	TBD	680	TBD	4309.03	430.814
								CO	-	-	-	-	-	-	-								
								SO_2	-	-	-	-	-	-	-								
								VOC	-	-	-	-	-	-	-								
								PM	0.002	0.009	1.95E-04	8.54E-04	Solid	EE	0.01 gr/dscf								
								PM_{10}	0.001	0.003	7.50E-05	3.29E-04	Solid		0.01 gr/dscf								
								$PM_{2.5}$	0.001	0.003	7.50E-05	3.29E-04	Solid		0.01 gr/dscf								
								Lead	-	-	-	-	-	-	-								
								Total HAPs	-	-	-	-	-	-	-								

Emission Point ID	Emission Point Type [1]	Emission Units Vented Through this Point		Air Pollution Control Device		Vent Time for Emission Unit (chemical processes only)		Pollutant Chemical Name/CAS (See Emission Calculations for Speciate VOCs & HAPs) [3]	Maximum Uncontrolled Emissions [4]		Maximum Controlled Emissions [5]		Emission Form or Phase (At Exit Condition)	Est. Method Used [6]	Emission Concentration [7]	Inner Diameter	Exit Gas Temp.	Exit Gas Volumetric Flow [8]	Exit Gas Velocity	Ground Level (Height above Mean Sea Level)	Stack Height above Ground Level [9]	UTM Northing	UTM Easting
		Emission Unit ID	Emission Unit Description	Control Device ID	Control Device Type	Short Term [2]	Max (hr/yr)		lb/hr	tpy	lb/hr	tpy			(ppmv or mg/m^3)	(ft)	(°F)	(ACFM)	(fps)		(ft)	(km)	(km)
129-CT-9301	Upward Vertical Stack	129-CT-9301	Cooling Tower	N/A	N/A	C	C	NO_X	-	-	-	-	-	-	-	33 [10]	104	1239360 [10]	24.15	680	51	4308.846	403.985
								CO	-	-	-	-	-	-	-								
								SO_2	-	-	-	-	-	-	-								
								VOC	-	-	-	-	-	-	-								
								PM	2.02	3.01	2.02	3.01	Solid	EE	0.0123 mg/acf								
								PM_{10}	1.48	2.52	1.48	2.52	Solid	EE	0.009 mg/acf								
								$PM_{2.5}$	0.67	1.26	0.67	1.26	Solid	EE	0.0041 mg/acf								
								Lead	-	-	-	-	-	-	-								
								Total HAPs	-	-	-	-	-	-	-								
129-PKG-0001	Upward Vertical Stack	129-PKG-0001	NG Startup Generator	N/A	N/A	20 min/week for readiness check; 30 min/startup.	100	NO_X	6.61	0.33	6.61	0.33	Gas		NA	2.5	846	19297	65.52	680	30	4309.011	403.752
								CO	13.23	0.66	13.23	0.66	Gas		NA								
								SO_2	0.03	< 0.01	0.03	< 0.01	Gas		NA								
								VOC	5.67	0.28	5.67	0.28	Gas		NA								
								PM	0.20	0.01	0.20	0.01	Solid/Gas	EE	NA								
								PM_{10}	0.20	0.01	0.20	0.01	Solid/Gas		NA								
								$PM_{2.5}$	0.20	0.01	0.20	0.01	Solid/Gas		NA								
								Lead	-	-	-	-	-		NA								
								Total HAPs	1.43	0.07	1.43	0.07	Gas		NA								
129-P-9402	Upward Vertical Stack	129-P-9402	Fire Water Diesel Engine Pump	N/A	N/A	20 min/week for readiness check	100	NO_X	3.95	0.2	3.95	0.2	Gas		NA	1	909	3200	67.91	680	12	4308.863	404.067
								CO	3.45	0.17	3.45	0.17	Gas		NA								
								SO_2	0.01	< 0.01	0.01	< 0.01	Gas		NA								
								VOC	3.95	0.20	3.95	0.20	Gas		NA								
								PM	0.20	0.01	0.20	0.01	Solid/Gas	EE	NA								
								PM_{10}	0.20	0.01	0.20	0.01	Solid/Gas		NA								
								$PM_{2.5}$	0.20	0.01	0.20	0.01	Solid/Gas		NA								
								Lead	-	-	-	-	-		NA								
								Total HAPs	0.02	< 0.01	0.02	< 0.01	Gas		NA								
122-TK-9902	Upward Vertical Stack	122-TK-9902	Amine Makeup Tank	N/A	N/A	C	C	NO_X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
								CO	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
								SO_2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
								VOC	< 0.01	< 0.01	< 0.01	< 0.01	Gas	EE	NA	0.125	Ambient	22.06	29.96	680	15	4308.917	403.951
								PM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
								PM_{10}	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
								$PM_{2.5}$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
								Lead	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
								Total HAPs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
122-TK-9901	Upward Vertical Stack	112-TK-9901	Lean Amine Tank	N/A	N/A	C	C	NO_X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
								CO	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
								SO_2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
								VOC	0.01	< 0.01	0.01	< 0.01	Gas	EE	NA	0.25	Ambient	109.22	37.08	680	40	4308.939	403.928
								PM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
								PM_{10}	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
								$PM_{2.5}$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
								Lead	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
								Total HAPs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VOC-Amine-Load	Upward Vertical Stack	VOC-Amine-Load	Truck Loadout of Degraded Amine	N/A	N/A	~ 1 hour every 2 weeks	27	NO_X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
								CO	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
								SO_2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
								VOC	0.01	< 0.01	0.01	< 0.01	Gas	EE	NA	TBD	Ambient	TBD	TBD	680	12	4308.919	403.979
								PM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
								PM_{10}	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
								$PM_{2.5}$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
								Lead	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
								Total HAPs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

The EMISSION POINTS DATA SUMMARY SHEET provides a summation of emissions by emission unit. Note that uncaptured process emission unit emissions are not typically considered to be fugitive and must be accounted for on the appropriate EMISSIONS UNIT DATA SHEET and on the EMISSION POINTS DATA SUMMARY SHEET. Please note that total emissions from the source are equal to all vented emissions, all fugitive emissions, plus all other emissions (e.g. uncaptured emissions). Please complete the FUGITIVE EMISSIONS DATA SUMMARY SHEET for fugitive emission activities.

[1] Please add descriptors such as upward vertical stack, downward vertical stack, horizontal stack, relief vent, rain cap, etc.

[2] Indicate by "C" if venting is continuous. Otherwise, specify the average short-term venting rate with units, for intermittent venting (ie., 15 min/hr). Indicate as many rates as needed to clarify frequency of venting (e.g., 5 min/day, 2 days/wk).

[3] List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. **LIST** Acids, CO, CS_2, VOCs, H_2S, Inorganics, Lead, Organics, O_3, NO, NO_2, SO_2, SO_3, all applicable Greenhouse Gases (including CO_2 and methane), etc. **DO NOT LIST** H_2, H_2O, N_2, O_2, and Noble Gases.

[4] Give maximum potential emission rate with no control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

The lb/hr in the table represents the maximum hourly emission rate under normal operating conditions; tpy in the table represents the maximum annual emissions, including emissions under normal operating conditions and emissions under startup, shutdown and maintenance conditions.

[5] Give maximum potential emission rate with proposed control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

[6] Indicate method used to determine emission rate as follows: MB = material balance; ST = stack test (give date of test); EE = engineering estimate; O = other (specify).

[7] Provide for all pollutant emissions. Typically, the units of parts per million by volume (ppmv) are used. If the emission is a mineral acid (sulfuric, nitric, hydrochloric or phosphoric) use units of milligram per dry cubic meter (mg/m^3) at standard conditions (68 °F and 29.92 inches Hg) (see 45CSR7). If the pollutant is SO_2, use units of ppmv (See 45CSR10).

[8] Give at operating conditions. Include inerts.

[9] Release height of emissions above ground level.

[10] The cooling tower will have 6 cells. The diameter and volumetric exhaust flow rate are for each cell.

Note: Information labeled as "to be determined (TBD)" will be provided once specified equipment vendors have been selected.

Attachment K: Fugitive Emissions Data Summary Sheet

Attachment K

FUGITIVE EMISSIONS DATA SUMMARY SHEET

The FUGITIVE EMISSIONS SUMMARY SHEET provides a summation of fugitive emissions. Fugitive emissions are those emissions which could not reasonably pass through a stack, chimney, vent or other functionally equivalent opening. Note that uncaptured process emissions are not typically considered to be fugitive, and must be accounted for on the appropriate EMISSIONS UNIT DATA SHEET and on the EMISSION POINTS DATA SUMMARY SHEET.

Please note that total emissions from the source are equal to all vented emissions, all fugitive emissions, plus all other emissions (e.g. uncaptured emissions).

APPLICATION FORMS CHECKLIST - FUGITIVE EMISSIONS
1.) Will there be haul road activities? ☒ Yes ☐ No ☐ If YES, then complete the HAUL ROAD EMISSIONS UNIT DATA SHEET.
2.) Will there be Storage Piles? ☐ Yes ☒ No The storage piles at the BECCS Plant will all be wood chip piles. As such, the information for the storage piles is presented in the R13-L (General) worksheet. ☐ If YES, complete Table 1 of the NONMETALLIC MINERALS PROCESSING EMISSIONS UNIT DATA SHEET.
3.) Will there be Liquid Loading/Unloading Operations? ☒ Yes ☐ No ☐ If YES, complete the BULK LIQUID TRANSFER OPERATIONS EMISSIONS UNIT DATA SHEET.
4.) Will there be emissions of air pollutants from Wastewater Treatment Evaporation? ☒ Yes ☐ No ☐ If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET.
5.) Will there be Equipment Leaks (e.g. leaks from pumps, compressors, in-line process valves, pressure relief devices, open-ended valves, sampling connections, flanges, agitators, cooling towers, etc.)? ☒ Yes ☐ No ☐ If YES, complete the LEAK SOURCE DATA SHEET section of the CHEMICAL PROCESSES EMISSIONS UNIT DATA SHEET.
6.) Will there be General Clean-up VOC Operations? ☐ Yes ☒ No ☐ If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET.
7.) Will there be any other activities that generate fugitive emissions? ☒ Yes ☐ No ☐ If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET or the most appropriate form.
If you answered "NO" to all of the items above, it is not necessary to complete the following table, "Fugitive Emissions Summary."

FUGITIVE EMISSIONS SUMMARY	All Regulated Pollutants - Chemical Name/CAS [1]	Maximum Potential Uncontrolled Emissions [2]		Maximum Potential Controlled Emissions [3]		Est. Method Used [4]
		lb/hr	ton/yr	lb/hr	ton/yr	
Haul Road/Road Dust Emissions Paved Haul Roads	PM PM10 PM2.5	10.74 2.15 0.53	9.50 1.90 0.47	10.74 2.15 0.53	9.50 1.90 0.47	AP-42 Ch. 13.2.1
Unpaved Haul Roads						
Storage Pile Emissions						
Loading/Unloading Operations	VOC	0.01	< 0.01	0.01	< 0.01	AP-42 Ch. 5.2
Wastewater Treatment Evaporation & Operations	NH3 H_2SO_4 HCL	0.51 0.64 0.12	0.51 0.64 0.12	0.51 0.64 0.12	0.51 0.64 0.12	EE
Equipment Leaks	VOC NH3	Does not apply	36.46 2.64	Does not apply	36.46 2.64	EE
General Clean-up VOC Emissions						
Other: [5] Wood chips handling and storage, including emissions from loading of wood chips onto piles and wind erosion.	PM PM10 PM2.5	Does not apply	1.71 0.81 0.12	Does not apply	1.71 0.81 0.12	AP-42 Ch. 13.2.4 & 13.2.5

[1] List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts S0.06ervice (CAS) number. LIST Acids, CO, CS_2, VOCs, H_2S, Inorganics, Lead, Organics, O_3, NO, NO_2, SO_2, SO_3, all applicable Greenhouse Gases (including CO_2 and methane), etc. DO NOT LIST H_2, H_2O, N_2, O_2, and Noble Gases.

[2] Give rate with no control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

[3] Give rate with proposed control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

[4] Indicate method used to determine emission rate as follows: MB = material balance; ST = stack test (give date of test); EE = engineering estimate; O = other (specify).

[5] For fugitive emissions from sand/fly ash/$NaHCO_3$ handling, please refer to the emission calculations in Appendix B, Attachment N.

Attachment L: Emission Unit Data Sheets (form for different types of emission units such as haul road, boiler (in direct heat exchanger), tanks, engines, general, etc.)

Attachment L
EMISSIONS UNIT DATA SHEET
GENERAL

To be used for affected sources other than asphalt plants, foundries, incinerators, indirect heat exchangers, and quarries.

Identification Number (as assigned on *Equipment List Form*): 121-S-9901, 121-S-9902 A/B

1. Name or type and model of proposed affected source:

Sodium bicarbonate ($NaHCO_3$) handling operations - emissions from loading $NaHCO_3$ into the controlled sodium bicarbonate storage silo (121-S-9901 which discharges to the boiler and is controlled by filter H2001-1C) and from transferring $NaHCO_3$ from the storage silo to the BFB boiler via the $NaHCO_3$ Vent Hoppers 121-S-9902 A/B and the Grinding Mills. The Grinding Mills are enclosed and will not generate any emissions.

2. On a separate sheet(s), furnish a sketch(es) of this affected source. If a modification is to be made to this source, clearly indicated the change(s). Provide a narrative description of all features of the affected source which may affect the production of air pollutants.

3. Name(s) and maximum amount of proposed process material(s) charged per hour:

$NaHCO_3$ will be received in bulk pneumatic tanker with a sealed pneumatic transfer mechanism, unloaded into storage silo (121-S-9901) which will discharge to the BFB boiler and be controlled by filter (H2001-1C). The $NaHCO_3$ will then flow through the $NaHCO_3$ Vent Hoppers 121-S-9902 A/B and the Grinding Mills to the boiler (121-H-2001) by gravity at a rate of 100 lb/hr.

4. Name(s) and maximum amount of proposed material(s) produced per hour:

$NaHCO_3$ will be received and stored in storage silo 121-S-9901 and delivered to the boiler at a rate of 100 lb/hr to control emissions of acid gases such as HCl, SO_2, and SO_3.

5. Give chemical reactions, if applicable, that will be involved in the generation of air pollutants:

No reactions. Emissions from $NaHCO_3$ handling consists of particulate matter only.

* The identification number which appears here must correspond to the air pollution control device identification number appearing on the *List Form*.

6. Combustion Data (if applicable):

(a) Type and amount in appropriate units of fuel(s) to be burned:

n/a

(b) Chemical analysis of proposed fuel(s), excluding coal, including maximum percent sulfur and ash:

n/a

(c) Theoretical combustion air requirement (ACF/unit of fuel):

n/a @ °F and psia.

(d) Percent excess air: n/a

(e) Type and BTU/hr of burners and all other firing equipment planned to be used:

n/a

(f) If coal is proposed as a source of fuel, identify supplier and seams and give sizing of the coal as it will be fired:

n/a

(g) Proposed maximum design heat input: n/a × 10^6 BTU/hr.

7. Projected operating schedule:

Hours/Day	24	Days/Week	7	Weeks/Year	52

8. Projected amount of pollutants that would be emitted from this affected source if no control devices were used:

@ °F and psia

a.	NO_X	lb/hr	grains/ACF
b.	SO_2	lb/hr	grains/ACF
c.	CO	lb/hr	grains/ACF
d.	PM_{10}	lb/hr	grains/ACF
e.	Hydrocarbons	lb/hr	grains/ACF
f.	VOCs	lb/hr	grains/ACF
g.	Pb	lb/hr	grains/ACF
h.	Specify other(s)		
	See emission calculations in Attachment N.	lb/hr	grains/ACF
		lb/hr	grains/ACF
		lb/hr	grains/ACF
		lb/hr	grains/ACF

NOTE: (1) An Air Pollution Control Device Sheet must be completed for any air pollution device(s) used to control emissions from this affected source.

(2) Complete the Emission Points Data Sheet.

9. Proposed Monitoring, Recordkeeping, Reporting, and Testing
Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

MONITORING	RECORDKEEPING
Monitor the amount of NaHCO3 delivered to site.	
REPORTING	TESTING

MONITORING. PLEASE LIST AND DESCRIBE THE PROCESS PARAMETERS AND RANGES THAT ARE PROPOSED TO BE MONITORED IN ORDER TO DEMONSTRATE COMPLIANCE WITH THE OPERATION OF THIS PROCESS EQUIPMENT OPERATION/AIR POLLUTION CONTROL DEVICE.

RECORDKEEPING. PLEASE DESCRIBE THE PROPOSED RECORDKEEPING THAT WILL ACCOMPANY THE MONITORING.

REPORTING. PLEASE DESCRIBE THE PROPOSED FREQUENCY OF REPORTING OF THE RECORDKEEPING.

TESTING. PLEASE DESCRIBE ANY PROPOSED EMISSIONS TESTING FOR THIS PROCESS EQUIPMENT/AIR POLLUTION CONTROL DEVICE.

10. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty

TBD

Attachment L
EMISSIONS UNIT DATA SHEET
GENERAL

To be used for affected sources other than asphalt plants, foundries, incinerators, indirect heat exchangers, and quarries.

Identification Number (as assigned on *Equipment List Form*): 121-CV-5001 A/B, 121-CV-5002 A/B, 121-S-1002, 121-CV-1004, 121 -S-5001, 121-CV-5003 A/B, 121-CV-5004 A/B)

1. Name or type and model of proposed affected source:

   Bottom ash and sand handling operations - emissions from transferring bed ash (sand and bottom ash), loading and transferring fresh sand, and recycling of sand to the BFB boiler. All the conveyors will be equipped with covers or hoods. The Sand Receiving Hopper (121-S-1002) is open to the atmosphere. The Makeup Sand Silo (121-S-5001) will vent to the boiler and the particulate emissions will be controlled by the boiler PJFF. Loading of bottom ash into open air containers is not expected to generate emissions due to the size of the bottom ash particles.

2. On a separate sheet(s), furnish a sketch(es) of this affected source. If a modification is to be made to this source, clearly indicated the change(s). Provide a narrative description of all features of the affected source which may affect the production of air pollutants.

3. Name(s) and maximum amount of proposed process material(s) charged per hour:

   106.07 tons/hr of biomass will be combusted in the BFB. 250 lb/hr of recovered sand and 400 lbs/hr of fresh sand will be used to help fluidize the biomass and acts as a heat transfer medium in the BFB.

4. Name(s) and maximum amount of proposed material(s) produced per hour:

   One ton of bottom ash will be generated every hour.

5. Give chemical reactions, if applicable, that will be involved in the generation of air pollutants:

   No reactions. Emissions from sand and bottom ash handling consists of particulate matter only.

* The identification number which appears here must correspond to the air pollution control device identification number appearing on the *List Form*.

6. Combustion Data (if applicable):

(a) Type and amount in appropriate units of fuel(s) to be burned:

n/a

(b) Chemical analysis of proposed fuel(s), excluding coal, including maximum percent sulfur and ash:

n/a

(c) Theoretical combustion air requirement (ACF/unit of fuel):

n/a @ °F and psia.

(d) Percent excess air: n/a

(e) Type and BTU/hr of burners and all other firing equipment planned to be used:

n/a

(f) If coal is proposed as a source of fuel, identify supplier and seams and give sizing of the coal as it will be fired:

n/a

(g) Proposed maximum design heat input: n/a × 10^6 BTU/hr.

7. Projected operating schedule:

Hours/Day	24	Days/Week	7	Weeks/Year	52

8. Projected amount of pollutants that would be emitted from this affected source if no control devices were used:

@ °F and psia

a.	NO_X	lb/hr	grains/ACF
b.	SO_2	lb/hr	grains/ACF
c.	CO	lb/hr	grains/ACF
d.	PM_{10}	lb/hr	grains/ACF
e.	Hydrocarbons	lb/hr	grains/ACF
f.	VOCs	lb/hr	grains/ACF
g.	Pb	lb/hr	grains/ACF
h.	Specify other(s)		
	See emission calculations in Attachment N.	lb/hr	grains/ACF
		lb/hr	grains/ACF
		lb/hr	grains/ACF
		lb/hr	grains/ACF

NOTE: (1) An Air Pollution Control Device Sheet must be completed for any air pollution device(s) used to control emissions from this affected source.

(2) Complete the Emission Points Data Sheet.

9. Proposed Monitoring, Recordkeeping, Reporting, and Testing
Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

MONITORING	RECORDKEEPING
Monitor the amount of sand delivered to the site and the amount of bottom ash generated by the BFB boiler.	Keep records for two years of the amount of sand delivered to the site and the amount of bottom ash generated by the BFB boiler.
REPORTING	TESTING

MONITORING. PLEASE LIST AND DESCRIBE THE PROCESS PARAMETERS AND RANGES THAT ARE PROPOSED TO BE MONITORED IN ORDER TO DEMONSTRATE COMPLIANCE WITH THE OPERATION OF THIS PROCESS EQUIPMENT OPERATION/AIR POLLUTION CONTROL DEVICE.

RECORDKEEPING. PLEASE DESCRIBE THE PROPOSED RECORDKEEPING THAT WILL ACCOMPANY THE MONITORING.

REPORTING. PLEASE DESCRIBE THE PROPOSED FREQUENCY OF REPORTING OF THE RECORDKEEPING.

TESTING. PLEASE DESCRIBE ANY PROPOSED EMISSIONS TESTING FOR THIS PROCESS EQUIPMENT/AIR POLLUTION CONTROL DEVICE.

10. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty

TBD

Attachment L
EMISSIONS UNIT DATA SHEET
GENERAL

To be used for affected sources other than asphalt plants, foundries, incinerators, indirect heat exchangers, and quarries.

Identification Number (as assigned on *Equipment List Form*): 121-PKG-1001, 121-LS-1001/1002, 121-CV-1001, 121-CV-1002, CHIP-1, CHIP-2, 121-S-1001, 121-CV-1003, 121-CV-2001 A/B, 121-S-2001 A/B

1. Name or type and model of proposed affected source:

Wood chip handling operations - emissions from unloading wood chips to controlled receiving hoppers (121-LS-1001 and 121-LS-1002 controlled by 121-PKG-1001), loading clean wood chips onto conveyors (121-CV-1001 and 121-CV-1002), storage (CHIP-1 & CHIP-2). loading wood chips from storage pile to wood chip feed hopper (121-S-1001), then via covered conveyors (121-CV-1003, 121-CV-2001 A, 121-CV-2001 B) to wood chip measuring bins (121-S-2001 A and 121-S-2001 B).

2. On a separate sheet(s), furnish a sketch(es) of this affected source. If a modification is to be made to this source, clearly indicated the change(s). Provide a narrative description of all features of the affected source which may affect the production of air pollutants.

3. Name(s) and maximum amount of proposed process material(s) charged per hour:

Wood chips will be received in trucks, unloaded into receiving hoppers (121-LS-1001 and 121-LS-1002) which will be controlled by baghouse (121-PKG-1001). Then the wood chips will be conveyed by two covered conveyors (121-CV-1001 and 121-CV-1002) to the storage pile (CHIP-1). From the storage pile the wood chips will be loaded to the wood chip feed hopper (121-S-1001) using front end loaders at a rate of 106.07 tons/hr (929146.92 tons/yr). From the wood chip feed hopper (121-S-1001), the wood chips will be transferred by covered conveyor belt (121-CV-1003) and screw conveyors (121-CV-2001 A and 121-CV-2001 B) to two biomass fuel metering bins (121-S-2001 A and 121-S-2001 B). From the metering bins, the wood chips will be sent to the boiler 121-H-2001.

4. Name(s) and maximum amount of proposed material(s) produced per hour:

106.07 tons/hr of clean wood chips with an average moisture content of 45% will be received, stored, and transferred to the boiler for use as fuel.

5. Give chemical reactions, if applicable, that will be involved in the generation of air pollutants:

No reactions. Emissions from biomass handling consists of particulate matter only.

* The identification number which appears here must correspond to the air pollution control device identification number appearing on the *List Form*.

6. Combustion Data (if applicable):

(a) Type and amount in appropriate units of fuel(s) to be burned:

n/a

(b) Chemical analysis of proposed fuel(s), excluding coal, including maximum percent sulfur and ash:

n/a

(c) Theoretical combustion air requirement (ACF/unit of fuel):

n/a @ °F and psia.

(d) Percent excess air: n/a

(e) Type and BTU/hr of burners and all other firing equipment planned to be used:

n/a

(f) If coal is proposed as a source of fuel, identify supplier and seams and give sizing of the coal as it will be fired:

n/a

(g) Proposed maximum design heat input: n/a × 10^6 BTU/hr.

7. Projected operating schedule:

Hours/Day	24	Days/Week	7	Weeks/Year	52

8. Projected amount of pollutants that would be emitted from this affected source if no control devices were used:

@ °F and psia

a.	NO_X	lb/hr	grains/ACF
b.	SO_2	lb/hr	grains/ACF
c.	CO	lb/hr	grains/ACF
d.	PM_{10}	lb/hr	grains/ACF
e.	Hydrocarbons	lb/hr	grains/ACF
f.	VOCs	lb/hr	grains/ACF
g.	Pb	lb/hr	grains/ACF
h.	Specify other(s)		
	See emission calculations in Attachment N.	lb/hr	grains/ACF
		lb/hr	grains/ACF
		lb/hr	grains/ACF
		lb/hr	grains/ACF

NOTE: (1) An Air Pollution Control Device Sheet must be completed for any air pollution device(s) used to control emissions from this affected source.

(2) Complete the Emission Points Data Sheet.

9. Proposed Monitoring, Recordkeeping, Reporting, and Testing
Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

MONITORING	RECORDKEEPING
Monitor the amount of biomass brought into the facility on a monthly basis. Monitor the moisture content of biomass on a weekly basis.	Record the amount of biomass brought into facility and the moisture content of biomass.
REPORTING	TESTING

MONITORING. PLEASE LIST AND DESCRIBE THE PROCESS PARAMETERS AND RANGES THAT ARE PROPOSED TO BE MONITORED IN ORDER TO DEMONSTRATE COMPLIANCE WITH THE OPERATION OF THIS PROCESS EQUIPMENT OPERATION/AIR POLLUTION CONTROL DEVICE.

RECORDKEEPING. PLEASE DESCRIBE THE PROPOSED RECORDKEEPING THAT WILL ACCOMPANY THE MONITORING.

REPORTING. PLEASE DESCRIBE THE PROPOSED FREQUENCY OF REPORTING OF THE RECORDKEEPING.

TESTING. PLEASE DESCRIBE ANY PROPOSED EMISSIONS TESTING FOR THIS PROCESS EQUIPMENT/AIR POLLUTION CONTROL DEVICE.

10. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty

TBD

Attachment L
EMISSIONS UNIT DATA SHEET
GENERAL

To be used for affected sources other than asphalt plants, foundries, incinerators, indirect heat exchangers, and quarries.
Identification Number (as assigned on *Equipment List Form*):

1. Name or type and model of proposed affected source: Wastewater Treatment Plant (127-PKG-0001)
2. On a separate sheet(s), furnish a sketch(es) of this affected source. If a modification is to be made to this source, clearly indicated the change(s). Provide a narrative description of all features of the affected source which may affect the production of air pollutants.
3. Name(s) and maximum amount of proposed process material(s) charged per hour: Wastewater 0.173 Mgal/hr
4. Name(s) and maximum amount of proposed material(s) produced per hour: Wastewater 0.173 Mgal/hr
5. Give chemical reactions, if applicable, that will be involved in the generation of air pollutants: The following compounds will be emitted from the wastewater treatment process due to evaporation NH3 H2SO4 HCL

* The identification number which appears here must correspond to the air pollution control device identification number appearing on the *List Form*.

6. Combustion Data (if applicable):

(a) Type and amount in appropriate units of fuel(s) to be burned:

NA

(b) Chemical analysis of proposed fuel(s), excluding coal, including maximum percent sulfur and ash:

NA

(c) Theoretical combustion air requirement (ACF/unit of fuel):

@ °F and psia.

(d) Percent excess air:

(e) Type and BTU/hr of burners and all other firing equipment planned to be used:

NA

(f) If coal is proposed as a source of fuel, identify supplier and seams and give sizing of the coal as it will be fired:

NA

(g) Proposed maximum design heat input: $\times 10^6$ BTU/hr.

7. Projected operating schedule:

Hours/Day 24	Days/Week 7	Weeks/Year 52

8. Projected amount of pollutants that would be emitted from this affected source if no control devices were used:

@ °F and psia

a.	NO_X		lb/hr	grains/ACF
b.	SO_2		lb/hr	grains/ACF
c.	CO		lb/hr	grains/ACF
d.	PM_{10}		lb/hr	grains/ACF
e.	Hydrocarbons		lb/hr	grains/ACF
f.	VOCs		lb/hr	grains/ACF
g.	Pb		lb/hr	grains/ACF
h.	Specify other(s)			
	NH3	0.51	lb/hr	grains/ACF
	H2SO4	0.64	lb/hr	grains/ACF
	HCL	0.12	lb/hr	grains/ACF
			lb/hr	grains/ACF

NOTE: (1) An Air Pollution Control Device Sheet must be completed for any air pollution device(s) used to control emissions from this affected source.

(2) Complete the Emission Points Data Sheet.

9. Proposed Monitoring, Recordkeeping, Reporting, and Testing
Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

MONITORING	RECORDKEEPING
REPORTING	TESTING

MONITORING. PLEASE LIST AND DESCRIBE THE PROCESS PARAMETERS AND RANGES THAT ARE PROPOSED TO BE MONITORED IN ORDER TO DEMONSTRATE COMPLIANCE WITH THE OPERATION OF THIS PROCESS EQUIPMENT OPERATION/AIR POLLUTION CONTROL DEVICE.

RECORDKEEPING. PLEASE DESCRIBE THE PROPOSED RECORDKEEPING THAT WILL ACCOMPANY THE MONITORING.

REPORTING. PLEASE DESCRIBE THE PROPOSED FREQUENCY OF REPORTING OF THE RECORDKEEPING.

TESTING. PLEASE DESCRIBE ANY PROPOSED EMISSIONS TESTING FOR THIS PROCESS EQUIPMENT/AIR POLLUTION CONTROL DEVICE.

10. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty

TBD

ATTACHMENT L – INTERNAL COMBUSTION ENGINE DATA SHEET

Complete this data sheet for each internal combustion engine at the facility. Include manufacturer performance data sheet(s) or any other supporting document if applicable. Use extra pages if necessary. *Generator(s) and microturbine generator(s) shall also use this form.*

Emission Unit ID#[1]	129-PKG-0001	129-P-9402	
Engine Manufacturer/Model	TBD	TBD	
Manufacturers Rated bhp/rpm	3,000	600	
Source Status[2]	NS	NS	
Date Installed/ Modified/Removed/Relocated[3]	2025	2025	
Engine Manufactured /Reconstruction Date[4]	2025	2025	
Check all applicable Federal Rules for the engine (include EPA Certificate of Conformity if applicable)[5]	☒40CFR60 Subpart JJJJ ☒JJJJ Certified? ☐40CFR60 Subpart IIII ☐IIII Certified? ☐40CFR63 Subpart ZZZZ ☐ NESHAP ZZZZ/ NSPS JJJJ Window ☐ NESHAP ZZZZ Remote Sources	☐40CFR60 Subpart JJJJ ☐JJJJ Certified? ☒40CFR60 Subpart IIII ☒IIII Certified? ☐40CFR63 Subpart ZZZZ ☐ NESHAP ZZZZ/ NSPS JJJJ Window ☐ NESHAP ZZZZ Remote Sources	☐40CFR60 Subpart JJJJ ☐JJJJ Certified? ☐40CFR60 Subpart IIII ☐IIII Certified? ☐40CFR63 Subpart ZZZZ ☐ NESHAP ZZZZ/ NSPS JJJJ Window ☐ NESHAP ZZZZ Remote Sources
Engine Type[6]	4SLB		
APCD Type[7]			
Fuel Type[8]	PQ	D	
H_2S (gr/100 scf)	0.25		
Operating bhp/rpm	3000	600	
BSFC (BTU/bhp-hr)	6589	8084.64	
Hourly Fuel Throughput	18,808 ft^3/hr gal/hr	ft^3/hr 35.90 gal/hr	ft^3/hr gal/hr
Annual Fuel Throughput (Must use 8,760 hrs/yr unless emergency generator)	1.88 $MMft^3$/yr gal/yr	$MMft^3$/yr 3590 gal/yr	$MMft^3$/yr gal/yr
Fuel Usage or Hours of Operation Metered	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☐ No ☐

Calculation Methodology[9]	**Pollutant[10]**	**Hourly PTE (lb/hr)[11]**	**Annual PTE (tons/year)[11]**	**Hourly PTE (lb/hr)[11]**	**Annual PTE (tons/year)[11]**	**Hourly PTE (lb/hr)[11]**	**Annual PTE (tons/year)[11]**
OT	NO_x	6.61	0.33	3.95	0.20		
OT	CO	13.23	0.66	3.45	0.17		
OT	VOC	5.67	0.28	3.95	0.20		
OT	SO_2	0.03	0.002	0.01	< 0.01		
OT	PM_{10}	0.20	0.01	0.20	0.01		
AP	Formaldehyde	1.04	0.05	0.006	0.0003		
AP	Total HAPs	1.43	0.07	0.02	0.001		
	GHG (CO_2e)						

1 Enter the appropriate Source Identification Number for each natural gas-fueled reciprocating internal combustion compressor/generator engine located at the compressor station. Multiple compressor engines should be designated CE-1, CE-2, CE-3 etc. Generator engines should be designated GE-1, GE-2, GE-3 etc. Microturbine generator engines should be designated MT-1, MT-2, MT-3 etc. If more than three (3) engines exist, please use additional sheets.

2 Enter the Source Status using the following codes:

NS	Construction of New Source (installation)	ES	Existing Source
MS	Modification of Existing Source	RS	Relocated Source
REM	Removal of Source		

3 Enter the date (or anticipated date) of the engine's installation (construction of source), modification, relocation or removal.

4 Enter the date that the engine was manufactured, modified or reconstructed.

5 Is the engine a certified stationary spark ignition internal combustion engine according to 40CFR60 Subpart IIII/JJJJ? If so, the engine and control device must be operated and maintained in accordance with the manufacturer's emission-related written instructions. You must keep records of conducted maintenance to demonstrate compliance, but no performance testing is required. If the certified engine is not operated and maintained in accordance with the manufacturer's emission-related written instructions, the engine will be considered a non-certified engine and you must demonstrate compliance as appropriate.

Provide a manufacturer's data sheet for all engines being permitted.

6 Enter the Engine Type designation(s) using the following codes:

2SLB	Two Stroke Lean Burn	4SRB	Four Stroke Rich Burn
4SLB	Four Stroke Lean Burn		

7 Enter the Air Pollution Control Device (APCD) type designation(s) using the following codes:

A/F	Air/Fuel Ratio	IR	Ignition Retard
HEIS	High Energy Ignition System	SIPC	Screw-in Precombustion Chambers
PSC	Prestratified Charge	LEC	Low Emission Combustion
NSCR	Rich Burn & Non-Selective Catalytic Reduction	OxCat	Oxidation Catalyst
SCR	Lean Burn & Selective Catalytic Reduction		

8 Enter the Fuel Type using the following codes:

PQ	Pipeline Quality Natural Gas	RG	Raw Natural Gas /Production Gas	D	Diesel

9 Enter the Potential Emissions Data Reference designation using the following codes. Attach all reference data used.

MD	Manufacturer's Data	AP	AP-42	
GR	GRI-HAPCalc™	OT	Other 40 CFR 60 JJJJ / IIII	(please list)

10 Enter each engine's Potential to Emit (PTE) for the listed regulated pollutants in pounds per hour and tons per year. PTE shall be calculated at manufacturer's rated brake horsepower and may reflect reduction efficiencies of listed Air Pollution Control Devices. Emergency generator engines may use 500 hours of operation when calculating PTE. PTE data from this data sheet shall be incorporated in the *Emissions Summary Sheet.*

11 PTE for engines shall be calculated from manufacturer's data unless unavailable.

Attachment L: FUGITIVE EMISSIONS FROM PAVED HAULROADS

s =	Surface material silt content (%)	2.4

Roadway Segment	Description	Mean Vehicle Weight (tons)	Miles Per Trip	Maximum Trips Per Hour	Maximum Trips Per Year	Vehicle Mile Travelled Per Hour (VTM/hr)	Vehicle Mile Travelled Per Year (VTM/yr)	Control Device ID Number	Control Efficiency (%)
PAVED	Paved Plant Road (Hourly)	32.1	0.63	20.3	-	12.79	-	NA	NA
PAVED	Paved Plant Road (Annual)	25.5	0.63	-	39,055	-	24604.65	NA	NA

SUMMARY OF PAVED HAULROAD EMISSIONS

	PM				PM-10			
	Uncontrolled		Controlled		Uncontrolled		Controlled	
Roadway Segment	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
PAVED	10.74	9.50	-	-	2.15	1.90	-	-

Note: Extraneous information unrelated to regulatory requirements and air emissions has been excluded from the application form.

LEAK SOURCE DATA SHEET

Source Category	Pollutant	Number of Source Components[1]	Number of Components Monitored by Frequency[2]	Average Time to Repair (days)[3]	Estimated Annual Emission Rate (lb/yr)[4]
Pumps[5]	light liquid VOC[6,7]				
	heavy liquid VOC[8]	13	0		1,090 (EPA)
	Non-VOC[9]	4	0		NH3: 192 (EPA)
Valves[10]	Gas VOC	6	0		81 (EPA)
	Light Liquid VOC				
	Heavy Liquid VOC	497	0		1,092 (EPA)
	Non-VOC	61	0		NH3: 1,184 (EPA)
Safety Relief Valves[11]	Gas VOC	43	0		41,130 (EPA)
	Non VOC	9	0		NH3: 2,004 (EPA)
Open-ended Lines[12]	VOC				
	Non-VOC				
Sampling Connections[13]	VOC				
	Non-VOC				
Compressors	VOC				
	Non-VOC				
Flanges	VOC	1,693	0		29,526 (EPA)
	Non-VOC	216	0		NH3: 1,904 (EPA)
Other	VOC				
	Non-VOC				

[1 - 13] See notes on the following page.

Notes for Leak Source Data Sheet

1. For VOC sources include components on streams and equipment that contain greater than 10% w/w VOC, including feed streams, reaction/separation facilities, and product/by-product delivery lines. Do not include certain leakless equipment as defined below by category.

2. By monitoring frequency, give the number of sources routinely monitored for leaks, using a portable detection device that measures concentration in ppm. Do not include monitoring by visual or soap-bubble leak detection methods. "M/Q(M)/Q/SA/A/O" means the time period between inspections as follows:

   Monthly/Quarterly, with Monthly follow-up of repaired leakers/Quarterly/Semi-annual/Annually/Other (specify time period)

   If source category is not monitored, a single zero in the space will suffice. For example, if 50 gas-service valves are monitored quarterly, with monthly follow-up of those repaired, 75 are monitored semi-annually, and 50 are checked bimonthly (alternate months), with non checked at any other frequency, you would put in the category "valves, gas service:" 0/50/0/75/0/50 (bimonthly).

3. Give the average number of days, after a leak is discovered, that an attempt will be made to repair the leak.

4. Note the method used: MB - material balance; EE - engineering estimate; EPA - emission factors established by EPA (cite document used); O - other method, such as in-house emission factor (specify).

5. Do not include in the equipment count sealless pumps (canned motor or diaphragm) or those with enclosed venting to a control device. (Emissions from vented equipment should be included in the estimates given in the Emission Points Data Sheet.)

6. Volatile organic compounds (VOC) means the term as defined in 40 CFR □51.100 (s).

7. A light liquid is defined as a fluid with vapor pressure equal to or greater than 0.04 psi (0.3 Kpa) at 20°C. For mixtures, if 20% w/w or more of the stream is composed of fluids with vapor pressures greater than 0.04 psi (0.3 Kpa) at 20 °C, then the fluid is defined as a light liquid.

8. A heavy liquid is defined as a fluid with a vapor pressure less than 0.04 psi (0.3 Kpa) at 20°C. For mixtures, if less than 20% w/w of the stream is composed of fluids with vapor pressures greater than 0.04 psi (0.3 Kpa) at 20 °C, then the fluid is defined as a heavy liquid.

9. LIST CO, H_2S, mineral acids, NO, NO_2, SO_3, etc. DO NOT LIST CO_2, H_2, H_2O, N_2, O_2, and Noble Gases.

10. Include all process valves whether in-line or on an open-ended line such as sample, drain and purge valves. Do not include safety-relief valves, or leakless valves such as check, diaphragm, and bellows seal valves.

11. Do not include a safety-relief valve if there is a rupture disk in place upstream of the valve, or if the valve vents to a control device.

12 Open-ended lines include purge, drain and vent lines. Do not include sampling connections, or lines sealed by plugs, caps, blinds or second valves.

13. Do not include closed-purge sampling connections.

Attachment L
EMISSIONS UNIT DATA SHEET
BULK LIQUID TRANSFER OPERATIONS

Furnish the following information for each new or modified bulk liquid transfer area or loading rack, as shown on the *Equipment List Form* and other parts of this application. This form is to be used for bulk liquid transfer operations such as to and from drums, marine vessels, rail tank cars, and tank trucks.

Identification Number (as assigned on *Equipment List Form*): VOC-Amine-Load

1. Loading Area Name: Degraded Amine Truck Loadout

2. Type of cargo vessels accommodated at this rack or transfer point (check as many as apply):

☐ Drums ☐ Marine Vessels ☐ Rail Tank Cars ☒ Tank Trucks

3. Loading Rack or Transfer Point Data:

Number of pumps	1
Number of liquids loaded	1
Maximum number of marine vessels, tank trucks, tank cars, and/or drums loading at one time	1

4. Does ballasting of marine vessels occur at this loading area?

☐ Yes ☐ No ☒ Does not apply

5. Describe cleaning location, compounds and procedure for cargo vessels using this transfer point:

Vessels are cleaned at a remote service location and/or used for dedicated service.

6. Are cargo vessels pressure tested for leaks at this or any other location?

☐ Yes ☐ No

If YES, describe:

7. Projected Maximum Operating Schedule (for rack or transfer point as a whole):

Maximum	Jan. - Mar.	Apr. - June	July - Sept.	Oct. - Dec.
hours/day	1	1	1	1
days/week	1	1	1	1

weeks/quarter	4	4	4	4

8. Bulk Liquid Data *(add pages as necessary):*							
Pump ID No.							
Liquid Name		degraded amine					
Max. daily throughput (1000 gal/day)		6.3					
Max. annual throughput (1000 gal/yr)		84					
Loading Method [1]		SUB					
Max. Fill Rate (gal/min)		105					
Average Fill Time (min/loading)		60					
Max. Bulk Liquid Temperature (^{o}F)		65.3					
True Vapor Pressure [2]		0.00268					
Cargo Vessel Condition [3]		U					
Control Equipment or Method [4]							
Minimum control efficiency (%)							
Maximum Emission Rate	Loading (lb/hr)	0.015					
	Annual (lb/yr)	0.2					
Estimation Method [5]		EPA					

[1] BF = Bottom Fill SP = Splash Fill SUB = Submerged Fill

[2] At maximum bulk liquid temperature

[3] B = Ballasted Vessel, C = Cleaned, U = Uncleaned (dedicated service), O = other (describe)

[4] List as many as apply (complete and submit appropriate *Air Pollution Control Device Sheets*):CA = Carbon Adsorption LOA = Lean Oil AdsorptionCO = Condensation SC = Scrubber (Absorption)CRA = Compressor-Refrigeration-Absorption TO = Thermal Oxidation or Incineration
CRC = Compression-Refrigeration-Condensation VB = Dedicated Vapor Balance (closed system)
O = other (descibe)

[5] EPA = EPA Emission Factor as stated in AP-42
MB = Material Balance

TM = Test Measurement based upon test data submittal
O = other (describe)

9. **Proposed Monitoring, Recordkeeping, Reporting, and Testing**
Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

MONITORING	RECORDKEEPING
None proposed	Track daily and yearly throughput
REPORTING	**TESTING**
None proposed	None proposed

MONITORING. PLEASE LIST AND DESCRIBE THE PROCESS PARAMETERS AND RANGES THAT ARE PROPOSED TO BE MONITORED IN ORDER TO DEMONSTRATE COMPLIANCE WITH THE OPERATION OF THIS PROCESS EQUIPMENT OPERATION/AIR POLLUTION CONTROL DEVICE.

RECORDKEEPING. PLEASE DESCRIBE THE PROPOSED RECORDKEEPING THAT WILL ACCOMPANY THE MONITORING.

REPORTING. PLEASE DESCRIBE THE PROPOSED FREQUENCY OF REPORTING OF THE RECORDKEEPING.

TESTING. PLEASE DESCRIBE ANY PROPOSED EMISSIONS TESTING FOR THIS PROCESS EQUIPMENT/AIR POLLUTION CONTROL DEVICE.

10. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty

Manufacturer's operating ranges and maintenance procedures will be followed as recommended upon selection/design of the system.

Attachment L
Emission Unit Data Sheet
(INDIRECT HEAT EXCHANGER)

Control Device ID No. (must match List Form): H2001-1C, H2001-2C, H2001-3C, H2001-4C, H2001-5C

Equipment Information

1. Manufacturer: Babcock & Wilcox	2. Model No. Serial No.
3. Number of units: 1	4. Use Generate steam to produce power
5. Rated Boiler Horsepower: 28,203,179.60 hp	6. Boiler Serial No.:
7. Date constructed: 2025	8. Date of last modification and explain: NA
9. Maximum design heat input per unit: 944 $\times 10^6$ BTU/hr	10. Peak heat input per unit: 944 $\times 10^6$ BTU/hr
11. Steam produced at maximum design output: 572,000 LB/hr 1710.3 psig	12. Projected Operating Schedule: Hours/Day 24 Days/Week 7 Weeks/Year 52
13. Type of firing equipment to be used: ☐ Pulverized coal ☐ Spreader stoker ☐ Oil burners ☐ Natural Gas Burner ☒ Others, specify Biomass (Clean Wood Chips)	14. Proposed type of burners and orientation: ☐ Vertical ☐ Front Wall ☐ Opposed ☐ Tangential ☐ Others, specify
15. Type of draft: ☐ Forced ☐ Induced	16. Percent of ash retained in furnace: %
17. Will flyash be reinjected? ☐ Yes ☒ No	18. Percent of carbon in flyash: %

Stack or Vent Data

19. Inside diameter or dimensions: 11.5 ft.	20. Gas exit temperature: 104 °F
21. Height: 200 ft.	22. Stack serves: ☒ This equipment only ☐ Other equipment also (submit type and rating of all other equipment exhausted through this stack or vent)
23. Gas flow rate: 252,874 ft^3/min	
24. Estimated percent of moisture: 4.43 wt. %	

Fuel Requirements

25.	Type	Fuel Oil No.	Natural Gas	Gas (other, specify)	Coal, Type:	Other:
	Quantity (at Design Output)	gph@60°F	Startup: 171,265 ft^3/hr	ft^3/hr	TPH	Biomass: 106.07 ton/hr
	Annually	$\times 10^3$ gal	1.71 $\times 10^6$ ft^3/hr	$\times 10^6$ ft^3/hr	tons	929146.92 ton/yr
	Sulfur	Maximum: wt. % Average: wt. %	0.59 gr/100 ft^3	gr/100 ft^3	Maximum: wt. %	0.01 wt. %
	Ash (%)				Maximum	5.27 wt. %
	BTU Content	BTU/Gal. Lbs/Gal.@60°F	1051 BTU/ft^3	BTU/ft^3	BTU/lb	4,450 BTU/lb
	Source					
	Supplier					
	Halogens (Yes/No)					
	List and Identify Metals					

26. Gas burner mode of control:
☐ Manual ☐ Automatic hi-low
☐ Automatic full modulation ☐ Automatic on-off

27. Gas burner manufacture:

28. Oil burner manufacture:

29. If fuel oil is used, how is it atomized? ☐ Oil Pressure ☐ Steam Pressure ☐ Compressed Air ☐ Rotary Cup ☐ Other, specify

30. Fuel oil preheated: ☐ Yes ☐ No

31. If yes, indicate temperature: °F

32. Specify the calculated theoretical air requirements for combustion of the fuel or mixture of fuels described above actual cubic feet (ACF) per unit of fuel:
@ °F, PSIA, % moisture

33. Emission rate at rated capacity: Refer to Attachment N lb/hr

34. Percent excess air actually required for combustion of the fuel described: %

Coal Characteristics

35. Seams:

36. Proximate analysis (dry basis): % of Fixed Carbon: % of Sulfur:
% of Moisture: % of Volatile Matter:
% of Ash:

Emissions Stream

37. What quantities of pollutants will be emitted from the boiler before controls?

Pollutant	Pounds per Hour lb/hr	grain/ACF	@ °F	PSIA
CO				
Hydrocarbons				
NO_x				
Pb				
PM_{10}				
SO_2				
VOCs				
Other (specify)				

38. What quantities of pollutants will be emitted from the boiler after controls?

Pollutant	Pounds per Hour lb/hr	grain/ACF	@ °F	PSIA
CO	10.20			
Hydrocarbons				
NO_x	20.20			
Pb	0.05			
PM_{10}	15.54			
SO_2	11.58			
VOCs	1.89			
Other (specify) NH3	2.01			
H2SO4	6.35			
HCl	1.18			
Total HAPs	5.40			

39. How will waste material from the process and control equipment be disposed of?
The waste material from the control equipment will be trucked off-site for disposal. The waste water from the process such as boiler blowdown, DCCPS blowdown, cooling tower blowdown, and reject from the raw water and demineralized water treatment system will be fed to a wastewater treatment unit. The fly ash and bottom ash produced by the bolier will be trucked off-site for disposal.

40. Have you completed an *Air Pollution Control Device Sheet(s)* for the control(s) used on this Emission Unit. Yes

41. Have you included the ***air pollution rates*** on the Emissions Points Data Summary Sheet? Yes

42. **Proposed Monitoring, Recordkeeping, Reporting, and Testing**
Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

MONITORING PLAN: Please list (1) describe the process parameters and how they were chosen (2) the ranges and how they were established for monitoring to demonstrate compliance with the operation of this process equipment operation or air pollution control device.

CEMS will be installed to monitor NOx and CO2 per 40 CFR 60 Subpart Db and the acid rain program requirements. A bag-leak detection system will be used to monitor the performance of the fabric filter (baghouse) according to most current requirements in 40 CFR 60.48Da.

TESTING PLAN: Please describe any proposed emissions testing for this process equipment or air pollution control device.

The boiler will be tested within 60 days after achieving maximum output and no later than 180 days after commencing operation.

RECORDKEEPING: Please describe the proposed recordkeeping that will accompany the monitoring.

Follow the recordkeeping requirements in 40 CFR 60 Subpart Db and the acid rain program.

REPORTING: Please describe the proposed frequency of reporting of the recordkeeping.

Follow the reporting requirements in 40 CFR 60 Subpart Db and the acid rain program.

43. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty.
TBD

Attachment L
EMISSIONS UNIT DATA SHEET
STORAGE TANKS

Provide the following information for each new or modified bulk liquid storage tank as shown on the *Equipment List Form* and other parts of this application. A tank is considered modified if the material to be stored in the tank is different from the existing stored liquid.

IF USING US EPA'S TANKS EMISSION ESTIMATION PROGRAM (AVAILABLE AT **www.epa.gov/tnn/tanks.html**), APPLICANT MAY ATTACH THE SUMMARY SHEETS IN LIEU OF COMPLETING SECTIONS III, IV, & V OF THIS FORM. HOWEVER, SECTIONS I, II, AND VI OF THIS FORM MUST BE COMPLETED. US EPA'S AP-42, SECTION 7.1, "ORGANIC LIQUID STORAGE TANKS," MAY ALSO BE USED TO ESTIMATE VOC AND HAP EMISSIONS (**http://www.epa.gov/tnn/chief/**).

I. GENERAL INFORMATION (required)

1. Bulk Storage Area Name	2. Tank Name Amine Makeup Tank
3. Tank Equipment Identification No. (as assigned on *Equipment List Form*) 122-TK-9902	4. Emission Point Identification No. (as assigned on *Equipment List Form*) 122-TK-9902
5. Date of Commencement of Construction (for existing tanks) n/a	
6. Type of change ☒ New Construction ☐ New Stored Material ☐ Other Tank Modification	
7. Description of Tank Modification (if applicable) n/a	
7A. Does the tank have more than one mode of operation? (e.g. Is there more than one product stored in the tank?) ☐ Yes ☒ No	
7B. If YES, explain and identify which mode is covered by this application (Note: A separate form must be completed for each mode). n/a	
7C. Provide any limitations on source operation affecting emissions, any work practice standards (e.g. production variation, etc.): n/a	

II. TANK INFORMATION (required)

8. Design Capacity (specify barrels or gallons). Use the internal cross-sectional area multiplied by internal height. max 8812 gal	
9A. Tank Internal Diameter (ft) 10	9B. Tank Internal Height (or Length) (ft) 15
10A. Maximum Liquid Height (ft) 12	10B. Average Liquid Height (ft) 6
11A. Maximum Vapor Space Height (ft) 14.10	11B. Average Vapor Space Height (ft) 9.10
12. Nominal Capacity (specify barrels or gallons). This is also known as "working volume" and considers design liquid levels and overflow valve heights. 7050 gal	

13A. Maximum annual throughput (gal/yr)	13B. Maximum daily throughput (gal/day)
21,378	7049.7

14. Number of Turnovers per year (annual net throughput/maximum tank liquid volume): 3.03

15. Maximum tank fill rate (gal/min): 165

16. Tank fill method: ☒ Submerged ☐ Splash ☐ Bottom Loading

17. Complete 17A and 17B for Variable Vapor Space Tank Systems ☒ Does Not Apply

17A. Volume Expansion Capacity of System (gal)	17B. Number of transfers into system per year

18. Type of tank (check all that apply):
- ☒ Fixed Roof — X vertical ___ horizontal ___ flat roof X cone roof ___ dome roof ___ other (describe)
- ☐ External Floating Roof ___ pontoon roof ___ double deck roof
- ☐ Domed External (or Covered) Floating Roof
- ☐ Internal Floating Roof ___ vertical column support ___ self-supporting
- ☐ Variable Vapor Space ___ lifter roof ___ diaphragm
- ☐ Pressurized ___ spherical ___ cylindrical
- ☐ Underground
- ☐ Other (describe)

III. TANK CONSTRUCTION & OPERATION INFORMATION (optional if providing TANKS Summary Sheets)

19. Tank Shell Construction: ☐ Riveted ☐ Gunite lined ☐ Epoxy-coated rivets ☐ Other (describe)

20A. Shell Color: White	20B. Roof Color: White	20C. Year Last Painted

21. Shell Condition (if metal and unlined): ☒ No Rust ☐ Light Rust ☐ Dense Rust ☐ Not applicable

22A. Is the tank heated? ☒ YES ☐ NO

22B. If YES, provide the operating temperature (°F): 50

22C. If YES, please describe how heat is provided to tank.

23. Operating Pressure Range (psig): -0.03 to 0.03

24. Complete the following section for **Vertical Fixed Roof Tanks** ☐ Does Not Apply

24A. For dome roof, provide roof radius (ft)

24B. For cone roof, provide slope (ft/ft): 0.0625

25. Complete the following section for **Floating Roof Tanks** ☒ Does Not Apply

25A. Year Internal Floaters Installed:

25B. Primary Seal Type (check one): ☐ Metallic (Mechanical) Shoe Seal ☐ Liquid Mounted Resilient Seal ☐ Vapor Mounted Resilient Seal ☐ Other (describe):

25C. Is the Floating Roof equipped with a Secondary Seal? ☐ YES ☐ NO

25D. If YES, how is the secondary seal mounted? (check one) ☐ Shoe ☐ Rim ☐ Other (describe):

25E. Is the Floating Roof equipped with a weather shield? ☐ YES ☐ NO

25F. Describe deck fittings; indicate the number of each type of fitting:

ACCESS HATCH		
BOLT COVER, GASKETED:	UNBOLTED COVER, GASKETED:	UNBOLTED COVER, UNGASKETED:

AUTOMATIC GAUGE FLOAT WELL		
BOLT COVER, GASKETED:	UNBOLTED COVER, GASKETED:	UNBOLTED COVER, UNGASKETED:

COLUMN WELL		
BUILT-UP COLUMN – SLIDING COVER, GASKETED:	BUILT-UP COLUMN – SLIDING COVER, UNGASKETED:	PIPE COLUMN – FLEXIBLE FABRIC SLEEVE SEAL:

LADDER WELL	
PIP COLUMN – SLIDING COVER, GASKETED:	PIPE COLUMN – SLIDING COVER, UNGASKETED:

GAUGE-HATCH/SAMPLE PORT	
SLIDING COVER, GASKETED:	SLIDING COVER, UNGASKETED:

ROOF LEG OR HANGER WELL		
WEIGHTED MECHANICAL ACTUATION, GASKETED:	WEIGHTED MECHANICAL ACTUATION, UNGASKETED:	SAMPLE WELL-SLIT FABRIC SEAL (10% OPEN AREA)

VACUUM BREAKER	
WEIGHTED MECHANICAL ACTUATION, GASKETED:	WEIGHTED MECHANICAL ACTUATION, UNGASKETED:

RIM VENT	
WEIGHTED MECHANICAL ACTUATION GASKETED:	WEIGHTED MECHANICAL ACTUATION, UNGASKETED:

DECK DRAIN (3-INCH DIAMETER)	
OPEN:	90% CLOSED:

STUB DRAIN
1-INCH DIAMETER:

OTHER (DESCRIBE, ATTACH ADDITIONAL PAGES IF NECESSARY)

26. Complete the following section for Internal Floating Roof Tanks ☒ Does Not Apply	
26A. Deck Type: ☐ Bolted ☐ Welded	
26B. For Bolted decks, provide deck construction:	
26C. Deck seam: ☐ Continuous sheet construction 5 feet wide ☐ Continuous sheet construction 6 feet wide ☐ Continuous sheet construction 7 feet wide ☐ Continuous sheet construction 5 × 7.5 feet wide ☐ Continuous sheet construction 5 × 12 feet wide ☐ Other (describe)	
26D. Deck seam length (ft)	26E. Area of deck (ft^2)
For column supported tanks: 26F. Number of columns:	26G. Diameter of each column:

IV. SITE INFORMANTION (optional if providing TANKS Summary Sheets)

27. Provide the city and state on which the data in this section are based. Huntington, WV	
28. Daily Average Ambient Temperature (°F)	55.75
29. Annual Average Maximum Temperature (°F)	65.3
30. Annual Average Minimum Temperature (°F)	46.2
31. Average Wind Speed (miles/hr)	5.6
32. Annual Average Solar Insulation Factor (BTU/(ft^2·day))	1250
33. Atmospheric Pressure (psia)	14.26

V. LIQUID INFORMATION (optional if providing TANKS Summary Sheets)

34. Average daily temperature range of bulk liquid: 0			
34A. Minimum (°F) 50		34B. Maximum (°F) 50	
35. Average operating pressure range of tank: 0.06			
35A. Minimum (psig) -0.03		35B. Maximum (psig) 0.03	
36A. Minimum Liquid Surface Temperature (°F) 50		36B. Corresponding Vapor Pressure (psia) 0.15	
37A. Average Liquid Surface Temperature (°F) 50		37B. Corresponding Vapor Pressure (psia) 0.15	
38A. Maximum Liquid Surface Temperature (°F) 50		38B. Corresponding Vapor Pressure (psia) 0.15	
39. Provide the following for <u>each</u> liquid or gas to be stored in tank. Add additional pages if necessary.			
39A. Material Name or Composition	MEA/MDEA		
39B. CAS Number	141-43-5/105-59-9		
39C. Liquid Density (lb/gal)	8.46		
39D. Liquid Molecular Weight (lb/lb-mole)	28.80		
39E. Vapor Molecular Weight (lb/lb-mole)	18.06		

Maximum Vapor Pressure 39F. True (psia) 39G. Reid (psia)	0.15 n/a		
Months Storage per Year 39H. From 39I. To	January to December		

VI. EMISSIONS AND CONTROL DEVICE DATA (required)

40. Emission Control Devices (check as many as apply): ☒ Does Not Apply

- ☐ Carbon Adsorption[1]
- ☐ Condenser[1]
- ☐ Conservation Vent (psig)
  - Vacuum Setting — Pressure Setting
- ☐ Emergency Relief Valve (psig)
- ☐ Inert Gas Blanket of
- ☐ Insulation of Tank with
- ☐ Liquid Absorption (scrubber)[1]
- ☐ Refrigeration of Tank
- ☐ Rupture Disc (psig)
- ☐ Vent to Incinerator[1]
- ☐ Other[1] (describe):

[1] Complete appropriate Air Pollution Control Device Sheet.

41. Expected Emission Rate (submit Test Data or Calculations here or elsewhere in the application).

Material Name & CAS No.	Breathing Loss (lb/hr)	Working Loss Amount	Working Loss Units	Annual Loss (lb/yr)	Estimation Method[1]
MEA/141-43-5	< 0.01	< 0.01	lb/hr	0.004	EPA
MDEA/105-59-9	< 0.01	< 0.01	lb/hr	0.001	EPA

[1] EPA = EPA Emission Factor, MB = Material Balance, SS = Similar Source, ST = Similar Source Test, Throughput Data, O = Other (specify)

☒ Remember to attach emissions calculations, including TANKS Summary Sheets if applicable.

Attachment L
EMISSIONS UNIT DATA SHEET
STORAGE TANKS

Provide the following information for each new or modified bulk liquid storage tank as shown on the *Equipment List Form* and other parts of this application. A tank is considered modified if the material to be stored in the tank is different from the existing stored liquid.

IF USING US EPA'S TANKS EMISSION ESTIMATION PROGRAM (AVAILABLE AT **www.epa.gov/tnn/tanks.html**), APPLICANT MAY ATTACH THE SUMMARY SHEETS IN LIEU OF COMPLETING SECTIONS III, IV, & V OF THIS FORM. HOWEVER, SECTIONS I, II, AND VI OF THIS FORM MUST BE COMPLETED. US EPA'S AP-42, SECTION 7.1, "ORGANIC LIQUID STORAGE TANKS," MAY ALSO BE USED TO ESTIMATE VOC AND HAP EMISSIONS (**http://www.epa.gov/tnn/chief/**).

I. GENERAL INFORMATION (required)

1. Bulk Storage Area Name	2. Tank Name Lean Amine Tank
3. Tank Equipment Identification No. (as assigned on *Equipment List Form*) 122-TK-9901	4. Emission Point Identification No. (as assigned on *Equipment List Form*) 122-TK-9901
5. Date of Commencement of Construction (for existing tanks) n/a	
6. Type of change ☒ New Construction ☐ New Stored Material ☐ Other Tank Modification	
7. Description of Tank Modification (if applicable) n/a	
7A. Does the tank have more than one mode of operation? (e.g. Is there more than one product stored in the tank?) ☐ Yes ☒ No	
7B. If YES, explain and identify which mode is covered by this application (Note: A separate form must be completed for each mode). n/a	
7C. Provide any limitations on source operation affecting emissions, any work practice standards (e.g. production variation, etc.): n/a	

II. TANK INFORMATION (required)

8. Design Capacity (specify barrels or gallons). Use the internal cross-sectional area multiplied by internal height. max 375,986 gal	
9A. Tank Internal Diameter (ft) 40	9B. Tank Internal Height (or Length) (ft) 40
10A. Maximum Liquid Height (ft) 32	10B. Average Liquid Height (ft) 16
11A. Maximum Vapor Space Height (ft) 38.42	11B. Average Vapor Space Height (ft) 24.42
12. Nominal Capacity (specify barrels or gallons). This is also known as "working volume" and considers design liquid levels and overflow valve heights. 300,789 gal	

13A. Maximum annual throughput (gal/yr) 322,166	13B. Maximum daily throughput (gal/day) 300,788.6

14. Number of Turnovers per year (annual net throughput/maximum tank liquid volume) 1.07

15. Maximum tank fill rate (gal/min) 816.9

16. Tank fill method ☒ Submerged ☐ Splash ☐ Bottom Loading

17. Complete 17A and 17B for Variable Vapor Space Tank Systems ☒ Does Not Apply

17A. Volume Expansion Capacity of System (gal)	17B. Number of transfers into system per year

18. Type of tank (check all that apply):

☒ Fixed Roof X vertical ___ horizontal ___ flat roof X cone roof ___ dome roof ___ other (describe)

☐ External Floating Roof ___ pontoon roof ___ double deck roof

☐ Domed External (or Covered) Floating Roof

☐ Internal Floating Roof ___ vertical column support ___ self-supporting

☐ Variable Vapor Space ___ lifter roof ___ diaphragm

☐ Pressurized ___ spherical ___ cylindrical

☐ Underground

☐ Other (describe)

III. TANK CONSTRUCTION & OPERATION INFORMATION (optional if providing TANKS Summary Sheets)

19. Tank Shell Construction:

☐ Riveted ☐ Gunite lined ☐ Epoxy-coated rivets ☐ Other (describe) TBD

20A. Shell Color White	20B. Roof Color White	20C. Year Last Painted

21. Shell Condition (if metal and unlined):

☒ No Rust ☐ Light Rust ☐ Dense Rust ☐ Not applicable

22A. Is the tank heated? ☒ YES ☐ NO

22B. If YES, provide the operating temperature (°F) 50

22C. If YES, please describe how heat is provided to tank.

23. Operating Pressure Range (psig): -0.03 to 0.03

24. Complete the following section for **Vertical Fixed Roof Tanks** ☐ Does Not Apply

24A. For dome roof, provide roof radius (ft)

24B. For cone roof, provide slope (ft/ft) 0.0625

25. Complete the following section for **Floating Roof Tanks** ☒ Does Not Apply

25A. Year Internal Floaters Installed:

25B. Primary Seal Type: (check one) ☐ Metallic (Mechanical) Shoe Seal ☐ Liquid Mounted Resilient Seal ☐ Vapor Mounted Resilient Seal ☐ Other (describe):

25C. Is the Floating Roof equipped with a Secondary Seal? ☐ YES ☐ NO

25D. If YES, how is the secondary seal mounted? (check one) ☐ Shoe ☐ Rim ☐ Other (describe):

25E. Is the Floating Roof equipped with a weather shield? ☐ YES ☐ NO

25F. Describe deck fittings; indicate the number of each type of fitting:

ACCESS HATCH		
BOLT COVER, GASKETED:	UNBOLTED COVER, GASKETED:	UNBOLTED COVER, UNGASKETED:

AUTOMATIC GAUGE FLOAT WELL		
BOLT COVER, GASKETED:	UNBOLTED COVER, GASKETED:	UNBOLTED COVER, UNGASKETED:

COLUMN WELL		
BUILT-UP COLUMN – SLIDING COVER, GASKETED:	BUILT-UP COLUMN – SLIDING COVER, UNGASKETED:	PIPE COLUMN – FLEXIBLE FABRIC SLEEVE SEAL:

LADDER WELL	
PIP COLUMN – SLIDING COVER, GASKETED:	PIPE COLUMN – SLIDING COVER, UNGASKETED:

GAUGE-HATCH/SAMPLE PORT	
SLIDING COVER, GASKETED:	SLIDING COVER, UNGASKETED:

ROOF LEG OR HANGER WELL		
WEIGHTED MECHANICAL ACTUATION, GASKETED:	WEIGHTED MECHANICAL ACTUATION, UNGASKETED:	SAMPLE WELL-SLIT FABRIC SEAL (10% OPEN AREA)

VACUUM BREAKER	
WEIGHTED MECHANICAL ACTUATION, GASKETED:	WEIGHTED MECHANICAL ACTUATION, UNGASKETED:

RIM VENT	
WEIGHTED MECHANICAL ACTUATION GASKETED:	WEIGHTED MECHANICAL ACTUATION, UNGASKETED:

DECK DRAIN (3-INCH DIAMETER)	
OPEN:	90% CLOSED:

STUB DRAIN
1-INCH DIAMETER:

OTHER (DESCRIBE, ATTACH ADDITIONAL PAGES IF NECESSARY)

26. Complete the following section for Internal Floating Roof Tanks ☒ Does Not Apply	
26A. Deck Type: ☐ Bolted ☐ Welded	
26B. For Bolted decks, provide deck construction:	
26C. Deck seam: ☐ Continuous sheet construction 5 feet wide ☐ Continuous sheet construction 6 feet wide ☐ Continuous sheet construction 7 feet wide ☐ Continuous sheet construction 5 × 7.5 feet wide ☐ Continuous sheet construction 5 × 12 feet wide ☐ Other (describe)	
26D. Deck seam length (ft)	26E. Area of deck (ft^2)
For column supported tanks: 26F. Number of columns:	26G. Diameter of each column:

IV. SITE INFORMANTION (optional if providing TANKS Summary Sheets)

27. Provide the city and state on which the data in this section are based. Huntington, WV	
28. Daily Average Ambient Temperature (°F)	55.75
29. Annual Average Maximum Temperature (°F)	65.3
30. Annual Average Minimum Temperature (°F)	46.2
31. Average Wind Speed (miles/hr)	5.6
32. Annual Average Solar Insulation Factor (BTU/(ft^2·day))	1250
33. Atmospheric Pressure (psia)	14.26

V. LIQUID INFORMATION (optional if providing TANKS Summary Sheets)

34. Average daily temperature range of bulk liquid: 0			
34A. Minimum (°F) 50		34B. Maximum (°F) 50	
35. Average operating pressure range of tank: 0.06			
35A. Minimum (psig) -0.03		35B. Maximum (psig) 0.03	
36A. Minimum Liquid Surface Temperature (°F) 50		36B. Corresponding Vapor Pressure (psia) 0.15	
37A. Average Liquid Surface Temperature (°F) 50		37B. Corresponding Vapor Pressure (psia) 0.15	
38A. Maximum Liquid Surface Temperature (°F) 50		38B. Corresponding Vapor Pressure (psia) 0.15	
39. Provide the following for <u>each</u> liquid or gas to be stored in tank. Add additional pages if necessary.			
39A. Material Name or Composition	MEA/MDEA		
39B. CAS Number	141-43-5/105-59-9		
39C. Liquid Density (lb/gal)	8.46		
39D. Liquid Molecular Weight (lb/lb-mole)	28.80		
39E. Vapor Molecular Weight (lb/lb-mole)	18.06		

Maximum Vapor Pressure 39F. True (psia) 39G. Reid (psia)	0.15 n/a		
Months Storage per Year 39H. From 39I. To	January to December		

VI. EMISSIONS AND CONTROL DEVICE DATA (required)

40. Emission Control Devices (check as many as apply): ☒ Does Not Apply

- ☐ Carbon Adsorption[1]
- ☐ Condenser[1]
- ☐ Conservation Vent (psig)
  - Vacuum Setting — Pressure Setting
- ☐ Emergency Relief Valve (psig)
- ☐ Inert Gas Blanket of
- ☐ Insulation of Tank with
- ☐ Liquid Absorption (scrubber)[1]
- ☐ Refrigeration of Tank
- ☐ Rupture Disc (psig)
- ☐ Vent to Incinerator[1]
- ☐ Other[1] (describe):

[1] Complete appropriate Air Pollution Control Device Sheet.

41. Expected Emission Rate (submit Test Data or Calculations here or elsewhere in the application).

Material Name & CAS No.	Breathing Loss (lb/hr)	Working Loss Amount	Working Loss Units	Annual Loss (lb/yr)	Estimation Method[1]
MEA/141-43-5	< 0.01	0.01	lb/hr	0.05	EPA
MDEA/105-59-9	< 0.01	< 0.01	lb/hr	0.01	EPA

[1] EPA = EPA Emission Factor, MB = Material Balance, SS = Similar Source, ST = Similar Source Test, Throughput Data, O = Other (specify)

☒ Remember to attach emissions calculations, including TANKS Summary Sheets if applicable.

Attachment L
EMISSIONS UNIT DATA SHEET
GENERAL

To be used for affected sources other than asphalt plants, foundries, incinerators, indirect heat exchangers, and quarries.

Identification Number (as assigned on *Equipment List Form*): 121-CV-4001 A/B, 121-CV-4002, 121-CV-4003, 121-CV-4004, 121-CV-4005, 121-CV-4006 A/B, 121-CV-4007 A/B, 121-S-4001 A/B, 121-TL-0001

1. Name or type and model of proposed affected source:

Fly ash handling operations - emissions from loading fly ash onto conveyors (121-CV-4001 A/B through 121-CV-4007 A/B) and into fly ash storage silos (121-S-4001 A/B) as well as from loading fly ash from the storage silos into trucks through telescoping chutes extending into the trucks (121-TL-0001).

2. On a separate sheet(s), furnish a sketch(es) of this affected source. If a modification is to be made to this source, clearly indicated the change(s). Provide a narrative description of all features of the affected source which may affect the production of air pollutants.

3. Name(s) and maximum amount of proposed process material(s) charged per hour:

4.5 tons of fly ash and 3.3 tons of economizer ash will be produced every hour. Due to the addition of water, 8.6 tons of wet ash need to be transported by truck to off-site for disposal.

The amount of fly ash / economizer ash handled by each conveyor is shown in Table N-6 in Attachment N.

4. Name(s) and maximum amount of proposed material(s) produced per hour:

4.5 tons/hr of fly ash and 3.3 tons of economizer ash will be generated, stored, and conveyed to the fly ash storage silos. 8.6 tons/hr of wet ash will be trucked offsite for disposal.

5. Give chemical reactions, if applicable, that will be involved in the generation of air pollutants:

No reactions. Emissions from fly ash handling and truck loading consists of particulate matter only.

* The identification number which appears here must correspond to the air pollution control device identification number appearing on the *List Form*.

6. Combustion Data (if applicable):

(a) Type and amount in appropriate units of fuel(s) to be burned:

n/a

(b) Chemical analysis of proposed fuel(s), excluding coal, including maximum percent sulfur and ash:

n/a

(c) Theoretical combustion air requirement (ACF/unit of fuel):

n/a @ °F and psia.

(d) Percent excess air: n/a

(e) Type and BTU/hr of burners and all other firing equipment planned to be used:

n/a

(f) If coal is proposed as a source of fuel, identify supplier and seams and give sizing of the coal as it will be fired:

n/a

(g) Proposed maximum design heat input: n/a × 10^6 BTU/hr.

7. Projected operating schedule:

Hours/Day	24	Days/Week	7	Weeks/Year	52

8. Projected amount of pollutants that would be emitted from this affected source if no control devices were used:

@ °F and psia

a.	NO_X	lb/hr	grains/ACF
b.	SO_2	lb/hr	grains/ACF
c.	CO	lb/hr	grains/ACF
d.	PM_{10}	lb/hr	grains/ACF
e.	Hydrocarbons	lb/hr	grains/ACF
f.	VOCs	lb/hr	grains/ACF
g.	Pb	lb/hr	grains/ACF
h.	Specify other(s)		
	See emission calculations in Attachment N.	lb/hr	grains/ACF
		lb/hr	grains/ACF
		lb/hr	grains/ACF
		lb/hr	grains/ACF

NOTE: (1) An Air Pollution Control Device Sheet must be completed for any air pollution device(s) used to control emissions from this affected source.

(2) Complete the Emission Points Data Sheet.

9. Proposed Monitoring, Recordkeeping, Reporting, and Testing
Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

MONITORING	RECORDKEEPING
Monitor the amount of ash generated and trucked offsite for disposal.	
REPORTING	TESTING

MONITORING. PLEASE LIST AND DESCRIBE THE PROCESS PARAMETERS AND RANGES THAT ARE PROPOSED TO BE MONITORED IN ORDER TO DEMONSTRATE COMPLIANCE WITH THE OPERATION OF THIS PROCESS EQUIPMENT OPERATION/AIR POLLUTION CONTROL DEVICE.

RECORDKEEPING. PLEASE DESCRIBE THE PROPOSED RECORDKEEPING THAT WILL ACCOMPANY THE MONITORING.

REPORTING. PLEASE DESCRIBE THE PROPOSED FREQUENCY OF REPORTING OF THE RECORDKEEPING.

TESTING. PLEASE DESCRIBE ANY PROPOSED EMISSIONS TESTING FOR THIS PROCESS EQUIPMENT/AIR POLLUTION CONTROL DEVICE.

10. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty

TBD

Attachment M: Air Pollution Control Device Sheets (Baghouse, SCR, CO Oxidation Catalyst, Injection of Caustic to Control SO_X, Dry Sorbent Injection System, etc)

Attachment M
Air Pollution Control Device Sheet
(BAGHOUSE)

Control Device ID No. (must match Emission Units Table): 121-F-4001 A and 121-F-4001 B

Equipment Information and Filter Characteristics

1. Manufacturer: TBD
   Model No. TBD

2. Total number of compartments: TBD

3. Number of compartment online for normal operation: TBD

4. Provide diagram(s) of unit describing capture system with duct arrangement and size of duct, air volume, capacity, horsepower of movers. If applicable, state hood face velocity and hood collection efficiency.

5. Baghouse Configuration: (check one)
   ☐ Open Pressure ☐ Closed Pressure ☐ Closed Suction
   ☐ Electrostatically Enhanced Fabric
   ☐ Other, Specify

6. Filter Fabric Bag Material:
   ☐ Nomex nylon ☐ Wool
   ☐ Polyester ☐ Polypropylene
   ☐ Acrylics ☐ Ceramics
   ☐ Fiber Glass
   ☐ Cotton Weight oz./sq.yd
   ☐ Teflon Thickness in
   ☐ Others, specify

7. Bag Dimension:
   Diameter in.
   Length ft.

8. Total cloth area: ft^2

9. Number of bags:

10. Operating air to cloth ratio: ft/min

11. Baghouse Operation: ☒ Continuous ☐ Automatic ☐ Intermittent

12. Method used to clean bags:
   ☐ Mechanical Shaker ☐ Sonic Cleaning ☐ Reverse Air Jet
   ☐ Pneumatic Shaker ☐ Reverse Air Flow ☐ Other:
   ☐ Bag Collapse ☒ Pulse Jet
   ☐ Manual Cleaning ☐ Reverse Jet

13. Cleaning initiated by:
   ☒ Timer ☐ Frequency if timer actuated
   ☐ Expected pressure drop range in. of water ☐ Other

14. Operation Hours: Max. per day: 24
    Max. per yr: 8760

15. Collection efficiency: Rating: %
    Guaranteed minimum: 99 %

Gas Stream Characteristics

16. Gas flow rate into the collector: ACFM at °F and PSIA
    ACFM: Design: PSIA Maximum: PSIA Average Expected: PSIA

17. Water Vapor Content of Effluent Stream: lb. Water/lb. Dry Air

18. Gas Stream Temperature: °F

19. Fan Requirements: hp
    OR
    ft^3/min

20. Stabilized static pressure loss across baghouse. Pressure Drop: High in. H_2O
    Low in. H_2O

21. Particulate Loading: Inlet: grain/scf Outlet: grain/scf

22. Type of Pollutant(s) to be collected (if particulate give specific type):

PM, PM_{10}, $PM_{2.5}$

23. Is there any SO_3 in the emission stream? ☐ No ☒ Yes SO_3 content: 2 ppmv

24. Emission rate of pollutant (specify) into and out of collector at maximum design operating conditions:

	IN		OUT	
Pollutant	**lb/hr**	**grains/acf**	**lb/hr**	**grains/acf**
Filterable PM			0.02	
Filterable PM_{10}			0.01	

25. Complete the table:

	Particle Size Distribution at Inlet to Collector	**Fraction Efficiency of Collector**
Particulate Size Range (microns)	**Weight % for Size Range**	**Weight % for Size Range**
0 – 2		
2 – 4		
4 – 6		
6 – 8		
8 – 10		
10 – 12		
12 – 16		
16 – 20		
20 – 30		
30 – 40		
40 – 50		
50 – 60		
60 – 70		
70 – 80		
80 – 90		
90 – 100		
>100		

26. How is filter monitored for indications of deterioration (e.g., broken bags)?
- ☐ Continuous Opacity
- ☒ Pressure Drop
- ☐ Alarms-Audible to Process Operator
- ☐ Visual opacity readings, Frequency:
- ☐ Other, specify:

27. Describe any recording device and frequency of log entries:
TBD

28. Describe any filter seeding being performed:
TBD

29. Describe any air pollution control device inlet and outlet gas conditioning processes (e.g., gas cooling, gas reheating, gas humidification):
TBD

30. Describe the collection material disposal system:
Each fly ash storage silo will be equipped with a pulse jet filter to minimize PM emissions from the storage silo. When the filter is cleaned with pulse air, the captured particles will fall into the silo. The fly ash in the storage silo will be mixed with utility water in pug mills and then trucked off site. The fly ash will have a minimum moisture content of 10 wt% when loaded into trucks.

31. Have you included ***Baghouse Control Device*** in the Emissions Points Data Summary Sheet? Yes

32. **Proposed Monitoring, Recordkeeping, Reporting, and Testing**
Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

MONITORING: Pressure drop	RECORDKEEPING: Pressure drop
REPORTING: Pressure drop	TESTING:

MONITORING:	Please list and describe the process parameters and ranges that are proposed to be monitored in order to demonstrate compliance with the operation of this process equipment or air control device.
RECORDKEEPING:	Please describe the proposed recordkeeping that will accompany the monitoring.
REPORTING:	Please describe any proposed emissions testing for this process equipment on air pollution control device.
TESTING:	Please describe any proposed emissions testing for this process equipment on air pollution control device.

33. Manufacturer's Guaranteed Capture Efficiency for each air pollutant.

    99% for filterable PM as measured by EPA Method 5B.

34. Manufacturer's Guaranteed Control Efficiency for each air pollutant.

    TBD

35. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty.
    TBD

Attachment M
Air Pollution Control Device Sheet
(BAGHOUSE)

Control Device ID No. (must match Emission Units Table): 121-F-9902 A and 121-F-9902 B

Equipment Information and Filter Characteristics

1. Manufacturer: TBD
   Model No. TBD

2. Total number of compartments: TBD

3. Number of compartment online for normal operation: TBD

4. Provide diagram(s) of unit describing capture system with duct arrangement and size of duct, air volume, capacity, horsepower of movers. If applicable, state hood face velocity and hood collection efficiency.

5. Baghouse Configuration: (check one)
   ☐ Open Pressure ☐ Closed Pressure ☐ Closed Suction
   ☐ Electrostatically Enhanced Fabric
   ☐ Other, Specify

6. Filter Fabric Bag Material:
   ☐ Nomex nylon ☐ Wool
   ☐ Polyester ☐ Polypropylene
   ☐ Acrylics ☐ Ceramics
   ☐ Fiber Glass
   ☐ Cotton Weight oz./sq.yd
   ☐ Teflon Thickness in
   ☐ Others, specify

7. Bag Dimension:
   Diameter in.
   Length ft.

8. Total cloth area: ft^2

9. Number of bags:

10. Operating air to cloth ratio: ft/min

11. Baghouse Operation: ☒ Continuous ☐ Automatic ☐ Intermittent

12. Method used to clean bags:
   ☐ Mechanical Shaker ☐ Sonic Cleaning ☐ Reverse Air Jet
   ☐ Pneumatic Shaker ☐ Reverse Air Flow ☐ Other:
   ☐ Bag Collapse ☒ Pulse Jet
   ☐ Manual Cleaning ☐ Reverse Jet

13. Cleaning initiated by:
   ☒ Timer ☐ Frequency if timer actuated
   ☐ Expected pressure drop range in. of water ☐ Other

14. Operation Hours: Max. per day: 24
    Max. per yr: 8760

15. Collection efficiency: Rating: %
    Guaranteed minimum: 90 %

Gas Stream Characteristics

16. Gas flow rate into the collector: ACFM at °F and PSIA
    ACFM: Design: PSIA Maximum: PSIA Average Expected: PSIA

17. Water Vapor Content of Effluent Stream: lb. Water/lb. Dry Air

18. Gas Stream Temperature: °F

19. Fan Requirements: hp
    OR
    ft^3/min

20. Stabilized static pressure loss across baghouse. Pressure Drop: High in. H_2O
    Low in. H_2O

21. Particulate Loading: Inlet: grain/scf Outlet: grain/scf

22. Type of Pollutant(s) to be collected (if particulate give specific type):

PM, PM_{10}, $PM_{2.5}$

23. Is there any SO_3 in the emission stream? ☐ No ☒ Yes SO_3 content: 2 ppmv

24. Emission rate of pollutant (specify) into and out of collector at maximum design operating conditions:

	IN		OUT	
Pollutant	**lb/hr**	**grains/acf**	**lb/hr**	**grains/acf**
Filterable PM			0.0002	
Filterable $PM_{10}/PM_{2.5}$			0.0001	

25. Complete the table:

	Particle Size Distribution at Inlet to Collector	**Fraction Efficiency of Collector**
Particulate Size Range (microns)	**Weight % for Size Range**	**Weight % for Size Range**
0 – 2		
2 – 4		
4 – 6		
6 – 8		
8 – 10		
10 – 12		
12 – 16		
16 – 20		
20 – 30		
30 – 40		
40 – 50		
50 – 60		
60 – 70		
70 – 80		
80 – 90		
90 – 100		
>100		

26. How is filter monitored for indications of deterioration (e.g., broken bags)?
- ☐ Continuous Opacity
- ☒ Pressure Drop
- ☐ Alarms-Audible to Process Operator
- ☐ Visual opacity readings, Frequency:
- ☐ Other, specify:

27. Describe any recording device and frequency of log entries:
TBD

28. Describe any filter seeding being performed:
TBD

29. Describe any air pollution control device inlet and outlet gas conditioning processes (e.g., gas cooling, gas reheating, gas humidification):
TBD

30. Describe the collection material disposal system:
Each $NaHCO_3$ Vent Hopper will be equipped with a pulse jet filter to minimize PM emissions from the hopper. The filter will be located on top of the hopper. When the filter is cleaned with pulse air, the captured particles will fall into the hopper.

31. Have you included ***Baghouse Control Device*** in the Emissions Points Data Summary Sheet? Yes

32. **Proposed Monitoring, Recordkeeping, Reporting, and Testing**
Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

MONITORING: Pressure drop	RECORDKEEPING: Pressure drop
REPORTING: Pressure drop	TESTING:

MONITORING:	Please list and describe the process parameters and ranges that are proposed to be monitored in order to demonstrate compliance with the operation of this process equipment or air control device.
RECORDKEEPING:	Please describe the proposed recordkeeping that will accompany the monitoring.
REPORTING:	Please describe any proposed emissions testing for this process equipment on air pollution control device.
TESTING:	Please describe any proposed emissions testing for this process equipment on air pollution control device.

33. Manufacturer's Guaranteed Capture Efficiency for each air pollutant.

    90% for filterable PM as measured by EPA Method 5B.

34. Manufacturer's Guaranteed Control Efficiency for each air pollutant.

    TBD

35. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty.
    TBD

Attachment M
Air Pollution Control Device Sheet
(BAGHOUSE)

Control Device ID No. (must match Emission Units Table): 121-PKG-1001

Equipment Information and Filter Characteristics

1. Manufacturer: TBD
   Model No. TBD

2. Total number of compartments: TBD

3. Number of compartment online for normal operation: TBD

4. Provide diagram(s) of unit describing capture system with duct arrangement and size of duct, air volume, capacity, horsepower of movers. If applicable, state hood face velocity and hood collection efficiency.

5. Baghouse Configuration: (check one)
   ☐ Open Pressure ☐ Closed Pressure ☐ Closed Suction
   ☐ Electrostatically Enhanced Fabric
   ☐ Other, Specify

6. Filter Fabric Bag Material:
   ☐ Nomex nylon ☐ Wool
   ☐ Polyester ☐ Polypropylene
   ☐ Acrylics ☐ Ceramics
   ☐ Fiber Glass
   ☐ Cotton Weight oz./sq.yd
   ☐ Teflon Thickness in
   ☐ Others, specify

7. Bag Dimension:
   Diameter in.
   Length ft.

8. Total cloth area: ft^2

9. Number of bags:

10. Operating air to cloth ratio: ft/min

11. Baghouse Operation: ☒ Continuous ☐ Automatic ☐ Intermittent

12. Method used to clean bags:
   ☐ Mechanical Shaker ☐ Sonic Cleaning ☐ Reverse Air Jet
   ☐ Pneumatic Shaker ☐ Reverse Air Flow ☐ Other:
   ☐ Bag Collapse ☒ Pulse Jet
   ☐ Manual Cleaning ☐ Reverse Jet

13. Cleaning initiated by:
   ☐ Timer ☐ Frequency if timer actuated
   ☐ Expected pressure drop range in. of water ☐ Other

14. Operation Hours: Max. per day: 24
    Max. per yr: 8760

15. Collection efficiency: Rating: %
    Guaranteed minimum: 99.9 %

Gas Stream Characteristics

16. Gas flow rate into the collector: ACFM at °F and PSIA
    ACFM: Design: PSIA Maximum: PSIA Average Expected: PSIA

17. Water Vapor Content of Effluent Stream: lb. Water/lb. Dry Air

18. Gas Stream Temperature: °F

19. Fan Requirements: hp
    OR ft^3/min

20. Stabilized static pressure loss across baghouse. Pressure Drop: High in. H_2O
    Low in. H_2O

21. Particulate Loading: Inlet: grain/scf Outlet: 0.01 grain/scf

22. Type of Pollutant(s) to be collected (if particulate give specific type):

PM, PM_{10}, $PM_{2.5}$

23. Is there any SO_3 in the emission stream? ☐ No ☐ Yes SO_3 content: ppmv

24. Emission rate of pollutant (specify) into and out of collector at maximum design operating conditions:

	IN		OUT	
Pollutant	**lb/hr**	**grains/acf**	**lb/hr**	**grains/acf**
Filterable PM			1.08	
Filterable $PM_{10}/PM_{2.5}$			1.08	

25. Complete the table:

	Particle Size Distribution at Inlet to Collector	**Fraction Efficiency of Collector**
Particulate Size Range (microns)	**Weight % for Size Range**	**Weight % for Size Range**
0 – 2		
2 – 4		
4 – 6		
6 – 8		
8 – 10		
10 – 12		
12 – 16		
16 – 20		
20 – 30		
30 – 40		
40 – 50		
50 – 60		
60 – 70		
70 – 80		
80 – 90		
90 – 100		
>100		

26. How is filter monitored for indications of deterioration (e.g., broken bags)?
- ☐ Continuous Opacity
- ☒ Pressure Drop
- ☐ Alarms-Audible to Process Operator
- ☐ Visual opacity readings, Frequency:
- ☐ Other, specify:

27. Describe any recording device and frequency of log entries:
TBD

28. Describe any filter seeding being performed:
TBD

29. Describe any air pollution control device inlet and outlet gas conditioning processes (e.g., gas cooling, gas reheating, gas humidification):
TBD

30. Describe the collection material disposal system:
TBD

31. Have you included ***Baghouse Control Device*** in the Emissions Points Data Summary Sheet? Yes

32. **Proposed Monitoring, Recordkeeping, Reporting, and Testing**
Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

MONITORING: Pressure drop	RECORDKEEPING: Pressure drop
REPORTING: Pressure drop	TESTING: Stack testing (initial and subsequent testing as required)

MONITORING:	Please list and describe the process parameters and ranges that are proposed to be monitored in order to demonstrate compliance with the operation of this process equipment or air control device.
RECORDKEEPING:	Please describe the proposed recordkeeping that will accompany the monitoring.
REPORTING:	Please describe any proposed emissions testing for this process equipment on air pollution control device.
TESTING:	Please describe any proposed emissions testing for this process equipment on air pollution control device.

33. Manufacturer's Guaranteed Capture Efficiency for each air pollutant.

99.9% for PM with a diameter < 2.5 microns.

34. Manufacturer's Guaranteed Control Efficiency for each air pollutant.

TBD

35. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty.
TBD.
The final design has not been completed. Operating ranges and maintenance procedures will be determined during the final design. The operating and maintenance procedures provided by the vendor will be followed.

Attachment M
Air Pollution Control Device Sheet
(BAGHOUSE)

Control Device ID No. (must match Emission Units Table): H2001-1C

Equipment Information and Filter Characteristics

1. Manufacturer: TBD
   Model No. TBD

2. Total number of compartments: TBD

3. Number of compartment online for normal operation: TBD

4. Provide diagram(s) of unit describing capture system with duct arrangement and size of duct, air volume, capacity, horsepower of movers. If applicable, state hood face velocity and hood collection efficiency.

5. Baghouse Configuration: (check one)
   ☐ Open Pressure ☐ Closed Pressure ☒ Closed Suction
   ☐ Electrostatically Enhanced Fabric
   ☐ Other, Specify

6. Filter Fabric Bag Material:
   ☐ Nomex nylon ☐ Wool
   ☐ Polyester ☐ Polypropylene
   ☐ Acrylics ☐ Ceramics
   ☐ Fiber Glass
   ☐ Cotton Weight oz./sq.yd
   ☐ Teflon Thickness in
   ☐ Others, specify

7. Bag Dimension:
   Diameter in.
   Length ft.

8. Total cloth area: ft^2

9. Number of bags:

10. Operating air to cloth ratio: ft/min

11. Baghouse Operation: ☒ Continuous ☐ Automatic ☐ Intermittent

12. Method used to clean bags:
   ☐ Mechanical Shaker ☐ Sonic Cleaning ☐ Reverse Air Jet
   ☐ Pneumatic Shaker ☐ Reverse Air Flow ☐ Other:
   ☐ Bag Collapse ☒ Pulse Jet
   ☐ Manual Cleaning ☐ Reverse Jet

13. Cleaning initiated by:
   ☒ Timer ☐ Frequency if timer actuated
   ☐ Expected pressure drop range in. of water ☐ Other

14. Operation Hours: Max. per day: 24
    Max. per yr: 8760

15. Collection efficiency: Rating: %
    Guaranteed minimum: 99.9 %

Gas Stream Characteristics

16. Gas flow rate into the collector: ACFM at °F and PSIA
    ACFM: Design: PSIA Maximum: PSIA Average Expected: PSIA

17. Water Vapor Content of Effluent Stream: lb. Water/lb. Dry Air

18. Gas Stream Temperature: °F

19. Fan Requirements: hp
    OR ft^3/min

20. Stabilized static pressure loss across baghouse. Pressure Drop: High in. H_2O
    Low in. H_2O

21. Particulate Loading: Inlet: grain/scf Outlet: 0.0042 grain/scf

22. Type of Pollutant(s) to be collected (if particulate give specific type):

PM, PM_{10}, $PM_{2.5}$

23. Is there any SO_3 in the emission stream? ☐ No ☒ Yes SO_3 content: 2 ppmv

24. Emission rate of pollutant (specify) into and out of collector at maximum design operating conditions:

	IN		OUT	
Pollutant	**lb/hr**	**grains/acf**	**lb/hr**	**grains/acf**
Filterable PM/PM_{10}/$PM_{2.5}$			7.99	

25. Complete the table:

	Particle Size Distribution at Inlet to Collector	**Fraction Efficiency of Collector**
Particulate Size Range (microns)	**Weight % for Size Range**	**Weight % for Size Range**
0 – 2		
2 – 4		
4 – 6		
6 – 8		
8 – 10		
10 – 12		
12 – 16		
16 – 20		
20 – 30		
30 – 40		
40 – 50		
50 – 60		
60 – 70		
70 – 80		
80 – 90		
90 – 100		
>100		

26. How is filter monitored for indications of deterioration (e.g., broken bags)?
- ☐ Continuous Opacity
- ☒ Pressure Drop
- ☐ Alarms-Audible to Process Operator
- ☐ Visual opacity readings, Frequency:
- ☐ Other, specify:

27. Describe any recording device and frequency of log entries:
TBD

28. Describe any filter seeding being performed:
Pre-coating of the filter bags is required before initial startup or whenever the bags are replaced.

29. Describe any air pollution control device inlet and outlet gas conditioning processes (e.g., gas cooling, gas reheating, gas humidification):
TBD

30. Describe the collection material disposal system:
Pulse jet cleaning discharges the captured fly ash into fly ash hoppers. Then the fly ash will be transferred to two ash storage silos (121-S-4001 A/B) via two PJFF Ash Collection Drag Chain Conveyors (121-CV-4001 A/B), two PJFF Ash Collection Surge Bins (121-S-4002 A/B), a PJFF Ash Transport Drag Chain Conveyor (121-CV-4003), an Ash Bucket Elevator (121-CV-4004), and an Ash Distribution Drag Chain Conveyor (121-CV-4005). Each fly ash storage silo will be equipped with a pulse jet filter to minimize PM from the storage silo. When a sufficient volume has been collected, the fly ash will be mixed with utility water in pug mills and then trucked off site. The fly ash will have a minimum moisture content of 10 wt% when loaded into trucks. The chute used to dispense fly ash into the truck will be designed to minimize PM emissions.

31. Have you included ***Baghouse Control Device*** in the Emissions Points Data Summary Sheet? Yes

32. **Proposed Monitoring, Recordkeeping, Reporting, and Testing**
Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

MONITORING: Pressure drop	RECORDKEEPING: Pressure drop
REPORTING: Pressure drop	TESTING: Stack testing (initial and subsequent testing as required)

MONITORING:	Please list and describe the process parameters and ranges that are proposed to be monitored in order to demonstrate compliance with the operation of this process equipment or air control device.
RECORDKEEPING:	Please describe the proposed recordkeeping that will accompany the monitoring.
REPORTING:	Please describe any proposed emissions testing for this process equipment on air pollution control device.
TESTING:	Please describe any proposed emissions testing for this process equipment on air pollution control device.

33. Manufacturer's Guaranteed Capture Efficiency for each air pollutant.

99.9% for filterable PM as measured by EPA Method 5B.

34. Manufacturer's Guaranteed Control Efficiency for each air pollutant.

TBD

35. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty.
TBD

Attachment M
Air Pollution Control Device Sheet
(OTHER COLLECTORS)

Control Device ID No. (must match Emission Units Table): H2001-2C, H2001-3C, H2001-4C, H2001-5C

Equipment Information

1. Manufacturer: TBD Model No. TBD	2. Control Device Name: SCR, OxyCat, Wet FGD, DSI Type: TBD
3. Provide diagram(s) of unit describing capture system with duct arrangement and size of duct, air volume, capacity, horsepower of movers. If applicable, state hood face velocity and hood collection efficiency.	
4. On a separate sheet(s) supply all data and calculations used in selecting or designing this collection device.	
5. Provide a scale diagram of the control device showing internal construction.	
6. Submit a schematic and diagram with dimensions and flow rates.	
7. Guaranteed minimum collection efficiency for each pollutant collected: 92% for SCR, 90% for OxyCat, 63% for Wet FGD, 97.2% for DSI	
8. Attached efficiency curve and/or other efficiency information.	
9. Design inlet volume: SCFM	10. Capacity:
11. Indicate the liquid flow rate and describe equipment provided to measure pressure drop and flow rate, if any.	
12. Attach any additional data including auxiliary equipment and operation details to thoroughly evaluate the control equipment.	
13. Description of method of handling the collected material(s) for reuse of disposal.	

Gas Stream Characteristics

14. Are halogenated organics present?	☐ Yes	☒ No
Are particulates present?	☒ Yes	☐ No
Are metals present?	☐ Yes	☒ No

15. Inlet Emission stream parameters:	**Maximum**	**Typical**
Pressure (mmHg):		
Heat Content (BTU/scf):		
Oxygen Content (%):		
Moisture Content (%):		
Relative Humidity (%):		

16. Type of pollutant(s) controlled: ☒ SO_x ☐ Odor ☐ Particulate (type): ☒ Other NOx, CO, HCl	
17. Inlet gas velocity: ft/sec	18. Pollutant specific gravity:
19. Gas flow into the collector: ACF @ °F and PSIA	20. Gas stream temperature: Inlet: °F Outlet: °F
21. Gas flow rate: Design Maximum: ACFM Average Expected: ACFM	22. Particulate Grain Loading in grains/scf: Inlet: Outlet:

23. Emission rate of each pollutant (specify) into and out of collector:

Pollutant	IN Pollutant		Emission Capture Efficiency %	OUT Pollutant		Control Efficiency %
	lb/hr	grains/acf		lb/hr	grains/acf	
A NOx			100	20.20		92%
B CO			100	10.20		90%
C VOC			100	1.89		60%
D SO2			100	11.58		63%
E HCl			100	1.18		97.2%

24. Dimensions of stack: Height ft. Diameter ft.

25. Supply a curve showing proposed collection efficiency versus gas volume from 25 to 130 percent of design rating of collector.

Particulate Distribution

26. Complete the table:	Particle Size Distribution at Inlet to Collector	Fraction Efficiency of Collector
Particulate Size Range (microns)	Weight % for Size Range	Weight % for Size Range
0 – 2		
2 – 4		
4 – 6		
6 – 8		
8 – 10		
10 – 12		
12 – 16		
16 – 20		
20 – 30		
30 – 40		
40 – 50		
50 – 60		
60 – 70		
70 – 80		
80 – 90		
90 – 100		
>100		

27. Describe any air pollution control device inlet and outlet gas conditioning processes (e.g., gas cooling, gas reheating, gas humidification):

28. Describe the collection material disposal system:

29. Have you included ***Other Collectores Control Device*** in the Emissions Points Data Summary Sheet? Yes

30. **Proposed Monitoring, Recordkeeping, Reporting, and Testing**
Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

MONITORING: see the EUDS for the BFB	RECORDKEEPING: see the EUDS for the BFB
REPORTING: see the EUDS for the BFB	TESTING: see the EUDS for the BFB

MONITORING:	Please list and describe the process parameters and ranges that are proposed to be monitored in order to demonstrate compliance with the operation of this process equipment or air control device.
RECORDKEEPING:	Please describe the proposed recordkeeping that will accompany the monitoring.
REPORTING:	Please describe any proposed emissions testing for this process equipment on air pollution control device.
TESTING:	Please describe any proposed emissions testing for this process equipment on air pollution control device.

31. Manufacturer's Guaranteed Control Efficiency for each air pollutant.

32. Manufacturer's Guaranteed Control Efficiency for each air pollutant.

33. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty.
The final design has not been completed. Operating ranges and maintenance procedures will be determined during the final design. The operating and maintenance procedures provided by the vendor will be followed.

Attachment N: Supporting Emission Calculations

MGS CNP 1, LLC Biomass Fired Power Plant Initial Minor NSR Application Emission Calculations Summary

Emission ID	NO_x		CO		PM		PM_{10}		$PM_{2.5}$		PM- Filterable		PM_{10} - Filterable		$PM_{2.5}$ - Filterable		VOC		SO_2		NH_3		H_2SO_4		Pb	
	lb/hr	Tons/Yr	lb/hr	Tons/Yr	lb/hr	Tons/Yr	lb/hr	Tons/Yr	lb/hr	Tons/Yr	lb/hr	Tons/Yr	lb/hr	Tons/Yr	lb/hr	Tons/Yr	lb/hr	Tons/Yr	lb/hr	Tons/Yr	lb/hr	Tons/Yr	lb/hr	Tons/Yr	lb/hr	Tons/Yr
121-H-2001	20.20	90.42	10.20	45.65	15.54	67.83	15.54	67.83	15.54	67.83	7.99	34.87	7.99	34.87	7.99	34.87	4.43	18.33	11.58	50.78	5.09	20.98	6.35	27.86	0.05	0.20
129-P-9402	3.95	0.20	3.45	0.17	0.20	<0.01	0.20	<0.01	0.20	<0.01	0.20	<0.01	0.20	<0.01	0.20	<0.01	3.95	0.20	<0.01	<0.01	--	--	--	--	--	--
129-PKG-0001	6.61	0.33	13.23	0.66	0.20	<0.01	0.20	<0.01	0.20	<0.01	0.20	<0.01	0.20	<0.01	0.20	<0.01	5.67	0.28	0.03	<0.01	--	--	--	--	--	--
127-PKG-0001	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.51	2.10	0.64	2.79	--	--
121-LS-1001 / 121-LS-1002	--	--	--	--	1.08	4.72	1.08	4.72	1.08	4.72	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-1001	--	--	--	--	0.06	0.19	0.03	0.09	<0.01	0.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-1002	--	--	--	--	0.06		0.03		<0.01		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHIP-1	--	--	--	--	0.11	0.37	0.05	0.18	<0.01	0.03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-S-1001	--	--	--	--	0.11	0.37	0.05	0.18	<0.01	0.03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-1003	--	--	--	--	0.06	0.19	0.03	0.09	<0.01	0.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-2001 A	--	--	--	--	0.06	0.19	0.03	0.09	<0.01	0.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-2001 B	--	--	--	--	0.06		0.03		<0.01		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-S-2001 A	--	--	--	--	0.06	0.19	0.03	0.09	<0.01	0.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-S-2001 B	--	--	--	--	0.06		0.03		<0.01		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHIP-2	--	--	--	--	--	0.21	--	0.11	--	0.02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-4001 A	--	--	--	--	0.54	1.79	0.25	0.85	0.04	0.13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-4001 B	--	--	--	--	0.54		0.25		0.04		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-4002	--	--	--	--	0.54	1.79	0.25	0.85	0.04	0.13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-4003	--	--	--	--	0.54	1.79	0.25	0.85	0.04	0.13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-4004	--	--	--	--	0.54	1.79	0.25	0.85	0.04	0.13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-4005	--	--	--	--	0.54	1.79	0.25	0.85	0.04	0.13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-4006 A	--	--	--	--	0.39	1.31	0.19	0.62	0.03	0.09	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-4006 B	--	--	--	--	0.39		0.19		0.03		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-4007 A	--	--	--	--	0.39	1.31	0.19	0.62	0.03	0.09	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-4007 B	--	--	--	--	0.39		0.19		0.03		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-S-4001 A	--	--	--	--	0.02	0.06	<0.01	0.03	<0.01	<0.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-S-4001 B	--	--	--	--	0.02		<0.01		<0.01		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-TL-0001	--	--	--	--	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-5001 A	--	--	--	--	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-5001 B	--	--	--	--	<0.01		<0.01		<0.01		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-5002A	--	--	--	--	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-5002B	--	--	--	--	<0.01		<0.01		<0.01		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-S-1002	--	--	--	--	0.35	<0.01	0.17	<0.01	0.17	<0.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-1004	--	--	--	--	0.17	<0.01	0.08	<0.01	0.08	<0.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-5003 A	--	--	--	--	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-5003 B	--	--	--	--	<0.01		<0.01		<0.01		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-5004 A	--	--	--	--	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-5004 B	--	--	--	--	<0.01		<0.01		<0.01		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-S-9902 A	--	--	--	--	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-S-9902 B	--	--	--	--	<0.01		<0.01		<0.01		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-X-9901 A / 121-X-9901 B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
129-CT-9301	--	--	--	--	2.02	3.01	1.48	2.52	0.67	1.26	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PM-PlantRd	--	--	--	--	10.74	9.50	2.15	1.90	0.53	0.47	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
129-TK-9402	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
122-TK-9902	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.01	<0.01	--	--	--	--	--	--	--	--
122-TK-9901	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.01	<0.01	--	--	--	--	--	--	--	--
BECCS-FUG	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	8.32	36.46	--	--	0.60	2.64	--	--	--	--
VOC - Amine -LOAD	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.01	<0.01	--	--	--	--	--	--	--	--
Totals:	**30.76**	**90.95**	**26.88**	**46.48**	**35.76**	**98.51**	**23.48**	**83.35**	**18.86**	**75.28**	**8.38**	**34.89**	**8.38**	**34.89**	**8.38**	**34.89**	**22.40**	**55.27**	**11.62**	**50.78**	**6.20**	**25.72**	**6.99**	**30.65**	**0.05**	**0.20**

MGS CNP 1, LLC Biomass Fired Power Plant Initial Minor NSR Application Emission Calculations HAPs Summary																
Emission ID	**Total HAPs**		**Acetaldehyde**		**Acrolein**		**Benzene**		**Formaldehyde**		**HCl**		**Styrene**		**Toluene**	
	lb/hr	**Tons/Yr**	**lb/hr**	**Tons/Yr**	**lb/hr**	**Tons/Yr**	**lb/hr**	**Tons/Yr**	**lb/hr**	**Tons/Yr**	**lb/hr**	**Tons/Yr**	**lb/hr**	**Tons/Yr**	**lb/hr**	**Tons/Yr**
121-H-2001	5.43	23.36	--	8.14	--	1.95	--	2.05	--	2.56	1.18	5.65	--	0.93	--	0.45
129-P-9402	0.02	<0.01	--	<0.01	--	<0.01	--	<0.01	--	<0.01	--	--	--	--	--	<0.01
129-PKG-0001	1.43	0.07	--	<0.01	--	<0.01	--	<0.01	--	0.05	--	--	--	<0.01	--	<0.01
127-PKG-0001	0.12	0.57	--	--	--	--	--	--	--	--	0.12	0.57	--	--	--	--
Totals:	**6.99**	**24.00**	**<0.01**	**8.15**	**<0.01**	**1.96**	**<0.01**	**2.05**	**<0.01**	**2.61**	**1.30**	**6.22**	**<0.01**	**0.93**	**<0.01**	**0.45**

MGS CNP 1, LLC
Biomass Fired Power Plant
Initial Minor NSR Application
Emission Calculations

Date:	NSR Air Permit Initian Application	Permit No.:
Area Name:	Biomass Energy Power Plant	

AIR CONTAMINANT DATA

1. Emission Point			2. Component or Air Contaminant Name	3. Air Contaminant Emission Rate	
Emission Unit (A)	Emission Point (B)	Name (C)		(lbs/hr) (A)	(tons/yr) (B)
121-H-2001	121-PKG-3001 122-T-1001	Wood Chip Fired Fluidized Bed Boiler	NOx	20.20	90.42
			CO	10.20	45.65
			PM- Filterable	7.99	34.87
			PM10 - Filterable	7.99	34.87
			PM2.5 - Filterable	7.99	34.87
			PM	15.54	67.83
			PM10	15.54	67.83
			PM2.5	15.54	67.83
			VOC	4.43	18.33
			SO2	11.58	50.78
			NH3	5.09	20.98
			H2SO4	6.35	27.86
			Pb	0.05	0.20
			HCl	1.18	5.65
			Total HAPs	5.43	23.36
121-H-2001	121-PKG-3001	Wood Chip Fired Fluidized Bed Boiler Startup + Normal Operation without CCU	NOx	-	10.26
			CO	-	5.17
			PM - Filterable	-	3.16
			PM10 - Filterable	-	3.16
			PM2.5 - Filterable	-	3.16
			PM	-	6.16
			PM10	-	6.16
			PM2.5	-	6.16
			VOC	-	0.74
			SO2	-	4.82
			NH3	-	0.77
			H2SO4	-	2.65
			Pb	-	0.02
			HCl	-	0.97
			Total HAPs	-	1.83
121-H-2001	122-T-1001	Wood Chip Fired Fluidized Bed Boiler Normal Operation (with CCU)	NOx	-	80.16
			CO	-	40.48
			PM	-	61.68
			PM10	-	61.68
			PM2.5	-	61.68
			PM- Filterable	-	31.71
			PM10 - Filterable	-	31.71
			PM2.5 - Filterable	-	31.71
			VOC	-	17.59
			SO2	-	45.96
			NH3	-	20.21
			H2SO4	-	25.21
			Pb	-	0.18
			HCl	-	4.68
			Total HAPs	-	21.53
121-LS-1001 / 121-LS-1002	121-PKG-1001	Biomass Unloading Baghouse	PM	1.08	4.72
			PM10	1.08	4.72
			PM2.5	1.08	4.72
121-CV-1001	121-CV-1001	Conveyor #1 from Biomass Receiving Hopper 1001 to Storage Pile	PM	0.06	-
			PM10	0.03	-
			PM2.5	0.00	-

MGS CNP 1, LLC
Biomass Fired Power Plant
Initial Minor NSR Application
Emission Calculations

Date:	NSR Air Permit Initian Application	Permit No.:
Area Name:	Biomass Energy Power Plant	

AIR CONTAMINANT DATA

1. Emission Point			2. Component or Air Contaminant Name	3. Air Contaminant Emission Rate	
Emission Unit (A)	Emission Point (B)	Name (C)		(lbs/hr) (A)	(tons/yr) (B)
121-CV-1002	121-CV-1002	Conveyor #2 from Biomass Receiving Hopper 1002 to Storage Pile	PM	0.06	-
			PM10	0.03	-
			PM2.5	0.00	-
121-CV-1001 / 121-CV-1002	121-CV-1001 / 121-CV-1002	Conveyors from Biomass Receiving Hoppers to Storage Pile	PM	-	0.19
			PM10	-	0.09
			PM2.5	-	0.01
CHIP-1	Biomass Storage Pile Loading Fugitives	Biomass Storage Pile Loading Fugitives	PM	0.11	0.37
			PM10	0.05	0.18
			PM2.5	0.01	0.03
121-S-1001	121-S-1001	Biomass Feed Hopper	PM	0.11	0.37
			PM10	0.05	0.18
			PM2.5	0.01	0.03
121-CV-1003	121-CV-1003	Conveyor from Feed Hopper to 121-CV-2001 A/B	PM	0.06	0.19
			PM10	0.03	0.09
			PM2.5	0.00	0.01
121-CV-2001 A	121-CV-2001 A	Screw Conveyor from 121-CV-1003 to Biomass Fuel Metering Bin 121-S-2001 A	PM	0.06	-
			PM10	0.03	-
			PM2.5	0.00	-
121-CV-2001 B	121-CV-2001 B	Screw Conveyor from 121-CV-1003 to Biomass Fuel Metering Bin 121-S-2001 B	PM	0.06	-
			PM10	0.03	-
			PM2.5	0.00	-
121-CV-2001 A / 121-CV-2001 B	121-CV-2001 A / 121-CV-2001 B	Conveyors from 121-CV-1003 to Biomass Fuel Metering Bins 121-CV-2001 A/B	PM	-	0.19
			PM10	-	0.09
			PM2.5	-	0.01
121-S-2001 A	121-S-2001 A	Biomass Fuel Metering Bin A	PM	0.06	-
			PM10	0.03	-
			PM2.5	0.004	-
121-S-2001 B	121-S-2001 B	Biomass Fuel Metering Bin B	PM	0.06	-
			PM10	0.03	-
			PM2.5	0.00	-
121-S-2001 A / 121-S-2001 B	121-S-2001 A / 121-S-2001 B	Biomass Fuel Measuring Bin A / Biomass Fuel Measuring Bin B	PM	-	0.19
			PM10	-	0.09
			PM2.5	-	0.01
CHIP-2	CHIP-2	Wood Chips Storage Pile Wind Erosion	PM	--	0.21
			PM10	--	0.11
			PM2.5	--	0.02
121-CV-4001 A	121-CV-4001 A	PJFF Ash Collection Drag Chain Conveyor A (From boiler hopper to surge bin A)	PM	0.54	-
			PM10	0.25	-
			PM2.5	0.04	-
121-CV-4001 B	121-CV-4001 B	PJFF Ash Collection Drag Chain Conveyor B (from boiler hopper to surge bin B)	PM	0.54	-
			PM10	0.25	-
			PM2.5	0.04	-
121-CV-4001 A / 121-CV-4001 B	121-CV-4001 A / 121-CV-4001 B	PJFF Ash Collecting Drag Chain Conveyors (from boiler hopper to surge bins)	PM	-	1.79
			PM10	-	0.85
			PM2.5	-	0.13
121-CV-4002	121-CV-4002	PJFF Ash Transport Drag Chain Conveyor (From Surge Bins #1 and #2 to PJFF Ash Transfer Drag Chain Conveyor)	PM	0.54	1.79
			PM10	0.25	0.85
			PM2.5	0.04	0.13
121-CV-4003	121-CV-4003	PJFF Ash Transfer Drag Chain Conveyor (to Ash Bucket Elevator)	PM	0.54	1.79
			PM10	0.25	0.85
			PM2.5	0.04	0.13
121-CV-4004	121-CV-4004	Ash Bucket Elevator	PM	0.54	1.79
			PM10	0.25	0.85
			PM2.5	0.04	0.13

MGS CNP 1, LLC
Biomass Fired Power Plant
Initial Minor NSR Application
Emission Calculations

Date:	NSR Air Permit Initian Application	Permit No.:
Area Name:	Biomass Energy Power Plant	

AIR CONTAMINANT DATA

1. Emission Point			2. Component or Air Contaminant Name	3. Air Contaminant Emission Rate	
Emission Unit (A)	Emission Point (B)	Name (C)		(lbs/hr) (A)	(tons/yr) (B)
121-CV-1004	121-CV-1004	Inclined Sand Hopper Conveyor	PM	0.17	0.003
			PM10	0.08	0.001
			PM2.5	0.08	0.001
121-CV-5003 A	121-CV-5003 A	Transfer Conveyor A (Recycled Sand) (From Vibrating Screener A to Sand Bucket Elevator A)	PM	0.0004	-
			PM10	0.0002	-
			PM2.5	0.0002	-
121-CV-5003 B	121-CV-5003 B	Transfer Conveyor B (Recycled Sand) (From Vibrating Screener B to Sand Bucket Elevator B)	PM	0.0004	-
			PM10	0.0002	-
			PM2.5	0.0002	-
121-CV-5003 A / 121-CV-5003 B	121-CV-5003 A / 121-CV-5003 B	Transfer Conveyors (Recycled Sand)	PM	-	0.0019
			PM10	-	0.0009
			PM2.5	-	0.0009
121-CV-5004 A	121-CV-5004 A	Sand Bucket Elevator A (Recycled Sand + Fresh Sand)	PM	0.0011	-
			PM10	0.0005	-
			PM2.5	0.0005	-
121-CV-5004 B	121-CV-5004 B	Sand Bucket Elevator B (Recycled Sand + Fresh Sand)	PM	0.0011	-
			PM10	0.0005	-
			PM2.5	0.0005	-
121-CV-5004 A / 121-CV-5004 B	121-CV-5004 A / 121-CV-5004 B	Sand Bucket Elevators	PM	-	0.0049
			PM10	-	0.0023
			PM2.5	-	0.0023
121-S-9902 A	121-F-9902 A	Sodium Bicarbonate Vent Hopper A	PM	1.95E-04	-
			PM10	7.50E-05	-
			PM2.5	7.50E-05	-
121-S-9902 B	121-F-9902 B	Sodium Bicarbonate Vent Hopper B	PM	1.95E-04	-
			PM10	7.50E-05	-
			PM2.5	7.50E-05	-
121-S-9902 A; 121-S-9902 B	121-F-9902A; 121-F-9902 B	Sodium Bicarbonate Vent Hoppers	PM	-	8.54E-04
			PM10	-	3.29E-04
			PM2.5	-	3.29E-04
129-CT-9301	129-CT-9301	Cooling Tower	PM	2.02	3.01
			PM10	1.48	2.52
			PM2.5	0.67	1.26
PM-PlantRd	PM-PlantRd	Truck Road Fugitive Particulate Emissions	PM	10.74	9.50
			PM10	2.15	1.90
			PM2.5	0.53	0.47
129-TK-9402	129-TK-9402	Diesel Tank	VOC	0.07	0.0003
122-TK-9902	122-TK-9902	Amine Makeup Tank	VOC	0.0014	0.000002
122-TK-9901	122-TK-9901	Lean Amine Tank	VOC	0.0100	0.00003

MGS CNP 1, LLC
Biomass Fired Power Plant
Initial Minor NSR Application
Emission Calculations

Date:	NSR Air Permit Initian Application	Permit No.:
Area Name:	Biomass Energy Power Plant	

AIR CONTAMINANT DATA

1. Emission Point			2. Component or Air Contaminant Name	3. Air Contaminant Emission Rate	
Emission Unit (A)	Emission Point (B)	Name (C)		(lbs/hr) (A)	(tons/yr) (B)
129-P-9402	129-P-9402	Fire Water Pump	NOx	3.95	0.20
			CO	3.45	0.17
			PM	0.20	0.01
			PM10	0.20	0.01
			PM2.5	0.20	0.01
			VOC	3.95	0.20
			SO2	0.01	0.00
			Total HAPs	0.02	0.00
129-PKG-0001	129-PKG-0001	NG Startup Generator	NOx	6.61	0.331
			CO	13.23	0.661
			PM	0.20	0.010
			PM10	0.20	0.010
			PM2.5	0.20	0.010
			VOC	5.67	0.284
			SO2	0.03	0.002
			Total HAPs	1.43	0.07
BECCS-FUG	BECCS-FUG	BECCS Plant Equipment Leaks	VOC	8.32	36.46
			NH3	0.60	2.64
VOC - Amine -LOAD	VOC - Amine -LOAD	Truck Loadout of Degraded Amine	VOC	0.015	0.0001
127-PKG-0000	127-PKG-0000	Wastewater Treatment Plant	NH3	0.51	2.098
			H2SO4	0.64	2.786
			HCl2	0.12	0.565

List of Tables in Attachment N - Emission Calculations

Table N-1 Bubbling Fluidized Bed Boiler
Table N-2 Biomass Unloading (Receiving Hoppers)
Table N-3 Emission Factors for Biomass Handling Process
Table N-4 Emissions from Biomass Handling Process
Table N-5 Storage Pile Wind Erosion
Table N-6 Fly Ash Handling Process
Table N-7 Sand Handling Process
Table N-8 Sodium Bicarbonate Handling Process
Table N-9 Cooling Tower
Table N-10 Transport Truck Road Particulate Matter Emissions
Table N-11 Fixed Roof Tanks
Table N-12 Fire Water Pump
Table N-13 NG Startup Generator
Table N-14 Equipment Leaks
Table N-15 Degraded Amine Loadout
Table N-16 Waste Water Treatment Plant

Table N-1 Bubbling Fluidized Bed Boiler
MGS CNP 1, LLC

Source Name:	Wood Chip Fired Fluidized Bed Boiler	**EPN:**	121-PKG-3001; 122-T-1001	
Proposed MAERT Limits		**Date:**	2/5/2025	
FIN	**EPN**	**Air Contaminant**	**lbs/hr [1]**	**tpy**
121-H-2001	121-PKG-3001 122-T-1001	NOx	20.20	90.42
		CO	10.20	45.65
		PM- Filterable	7.99	34.87
		PM10 - Filterable	7.99	34.87
		PM2.5 - Filterable	7.99	34.87
		PM	15.54	67.83
		PM10	15.54	67.83
		PM2.5	15.54	67.83
		VOC	4.43	18.33
		SO2	11.58	50.78
		NH3	5.09	20.98
		H2SO4	6.35	27.86
		Pb	0.05	0.20
		HCl	1.18	5.65
		HAPs	5.43	23.36

[1] hourly emission rate is the emission rate under normal operating conditions.

Process Description:

Emissions from the boiler result from combustion of clean wood products. Emissions from the boiler are controlled by the following equipment:

-Pulse Jet Fabric Filter to control PM/PM10/PM2.5

-Selective Catalytic Reduction unit fed with aqueous ammonia to control NOx

-CO Oxidation Catalyst to control CO

-Injection of Caustic to Control SOx (Wet Flue Gas Desulfurization)

-Dry Sorbent injection system injects Sodium Bicarbonate (NaHCO3) into the flue gas to control HCl and H2SO4

Bases and Factors:

Factors are based on Vendor's Guarantee. The emission calculations are based on emission factors provided by the boiler supplier.

The carbon capture unit will capture 95% of the CO2 in the boiler flue gas. It is assumed that the carbon capture unit will not reduce the NO_X, CO and VOC emissions from boiler combustion.

into the atmosphere along with the CO2-depleted gas stream. These emissions are added to those from boiler combustion to arrive at total emissions of these compounds.

Emissions of these compounds are estimated based on the best information currently available.

Since the flue gas temperature after the CCCU is close to the ambient air temperature, it is assumed that no condensable particulate matter will be formed in the flue gas after the CCU.

Pounds per Hour Emissions:

Max Emissions (lb/hr) = Emission Factor (lb/MMBtu) x Boiler Max Heat Input (MMBtu/hr)

Tons per Year Emissions:

Max Emissions (tpy) = [Max Emissions (lbs/hr) x Annual Operating Hours (hr/yr)] / 2,000 (lbs/ton)

Emission Calculations

Ideal Gas Law Constant R:	0.73024	$atm.ft^3.lbmol^{-1}.°R^{-1}$	
Volume of 1 lbmol gas @ 1.04 atm and 104 °F	396.04	ft3/lbmol	
Volume of 1 lbmol gas @ 1 atm and 32 °F:	359.04	ft3/lbmol	
1 hour:	60.00	min	
Gas Temperature	104.00	°F	
Gas Pressure	16.00	inwg	
Gas Pressure	1.04	atm, absolute	1 atm = 406.78 in H2O
Total Mass Flow	1,036,759	lb/hr	
CO2	210,734	lb/hr	
H2O	45,945	lb/hr	
O2	54,236	lb/hr	
Water Vapor Volumetric Flow before CCU	16829.40	acfm	
Dry Flue Gas Volumetric Flow before CCU	213,814.19	acfm, dry	
Wet Flue Gas Volumetric Flow before CCU	230,643.59	acfm, wet	
Wet Flue Gas Volumetric Flow before CCU	220,995.00	scfm, wet	
CO2 Removal Efficiency	95%		
Wet Flue Gas Flow after CCU	835,337.00	lb/hr	
MW of the Wet Flue Gas after CCU	27.38	lb/lbmol	
Wet Flue Gas Volumetric Flow after CCU	310,179.62	Nm3/hr	

Data:

Boiler Maximum Heat Input:	944	MMBtu/hr
Annual Operating Hours:	8760	hours/year
Startup Hours per Year:	55	hours/yr
Startup Hours + CCU Out of Service	823	hours/yr
Maximum Heat Input from NG during Startup:	180	MMBtu/hr
Average Heat Input from NG during Startup:	131.1	MMBtu/hr
Duration of NG Combustion during each Startup:	10	hours
Average Heat Input from NG + Biomass during Startup:	414.3	MMBtu/hr

Table N-1 Bubbling Fluidized Bed Boiler
MGS CNP 1, LLC

Emissions from Boiler Combustion

Pollutant	Normal Operation Emission Factor	Normal Operation Emission Factor	Note	Normal Operation (Hourly Maximum)	Normal Operation (Annual)	Startup Emission Factor	Note	Startup Annual Total	Annual Total
	ppmvd	lb/MMBtu		lb/hr	tpy	lb/MMBtu		tpy	tpy
NOx	13.55	0.021	SCR Vendor's guarantee	20.20	87.92	-	Vendor's Guarantee	2.50	90.42
CO	11.24	0.011	CO Catalyst Vendor's guarantee	10.20	44.40	-	Vendor's Guarantee	1.25	45.65
PM - Filterable only (with CCU)	-	0.0085	Pulse Jet Fabric Filter Vendor's guarantee	7.99	31.71	-	See note 7	-	34.87
PM - Filterable only (startup + without CCU)	-	0.0085	Pulse Jet Fabric Filter Vendor's guarantee	7.99	3.07	0.0085	Vendor's Guarantee	0.10	
PM - Total [1] (with CCU)	-	0.0165	See Note 1	15.54	61.68	-	Vendor's Guarantee for filterable PM + adjusted AP-42 emission factor for condensable PM		67.83
PM - Total [1] (startup + without CCU)	-	0.0165	See Note 1	15.54	5.97	0.0165		0.19	
PM10 - Filterable only (with CCU)	-	0.0085	Vendor's guarantee	7.99	31.71	-	See note 7	-	34.87
PM10 - Filterable only (startup + without CCU)	-	0.0085	Vendor's guarantee	7.99	3.07	0.0085	Vendor's Guarantee	0.10	
PM10 - Total [1] (with CCU)	-	0.0165	See Note 1	15.54	61.68	-	Vendor's Guarantee for filterable PM + adjusted AP-42 emission factor for condensable PM		67.83
PM10 - Total [1] (startup + without CCU)	-	0.0165	See Note 1	15.54	5.97	0.0165		0.19	
PM2.5 - Filterable only (with CCU)	-	0.0085	Vendor's guarantee	7.99	31.71	-	See note 7	-	34.87
PM2.5 - Filterable only (startup + without CCU)	-	0.0085	Vendor's guarantee	7.99	3.07	0.0085	Vendor's Guarantee	0.10	
PM2.5 - Total [1] (with CCU)	-	0.0165	See Note 1	15.54	61.68	-	Vendor's Guarantee for filterable PM + adjusted AP-42 emission factor for condensable PM		67.83
PM2.5 - Total [1] (startup + without CCU)	-	0.0165	See Note 1	15.54	5.97	0.0165		0.19	
VOC (from boiler combustion) [5]	-	0.002	Vendor's guarantee	1.89	8.22		Vendor's Guarantee	0.02	8.24
Amines (except boiler VOC) [2]	-			2.54	10.10				10.10
VOC Total	-								18.33
SO2	5.58	0.012	Wet Desulfurization Vendor's guarantee	11.58	50.40	0.0332	See note 6	0.38	50.78
NH3	3.65	0.0021	Vendor's guarantee	2.01	8.76	-			8.76
H2SO4	2.00	0.0067		6.35	27.66	0.02		0.21	27.86
Pb	-	0.000048	AP-42	0.05	0.20	4.80E-05	Table 1.4-2 in AP-42	1.25E-03	0.20
HCl	1.00	0.00125	Dry In-Duct Sorbent Injection	1.18	5.14	0.045		0.51	5.65
Hg		3.50E-06	Table 1.4-4 AP-42	3.30E-03	0.01	2.60E-04	Table 1.4-4 in AP-42	2.96E-03	0.02
Organic HAPs [3]				1.91	8.32			0.02	8.34
Metallic HAPs [4]		2.91E-04	See Note 4	0.27	1.20	0.0003		0.003	1.20

1. Total particulate matter (PM) = filterable PM + condensable PM. Emission factor of 0.0085 lb/MMBtu for filterable PM, PM10, and PM2.5 is based on vendor's guarantee; Emission factor of 0.008 lb/MMBtu is based on a aggregation of test data collected from operating units. The flue gas from the proposed boiler will pass through the amine absorber and the wash water column. These steps will reduce the temperature of the flue gas to approximately 110 °F before it is discharged to the atmosphere. Therefore, the data entries for stokers using a wet scrubber as PM control and with complete test data records were used to derive the average emissions factor of condensable PM. The data are attached as supporting material at the end of the boiler emissions calculation.

2. Amine emissions from the CCU absorber stack are quantified based on engineering judgement and similar projects.

3. It is assumed that the amount of organic HAPs is the same as the amount of VOCs from fuel combustion. This assumption is supported by Table 1.6-3 in AP-42.

4. The emission factor for total metallic HAPs is based on Table 1.6-4 in AP-42. However, the emission factor for Manganese in AP-42 is adjusted after auditing AP-42 for outlier data. There is one FBC entry in the supporting database with an Manganese emission factor of 1.14E-05. The data used for this project is 10 times that value.

5. The vendor guaranteed VOC emission factor is 0.005 lb/MMBtu in the flue gas before the SCR/CO catalyst. Due to the presence of the CO catalyst, a VOC removal efficiency of 60% is applied to reduce the VOC emissions.

6. The emission factor for startup is the higher of the two emission factors of biomass combustion and natural gas combustion.

For natural gas combustion during startup, the SO2 emissions are calculated as follows,
(131.1 MMBtu/hr * 1000000 Btu/MMBtu * 55 hrs for startup/yr)/(1051 Btu/Scf)/(379.48 Scf/lbmol) * (10 ppmv S/Scf) / 1000000 * 64 lb/lbmol = 11.57 lb/yr = 0.01 tpy

7. The amount of filterable PM/PM10/PM2.5 includes the particulates from the fresh sand storage silo and the sodium bicarbonate storage silo.

Emissions from CCU

Pollutant	Normal Operation	Normal Operation (Hourly Maximum)	Normal Operation (Annual)
	mg/Nm3	lb/hr	tpy
Solvent Amines	0.70	0.48	1.90
Ammonia	4.50	3.08	12.21
Nitrosamines [1]	0.01	0.01	0.03
Nitramines	0.01	0.01	0.03
Acetaldehyde [1]	2.85	1.95	7.73
Formaldehyde [1]	0.15	0.10	0.41

1. HAPs

Table N-1 Bubbling Fluidized Bed Boiler
MGS CNP 1, LLC

HAP Emissions from Boiler Combustion

Reference: Table 1.6-3 of AP-42

Organic Compound	Average Emission Factor (lb/MMBtu)	CAS	HAP	HAP EF (lb/MMBtu)	Project HAP EF (lb/MMBtu) [3]	Emissions (tpy) [4]	Notes
Acenaphthene	9.10E-07	83-32-9	Yes	9.10E-07	1.08E-07	4.45E-04	
Acenaphthylene	5.00E-06	208-96-8	Yes	5.00E-06	5.91E-07	2.44E-03	
Acetaldehyde	8.30E-04	75-07-0	Yes	8.30E-04	9.81E-05	4.06E-01	
Acetone	1.90E-04	67-64-1	No	0.00E+00	0.00E+00	0.00E+00	Neither a VOC nor a HAP
Acetophenone	3.20E-09	98-86-2	Yes	3.20E-09	3.78E-10	1.56E-06	
Acrolein	4.00E-03	107-02-8	Yes	4.00E-03	4.73E-04	1.95E+00	
Anthracene	3.00E-06	120-12-7	Yes	3.00E-06	3.55E-07	1.47E-03	
Benzaldehyde	<8.5E-07	100-52-7	No	0.00E+00	0.00E+00	0.00E+00	
Benzene	4.20E-03	71-43-2	Yes	4.20E-03	4.96E-04	2.05E+00	
Benzo(a)anthracene	6.50E-08	56-55-3	Yes	6.50E-08	7.68E-09	3.18E-05	
Benzo(a)pyrene	2.60E-06	50-32-8	Yes	2.60E-06	3.07E-07	1.27E-03	
Benzo(b)fluoranthene	1.00E-07	205-99-2	Yes	1.00E-07	1.18E-08	4.89E-05	
Benzo(e)pyrene	2.60E-09	192-97-2	Yes	2.60E-09	3.07E-10	1.27E-06	
Benzo(g,h,i)perylene	9.30E-08	191-24-2	Yes	9.30E-08	1.10E-08	4.55E-05	
Benzo(j,k)fluoranthene	1.60E-07	205-82-3	Yes	1.60E-07	1.89E-08	7.82E-05	
Benzo(k)fluoranthene	3.60E-08	207-08-9	Yes	3.60E-08	4.26E-09	1.76E-05	
Benzoic acid	4.70E-08	65-85-0	No	0.00E+00	0.00E+00	0.00E+00	
bis(2-Ethylhexyl)phthalate	4.70E-08	117-81-7	Yes	4.70E-08	5.56E-09	2.30E-05	
Bromomethane	1.50E-05	74-83-9	Yes	1.50E-05	1.77E-06	7.33E-03	
2-Butanone (MEK)	5.40E-06	78-93-3	Yes	5.40E-06	6.38E-07	2.64E-03	
Carbazole	1.80E-06	86-74-8	Yes	1.80E-06	2.13E-07	8.80E-04	
Carbon tetrachloride	4.50E-05	56-23-5	Yes	4.50E-05	5.32E-06	2.20E-02	
Chlorine	7.90E-04	7782-50-5	Yes	7.90E-04			
Chlorobenzene	3.30E-05	108-90-7	Yes	3.30E-05	3.90E-06	1.61E-02	
Chloroform	2.80E-05	67-66-3	Yes	2.80E-05	3.31E-06	1.37E-02	
Chloromethane	2.30E-05	74-87-3	Yes	2.30E-05	2.72E-06	1.12E-02	
2-Chloronaphthalene	2.40E-09	91-58-7	Yes	2.40E-09	2.84E-10	1.17E-06	
2-Chlorophenol	2.40E-08	95-57-8	No	0.00E+00	0.00E+00	0.00E+00	
Chrysene	3.80E-08	218-01-9	Yes	3.80E-08	4.49E-09	1.86E-05	
Crotonaldehyde	9.90E-06	4170-30-3/123-73-9/15798-64-8	No	0.00E+00	0.00E+00	0.00E+00	
Decachlorobiphenyl	2.70E-10	2051-24-3	Yes	2.70E-10	3.19E-11	1.32E-07	
Dibenzo(a,h)anthracene	9.10E-09	53-70-3	Yes	9.10E-09	1.08E-09	4.45E-06	
1,2-Dibromoethene	5.50E-05	540-49-8/590-12-5	No	0.00E+00	0.00E+00	0.00E+00	
Dichlorobiphenyl	7.40E-10	34883-43-7	Yes	7.40E-10	8.75E-11	3.62E-07	
1,2-Dichloroethane	2.90E-05	107-06-2	Yes	2.90E-05	3.43E-06	1.42E-02	
Dichloromethane	2.90E-04	75-09-2	Yes	2.90E-04	3.43E-05	1.42E-01	
1,2-Dichloropropane	3.30E-05	78-87-5	Yes	3.30E-05	3.90E-06	1.61E-02	
2,4-Dinitrophenol	1.70E-07	51-28-5	Yes	1.70E-07	2.01E-08	8.31E-05	
Ethylbenzene	3.10E-05	100-41-4	Yes	3.10E-05	3.66E-06	1.52E-02	
Fluoranthene	1.60E-06	206-44-0	Yes	1.60E-06	1.89E-07	7.82E-04	
Fluorene	3.40E-06	86-73-7	Yes	3.40E-06	4.02E-07	1.66E-03	
Formaldehyde	4.40E-03	50-00-0	Yes	4.40E-03	5.20E-04	2.15E+00	
Heptachlorobiphenyl	6.60E-11	28655-71-2	Yes	6.60E-11	7.80E-12	3.23E-08	
Hexachlorobiphenyl	5.50E-10	Multiple	Yes	5.50E-10	6.50E-11	2.69E-07	
Hexanal	7.00E-06	66-25-1	No	0.00E+00	0.00E+00	0.00E+00	
Heptachlorodibenzo-p-dioxins	2.00E-09	Multiple	Yes	2.00E-09	2.36E-10	9.77E-07	
Heptachlorodibenzo-p-furans	2.40E-10	Multiple	Yes	2.40E-10	2.84E-11	1.17E-07	
Hexachlorodibenzo-p-dioxins	1.60E-06	Multiple	Yes	1.60E-06	1.89E-07	7.82E-04	
Hexachlorodibenzo-p-furans	2.80E-10	Multiple	Yes	2.80E-10	3.31E-11	1.37E-07	
Hydrogen chloride	1.90E-02	7647-01-0	Yes	1.90E-02			
Indeno(1,2,3,c,d)pyrene	8.70E-08	193-39-5	Yes	8.70E-08	1.03E-08	4.25E-05	
Isobutyraldehyde	1.20E-05	78-84-2	No	0.00E+00	0.00E+00	0.00E+00	
Methane	2.10E-02	74-82-8	No	0.00E+00	0.00E+00	0.00E+00	
2-Methylnaphthalene	1.60E-07	91-57-6	Yes	1.60E-07	1.89E-08	7.82E-05	
Monochlorobiphenyl	2.20E-10	27323-18-8	Yes	2.20E-10	2.60E-11	1.08E-07	
Naphthalene	9.70E-05	91-20-3	Yes	9.70E-05	1.15E-05	4.74E-02	
2-Nitrophenol	2.40E-07	88-75-5	No	0.00E+00	0.00E+00	0.00E+00	
4-Nitrophenol	1.10E-07	100-02-7	Yes	1.10E-07	1.30E-08	5.38E-05	
Octachlorodibenzo-p-dioxins	6.60E-08	3268-87-9	Yes	6.60E-08	7.80E-09	3.23E-05	
Octachlorodibenzo-p-furans	8.80E-11		Yes	8.80E-11	1.04E-11	4.30E-08	
Pentachlorodibenzo-p-dioxins	1.50E-09		Yes	1.50E-09	1.77E-10	7.33E-07	
Pentachlorodibenzo-p-furans	4.20E-10		Yes	4.20E-10	4.96E-11	2.05E-07	
Pentachlorobiphenyl	1.20E-09		Yes	1.20E-09	1.42E-10	5.86E-07	
Pentachlorophenol	5.10E-08	87-86-5	Yes	5.10E-08	6.03E-09	2.49E-05	
Perylene	5.20E-10	198-55-0	Yes	5.20E-10	6.15E-11	2.54E-07	
Phenanthrene	7.00E-06	85-01-8	Yes	7.00E-06	8.27E-07	3.42E-03	
Phenol	5.10E-05	108-95-2	Yes	5.10E-05	6.03E-06	2.49E-02	
Propanal (propionaldehyde)	3.20E-05	123-38-6	Yes	3.20E-05	3.78E-06	1.56E-02	
Pyrene	3.70E-06	129-00-0	No	0.00E+00	0.00E+00	0.00E+00	
Styrene	1.90E-03	100-42-5	Yes	1.90E-03	2.25E-04	9.29E-01	

Table N-1 Bubbling Fluidized Bed Boiler
MGS CNP 1, LLC

Organic Compound	Average Emission Factor (lb/MMBtu)	CAS	HAP	HAP EF (lb/MMBtu)	Project HAP EF (lb/MMBtu) [3]	Emissions (tpy) [4]	Notes
2,3,7,8-Tetrachlorodibenzo-p-dioxins	8.60E-12	1746-01-6	Yes	8.60E-12	1.02E-12	4.20E-09	
Tetrachlorodibenzo-p-dioxins	4.70E-10		Yes	4.70E-10	5.56E-11	2.30E-07	
2,3,7,8-Tetrachlorodibenzo-p-furans	9.00E-11		Yes	9.00E-11	1.06E-11	4.40E-08	
Tetrachlorodibenzo-p-furans	7.50E-10		Yes	7.50E-10	8.86E-11	3.67E-07	
Tetrachlorobiphenyl	2.50E-09	35693-99-3	No	0.00E+00	0.00E+00	0.00E+00	
Tetrachloroethene	3.80E-05	127-18-4	Yes	3.80E-05	4.49E-06	1.86E-02	Not a VOC
o-Tolualdehyde	7.20E-06	529-20-4	No	0.00E+00	0.00E+00	0.00E+00	
p-Tolualdehyde	1.10E-05	104-87-0	No	0.00E+00	0.00E+00	0.00E+00	
Toluene	9.20E-04	108-88-3	Yes	9.20E-04	1.09E-04	4.50E-01	
Trichlorobiphenyl	2.60E-09	7012-37-5	Yes	2.60E-09	3.07E-10	1.27E-06	
1,1,1-Trichloroethane	3.10E-05	71-55-6	Yes	3.10E-05	3.66E-06	1.52E-02	Not a VOC
Trichloroethene	3.00E-05	79-01-6	Yes	3.00E-05	3.55E-06	1.47E-02	
Trichlorofluoromethane	4.10E-05	75-69-4	No	0.00E+00	0.00E+00	0.00E+00	
2,4,6-Trichlorophenol	<2.2E-08	88-06-2	Yes	<2.2E-08	2.60E-09	1.08E-05	
Vinyl Chloride	1.80E-05	85-01-4	Yes	1.80E-05	2.13E-06	8.80E-03	
o-Xylene	2.50E-05	95-47-6	Yes	2.50E-05	2.95E-06	1.22E-02	
Total organic compounds (TOC) [1]	0.039						
Volatile organic compounds (VOC) [2]	0.017						
Nitrous Oxide (N2O)	0.013	10024-97-2	No	0.00E+00	0.00E+00		
Carbon Dioxide (CO2)	195	124-38-9	No	0.00E+00	0.00E+00		
VOC Total	1.69E-02						
HAPs Total (Organic + Inorganic)				**0.036923**			
Organic HAPs				**1.71E-02**	**2.03E-03**	8.37	

1. Per note *ai* in AP-42 Section 1.6, factor for TOC is the sum of all factors in table except nitrous oxide and carbon dioxide.
2. Per note *aj* in AP-42 Section 1.6, factor for VOC is the sum of all factors in table except hydrogen chloride, chlorine, formaldehyde, tetrachloroethene, 1,1,1,-trichloroethane, dichloromethane, acetone, nitrous oxide, methane, and carbon dioxide.
3. Project HAP EFs are proportionally adjusted to match the project VOC EFs.
4. The annual emissions are conservatively estimated using the maximum heat input capacity of the boiler and 8760 hours per year.

Table N-1 Bubbling Fluidized Bed Boiler
MGS CNP 1, LLC

Organic Compound	Average Emission Factor (lb/MMBtu)	CAS	HAP	HAP EF (lb/MMBtu)	Project HAP EF (lb/MMBtu) [3]	Emissions (tpy) [4]	Notes
Reference:	Table 1.6-4 of AP-42						

Trace Element	Average Emission Factor (lb/MMBtu)	HAP	HAP EF (lb/MMBtu)
Antimony	7.90E-06	Yes	0.0000079
Arsenic	2.20E-05	Yes	0.000022
Barium	1.70E-04	No	0
Beryllium	1.10E-06	Yes	0.0000011
Cadmium	4.10E-06	Yes	0.0000041
Chromium, total	2.10E-05	Yes	0.000021
Chromium, hexavalent	3.50E-06	Yes	0.0000035
Cobalt	6.50E-06	Yes	0.0000065
Copper	4.90E-05	No	0
Iron	9.90E-04	No	0
Lead	4.80E-05	Yes	0.000048
Manganese [1]	1.14E-04	Yes	**0.000114**
Mercury	3.50E-06	Yes	0.0000035
Molybdenum	2.10E-06	No	0
Nickel	3.30E-05	Yes	0.000033
Phosphorus	2.70E-05	Yes	0.000027
Potassium	3.90E-02	No	0
Selenium	2.80E-06	Yes	0.0000028
Silver	1.70E-03	No	0
Sodium	3.60E-04	No	0
Strontium	1.00E-05	No	0
Tin	2.30E-05	No	0
Titanium	2.00E-05	No	0
Vanadium	9.80E-07	No	0
Yttrium	3.00E-07	No	0
Zinc	4.20E-04	No	0
Hazardous Trace Elements Total			**0.0002909**

1. For Manganese, the emission factors is an adjusted emission factor after auditing AP-42 for outlier data. There is one FBC entry in the supporting database with an Manganese emission factor of 1.14E-05. The data used for this project is 10 times that value.

TEST ID	POLLUTANT	AVG RUN EF (LB_MMBtu)	Run 1 _ Temp	Run 2 _ Temp	Run 3 _ Temp	FIRING CONFIG	CON DEV DESC_2
AP21.01	Particulate matter, condensible	1.18E-02	350	355	368	Stoker	ESP
AP33.01	Particulate matter, condensible	1.00E-02	352	345	352	Stoker	ESP
AP34.03	Particulate matter, condensible	1.57E-03	137	138	138	Stoker	Wet Scrubber
AP35.03	Particulate matter, condensible	1.10E-01	273	274	276	Not Reported	Mechanical Collector
AP36.03	Particulate matter, condensible	1.55E-02	493	512	550	Dutch Oven	Mechanical Collector
AP37.02	Particulate matter, condensible	2.46E-02	154	152	158	Stoker	Wet Scrubber
AP37.04	Particulate matter, condensible	2.01E-03	155	0	0	Stoker	Wet Scrubber
AP38.05	Particulate matter, condensible	1.20E-02	371	363	359	Stoker	ESP
AP39.03	Particulate matter, condensible	2.68E-02	365	368	373	Stoker	Mechanical Collector
AP40.03	Particulate matter, condensible	1.73E-02	330	340	329	FBC	ESP
AP41.02	Particulate matter, condensible	1.36E-02	162	154	144	Dutch Oven	Mechanical Collector
AP43.03	Particulate matter, condensible	8.65E-02	161	160	172	Dutch Oven	Wet Scrubber
E915.001	Particulate matter, condensible	6.04E-03	345	348	350	Stoker	Not Reported
E917.001	Particulate matter, condensible	2.80E-03	403	408	411	Stoker	Not Reported
E967.001	Particulate matter, condensible	1.36E-02	399	393	370	Stoker	No Equipment
ODEQ0042.01	Particulate matter, condensible	7.10E-03	332.9	341.2	346.7	Dutch Oven	Mechanical Collector
ODEQ0047.01	Particulate matter, condensible	1.28E-02	139	137	0	Stoker	Wet Scrubber
ODEQ0047.02	Particulate matter, condensible	8.55E-03	138	137	0	Stoker	Wet Scrubber
ODEQ0047.03	Particulate matter, condensible	8.68E-03	137	135	0	Stoker	Wet Scrubber
ODEQ0048.01	Particulate matter, condensible	8.28E-03	129	122	0	Stoker	Wet Scrubber
ODEQ0048.02	Particulate matter, condensible	3.92E-03	123	122	0	Stoker	Wet Scrubber
ODEQ0048.03	Particulate matter, condensible	6.76E-03	132	127	0	Stoker	Wet Scrubber
ODEQ0049.01	Particulate matter, condensible	2.40E-03	131.1	138.4	0	Stoker	Wet Scrubber
ODEQ0049.02	Particulate matter, condensible	5.71E-03	141.3	140.4	0	Stoker	Wet Scrubber
ODEQ0049.03	Particulate matter, condensible	4.48E-03	130	130	0	Stoker	Wet Scrubber
ODEQ0051.01	Particulate matter, condensible	9.50E-03	231.9	230.3	232.4	Stoker	Fabric Filter
ODEQ0052.01	Particulate matter, condensible	3.57E-02	276	289	296	Dutch Oven	No Equipment
ODEQ0052.02	Particulate matter, condensible	8.96E-03	333	338	328	Dutch Oven	No Equipment
ODEQ0053.01	Particulate matter, condensible	9.79E-03	408.9	409.6	421.8	Dutch Oven	Mechanical Collector
ODEQ0054.01	Particulate matter, condensible	1.50E-02	588.5	596.9	599.5	Dutch Oven	Mechanical Collector
ODEQ0055.01	Particulate matter, condensible	7.59E-03	588	587.6	583.5	Dutch Oven	Mechanical Collector
ODEQ0055.02	Particulate matter, condensible	1.33E-02	604.6	603.3	601.8	Dutch Oven	Mechanical Collector
ODEQ0057.01	Particulate matter, condensible	3.50E-03	418	415	415	Stoker	Not Reported
WDNR0006.01	Particulate matter, condensible	1.55E-03	357	360	364	Not Reported	No Equipment
WDNR0007.01	Particulate matter, condensible	7.99E-02	299	297	298	Stoker	No Equipment
WDNR0008.001	Particulate matter, condensible	4.00E-02	329	320	320	Not Reported	No Equipment
WDNR0024.01	Particulate matter, condensible	5.04E-03	335	335	345	Stoker	Mechanical Collector
WDNR0038.01	Particulate matter, condensible	1.90E-02	297	312	197	Stoker	No Equipment
WDNR0041.01	Particulate matter, condensible	3.28E-02	366.9	360.9	389.5	Not Reported	Not Reported

TEST ID	POLLUTANT	AVG RUN EF (LB_MMBtu)	Run 1 _ Temp	Run 2 _ Temp	Run 3 _ Temp	FIRING CONFIG	CON DEV DESC_2
WDNR0045.01	Particulate matter, condensible	6.10E-03	387	384	388	Stoker	Electrolyzed Gravel Bed
WDNR0046.001	Particulate matter, condensible	2.40E-02	250	259	254	Not Reported	Fabric Filter
WDNR0048.001	Particulate matter, condensible	7.25E-03	139.1	145.5	152.4	Not Reported	Not Reported
WDNR0048.002	Particulate matter, condensible	2.84E-02	215	209	215	Not Reported	Not Reported
WDNR0049.001	Particulate matter, condensible	2.38E-02	340	342	356	Not Reported	Mechanical Collector
WDNR0052.01	Particulate matter, condensible	7.10E-03	365	362	359	Stoker	Fabric Filter
WDNR0056.001	Particulate matter, condensible	9.61E-03	289	300	313	Not Reported	Mechanical Collector
WDNR0063.01	Particulate matter, condensible	8.35E-03	458	454	477	Not Reported	Mechanical Collector
WDNR0063.02	Particulate matter, condensible	5.16E-03	498	475	471	Not Reported	Mechanical Collector
WDNR0064.01	Particulate matter, condensible	5.20E-03	466	461	453	Not Reported	Mechanical Collector
WDNR0085.01	Particulate matter, condensible	1.77E-02	255	255	261	Stoker	No Equipment
WDNR0085.02	Particulate matter, condensible	5.83E-03	290	285	299	Stoker	No Equipment
WDNR0086.01	Particulate matter, condensible	7.71E-02	312	314	317	Stoker	No Equipment
WDNR0095.01	Particulate matter, condensible	1.95E-02	342	347	349	FBC	Mechanical Collector
WDNR0104.01	Particulate matter, condensible	3.89E-02	255	251	255	FBC	Mechanical Collector

Table N-2 Wood Chips Receiving Hoppers
MGS CNP 1, LLC

Source Name:	Biomass Unloading Baghouse	EPN:	121-PKG-1001	
Proposed MAERT Limits		Date:	12/6/2024	
FIN	EPN	Air Contaminant	lbs/hr	TPY
121-LS-1001 121-LS-1002	121-PKG-1001	PM	1.08	4.72
		PM10	1.08	4.72
		PM2.5	1.08	4.72

Process Description:

Wood fuel is delivered to the site by trucks. Trucks unload wood fuel into two receiving hoppers (121-LS-1001 and 121-LS-1002). Dust control is provided by a slight negative pressure in the dumping area. The extracted dust laden air will be directed through a bag house (121-PKG-1001) before discharge to atmosphere.
The bag house will reduce the particulate matter emissions to reach a PM loading of 0.01 grains/cf.

To represent worst case emissions, maximum hourly emissions for 121-LS-1001 and 121-LS-1002 are both based on the total amount of wood fuel to be delivered to the site, rather than splitting the emissions in half. This scenario is conservative, as if one of the truck unloaders fails, fuel can be delivered via the other unloader and all the wood chips would be delivered to one hopper. The annual emissions of 121-LS-1001 and 121-LS-1002 are permitted under a cap quantified based on the maximum amount of wood chips delivered each year.

Bases and Factors:
Particulate Matter (PM) emissions from truck unloading are estimated using the following design information:

Baghouse volumetric exhaust flow rate: 12566 ft3/min

The bag house will reduce the particulate matter emissions to a PM loading of 0.01 grains/cf.

Hourly emission rates are determined as follows:

Hourly Emissions (lb/hr) = exhaust flow (ft3/min) x 60 min/hr x PM loading in exhaust (0.01 grains/cf)
Annual emission rates are determined as follows:
Annual Emissions (tpy) = [hourly emissions (lb/hr) * annnual operating hours (hr)] / 2,000 (lb/ton)

Table N-2 Wood Chips Receiving Hoppers
MGS CNP 1, LLC

Data:

	Fuel Delivered Per Year	Exhaust Flow	PM Loading in Exhaust	Controlled Max Hourly Emissions	Annual Operating Hours	Controlled Annual Emissions
Pollutant	tons/yr	ft3/min	gr/cf	lb/hr	hr/year	tpy
PM	929146.92	12566	0.01	1.08	8760	4.72
PM10	929146.92	12566	0.01	1.08	8760	4.72
PM2.5	929146.92	12566	0.01	1.08	8760	4.72

Emission Factors for Biomass Handling Process:

Emissions are based on AP-42 emission factors for Aggregate Handling and Storage Piles (AP-42 V5, Section 13.2.4.3, November 2006)

Average Wind Speed is obtained from US EPA AP-42 Table 7.1-7 for Huntington, West Virginia (closest data collection point)

Data:

Source Parameters				
Pollutant	Particle Size (µm)	# of Drops in Transfer Process	Average Moisture % (M) [1]	k(2)
PM/TSP	< 30	1	4.8	0.74
PM_{10}	< 10	1	4.8	0.35
$PM_{2.5}$	< 2.5	1	4.8	0.053

[1] 0.25% -4.8% maintains the quality rating level A of the equation. The moisture content of the wood chips is 45%. 4.8% is used in the calculations to get conservative results.

Hours of Operation	8,760	hours/year (24 hours/day X 7 days/week X 52 weeks/year)	
Annual Average Wind Speed of Area (U)=	5.6	mph	annual average and highest monthly average wind speed for Huntington, WV taken from US EPA AP-42 Table 7.1-7.
Highest Monthly Average Wind Speed of Area (U)=	6.9	mph	

Calculations:

AP-42 (section 13.2.4.3) lb/ton of material

$$Emission\ factor\ (lb/ton) = k * (0.0032) * \frac{\left(\frac{U}{5}\right)^{1.3}}{\left(\frac{M}{2}\right)^{1.4}}$$

Where: k = particle size multiplier from AP-42 Section 13.2.4.3
M = material moisture content (%)
U = mean wind speed

TSP/PM hourly emission factor:			TSP/PM annual emission factor:		
= (0.74) x (0.0032) x [(6.9/5)^1.3/(4.8/2)^1.4]			= (0.74) x (0.0032) x [(5.6/5)^1.3/(4.8/2)^1.4]		
=	*0.0011*	lbs/ton	=	*0.0008*	lbs/ton

PM_{10} hourly emission factor:			PM_{10} annual emission factor:		
= (0.35) x (0.0032) x [(6.9/5)^1.3/(4.8/2)^1.4]			= (0.35) x (0.0032) x [(5.6/5)^1.3/(4.8/2)^1.4]		
=	*0.0005*	lbs/ton	=	*0.0004*	lbs/ton

$PM_{2.5}$ hourly average emission factor:			$PM_{2.5}$ annual average emission factor:		
= (0.053) x (0.0032) x [(6.9/5)^1.3/(4.8/2)^1.4]			= (0.053) x (0.0032) x [(5.6/5)^1.3/(4.8/2)^1.4]		
=	*0.0001*	lbs/ton	=	*0.0001*	lbs/ton

Emission Unit	Emission Point	Description
121-CV-1001	121-CV-1001	Conveyor #1 from Biomass Receiving Hopper 1001 to Storage Pile
121-CV-1002	121-CV-1002	Conveyor #2 from Biomass Receiving Hopper 1002 to Storage Pile
CHIP-1	CHIP-1	Biomass Storage Pile Loading Fugitives
121-S-1001	121-S-1001	Biomass Feed Hopper
121-CV-1003	121-CV-1003	Conveyor from Feed Hopper to 121-CV-2001 A/B
121-CV-2001 A	121-CV-2001 A	Screw Conveyor from 121-CV-1003 to Biomass Fuel Metering Bin 121-S-2001 A
121-CV-2001 B	121-CV-2001 B	Screw Conveyor from 121-CV-1003 to Biomass Fuel Metering Bin 121-S-2001 B
121-S-2001 A	121-S-2001 A	Biomass Fuel Metering Bin A
121-S-2001 B	121-S-2001 B	Biomass Fuel Metering Bin B

Process Description:

From the receiving hoppers, biomass is conveyed via covered conveyors (121-CV-1001 and 121-CV-1002) to an uncovered chip pile (CHIP-1).

The biomass is loaded from the chip pile into a biomass feed hopper (121-S-1001) using front end loaders.

The biomass is conveyed from the biomass feed hopper (121-S-1001) to the fuel metering bins (121-S-2001 A/B) through a covered transfer conveyor (121-CV-1003) and two covered screw conveyors (121-CV-2001 A/B).

the receiving hopper to the BFB (except there will be just one biomass feed hopper and one conveyor from the feed hopper to the screw conveyors). For each transfer process, there will be 6 drop points from the receiving hoppers to the BFB.

To represent worst case emissions, the maximum hourly emissions for each drop point are based on the total amount of wood fuel to be delivered to the site, rather than splitting the emissions in half. The annual emissions for both drop points at each step are permitted under a cap.

Bases and Factors:

Emission factors are based on AP-42 emission factors for Aggregate Handling and Storage Piles (AP-42 V5, Section 13.2.4.3, November 2006). Please refer to Table N-3 for emission factor calculations.

Hourly emission rates are determined as follows:
Hourly Emissions (lb/hr) = annual emissions (tpy) / annual operating hours (hr) x 2,000 lb/ton

Annual emission rates are determined as follows:
Annual Emissions (tpy) = [wood conveyed (tpy) * emission factor (lb emissions per ton of wood conveyed per drop point) * number of drop points] / 2,000 (lb/ton)

Total Emissions:

Pollutant	Wood Chips Conveyed at Each Transfer Step TPY	Emission Factor lb PM/ ton of wood/ drop point	Number of Drop Points	Annual Emissions TPY	Annual Operating Hours	Hourly Emission lb/hr
PM	929,147	0.0011	6	2.95	8,760	0.67
PM10	929,147	0.0005	6	1.39	8,760	0.32
PM2.5	929,147	0.0001	6	0.21	8,760	0.05

Note: Because the amount of biomass transferred are not split in half, the hourly emissions calculated above represent the maximum hourly emission rate at each of the 8 drop points in the two transfer processes. The annual emissions calculated above represent the cap for the two drop points at each transfer step.

Emissions at each individual piece of equipment:

Source	Transfer Rate		Emission Factor (lb/ton)						Emissions						Protection from Wind	Efficiency [1]
			Hourly			Annual			Short-term Emissions (lb/hr)			Annual Emissions (tpy)				
	(tons/hr)	(tons/yr)	PM	PM10	PM2.5	PM	PM10	PM2.5	PM	PM10	PM2.5	PM	PM10	PM2.5		
121-CV-1001	106.07	929146.92	0.0011	0.0005	0.0001	0.0008	0.0004	0.0001	0.056	0.027	0.004	0.187	0.088	0.013	Yes	50%
121-CV-1002	106.07		0.0011	0.0005	0.0001	0.0008	0.0004	0.0001	0.056	0.027	0.004				Yes	50%
CHIP-1	106.07	929146.92	0.0011	0.0005	0.0001	0.0008	0.0004	0.0001	0.112	0.053	0.008	0.374	0.177	0.027	No	0%
121-S-1001	106.07	929146.92	0.0011	0.0005	0.0001	0.0008	0.0004	0.0001	0.112	0.053	0.008	0.374	0.177	0.027	No	0%
121-CV-1003	106.07	929146.92	0.0011	0.0005	0.0001	0.0008	0.0004	0.0001	0.056	0.027	0.004	0.187	0.088	0.013	Yes	50%
121-CV-2001 A	106.07	929146.92	0.0011	0.0005	0.0001	0.0008	0.0004	0.0001	0.056	0.027	0.004	0.187	0.088	0.013	Yes	50%
121-CV-2001 B	106.07		0.0011	0.0005	0.0001	0.0008	0.0004	0.0001	0.056	0.027	0.004				Yes	50%
121-S-2001 A [2]	106.07	929146.92	0.0011	0.0005	0.0001	0.0008	0.0004	0.0001	0.056	0.027	0.004	0.187	0.088	0.013	Yes	50%
121-S-2001 B [2]	106.07		0.0011	0.0005	0.0001	0.0008	0.0004	0.0001	0.056	0.027	0.004				Yes	50%
								TOTAL	-	-	-	1.50	0.71	0.11		

[1] Design is still in progress. Because there will be covers on the conveyors to reduce wind speed, an emission control efficiency of 50% is used in the calculations.

[2] Both biomass metering bins adopt gooseneck opening.

PM PM10 PM2.5 PM PM10 PM2.5

Source Name:	Wood Chips Storage Pile Wind Erosion	EPN:	CHIP-2	
Proposed MAERT Limits		Date:	12/6/2024	
FIN	EPN	Air Contaminant	lbs/hr	TPY
CHIP-2	CHIP-2	PM	--	0.21
		PM10	--	0.11
		PM2.5	--	0.02

Process Description:

Wood chips are stored outside in one storage pile.

Bases and Factors:

Emissions from wood chip storage wind erosion are estimated using the AP-42, Section 13.2.5, Industrial Wind Erosion, November 2006 - Equation (2).

Monthly fastest mile is obtained for Mason County, West Virginia (closest data collection point).
Measusred wind gust speed plus additional 10 mph to account for yearly fluctuations.
Storage piles will be sprayed with water as necessary to control particulate emissions.

Data:

Calculations:

AP-42 (section 13.2.5, Industrial Wind Erosion, November 2006 - Equation (2)) lb/ton of material

$$\text{Emission factor} = k \sum_{i=1}^{N} P_i \qquad (2)$$

Where:

EF = emission factor ($g/m^2/yr$)

k = particle size multiplier from AP-42 Section 13.2.5

N = number of disturbances per year

P_i = erosion potential corresponding to the observed (or probable) fastest mile of wind for the ith period between disturbances, g/m^2

$P = 58 (u^* - u_t^*)^2 + 25 (u^* - u_t^*)$ (equation 3)

$p = 0$ for $u^* < u_t^*$

u^* = friction velocity = 0.053 X the fastest mile (m/s) (equation 4)

u_t^* = threshold friction velocity (m/s) = 1.02 m/s for overburden from AP-42 Table 13.2.5-2

The fastest mile is defined as the fastest observed mile of wind from Huntington, WV for the years 1980 - 2010.

Input

Aerodynamic Particle Size Multipliers for Equation 2		
Pollutant	Particle Size (µm)	k
PM/TSP	< 30	1.0
PM_{10}	< 10	0.5
$PM_{2.5}$	< 2.5	0.075

Threshold friction velocity (u_t^*)	1.02	m/s
Frequency of disturbance	35040	per year
Average frequency of wind events resulting in wind erosion	125	per month

Erosion Potential Emission Factors

Month	Fastest Mile		u*	$(u^* - u_t^*)$	$(u^* - u_t^*)^2$	P_{PM}	P_{PM10}	$P_{PM2.5}$
	(mph)	(m/s)	(m/s)			(g/m^2)	(g/m^2)	(g/m^2)
Jan	40	17.88	0.95	-0.07	0.01	0	0	0
Feb	53	23.69	1.26	0.24	0.06	9.12	4.56	0.68
Mar	48	21.46	1.14	0.12	0.01	3.73	1.86	0.28
Apr	49	21.90	1.16	0.14	0.02	4.68	2.34	0.35
May	38	16.99	0.90	-0.12	0.01	0.00	0.00	0.00
Jun	46	20.56	1.09	0.07	0.00	2.03	1.02	0.15
Jul	43	19.22	1.02	0.00	0.00	0.00	0.00	0.00
Aug	33	14.75	0.78	-0.24	0.06	0.00	0.00	0.00
Sep	35	15.65	0.83	-0.19	0.04	0.00	0.00	0.00
Oct	33	14.75	0.78	-0.24	0.06	0.00	0.00	0.00
Nov	42	18.78	1.00	-0.02	0.00	0.00	0.00	0.00
Dec	46	20.56	1.09	0.07	0.00	2.03	1.02	0.15
					Maximum Erosion Potential	9.12	4.56	0.68
					Annualized Erosion Factor (g/m^2-yr)	91.90	45.97	6.85

Wind Erosion Emissions

Emission Source	Total Area	Disturbed Area		Control Efficiency	PM	PM10	PM2.5
	(m^2)	(%)	(m^2)	(%)	(tpy)	(tpy)	(tpy)
Chip Storage	21,000	10	2100	0	0.21	0.11	0.02

Table N-6 Fly Ash Handling Process
MGS CNP 1, LLC

Emission Unit	Emission Point	Description	Hourly Rate (tons/hr)	Annual Rate (tons/yr)	Control	Note
121-CV-4001 A	121-CV-4001 A	PJFF Ash Collection Drag Chain Conveyor A (From boiler hopper to surge bin A)	4.5	39420	Covered	
121-CV-4001 B	121-CV-4001 B	PJFF Ash Collection Drag Chain Conveyor B (from boiler hopper to surge bin B)	4.5		Covered	
121-S-4002 A	121-S-4002 A	PJFF Ash Collection Surge Bin A	4.5	39420	NA	Hoppers are not open to the atmosphere. According to information provided by the boiler supplier, Babcock & Wilcox (B&W), the hopper does not produce any emissions.
121-S-4002 B	121-S-4002 B	PJFF Ash Collection Suge Bin B	4.5		NA	
121-CV-4002	121-CV-4002	PJFF Ash Transport Drag Chain Conveyor (From Surge Bins #1 and #2 to PJFF Ash Transfer Drag Chain Conveyor)	4.5	39420	Covered	
121-CV-4003	121-CV-4003	PJFF Ash Transfer Drag Chain Conveyor (to Ash Bucket Elevator)	4.5	39420	Covered	
121-CV-4004	121-CV-4004	Ash Bucket Elevator	4.5	39420	Covered	
121-CV-4005	121-CV-4005	Ash Distrubution Drag Chain Conveyor (From Ash Bucket Elevator to Fly Ash Storage Silos)	4.5	39420	Covered	
121-CV-4006 A	121-CV-4006 A	Economizer Hopper Ash Drag Chain Conveyor A (From Economizer Hopper to Economizer Hopper Ash Surge Bin A)	3.3	28908	Covered	
121-CV-4006 B	121-CV-4006 B	Economizer Hopper Ash Drag Chain Conveyor B (From Economizer Hopper to Economizer Hopper Ash Surge Bin B)	3.3		Covered	
121-S-4003 A	121-S-4002 A	Economizer Hopper Ash Surge Bin A	3.3	28908	NA	Hoppers are not open to the atmosphere. According to information provided by the boiler supplier, B&W, the hoppers will not produce any emissions.
121-S-4003 B	121-S-4002 B	Economizer Hopper Ash Surge Bin B	3.3		NA	

Table N-6 Fly Ash Handling Process
MGS CNP 1, LLC

Emission Unit	Emission Point	Description	Hourly Rate (tons/hr)	Annual Rate (tons/yr)	Control	Note
121-CV-4007 A	121-CV-4007 A	Economizer Ash Transport Conveyor A (From Economizer Ash Surge Bin A to Fly Ash Silo A)	3.3	28908	Covered	
121-CV-4007 B	121-CV-4007 B	Economizer Ash Transport Conveyor B (From Economizer Ash Surge Bin B to Fly Ash Silo B)	3.3		Covered	
121-S-4001 A	121-S-4001 A	Fly Ash Storage Silo A	7.8	68328	Pulse Jet Filter 121-F-4001 A	
121-S-4001 B	121-S-4001 B	Fly Ash Storage Silo B	7.8		Pulse Jet Filter 121-F-4001 B	
121-MX-4001 A	121-MX-4001 A	Pugmill A	7.8	68328	NA	There will be no emissions per B&W.
121-MX-4001 B	121-MX-4001 B	Pugmill B	7.8		NA	
121-TL-0001	121-TL-0001	Fly Ash Truck Loading	8.6	75336	Wet fly ash, with a moisture content of at least 10%	

Table N-6 Fly Ash Handling Process
MGS CNP 1, LLC

Fugitive emissions can be expected from conveying and transferring of fly ash due to wind and conveyor vibration.

Source	No. of Transfer	Transfer Rate		Emission Factors (lb/ton)						Emissions						Protection from Wind	Efficiency [1]
				Hourly			Annual			Short-term Emissions (lb/hr)			Annual Emissions (tpy)				
		(tons/hr)	(tons/yr)	PM	PM10	PM2.5	PM	PM10	PM2.5	PM	PM10	PM2.5	PM	PM10	PM2.5		
121-CV-4001 A	1	4.5	39420	0.2386	0.1129	0.0171	0.1819	0.0860	0.0130	0.537	0.254	0.038	1.793	0.848	0.128	Yes	50%
121-CV-4001 B	1	4.5		0.2386	0.1129	0.0171	0.1819	0.0860	0.0130	0.537	0.254	0.038				Yes	50%
121-CV-4002	1	4.5	39420	0.2386	0.1129	0.0171	0.1819	0.0860	0.0130	0.537	0.254	0.038	1.793	0.848	0.128	Yes	50%
121-CV-4003	1	4.5	39420	0.2386	0.1129	0.0171	0.1819	0.0860	0.0130	0.537	0.254	0.038	1.793	0.848	0.128	Yes	50%
121-CV-4004	1	4.5	39420	0.2386	0.1129	0.0171	0.1819	0.0860	0.0130	0.537	0.254	0.038	1.793	0.848	0.128	Yes	50%
121-CV-4005	1	4.5	39420	0.2386	0.1129	0.0171	0.1819	0.0860	0.0130	0.537	0.254	0.038	1.793	0.848	0.128	Yes	50%
121-CV-4006 A	1	3.3	28908	0.2386	0.1129	0.0171	0.1819	0.0860	0.0130	0.394	0.186	0.028	1.315	0.622	0.094	Yes	50%
121-CV-4006 B	1	3.3		0.2386	0.1129	0.0171	0.1819	0.0860	0.0130	0.394	0.186	0.028				Yes	50%
121-CV-4007 A	1	3.3	28908	0.2386	0.1129	0.0171	0.1819	0.0860	0.0130	0.394	0.186	0.028	1.315	0.622	0.094	Yes	50%
121-CV-4007 B	1	3.3		0.2386	0.1129	0.0171	0.1819	0.0860	0.0130	0.394	0.186	0.028				Yes	50%
121-S-4001 A	1	7.8	68328	0.2386	0.1129	0.0171	0.1819	0.0860	0.0130	Refer to emission calculations for fly ash storage silos							
121-S-4001 B	1	7.8		0.2386	0.1129	0.0171	0.1819	0.0860	0.0130								
121-TL-0001	1	8.6	75336	-	-	-	-	-	-	Refer to emission calculations for fly ash truck loading							
						TOTAL				4.796	2.268	0.343	11.592	5.483	0.830		

[1] Design is still in progress. Because there will be covers on the conveyors to reduce wind speed, an emission control efficiency of 50% is used in the calculations.

Emission Factors for Dry Fly Ash Handling Process:
Emissions are based on AP-42 emission factors for Aggregate Handling and Storage Piles (AP-42 V5, Section 13.2.4.3, Equation (1), November 2006)

Average Wind Speed is obtained from US EPA AP-42 Table 7.1-7 for Huntington, West Virginia (closest data collection point)

Data:

Source Parameters				
Pollutant	Particle Size (µm)	# of Drops in Transfer Process	Average Moisture % (M) [1]	k(2)
PM/TSP	< 30	1	0.10	0.74
PM_{10}	< 10	1	0.10	0.35
$PM_{2.5}$	< 2.5	1	0.10	0.053

[1] 0.25% -4.8% maintains the quality rating level A of the equation. The moisture content of the dry fly ash is conservatively assumed to be 0.1%.

Hours of Operation	8,760	hours/year (24 hours/day X 7 days/week X 52 weeks/year)	
Annual Average Wind Speed of Area (U)=	5.6	mph	annual average and highest monthly average wind speeds for Huntington, WV taken from US EPA AP-42 Table 7.1-7.
Highest Monthly Average Wind Speed of Area (U)=	6.9	mph	

Calculations:

AP-42 (section 13.2.4.3) lb/ton of material

$$Emission\ factor\ (lb/ton) = k * (0.0032) * \frac{\left(\frac{U}{5}\right)^{1.3}}{\left(\frac{M}{2}\right)^{1.4}}$$

Where: k = particle size multiplier from AP-42 Section 13.2.4.3
M = material moisture content (%)
U = mean wind speed

TSP/PM hourly emission factor:		
= (0.74) x (0.0032) x [(6.9/5)^1.3/(0.1/2)^1.4]		
=	*0.2386*	lbs/ton

TSP/PM annual average emission factor:		
= (0.74) x (0.0032) x [(5.6/5)^1.3/(0.1/2)^1.4]		
=	*0.1819*	lbs/ton

$PM_{10\ hourly}$ emission factor:		
= (0.35) x (0.0032) x [(6.9/5)^1.3/(0.1/2)^1.4]		
=	*0.1129*	lbs/ton

$PM_{10\ annual}$ average emission factor:		
= (0.35) x (0.0032) x [(5.6/5)^1.3/(0.1/2)^1.4]		
=	*0.0860*	lbs/ton

$PM_{2.5\ hourly}$ emission factor:		
= (0.053) x (0.0032) x [(6.9/5)^1.3/(0.1/2)^1.4]		
=	*0.0171*	lbs/ton

$PM_{2.5\ annual}$ average emission factor:		
= (0.053) x (0.0032) x [(5.6/5)^1.3/(0.1/2)^1.4]		
=	*0.0130*	lbs/ton

Table N-6 Fly Ash Handling Process
MGS CNP 1, LLC

Source Name:	Fly Ash Storage Silos A & B	EPN:	121-F-4001 A / 121-F-4001 B		
Proposed MAERT Limits		Date:	12/6/2024		
FIN	EPN	Air Contaminant		lbs/hr	TPY
121-S-4001 A 121-S-4001 B	121-F-4001 A / 121-F-4001 B	PM		0.02	0.06
		PM10		0.01	0.03
		PM2.5		0.00	0.00

Process Description:

Generated fly ash will be transferred to two ash storage silos via an enclosed conveyor. When a sufficient volume has been collected, the fly ash will be mixed with utility water before removed from site for disposal by trucks.

The emissions from the fly ash silos were conservatively estimated using emission factors for Aggregate Handling and Storage Piles (AP-42 V5, Section 13.2.4.3, Equation (1), November 2006).

The two fly ash silos will be used alternately. Therefore, the annual emissions from the two silos will be permitted under a cap.

Bases and Factors:

The emission factors used to estimate the uncontrolled PM, PM10 and PM2.5 emissions were presented in Table N-6 Fly Ash Handling (2). A filter will be installed on each silo and run continuously, reducing particulate emissions by 99%.

Data:

Filter control efficiency: 99%

Pollutant	Emission Factor (lb/ton)		Feed Rate per Hour	Feed Rate per Year	Uncontrolled		Controlled	
	Hourly	Annual	Tons/hr	Tons/yr	Hourly Emissions lb/hr	Annual Emissions TPY	Hourly Emissions lb/hr	Annual Emissions TPY
PM	0.2386	0.1819	7.8	68328.00	1.86	6.21	0.02	0.06
PM10	0.1129	0.0860	7.8	68328.00	0.88	2.94	0.01	0.03
PM2.5	0.0171	0.0130	7.8	68328.00	0.13	0.45	0.00	0.0045

Table N-6 Fly Ash Handling Process
MGS CNP 1, LLC

Source Name:	Fly Ash Truck Loading	EPN:	121-TL-0001	
Proposed MAERT Limits		Date:	12/6/2024	
FIN	EPN	Air Contaminant	lbs/hr	TPY
121-TL-0001	121-TL-0001	PM	0.00	0.01
		PM10	0.00	0.01
		PM2.5	0.00	0.00

Process Description:

Generated fly ash will be transferred to the ash storage silos via a conveying system. When a sufficient volume has been collected, the fly ash will be mixed with utility water before removed from site for disposal by trucks. The fly ash will have a minimum moisture content of 10% when loaded into trucks.
The particulate matter emissions will be controlled by keeping high moisture content of the fly ash.

Fly Ash Loading into Trucks

Data:

Pollutant	Emission Factor	Ash Produced per Hour	Ash Produced per Year	Hourly Emissions	Annual Emissions
	lb/Ton	Tons/hr	Tons/yr	lb/hr	TPY
PM	0.0004	8.6	75336	0.0033	0.01
PM10	0.0002	8.6	75336	0.0015	0.01
PM2.5	0.0000	8.6	75336	0.0002	0.001

Emission Factors for Dry Fly Ash Handling Process:
Emissions are based on AP-42 emission factors for Aggregate Handling and Storage Piles (AP-42 V5, Section 13.2.4.3, Equation (1), November 2006)

Average Wind Speed is obtained from US EPA AP-42 Table 7.1-7 for Huntington, West Virginia (closest data collection point)

Data:

Source Parameters				
Pollutant	Particle Size (µm)	# of Drops in Transfer Process	Average Moisture % (M) [1]	k(2)
PM/TSP	< 30	1	10	0.74
PM_{10}	< 10	1	10	0.35
$PM_{2.5}$	< 2.5	1	10	0.053

[1] 0.25% -4.8% maintains the quality rating level A of the equation. The minimum moisture content of the wet fly ash is 10%.

Hours of Operation	8,760	hours/year (24 hours/day X 7 days/week X 52 weeks/year)	
Annual Average Wind Speed of Area (U)=	5.6	mph	annual average and highest monthly average wind speeds for Huntington, WV taken from US EPA AP-42 Table 7.1-7.
Highest Monthly Average Wind Speed of Area (U)=	6.9	mph	

Calculations:

AP-42 (section 13.2.4.3) lb/ton of material

$$Emission\ factor\ (lb/ton) = k * (0.0032) * \frac{\left(\frac{U}{5}\right)^{1.3}}{\left(\frac{M}{2}\right)^{1.4}}$$

Where: k = particle size multiplier from AP-42 Section 13.2.4.3
M = material moisture content (%)
U = mean wind speed

TSP/PM average emission factor:		
= (0.74) x (0.0032) x [(6.9/5)^1.3/(10/2)^1.4]		
=	*0.0004*	lbs/ton

PM_{10} average emission factor:		
= (0.35) x (0.0032) x [(6.9/5)^1.3/(10/2)^1.4]		
=	*0.0002*	lbs/ton

$PM_{2.5}$ average emission factor:		
= (0.053) x (0.0032) x [(6.9/5)^1.3/(10/2)^1.4]		
=	*0.00003*	lbs/ton

Table N-7 Sand Handling Process
MGS CNP 1, LLC

Bottom Ash and Sand Handling Process

			Hourly Rate	Annual Rate		
Emission Unit ID	Emission Point ID	Description	lb/hr	tpy	Control	Note
121-CV-5001 A	121-CV-5001 A	Metering Conveyor A (Bed Ash Screw A)	2250	9855	Covered	
121-CV-5001 B	121-CV-5001 B	Metering Conveyor B (Bed Ash Screw B)	2250		Covered	
121-CV-5002A	121-CV-5002A	Vibrating Screener A (to separate bottom ash and sand)	2250	9855	Trough hood (Partial enclosure)	
121-CV-5002B	121-CV-5002B	Vibrating Screener B (to separate bottom ash and sand)	2250		Trough hood (Partial enclosure)	
121-S-6001 A	121-S-6001 A	Bottom Ash Storage Bin A	2000	8760	NA	No emissions are expected due to the size of the material.
121-S-6001 B	121-S-6001 B	Bottom Ash Storage Bin B	2000		NA	
121-S-1002	121-S-1002	Sand Receiving Hopper	100000	1752	NA	
121-CV-1004	121-CV-1004	Inclined Sand Hopper Conveyor	100000	1752	Covered	
121-S-5001	121-S-5001	Makeup Sand Silo	100000	1752	Vent piping to the BFB	
NA	NA	Chute (From Makeup Sand Silo to Sand Bucket Elevator)	400	1752	Full enclosure (Pipe)	
121-CV-5003 A	121-CV-5003 A	Transfer Conveyor A (Recycled Sand) (From Vibrating Screener A to Sand Bucket Elevator A)	250	1095	Cover assembly (partial enclosure)	
121-CV-5003 B	121-CV-5003 B	Transfer Conveyor B (Recycled Sand) (From Vibrating Screener B to Sand Bucket Elevator B)	250		Cover assembly (partial enclosure)	
121-CV-5004 A	121-CV-5004 A	Sand Bucket Elevator A (Recycled Sand + Fresh Sand)	650	2847	Covered	250 lbs/hr of reclaimed sand + 400 lbs/hr of makeup sand
121-CV-5004 B	121-CV-5004 B	Sand Bucket Elevator B (Recycled Sand + Fresh Sand)	650		Covered	251 lbs/hr of reclaimed sand + 400 lbs/hr of makeup sand
NA	NA	Recycle Sand Chute A (From Sand Bucket Elevator A Discharge to Boiler)	6000 lbs/24 hours		Full enclosure (Pipe)	No emissions
NA	NA	Recycle Sand Chute B (From Sand Bucket Elevator B Discharge to Boiler)	6000 lbs/24 hours		Full enclosure (Pipe)	No emissions

Fugitive emissions can be expected from conveying and transferring of sand due to wind and conveyor vibration.

Basis:
Particulate emissions from the sand handling process are conservatively estimated using uncontrolled emission factors in AP-42 Table 11.12-2 for aggregate transfer.

Source	No. of Transfer Points	Transfer Rate		Emission Factor (lb/ton)			Emissions						Protection from Wind	Efficiency [1]
							Short-term Emissions (lb/hr)			Annual Emissions (tpy)				
		(tons/hr)	(tons/yr)	PM	PM10	PM2.5	PM	PM10	PM2.5	PM	PM10	PM2.5		
121-CV-5001 A	1	1.125	9855	0.0069	0.0033	0.0033	0.004	0.002	0.002	0.017	0.008	0.008	Yes	50%
121-CV-5001 B	1	1.125		0.0069	0.0033	0.0033	0.004	0.002	0.002				Yes	50%
121-CV-5002A	1	1.125	9855	0.0069	0.0033	0.0033	0.004	0.002	0.002	0.017	0.008	0.008	Yes	50%
121-CV-5002B	1	1.125		0.0069	0.0033	0.0033	0.004	0.002	0.002				Yes	50%
121-S-1002	1	50	1752	0.0069	0.0033	0.0033	0.345	0.165	0.165	0.006	0.003	0.003	No	0%
121-CV-1004	1	50	1752	0.0069	0.0033	0.0033	0.173	0.083	0.083	0.003	0.001	0.001	Yes	50%
121-CV-5003 A	1	0.125	1095	0.0069	0.0033	0.0033	0.000	0.000	0.000	0.002	0.001	0.001	Yes	50%
121-CV-5003 B	1	0.125		0.0069	0.0033	0.0033	0.000	0.000	0.000				Yes	50%
121-CV-5004 A	1	0.325	2847	0.0069	0.0033	0.0033	0.001	0.001	0.001	0.005	0.002	0.002	Yes	50%
121-CV-5004 B	1	0.325		0.0069	0.0033	0.0033	0.001	0.001	0.001				Yes	50%
						TOTAL	0.536	0.256	0.256	0.050	0.024	0.024		

[1] Design is still in progress. Because there will be covers on the conveyors to reduce wind speed, an emission control efficiency of 50% is used in the calculations.

Table N-8 Sodium Bicarbonate Handling Process
MGS CNP 1, LLC

			Hourly Rate	Annual Rate		
Emission Unit	Emission Point	Description	lb/hr	tpy	Control	Note
121-S-9901	121-PKG-3001; 122-T-1001	Sodium Bicarbonate Storage Silo	13000	438	Vent routed to boiler and controlled by the boiler PJFF	Batch operation; NaHCO3 will be pneumatically transferred to the silo.
121-S-9902 A	121-F-9902 A	Sodium Bicarbonate Vent Hopper A	100	438	Pulse Jet Filter 121-F-9902 A	
121-S-9902 B	121-F-9902 B	Sodium Bicarbonate Vent Hopper B	100		Pulse Jet Filter 121-F-9902 B	

Table N-8 Sodium Bicarbonate Handling Process
MGS CNP 1, LLC

Source Name:	Sodium Bicarbonate Vent Hoppers	EPN:	121-F-9902 A; 121-F-9902 B	
Proposed MAERT Limits		Date:	12/6/2024	
FIN	EPN	Air Contaminant	lbs/hr	TPY
121-F-9902 A; 121-F-9902 B	121-F-9902A; 121-F-9902 B	PM	1.95E-04	8.54E-04
		PM10	7.50E-05	3.29E-04
		PM2.5	7.50E-05	3.29E-04

Process Description:

From the NaHCO3 Silo, NaHCO3 will be gravity fed to the vent hoppers.
The emissions from the vent hoppers are estimated using emission factors from Table 11.19.2-2 in Section 11.19.2 of AP-42.

Bases and Factors:

0.039 lb/ton and 0.015 lb/ton are used to estimate the uncontrolled PM and PM10/PM2.5 emissions. Each vent hopper will be equipped with one filter and will reduce particulate emissions by 90%.

To represent worst case emissions, the maximum hourly emissions for each vent hopper are based on the total amount of NaHCO3 to flow through the vent hoppers, rather than splitting the emissions in half. The annual emissions for both vent hoppers are permitted under a cap.

Data:

Filter control efficiency: 90%

Pollutant	Emission Factor	Feed Rate per Hour	Feed Rate per Year	Uncontrolled		Controlled	
				Hourly Emissions	Annual Emissions	Hourly Emissions	Annual Emissions
	lb/ton	Tons/hr	Tons/yr	lb/hr	TPY	lb/hr	TPY
PM	0.039	0.05	438.00	0.00195	0.0085	0.0002	0.0009
PM10	0.015	0.05	438.00	0.00075	0.0033	0.0001	0.0003
PM2.5	0.015	0.05	438.00	0.00075	0.0033	0.0001	0.0003

Cooling Tower

One open recirculating, induced draft and counterflow cooling tower will be installed to support the facility's operation. The cooling tower will have 6 cells.

		Cooling Tower	Notes
	Emission Unit ID	129-CT-9301	
	EPN	129-CT-9301	
Input	Recirculation Rate (gpm)	80,762	Rated capacity, Design Info
	Drift (%)[2]	0.001	Design Info
	Maximum TDS (ppm)	5000	
	Annual Average TDS (ppm)	1700	
	Annual operating hours	8760	
Calculated Emissions	Avg. PM (lb/hr)	0.69	
	Max. PM (lb/hr)	2.02	
	PM (tpy)	3.01	
	Avg. PM10 (lb/hr)	0.57	
	Max. PM10 (lb/hr)	1.48	
	PM10 (tpy)	2.52	
	Avg. PM2.5 (lb/hr)	0.29	
	Max. PM2.5 (lb/hr)	0.67	
	PM2.5 (tpy)	1.26	

Cooling Tower Water Info:

concentration ratio:	5		Design Info
TDS (average) make up water:	340	ppmw	Design Info
TDS (maximum) make up water:	1,000	ppmw	
Maximum TDS:	5,000	ppmw	
Annual Average TDS:	1700	ppmw	

Recirculation Rate:	18,386	m3/hr
Water density:	8.34	lb/gal
	997	kg/m3
1 lb =	453.59	grams
1 hr =	60	min
1 kg =	1000	grams

Equation: PM = Recirculation Rate, gpm * Drift% * 8.34 lb/gal * 60 min/hr * TDS ppm/1000000 Reference (1)

Particle Size Calculation (Hourly Max.)[3]

Cooling Tower Droplet Size			Particle Size		
Droplet (Dd, microns)	**Mean (Dd, microns)**	**Distribution (% Mass Smaller Than)**	**(Dp, microns)**	**PM 10 %Mass**	**PM2.5 %Mass**
< 15	7.5	20.00	0.983		33.23
15 - 35	25	40.00	3.277		
35 - 65	50	60.00	6.554	73.14	
65 - 115	90	80.00	11.797		
115 - 170	142.5	90.00	18.679		
170 - 230	200	95.00	26.216		
230 - 275	252.5	99.00	33.098		
275 - 525	400	99.80	52.432		
> 525	525	100.00	68.817		

Particle Size Calculation (Annual Emis.)[3]					
Cooling Tower Droplet Size			**Particle Size**		
Droplet (Dd, microns)	**Mean (Dd, microns)**	**Distribution (% Mass Smaller Than)**	**(Dp, microns)**	**PM 10 %Mass**	**PM2.5 %Mass**
< 15	7.5	20.00	0.686		
15 - 35	25	40.00	2.287		41.86
35 - 65	50	60.00	4.574		
65 - 115	90	80.00	8.234	83.68	
115 - 170	142.5	90.00	13.037		
170 - 230	200	95.00	18.298		
230 - 275	252.5	99.00	23.101		
275 - 525	400	99.80	36.595		
> 525	525	100.00	48.031		

Dp = Dd * [(pd/pp) * (TDS) / 1,000,000)] ^ 1/3

where: Density of Water (pd)= 1
Density of TDS (pp) = 2.22
TDS is assumed to be sodium chloride.

Equations and Example Calculations:

Max. PM Hourly Emissions (lb/hr) = Cooling Water Circulation Rate (gpm) * Drift (%) * 60 * 8.34 * Max. TDS in Circulating Water (ppm)/1000000

$$= \frac{80{,}762\ \text{gal}}{\text{min}} \times \frac{0.0010\%}{} \times \frac{60\ \text{min}}{\text{hr}} \times \frac{8.34\ \text{lb}}{\text{gal}} \times \frac{5000\ \text{parts}}{1000000\ \text{parts}} = \frac{2.02\ \text{lb}}{\text{hr}}$$

PM Annual Emissions (tpy) = Average PM Emissions (lb/hr) * Maximum Hours of Operation * Conversion (1 ton/2000 lb)

$$= \frac{0.69\ \text{lb}}{\text{hr}} \times \frac{8760\ \text{hrs}}{\text{yr}} \times \frac{1\ \text{ton}}{2000\ \text{lbs}} = \frac{3.01\ \text{tons}}{\text{yr}}$$

Max. PM10 Hourly Emissions (lb/hr) = Max. PM Hourly Emissions (lb/hr) * Mass of drift with PM10 (%)

$$= \frac{2.02\ \text{lb}}{\text{hr}} \times \frac{73.14\%}{} = \frac{1.48\ \text{lbs}}{\text{hr}}$$

PM10 Annual Emissions (tpy) = Average PM10 Hourly Emissions (lb/hr) *Maximum Hours of Operation (hr/yr) * (1 ton/2000 lb)

$$= \frac{0.57\ \text{lb}}{\text{hr}} \times \frac{8760\ \text{hrs}}{\text{yr}} \times \frac{1\ \text{ton}}{2000\ \text{lbs}} = \frac{2.52\ \text{tons}}{\text{yr}}$$

Max. PM2.5 Hourly Emissions (lb/hr) = Max. PM Hourly Emissions (lb/hr) * Mass of drift with PM2.5 (%)

$$= \frac{2.02\ \text{lb}}{\text{hr}} \times \frac{33.23\%}{} = \frac{0.67\ \text{lbs}}{\text{hr}}$$

PM2.5Annual Emissions (tpy) = Average PM2.5 Hourly Emissions (lb/hr) *Maximum Hours of Operation (hr/yr) * (1 ton/2000 lb)

$$= \frac{0.29\ \text{lb}}{\text{hr}} \times \frac{8760\ \text{hrs}}{\text{yr}} \times \frac{1\ \text{ton}}{2000\ \text{lbs}} = \frac{1.26\ \text{tons}}{\text{yr}}$$

References

1. AP-42 Chapter 13.4 Cooling Towers.
2. 0.001% Drift is based on design.
3. Calculation Methodology is based on "Calculating Realistic PM10 Emissions from Cooling Towers", Joel Reisman and Gordon Frisbie, Greystone Environmental Consultants, Sacramento, CA.

Table N-10a Fugitive Road - Annual
MGS CNP 1, LLC

Annual Emission Rate

Unit EPN	Vehicles Per Day	Hours of Vehicle Traffic (hrs/day)	Road Length (miles)	Vehicle Mile Travelled Hourly (VMT/hr)
PM-PlantRd	107	24	0.63	2.81

Constituents	Emission Factor		Average Hourly Emissions (lb/hr)	Annual Emissions (ton/yr)
	Factor	Units		
Criteria Pollutants				
PM	0.7725	lb/VMT	2.17	9.50
PM 2.5	0.0379	lb/VMT	0.11	0.47
PM 10	0.1545	lb/VMT	0.43	1.90

Assumptions:

All roads paved

Maximum annual emission rate assumes 107 vehicle/24 hr day.

Mix of vehicles

4.90%	25.5 ton
5.88%	30 ton
94.12%	31.5 ton
Average weight	32.7 ton

Maximum inside plant speed (posted speed limit) 20 mph.

Number of days with rainfall greater than 0.01 inch is 140 days.

Table N-10a Fugitive Road - Annual
MGS CNP 1, LLC

Constants:

k for PM	0.011	lb/VMT, Particle size multiplier for particle size range.
k for PM2.5	0.00054	lb/VMT, Particle size multiplier for particle size range.
k for PM10	0.0022	lb/VMT, Particle size multiplier for particle size range.
sL	2.4	g/m^2, Road surface silt loading
W	32.7	ton, Average weight of the vehicles travelling the road.
P	140	days, Number of "wet" days with at least 0.254 mm (0.01 in) of precipitation during the averaging period based on Figure 13.2.1-2 in AP-42.
N	365	days, Number of days in the averaging period.
	8760	hrs, Annual operation

Equations and Example Calculations:

(1) PM Emission Factor (lb/VMT) = $EF = [k * (sL)^{0.91} * (W)^{1.02}](1-P/4N)$

= 0.011 lb/VMT * $(2.4\ g/m^2)^{0.91}$ *$(32.7\ ton)^{1.02}$ * (1-140/(4*365))

0.7725 lb/VMT

(2) PM Average Hourly Emission (lb/hr) = (VMT Hourly) * (EF for PM)

(2.79 VMT/hr) * (0.7725 lb/VMT)

2.17 lb/hr

(3) PM Annual Emission (ton/yr) = (PM Hourly Emission * Annual Operation) / 2000 lb/ton

(2.17 lb/hr * 8760 yrs) / 2000 lb/ton

9.50 ton/yr

References:

(1) AP-42, 13.2.1 Paved Roads
(2) Particle size multiplier, k, from Table 13.2.1-1
(3) Road surface silt loading constant, sL, estimated based on low traffic travel in Table 13.2.1-2 with application of identified controls:
•Paving of all in-plant haul roads
•Post and limit the maximum travelling speed to 20 mph

Table N-10b Fugitive Road - Hourly
MGS CNP 1, LLC

Max Hourly Rate

Unit EPN	Vehicles Per Day	Hours of Vehicle Traffic (hrs/day)	Road Length (miles)	Vehicle Mile Travelled Hourly (VMT/hr)
PM-PlantRd	203	10	0.63	12.79

Constituents	Emission Factor		Max Hourly Emissions (lb/hr)
	Factor	Units	
Criteria Pollutants			
PM	0.8395	lb/VMT	10.74
PM 2.5	0.0412	lb/VMT	0.527
PM 10	0.1679	lb/VMT	2.15

Assumptions:

All roads paved

Maximum hourly emission rate assumes 198 vehicle/10 hr day.

Mix of vehicles

2.53%	25.5 ton
3.03%	30 ton
96.97%	31.5 ton
Average weight	32.1 ton

Maximum inside plant speed (posted speed limit) 20 mph.

Number of hours with rainfall greater than 0.01 inch is 0 days.

Table N-10b Fugitive Road - Hourly

MGS CNP 1, LLC

Constants:

k for PM	0.011	lb/VMT, Particle size multiplier for particle size range.
k for PM2.5	0.00054	lb/VMT, Particle size multiplier for particle size range.
k for PM10	0.0022	lb/VMT, Particle size multiplier for particle size range.
sL	2.4	g/m^2, Road surface silt loading
W	32.1	ton, Average weight of the vehicles travelling the road.
P	0	days, Number of "wet" days with at least 0.254 mm (0.01 in) of precipitation during the averaging period.
N	1	days, Number of days in the averaging period.

Equations and Example Calculations:

(1) PM Emission Factor (lb/VMT) = $EF = k * (sL)^{0.91} * (W)^{1.02}$

= 0.011 lb/VMT * $(2.4\ g/m^2)^{0.91}$ *$(32.1\ ton)^{1.02}$ * (1-0/4*1)

0.8395 lb/VMT

(2) PM Hourly Emission (lb/hr) = (VMT Hourly) * (EF for PM)

(12.79 VMT/hr) * (0.8395 lb/VMT)

10.74 lb/hr

References:

(1) AP-42, 13.2.1 Paved Roads

(2) Particle size multiplier, k, from Table 13.2.1-1

(3) Road surface silt loading constant, sL, estimated based on low traffic travel in Table 13.2.1-2 with application of identified controls:

•Paving of all in-plant haul roads

•Post and limit the maximum travelling speed to 20 mph

Table N-11 Fixed Roof Tanks Emissions
MGS CNP 1, LLC

Fixed roof tank emissions:
Breathing and working losses from fixed roof tanks were estimated using equations and methodology from AP-42 Chapter 7.
Emissions are based on the anticipated annual throughput for each tank along with the material composition to be stored.

Equipment ID	Description	Tank Type	Throughput	Maximum Filling Rate	Working Volume		Shell Height/Length	Max. Liquid Height	Diameter	Heated/Insulated		Control
			(bbl/yr)	(bbl/hr)	(bbl)	(gal)	(ft)	(ft)	(ft)	(Y/N)	°F	
128-V-9001	Ammonia Storage Tank	Vertical	11,140.00	154.70	196	8,225	17.5	14	10	N	NA	to atmosphere
122-TK-9901	Lean Amine Tank	Vertical	7,670.63	1,167.00	7,162	300,789	40	32	40	Y	50	to atmosphere
TOTAL	2											

Table N-11 Fixed Roof Tanks Emissions - Amine Tanks
MGS CNP 1, LLC

Company Name				MGS CNP 1, LLC	
Site Name				BECCS Plant	
Emission Unit ID				122-TK-9902	122-TK-9901
Description				Amine Makeup Tank	Lean Amine Tank

INPUT DATA

Tank Data

Tank Type (Vertical or Horizontal)				Vertical Fixed Roof	Vertical Fixed Roof
Diameter, D	D	ft		10.00	40
Height, H (or length for horizontal tanks)	H_S	ft		15.00	40
Roof Type				Cone	Cone
Cone Roof Slope (cone roof only), S_R	S_R	dimensionless, default 0.0625		0.0625	0.0625
Shell Paint Color				White	White
Shell Paint Condition				Good	Good
Roof Paint Color				White	White
Roof Paint Condition				Good	Good
Breather Vent Pressure Setting, P_{BP}	P_{BP}	psig (default is 0.03)		0.03	0.03
Breather Vent Vacuum Setting, P_{BV}	P_{BV}	psig (default is - 0.03)		-0.03	-0.03
Pressure of Vapor Space at Normal Conditions, P_I	P_I	psig (default is 0)		0	0
Maximum Liquid Height, H_{LX}	H_{LX}	ft		12.00	32.00
Minimum Liquid Height, H_{LN}	H_{LN}	ft		1	2
Average Liquid Height, H_{LA}	H_{LA}	ft	$H_{LX}/2$	6.00	16.00
Maximum Hourly Throughput, Q_{MAX}	Q_{MAX}	bbl/hr		167.85	1167.00
Annual Throughput, Q_{ANN}	Q_{ANN}	bbl/yr		509.00	7670.63
Control Type				NA	NA
Control Efficiency				NA	NA
Tank insulated?				Yes	Yes
	T_{LA}, T_B, T_{LX}, T_{LN}	°R		509.67	509.67
Tank Maximum Liquid Volume, V_{LX}	V_{LX}	Gal		6462.71	282008.96

Meteorological Data

Daily Min. Ambient Temp, T_{AN}	T_{AN}	°F		46.2	46.2
Daily Max. Ambient Temp, T_{AX}	T_{AX}	°F		65.3	65.3
Daily Total Solar Insolation, I	I	Btu/(ft^2-day)		1250	1250
Atmospheric Pressure, P_A	P_A	psia (default is 14.7)		14.26	14.26

Table N-11 Fixed Roof Tanks Emissions - Amine Tanks
MGS CNP 1, LLC

Material Data

Working Loss Product Factor, K_P	K_P	dimensionless (0.75 for crude oils, 1.0 for all other organic		1	1

Total Losses, L_T (Eq. 1-1)	L_T	tpy	$L_T = L_S + L_W$	0.001	0.010
Total Losses, L_T (Eq. 1-1)	L_T	lb/yr	$L_T = L_S + L_W$	1.35	20.34
Standing Storage Losses, L_S (Eq. 1-4)	Ls	lb/yr	$L_S = 365V_VW_VK_EK_S$	0.00	0.00
Tank Vapor Space Volume, V_V (Eq. 1-3)	V_V	ft^3	$V_V = ((\pi/4)D_E^2)H_{VO}$	715.04	30682.89
Vapor Space Outage, H_{VO} (Eq. 1-16)	H_{VO}	ft	$H_{VO} = H_S - H_L + H_{RO}$ (vertical tanks)	9.10	24.42
Cone Roof Outage, H_{RO} (Eq. 1-17)	H_{RO}	ft	$H_{RO} = H_R/3$ (cone roof)	0.10	0.42
Cone Tank Roof Height, H_R (Eq. 1-18)	H_R	ft	$H_R = S_RR_S$ (cone roof)	0.31	1.25
Vapor Space Expansion Factor, K_E (Eq. 1-5)	K_E	dimensionless	$K_E = \Delta T_V/T_{LA} + (\Delta P_V - \Delta P_B)/(P_A - P_{VA})$	0.00	0.00
Vapor Space Expansion Factor, K_E (Eq. 1-12)	K_E	dimensionless	$K_E = 0.0018\Delta T_V$	0.00	0.00
Average Daily Vapor Temperature Range, ΔT_V (Eq. 1-6)	ΔT_V	°R	$\Delta T_V = (1-0.8/(2.2*(Hs/D)+1.9))\Delta T_A + (0.042\alpha_R I+0.026(Hs/D)\alpha_S I)/(2.2(Hs/D)+1.9)$	0.00	0.00
Average Daily Vapor Temperature Range, ΔT_V (Eq. 1-7)	ΔT_V	°R	$\Delta T_V = 0.7\Delta T_A + 0.02\alpha I$	0.00	0.00
Paint Solar Absorptance, α (Table 7.1-6)		dimensionless		0.17	0.17
Average Daily Ambient Temperature Range, ΔT_A (Eq. 1-11)	ΔT_A	°R	$\Delta T_A = T_{AX} - T_{AN}$	19.10	19.10
Average daily liquid Surface Temperature, T_{LA} (Eq. 1-27)	T_{LA}	°R	$T_{LA} = (0.5-0.8/(4.4(Hs/D)+3.8))T_{AA} + (0.5 + 0.8/(4.4(Hs/D)+3.8))T_B + (0.021\alpha_R I + 0.013(Hs/D)\alpha_s I)/(4.4(Hs/D)+3.8))$	509.67	509.67
		°F		50.00	50.00
		°C		10.00	10.00
		K		283.15	283.15
Average daily Liquid Surface Temperature, T_{LA} (Eq. 1-28)	T_{LA}	°R	$T_{LA} = 0.4T_{AA} + 0.6T_B+0.005\alpha I$	509.67	509.67
		°F		50.00	50.00
		°C		10.00	10.00
		K		283.15	283.15
Liquid Bulk Temperature, T_B (Eq. 1-31)	T_B	°R	$T_B = T_{AA} + 0.003\alpha I$	509.67	509.67
		°F		50.00	50.00
Average Daily Ambient Temperature, T_{AA} (Eq. 1-30)	T_{AA}	°R	$T_{AA} = (T_{AX} + T_{AN})/2$	515.42	515.42
Average Daily Minimum Liquid Surface Temperature, T_{LN} (Fig 7.1-17)	T_{LN}	°R	$T_{LN} = T_{LA} - 0.25\Delta T_V$	509.67	509.67
		°F		50.00	50.00
		°C		10.00	10.00
		K		283.15	283.15
Average Daily Maximum Liquid Surface Temperature, T_{LX} (Fig. 7.1-17)	T_{LX}	°R	$T_{LX} = T_{LA} + 0.25\Delta T_V$	509.67	509.67
		°F		50.00	50.00
		°C		10.00	10.00
		K		283.15	283.15
Daily Vapor Pressure Range, ΔP_V (Eq. 1-9)	ΔP_V	psia	$\Delta P_V = P_{VX} - P_{VN}$	0.000	0.000
Is the fixed roof tank of bolted or riveted construction?				No	No

Table N-11 Fixed Roof Tanks Emissions - Amine Tanks
MGS CNP 1, LLC

Breather Vent Pressure Setting Range, ΔP_B (Eq. 1-10)	ΔP_B	psig	$\Delta P_B = P_{BP} - P_{BV}$	0.06	0.06
Vented Vapor Saturation Factor, K_S (Eq. 1-21)	K_S	dimensionless	$K_S = 1/(1 + 0.053 P_{VA} H_{VO})$	0.93	0.84
Vapor Pressure at the Average Daily Liquid Surface Temp., P_{VA} (Eq. 1-24)	P_{VA}	psia		0.1451	0.1451
Stock Vapor Density, W_V (Eq. 1-22)	W_V	lb/ft^3	$W_V = (M_V P_{VA})/(RTv)$	4.73E-04	4.73E-04
Vapor Molecular Weight, M_V (Eq. 1-23)	M_V	lb/lb-mol		18.06	18.06
Average Vapor Temperature, T_V (Eq. 1-32)	T_V	°R	$T_V = ((2.2(Hs/D)+1.1)T_{AA} + 0.8T_B+0.021\alpha_R I + 0.013(Hs/D)\alpha_s I)/(2.2(Hs/D)+1.9)$	516.19	516.06
Average Vapor Temperature, T_V (Eq. 1-33)	T_V	°R	$T_V = 0.7T_{AA} + 0.3T_B + 0.009\alpha I$	509.67	509.67
Working Loss, L_W (Eq. 1-29)	L_W	lb/yr	$L_W = V_Q K_N K_P W_V K_B$	1.35	20.34
Number of Turnovers per Year, N (Eq. 1-30)	N	dimensionless	$N = 5.614Q/V_{LX}$	3.31	1.14
Working Loss Turnover (saturation) factor, K_N	K_N	dimensionless		1.00	1.00
Working Loss Product Factor, K_P	K_P	dimensionless		1	1
Tank Maximum Liquid Volume, V_{LX} (Eq. 1-31)	V_{LX}	ft^3	$V_{LX} = (\pi/4)D^2(H_{LX}-H_{LN})_)$	863.94	37699.11
Vent Setting Correction Factor Test (Eq. 1-40)			$K_N(P_{BP} + P_A)/(P_I + P_A) > 1.0$	1.002	1.002
Vent Setting Correction Factor, K_B (Eq. 1-41)	K_B	dimensionless		0.998	0.998
Vent Setting Correction Factor, K_B	K_B	dimensionless	$K_B = (((P_I + P_A)/K_N) - P_{VA})/(P_{BP} + P_A - P_{VA})$	0.998	0.998

MAXIMUM HOURLY EMISSIONS (TCEQ GUIDANCE DOCUMENT "ESTIMATING SHORT TERM EMISSION RATES FROM FIXED ROOF TANKS", 02/20)

Maximum Short-Term Emission Rate, L_{MAX} (Eq. 1)	L_{MAX}	lb/hr	$L_{MAX} = (M_V \times P_{VA} \times FR_M)/(R \times T)$	0.45	3.14
Vapor Molecular Weight of the Compound, M_V		lb/lbmol		18.06	18.06
Maximum Filling Rate, FR_M		gal/hr		7049.73	49014.00
Ideal Gas Constant, R	R	[(psia × gal)/(lbmol × ° R)]		80.27	80.27
Worst Case Liquid Surface Temperature, T	T_{LX} + 10	°R	input or 95 as max. ambient	509.67	509.67
Vapor Pressure of the Tank Contents at T_{MAX}	P_{VA}	psia		0.15	0.15

Speciated Emissions (122-TK-9901)

					122-TK-9901	
	Vapor Phase @ T_{LA}	Vapor Phase @ T_{LX}	Vapor Phase @ T_{LN}	Vapor Phase @ T_{max}	Uncontrolled Emissions	
Components	wt%	wt%	wt%	wt%	(lb/hr)	(tpy)
MEA	0.27	0.27	0.27	0.27	1.20E-03	1.79E-06
MDEA	0.05	0.05	0.05	0.05	2.40E-04	3.59E-07
Water	99.68	99.68	99.68	99.68	0.4502	0.0007

Speciated Emissions (122-TK-2001)

					122-TK-2201	
	Vapor Phase @ T_{LA}	Vapor Phase @ T_{LX}	Vapor Phase @ T_{LN}	Vapor Phase @ T_{max}	Uncontrolled Emissions	
Components	wt%	wt%	wt%	wt%	(lb/hr)	(tpy)
MEA	0.27	0.27	0.27	0.27	8.33E-03	2.70E-05
MDEA	0.05	0.05	0.05	0.05	1.67E-03	5.41E-06
Water	99.68	99.68	99.68	99.68	3.1299	0.0101

Table N-11 Fixed Roof Tanks Emissions - Vapor Pressure Amine
MGS CNP 1, LLC

Vapor Pressure Calculations for Tanks 122-TK-9901 and 122-TK-9902

				a	b	c	P_{VAi}	P_{VXi}	P_{VNi}	P_{max}	Vapor Phase @ T_{LA}	Vapor Phase @ T_{LX}	Vapor Phase @ T_{LN}	Vapor Phase @ T_{max}	Vapor Phase @ T_{LA}	Vapor Phase @ T_{LX}	Vapor Phase @ T_{LN}	Vapor Phase @ T_{max}
Components	MW	Wt.%	mol%	dimensionless	(°K)	(°K)	psia	psia	psia	psia	mol%	mol%	mol%	mol%	wt%	wt%	wt%	wt%
MEA [1]	61.08	23.00	10.85	4.29252	1408.87	-116.093	0.0010484	0.0010484	0.0010484	0.0010484	0.0785	0.0785	0.0785	0.0785	0.2653	0.2653	0.2653	0.2653
MDEA [2]	119.163	25.00	6.04				0.0001934	0.0001934	0.0001934	0.0001934	0.008	0.008	0.008	0.008	0.05	0.05	0.05	0.05
Water [3]	18.02	52.00	83.11	4.6543	1435.264	-64.848	0.17	0.17	0.17	0.17	99.913	99.913	99.913	99.913	99.68	99.68	99.68	99.68
							0.14	0.14	0.14	0.14								
	MW of Liquid Product						Vapor Pressures				MW of Vapor							
	MW	28.80				TOTAL	0.15	0.15	0.15	0.15	18.06	18.06	18.06	18.06				

[1] Pressure equation for MEA is P_{VA} in bar and T in °K. P = 10^(A-B/(C+T)). (https://webbook.nist.gov/cgi/cbook.cgi?ID=C141435&Mask=4&Type=ANTOINE&Plot=on).
P_{VA} in bar is converted to psia by multiplying 14.50377. Temperature range [338.6 to 444.1] K.

[2] MDEA has a vapor pressure less than 0.01 mm Hg at 20 °C. The amine tank is kept at 10 °C. 0.01 mmHg was used in the calculation to obtain conservative results.

[3] Pressure equation for water is P_{VA} in bar and T in °K. P = 10^(A-B/(C+T)). (https://webbook.nist.gov/cgi/cbook.cgi?ID=C7732185&Mask=4&Type=ANTOINE&Plot=on).
P_{VA} in bar is converted to psia by multiplying 14.50377. Temperature range [255.9 - 373] K.

There will be one diesel-fired fire water pump, with rating @ 600 hp.
Sulfur content of fuel used in engines will be 15 ppm sulfur or less.
Annual non-emergency operating hours will be limited to 100 hr/yr.
Engines will be new (model year 2024 or later).

FIN: **129-P-9402** **EPN:** **129-P-9402**

Fuel Type:	**Diesel**	
Year	2024	
Total Engines:	1	
Fuel Consumption per Engine:	35.90	gal/hr
Diesel Density [1]	7.001	lb/gal
Fuel Consumption per Engine:	251.34	lbs/hr
Diesel Fuel Heat Content (HHV): [1]	19,300	Btu/lb
Heat Input (HHV) per Engine:	4.85	MMBtu/hr
Engine Horsepower Output:	600	hp
Engine Output:	447	kW
Annual Operation:	100	hr/yr
Engine Load:	100%	
Displacement per Cylinder	< 30 L per cylinder	
Brake Specific Fuel Consumptions: [2]	8084.64	Btu/hp-hr

Notes:
[1] 19,300 Btu/lb is the average heating value of diesel and 7.001 lb/gal is the density of diesel as provided by vendor.
[2] Brake specific fuel consumption per hour = (Heat Input (HHV)) / (Engine Horsepower Output (hp)).

Water Pump Diesel Engine Emission Rates

Pollutant	**Emission Factor** [1,2,3]		**Emissions Rates (Per Engine)**		
			Max. Hourly	**Annual Average**[4]	**Annual**
			lb/hr	**lb/hr**	**tpy**
NOX [1]	4.0	g/kw-hr	3.95	0.05	0.20
CO [1]	3.5	g/kw-hr	3.45	0.04	0.17
PM10 [1,3]	0.2	g/kw-hr	0.20	0.002	0.01
PM2.5 [1,3]	0.2	g/kw-hr	0.20	0.0023	0.01
VOC [1]	4.0	g/kw-hr	3.95	0.05	0.20
SO2 [2]	1.26E-05	lb/hp-hr	0.01	0.00	0.000

Notes:
1. NOX, CO, PM, and VOC emission factors are from 40 CFR 60.4205(c) for engines with rated power greater than or equal to 600 hp (450 kW) but less than or equal to 750 hp (560 kW). NSPS Subpart IIII specifies to use emission factors from Table 4 to 40 CFR Subpart IIII.
2. Emission factors for SO2 based on 15 ppmw ULSD.
3. All PM is assumed to be less than 1.0 µm in diameter. Therefore, the PM emission factor is used to estimate emissions of PM10 and PM2.5.
4. Annual average hourly emission rates are (annual emissions in tpy)*2000 lb/ton*1 year/8760 hours.

Example Calculation:

$$\text{Hourly } NO_X = \frac{4.0\ \text{g}}{\text{kW-hr}} \times 447.43\ \text{kW} \times \frac{1\ \text{lb}}{453.59\ \text{g}} = \frac{3.95\ \text{lb}}{\text{hr}}$$

$$\text{Annual } NO_X = \frac{3.95\ \text{lb}}{\text{hr}} \times \frac{100\ \text{hrs}}{\text{yr}} \times \frac{1\ \text{ton}}{2000\ \text{lbs}} = \frac{0.20\ \text{ton}}{\text{yr}}$$

HAP Emissions from Engines

HAP Emission Estimation

Max Input = 4.85 MMBtu/hr each engine
Annual Hours @ Max Rating = 100.0 hrs/yr
Hourly Emissions = (Max Heat Input - MMBtu/hr) x (1 SCF/1,020 Btu) x (EF - lb/MMSCF)
Annual Emissions = (Max Heat Input - MMBtu/hr) x (1 SCF/1,020 Btu) x (EF - lb/MMSCF) x (Annual Operating Hours) / (2,000 lb/Ton)

Pollutant	EF [1] (lb/MMBtu)	Source	§112 HAP? [2]	Max. Hourly Emission [3] (lb/hr)	Annual Emission (lb/yr) [4]	Annual Emissions (tpy) [5]
Benzene	9.33E-04	AP42; Table 3.3-2; 10/96.	YES	4.53E-03	4.53E-01	2.26E-04
Toluene	4.09E-04	AP42; Table 3.3-2; 10/96.	YES	1.98E-03	1.98E-01	9.92E-05
Xylenes	2.85E-04	AP42; Table 3.3-2; 10/96.	YES	1.38E-03	1.38E-01	6.91E-05
Propylene	2.58E-03	AP42; Table 3.3-2; 10/96.	NO	1.25E-02	1.25E+00	6.26E-04
1,3-Butadiene	<3.91E-05	AP42; Table 3.3-2; 10/96.	YES	1.90E-04	1.90E-02	9.48E-06
Formaldehyde	1.18E-03	AP42; Table 3.3-2; 10/96.	YES	5.72E-03	5.72E-01	2.86E-04
Acetaldehyde	7.67E-04	AP42; Table 3.3-2; 10/96.	YES	3.72E-03	3.72E-01	1.86E-04
Acrolein	<9.25E-05	AP42; Table 3.3-2; 10/96.	YES	4.49E-04	4.49E-02	2.24E-05
Total PAH	<1.68E-04	AP42; Table 3.3-2; 10/96.	YES	8.15E-04	8.15E-02	4.07E-05
Naphthalene	8.48E-05	AP42; Table 3.3-2; 10/96.	YES	4.11E-04	4.11E-02	2.06E-05
Acenaphthylene	<5.06E-06	AP42; Table 3.3-2; 10/96.	YES	2.45E-05	2.45E-03	1.23E-06
Acenaphthene	<1.42E-06	AP42; Table 3.3-2; 10/96.	YES	6.89E-06	6.89E-04	3.44E-07
Fluorene	2.92E-05	AP42; Table 3.3-2; 10/96.	YES	1.42E-04	1.42E-02	7.08E-06
Phenanthrene	2.94E-05	AP42; Table 3.3-2; 10/96.	YES	1.43E-04	1.43E-02	7.13E-06
Anthracene	1.87E-06	AP42; Table 3.3-2; 10/96.	YES	9.07E-06	9.07E-04	4.54E-07
Fluoranthene	7.61E-06	AP42; Table 3.3-2; 10/96.	YES	3.69E-05	3.69E-03	1.85E-06
Pyrene	4.78E-06	AP42; Table 3.3-2; 10/96.	YES	2.32E-05	2.32E-03	1.16E-06
Benzo(a)anthracene	1.68E-06	AP42; Table 3.3-2; 10/96.	YES	8.15E-06	8.15E-04	4.07E-07
Chrysene	3.53E-07	AP42; Table 3.3-2; 10/96.	YES	1.71E-06	1.71E-04	8.56E-08
Benzo(b)fluoranthene	<9.91E-08	AP42; Table 3.3-2; 10/96.	YES	4.81E-07	4.81E-05	2.40E-08
Benzo(k)fluoranthene	<1.55E-07	AP42; Table 3.3-2; 10/96.	YES	7.52E-07	7.52E-05	3.76E-08
Benzo(a)pyrene	<1.88E-07	AP42; Table 3.3-2; 10/96.	YES	9.12E-07	9.12E-05	4.56E-08
Indeno(1,2,3-cd)pyrene	<3.75E-07	AP42; Table 3.3-2; 10/96.	YES	1.82E-06	1.82E-04	9.10E-08
Dibenzo(a,h)anthracene	<5.83E-07	AP42; Table 3.3-2; 10/96.	YES	2.83E-06	2.83E-04	1.41E-07
Benzo(g,h,l)perylene	<4.89E-07	AP42; Table 3.3-2; 10/96.	YES	2.37E-06	2.37E-04	1.19E-07
Total §112 HAP =	3.87E-03			1.88E-02	1.88E+00	9.39E-04

[1] Emission factors obtained from US EPA AP-42 Section 3.3 Gasoline and Diesel Engines (10/96), Table 3.3-2.

[2] Listed US EPA Hazardous Air Pollutants.

[3] Max. Hourly Emissions = Emission Factor (lb/MMBtu) *Max Heat Input Capacity per Engine (MMBtu/hr)

[4] Maximum Annual Emission Rate (lb/yr) = Hourly Emissions (lb/hr) * Annual Operating Hours (hr/yr)

[4] Maximum Annual Emission Rate (lb/yr) = Hourly Emissions (lb/hr) * Annual Operating Hours (hr/yr)

[5] Maximum Potential Annual Emission Rate (tpy) = Hourly Emissions (lb/hr) * Annual Hours (hr/yr) ((1 ton/2000 lb).

There will be one NG-fired startup generator, with power rating @ 2237 kW
Sulfur content of fuel used in engine will be 10 ppmv sulfur or less.
Annual operating hours will be limited to 100 hr/yr.
Engines will be new (model year 2024 or later).

FIN: **129-PKG-0001** **EPN:** **129-PKG-0001**
Engine Type 4-stroke, lean burn engine

Fuel Type:	**Natural Gas**	
Year	2024	
Total Engines:	1	
Fuel Consumption:	18808	Scf/hr
NG HHV	1051.00	Btu/Scf
Heat Input (HHV):	19.77	MMBtu/hr
Engine Horsepower Output:	3000	hp
Engine Output:	2237	kW
Annual Operation:	100	hr/yr
Engine Load:	100%	
Brake Specific Fuel Consumptions: [1]	8836.00	Btu/kW-hr

1 hp = 2544 Btu/hr
1 kW = 1.341 hp

Standard Temperature:	60 °F	15.56 °C
Standard Pressure:	1 atm	
Standard Volume:	379.48 ft3/lbmol	

Notes:
[1] Vendor supplied data - 8836 Btu/kW-hr

Generator Gas Engine Emission Rates

Pollutant	**Emission Factor** [1,2,3,4]		**Emissions Rates**		
			Max. Hourly	**Annual Average**[5]	**Annual**
			Max lb/hr	**annual avg lb/hr**	**tpy**
NOX [1]	1.0	g/hp-hr	6.61	0.08	0.33
CO [1]	2.0	g/hp-hr	13.23	0.15	0.66
PM [2,4]	0.0099871	lb/MMBtu	0.20	0.0023	0.01
PM10 [2,4]	0.0099871	lb/MMBtu	0.20	0.0023	0.01
PM2.5 [2,4]	0.0099871	lb/MMBtu	0.20	0.0023	0.01
VOC_{JJJJ} [1]	0.7	g/hp-hr	4.63	0.05	0.23
VOC [6]	-	-	5.67	0.06	0.28
SO2 [3]	1.06E-05	lb/hp-hr	0.03	0.00	0.002

Notes:
1. NOX, CO, and VOC_{JJJJ} emission factors are Table 1 to 40 CFR 60 Subpart JJJJ for engines with rated power greater than or equal to 500 hp and manufactured after 7/1/2010.
40 CFR 60.4233(e) specifies to use emission factors from Table 1 to 40 CFR 60 Subpart JJJJ.
2. PM/PM10/PM2.5 emission factors come from Table 3.2-2 in AP-42.
3. Emission factors for SO2 based on 10 ppmv sulfur in NG.
4. All PM is assumed to be less than 1.0 µm in diameter. Therefore, the PM emission factor is used to estimate emissions of PM10 and PM2.5.
5. Annual average hourly emission rates are (annual emissions in tpy)*2000 lb/ton*1 year/8760 hours.
6. As indicated in *40 CFR 60 Subpart JJJJ, Table 1, Note d,* , VOC_{JJJJ} does not include formaldehyde. Total VOC = VOC_{JJJJ} + Formaldehyde. Formaldehyde is quantified using emission factor in Section 3.2 of AP-42.

Example Calculation:

$$\text{Hourly } NO_X = \frac{1.00\text{ g}}{\text{hp-hr}} \times 3000.00\text{ hp} \times \frac{1\text{ lb}}{453.59\text{ g}} = \frac{6.61\text{ lb}}{\text{hr}}$$

$$\text{Annual } NO_X = \frac{6.61\text{ lb}}{\text{hr}} \times \frac{100\text{ hrs}}{\text{yr}} \times \frac{1\text{ ton}}{2000\text{ lbs}} = \frac{0.33\text{ ton}}{\text{yr}}$$

HAP Emissions from NG Engine

HAP Emission Estimation

Max Input = 19.77 MMBtu/hr each engine
Annual Hours @ Max Rating = 100.0 hrs/yr
Hourly Emissions = (Max Heat Input - MMBtu/hr) x (EF - lb/MMBtu)
Annual Emissions = (Max Heat Input - MMBtu/hr) x (EF - lb/MMBtu) x (Annual Operating Hours) / (2,000 lb/Ton)

4-Stroke, Lean Burn Engine (37 HAPs)

Pollutant	HAPs [2]	Emission Factor [1]	Emission Factor Rating	HAPs Emission Factor	Max Hourly Emission [3]	Annual Emission	Annual Emissions
		lb/MMBtu(fuel input)		lb/MMBtu(fuel input)	(lb/hr)	(lb/yr) [4]	(tpy) [5]
1,1,2,2-Tetrachloroethanek	Yes	0.00004	E	0.00004	7.91E-04	7.91E-02	3.95E-05
1,1,2-Trichloroethanek	Yes	0.0000318	E	0.0000318	6.29E-04	6.29E-02	3.14E-05
1,1-Dichloroethane	No	0.0000236	E	0	0.00E+00	0.00E+00	0.00E+00
1,2,3-Trimethylbenzene	No	2.30E-05	D	0	0.00E+00	0.00E+00	0.00E+00
1,2,4-Trimethylbenzene	No	1.43E-05	C	0	0.00E+00	0.00E+00	0.00E+00
1,2-Dichloroethane	No	0.0000236	E	0	0.00E+00	0.00E+00	0.00E+00
1,2-Dichloropropane	No	0.0000269	E	0	0.00E+00	0.00E+00	0.00E+00
1,3,5-Trimethylbenzene	No	3.38E-05	D	0	0.00E+00	0.00E+00	0.00E+00
1,3-Butadienek	Yes	2.67E-04	D	2.67E-04	5.28E-03	5.28E-01	2.64E-04
1,3-Dichloropropenek	Yes	0.0000264	E	0.0000264	5.22E-04	5.22E-02	2.61E-05
2-Methylnaphthalenek	Yes	3.32E-05	C	3.32E-05	6.56E-04	6.56E-02	3.28E-05
2,2,4-Trimethylpentanek	Yes	2.50E-04	C	2.50E-04	4.94E-03	4.94E-01	2.47E-04
Acenaphthenek	Yes	1.25E-06	C	1.25E-06	2.47E-05	2.47E-03	1.24E-06
Acenaphthylenek	Yes	5.53E-06	C	5.53E-06	1.09E-04	1.09E-02	5.47E-06
Acetaldehydek,l	Yes	8.36E-03	A	8.36E-03	1.65E-01	1.65E+01	8.26E-03
Acroleink,l	Yes	5.14E-03	A	5.14E-03	1.02E-01	1.02E+01	5.08E-03
Benzenek	Yes	4.40E-04	A	4.40E-04	8.70E-03	8.70E-01	4.35E-04
Benzo(b)fluoranthenek	Yes	1.66E-07	D	1.66E-07	3.28E-06	3.28E-04	1.64E-07
Benzo(e)pyrenek	Yes	4.15E-07	D	4.15E-07	8.20E-06	8.20E-04	4.10E-07
Benzo(g,h,i)perylenek	Yes	4.14E-07	D	4.14E-07	8.18E-06	8.18E-04	4.09E-07

Table N-13 NG Startup Generator
MGS CNP 1, LLC

Pollutant	HAPs [2]	Emission Factor [1]	Emission Factor Rating	HAPs Emission Factor	Max Hourly Emission [3]	Annual Emission	Annual Emissions
		lb/MMBtu(fuel input)		lb/MMBtu(fuel input)	(lb/hr)	(lb/yr) [4]	(tpy) [5]
Biphenylk	Yes	2.12E-04	D	2.12E-04	4.19E-03	4.19E-01	2.10E-04
Butane	No	5.41E-04	D	0	0.00E+00	0.00E+00	0.00E+00
Butyr/Isobutyraldehyde	No	1.01E-04	C	0	0.00E+00	0.00E+00	0.00E+00
Carbon Tetrachloridek	Yes	0.0000367	E	0.0000367	7.25E-04	7.25E-02	3.63E-05
Chlorobenzenek	Yes	0.0000304	E	0.0000304	6.01E-04	6.01E-02	3.00E-05
Chloroethane	No	1.87E-06	D	0	0.00E+00	0.00E+00	0.00E+00
Chloroformk	Yes	0.0000285	E	0.0000285	5.63E-04	5.63E-02	2.82E-05
Chrysenek	Yes	6.93E-07	C	6.93E-07	1.37E-05	1.37E-03	6.85E-07
Cyclopentane	No	2.27E-04	C	0	0.00E+00	0.00E+00	0.00E+00
Ethane	No	1.05E-01	C	0	0.00E+00	0.00E+00	0.00E+00
Ethylbenzenek	Yes	3.97E-05	B	3.97E-05	7.85E-04	7.85E-02	3.92E-05
Ethylene Dibromidek	Yes	0.0000443	E	0.0000443	8.76E-04	8.76E-02	4.38E-05
Fluoranthenek	Yes	1.11E-06	C	1.11E-06	2.19E-05	2.19E-03	1.10E-06
Fluorenek	Yes	5.67E-06	C	5.67E-06	1.12E-04	1.12E-02	5.60E-06
Formaldehydek,l	Yes	5.28E-02	A	5.28E-02	1.04E+00	1.04E+02	5.22E-02
Methanolk	Yes	2.50E-03	B	2.50E-03	4.94E-02	4.94E+00	2.47E-03
Methylcyclohexane	No	1.23E-03	C	0	0.00E+00	0.00E+00	0.00E+00
Methylene Chloridek	Yes	2.00E-05	C	2.00E-05	3.95E-04	3.95E-02	1.98E-05
n-Hexanek	Yes	1.11E-03	C	1.11E-03	2.19E-02	2.19E+00	1.10E-03
n-Nonane	No	1.10E-04	C	0	0.00E+00	0.00E+00	0.00E+00
n-Octane	No	3.51E-04	C	0	0.00E+00	0.00E+00	0.00E+00
n-Pentane	No	2.60E-03	C	0	0.00E+00	0.00E+00	0.00E+00
Naphthalenek	Yes	7.44E-05	C	7.44E-05	1.47E-03	1.47E-01	7.35E-05
PAHk	Yes	2.69E-05	D	2.69E-05	5.32E-04	5.32E-02	2.66E-05
Phenanthrenek	Yes	1.04E-05	D	1.04E-05	2.06E-04	2.06E-02	1.03E-05
Phenolk	Yes	2.40E-05	D	2.40E-05	4.74E-04	4.74E-02	2.37E-05
Propane	No	4.19E-02	C	0	0.00E+00	0.00E+00	0.00E+00
Pyrenek	Yes	1.36E-06	C	1.36E-06	2.69E-05	2.69E-03	1.34E-06
Styrenek	Yes	0.0000236	E	0.0000236	4.67E-04	4.67E-02	2.33E-05
Tetrachloroethanek	Yes	2.48E-06	D	2.48E-06	4.90E-05	4.90E-03	2.45E-06
Toluenek	Yes	4.08E-04	B	4.08E-04	8.07E-03	8.07E-01	4.03E-04
Vinyl Chloridek	Yes	1.49E-05	C	1.49E-05	2.95E-04	2.95E-02	1.47E-05
Xylenek	Yes	1.84E-04	B	1.84E-04	3.64E-03	3.64E-01	1.82E-04
			Total HAPs	0.0002617	1.43	142.71	0.07

[1] Emission factors obtained from US EPA AP-42 Section 3.4 Large Stationary Diesel and All Stationary Dual-fuel Engines (10/96), Tables 3.4-3 and 3.4-4.

[2] Listed US EPA Hazardous Air Pollutants.

[3] Max. Hourly Emissions = Emission Factor (lb/MMBtu) *Max Heat Input Capacity per Engine (MMBtu/hr)

[4] Maximum Annual Emission Rate (lb/yr) = Hourly Emissions (lb/hr) * Annual Operating Hours (hr/yr)

[5] Maximum Potential Annual Emission Rate (tpy) = Hourly Emissions (lb/hr) * Annual Hours (hr/yr) ((1 ton/2000 lb).

Company:	MGS CNP 1, LLC
Emission Point ID:	BECCS-FUG BECCS Plant Equipment Leaks
HOURS OF OPERATION:	8,760

Emission Summary

Pollutant	Hourly Emission Rate lb/hr	Annual Emission Rate tpy
VOC	8.32	36.46
NH_3	0.60	2.64

Emission Calculation

Component	Product (Service)	Component Count[1]	TOC Emission Factor[2] kg/comp-hr	Stream Composition, wt%		Hourly Emissions, lb/hr	
				VOC	NH_3	VOC	NH_3
Valves	Rich Amine (Heavy Liquid)	58	0.00023	44%	0.0001%	0.01	2.93E-08
Pump Seals		2	0.00862			0.02	3.79E-08
Compressor Seals		0	-			-	-
Pressure Relief Valves (Gas Service)		5	0.104			0.50	1.14E-06
Flanges		200	0.00183			0.36	8.05E-07
Open-ended Lines [3]		15	0			0.00	0.00E+00
Valves	Lean Amine (Heavy Liquid)	410	0.00023	47%	-	0.10	-
Pump Seals		10	0.00862			0.09	-
Compressor Seals		0	-			-	-
Pressure Relief Valves (Gas Service)		37	0.104			3.96	-
Flanges		1362	0.00183			2.57	-
Open-ended Lines [3]		104	0			0.00	-
Valves	Natural Gas (Gas)	6	0.00597	12%	-	0.01	-
Pump Seals		0	-			-	-
Compressor Seals		0	0.228			0.00	-
Pressure Relief Valves		0	0.104			0.00	-
Flanges		22	0.00183			0.01	-
Open-ended Lines [3]		1	0			0.00	-

Table N-14 Equipment Leaks
MGS CNP 1, LLC

Component	Product (Service)	Component Count[1]	TOC Emission Factor[2] kg/comp-hr	Stream Composition, wt%		Hourly Emissions, lb/hr	
				VOC	NH_3	VOC	NH_3
Valves	Diesel (Heavy Liquid)	29	0.00023	100%	-	0.01	-
Pump Seals		1	0.00862			0.02	-
Compressor Seals		0	-			-	-
Pressure Relief Valves (Gas Service)		1	0.104			0.23	-
Flanges		109	0.00183			0.44	-
Open-ended Lines [3]		6	0			0.00	-
Valves	Aqueous Ammonia (Light Liquid)	61	0.00403	-	25%	-	1.35E-01
Pump Seals		2	0.0199			-	2.19E-02
Compressor Seals		0	-			-	-
Pressure Relief Valves (Gas Service)		4	0.104			-	2.29E-01
Flanges		216	0.00183			-	2.17E-01
Open-ended Lines [3]		14	0			-	0.00E+00
Total Hourly Emissions, lb/hr						8.32	0.60

[1] *Component Count is estimated based on similar projects.*

[2] *TOC emission factor is obtained from protocol for equipment leak emission estimates, EPA-453/R-95-017, November 1995, Table 2-1. SOCMI Average Emission Factors*

[3] *Open-ended Lines will be equipped with a cap, blind flange, plug, or a second valve; therefore a 100% control credit is taken.*

[4] *Sampling connections will be closed-purge connections; therefore a 100% control credit is taken.*

Truck Loadout of Degraded Amine

Overview:

Degraded amine removed from the reclaiming system will be loaded offsite by trucks. Maximum permit calculations are based on 2000 barrels per year. For hourly maximum, the loading rate is 105 GPM (150 barrels per hour). MEA is used to represent the amine.

Emissions Methodology:

AP-42, Section 5.2 : Transport and Marketing of Petroleum Liquids

Formula for calculating loading losses:

$$L_L = 12.46 \frac{S * P * M}{T}$$ AP-42, Section 5.2 6/08, Equation 1

where:

L_L = Loading loss, pounds per 1000 gallons (lb/10^3 gal) of liquid loaded
S = A saturation factor (based on type and service of loaded vessel)
P = True vapor pressure of liquid loaded, pounds per square inch absolute
M = molecular weight of vapors, pounds per pound-mole (lb/lb-mole)
T = temperature of bulk liquid loaded, °R 524.97 °R

Physical and Chemical Properties:

Emission Unit ID	True Vapor Pressure [1] (psia)	MW of Vapors [1] (lb / lb-mole)	Loading Loss (lb / 10^3 gal)	Notes
VOC - Amine -LOAD	0.0027	61.08	0.002	Submerged Loading: dedicated normal service, Uncontrolled

Throughput and Emissions:

Emission Unit ID	Max Hourly Mgal/hr	Annual Mgal/yr	Max Hourly Vapor Released (lb / hr)	Maximum Annual Vapor Released (lb/yr)	Notes
VOC - Amine -LOAD	6.3	84	0.015	0.20	Submerged Loading: dedicated normal service, Uncontrolled

Degraded Amine loading vapors - Uncontrolled

Emissions	Average lb / hr	Maximum lb / hr	Maximum tons /yr
VOC - Amine -LOAD	0.000022	0.015	0.00010

Calculation of MEA vapor pressure

				a	b	c
Components	MW	Wt.%	mol%	dimensionless	(°K)	(°K)
MEA [1]	61.08	100.00	100.00	4.29252	1408.87	-116.093

P_{VA}	0.0026844	psia

[1] Pressure equation for MEA is P_{VA} in bar and T in °K. P = 10^(A-B/(C+T)). (https://webbook.nist.gov/cgi/cbook.cgi?ID=C141435&Mask=4&Type=ANTOINE&Plot=on). P_{VA} in bar is converted to psia by multiplying 14.50377. Temperature range [338.6 to 444.1] K.

Table N-16 Wastewater Treatment Plant
MGS CNP 1, LLC

Source Name:	Wastewater Treatment Plant	**EPN:**	127-PKG-0001	
Proposed Limits		**Date:**	2/18/2025	
FIN	**EPN**	**Air Contaminant[3]**	**lbs/hr [1]**	**tpy**
127-PKG-0001	127-PKG-0001	NH3	0.51	2.10
		H2SO4	0.64	2.79
		HCl[2]	0.12	0.57

[1] Hourly emission rate is the emission rate under normal operating conditions.

[2] Hazardous Air Pollutant

[3] VOC and HAPs were excluded from this calculation

Process Description:
The wastewater treatment plant will receive water from the direct contact cooler/polishing scrubber system. The scrubbing liquid will have direct contact with the flue gas exhaust from the boiler. The scrubber solution will adsorb ammonia, sulfuric acid and hydrochloric acid that could be present in the flue gas. The scrubbing solution will be sent to the Wastewater Treatment Plant for further processing before it is discharged to the outfall. It is conservatively assumed that 10% of the ammonia, sulfuric acid and hydrochloric acid in the flue gas could be emitted from the Wastewater Treatment plant. The wastewater treatment plant will also receive water from the demineralized water system, raw water treatment, flush pond water, cooling tower water and boiler blowdown water. These streams are not expected to contribute emissions from the wastewater treatment plant.

Attachment O: Monitoring/Recordkeeping/Reporting/Testing Plans

- Record the amount of biomass brought into the facility on a monthly basis
- Record moisture content of biomass on a weekly basis
- Record the mass rate of biomass used by the BFB
- Pressure drop across each baghouse on at least a daily basis
- Record natural gas usage and combustion duration during boiler startup
- Comply with the monitoring/recordkeeping/reporting/testing requirements of state regulations, 40 CFR 60 Subpart Db, and 40 CFR Parts 72 – 78 applicable to the BFB
- Record annual operating hours for the NG Startup Generator and the Fire Water Diesel Engine Pump
- Record fuel sulfur content for the fire water pump per 40 CFR 60.4207

Section 4 of the application narrative provides an analysis of the applicability of state and federal regulations applicable to the facility and a summary of compliance requirements. MGSCNP1 will work with the Division of Air Quality to identify and address required Monitoring, Recordkeeping, Reporting, and Testing Plans. Requirements identified in the permit will be implemented.

Attachment P: Public Notice

(Affidavit of Publication to be provided)

AIR QUALITY PERMIT NOTICE
Notice of Application

Notice is given that MGS CNP 1, LLC has applied to the West Virginia Department of Environmental Protection, Division of Air Quality, for a Construction Permit for a Biomass Energy and Carbon Capture Sequestration Plant located off of WV Route 62, near Point Pleasant, in Mason County, West Virginia. The facility will be utilized primarily in the production of carbon dioxide removal (CDR) credits with future power/steam generation. The latitude and longitude coordinates are: 38.92450, -82.10822.

The applicant estimates the potential to discharge the following Regulated Air Pollutants will be: Nitrogen Oxides, 90.95 tons per year (TPY); Carbon Monoxide, 46.48 TPY; Volatile Organic Compounds, 55.27 TPY; Sulfur Dioxide, 55.27 TPY; Particulate Matter-10, 83.35 TPY; Total Hazardous Air Pollutants, 24.00 TPY.

Startup of operation is planned to begin on or about the 15th day of November, 2028. Written comments will be received by the West Virginia Department of Environmental Protection, Division of Air Quality, 601 57th Street, SE, Charleston, WV 25304, for at least 30 calendar days from the date of publication of this notice. Written comments will also be received via email at DEPAirQualityPermitting@WV.gov.

Any questions regarding this permit application should be directed to the DAQ at (304) 926-0499, extension 41281, during normal business hours.
Dated this the 6th day of February 2025.

By: MGS CNP 1, LLC
Jack Calhoun
Vice President
109 Post Oak Lane, Suite 140
Houston, TX 77024

Attachment Q: Business Confidential Claims (Not Applicable)

Attachment R: Authority Forms (Not Applicable)

Authority Forms are only required when someone other than the responsible official signs the application.

Attachment S: Title V Permit Revision Information (Not Applicable)

Draft Permit R13-3708

West Virginia Department of Environmental Protection

Harold D. Ward
Cabinet Secretary

Construction Permit

R13-3708

This permit is issued in accordance with the West Virginia Air Pollution Control Act (West Virginia Code §§22-5-1 et seq.) and 45 CSR 13 – Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Temporary Permits, General Permits and Procedures for Evaluation. The permittee identified at the above-referenced facility is authorized to construct the stationary sources of air pollutants identified herein in accordance with all terms and conditions of this permit.

Issued to:
MGS CNP1, LLC
053-00134
BECCS Plant/Point Pleasant

Laura M. Crowder
Director, Division of Air Quality

Issued: DRAFT

Facility Location:	5801 Ohio River Rd Point Pleasant, Mason County, West Virginia 2550
Mailing	109 N. Post Oak Ln Ste. 140 Houston, TX 77024
Facility Description:	Biomass fired, steam to electricity power plant
NAICS Codes:	221117 - Biomass Electric Power Generation
UTM Coordinates:	403.93 km Easting • 4,308.98 km Northing • Zone 17N
Latitude/Longitude:	39.9245069°N/-82.1082251°W
Permit Type:	Construction
Description of Change:	This action is for the construction of a biomass fired, bubbling bed boiler to generate steam which is used to generate electricity not for sale. Other emission units associated with the facility are biomass (fuel) handling/processing/storage, cooling towers, and two engines (one non-emergency engine limited to 100 hr/yr and one emergency engine).

Any person whose interest may be affected, including, but not necessarily limited to, the applicant and any person who participated in the public comment process, by a permit issued, modified or denied by the Secretary may appeal such action of the Secretary to the Air Quality Board pursuant to article one [§§22B-1-1 et seq.], Chapter 22B of the Code of West Virginia. West Virginia Code §§22-5-14.

As a result of the granting of this permit, the source is a nonmajor source subject to 45CSR30. The permittee shall apply for a Title V (45CSR30) permit in accordance with the requirements of 45CSR30 unless granted a deferral or exemption by the Director from such filing deadline pursuant to a request from the permittee.

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1.0. Emission Units

Emission Unit ID	Emission Point ID	Emission Unit Description	Year Installed	Design Capacity	Control Device
BFB Boiler					
121-H-2001	122-T-1001 or 121-PKG-3001	Wood Chip Fired Fluidized Bed Boiler	2026	944 MMBtu/hr	H2001-1C/2C/3C/4C/5C
121-S-5001		Makeup Sand Silo	2026	1,660 ft^3	
121-S-9901		Sodium Bicarbonate Storage Silo	2026	2,000 ft^3	
Biomass Handling Process					
121-LS-1001	121-PKG-1001	Biomass Receiving Hopper 1001	2026	6,000 ft^3	121-PKG-1001
121-LS-1002		Biomass Receiving Hopper 1002	2026	6,000 ft^3	
121-CV-1001	121-CV-1001	Conveyor #1 from Biomass Receiving Hopper 1001 to Storage Pile	2026	106.07 tons/hr	Covered
121-CV-1002	121-CV-1002	Conveyor #2 from Biomass Receiving Hopper 1002 to Storage Pile	2026	106.07 tons/hr	Covered
CHIP-1	CHIP-1	Biomass Storage Pile Loading Fugitives	2026	106.07 tons/hr	NA
121-S-1001	121-S-1001	Biomass Feed Hopper	2026	1800 ft^3	NA
121-CV-1003	121-CV-1003	Conveyor from Feed Hopper to 121-CV-2001 A/B	2026	106.07 tons/hr	Covered
121-CV-2001 A	121-CV-2001 A	Screw Conveyor from Biomass Feed Hopper A to Biomass Fuel Metering Bin 121-S-2001 A	2026	106.07 tons/hr	Covered
121-CV-2001B	121-CV-2001B	Screw Conveyor from Biomass Feed Hopper B to Biomass Fuel Metering Bin 121-S-2001 B	2026	106.07 tons/hr	Covered
121-S-2001 A	121-S-2001 A	Biomass Fuel Metering Bin A	2026	4,200 ft^3	NA
121-S-2001 B	121-S-2001 B	Biomass Fuel Metering Bin B	2026	4,200 ft^3	NA
CHIP-2	CHIP-2	Wood Chips Storage Pile	2026	35,628 tons	NA
Fly Ash / Economizer Ash Handling Process					
121-CV-4001 A	121-CV-4001 A	PJFF Ash Collection Drag Chain Conveyor A (From boiler hopper to surge bin A)	2026	4.5 tons/hr	Covered
121-CV-4001 B	121-CV-4001 B	PJFF Ash Collection Drag Chain Conveyor B (from boiler to surge bin B)	2026	4.5 tons/hr	Covered
121-CV-4002	121-CV-4002	PJFF Ash Transport Drag Chain Conveyor (From Surge Bins #1 and #2 to PJFF Ash Transfer Drag Chain Conveyor)	2026	4.5 tons/hr	Covered
121-CV-4003	121-CV-4003	PJFF Ash Transfer Drag Chain Conveyor (to Ash Bucket Elevator)	2026	4.5 tons/hr	Covered
121-CV-4004	121-CV-4004	Ash Bucket Elevator	2026	4.5 tons/hr	Covered

121-CV-4005	121-CV-4005	Ash Distribution Drag Chain Conveyor (From Ash Bucket Elevator to Fly Ash Storage Silos)	2026	4.5 tons/hr	Covered
121-CV-4006 A	121-CV-4006 A	Economizer Hopper Ash Drag Chain Conveyor A (From Economizer Hopper to Economizer Hopper Ash Surge Bin A)	2026	3.3 tons/hr	Covered
121-CV-4006 B	121-CV-4006 B	Economizer Hopper Ash Drag Chain Conveyor B (From Economizer Hopper to Economizer Hopper Ash Surge Bin B)	2026	3.3 tons/hr	Covered
121-CV-4007 A	121-CV-4007 A	Economizer Ash Transport Conveyor A (From Economizer Ash Surge Bin A to Fly Ash Silo A)	2026	3.3 tons/hr	Covered
121-CV-4007 B	121-CV-4007 B	Economizer Ash Transport Conveyor B (From Economizer Ash Surge Bin B to Fly Ash Silo B)	2026	3.3 tons/hr	Covered
121-S-4001 A	121-F-4001 A	Fly Ash Storage Silo A	2026	9,500 ft^3	121-F-4001 A
121-S-4001 B	121-F-4001 B	Fly Ash Storage Silo B	2026	9,500 ft^3	121-F-4001 B
121-TL-0001	121-TL-0001	Fly Ash Truck Loading	2026	8.6 tons/hr	N/A
Bottom Ash and Sand Handling Process					
121-CV-5001 A	121-CV-5001 A	Metering Conveyor A (Bed Ash Screw A)	2026	2250 lbs/hr	Covered
121-CV-5001 B	121-CV-5001 B	Metering Conveyor B (Bed Ash Screw B)	2026	2250 lbs/hr	Covered
121-CV-5002A	121-CV-5002A	Vibrating Screener A (to separate bottom ash and sand)	2026	2250 lbs/hr	Partial Enclosure
121-CV-5002B	121-CV-5002B	Vibrating Screener B (to separate bottom ash and sand)	2026	2250 lbs/hr	Trough hood (Partial enclosure)
121-S-1002	121-S-1002	Sand Receiving Hopper	2026	6,000 ft^3	NA Covered Vent piping to the BFB
121-CV-1004	121-CV-1004	Inclined Sand Hopper Conveyor	2026	50 tons/hr	
121-CV-5003 A	121-CV-5003 A	Transfer Conveyor A (Recycled Sand) (From Vibrating Screener A to Sand Bucket Elevator A)	2026	6,000 lbs/24 hours	Partial Enclosure)
121-CV-5003 B	121-CV-5003 B	Transfer Conveyor B (Recycled Sand) (From Vibrating Screener B to Sand Bucket Elevator B)	2026	6000 lbs/24 hours	Partial Enclosure)
121-CV-5004 A	121-CV-5004 A	Sand Bucket Elevator A (Recycled Sand + Fresh Sand)	2026	650	Covered
121-CV-5004 B	121-CV-5004 B	Sand Bucket Elevator B (Recycled Sand + Fresh Sand)	2026	650	Covered

$NaHCO_3$ Handling Process					
121-S-9901	121-PKG-3001; 122-T-1001	Sodium Bicarbonate Storage Silo	2026	1400 scfm gas flow (intermittent, 86 hrs/yr)	Vent routed to PJFF
121-S-9902 A	121-F-9902 A	Sodium Bicarbonate Vent Hopper A	2026	126 lbs/hr	121-F-9902 A
121-S-9902 B	121-F-9902 B	Sodium Bicarbonate Vent Hopper B	2026	126 lbs/hr	121-F-9902 B
Others Point Sources					
129-CT-9301	129-CT-9301	Cooling Tower	2026	80,762 gpm	NA
PM-PlantRd	PM-PlantRd	Truck Road Fugitive Particulate Emissions	2026	Max 203 vehicles per day; On average 107 vehicles per day	NA
122-TK-9902	122-TK-9901	Amine Makeup Tank	2026	8812 gal (max)	NA
122-TK-9901	122-TK-9901	Lean Amine Tank	2026	375,986 gal (max)	NA
129-P-9402	129-P-9402	Fire Water Pump (emergency engine)	2026	614 HP	NA
129-PKG-0001	129-PKG-0001	NG Startup Generator (non-emergency engine)	2026	3,000 HP	NA
VOC-Amine-LOAD	VOC-Amine-LOAD	Truck Loadout of Degraded Amine	2026	6.3 Mgal/hr	NA
127-PKG-0001	127-PKG-001	Wastewater Treatment Plant	2026	0.17 Mgal/yr 1,517.49 Mgal/yr	NA
Tanks					
129-TK-9402	129-TK-9402	Diesel Tank	2026	1616 gal (max)	NA
122-PKG-2001	122-PKG-2001	Biodegraded Amine Tank	2026	4,488 gal (max)	NA

LNB – Low NO_x Burner
SCR – Selective Catalytic Reduction to control oxides of nitrogen emissions.
Ox Cat – Oxidation Catalyst to control carbon monoxide and VOC emissions.

2.0. General Conditions

2.1. Definitions

2.1.1. All references to the "West Virginia Air Pollution Control Act" or the "Air Pollution Control Act" mean those provisions contained in W.Va. Code §§ 22-5-1 to 22-5-18.

2.1.2. The "Clean Air Act" means those provisions contained in 42 U.S.C. §§ 7401 to 7671q, and regulations promulgated thereunder.

2.1.3. "Secretary" means the Secretary of the Department of Environmental Protection or such other person to whom the Secretary has delegated authority or duties pursuant to W.Va. Code §§ 22-1-6 or 22-1-8 (45CSR§30-2.12.). The Director of the Division of Air Quality is the Secretary's designated representative for the purposes of this permit.

2.2. Acronyms

CAAA	Clean Air Act Amendments	**NO_X**	Nitrogen Oxides
CBI	Confidential Business Information	**NSPS**	New Source Performance Standards
CEM	Continuous Emission Monitor	**PM**	Particulate Matter
CES	Certified Emission Statement	**$PM_{2.5}$**	Particulate Matter less than 2.5 µm in diameter
CFR	Code of Federal Regulations		
CO	Carbon Monoxide	**PM_{10}**	Particulate Matter less than 10µm in diameter
CSR	Codes of State Rules		
DAQ	Division of Air Quality	**ppb**	Pounds per Batch
DEP	Department of Environmental Protection	**pph**	Pounds per Hour
		ppm	Parts per Million
dscm	Dry Standard Cubic Meter	**ppm_V**	Parts per Million by Volume
FOIA	Freedom of Information Act		
GHG	Greenhouse Gases	**PSD**	Prevention of Significant Deterioration
HAP	Hazardous Air Pollutant		
HON	Hazardous Organic NESHAP	**psi**	Pounds per Square Inch
HP	Horsepower	**SIC**	Standard Industrial Classification
lbs/hr	Pounds per Hour		
LDAR	Leak Detection and Repair	**SIP**	State Implementation Plan
M	Thousand	**SO_2**	Sulfur Dioxide
MACT	Maximum Achievable Control Technology	**TAP**	Toxic Air Pollutant
		TPY	Tons per Year
MDHI	Maximum Design Heat Input	**TRS**	Total Reduced Sulfur
MM	Million	**TSP**	Total Suspended Particulate
MMBtu/hr *or* mmbtu/hr	Million British Thermal Units per Hour	**USEPA**	United States Environmental Protection Agency
MMCF/hr *or* mmcf/hr	Million Cubic Feet per Hour	**UTM**	Universal Transverse Mercator
		VEE	Visual Emissions Evaluation
NA	Not Applicable	**VOC**	Volatile Organic Compounds
NAAQS	National Ambient Air Quality Standards	**VOL**	Volatile Organic Liquids
NESHAPS	National Emissions Standards for Hazardous Air Pollutants		

2.3. Authority

This permit is issued in accordance with West Virginia Air Pollution Control Act W.Va. Code §§ 22-5-1. et seq. and the following Legislative Rules promulgated thereunder:

2.3.1. 45CSR13 – *Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Temporary Permits, General Permits and Procedures for Evaluation*.

2.4. Term and Renewal

2.4.1. This Permit shall remain valid, continuous and in effect unless it is revised, suspended, revoked or otherwise changed under an applicable provision of 45CSR13 or any other applicable legislative rule;

2.5. Duty to Comply

2.5.1. The permitted facility shall be constructed and operated in accordance with the plans and specifications filed in Permit Application R13-3708, and any modifications, administrative updates, or amendments thereto. The Secretary may suspend or revoke a permit if the plans and specifications upon which the approval was based are not adhered to;
[45CSR§§13-5.10 and 10.3.]

2.5.2. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the West Virginia Code and the Clean Air Act and is grounds for enforcement action by the Secretary or USEPA;

2.5.3. Violations of any of the conditions contained in this permit, or incorporated herein by reference, may subject the permittee to civil and/or criminal penalties for each violation and further action or remedies as provided by West Virginia Code 22-5-6 and 22-5-7;

2.5.4. Approval of this permit does not relieve the permittee herein of the responsibility to apply for and obtain all other permits, licenses, and/or approvals from other agencies; i.e., local, state, and federal, which may have jurisdiction over the construction and/or operation of the source(s) and/or facility herein permitted.

2.6. Duty to Provide Information

The permittee shall furnish to the Secretary within a reasonable time any information the Secretary may request in writing to determine whether cause exists for administratively updating, modifying, revoking, or terminating the permit or to determine compliance with the permit. Upon request, the permittee shall also furnish to the Secretary copies of records to be kept by the permittee. For information claimed to be confidential, the permittee shall furnish such records to the Secretary along with a claim of confidentiality in accordance with 45CSR31. If confidential information is to be sent to USEPA, the permittee shall directly provide such information to USEPA along with a claim of confidentiality in accordance with 40 CFR Part 2.

2.7. Duty to Supplement and Correct Information

Upon becoming aware of a failure to submit any relevant facts or a submittal of incorrect information in any permit application, the permittee shall promptly submit to the Secretary such supplemental facts or corrected information.

2.8. Administrative Update

The permittee may request an administrative update to this permit as defined in and according to the procedures specified in 45CSR13.
[45CSR§13-4.]

2.9. Permit Modification

The permittee may request a minor modification to this permit as defined in and according to the procedures specified in 45CSR13.
[45CSR§13-5.4.]

2.10 Major Permit Modification

The permittee may request a major modification as defined in and according to the procedures specified in 45CSR14 or 45CSR19, as appropriate.
[45CSR§13-5.1]

2.11. Inspection and Entry

The permittee shall allow any authorized representative of the Secretary, upon the presentation of credentials and other documents as may be required by law, to perform the following:

a. At all reasonable times (including all times in which the facility is in operation) enter upon the permittee's premises where a source is located or emissions related activity is conducted, or where records must be kept under the conditions of this permit;

b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

c. Inspect at reasonable times (including all times in which the facility is in operation) any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under the permit; and

d. Sample or monitor at reasonable times substances or parameters to determine compliance with the permit or applicable requirements or ascertain the amounts and types of air pollutants discharged.

[WV Code § 22-5-4(a)(9)]

2.12. Reserved

2.13. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a permittee in an enforcement action that it should have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. However, nothing in this paragraph shall be construed as precluding consideration of a need to halt or reduce activity as a mitigating factor in determining penalties for noncompliance if the health, safety, or environmental impacts of halting or reducing operations would be more serious than the impacts of continued operations.

2.14. Suspension of Activities

In the event the permittee should deem it necessary to suspend, for a period in excess of sixty (60) consecutive calendar days, the operations authorized by this permit, the permittee shall notify the Secretary, in writing, within two (2) calendar weeks of the passing of the sixtieth (60) day of the suspension period.

2.15. Property Rights

This permit does not convey any property rights of any sort or any exclusive privilege.

2.16. Severability

The provisions of this permit are severable and should any provision(s) be declared by a court of competent jurisdiction to be invalid or unenforceable, all other provisions shall remain in full force and effect.

2.17. Transferability

This permit is transferable in accordance with the requirements outlined in Section 10.1 of 45CSR13. **[45CSR§13-10.1.]**

2.18. Notification Requirements

The permittee shall notify the Secretary, in writing, no later than thirty (30) calendar days after the actual startup of the operations authorized under this permit.

2.19. Credible Evidence

Nothing in this permit shall alter or affect the ability of any person to establish compliance with, or a violation of, any applicable requirement through the use of credible evidence to the extent authorized by law. Nothing in this permit shall be construed to waive any defense otherwise available to the permittee including, but not limited to, any challenge to the credible evidence rule in the context of any future proceeding.

3.0. Facility-Wide Requirements

3.1. Limitations and Standards

3.1.1. **Open burning.** The open burning of refuse by any person, firm, corporation, association or public agency is prohibited except as noted in 45CSR§6-3.1.
[45CSR§6-3.1.]

3.1.2. **Open burning exemptions.** The exemptions listed in 45CSR§6-3.1 are subject to the following stipulation: Upon notification by the Secretary, no person shall cause, suffer, allow or permit any form of open burning during existing or predicted periods of atmospheric stagnation. Notification shall be made by such means as the Secretary may deem necessary and feasible.
[45CSR§6-3.2.]

3.1.3. **Asbestos.** The permittee is responsible for thoroughly inspecting the facility, or part of the facility, prior to commencement of demolition or renovation for the presence of asbestos and complying with 40 CFR § 61.145, 40 CFR § 61.148, and 40 CFR § 61.150. The permittee, owner, or operator must notify the Secretary at least ten (10) working days prior to the commencement of any asbestos removal on the forms prescribed by the Secretary if the permittee is subject to the notification requirements of 40 CFR § 61.145(b)(3)(i). The USEPA, the Division of Waste Management, and the Bureau for Public Health - Environmental Health require a copy of this notice to be sent to them.
[40CFR§61.145(b) and 45CSR§34]

3.1.4. **Odor.** No person shall cause, suffer, allow or permit the discharge of air pollutants which cause or contribute to an objectionable odor at any location occupied by the public.
[45CSR§4-3.1] ***[State Enforceable Only]***

3.1.5. **Permanent shutdown.** A source which has not operated at least 500 hours in one 12-month period within the previous five (5) year time period may be considered permanently shutdown, unless such source can provide to the Secretary, with reasonable specificity, information to the contrary. All permits may be modified or revoked and/or reapplication or application for new permits may be required for any source determined to be permanently shutdown.
[45CSR§13-10.5.]

3.1.6. **Standby plan for reducing emissions.** When requested by the Secretary, the permittee shall prepare standby plans for reducing the emissions of air pollutants in accordance with the objectives set forth in Tables I, II, and III of 45CSR11.
[45CSR§11-5.2.]

3.2. Monitoring Requirements

[Reserved]

3.3. Testing Requirements

3.3.1. **Stack testing.** As per provisions set forth in this permit or as otherwise required by the Secretary, in accordance with the West Virginia Code, underlying regulations, permits and orders, the permittee shall conduct test(s) to determine compliance with the emission limitations set forth in this permit and/or established or set forth in underlying documents. The Secretary, or his duly authorized representative, may at his option witness or conduct such test(s). Should the Secretary exercise his option to conduct such test(s), the operator shall provide all necessary sampling

connections and sampling ports to be located in such manner as the Secretary may require, power for test equipment and the required safety equipment, such as scaffolding, railings and ladders, to comply with generally accepted good safety practices. Such tests shall be conducted in accordance with the methods and procedures set forth in this permit or as otherwise approved or specified by the Secretary in accordance with the following:

a. The Secretary may on a source-specific basis approve or specify additional testing or alternative testing to the test methods specified in the permit for demonstrating compliance with 40 CFR Parts 60, 61, and 63 in accordance with the Secretary's delegated authority and any established equivalency determination methods which are applicable. If a testing method is specified or approved which effectively replaces a test method specified in the permit, the permit may be revised in accordance with 45CSR§13-4. or 45CSR§13-5.4 as applicable.

b. The Secretary may on a source-specific basis approve or specify additional testing or alternative testing to the test methods specified in the permit for demonstrating compliance with applicable requirements which do not involve federal delegation. In specifying or approving such alternative testing to the test methods, the Secretary, to the extent possible, shall utilize the same equivalency criteria as would be used in approving such changes under Section 3.3.1.a. of this permit. If a testing method is specified or approved which effectively replaces a test method specified in the permit, the permit may be revised in accordance with 45CSR§13-4. or 45CSR§13-5.4 as applicable.

c. All periodic tests to determine mass emission limits from or air pollutant concentrations in discharge stacks and such other tests as specified in this permit shall be conducted in accordance with an approved test protocol. Unless previously approved, such protocols shall be submitted to the Secretary in writing at least thirty (30) days prior to any testing and shall contain the information set forth by the Secretary. In addition, the permittee shall notify the Secretary at least fifteen (15) days prior to any testing so the Secretary may have the opportunity to observe such tests. This notification shall include the actual date and time during which the test will be conducted and, if appropriate, verification that the tests will fully conform to a referenced protocol previously approved by the Secretary.

d. The permittee shall submit a report of the results of the stack test within sixty (60) days of completion of the test. The test report shall provide the information necessary to document the objectives of the test and to determine whether proper procedures were used to accomplish these objectives. The report shall include the following: the certification described in paragraph 3.5.1.; a statement of compliance status, also signed by a responsible official; and a summary of conditions which form the basis for the compliance status evaluation. The summary of conditions shall include the following:

1. The permit or rule evaluated, with the citation number and language;
2. The result of the test for each permit or rule condition; and,
3. A statement of compliance or noncompliance with each permit or rule condition.

[WV Code § 22-5-4(a)(14-15) and 45CSR13]

3.4. Recordkeeping Requirements

3.4.1. **Retention of records.** The permittee shall maintain records of all information (including monitoring data, support information, reports, and notifications) required by this permit recorded in a form suitable and readily available for expeditious inspection and review. Support information includes all calibration and maintenance records and all original strip-chart recordings for

continuous monitoring instrumentation. The files shall be maintained for at least five (5) years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. Said records shall be maintained on site or in a readily accessible off-site location maintained by the permittee for a period of five (5) years. Said records shall be readily available to the Secretary of the Division of Air Quality or his/her duly authorized representative for expeditious inspection and review. Any records submitted to the agency pursuant to a requirement of this permit or upon request by the Secretary shall be certified by a responsible official. Where appropriate, the permittee may maintain records electronically. Where appropriate, the permittee may maintain records electronically (on a computer, on computer floppy disks, CDs, DVDs, or magnetic tape disks), on microfilm, or on microfiche.

3.4.2. **Odors.** For the purposes of 45CSR4, the permittee shall maintain a record of all odor complaints received, any investigation performed in response to such a complaint, and any responsive action(s) taken.
[45CSR§4. *State Enforceable Only.*]

3.4.3. The permittee shall install and maintain an industrial fence around this permitted facility as outlined in the March 14, 2021, submittal of the Prevention of Significant Deterioration Air Quality Dispersion Modeling Report. This industrial fence shall be constructed in such a manner to prevent the general public from accessing this permitted facility.

3.5. Reporting Requirements

3.5.1. **Responsible official.** Any application form, report, or compliance certification required by this permit to be submitted to the DAQ and/or USEPA shall contain a certification by the responsible official that states that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

3.5.2. **Confidential information.** A permittee may request confidential treatment for the submission of reporting required by this permit pursuant to the limitations and procedures of W.Va. Code § 22-5-10 and 45CSR31.

3.5.3. **Correspondence.** All notices, requests, demands, submissions and other communications required or permitted to be made to the Secretary of DEP and/or USEPA shall be made in writing and shall be deemed to have been duly given when delivered by hand, or mailed first class or by private carrier with postage prepaid to the address(es), or submitted in electronic format by email as set forth below or to such other person or address as the Secretary of the Department of Environmental Protection may designate:

DAQ:
Director
WVDEP
Division of Air Quality
601 57th Street
Charleston, WV 25304-2345

US EPA:
Section Chief
U.S. Environmental Protection Agency, Region III
Enforcement and Compliance Assurance
Division Air Section (3ED21)
1650 Arch Street
Philadelphia, PA 19103-2029

DAQ Compliance and Enforcement[1]:
DEPAirQualityReports@wv.gov

[1]For all self-monitoring reports (MACT, GACT, NSPS, etc.), stack tests and protocols, Notice of Compliance Status Reports, Initial Notifications, etc.

3.5.4. Operating Fee

3.5.4.1. In accordance with 45CSR30 – Operating Permit Program, the permittee shall submit a certified emissions statement and pay fees on an annual basis in accordance with the submittal requirements of the Division of Air Quality. A receipt for the appropriate fee shall be maintained on the premises for which the receipt has been issued and shall be made immediately available for inspection by the Secretary or his/her duly authorized representative.

3.5.4.2. In accordance with 45CSR30 – Operating Permit Program, newly permitted facilities will be sent a Certified Emissions Statement (CES) Invoice, covering the date of initial startup through the following June 30. Said invoice and the appropriate fee shall be submitted to this office no later than 30 days prior to the date of initial startup.

3.5.5. **Emission inventory.** At such time(s) as the Secretary may designate, the permittee herein shall prepare and submit an emission inventory for the previous year, addressing the emissions from the facility and/or process(es) authorized herein, in accordance with the emission inventory submittal requirements of the Division of Air Quality. After the initial submittal, the Secretary may, based upon the type and quantity of the pollutants emitted, establish a frequency other than on an annual basis.

4.0. Specific Requirements for the BFB Boiler (121-H-2001)

4.1. Limitations and Standards

4.1.1. This permit allows the permittee to construct one bubbling fluidize bed boiler to generate steam for the main purpose of generating electricity. The following conditions and requirements are specific to the boiler:

a. Emissions generated from the boiler shall not exceed the following emission standards:

Table 4.1.1.a. Emission Limits for 121-H-2001

Pollutant	Emission Standard	Basis	Compliance Method [b]	Averaging Time
NO_X	0.30 lb/MMBtu Or 2.1 lb/kWh	NSPS Db	CEMS	30-operating day rolling avg.
	0.022 lb/MMBtu[a]	Permit Limit		30-operating day rolling avg.
CO	10.20 lb/hr	Permit Limit	Testing & Control Device Monitoring	3-hr block avg.
VOC	1.89 lb/hr	Permit Limit	Initial stack test, Subsequent when required	Avg. Three -1hr runs
	4.43 lb/hr[b]			
$PM_{10}/PM_{2.5}$	15.54 lb/hr[c]	Permit Limit	Initial stack test	Avg. of three 2-hr runs
PM	0.030 lb/MMBtu	NSPS Db & MACT JJJJJJ[e]	Testing & Control Device Monitoring, Subsequent when required	Avg. of three 2-hr runs
	0.050 lb/MMBtu	Rule 2		
SO_2	11.58 lb/hr	Permit Limit	Testing, Operating Parameters & Fuel Analysis	Avg of three 1-hr runs
	140 ng/J or 0.32lb SO_2/MMBtu[d]	NSPS Db	Fuel Sampling & Analysis	N/A
HCl	1.18 lb/hr	Permit Limit	Testing & Control Device Monitoring	Avg of three 1-hr runs
H_2SO_4	6.35 lb/hr	Permit Limit	Testing & Control Device Monitoring	Avg of three 1-hr runs

Total Organic HAPs	1.91 lb/hr	Permit Limit	Testing & Control Device Monitoring	Avg of three 1-hr runs
	3.97 lb/hr[b]			
Total HAPs	3.36 lb/hr	N/A	Control Device Monitoring	Avg of three 1-hr runs
	5.42 lb/hr[b]			

a. The permitted NO_x Limit applies at all times, including start-up and shut-down events.
b. The limit only applies when the exhaust is directed to the carbon capture unit (CCU) and exhausted through Emission Point 122-T-1001.
c. These limits include the filterable portion of the respective PM pollutants and condensable fraction of PM.
d. The SO_2 NSPS limits are potential based standard without add-on control device(s).
e. 40CFR63.11201 and Table 1 to Subpart JJJJJJ of Part 63 – Emission Limits, Row 3.

b. At all times and regardless of which emission point is that the boiler exhaust is released to the atmosphere through, the boiler shall not exhibit visible greater than ten (10) percent opacity based on a six-minute average.
[45 CSR §2-3.1. and 40CFR60.43b(f)]

c. Ozone season of oxides of nitrogen (NO_x) emissions from the boiler shall not exceed 38.0 tons per ozone season, which begins on May 1 of a calendar year and ends on September 30 of the same year. The permittee shall determine the monthly NO_x emission rates shall be in terms of tons per month as outline in 45CSR40-6-3.d. of each month of the ozone season. Such a determination shall be carried out no later than the 15th of every preceding month.
[45CSR§§40-2.18. and 5.1.]

d. Annual oxides of nitrogen (NO_x) emissions from the boiler shall not exceed 90.42 tons per year. This limit shall include CO emissions occurred during startup and shutdown events as well as normal operations. Compliance with this limit shall be determined by a rolling 12-month total of CO emissions. These monthly emission rates shall be in terms of tons per month. Such a determination shall be carried out no later than the 15th of every preceding month.

e. Annual carbon monoxide (CO) emissions from the boiler shall not exceed 45.65 tons per year. This limit shall include CO emissions occurred during startup and shutdown events as well as normal operations. Compliance with this limit shall be determined by a rolling 12-month total of CO emissions. These monthly emission rates shall be in terms of tons per month. Such a determination shall be carried out no later than the 15th of every preceding month.

f. Annual volatile organic compound (VOC) emissions from the boiler shall not exceed 18.33 tons per year. Compliance with this limit shall be determined by a rolling 12-month total of VOC emissions. These monthly VOC emission rates shall be in terms of tons per month using the best available emission data and actual operations data for the respective period. Such a determination shall be carried out no later than the 15th of every preceding month.

g. Annual particulate matter less than ten microns (PM_{10}) emissions from the boiler shall not exceed 67.83 tons per year. Compliance with this limit shall be determined by a rolling 12-month total of PM_{10} emission rate. These monthly PM_{10} emissions shall be in terms of tons per month using actual operational data. Such a determination shall be carried out no later than the 15th of every preceding month.

h. Annual sulfur dioxide emissions from the boiler shall not exceed 50.78 tons per year. Compliance with this limit shall be determined by a rolling 12-month total of sulfur dioxide emission rates. Such a determination shall be carried out no later than the 15th of every preceding

month. Such determinations shall utilize the fuel monitoring as required in Conditions 4.2.1. and 4.2.3.

i. Annual HAP emissions from the boiler regardless of which emission point the emission are released from shall not exceed 23.34 tons per year. No single HAP shall be emitted to the atmosphere at a rate greater than 10 tons per year. Compliance with this limit shall be determined by a rolling 12-month total of HAP emission rates. Such a determination shall be carried out no later than the 15th of every preceding month. Such determinations shall utilize the operating data from fuel monitoring, control device parameter monitoring, and unit operation as required in Conditions 4.2.1. and 4.2.3.

j. The permittee shall fire/operate the boiler with a maximum heat input that does not exceed 944 million (MM) Btu/hr on a daily average basis. The permittee shall only utilize clean cellulosic biomass as defined in 40CFR§241.2 or a combination of clean cellulosic biomass and natural gas with the input of natural gas physical limited to no greater than 180 MMBtu/hr at any given time to include startup operations. The annual heat input for the biomass boiler shall not exceed 8,269,440 MMBtu per any 12 consecutive month period.

k. The permittee shall minimize the duration of each startup event in a manner that the duration of no individual startup extends up to or beyond 10 hours. The startup event begins when the first instance fuel is input in the unit for combustion and ends once the SCR and/or oxidation catalyst reaches the minimum operating temperature.

l. The permittee shall minimize the boiler's startup and shutdown periods following the manufacturer's recommended procedures, if available. If the manufacturer's recommended procedures are not available, the permittee shall follow recommended procedures for a unit of similar design for which manufacturer's recommended procedures are available. You must submit a signed statement in the Notification of Compliance Status report that indicates that you conducted startups and shutdowns according to the manufacturer's recommended procedures or procedures specified for a boiler of similar design if manufacturer's recommended procedures are not available.
[40CFR§63.11223(g)]

m. The permittee shall conduct boiler tune-ups biannually (once every 25 months from the previous successful tune-up) on the biomass boiler. The initial boiler tune-up shall be conducted no later than 25 months after the initial startup of the biomass boiler. These tune-ups shall be conducted in accordance with the following requirements.
[40CFR§§63.11223(a), and (b)]

  i. As applicable, inspect the burner, and clean or replace any components of the burner as necessary (you may delay the burner inspection until the next scheduled unit shutdown, not to exceed 36 months from the previous inspection). Units that produce electricity for sale may delay the burner inspection until the first outage, not to exceed 36 months from the previous inspection.
  [40CFR§§63.11223(b)(1)]

  ii. Inspect the flame pattern, as applicable, and adjust the burner as necessary to optimize the flame pattern. The adjustment should be consistent with the manufacturer's specifications, if available.
  [40CFR§§63.11223(b)(2)]

  iii. Inspect the system controlling the air-to-fuel ratio, as applicable, and ensure that it is correctly calibrated and functioning properly (you may delay the inspection until the next scheduled unit shutdown, not to exceed 36 months from the previous inspection). Units that produce electricity for sale may delay the inspection until the first outage, not to exceed 36 months from the previous inspection.

[40CFR§§63.11223(b)(3)]

iv. Optimize total emissions of CO. This optimization should be consistent with the manufacturer's specifications, if available, and with any nitrogen oxide requirement to which the unit is subject.
[40CFR§§63.11223(b)(4)]

v. Measure the concentrations in the effluent stream of CO in parts per million, by volume, and oxygen in volume percent, before and after the adjustments are made (measurements may be either on a dry or wet basis, as long as it is the same basis before and after the adjustments are made). Measurements may be taken using a portable CO analyzer. These measurements must be made upstream of the oxidization catalyst.
[45CSR§§63.11223(b)(5)]

m. Steam generated by the Biomass Boiler shall not be used to generate electricity for sale.

n. The permittee shall operate the control devices in Conditions 4.1.2. through 4.1.6. at all time when the Biomass Boiler is in operation expect as stated in these conditions.

4.1.2. *Fabric Filter Control Device:* The permittee shall install and operate the following device in accordance with the following.

a. The permittee shall install, operate, and maintain a fabric filter bag house to control filterable PM emissions from the Biomass Boiler. The permittee shall maintain and operate this control device in a manner that the Bag Leak Detector system does not sound more than five (5) percent of the operating time during each six (6) month period.
[40CFR§63.11211(b)(4)]

b. Prior to commencing the installation of the bag leak detector system and before commissioning of the Biomass Boiler, the permittee shall develop a site-specific monitoring plan for the Bag Leak Detector System for the Director to approved. This plan shall describe the following items.

i. Installation of the bag leak detection system;
[40CFR§60.48Da(o)(4)(ii)(A), 40CFR§60.48b(j)(5)]

ii. Initial and periodic adjustment of the bag leak detection system, including how the alarm set-point will be established;
[40CFR§60.48Da(o)(4)(ii)(B), 40CFR§60.48b(j)(5)]

iii. Operation of the bag leak detection system, including quality assurance procedures;
[40CFR§60.48Da(o)(4)(ii)(C), 40CFR§60.48b(j)(5)]

iv. How the bag leak detection system will be maintained, including a routine maintenance schedule and spare parts inventory list;
[40CFR§60.48Da(o)(4)(ii)(D), 40CFR§60.48b(j)(5)]

v. How the bag leak detection system output will be recorded and stored; and
[40CFR§60.48Da(o)(4)(ii)(E), 40CFR§60.48b(j)(5)]

vi. Corrective action procedures as specified in paragraph (o)(4)(iii) of this section. In approving the site-specific monitoring plan, the permitting authority may allow owners and operators more than 3 hours to alleviate a specific condition that causes an alarm if the owner or operator identifies in the monitoring plan this specific condition as one that could lead to an alarm, adequately explains why it is not feasible to alleviate this condition within 3 hours of the time the alarm occurs, and demonstrates that the requested time will ensure alleviation of this condition as expeditiously as practicable.
[40CFR§60.48Da(o)(4)(ii)(F), 40CFR§60.48b(j)(5)]

4.1.3. *SCR Control Device:* The permittee shall install and operate the following device in accordance with the following.

a. The permittee shall install, operate, and maintain an SCR system to control NO_X emissions. The SCR system consists of an ammonia (NH_3) injection grid, catalyst, ammonia storage, monitoring and control system, electrical, piping, and other ancillary equipment. The SCR system shall be designed, constructed, and operated to achieve either NO_x concentration of no greater than 18.07 corrected to zero (0) precent oxygen or a mass rate of 20.13 pound per hour with a concentration of ammonia (ammonia slip) of no greater than 3.65 ppm corrected to 0% oxygen on a 3-hour averaging period basis from the outlet of the SCR. As part of this SCR system, the permittee shall install an ammonia injection grid system such that injection of ammonia can be adjusted to account for the actual exhaust flow characteristics and a permanent sampling grid that covers the cross-sectional area of the SCR at the outlet of the SCR. The permittee shall conduct an ammonia injection grid tuning at least once per year to the parameters outline in this subparagraph. The permittee shall commence operating the SCR system once the inlet exhaust temperature to the SCR reaches 200°F in a 15-minute block average during startup operations. During shutdown operations and the inlet exhaust temperature to the SCR falls below 200°F, the permittee shall cease operation of the SCR system. During normal operations of the Biomass Boiler, the permittee shall operate the SCR system.

4.1.4. Requirements of the Oxidization Catalyst Control Device: The permittee shall install and operate the following device in accordance with the following requirements.

a. The permittee shall install, operate, and maintain an oxidation control device to control CO and VOC emissions from the biomass boiler. This oxidation control device shall consist of either an individual oxidation catalyst or a dual catalyst with the SCR and oxidation catalyst integrated into a single catalyst and monitoring system. The oxidation catalyst must be designed, installed, and maintained to reduce the CO in the exhaust from the biomass boiler down to 15.0 ppm corrected to zero (0) oxygen at full load conditions of the biomass boiler.

b. The permittee shall operate the catalyst with a bed temperature greater than 500°F or at or above a temperature established through testing as required in Condition 4.3.3. Compliance with this operating limitation shall be based on 3-hour averages on a rolling basis. The bed temperature readings recorded during start-up and shutdown events as defined in Condition 4.1.3 shall not be used in determining the three-hour rolling average.

c. The differential pressure (pressure drop) across the catalyst shall be no greater than 2 inches of water column or as otherwise specified by the catalyst manufacturer.

d. The oxygen content of the inlet exhaust to the control device shall be no less than four (4.0) percent oxygen or above the minimum established operating limit through testing as required in Condition 4.3.3. Compliance with this operating limitation shall be based on 3-hour averages on a rolling basis.

e. The permittee shall conduct a visual inspection of the control device once every 12 months during a planned schedule outage.

f. The permittee shall wash or replace the catalyst in accordance with the manufacturer's guidance/recommendation intervals or develop and implement a means to determine when the catalyst is no longer capable of achieving the CO outlet concentration of 15 ppm at zero precent oxygen at full load conditions of the biomass boiler.

4.1.5. Requirements of the Dry Sorbent Injection Scrubber.

a. The injection point for the dry sorbent shall be upstream of the fabric filter bag house to allow sufficient time for the sorbent to react with the acid gases and precipitate in the fabric filter

baghouse with an exhaust temperature that will not exceed 500 ºF at any time with the daily average temperature across operating modes that does not exceed 400ºF.

b. During normal operations, the permittee shall inject dry sorbent into the biomass boiler's exhaust above the control device manufacturer's minimum recommended rate until an operating limit is established through performance testing as required in Condition 4.3.3. that demonstrates compliance with the HCl and H_2SO_4 mass based permitted limits as stated in Table 4.1.1.a. of this permit.

c. The permittee shall use sodium bicarbonate ($NaHCO_3$) as the sorbent at all times unless the Director approves a testing plan to demonstrate a different sorbent is or is more effective in removing the acid gases (e.g., HCl and H_2SO_4) as most recently demonstrated.

d. The permittee shall commence injection of the dry sorbent into the exhaust during startup events once the clean cellulous biomass fuel has been fed into the biomass boiler and the exhaust temperature at the injection point is above 250ºF.

e. During shutdown operations, the permittee shall continue to inject the dry sorbent into the exhaust during shutdown until the temperature inside the fabric filter baghouse is below 250ºF.

4.1.6. *Requirements of the Wet Scrubber:* The permittee shall install and operate the following device in accordance with the following.

a. The permittee shall initially operate the wet scrubber with a circulation rate of no less than 16.85 gpm of solution until the permittee can establish the minimum scrubber solution circulation rate through performance testing as required in Condition 4.3.3

b. The daily average pH of the scrubbing solution shall be maintained to no less than 12.2 or the minimum pH operating limit established through performance testing as required in Condition 4.3.3. at all times during operation. pH shall be measured using a calibrated pH meter in accordance with EPA Method 150.1.

c. The permittee shall operate and maintain the wet scrubber at or above the established minimum pressure drop across the wet scrubber. Until the minimum pressure drop across can be established, the permittee shall operate and maintain the pressure drop across the wet scrubber within the manufacturer's recommended operating range.

4.1.7. *Requirements for the Carbon Capture Unit:* The permittee shall install and operate the Carbon Capture Unit in accordance with the following.

a. The permittee shall not operate the carbon capture unit with a lean amine circulation rate above the established maximum circulation rate of lean amine with an established maximum concentration of amine.

b. The maximum amine solvent loss rate from the unit through emission point 122-T-1001 shall not exceed 0.48 pound per hour.

c. The actual operation of the Carbon Capture Unit shall be limited to 7,937 hours per year on a 12-month rolling total.

4.1.8. *Requirements for the Other Support Units for the Carbon Capture System:* The permittee shall install and operate the CO_2 compressors, and CO_2 dehydration unit in accordance with the following.

a. The combined release of sulfur dioxide (SO_2) from the compressor blowdowns, dehydration unit flash tank vent (if equip), regenerator still vent and emission point 121-H-2001 shall not exceed the SO_2 limit in Table 4.1.1.a. on a 3-hour average basis.

b. The source of the heat duty required by the reboiler for the carbon capture and the CO_2 dehydration units shall be provide from steam generated by the Biomass Boiler or electricity.

c. The driver of the CO_2 compressors shall be electric motors.

d. The piping process, which includes connectors, compressors, pumps, values, shall be free of leaks and defects. Any detected leaking equipment shall be repaired in 15 days of detection of the leak or defect with the first attempt at a repair within 5 days of detection.

e. Any open ended line shall be either blind flange or double block with a bleeder valve at all times when not in use.

4.1.9. **Operation and Maintenance of Air Pollution Control Equipment.** The permittee shall, to the extent practicable, install, maintain, and operate all pollution control equipment listed in Section 1.0 and associated monitoring equipment in a manner consistent with safety and good air pollution control practices for minimizing emissions, or comply with any more stringent limits set forth in this permit or as set forth by any State rule, Federal regulation, or alternative control plan approved by the Secretary.
[45CSR§13-5.10.]

4.2. Monitoring Requirements

4.2.1. Continuous Emission Monitors (CEMS): The permittee shall install, calibrate, operate, and maintain CEMS to measure and record the emissions of NO_X, in terms of the applicable limitations in this permit, the diluent gas (O_2 or CO_2), gaseous (natural gas) fuel flow, and exhaust flow. The monitoring system shall be installed and functions within the required performance specifications prior to the initial compliance demonstration. The location of the NO_x and diluent monitor shall be at location to measure all NOx emissions generated from the Biomass Boiler regardless of which emission point is released to the atmosphere or the permittee shall install and certify a CEMs for each emission point.
[40CFR60.48b(e)]

a. The CEMs shall be subject to the provision of performance specification for continuous monitoring systems under appendix B of 40CFR60 and the quality assurance procedures of appendix F of 40CFR60.
[40CFR§60.13]

b. Except for system breakdowns, repairs, calibration checks, and zero and span adjustments required under paragraph (d) of this condition, all continuous monitoring systems shall be in continuous operation and shall complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period. The annual and required RATA tests required for the NO_X monitor shall be performed using EPA Method 20 or 7E in Appendix A of 40 CFR 60. The relative accuracy test audit (RATA) of the CEMS shall be performed on a lb/MMBtu basis. The NO_x monitor and diluent monitor shall be in a suitable location that meets PS 2. The monitor

[40CFR§§60.13(e), (e)(2), and §60.48b(b)(1)]

c. Diluent Monitor: The oxygen (O_2) or carbon dioxide (CO_2) content of the flue gas shall be monitored at the location where NO_X is monitored to correct the measured emissions rates. If a CO_2 monitor is installed, the O_2 content of the flue gas shall be calculated using F-factors that are appropriate for the fuel fired.

d. The permittee shall install, calibrate, maintain, and operate a fuel flow meter (or meters) to continuously measure the amount of natural gas induced into the boiler. Such fuel flow meters shall be at least calibrated once per every 12 months or as recommended by the instrument manufacturer, which is more frequent, in accordance with the manufacturer's written procedure. **[40CFR60.13(b)]**

e. The permittee install, calibrate, maintain, and operate an exhaust flow meter (or meters) to continuously measure the amount of natural gas induced into the boiler. Such fuel flow meters shall be at least calibrated once per every 12 months or as recommended by the instrument manufacturer, which is more frequent, in accordance with the manufacturer's written procedure. **[40CFR60.13(b)]**

f. The permittee shall install, calibrate, maintain, and operate a watt meter (or meters) to continuously measure the gross electrical output of the generator in megawatt-hours. These measurements must be performed using 0.2 class electricity metering instrumentation and calibration procedures as specified under ANSI Standards No. C12.20 (incorporated by reference, see §60.17).

g. Each steam flow meter, and each pressure or temperature measurement device shall be installed, calibrated, maintained, and operated according to the manufacturer's instructions. **[40CFR60.13(b)]**

h. Performance evaluations and certification tests of the NO_x and dilutant monitor(s); gaseous fuel, exhaust, and steam flow meters; and wattage meters shall be conducted in accordance with applicability requirements. Two copies of the performance evaluations report shall be submitted to the Administrator and Director within 60 days of completion of the evaluation in accordance with Conditions 3.5.3. and 4.5.2. **[40CFR§§60.13(c) and (c)(2)]**

i. The permittee shall develop and keep on-site a quality assurance (QA) plan for all the continuous monitoring equipment described in this condition.

j. The CEMS required under this condition shall be operated and data recorded during all periods of operation of the affected facility except for CEMS breakdowns and repairs. Data is recorded during calibration checks, and zero and span adjustments. **[40CFR§60.48b(c)]**

k. The 1-hour average NO_X emission rates measured by the continuous NO_X monitor required by this condition and required under 40CFR§60.13(h) shall be expressed in ng/J or lb/MMBtu heat input and shall be used to calculate the average emission rates under 40CFR§60.44b. The 1-hour averages shall be calculated using the data points required under 40CFR§60.13(h)(2). **[40CFR§60.48b(d)]**

l. The permittee of a CEMS installed in accordance with the provisions of 40CFR60, shall check the zero (or low level value between 0 and 20 percent of span value) and span (50 to 100 percent of span value) calibration drifts at least once each operating day in accordance with a written procedure. The zero and span must, at a minimum, be adjusted whenever either the 24-hour zero drift or the 24-hour span drift exceeds two times the limit of the applicable

performance specification in appendix B of 40CFR60. The system must allow the amount of the excess zero and span drift to be recorded and quantified whenever specified.
[40CFR60.13(d)(1)]

m. When NO_X emission data are not obtained because of CEMS breakdowns, repairs, calibration checks and zero and span adjustments, emission data will be obtained by using standby monitoring systems, Method 7 of appendix A of 40CFR60, Method 7A of appendix A of 40CFR60, or other approved reference methods to provide emission data for a minimum of 75 percent of the operating hours in each steam generating unit operating day, in at least 22 out of 30 successive steam generating unit operating days.
[40CFR60.48b(f)]

n. Records of the measurements, readings, repairs, calibration checks, zero and span adjustment shall be maintained in accordance with Condition 3.4.1.

4.2.1.1. After completion of the initial performance test for NOx as requirement in Condition 4.3.1. or is required to be completed as required in Condition 4.3.1.,whichever date comes first, the permittee shall determine compliance with the NO_X standards under 40CFR§60.44b on a continuous basis through the use of a 30-day rolling average emission rate. A new 30-day rolling average emission rate is calculated each steam generating unit operating day as the average of all of the hourly NO_X emission data for the preceding 30 steam generating unit operating days.
[40CFR§60.46b(e)(3)]

4.2.2. To demonstrate compliance based on fuel analysis in 40CFR§60.42b shall develop and submit a site-specific fuel analysis plan to the Administrator and Director for review and approval no later than 60 days before the date that the permittee intend to demonstrate compliance. Each fuel analysis plan shall include a minimum initial requirement of weekly testing, and each analysis report shall contain, at a minimum, the following information:
[40CFR§60.49b(r)]

a. The potential sulfur emissions rate of the representative fuel mixture in ng/J heat input;
[40CFR§60.49b(r)(2)(i)]

b. The method used to determine the potential sulfur emissions rate of each constituent of the fuel mixture. For natural gas a fuel receipt or tariff sheet is acceptable;
[40CFR§60.49b(r)(2)(ii)]

c. The ratio of different fuels in the mixture;
[40CFR§60.49b(r)(2)(iii)]

d. How the actual dry F factor of combustion less water of each representative sample of clean biomass cellulosic fuel in accordance with EPA Method 19 in terms of scf/MMBtu will be determine;

e. The process to determine if the Method 19 default dry F factor of combustion is representative of the actual dry F factor of the clean cellulosic biomass fuel sample; and

f. Identify all methods used in conducting the analysts and any pretreatment of the sample.

Such records shall be maintained in accordance with Condition 3.4.1. of this permit.

4.2.3. The permittee shall monitor visible emissions from the biomass boiler at either emission point 121-PKG-3001 or emission point 122-T-1001 as outline in this condition if the maximum 6-minute opacity was less than 10 percent during the most recent Method 9 of appendix A-4 of this part performance test or conduction visible emission test as outline in Condition 4.3.6.
[40CFR§§60.48b(a), (a)(2), 45CSR2-8.2.1.]

The permittee shall monitor visible emissions from the emission point that was utilized most of the operating time during the previous reporting period. Such observation shall be conducted in with U.S. EPA Method 9 of appendix A-4 of 40CFR60 and the following subparagraphs of this condition.

a. The permittee shall conduct 10 minute observations (during normal operation) each operating day the affected facility fires fuel for which an opacity standard is applicable using Method 22 of appendix A-7 of this part and demonstrate that the sum of the occurrences of any visible emissions is not in excess of 5 percent of the observation period (*i.e.*, 30 seconds per 10 minute period). If the sum of the occurrence of any visible emissions is greater than 30 seconds during the initial 10 minute observation, immediately conduct a 30 minute observation. If the sum of the occurrence of visible emissions is greater than 5 percent of the observation period (*i.e.*, 90 seconds per 30 minute period), the permittee shall either document and adjust the operation of the facility and demonstrate within 24 hours that the sum of the occurrence of visible emissions is equal to or less than 5 percent during a 30 minute observation (*i.e.*, 90 seconds) or conduct a new Method 9 of appendix A-4 of 40CFR60 performance test using the procedures in Condition 4.3.. within 45 calendar days according to the requirements in 40CFR§60.46d(d)(7).
[40CFR§60.48b(a)(2)(i) and 45CSR§2-8.2.1.]

b. If no visible emissions are observed for 10 operating days during which an opacity standard is applicable, observations can be reduced to once every 7 operating days during which an opacity standard is applicable. If any visible emissions are observed, daily observations shall be resumed.
[40CFR§60.48b(a)(2)(ii) and 45CSR§2-8.2.1.]

Records of such monitoring shall be maintained in accordance with Condition 3.4.1. of the following information:

(i) Dates and time intervals of all visible emissions observation periods;
[40CFR§60.49b(f)(2)(i) and 45CSR§2-8.3.1.]

(ii) Name and affiliation for each visible emission observer participating in the observation;
[40CFR§60.49b(f)(2)(ii) and 45CSR§2-8.3.1.]

(iii) Copies of all visible emission observer opacity field data sheets; and
[40CFR§60.49b(f)(2)(iii) and 45CSR§2-8.3.1.]

(iv) Documentation of any adjustments made and the time the adjustments were completed to the affected facility operation by the permittee to demonstrate compliance with the applicable monitoring requirements.
[40CFR§60.49b(f)(2)(iv) and 45CSR§2-8.3.1.]

4.2.4. The permittee shall install, maintain, calibrate, and continuously operate a bag leak detection system that monitors the fabric filter bag house in accordance with the following requirements:
[40CFR§60.48b(j)(5) and 40CFR§63.11224(f)]

a. The permittee must install and operate a bag leak detection system for each exhaust stack of the fabric filter control device.
[40CFR§60.48Da(o)(4)(i)(G), §60.48b(j)(5) and 40CFR§63.11224(f)(1)]

b. Each bag leak detection system must be installed, operated, calibrated, and maintained in a manner consistent with the manufacturer's written specifications and recommendations and in accordance with EPA-454/R-98-015 (incorporated by reference, see 40CFR§ 63.14).

c. The bag leak detection system must be certified by the manufacturer to be capable of detecting particulate matter emissions at concentrations of 1 milligrams per actual cubic meter (0.00044 grains per actual cubic foot) or less.
[40CFR60.48Da(o)(4)(i)(B), 60.48b(j)(5) and 40CFR63.11224(f)(3)]

d. The bag leak detection system sensor must provide output of relative particulate matter loadings.
[40CFR§60.48Da(o)(4)(i)(B), §60.48b(j)(5) and 40CFR§63.11224(f)(4)]

e. The bag leak detection system must be equipped with a device to continuously record the output signal from the sensor. The permittee must continuously record the output from the bag leak detection system using electronic or other means (e.g., using a strip chart recorder or a data logger.)
[40CFR§60.48Da(o)(4)(i)(B), §60.48b(j)(5) and 40CFR§63.11224(f)(5)]

f. The bag leak detection system must be equipped with an audible or visual alarm system that will activate automatically when an increase in relative particulate matter emissions over a preset level that was established according to is detected. The alarm must be located where it is easily heard or seen by plant operating personnel.
[40CFR§60.48Da(o)(4)(i)(C), §60.48b(j)(5) and 40CFR§63.11224(f)(6)]

g. In the initial adjustment of the bag leak detection system, the permittee must establish, at a minimum, the baseline output by adjusting the sensitivity (range) and the averaging period of the device, the alarm set points, and the alarm delay time.
[40CFR§60.48Da(o)(4)(i)(D), §60.48b(j)(5)]

h. Following initial adjustment, the permittee must not adjust the averaging period, alarm set point, or alarm delay time without approval from the Director except as provided in paragraph g of this condition.
[40CFR§60.48Da(o)(4)(i)(E), §60.48b(j)(5)]

i. Where multiple bag leak detectors are required, the system's instrumentation and alarm may be shared among detectors.
[40CFR§60.48Da(o)(4)(i)(H), §60.48b(j)(5) and 40CFR§63.11224(f)(8)]

j. The permittee shall initiate corrective action within 1 hour of a bag leak detection system alarm. The permittee shall keep records of the date, time, and duration of each alarm, the time corrective action was initiated and completed, and a brief description of the cause of the alarm and the corrective action taken. The permittee shall also record the percentage of the operating time during each 6-month period that the alarm sounds. In calculating this operating time percentage, if inspection of the fabric filter demonstrates that no corrective action is required, no alarm time is counted. If corrective action is required, each alarm is counted as a minimum of 1 hour. If the permittee takes longer than 1 hour to initiate corrective action, the alarm time is counted as the actual amount of time taken to initiate corrective action.
[40CFR§60.48Da(o)(4)(iii), §60.48b(j)(5), 40CFR§63.11222(a)(4), and 45CSR§2-8.2.1., 45CSR§§2A-7.2.c.3.A. through 7.2.c.3.D.]

k. For every instance that bag leak detection system alarm, the permittee shall conduct a Method 9 observation for at least 6-minutes of the respective emission point in service within 48-hours of respective alarm event for the purpose of verifying compliance with standard in Condition 4.1.1.b. Records of the observation(s) shall be recorded to contain the following information and maintained in accordance with Condition 3.4.1.
[45CSR§2-8.2.]

   i. Dates and time intervals of all visible emissions observation periods;

ii. Name and affiliation for each visible emission observer participating in the performance test;

iii. Copies of all visible emission observer opacity field data sheets; and

iv. Documentation of any adjustments made and the time the adjustments were completed to the operation of the Biomass Boiler and/or any associated control device(s) by the permittee to demonstrate compliance with the applicable monitoring requirements.

4.2.5. The permittee shall continuously monitor the flow rate of ammonia injected into the SCR on an hourly basis using a flow meter and determine a 3-hour rolling average. Records of readings, instrument calibrations, and instrument maintained in accordance with Condition 3.4.1.

4.2.6. *Oxidization Catalyst Monitoring:* The permittee shall monitor the following parameters of the oxidization catalyst control device according to the stated frequency.

a. Inlet and outlet oxygen content on a continuous basis.

b. Catalyst bed temperature on a continuous basis

c. Differential pressure (pressure drop) across the control device on a continuous basis.

d. Sample the catalyst based on catalyst manufacturer's recommended intervals and determine the activity of the catalyst for CO and VOCs.

Continuous monitoring in this condition shall mean a reading taken in least four equal intervals of each operating hour, these readings shall be used to develop an hourly average and 3-hour average. The permittee shall determine if any 3-hour average parameter is outside of the established operating limit. The permittee shall maintain records of all hourly averages, a 3-hour average, and all occurrences a 3-hour average was outside of the established operating limit in accordance with Condition 3.4.1. parameter record all instances when the temperature was outside of the acceptable range as stated in Condition 4.1.4. Such records shall be maintained in accordance with Condition 3.4.1.

4.2.7. *DSI Monitoring:* The permittee shall install, maintain, calibrate, and continuously operate instruments measuring the identified parameter(s) in Conditions 4.1.5. These instruments shall at the minimum take four (4) readings in an hour in equal time intervals (once every 15 minutes), these readings shall be average used to create an hourly value and every 3 consecutive hourly values shall be used to create a 3-hour average. The permittee shall identify every 3-hour average that exceeds either the interim limit or once the operating limit has been established as required in Condition 4.3.3. Records of the readings, hourly values, 3-hour averages, periods of exceedances, maintained preformed on the instrument(s), and calibrates shall be maintained in accordance with Condition 3.4.1.

4.2.8. *Wet Scrubber Monitoring:* The permittee shall install, maintain, calibrate, and continuously operate instruments measuring the identified parameter(s) in Conditions 4.1.6. These instruments shall at the minimum take four (4) readings in an hour in equal time intervals (once every 15 minutes), these readings shall be average used to create an hourly value and every 3 consecutive hourly values shall be used to create a 3-hour average. The permittee shall identify every 3-hour average that exceeds either the interim limit or once the operating limit has been established as required in Condition 4.3.3. Records of the readings, hourly values, 3-hour averages, periods of exceedances, maintained preformed on the instrument(s), and calibrates shall be maintained in accordance with Condition 3.4.1.

4.2.9. *Carbon Capture Unit Monitoring:* The permittee shall install, maintain, calibrate, and continuously operate instruments measuring the identified parameter(s) in Conditions 4.1.7. These instruments shall at the minimum take four (4) readings in an hour in equal time intervals (once every 15 minutes), these readings shall be average used to create an hourly value and every 3 consecutive hourly values shall be used to create a 3-hour average. The permittee shall identify every 3-hour average that exceeds either the interim limit or once the operating limit has been established as required in Condition 4.3.3. Records of the readings, hourly values, 3-hour averages, periods of exceedances, maintained preformed on the instrument(s), and calibrates shall be maintained in accordance with Condition 3.4.1.

4.2.10. The permittee shall keep records of the amount fresh of amine fed into the carbon capture unit and amount of spent amine drain out of the carbon capture unit for each operating month by type of amine (e.g., MDEA, MEA, etc.). Such records shall be maintained in accordance with Condition 3.4.1.

4.2.11. *Monitoring Other Support Units for the Carbon Capture Unit:* The permittee shall install, maintain, calibrate, and continuously operate instruments measuring the identified parameter(s) in Conditions 4.1.8. These instruments shall at the minimum take four (4) readings in an hour in equal time intervals (once every 15 minutes), these readings shall be average used to create an hourly value and every 3 consecutive hourly values shall be used to create a 3-hour average. The permittee shall identify every 3-hour average that exceeds either the interim limit or once the operating limit has been established as required in Condition 4.3.7. Records of the readings, hourly values, 3-hour averages, periods of exceedances, maintained preformed on the instrument(s), and calibrates shall be maintained in accordance with Condition 3.4.1.

4.2.12. When 60 days after the initial startup of the carbon capture unit and once every 12 months thereafter, the permittee shall develop and execute a process simulation of the Carbon Capture Unit with CO_2 compressors and dehydration units to predict the SO_2 and VOC emissions release to the atmosphere from these emission sources. The initial simulation shall be used to establish the operating parameter(s) of the Carbon Capture Unit at maximum design parameters or operating condition. The annual simulation shall be executed using the average of the monitored parameters (e.g., average CO_2 capture rate, temperature and pressures of key process steams, amine concentrations, etc.).

4.2.13. The permittee shall install, maintain, calibrate, and operate instruments measuring the identified parameters in Conditions 4.1.3. through 4.1.7. These instruments shall at the minimum take four (4) readings in an hour in equal time intervals (once every 15 minutes), these readings shall be average used to create an hourly value and every 3 consecutive hourly values shall be used to create a 3-hour average. The permittee shall identify every 3-hour average that exceeds either the interim limit or once the operating limit has been established as required in Condition 4.3.3. Records of the readings, hourly values, 3-hour averages, periods of exceedances, maintained preformed on the instrument(s), and calibrates shall be maintained in accordance with Condition 3.4.1.

4.2.14. The permittee shall install, maintain, calibrate, and continuously operate an instrument that indicates whether the exhaust flow is being directed to the carbon capture unit and released through 121-PKG-3001 to the atmosphere or bypassed carbon capture unit and released through Emission Point 122-T-1001. Such an instrument shall be calibrated at least once per year in accordance with the manufacturer's written procedures.

4.3. Testing Requirements

4.3.1. The initial performance test for Biomass Boiler with the Subparts Db and JJJJJJ standards listed in Table 4.1.1.a. of this permit shall be conducted within 60 days of the unit achieving the maximum production rate at which the affected unit will be operated, but not later than 180 days after the initial startup of the emission unit (Biomass Boiler) in accordance with the following requirements. **[40CFR§60.8(a), §60.46b(b), §60.46b(d), and 40CFR§§63.11212(a)]**

Paragraph a. applies to NO_x; paragraphs b. through g. applies to PM and paragraph h. applies to opacity.

a. Conduct the performance test as required under 40CFR§60.8 using the continuous system for monitoring NO_X under 40CFR§60.48(b). NO_X from the Biomass Boiler are monitored for 30 successive steam generating unit operating days and the 30-day average emission rate is used to determine compliance with the NO_X emission standards under 40CFR§60.44b. The 30-day average emission rate is calculated as the average of all hourly emissions data recorded by the monitoring system during the 30-day test period.
[40CFR§60.46b(e)]

b. Method 3A or 3B of appendix A-2 of this part is used for gas analysis when applying Method 5 of appendix A-3 of this part or Method 17 of appendix A-6 of this part.
[40CFR§60.46b(d)(1)]

c. Method 5, 5B, or 17 of appendix A of 40CFR60 shall be used to measure the concentration of PM as follows:
[40CFR§60.46b(d)(2)]

i. Method 17 of appendix A-6 of this part may be used at facilities with or without wet scrubber systems provided the stack gas temperature does not exceed a temperature of 160 °C (320 °F). The procedures of sections 8.1 and 11.1 of Method 5B of appendix A-3 of this part may be used in Method 17 of appendix A-6 of 40CFR60 only if it is used after a wet FGD system. Do not use Method 17 of appendix A-6 of this part after wet FGD systems if the effluent is saturated or laden with water droplets.
[40CFR§60.46b(d)(2)(i)]

ii. Method 5B of appendix A of 40CFR60 is to be used only after wet FGD systems.
[40CFR§60.46b(d)(2)(iii)]

d. Method 1 of appendix A of 40CFR60 is used to select the sampling site and the number of traverse sampling points. The sampling time for each run is at least 120 minutes and the minimum sampling volume is 1.7 dscm (60 dscf) except that smaller sampling times or volumes may be approved by the Administrator when necessitated by process variables or other factors.
[40 CFR§60.46b(d)(3)]

e. For Method 5 of appendix A of 40CFR60, the temperature of the sample gas in the probe and filter holder is monitored and is maintained at 160±14 °C (320±25 °F).
[40 CFR§60.46b(d)(4)]

f. For determination of PM emissions, the oxygen (O_2) or CO_2 sample is obtained simultaneously with each run of Method 5B, or 17 of appendix A of 40CFR60 by traversing the duct at the same sampling location.
[40 CFR§60.46b(d)(5)]

g. For each run using Method 5B, or 17 of appendix A of 40CFR60, the emission rate expressed in ng/J heat input is determined using:
[40 CFR§60.46b(d)(6)]

i. The O_2 or CO_2 measurements and PM measurements obtained under this section;
[40 CFR§60.46b(d)(6)(i)]

ii. The dry basis F factor; and
[40 CFR§60.46b(d)(6)(ii)]

iii. The dry basis emission rate calculation procedure contained in Method 19 of appendix A of 40CFR60.
[40 CFR§60.46b(d)(6)(iii)]

h. Method 9 of appendix A of 40CFR60 is used for determining the opacity of stack emissions.
[40CFR§60.46b(d)(7)]

i. All emissions testing shall be conducted in accordance with Condition 3.4.1.

4.3.2. For the purposes of demonstrating compliance with the PM_{10}, and $PM_{2.5}$ limits in Condition 4.1.1.a., the permittee shall conduct an initial performance test within 180 days after initial start-up of the biomass boiler. Such testing shall be conducted in accordance with Condition 3.3.1. and U.S. EPA Test Method 201 or 201A to be used to measure the "front half" and Method 202 to be used to measure the "back-half" of the particulate matter. This testing shall consist of three runs of two hours for each run. Records of such testing shall be maintained in accordance with Condition 3.4.1.

Such tests shall be conducted with the unit operating at no less than 90% of the unit's maximum design heat input. The permittee shall conduct visible emission observations during each test run using EPA Method 9 to demonstrate compliance with Condition 4.1.1.b.

4.3.3. For the purpose to demonstrate compliance with the CO, SO_2, HCl, H_2SO_4, VOCs, and Total Organic HAPs limits and established operating limits as required in Conditions 4.1.3., 4.1.4., 4.1.5. 4.1.6., and 4.1.7., the permittee shall conduct an initial performance test within 180 days of the initial startup of the Biomass Boiler and after completion of the NO_x CEM performance demonstration. Such testing shall be conducted in accordance with Condition 3.3.1. and testing methods approved by the Director.

The permittee shall develop a testing plan (protocol) to establish operating limits as outlined in Conditions 4.1.3. 4.1.4., 4.1.5., 4.1.6. and 4.1.7. in accordance with the following.

a. The plan must outline how the testing will be conducted and method(s) used.

b. Identify the load(s) and operating conditions at which the unit and control devices will be operated at. If different operating limits are to be established for different load rates, the plan must identify these different load conditions and what parameters will be adjusted.

c. Identify the Parameters to be monitored and frequency that the readings will be recorded.

d. Identify sample prob location(s).

e. Explain how the raw data (readings) of monitored parameters will be handled and used to determine the established operating limit.

f. While conducting the testing, the interim or established operating limits in Conditions 4.1.3., 4.1.4., 4.1.5., 4.1.6., 4.1.7. shall not be in effect. The permittee shall not exceed any mass base limit for any of these pollutants on during any 3-hour average at the respective operating load.

g. The permittee shall include the NO_x CEM data for each test run in the final report.

h. The testing shall demonstrate compliance upstream and downstream of the capture unit with respect to the mass emission rate limits in Table 4.1.1.a.

The permittee shall conduct testing of no less than three different operating loads using U.S. EPA Method 320, Method 3A for O_2, and Method 25A for total VOCs. When using Method 320, the permittee shall measure the following pollutants.

Table 4.3.3. Method 320 Pollutants		
Criteria Pollutants	Hazardous Air Pollutants[1]	Other Pollutants
Carbon Monoxide (CO)	1,1,1-Trichloroethane – VOC	Carbon Dioxide (CO_2)
Sulfur Dioxide (SO_2)	1,2-Dichoroethane – VOC	Methane (CH_4)[2]
	1,2-Dichoropropane – VOC	Ethane (C_2H_6)[2]
	Acetaldehyde – VOC	Sulfuric Acid (H2SO4)
	Acrolein – VOC	
	Benzene – VOC	
	Carbon Tetrachloride – VOC	
	Chlorobenzene – VOC	
	Chloroform - VOC	
	Chloromethane - VOC	
	Dichloromethane - VOC	
	Ethylbenzene - VOC	
	Formaldehyde – VOC	
	Hydrogen Chloride (HCl)	
	Naphthalene- VOC	
	Phenol – VOC	
	Propanal (propionaldehyde)-VOC	
	Styrene - VOC	
	Tetrachloroethene – VOC	
	Toluene – VOC	
	Trichloroethene - VOC	
	n-Xylene – VOC	
	p-Xylene – VOC	
	o-Xylene – VOC	

1. HAPs shall be reported individually and summed together as total HAPs.

2. For Total VOCs, the measure rate of methane and ethane shall be deduced from the total measure rate from the Method 25A to determine the VOC rate.

Records of such testing shall be maintained in accordance with Condition 3.4.1. A copy of the current established operating limits shall be maintained on site with the date the limit was established.

4.3.4. Once every 5 years (61 months) from the data that operating limits were established or five years (61 months) from the most recent verification demonstration, the permittee shall verify the compliance with the mass emission limits Table 4.1.1.a. for the pollutants identify in Condition 4.3.3. and corresponding established operating limits. Such testing shall be conducted as outlined in Condition 4.3.3. expect that only Biomass Boiler only needs to be operating at the load that yielded the highest emission hourly emission rate from the test that was used to develop the current operating limits. Records of such testing shall be maintained in accordance with Condition 3.4.1.

4.3.5. If after any period composed of 30 boiler operating days during which the alarm rate of the Bag Leak Detector for the Biomass Boiler exceeds 5 percent of the process operating time (excluding control device or process startup, shutdown, and malfunction), then the permittee shall conduct a new PM performance test according to Condition 4.3.1. This new performance test must be conducted within 60 calendar days of the date that the alarm rate was first determined to exceed 5 percent limit unless a waiver is granted by the Director.
[40CFR§60Da(o)(4)(v) and §60.48b(j)(5)]

4.3.6. The permittee shall conduct subsequent PM performance tests to demonstrate compliance with the PM limits in Table 4.1.1.a. in account with the frequent cycle outline in 45CSR§2A-6. Such subsequent PM test shall be conducted as prescribed in Condition 4.1.1. and in accordance with Condition 3.3.1. Records of such testing shall be maintained in accordance with Condition 3.4.1.
[45CSR§2-8.2.1. and 45CSR§2A-5.2.a.]

4.3.6. If the permittee elects not to conduct visible emission monitoring as outlined in Condition 4.2.3., then the permittee shall conduct subsequent visible emission tests to demonstrate compliance with standard in Condition 4.1.1.b. in accordance with the following:

a. If no visible emissions are observed, a subsequent Method 9 of appendix A-4 of this part performance test must be completed within 12 calendar months from the date that the most recent performance test was conducted or within 45 days of the next day that fuel with an opacity standard is combusted, whichever is later;
[40CFR§60.48b(a)(1)(i)]

b. If visible emissions are observed but the maximum 6-minute average opacity is less than or equal to 5 percent, a subsequent Method 9 of appendix A-4 of this part performance test must be completed within 6 calendar months from the date that the most recent performance test was conducted or within 45 days of the next day that fuel with an opacity standard is combusted, whichever is later;
[40CFR§60.48b(a)(1)(ii)]

c. If the maximum 6-minute average opacity is greater than 5 percent but less than or equal to 10 percent, a subsequent Method 9 of appendix A-4 of this part performance test must be completed within 3 calendar months from the date that the most recent performance test was conducted or within 45 days of the next day that fuel with an opacity standard is combusted, whichever is later; or
[40CFR§60.48b(a)(1)(iii)]

d. If the maximum 6-minute average opacity is greater than 10 percent, a subsequent Method 9 of appendix A-4 of this part performance test must be completed within 45 calendar days from the date that the most recent performance test was conducted.
[40CFR§60.48b(a)(1)(iv)]

e. Records of such Method 9 of appendix A-4 of 40CFR60 tests shall include the following information and be maintained in accordance with Condition 4.3.1.
[40CFR§60.49b(f)(1)]

i. Dates and time intervals of all opacity observation periods;
[40CFR§60.49b(f)(1)(i)]

ii. Name, affiliation, and copy of current visible emission reading certification for each visible emission observer participating in the performance test; and
[40CFR§60.49b(f)(1)(ii)]

iii. Copies of all visible emission observer opacity field data sheets;
[40CFR§60.49b(f)(1)(iii)]

4.3.7. The permittee shall develop and execute a process simulator to predict SO_2 emissions losses from the support equipment of the Carbon Capture Unit (e.g., separator drains, flash tank vent, dehydration still vent, etc.) to demonstrate compliance with Condition 4.1.8.a., identify parameter to monitor, and establish operating limits/range as necessary. The permittee shall conduct this predictive modeling within 6 months after conducting the initial compliance demonstration as required in Condition 4.3.3. Records of such predictive modeling shall be maintained in accordance with Condition 3.4.1. The permittee shall submit a report, model used with justification of the selected model, identify all given imputed into the model, results of the predictive analysis, and established operating parameter limits.

4.4. Recordkeeping Requirements

4.4.1. **Record of Monitoring.** The permittee shall keep records of monitoring information that include the following:

a. The date, place as defined in this permit, and time of sampling or measurements;

b. The date(s) analyses were performed;

c. The company or entity that performed the analyses;

d. The analytical techniques or methods used;

e. The results of the analyses; and

f. The operating conditions existing at the time of sampling or measurement.

4.4.2. **Record of Maintenance of Air Pollution Control Equipment.** For all pollution control equipment listed in Section 1.0, the permittee shall maintain accurate records of all required pollution control equipment inspection and/or preventative maintenance procedures.

4.4.3. **Record of Malfunctions of Air Pollution Control Equipment.** For all air pollution control equipment listed in Section 1.0, the permittee shall maintain records of the occurrence and duration of any malfunction or operational shutdown of the air pollution control equipment during which excess emissions occur. For each such case, the following information shall be recorded:

a. The equipment involved.

b. Steps taken to minimize emissions during the event.

c. The duration of the event.

d. The estimated increase in emissions during the event.

For each such case associated with an equipment malfunction, the additional information shall also be recorded:

e. The cause of the malfunction.

f. Steps taken to correct the malfunction.

g. Any changes or modifications to equipment or procedures that would help prevent future recurrences of the malfunction.

4.4.4. The reporting period throughout this permit shall be defined as January 1 through June 30 and July 1 through December 31 except when defined in an individual condition or the Ozone Season. The Ozone Season begins on May 1 of a calendar year and ends on September 30 of the same year. **[40CFR§60.49b(w)]**

4.4.4. The permittee shall record and maintain the following information in accordance with Condition 3.41.:

a. Calendar date;
[40CFR§60.49b(g)(1)]

b. The average hourly NO_X emission rates (expressed as NO_2) (ng/J or lb/MMBtu heat input) measured or predicted;
[40CFR§60.49b(g)(2)]

c. The 30-day average NO_X emission rates (ng/J or lb/MMBtu heat input) calculated at the end of each steam generating unit operating day from the measured or predicted hourly nitrogen oxide emission rates for the preceding 30 steam generating unit operating days;
[40CFR§60.49b(g)(3)]

d. Identification of the steam generating unit operating days when the calculated 30-day average NO_X emission rates are in excess of the NO_X emissions standards under 40CFR§60.44b, with the reasons for such excess emissions as well as a description of corrective actions taken;
[40CFR§60.49b(g)(4)]

e. Identification of the steam generating unit operating days for which pollutant data have not been obtained, including reasons for not obtaining sufficient data and a description of corrective actions taken;
[40CFR§60.49b(g)(5)]

f. Identification of the times when emission data have been excluded from the calculation of average emission rates and the reasons for excluding data;
[40CFR§60.49b(g)(6)]

g. Identification of “F” factor used for calculations, method of determination, and type of fuel combusted;

[40CFR§60.49b(g)(7)]

h. Identification of the times when the pollutant concentration exceeded full span of the CEMS; **[40CFR§60.49b(g)(8)]**

i. Description of any modifications to the CEMS that could affect the ability of the CEMS to comply with Performance Specification 2 or 3; and **[40CFR§60.49b(g)(9)]**

j. Results of daily CEMS drift tests and quarterly accuracy assessments as required under appendix F, Procedure 1 of this part. **[40CFR§60.49b(g)(10)]**

4.4.5. The permittee shall maintain records of the type and amount of all fuels burned in the biomass boiler during each operating day. The amount of fuel burned shall be in terms of MMBtus by type of fuel per operating day. The permittee shall calculate the annual capacity factor individually for clean cellulosic biomass, and natural gas for the reporting period. Such records shall be maintained in accordance with Condition 3.4.1. **[40CFR§60.49b(d)(1), 40CFR§63.11222(a)(1), 45CSR§2-8.3.2., and 45CSR§10-8.2.3.c.]**

4.4.6. The permittee shall maintain the following records in accordance with Condition 3.4.1. of the boiler tune-ups performed on the biomass boiler.

a. Date/time the tune-up was performed.

b. Name of individual overseeing/supervising the tune-up.

c. The concentrations of CO in the effluent stream in parts per million, by volume, and oxygen in volume percent, measured at high fire or typical operating load, before and after the tune-up of the boiler.

d. A description of any corrective actions taken as a part of the tune-up of the boiler.

e. The type and amount of fuel was used over the 12 months prior to the tune-up of the boiler, but only if the unit was physically and legally capable of using more than one type of fuel during that period. Units sharing a fuel meter may estimate the fuel use by each unit.

4.4.7. At the end of each Ozone Season, The permittee shall determine the total NOx mass emission for the respective Ozone Season, in tons, by summing the amount of the total monthly NO_x mass emissions calculated in Condition 4.1.1.d.

4.4.8. The permittee shall determine the monthly emission rate of each pollutant list in Condition 4.1.1. with an annual emission limit and the 12 consecutive monthly total (12-month rolling total) by the 15th of the following month. Such records shall be maintained in accordance with Condition 3.4.1.

4.5. Notification Requirements

4.5.1. The permittee shall prepare and submit an excess emission report on a semi-annual basis to the Director and Administrator for NOx emissions from the Biomass Boiler as required by Subpart Db of 40 CFR 60. The initial compliance period is from initial startup up of the unit to either December 31 or June 30 whichever date comes first. Subsequent reporting periods shall be every six months thereafter (e.g., January 1 to June 30, July 1 to December 31). Reports must be submitted no later than the 30th day following the end of the reporting period. Each report must contain the following information that occurred within the respective reporting period. Each submission shall be conducted in accordance with Condition 3.5.3.

[40CFR§60.7(c), §§60.49b(g) and (i)]

Excess Emissions of sulfur dioxide emissions shall mean the total sulfur content of the fuel being combusted in by the Biomass Boiler exceeds the limit specified in 40 CFR §60.44b(k)(2) ((See Table 4.1.1.a of Condition 4.1.1.a. SO_2 limit for Subpart Db).
[40CFR§60.49b(j)]

Excess Emissions of NO_x means a specified averaging period over which the NO_x emissions are higher than the applicable emission limit in 40 CFR 60.44b (See Table 4.1.1.a. of Condition 4.1.1.a. NOx limit for Subpart Db).
[40CFR§60.49b(g)]

Such reports shall contain the information required in Condition 4.4.4. during the respective reporting period.
[40CFR§60.7(c), §60.49b(i)]

The magnitude of excess emissions computed in accordance with 40 CFR §60.13(h), any conversion factor(s) used, and the date and time of commencement and completion of each period of excess emissions. The process operating time during the reporting period.
[40CFR§60.7(c)(1)]

Specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of the affected facility. The nature and cause of any malfunction (if known), the corrective action taken, or preventative measures adopted.
[40CFR§60.7(c)(2)]

The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks and the nature of the system repairs or adjustments.
[40CFR§60.7(c)(3)]

When no excess emissions have occurred or the continuous monitoring system(s) have not been inoperative, repaired, or adjusted, such information shall be stated in the report.
[40CFR§60.7(c)(4)]

The summary report form shall contain the information and be in the format shown in Attachment A of the permit unless otherwise specified by the Administrator. One summary report form shall be submitted for each pollutant monitored at each affected facility.
[40CFR§60.7(d)]

If the total duration of excess emissions for the reporting period is less than 1 percent of the total operating time for the reporting period and CMS downtime for the reporting period is less than 5 percent of the total operating time for the reporting period, only the summary report form shall be submitted, and the excess emission report described in 40 CFR §60.7(c) need not be submitted unless requested by the Administrator.
[40CFR§60.7(d)(1)]

If the total duration of excess emissions for the reporting period is 1 percent or greater of the total operating time for the reporting period or the total CMS downtime for the reporting period is 5 percent or greater of the total operating time for the reporting period, the summary report form and the excess emission report described in 40 CFR §60.7(c) shall both be submitted.
[40CFR§60.7(d)(2)]

The permittee shall maintain records of each submission in accordance with Condition 3.4.1.

4.5.2. The permittee shall submit to the Director and Administrator the performance test data from the initial performance test as required in Condition 4.3.1. and the performance evaluation of the CEMS

using the applicable performance specifications in appendix B of 40CFR60 as required in Condition 4.2.1. Such submissions shall be made in accordance with Condition 3.5.3. and within 60 days of completion of the respective test or evaluation.
[40CFR§§60.13(c), (c)(2) and §60.49b(b)]

4.5.3. The permittee shall report any exceedances of the requirements in Section 4.1. to the Director within 10 days of the exceedance in accordance with Condition 3.5.3.

5.0. Specific Requirements for Biomass Fuel Handling Equipment

5.1. Limitations and Standards

5.1.1 The permittee shall minizine fugitive PM emissions from the fuel handling equipment using fugitive particulate meet control system in accordance with the following requirements. **[45CSR§2-5.1.]**

a. The two biomass receiving hoppers, which are identified as 121-LS-1001 and 121-LS-1002, (truck unloading hoppers) shall be operated in slight negative pressure to entrain fugitive PM generated during the unloading process with the captured effluent routed to control device 121-PKG-1001. This control device shall be installed and maintained with a removal efficiency that reduced the discharge of PM down to 0.01 grains per cubic feet of exhaust flow. The emissions from Emission Point 121-LS-1001 shall not exceed the following limits.

i. PM emission shall not exceed 1.08 pounds per hour on a 3-hour average.

ii. PM_{10} emission shall not exceed 1.08 pounds per hour on a 3-hour average basis.

iii. No visible emissions shall be exhibited for the emission point from each receiving hopper.

b. The equipment used to handle and convey the biomass fuel at the facility shall be installed, operated, and maintained in accordance with the following requirements.

i. The maximum hourly transfer rate of biomass fuel shall not exceed 106.07 tons per hour.

ii. The annual transfer rate of biomass fuel at the facility shall not exceed 929,147 tons during any 12-month consecutive period.

iii. All conveyors used to transport biomass fuel shall be either equipped with covers or located within an enclosed structure when the conveyor is in service.

c. Storage area or structures at the facility used to store biomass fuel shall be installed, operated, and maintained in accordance with the following requirements.

i. The open stockpile, which is identified as CHIP-2, shall not contain more than 71,265.6 klbs (1000 lbs) or 35,632.8 tons of biomass at any given time.

ii. The permittee shall apply water or dust suppressant on the open stockpile as necessary to minimize visible emissions from being exhibited from the open stockpile (CHIP-2).

iii. The open stockpile shall be constructed on a solid surface.

iv. Each of the Biomass Fuel Mettering Bins (Bins A and B) shall be partially enclosed.

5.1.2. All haul roads on plant control grounds shall be paved and maintained in a manner that minimize the release of fugitive emissions from haul roads at the facility.

5.1.3. **Operation and Maintenance of Air Pollution Control Equipment.** The permittee shall, to the extent practicable, install, maintain, and operate all pollution control equipment listed in Section 1.0 and associated monitoring equipment in a manner consistent with safety and good air pollution control practices for minimizing emissions, or comply with any more stringent limits set forth in

this permit or as set forth by any State rule, Federal regulation, or alternative control plan approved by the Secretary.
[45CSR§13-5.10.]

5.2. Monitoring Requirements

5.2.1. The permittee shall conduct visible emission observations using EPA Method 22 with an observation duration of no less than 120 seconds of the following emission points once per month.

Table 5.2.1. –Fuel Handling Emission Points

Description of Source	Emission Point ID No.
Fuel Receiving Hopper 121-LS-1001	121-PKG-1001
Fuel Receiving Hopper 121-LS-1002	

Should any visible emissions be observed during this check, the permittee shall evaluate the operation of the observed source and make all necessary repairs to restore the operation to no visible emissions as soon as practicable, but within five (days) of the visual emission check. Records of such visible emission checks or observations shall be maintained in accordance with Condition 3.4.1. of this permit.

5.2.2. The permittee shall conduct a visual inspection of the equipment and associated control devices associated with the fuel handling equipment at the facility once per month. The visual inspection shall identify area of material spillage and the source(s) causing the material spillage; leakage/fugitive dust; and/or defective equipment or control device(s). Any detective control device or equipment shall be repaired within 10 days of the initial inspection. Results of such inspection and any repairs as result of the inspection shall be maintained in accordance with Condition 3.4.1.

5.2.3. The permittee shall track and record the amount of fuel delivered to the facility on a monthly basis. Such records shall be maintained in accordance with Condition 3.4.1.

5.2.4. The permittee shall conduct inspection of the haul roads at the facility for excessive silt (dust) and roadway defects on a weekly basis and implement either street sweeping/washing or other fugitive dust control measures to minimize fugitive dust from haul roads. Records of such weekly inspections, repairs, and implementing any control measures shall be maintained in accordance with Condition 3.4.1.

5.3. Reporting Requirements

5.3.1. The permittee shall report any exceedances of the requirements in Section 5.1. and Condition 5.2.1. to the Director within 10 days of the exceedance in accordance with Condition 3.5.3.

6.0. Specific Requirements for Sand, Ash, and Other Material Handling Equipment

6.1. Limitations and Standards

6.1.1 The permittee shall minizine fugitive PM emissions from the sand handling and processing (reclaiming) equipment using fugitive particulate matter control devices or measures in accordance with the following requirements.
[45CSR2-5.1.]

a. The drag chain conveyors, bucket elevators, screw conveyors associated with the transporting either a mixture of ash and sand or sand at the facility shall be covered at all times when the ash handling system is in operation.
[45CSR§2-5.1.2]

b. The vibrating screeners (121-CV-5001 A & B) shall be partial enclosed at all times.

c. The bottom ash storage bins (121-S-6001 A & B) and sand receiving hopper (121-S-1004) shall be designed/configured, maintained, and operated in manor that prohibits the discharge any fugitive emissions to the atmosphere at all times when the ash handling system is in operation.
[45CSR§2-5.1.1]

d. The transfer conveyors (121-CV-5003 A &) shall be partially enclosed with a cover at all times when the conveyor is in operation.
[45CSR§2-5.1.2]

e. The facility shall not receive more than 1,752 tons of sand per year on a 12-month rolling total basis.

6.1.2. The permittee shall minizine fugitive PM emissions from the ash handling equipment using fugitive particulate matter control devices or measures in accordance with the following requirements.
[45CSR§2-5.1.]

a. The drag chain conveyors, bucket elevators, conveyors associated with the transporting ash at the facility shall be covered at all times when the ash handling system is in operation.
[45CSR§2-5.1.2]

b. Surge bins for the pulse jet fabric filter baghouse (121-S-4002 A & B) and economizer hopper ash surge bins (121-S-4003 A & B) shall be designed/configured, maintained, and operated in a manor not to discharge any fugitive PM emissions at all times when the ash handling system is in operation.
[45CSR§2-5.1.1]

c. Each fly ash storage silos (121-S-4001 A & B) shall be controlled with pulse jet fabric filter control device at all times when ash is being routed to or storge in the silo. The emissions from each silo shall not exceed the following limitations.
[45CSR§2-5.1.1]

i. PM emission shall not exceed 0.02 pounds per hour on a 3-hour average.

ii. PM_{10} emission shall not exceed 0.01 pounds per hour on a 3-hour average basis.

iii. No visible emissions shall be exhibited for the emission point from each silo.

d. Ash processed through the pugmills (121-MX-4001 A & B) and the fly ash truck loading station (121-TL-0001) with moisture content of no less than 10% by weight.

6.1.3. The permittee shall minizine fugitive PM emissions from the handling equipment for the adsorbent used for the dry sorbent inject system using fugitive particulate matter control device or measures in accordance with the following requirements.
[45CSR2-5.1.]

a. The permittee shall install and maintain a closed vent system that routes the vent for the sodium bicarbonate storage silo (121-S-9901) to the biomass boiler.

b. Each vent for the sodium bicarbonate hoppers (121-S-9902 A & B) shall be controlled with a pules jet fabric filter control device. Emissions from these hoppers shall not exceed the following limits.

i. No visible emissions shall be exhibited for the emission point from each hopper vent.

6.1.4. **Operation and Maintenance of Air Pollution Control Equipment.** The permittee shall, to the extent practicable, install, maintain, and operate all pollution control equipment listed in Section 1.0 and associated monitoring equipment in a manner consistent with safety and good air pollution control practices for minimizing emissions, or comply with any more stringent limits set forth in this permit or as set forth by any State rule, Federal regulation, or alternative control plan approved by the Secretary.
[45CSR§13-5.10.]

6.2. Monitoring Requirements

6.2.1. The permittee shall conduct visible emission observations using EPA Method 22 with an observation duration of no less than 120 seconds of the following emission points once per month.

Table 6.2.1. – Ash and Sodium Bicarbonate Emission Points

Description of Source	Emission Point ID No.
Fly Ash Storage Silo A	121-S-4001 A
Fly Ash Storage Silo B	121-S-4001 B
Sodium Bicarbonate Vent Hopper A	121-F-9902 A
Sodium Bicarbonate Vent Hopper B	121-F-9902 B

Should any visible emissions be observed during this check, the permittee shall evaluate the operation of the observed source and make all necessary repairs to restore the operation to no visible emissions as soon as practicable, but within five (days) of the visual emission check. Records of such visible emission checks or observations shall be maintained in accordance with Condition 3.4.1. of this permit.

6.2.2. The permittee shall conduct a visual inspection of the equipment and associated control devices associated with the sand, ash, and sorbent handling and processing equipment at the facility once per month. The visual inspection shall identify area of material spillage and the source(s) causing the material spillage; leakage/fugitive dust; and/or defective equipment or control device(s). Any detective control device or equipment shall be repaired within 10 days of the initial inspection. Results of such inspection and any repairs as result of the inspection shall be maintained in accordance with Condition 3.4.1.

6.2.3. The permittee shall track and record the amount of sand and sodium bicarbonate delivered to the facility and the amount of ash loaded into the trucks on a monthly basis. Such records shall be maintained in accordance with Condition 3.4.1.

6.2.4. The permittee shall either sample and measure the moisture of ash loaded into trucks once per operating month. Such records shall be maintained in accordance with Condition 3.4.1.

6.3. Reporting Requirements

6.3.1 The permittee shall report any exceedances of the requirements in Section 6.1. and Condition 6.2.1. to the Director within 10 days of the exceedance in accordance with Condition 3.5.3.

7.0. Specific Requirements for the Mechanical Draft Cooling Tower (129-CT-9301)

7.1. Limitations and Standards

7.1.1 The conditions and requirements in the following subdivisions are specific to the mechanical draft cooling tower (ID #ST-1):

a. Emissions of PM, PM-10, and $PM_{2.5}$ shall be controlled with a 0.001% drift eliminator or equivalent control technology.

i. PM emissions discharged to the atmosphere from the Cooling Tower shall not exceed 2.02 pound per hour and 3.01 TPY.

ii. PM_{10} emissions discharged to the atmosphere from the Cooling Tower (EP #WCT-1) shall not exceed 1.48 pound per hour and 2.52 TPY.

i. $PM_{2.5}$ emissions discharge to the atmosphere from the Cooling Tower (EP #WCT-1) shall not exceed 0.67 lb/hr and 1.26 TPY.

b. The make-up water for the Cooling Tower shall not contain an average concentration of Total Dissolve Solids (TDS) of 340 ppm by weight on a 365-day average basis with no individual daily reading greater than 1,000 ppm by weight.

7.2. Monitoring Requirements

7.2.1. For determining compliance with this emission limit in Condition 8.1.1., the permittee shall monitor cooling water circulation flow rate continuously and the concentration of total dissolved solids contained in the make-up water for the cooling tower or specific conductivity of the make-up water daily. If the permittee uses a correlation curve or ratio between total dissolve solids concentration and specific conductivity, the Director or his/her representative may request the permittee to verify the correlation at any reasonable time with just cause. The permittee shall determine the PM, PM_{10}, and $PM_{2.5}$ emissions from the cooling towers using a method that accurately predicts these specific pollutants from mechanical draft cooling towers. Such determination shall be conducted by no later than the 15th day of the following month. Records of such monitoring and determinations shall be maintained in accordance with Condition 3.4.1. of this permit.

7.3. Recordkeeping Requirements

7.3.1. The permittee shall maintain records and/or supporting information from the actual manufacture of the cooling tower to indicate the percentage of drift from the Cooling Tower. Such records and/or information shall be maintained readily available for the life of the Cooling Tower.

7.4. Reporting Requirements

7.4.1. The permittee shall report any exceedances of the requirements in Section 8.1. to the Director within 10 days of the exceedance in accordance with Condition 3.5.3.

8.0. Specific Requirements for the RICE for the NG Startup Generator and Fire Water Pump (EG-1 & FWP-1)

8.1. Limitations and Standards

8.1.1. The following conditions and requirements are specific to the internal combustion engine (non-emergency engine) for the NG Startup Generator #1 (ID 129-PKG-0001):

a. Emissions shall not exceed the following:

i. NO_x emissions from the engine shall not exceed 1.0 grams of NO_x per horsepower hour or 82 ppmvd at 15% O_2.
[40CFR§60.4233(e), Table 1 - 1 to Subpart JJJJ of Part 60—NO_X, CO, and VOC Emission Standards for Stationary Non-Emergency SI Engines ≥100 HP (Except Gasoline and Rich Burn LPG), Stationary SI Landfill/Digester Gas Engines, and Stationary Emergency Engines >25 HP]

ii. CO emissions from the engine shall not exceed 2.0 grams of CO per horsepower hour or 270 ppmvd at 15% O_2.
[40CFR§60.4233(e) Table 1 - 1 to Subpart JJJJ of Part 60—NO_X, CO, and VOC Emission Standards for Stationary Non-Emergency SI Engines ≥100 HP (Except Gasoline and Rich Burn LPG), Stationary SI Landfill/Digester Gas Engines, and Stationary Emergency Engines >25 HP]

iii. VOC emissions from the engine shall not exceed 0.7 grams of VOCs per horsepower hour or 60 ppmvd at 15% O_2. Formaldehyde emissions shall not be included as part of this standard.
[40CFR§60.4233(e) Table 1 - 1 to Subpart JJJJ of Part 60—NO_X, CO, and VOC Emission Standards for Stationary Non-Emergency SI Engines ≥100 HP (Except Gasoline and Rich Burn LPG), Stationary SI Landfill/Digester Gas Engines, and Stationary Emergency Engines >25 HP]

b. The permittee shall satisfy compliance with the emission standards in item a of this condition by purchasing an engine certified to comply with the non-emergency engine emission standards of Subpart JJJJ of 40CFR60, as application for the same model year and maximum engine power. The model year of the engine shall be 2024 or later. The mass rate of the certified emissions from the manufacturer of the purchased engine shall not exceed the rates listed in Table 5.1.1.c. The engine must be installed and configured according to the manufacturer's specifications.
[40CFR§§60.4243(a) and (a)(1)]

c. Mass Hourly emissions from the engine shall not exceed the following rates on a 3-hour average basis.

Table 5.1.1.c. Mass Emissions Limits for 129-PKG-0001

Pollutant	Hourly Rate (lb/hr)
Oxides of Nitrogen (NO_x)	6.61
Carbon Monoxide (CO)	13.23
Volatile Organic Compounds (VOCs)	5.67
$PM/PM_{10}/PM_{2.5}$	0.20
Total Hazardous Air Pollutants (HAPs)	1.43
Formaldehyde (HAP)	1.04

d. This engine shall not have a nameplate power greater than the 3,000 bhp.

e. The engine shall be fueled with natural gas that meets the definition in 40 CFR 60.4248 that contains sulfur loading of no greater than 10 ppmv of total sulfur or 0.44 grains of total sulfur per 100 scf.

f. This engine shall not be operated more than 100 hours per year on a 12-month rolling total.

g. This engine shall be equipped prior to initial startup of the engine and maintained for the life of the engine with a non-resettable hour meter. Should an hour meter need to be repaired/replaced, the permittee shall notify the Director in accordance with Condition 3.5.3. of this permit within 15 calendar days of the repair/replacement. Such notice shall include the actual reading prior to the repair/replacement, scope of work performed, individual supervising the repair, and date/time the work was completed.

h. The permittee shall keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine and associated control device (if equipped) in a manner consistent with good air pollution control practice for minimizing emissions.
[40CFR§60.4243(a)(1)]

8.1.2. The following conditions and requirements are specific to the internal combustion engine for the fire water pump (ID 129-P-9402):

a. Emissions shall not exceed the following:

i. NO_x + Non-Methane Hydrocarbons (NMHC) emissions from the engine shall not exceed 4.0 grams of NO_x per kilowatt-hour (g/kW-hr).
[40CFR§60.4205(c) and §60.4202(d); Table 4 to Subpart IIII of Part 60 - Emission Standards for Stationary Fire Pump Engines]

ii. CO emissions from the engine shall not exceed 3.5 g/kW-hr.
[40CFR§60.4205(c) and §60.4202(d); Table 4 to Subpart IIII of Part 60 - Emission Standards for Stationary Fire Pump Engines]

iii. PM/PM10 emissions from the engine shall not exceed 0.20 g/kW-hr.
[40CFR§§60.4205(c) and §60.4202(d); Table 4 to Subpart IIII of Part 60 - Emission Standards for Stationary Fire Pump Engines]

b. The permittee shall satisfy compliance with the emission standards in subparagraph a. of this condition by purchasing an engine certified to 40 CFR part 89 or 40 CFR 94, as application for the same model year and maximum engine power. The model year of the engine shall be 2025 or later. The mass rate of the certified emissions from the manufacturer of the engine purchased shall not exceed the rates listed in Table 5.1.2.g. The engine must be installed and configured according to the manufacturer's specifications.
[40CFR§60.4211(b)(1)]

c. There is no time limit on the use of this engine in emergency situations. This engine can operate for non-emergency purposes, which include maintenance and readiness testing, and other non-emergency use for no more than 50 hours per year on a calendar year basis.
[40CFR§§60.4211(f), (f)(1), & (f)(2)(i)]

d. This engine is permitted to consume diesel fuel that meets the following standards.

1. Sulfur standard. Maximum sulfur content of 15 ppm.

[40CFR§60.4207(b), and 40CFR§1090.305(b)]

2. Cetane index or aromatic content. Diesel fuel must meet one of the following standards:
[40§CFR§60.4207(b), and 40CFR§1090.305(c)]

   a. Minimum cetane index of 40; or
   [40 CFR §60.4207(b), and 40 CFR §1090.305(c)(1)]

   b. Maximum aromatic content of 35 volume percent.
   [40 CFR §60.4207(b), and 40 CFR §1090.305(c)(2)]

e. This engine shall be equipped prior to initial startup of the engine and maintained for the life of the engine with a non-resettable hour meter. Should an hour meter need to be repaired/replaced, the permittee shall notify the Director in accordance with Condition 3.5.3. of this permit within 15 calendar days of the repair/replacement. Such notice shall include the actual reading prior to the repair/replacement, scope of work performed, individual supervising the repair, and date/time the work was completed.
[40CFR§60.4237(a)]

f. The permittee shall keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine and associated control device (if equipped) in a manner consistent with good air pollution control practice for minimizing emissions.
[40CFR§60.4211(a)(1)]

g. The mass hourly emissions from the engine shall not exceed the following rates on a 3-hour average basis.

Table 5.1.2.g. Mass Emissions Limits for 129-P-9402

Pollutant	Hourly Rate (lb/hr)
Oxides of Nitrogen (NO_x)	3.07
Carbon Monoxide (CO)	3.33
Sulfur Dioxide (SO_2)	0.01
Volatile Organic Compounds (VOCs)	0.11
$PM/PM_{10}/PM_{2.5}$	0.20
Total Hazardous Air Pollutants (HAPs)	0.02

d. This engine shall not have a nameplate power greater than 614 bhp.

8.2. Monitoring Requirements

8.2.1. The permittee shall keep records of the hours of operation for each engine (129-PKG-001 & 129-P-9402) for each calendar month. The records must document the hours of operating the NG Startup Generator; and the hours of emergency and non-emergency operations for the Firewater Pump Engine (129-P-9402), including what classified the operation as an emergency and non-emergency operation. At the end of each calendar year, the permittee totals the hours operation for the NG Startup Generator, and the emergency and non-emergency operations for the Firewater Pump Engine. Such records shall be maintained in accordance with Condition 3.4.1. and must be in a manner to demonstrate compliance with the operating limits of Conditions 8.1.1.f. and 8.1.2.c.
[40CFR§60.4214(b)]

8.3. Recordkeeping Requirements

8.3.1. The permittee shall maintain records of any maintenance performed on the engines or associate add-on control device(s) (if applicable) for the NG Startup Generator and Firewater Pump Engine. Such records shall be maintained in accordance with Condition 3.4.1.
[40CFR§§60.4245(a), (a)(2) and §§60.4214(a)(2)(ii)]

8.3.2. The permittee shall maintain documentation from the engine manufacturer that the engines for the NG Startup Generator and Firewater Pump Engine are certified to meet the emission standards and information as required in 40 CFR parts 1048, 1054, and 1060, as applicable for the life of the respective engine.
[40CFR§60.4245(a)(3) and §60.4214(a)(2)(iii)]

8.3.3. The permittee shall maintain records of the amount and type of fuel consumed by each engine respectively on a monthly. Such records of diesel fuel deliveries shall include documentation indicated the sulfur and cetane index or aromatic content in the delivered fuel. Such records shall be maintained in accordance with Condition 3.4.1.

8.3.4. The permittee shall either obtain tariff sheet from the facility's natural gas supplier that specify the maximum total sulfur content natural gas or obtain/determine the total sulfur content of the natural gas consumed by 129-PKG-0001 once per calendar year. Such records shall be maintained in accordance with Condition 3.4.1.

8.4. Reporting Requirements

8.4.1. The permittee shall submit an initial notification in accordance with Condition 2.18. The notification must include the information in subparagraphs (i) through (iii) of this condition for each engine. This notification shall be according to Condition 3.5.3. to the Director.

i. Engine information including make, model, engine family, serial number, model year, maximum engine power, and engine displacement.

ii. Emission control equipment (if applicable); and

ii. Fuel used.

8.4.2. The permittee shall report any exceedances of the requirements in Section 8.1. to the Director within 10 days of the exceedance in accordance with Condition 3.5.3.

9.0. Specific Requirements for the Storage Vessels (122-TK-9901, 122-TK-9902, 129-P-9402, 129-TK-9402, and 122-PKG-2001) and Wastewater Treatment Plant (127-PKG-001).

9.1. Limitations and Standards

9.1.1. Emission from the collection of liquid storage vessels, which shall include emission units 122-TK-9901, 122-TK-9902, 129-P-9402, 129-TK-9402, and 122-PKG-2001, at the facility shall not exceed the following emission limits

a. Emission of VOCs shall not exceed 0.02 tons per year on a 12-month rolling total basis.

9.1.2. The following requirements are specific to the lean amine vessel identified as 122-TK-9901.

a. The permittee shall not storage a volatile organic liquid with a maximum true vapor pressure equal to greater than 0.5 psia (3.4 kPa) in the vessel.

b. These vessels shall not be heated to a temperature above 50^{O}F on a monthly average basis.

c. The liquid stored in these vessels shall not have a VOC concentration greater than 47% by weight.

d. The annual throughput of lean amine through this vessel shall not exceed 322,166 gallons per year or 1.07 turnovers per year.

9.1.3. The following requirements are specific to the spent amine loadout station identified as VOC-Amine-Load.

a. VOC Emissions from the loadout station shall not exceed 0.01 lb per hour.

b. When not engage in loadout operations, each valve or line shall be equipped with a cap, blind flange, plug or a second valve.

9.1.4. The permittee shall keep portable containers that storage volatile organic liquids covered or sealed at all times except when dispensing liquids from the container.

9.1.5. Each open-ended valve or line shall be equipped with a cap, blind flange, plug or a second valve, except as provided in Condition 4.1.1.f. or open-ended valve or lines of an emergency shutdown system which are designed to open automatically in the event of process upset.

9.1.6. The permittee shall repair any leaking or defective component (valve, pump, connector) in VOC service within 15 days of detection with the first attempt within the first 5 days of detection. VOC service shall mean in component that is in contact with either gas or liquid that contain 10% or more on a mass basis of components that are classified as VOCs as defined in 40CFR§51.100(s)

9.1.7. The following requirements are specific to the wastewater treatment plant identified as 127-PKG-001:

a. HCl emissions from the collection of process units and fugitive sources associated with the wastewater treatment plant shall not exceed 0.57 tons per year on a 12-month rolling total basis.

b. Sulfuric acid mist (H_2SO_4) emissions from the collection of process units and fugitive sources associated with the wastewater treatment plant shall not exceed 2.79 tons per year on a 12-month rolling total basis.

c. The wastewater treatment plant shall not process/treat more than 930,240 gallons per day.

9.2. Monitoring Requirements

9.2.1. The permittee shall continuously monitor the liquid temperature in lean amine vessel (122-TK-9901) at all times; determine and record the daily average temperature; and determine any day(s) that the daily average temperature is greater than 50^0F. The determination of daily average temperature and any daily average temperature above 50°F shall be conducted no later than the 15th day of the following month. Such records included date, time, duration, and root cause of the exceedance. These records shall be maintained in accordance with Condition 3.4.1.

9.2.2. Once every six months, the permittee shall conduct a leak survey of all process piping in VOC service as defined in Condition 9.1.6. to identify all leaking or defective components. Records of such surveys conducted, identification of leaking or defective components, and dates of repairs shall be maintained in accordance with Condition 3.4.1.

9.2.3. The permittee shall sample the incoming wastewater to the wastewater treatment plant daily to determine either the pH or conductivity of the effluent and determine the monthly average ph using the daily reading. If the average monthly pH readings are lower than 5, the permittee shall determine actual emissions of HCl and H_2SO_4 emissions from the wastewater treatment plant or other acceptable means by the Director to ensure compliance with limits in Condition 9.1.9. are meet. These records shall be maintained in accordance with Condition 3.4.1.

9.3. Recordkeeping Requirements

9.3.1. **Record of Monitoring.** The permittee shall keep records of monitoring information that include the following:

a. The date, place as defined in this permit, and time of sampling or measurements;

b. The date(s) analyses were performed;

c. The company or entity that performed the analyses;

d. The analytical techniques or methods used;

e. The results of the analyses; and

f. The operating conditions existing at the time of sampling or measurement.

9.3.2. **Record of Maintenance of Air Pollution Control Equipment.** For all pollution control equipment listed in Section 1.0, the permittee shall maintain accurate records of all required pollution control equipment inspection and/or preventative maintenance procedures.

9.3.3. **Record of Malfunctions of Air Pollution Control Equipment.** For all air pollution control equipment listed in Section 1.0, the permittee shall maintain records of the occurrence and duration of any malfunction or operational shutdown of the air pollution control equipment during which excess emissions occur. For each such case, the following information shall be recorded:

a. The equipment involved.

b. Steps taken to minimize emissions during the event.

c. The duration of the event.

d. The estimated increase in emissions during the event.

For each such case associated with an equipment malfunction, the additional information shall also be recorded:

e. The cause of the malfunction.

f. Steps taken to correct the malfunction.

g. Any changes or modifications to equipment or procedures that would help prevent future recurrences of the malfunction.

9.3.4. By no later than the 15th of the following month, the permittee shall record or determine of following information for each month: the amount of volatile organic liquids (VOL) received at the facility on a volumetric basis, the VOC concentration of the liquid received, which vessel the VOL is stored in, and any other record need to determine the actual VOC emissions from each storage vessel. These records shall be maintained in accordance with Condition 3.4.1.

9.3.5. The permittee shall record the total number of gallons of spent/degraded amine loadout through the VOC – Amine Load (loadout station). These records shall be maintained in accordance with Condition 3.4.1.

9.3.6. The permittee shall keep readily accessible records for the life of each vessel showing the dimension and capacity of 122-TK-9901.
[40CFR§§60.116b(b) 60.110c(f) and 60.115c(b)]

9.3.7. Prior to the initial filling or filling of a new VOL of the 122-TK-9901, the permittee shall determine the maximum true vapor pressure at the stored temperature for each VOL stored in this vessel using one of the following methods:
[40CFR§§60.110c(f), 113c(d), and 113c(d)(1)]

a. As obtained from standard reference texts.
[40CFR§113c(d)(1)(i)]

b. ASTM D6377-20 (incorporated by reference; see 40CFR§60.17). Perform the method using a vapor-to-liquid ratio of 4:1, which is expressed in the method as VPCR.
[40CFR§113c(d)(1)(ii)]

c. ASTM D6378-22 (incorporated by reference; see 40CFR§60.17). Perform the method using a vapor-to-liquid ratio of 4:1.
[40CFR§113c(d)(1)(iii)]

d. As measured by an appropriate method as approved by the Administrator.
[40CFR§113c(d)(1)(iv)]

Such records shall be maintained in accordance with Condition 3.4.1.

9.4. Reporting Requirements

9.4.1. The permittee shall report any exceedances of the requirements in Section 9.1. to the Director within 10 days of the exceedance in accordance with Condition 3.5.3.

Appendix A – Summary Report - Gaseous and Opacity Excess Emission and Monitoring System Performance

Pollutant (Circle One—SO2/NOX/TRS/H2S/CO/Opacity)

Reporting period dates: From _____ to _____

Company:

Emission Limitation
Address:

Monitor Manufacturer and Model No.
Date of Latest CMS Certification or Audit
Process Unit(s) Description:
Total source operating time in reporting period[1]

Emission data summary[1]		CMS performance summary[1]	
1. Duration of excess emissions in reporting period due to:		1. CMS downtime in reporting period due to:	
a. Startup/shutdown		a. Monitor equipment malfunctions	
b. Control equipment problems		b. Non-Monitor equipment malfunctions	
c. Process problems		c. Quality assurance calibration	
d. Other known causes		d. Other known causes	
e. Unknown causes		e. Unknown causes	
2. Total duration of excess emission		2. Total CMS Downtime	
3. Total duration of excess emissions × (100) [Total source operating time]	%[2]	3. [Total CMS Downtime] × (100) [Total source operating time]	%[2]

[1]For gases, record all times in hours.
[2]For the reporting period: If the total duration of excess emissions 1 percent or greater of the total operating time or the total CMS downtime is 5 percent or greater of the total operating time, both the summary report form and the excess emission report described in 40 CFR 60.7(c) shall be submitted.
On a separate page, describe any changes since last quarter in CMS, process or controls. I certify that the information contained in this report is true, accurate, and complete.

Name

Signature

Title

Date

CERTIFICATION OF DATA ACCURACY

I, the undersigned, hereby certify that, based on information and belief formed after reasonable inquiry, all information contained in the attached _____, representing the period beginning _____ and ending _____, and any supporting documents appended hereto, is true, accurate, and complete.

Signature[1] _____ _____
(please use blue ink) Responsible Official or Authorized Representative Date

Name & Title _____ _____
(please print or type) Name Title

Telephone No. _____ Fax No. _____

---

[1] This form shall be signed by a "Responsible Official." "Responsible Official" means one of the following:

a. For a corporation: The president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit and either:

(i) the facilities employ more than 250 persons or have a gross annual sales or expenditures exceeding $25 million (in second quarter 1980 dollars), or

(ii) the delegation of authority to such representative is approved in advance by the Director;

b. For a partnership or sole proprietorship: a general partner or the proprietor, respectively;

c. For a municipality, State, Federal, or other public entity: either a principal executive officer or ranking elected official. For the purposes of this part, a principal executive officer of a Federal agency includes the chief executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., a Regional Administrator of U.S. EPA); or

d. The designated representative delegated with such authority and approved in advance by the Director.

Engineering Evaluation R13-3708

Division of Air Quality
601 57th Street, SE
Charleston, WV 25304
(304) 926-0475

Harold D. Ward, Cabinet Secretary
dep.wv.gov

ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.:	R13-3708
Plant ID No.:	053-00134
Applicant:	MGS CNP 1, LLC
Facility Name:	BECCS Plant
Location:	Point Pleasant
NAICS Code:	221117 - Biomass Electric Power Generation
Application Type:	Construction
Received Date:	February 24, 2025
Engineer Assigned:	Edward Andrews
Fee Amount:	$4500.00
Date Received:	March 13, 2025
Complete Date:	June 23, 2025
Due Date:	September 21, 2025
Applicant Ad Date:	March 13, 2025
Newspaper:	*The River Cities Tribune*
UTMs:	Easting: 403.93 km Northing: 4,308.98 km Zone: 17N
Latitude/Longitude:	38.9245069°N/-82.1082251°W

ACTION SUMMARY

MGS CNP 1, LLC (MSG) filed a permit application for the construction of 940 million (MM) Btu per hour, biomass fired boiler for the purpose of generating electricity not for sale. The application includes other emission units to support the operation of the biomass fired boiler (e.g. fuel handling, cooling tower, emergency generator). As part of this application, MGS proposed to control the emission from the biomass boiler using dry sorbent injection (DSI) coupled with fabric filter baghouse, selective catalytic reduction (SCR), oxidation catalyst, wet scrubber, and amine absorber for carbon dioxide capture (CCS). These control measures will limit the potential to emit from the facility to the following, which are below the major source threshold level in the Title V Operating Permit and Prevention of Significant Deterioration Permitting Programs:

Table 1 - Summary of Facility-Wide Emissions in TPY

Pollutants							
NO_x	CO	SO_2	VOC	PM	PM_{10}	$PM_{2.5}$	Total HAPs
90.90	46.48	50.79	55.78	59.09	83.95	75.65	24.01

The biomass boiler is subject to provision and emission standards in State Rules 2 and 10; and Federal Rules Subpart Db of Part 60, Subpart JJJJJJ of Part 60.

The administrative support at the facility (offices) will rely on electricity supplied by the local electricity retailer/provide. The emission units proposed in the application will be supplied by the facility either generated by the biomass boiler or the NG Startup Generator and not connected to the gird. Therefore, the biomass boiler is not subject to EPA emissions trading program which are: Title IV Acid Deposition Control (AKA: Acid Rain Program); and Section 126 of Clean Air Act (AKA: Cross-State Air Pollution Rule – CSAPR). The electricity generated by the biomass boiler will not be sold.

DESCRIPTION OF PROCESS

The fluidized bed boiler at the BECCS facility will use clean woodchips as fuel during normal operation and burn natural gas during start up process. MGS CNP1 intends to commence construction of the BECCS facility in 2026 with startup operations in 2029. The proposed plant will include the following major processes:

- Receiving, storing, and handling raw materials such as wood chips, sand and sodium bicarbonate
- Biomass boiler and environmental train
- Post-combustion carbon capture unit (PCCU)
- Power generation
- Storage and handling of fly ash and bottom ash
- Balance of Plant (BoP) facilities including, but not limited to:
    - Raw Water / Utility Water
    - NG Startup Generator
    - Electric and Diesel Driven Fire Water Pumps
    - Cooling Tower
    - Storage Tanks
    - Wastewater Treatment

The main emission sources that are being proposed to be at the facility include:

- Hoppers, Bins and Conveyors in Material Handling
- One Wood Chip Fired Bubbling Fluidized Bed (BFB) Boiler
- One Mechanical Draft Evaporative Cooling Tower
- Trucks Traveling on Paved In-plant Road
- Storage Silos for Fly Ash and Bottom Ash
- Equipment Leaks
- One NG Startup Generator with an engine output rating no greater than 3,000 hp.
- One Fire Water Diesel Engine Pump with an engine output rating no greater than 600 hp.

Two Storage Tanks – an amine makeup tank, and a lean amine tank. The facility will also have two additional tanks, a diesel tank and a biodegraded amine tank, but according to Table 45-13B in 45CSR13, these two tanks are de minimis sources and do not need to be included in this permit application.

Raw Material Receiving and Transfer

Truck Traffic

Raw material used as fuel will be clean wood chips. The wood chips will be delivered to the site by trucks. The wood chips will be stored outdoor in piles until burned as fuel in the fluidized bed boiler. Other materials trucked to the facility include sand, sodium bicarbonate ($NaHCO_3$), ammonia and amine solutions. The substances trucked out of the facility include fly ash, bottom ash, and degraded amine.

Raw Material Receiving and Handling

Biomass will be unloaded from the trucks by truck tippers which dump the biomass into two receiving hoppers. Dust is controlled by slight negative pressure in the receiving hoppers. The extracted dust laden air will be directed through a baghouse before discharge to the atmosphere.

Conveying and Processing

From the hoppers, biomass is conveyed via covered conveyors to an uncovered chip pile, which is large enough for at least 14 days of storage. From the storage pile, front end loaders will be used to load the biomass into a biomass receiving hopper and the subsequent conveyors will transport the material to the day bins at the biomass boiler for feed loading.

The chip pile will be surrounded by a drainage trench to catch storm water runoff for treatment and disposal.

Combustion Process

MGSCNP1 will construct one bubbling fluidized bed (BFB) boiler. BFB boiler has been proven to efficiently combust wood biomass. MGSCNP1 proposes to fuel the new boiler with woody biomass under normal operation. Natural gas will be used for startup operation of the boiler only.

As discussed in this section, the boiler will be capable of accommodating the following:

1) Natural gas for boiler startup; and

2) Wood (biomass) for normal operation.

The boiler is not being designed to combust natural gas as a secondary fuel for power generation. The boiler heat input capacity for natural gas will be rated at 180 million British thermal units per hour (MMBtu/hr). The anticipated maximum design heat input of the boiler while combusting woody biomass will be 944 MMBtu/hr.

BFB boilers are capable of efficiently combusting woody biomass. A fluid-like mixture of solid fuel and other solids (such as sand) is suspended in the BFB boiler's combustion chamber by a turbulent upward air flow. The turbulent mixing provides for greater combustion efficiency in the BFB boiler.

Combustion of woody biomass (in normal operation) and natural gas (at startup only) in the proposed BFB boiler accounts for most of the potential to emit regulated air pollutants from the proposed facility. A discussion of the control technology and methods to be used and the associated estimates of air pollutant emission rates are discussed below.

Attachment F in Appendix B of the application shows a detailed process flow diagram of the major equipment, control technologies, and material flows for the BFB boiler system. As depicted in the figures, natural gas will be provided via pipeline, woody biomass will be provided by wood suppliers via incoming trucks and stored on-site. Also, as part of the process, MGS CNP 1 will be installing silos to store materials required to support the proposed woody biomass boilers. The silos anticipated to be installed are as follows:

- Sand storage silo with breather vent to support boiler operation; and
- Sorbent (Sodium Bicarbonate ($NaHCO_3$)) storage silo to support as needed dry in-duct sorbent injection.

Both silos will be vented to the boiler with particulate emissions controlled by the boiler PJFF.

Fly ash silos with filters for storing the fly ash and economizer ash from biomass combustion.

Proposed Air Pollution Control Technologies / Techniques

The proposed boiler will utilize a combination of state-of-the-art control devices/techniques to minimize potential emissions of regulated air pollutants. A discussion of these devices/techniques, along with the air pollutant being controlled is provided below.

Pulse Jet Fabric Filter (Baghouse): Particulate Matter Control

Emissions of particulate matter (PM) will be controlled by a Pulse Jet Fabric Filter (PJFF) commonly referred to as a baghouse. Modern baghouses can provide a high level of control efficiency, more than 99% reduction of particulate emissions.

The fabric filter proposed for this project is a self-cleaning dry filtration system. Dust is collected on the external surface of the filter, where it commonly forms into a cake. When the dust cake is at an appropriate thickness (based on time) a pulse of compressed air is pushed through the interior of the filter, knocking the dust cake free to fall into the hopper below for removal. The dust from the pulse jet fabric filter is combined with the economizer ash for removal.

Dry In-Duct Sorbent Injection (DSI): Hydrogen Chloride and Acid Gas Control

HCl is formed from the presence of chlorine in the wood. MGSCNP1 will be installing a dry induct sorbent injection system, which will utilize NaHCO3 as the injection sorbent material. The dry sorbent is typically injected as a powder into the flue between the furnace of the boiler and baghouse. The dry sorbent reacts with the targeted air pollutants (i.e., hydrogen chloride (HCl) and other acid gases) and removes them from the flue gas before such pollutants are subsequently being filtered from the flue gas by the baghouse. The system is designed to reduce acid gases such as HCl and is also effective at reducing sulfur dioxide and sulfuric acid mist. Initial engineering estimates indicate that the incorporation of the BFB boiler design, baghouse, and the dry induct sorbent injection is sufficient to maintain HCl and other acid gases to minor source levels.

Selective Catalytic Reduction (SCR): Nitrogen Oxides (NO_X) Control

An SCR system will be utilized for controlling NO_X emissions. The SCR process chemically reduces the NO_X molecule into molecular nitrogen and water vapor. A nitrogen-based reactant such as ammonia is injected into the ductwork, downstream of the combust unit. The waste gas mixes with the reagent and enters a reactor module containing a catalyst. The hot flue gas reagent diffuses through the catalyst. The reagent reacts selectively with the NO_X within a specific temperature range and in the presence of the catalyst and oxygen.

A small amount of the ammonia will “slip” through the process without reacting and be emitted in the boiler’s exhaust. This emission of ammonia is termed “ammonia slip.”

Oxidation Catalyst: Carbon Monoxide (CO) and Volatile Organic Compounds (VOCs) Control A properly designed firebox and burner coupled with effective operating controls will minimize CO and VOC generation by providing the proper residence time, temperature and combustion zone turbulence, as well as the proper air-to-fuel ratio. In addition to combustion controls such as proper boiler design and operation, CO oxidation catalysts will be applied to the BFB to control the CO and VOC emissions. The oxidation catalyst is typically a precious metal catalyst (e.g. platinum), which has been applied over a metal or ceramic substrate. The catalyst lowers the activation energy required for the oxidation of CO to temperatures between 400 and 1100 °F. No chemical reagent addition is required.

Injection of Caustic (Wet Flue Gas Desulfurization): Sulfur Oxides (SO_X) Control

Caustic will be injected into the boiler flue gas to remove SO_X in a process known as wet flue gas desulfurization. The aqueous caustic solution is sprayed from the top of the polishing scrubber column. Blowdown from the wash water / caustic solution is sent to the wastewater treatment plant.

Ash Handling, Storage and Shipment Process

The combustion of biomass in the proposed boiler will result in the formation of bottom ash and fly ash. The resultant amount of ash is reflection of the ash in the fuel.

The fly ash is the particulates captured by the high efficiency baghouse. The generated fly ash will be transferred to two ash storage silos via two PJFF Ash Collection Drag Chain Conveyors, two PJFF Ash Collection Surge Bins, two PJFF Ash Transport Drag Chain Conveyors, an Ash Bucket Elevator, and an Ash Distribution Drag Chain Conveyor. Each fly ash storage silo will be equipped with a pulse jet filter to minimize any PM from the storage silo. When a sufficient volume has been collected, the fly ash will be mixed with utility water and then trucked off site. The fly ash will have a minimum moisture content of 10% by weight when loaded into trucks. The chute used to dispense fly ash into the truck will be designed to minimize PM emissions.

Bottom ash along with heavy non-combustible material will be collected in two metering conveyors and transferred to two vibrating conveyors. The bottom ash is separated from sand on the vibrating conveyor, after which it is moved outside of the boiler island and cooled. This material will be delivered to enclosed bins for storage and to be trucked away and disposed of.

Post-Combustion Carbon Capture

The Post-Combustion Carbon Capture Unit (PCCU) is designed to remove greater than 95% of the CO_2 in the combustion flue gas from the biomass boiler. For this emission unit (biomass boiler), the applicant is not required to control CO_2 emissions (the facility is minor source, and the unit is not triggering federal emission standard to control CO_2 emissions). This process description is for a generic amine carbon capture unit. Depending on the carbon capture licensor that is selected to move forward in the project, there may be slight modifications in the operation. The CO_2 that is captured is dehydrated and compressed to pipeline specifications prior to being permanently sequestered offsite of the BECCS facility.

Absorber

In the absorber, flue gas from the direct contact cooler containing CO_2 is fed to an absorption column where it's contacted with a downflowing amine-based solvent. The amine removes the CO_2 from the flue gas. The amine which contains the captured CO_2 exits the absorption column as rich amine bottoms liquid. The produced flue gas free of CO_2 is vented from the top of the absorber column to atmosphere.

Amine Regenerator

The rich amine stream leaving the amine absorber is routed to the regenerator column to regenerate amine. This is achieved by the regenerator column being operated at conditions that separate the CO_2 vapor from the liquid amine.

The amine feed flows to the top of the regenerator column. Separation of the CO_2 and amine occurs by a stripping effect created as amine comes in contact with the up-flowing CO_2 vapor. The heat required for regeneration will be supplied by low pressure (LP) Steam to a reboiler. The LP steam is provided from the biomass boiler steam system. The regenerated lean amine from the regenerator is pumped to the absorber column as feed to complete the cycle of CO_2 removal from the flue gas.

CO_2 vapors rise to the top of the column, where they are passed through a condenser. A reflux drum after the condenser separates the liquid amine from the CO_2 vapor. The liquid amine from the condenser is sent back to the regenerator column as reflux while the CO_2 vapor is sent to compression.

Reclaimed Amine

Degradation of amine solvents occurs over time due to the presence of oxygen and other impurities in the flue gas, resulting in deterioration of long-term performance. Purification of the amine solvent is therefore required to maintain operating efficiency. Reclamation includes both neutralization and regeneration steps. The contaminated amine solution is first mixed with a strong base, such as caustic, to reform the amine and separate it from degradation products. Heat is then applied to boil off the free amine and water and leaving behind sludge of degradation products. The degradation products are removed periodically from site by trucks. Reclaimed amine is sent to the lean amine tank for recirculation. Makeup amine will be brought to site using trucks, stored in the Amine Makeup Tank and then supplied to the amine absorber system to account for losses to the degradation products.

CO_2 Compression

CO_2 product from the reflux drum of amine stripper is dehydrated and compressed to 1,850 psig and 100°F for sequestration via an external pipeline.

Amine Storage

One Lean Amine Tank and one Amine Makeup Tank will be installed to store lean amine and makeup amine, respectively. Makeup amine will be delivered to the makeup amine tank by truck, while makeup demineralized water is provided from the demineralized water system for diluting the solvent.

Power Generation

Steam Turbine Generator

The steam turbine generator (STG) extracts the thermal energy from the superheated, pressurized steam produced by the biomass boiler and uses it to perform mechanical work. The mechanical

work is then converted to electrical power by the generator. The resulting steam exhaust from the STG is then cooled in a surface condenser with cooling water. The steam condensate from the surface condenser is recirculated back to the deaerator.

Auxiliary Processes and Balance of the Plant (BoP) Facilities

Emergency Engine

The proposed plant will require an emergency fire water pump. This piece of emergency equipment will be fueled with ultra-low sulfur distillate fuel oil (diesel) and operate only a limited number of hours (100 hours per year or less) for testing purposes under normal conditions. To support this emergency equipment, an above-ground tank with a maximum capacity of 1,292 gallons (gal) will be installed. This tank will be designed to store the ultra-low sulfur distillate fuel oil. According to Table 45-13B in 45CSR13, the diesel tank is a de minimis source and does not need to be included in this permit application.

Cooling Tower

A dedicated cooling tower will be installed to supply cooling water to all plant users. The Cooling Tower makeup is supplied using Utility Water (Raw water that has been treated).

Storage Tanks

Two storage tanks will be installed to support the operation of the facility which are a lean amine tank and an amine makeup tank.

Wastewater Treatment Plant

The wastewater treatment plant will receive water from the direct contact cooler/polishing scrubber system. The scrubbing liquid will have direct contact with the flue gas exhaust from the boiler. The scrubber solution will absorb ammonia, sulfuric acid and hydrochloric acid that could be present in the flue gas. The scrubbing solution will be sent to the Wastewater Treatment Plant for further processing before it is discharged to the outfall. It is conservatively assumed that 10% of the ammonia, sulfuric acid and hydrochloric acid in the flue gas could be emitted from the Wastewater Treatment plant. The wastewater treatment plant will also receive water from the demineralized water system, raw water treatment, flush pond water, cooling tower water and boiler blowdown water. These streams are not expected to contribute emissions from the wastewater treatment plant.

Others

To support the operation of the facility, other facilities will also be installed such as raw water/utility water, fire water, demineralized water generation, natural gas system, storm water pond, first flush pond, buildings, etc. These facilities are not expected to generate any air emissions.

SITE INSPECTION

On March 25, 2025, the writer conducted a site inspection of the proposed site. Mr. William Calhoun, Vice-President for MGS, Mr. Micheal Dearing, Principal Consultant for ERM accompanied the DAQ personnel during this inspection.

The turn off from Ohio River Road (West Virginia Route 62) to the access road for the facility is approximately 3 miles north of Point Pleasant High School. Once on the access road, one would travel approximately 950 feet in a north-by-north westly direction to the proposed site. There is one existing business (Steel Specialties) that is due south of the proposed by 450 feet away.

The notable landmarks are the smokestacks from the Gavin Power Station, near Cheshire, Ohio are northwest of the site, and the Mason County Airport is southeast as well.

Observed activities that have occurred at the is the maintenance of an unimproved access road to several existing oil wells located on the property. These oil wells are operated by Pillar Energy LLC. The actual location of the proposed equipment at the site is covered by vegetation (e.g., kudzu).

Figure 1 - Photographic of Site on March 25, 2025.

There are no residences within sight of the proposed facility. Using geographic information systems (e.g., google earth, ArcMap), there is a cluster of residual homes approximately 1,300 feet away in a south easterly direction from the site. This writer deems that the proposed site is appropriate for the proposed emission units.

ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

The applicant used a variety of different approaches to determine the potential emissions from the emission units proposed in this application. The sources or approaches include equipment manufacturer's specifications, manufacturer's emissions data, AP-42, and other available information (e.g., test data). The startup emissions were based on average heat input during the startup event of 414.3 MMBtu/hr from both fuels with an average of 131.1 MMBtu/hr from natural gas and a duration of 10 hours per startup event.

Table 2Hourly Emissions from the Biomass Boiler

Pollutant	Startup (lb/hr)	Normal Ops w/o Carbon Capture (lb/hr)	Normal Ops w/Carbon Capture (lb/hr)
Oxides of Nitrogen (NOx)	90.90	20.20	20.20
Carbon Monoxide (CO)	45.45	10.20	10.20
Sulfur Dioxide (SO_2)	13.82	11.58	11.58
PM	3.64	7.99	7.99
PM_{10}	6.91	15.54	15.54
$PM_{2.5}$	6.91	15.54	15.54
Volatile Organic Compounds (VOCs)	0.73	1.89	4.43
Sulfuric Acid (H_2SO_4)	7.64	6.35	6.35
Hazardous Air Pollutants (HAPs)			
Lead (Pd)	0.05	0.05	0.05
Hydrochloric Acid HCl	18.55	1.18	1.18
Mercury (Hg)	0.11	3.30E-3	3.30E-3

Total Organic HAPs	0.73	1.91	3.97
Total Metallic HAPs	0.11	0.27	0.27
Total HAPs*	19.39	3.36	5.42

* Total HAPs include HCl, Total Organic HAPs, and Total Metallic HAPs.

For metallic HAPs, the applicant used the AP-42 emissions factors in Table 1.6-4 for trace elements from wood residue combustion. AP-42 noted these specific emission factors for trace elements were based on boilers with no controls or particulate matter control. The emission factor for these individual elements was not noted if a factor was or was not based on a particulate matter control device being used. Thus, the applicant used these factors without applying any removal efficiency for the proposed controls.

From the actual Biomass Boiler, most of the hazardous air pollutants (HAPs) emissions are in the form of HCl emissions. The controlled HCl emissions were based solely on application based that using the dry sorbent injection. The wet scrubber will also remove HCl from the exhaust stream. There might be an additional reduction in HCl emissions due to the amine's absorbing HCl and other acid gases (e.g., H_2SO_4 and SO_2). In the proposed emission rates for these acid gases, the applicant did not apply or account for any additional reduction due to the carbon capture unit.

SO_2 and H_2SO_4 emissions will be controlled primarily using the wet desulfurization scrubber (wet scrubber).

The carbon capture unit has the potential to emit VOC and volatile organic HAPs due to the degradation of the amine (MDEA and MEA) in the carbon capture unit. Degradation, particularly thermal degradation, can become significant at higher temperature, especially when combined with factors like the presence of contaminates (e.g., nitrite). These HAPs emissions are in the form of nitrosamines, acetaldehyde, and formaldehyde.

Table 3 Annual Emissions from the Biomass Boiler

Pollutant	Startup (tpy)	Normal Ops w/o Carbon Capture (tpy)	Normal Ops w/Carbon Capture[1] (tpy)
Oxides of Nitrogen (NOx)	2.5	87.92	90.42
Carbon Monoxide (CO)	1.25	44.40	45.65
Sulfur Dioxide (SO_2)	0.38	50.40	50.78

Pollutant	Startup (tpy)	Normal Ops w/o Carbon Capture (tpy)	Normal Ops w/Carbon Capture[1] (tpy)
PM	0.10	34.78	34.88
PM_{10}	0.19	67.65	67.84
$PM_{2.5}$	0.19	67.65	67.84
Volatile Organic Compounds (VOCs)	0.73	8.24	19.04
Sulfuric Acid (H_2SO_4)	0.21	27.66	27.87
Hazardous Air Pollutants (HAPs)			
Lead (Pd)	0.02	0.20	0.22
Hydrochloric Acid (HCl)	0.51	5.14	5.65
Mercury (Hg)	0.00	0.01	0.01
Total Organic HAPs	0.02	8.32	16.49
Total Metallic HAPs	0.003	1.20	1.20
Total HAPs*	0.53	14.66	23.36

[1] Startup emission are included.

The annual startup emission was based on 55 hours per year. During these startups, the unit would be initial fired using natural gas (up to 180 MMBtu/hr) with the wood chip being introduced during the startup event. Most of the controls require the exhaust temperature to be elevated to function (e.g., SCR, Oxidation Catalyst, DSI, etc.). These startup emissions were either based on firing natural gas with average heat input 131 MMBtu with total average heat input of 414 MMBtu/hr.

The annual emissions are based on 768 hours of normal operations without the carbon capture unit operating, 7,937 hours of normal operations with the carbon capture unit online, and 55 hours for startup operations.

To support the operation of the biomass boiler, 929,147 tons of wood chips (biomass fuel) will need to be received, stored, and fed to the boiler. These activities have the potential to generate dust in the form of fugitive particulate matter (PM), PM_{10}, and $PM_{2.5}$ emissions. The applicant

used a combination of vender provided data, and approaches outline in AP-42 for wind erosion from open stockpile and transfer points (material drop operations) to estimate these emissions. Hourly potential is based on annual reduced to hours, which equates to 106.07 tons of wood chip per hour. Some of the equipment is duplicate sources (e.g., Receiving Hopper 1 and Receiving Hopper 2) and

Table 4 Emissions from the Wood Chip (Fuel) Handling

Source Name	Transfer Rate		Short-term Emissions (lb/hr)			Annual Emissions (tpy)		
	(tons/hr)	(tons/yr)	PM	PM_{10}	$PM_{2.5}$	PM	PM_{10}	$PM_{2.5}$
Receiving Hoppers	106.07	929,146.92	1.08	1.08	1.08	4.72	4.72	4.72
Conveyor 1 for Receiving Hopper 1	106.07	929,146.92	0.06	0.03	0.004	0.19	0.09	0.01
Conveyor 2 for Receiving Hopper 2	106.07		0.06	0.03	0.004			
Stockpile Loading Fugitives	106.07	929,146.92	0.11	0.05	0.01	0.37	0.18	0.03
Feed Hopper	106.07	929,146.92	0.112	0.053	0.008	0.37	0.177	0.03
Conveyor from Feed Hopper to SC A/B	106.07	929,146.92	0.06	0.027	0.004	0.19	0.09	0.01
SC A to Fuel Metering Bin A	106.07	929,146.92	0.06	0.027	0.004	0.19	0.09	0.013
SC A to Fuel Metering Bin B	106.07		0.06	0.027	0.004			

Source Name	Transfer Rate		Short-term Emissions (lb/hr)			Annual Emissions (tpy)		
	(tons/hr)	(tons/yr)	PM	PM_{10}	$PM_{2.5}$	PM	PM_{10}	$PM_{2.5}$
Fuel Metering Bin A	106.07	929,146.92	0.06	0.03	0.004	0.19	0.09	0.01
Fuel Metering Bin B	106.07		0.06	0.03	0.01			
Wood Chip Stockpile		929,146.92				0.21	0.11	0.01
Totals			1.72	1.38	1.13	6.43	5.55	4.83

To aid in suspending the wood chips (fuel) in the boiler, sand is added to the boiler help suspend the wood chips above the bed in the furnace section of the boiler. There is a recoverable amount of sand that is entrained in the bed ash (bottom ash) from the boiler. The mixture of bed ash and sand is conveyed from the boiler to one of two vibrating screens to separate the recoverable sand from the ash. Presented in the following table are the hourly and annual particulate matter emissions associated with the sand handling at the facility.

Table 5 Emissions from the Ash & Sand Handling

Source Name	Transfer Rate		Hourly Emissions (lb/hr)			Annual Emissions (tpy)		
	tons/hr	tons/yr	PM	PM_{10}	$PM_{2.5}$	PM	PM_{10}	$PM_{2.5}$
Ash Collection Drag Conveyor A to Surge Bin 1	4.5	39,420	0.54	0.25	0.04	1.79	0.85	0.13
Ash Collection Drag Conveyor B to Surge Bin 2	4.5		0.54	0.25	0.04			
Ash Surge Bin A & B	4.5	39,420	0.54	0.25	0.04	1.79	0.85	0.13
Drag Chain Conveyor from Surge Bin to ash transfer conveyor	4.5	39,420	0.54	0.25	0.04	1.79	0.85	0.13
Bucket Elevator (BE)	4.5	39,420	0.54	0.25	0.04	1.79	0.85	0.13
Ash Drag Chain from BE to Ash Silos	4.5	39,420	0.54	0.25	0.04	1.79	0.85	0.13
Ash Drag Chain A from Econ Hopper to Econ Ash Surge Bin	3.3	28,908	0.39	0.19	0.03	1.31	0.62	0.09

Source Name	Transfer Rate		Hourly Emissions (lb/hr)			Annual Emissions (tpy)		
	tons/hr	tons/yr	PM	PM_{10}	$PM_{2.5}$	PM	PM_{10}	$PM_{2.5}$
Ash Drag Chain B from Econ Hopper to Econ Ash Surge Bin	3.3	28,908	0.39	0.19	0.03	1.31	0.62	0.09
Econ Ash Conveyor A	3.3	28,908	0.39	0.19	0.03			
Econ Ash Conveyor B	3.3		0.39	0.19	0.03			
Fly Ash Silo A	7.8	68,328	0.02	<0.01	<0.01	0.06	0.03	<0.01
Fly Ash Silo B	7.8		0.02	<0.01	<0.01			
Fly Ash Truck Loading	8.6	75,336	<0.01	<0.01	<0.01	0.01	<0.01	<0.01
Bed Ash Screw Conveyor A	1.125	9,855	0.004	0.002	0.002	0.02	0.008	0.008
Bed Ash Screw Conveyor A	1.125		0.004	0.002	0.002			
Vibrating Screener A	1.125	9,855	0.004	0.002	0.002	0.02	0.008	0.008
Vibrating Screener B	1.125		0.004	0.002	0.002			
Sand Receiving Hopper	50	1,752	0.345	0.165	0.165	0.01	0.003	0.003
Inclined Sand Conveyor	50	1,752	0.173	0.083	0.083	0.01	0.001	0.001
Transfer Conveyor A	0.125	1,095	0.000	0.000	0.000	0.01	<0.01	<0.01
Transfer Conveyor B	0.125		0.000	0.000	0.000			
Bucket Elevator A	0.325	2,847	<0.01	<0.01	<0.01	0.01	0.002	0.002
Bucket Elevator B	0.325		<0.01	<0.01	<0.01			
NaCOH3 Vent Hoppers	0.05	438	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
		Totals	5.40	0.258	0.258	11.72	5.54	0.87

The is a makeup sand silo associated with the sand handling system. This silo is vent directly to the boiler and the PM emissions associated from the silo are accounted/included with the PM emissions from the boiler, which is why the makeup sand silo emission is not presented in the above table.

The applicant used engine performance and emissions data from the engine manufacturer data and appropriate emission factors from AP-42 to determine the potential emission from the engine for the NG Startup generator and the diesel-fired engine for the fire water pump.

Table 6Potential Emissions from the Engines (NG Startup Generator & Firewater pump)

Source Name	NG Startup Generator	Firewater Pump
Engine Type	Spark Ignition	Compression Ignition
Model	TBD	C18H0-UFAD42
Model Year	2025 or newer	2025 or newer

Source Name		NG Startup Generator	Firewater Pump
EPA Family No.		TBD	TBD
Manufactured Date		TBD	TDB
Power Output		3,000 hp	614 hp
Fuel Type		Natural Gas	Ultra Low Sulfur Diesel (ULSD)
Fuel Consumption Rate		18,808 ft^3/hr	35.90 gph
PM	Emission Factor	7.71 E-5 lb/MMBtu	0.20 g/kW-hr
	Hourly Emissions Rate	<0.01 lb/hr	<0.01
	Annual Rate	<0.01 TPY	<0.01
$PM_{10}/PM_{2.5}$	Emission Factor	0.0099871 lb/MMBtu*	0.2 g/kW-hr
	Hourly Emissions Rate	0.20 lb/hr	0.20
	Annual Rate	0.01 TPY	0.01 TPY
NO_x	Emission Factor	1.0 g/hp-hr	3.04 g/kW-hr
	Hourly Emissions Rate	6.61 lb/hr	3.07 lb/hr

Source Name		NG Startup Generator	Firewater Pump
	Annual Rate	0.33 TPY	0.15 TPY
SO_2	Emission Factor	1.06E-5 lb/MMBtu	1.26E-5 lb/hp-hr
	Hourly Emissions Rate	0.03 lb/hr	0.01 lb/hr
	Annual Rate	<0.01 TPY	<0.01 TPY
CO	Emission Factor	2.0 g/hp-hr	3.30 g/kW-hr
	Hourly Emissions Rate	13.23 lb/hr	3.33 lb/hr
	Annual Rate	0.66 TPY	0.17 TPY
HC (VOCs)	Emission Factor	0.7 g/hp-hr + 5.28E-2 lb/MMBtu[1]	0.11 g/kW-hr + 1.18E-3 lb/MMBtu
	Hourly Emissions Rate	5.67 lb/hr	0.11 lb/hr
	Annual Rate	0.28 TPY	<0.01 TPY
Total HAPs	Emission Factor	7.22E-02 lb/MMBtu	3.87E-03 lb/MMBtu

Source Name		NG Startup Generator	Firewater Pump
	Hourly Emissions Rate	1.43 lb/hr	1.88E-02 lb/hr
	Annual Rate	0.07 TPY	<0.01 TPY

* This emission factor includes condensable and filter portion of particulate matter.
[1] This emission factor includes VOCs plus formaldehyde emissions.

Emissions from the fluid cooler are due to the solids in the cooling water for the cooler. The applicant determined the PM/PM_{10}/$PM_{2.5}$ emissions from the coolers based on the mass of the solids in the water droplet from data collected by the Electric Power Research Institute (EPRI). The applicant based these emissions on a maximum total dissolved solid (TDS) content of 5000 ppmw and average TDS concentration of 1700 ppmw of the circulated cooling water. These values were developed from a maximum TDS concentration of 1,000 ppmw in the make-up water with an average TDS of 340 ppmw. These emission rates are presented in the following table.

Table 7 Potential Emission from the Cooling Tower (129-CT-9391)

Pollutant	Hourly Rate (lb/hr) Max TDS 5000 ppm	Hourly Rate (lb/hr) Avg TDS 1700 ppm	Annual Rate (TPY)
PM	2.02	0.69	3.02
PM_{10}	1.48	0.57	2.50
$PM_{2.5}$	0.67	0.29	1.27

The facility will have a variety of storage vessels (tanks) that will be used to store volatile organic liquids (VOLs). The tanks of any size are lean amine and amine makeup tanks, which are 376,986 gallons and 8,812 gallons respectively. Amines have low vapor pressures for volatile organic liquids. Also, the VOL in the lean amine tank will be a solution of 47% amines in water. The VOCs potential from these two tanks are significantly less than 0.01 tons per year.

To accommodate the proposed emission units associated with this project, additional components will be required to be put into VOC service (e.g., piping for the fuel gas system). These

additional components have the potential to emit 36.46 tons of VOCs per year. Of these fugitive VOCs, less than 0.01 ton per year would be in the form of HAP emissions.

Other sources of fugitive emissions are from the vehicle traffic on plant control roadways. The applicant determined the PM emissions from roadways on 107 vehicles per day to support operating the facility with an average vehicle weight of 32.7 tons. The roadway distance is approximately 0.68 miles on paved surface. Accounting for the average number of days of 0.01 inches of rain or greater per year, the PM emissions from roadways are 9.38 tons per year. The PM_{10} and $PM_{2.5}$ are 1.88 tons per year and 0.46 tons per year respectively.

There were several instances that the writer did not agree with the applicant's determination of annual emissions, which were limited to the engines. The application is based on 50 hours per year for these two engines. The writer believes that this operation limitation is not realistic and increased operating hours to 100 hours per year for each engine, which is consistent with the Federal limit for emergency engines. The applicant planned to only use the NG Startup Engine to support 5 startup events per year for the Biomass Boiler with each was estimated to take up to 10 hours per event. Changing the operational limitation for NG Startup Generation to 100 hours does not change the status of the operation of this engine under the federal rule. The operation of the engine for the NG Startup Generator is for non-emergency purposes.

Also, the applicant applied the condensable fraction to the total PM. PM emission and only PM emission only includes the filterable portion. The issue only affects PM emissions from the Biomass Boiler. The condensable fraction was omitted from the PM emission rates from the boiler.

Table 8 Summary of Annual Emissions at the Facility (in TPY)

Pollutant	Biomass Boiler	Material Handling	Engines	Cooling Tower	Fugitive Sources	New Potential for the Facility (TPY)
NO_x	90.42	N/A	0.48	N/A	N/A	90.90
CO	45.65	N/A	0.83	N/A	N/A	46.48
SO_2	50.78	N/A	0.01	N/A	N/A	50.79
PM	34.88	18.15	0.02	3.02	3.02	59.09
PM_{10}	67.84	11.09	0.02	2.50	2.50	83.95
$PM_{2.5}$	67.84	5.25	0.02	1.27	1.27	75.65
VOCs	19.04	N/A	0.28	N/A	36.46	55.78

H_2SO_4	27.87	N/A	N/A	N/A	N/A	27.87
Total HAPs	23.36	N/A	0.07	N/A	0.58	24.01

REGULATORY APPLICABILITY

NEW SOURCE REVIEW APPLICABILITY ANALYSIS

Major Source Status

Section 52.21(b)(1)(i)(a) of 40 CFR, and 45 CSR 14-2.43a, lists the NSR source categories with a 100 ton per year (tpy) "major" source threshold. Fossil Fuel-fired Steam Electric Plants of More than 250 million (MM)Btu/hr Heat Input and Fossil Fuel Boilers (or combinations thereof) Totaling More than 250 MM Btu/hour Heat are two of the 28 source categories that are identified as possible applicable categories regarding applicant's proposed biomass boiler. The applicant's proposed biomass is going to be capable of only utilizing 180 MMBtu/hr of natural gas, which is a classified as a fossil fuel but less than 250 MMBtu/hr size criteria in these categories. The proposed unit will be capable utilizing 944 MMBtu/hr of biomass (wood) fuel, which is not classified as a fossil fuel. Therefore, none of applicant's proposed units meets any of the 28 source categories list and therefore "major source" applicability for this applicant is set at the default threshold of 250 tpy of any criteria pollutants.

The proposed facility will not have potential to emit any criteria pollutant about 250 tpy and therefore, the proposed facility is classified as a "not major" and not subject to requirements covered under the major source permitting rule (45CSR14).

Bubbling Fluidize Bed Boiler (Biomass Boiler)

The biomass boiler will be used to generate steam which will be used to generate electric for not sale. However (as noted in the above section), the boiler will only be capable of utilizing 180 MMBtu/hr of natural gas, which is a fossil fuel and less than 250 MMBtu/hr applicability threshold of Subpart Da of 40CFR60. Thus, the biomass boiler is subject to Subpart Db of 40CFR60 because the unit will be capable of utilizing over 100 MMBtu/hr of heat input from any fuel.

Subpart Db establishes emission standards for three criteria pollutants, which are sulfur dioxide (SO_2), particulate matter (PM), and nitrogen oxides (NO_2).

SO_2 Standard – No greater than 0.32 lb of SO_2 per MMBtu on a potential basis.

PM Standard – No greater than 0.030 lb of PM per MMBtu.

NO_2 Standard – No greater than 0.20 lb of NO_2 per MMBtu or 2.1 lb of NO_2 per MWh on gross output basis.

The unit will not produce steam or electric for sale. Therefore, the boiler is also subject to West Virginia State Rule 45CSR2 (Rule 2) for PM and visible emissions, which are 81 lb/hr of PM and 10% opacity. Also, the unit is subject to 45CSR10 for sulfur dioxide at a type "c" fuel burning unit is a Priority III region. The allowable sulfur dioxide standard for the boiler is 3.2 lb of SO_2 per MMBtu.

The applicant provided additional information about the proposed biomass fuel, which indicates that biomass fuel would contain 0.01% sulfur by weight. At a maximum firing rate of 106.07 tons per hour of biomass with a heat input of 944 MMBtu, this fuel would have the SO_2 potential of 0.045 lb of SO_2 per MMBtu, which is less than the standard under Subpart Db.

Again, because no electric is being sold and the unit will have a heat input of greater than 250 MMBtu/hr, the boiler is subject to West Virginia's Ozone Rule (45CSR40 or Rule 40). This state rule does not establish an allowable or standard for units to meet per say. However, the rule requires the permit to establish a NO_x limit for the unit to limit the mass amount of NO_x to be emitted from the affected unit during the ozone Season, which begins on May 1st and ends on September 30th of the same. The ozone season is 5 months out of the year. The writer recommends multiplying the annual potential NOx rate (90.42 tons per year) by 5/12, which equates to 37.68 tons/ ozone season), round up to whole number (38 tons) in establishing a NOx limit for the unit as required by Rule 40.

The application indicates that this proposed facility will meet the criteria of a "area source" of HAPs, which means that the facility will not have the potential to emit any single HAP equal to or greater than 10 tons per year and/or total HAP equal to or greater than 25 tons per year. Since the facility will be an area source of HAPs with a solid fuel fired boiler, the biomass boiler is subject to Subpart JJJJJJ of 40CFR63 as a new unit with a heat input greater than 30 MMBtu/hr. Thus, the boiler is subject to the PM and work practice standards of this regulation, which is a 0.030 lb of PM per MMBtu of heat input and conduct tune-ups on the boiler on a biennially basis.

The following is summary of the more stringent standard of the applicable standard of PM, NO_x, SO_2, and visible emissions.

Table 9 Summary of the Most Stringent Standard for the Biomass Boiler

Pollutant	Most Stringent Standard	Averaging Period	Citation
PM	0.030 lb/MMBtu	30 days rolling avg.	40CFR60.43b(h)(1) & 40CFR63.11201(a)
NOx	0.20 lb/MMBtu or	30 days rolling avg.	40CFR60.44b(l)(1)
SO_2	0.32 lb/MMBtu		40CFR60.42b(k)(2)

Visible Emissions	10% opacity	6-mintue Avg.	45CSR2-3.1.

The fuel (biomass) and material handling (e.g., flyash, sand, bicarbonate, etc.) systems to support the Biomass Boiler is subject to the fugitive emissions requirements of Section 5 of Rule 2 and the milling of sodium bicarbonate and equipment used to handling of processed sodium bicarbonate is subject to Subpart OOO of 40CFR60.

For Rule 2 fugitive emissions, the permittee must minimize fugitive emissions from equipment used to transport fuel/ash or other material associated with the support of fuel burning unit(s). The applicant proposed a collection of measures to minimize fugitive cover conveyors, paved roads, storage silo with controls, and covered hopper where there are feasible.

Sodium bicarbonate is not specifically listed as nonmetallic mineral. This regulation defines nonmetallic to include sodium compounds. In 2017, EPA Region 5 determine that sodium gluconate meets the definition of nonmetallic mineral and therefore the process equipment processing sodium gluconate was affected units under Subpart OOO. Based on EPA's past determination that equipment used to process sodium bicarbonate would be affected sources under Subpart OOO.

The applicant noted that the facility was an affected facility subject to Subpart OOO. The writer disagrees with the application because the applicant did not disclose any sodium bicarbonate processing equipment (crusher/grinding mill) in the application. Equipment used to handle or store sodium bicarbonate does not constitute "processing" under this subpart. Therefore, the proposed facility is not subject to any requirements from Subpart OOO due to this permitting action. alone does not make a facility an affected source believes, which in

The writer reviewed other federal regulations for applicability for the biomass boiler, which were Subparts Da and TTTTa from Part 60, Subpart UUUUU. The unit is not subject to Subpart Da because the unit will only have the capacity to combust 180 MMBtu/hr of natural gas (fossil fuel) which is less than the trigger level of 250 MMBtu/hr. Wood or clean cellulosic biomass is not listed in the definition of "fossil fuel" under 40CFR60.41Da.

Subpart TTTTa regulates new coal fired stream electric generating units and integrated gasification combined cycle facility. The proposed biomass boiler is neither and therefore not subject to Subpart TTTTa.

Subpart UUUUU regulates HAPs from coal-fired or oil-fired electric generating units (EGUs). Again, the proposed boiler will not be fueled with coal or oil and therefore is not subject to this subpart.

Because the electricity generated by the Biomass Boiler will not be sold, the Biomass Boiler is not an Acid Rain Unit under Title IV of the Clean Air Act and not subject to emission trading

programs such the Acid Rain Program and Cross-State Air Pollution Rule. The permit will prohibit the source from selling electricity generated.

ENGINES for the STARTUP GENERATOR & FIREWATER PUMP

The applicant proposed installing and operating a non-emergency engine for the NG startup generator which utilizes a spark-ignition (SI) engine. This engine will be fuel with natural gas to generate a maximum power out of 3,000 horsepower. This engine is subject to Subpart JJJJ of 40CFR60. Even though the applicant proposed to limit operation of this engine to 50 hours per year, this engine is proposed to be operated as a non-emergency engine under this regulation and therefore, the engine will be required to meet the emission standards for a non-emergency, SI, natural gas engine with a maximum engine power rating greater than 500 hp. To meet the emissions standards of this subpart, the applicant chose to purchase a manufacturer "certified engine" in accordance with the regulation.

The engine for the firewater pump is a new compression ignition that is subject to Subpart IIII of 40CFR60. The applicant proposed to operate this engine as an emergency engine as an outline in the regulation, which is operating the engine for no more than 50 hours per year for maintenance and readiness with total non-emergency utilization of the engine of no more than 100 hours per calendar year.

This subpart requires the engine to utilize "ultra-low sulfur diesel" and an hour-meter be installed and maintained, which will be required in the permit.

As noted earlier, the facility is an area source of HAPs and both engines are subject of these two subparts (IIII & JJJJ) under 40CFR60, therefore applicant meets the requirements of Subpart ZZZZ (RICE MACT) of 40CFR63 by satisfying the requirements of Subparts IIII and JJJJ of 40CFR60.

COOLING TOWER

The proposed fluid cooler is not subject to any state rule or federal regulation that establishes emission standards for cooling towers.

STORAGE VESSELS

Most of the proposed storage vessels will have a design capacity of less than 20,000 gallons and do not meet the size capacity of 40 CFR 60 Subpart Kc of 20,000 gallons or greater. However, the lean amine storage tank will have the capacity to store over 375,986 gallons, which is greater than the initial size capacity trigger threshold value of 20,000 gallons. To trigger the control requirements of Subpart Kc, the volatile organic liquid (VOL) being stored in the vessel with a capacity of 40,000 gallons or greater, and has a maximum true vapor pressure of 0.5 psia (3.4 kPa) is subject to the control requirements of Subpart Kc.

The applicant proposed to store lean amine at 50°F. The amine to be stored is a mixture of 25% methyl diethanolamine (MDEA), 23% monoethanolamine (MEA) and 53% water on a mass basis. At 50°F, the applicant noted the maximum true vapor pressure is 0.15 psia. The writer verified this provided maximum true vapor using a process simulator (ProMax 6.0) using ASTM D6377 Vapor Pressure of Crude Oil (VPCRx) method at a temperature of 50°F with a volume to liquid ratio of 4, which is stated in the Subpart Kc. The simulation predicted the vapor pressure of 0.149 psia.

The lean amine tank is not subject to the control requirements of this subpart but is required to maintain records of the following:

- Dimensions of the vessel to indicate the storage capacity of the vessel.
- Information to indicate the maximum true vapor pressure of the VOL being stored in using a method accepted by the subpart.

The permit will limit the maximum temperature of the stored VOL to 50 °F and require continuous monitoring of the temperature.

MINOR SOURCE PERMITTING RULE

To make the proposed controls federally enforceable limit practically enforceable, which is necessary to limit criteria pollutant and HAP emissions below major source threshold levels, the applicant prepared and submitted a complete application, paid the appropriate application fee, and published a Class I legal Advertisement in *The River Cities Tribune* on February 22, 2025.

CONFIDENTIAL BUSINESS INFORMATION (CBI)

The applicant provided information about the components in the biomass fuel. Other than the sulfur content, which was used to prove that the fuel would have a SO_2 potential at or less than the Subpart Db exclusion. The remaining information in this information was claim confidential and the applicant filed a proper claim in accordance with 45 CSR 31 to protect the information.

TITLE V OPERATING PERMIT

Given that the biomass boiler will not be generating electric for sale, the biomass boiler is not subject to Title IV – Acid Deposition Control of the Clean Air Act. The boiler is not an affected source under the Title V – Operating Permit Program.

As listed the Table 8 of this evaluation, the facility total potential to emit after controls will be less than the major source threshold levels defined under Title V (45CSR30), which is 100 tons

per year or greater of any criteria pollutant (e.g., CO, NO_x, PM); 10 tons per year or greater of any single HAP (e.g., HCl, formaldehyde); or 25 tons per year or greater of total HAPs.

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

There are several hazardous air pollutants (HAPs) that are released into the open air from the facility with the main source of HAPs is from the Biomass Boiler. The applicant identified 69 volatile organic HAPs, 13 metal HAPs, and one non-volatile organic HAP. This discussion will focus on HAPs with a potential to emit greater than 1 ton per year, which are acetaldehyde, acrolein, benzene, formaldehyde, and hydrogen chloride. The potential of these five HAPs from the Biomass Boiler accounts for 85% of the total HAP potential or 19.94 tons per year of HAPs from these five HAPs.

Acrolein
The carcinogenicity of acrolein is undetermined currently.
Additional information on the potential health effects can be found at:
https://iris.epa.gov/ChemicalLanding/&substance_nmbr=364

Acetaldehyde:
The carcinogenicity of acetaldehyde is listed as probable human carcinogen.
Additional information on the potential health effects can be found at:
https://iris.epa.gov/ChemicalLanding/&substance_nmbr=290

Benzene
The carcinogenicity of benzene is listed as human carcinogen.
Additional information on the potential health effects can be found at:
https://iris.epa.gov/ChemicalLanding/&substance_nmbr=276
Formaldehyde
The carcinogenicity of acrolein is listed as human carcinogen.
Additional information on the potential health effects can be found at:
https://iris.epa.gov/ChemicalLanding/&substance_nmbr=419

Hydrogen Chloride
The carcinogenicity of hydrogen chloride has not been assessed under EPA's Integrated Risk Information System (IRIS) program.
Additional information on the potential health effects can be found at:
https://iris.epa.gov/ChemicalLanding/&substance_nmbr=396

Other sources of HAPs at the facility will be limited to the internal combustion engines for the NG Startup Generator and Firewater Pump and the wastewater treatment plant. These engines

will be limited to 100 hours per year of operation, which significantly limits the potential to emit HAPs.

Many non-criteria regulated pollutants fall under the definition of HAPs which are compounds identified under Section 112(b) of the Clean Air Act (CAA) as pollutants or groups of pollutants that EPA knows or suspects may cause cancer or other serious human health effects. These adverse health effects may be associated with a wide range of ambient concentrations and exposure times and are influenced by source-specific characteristics such as emission rates and local meteorological conditions. Health impacts are also dependent on multiple factors that affect variability in humans such as genetics, age, health status (e.g., the presence of pre-existing disease), and lifestyle. As stated previously, there are no applicable federal or state ambient air quality standards for these specific chemicals. It is also important to note that the USEPA does not divide the various HAPs into further classifications based on toxicity or if the compound is a suspected carcinogen.

MONITORING

Biomass Boiler includes the support equipment for the carbon capture unit.

The applicant proposed to monitor actual NO_x emissions from the Biomass Boiler, which satisfies monitoring requirements under Subpart Db and 45CSR40, and the fabric filter baghouse with a bag leak detector system, which avoids monitoring visible emissions with a continuous opacity monitoring system (COMs) requirement under Subpart Db and is required under the Boiler GACT.

Rule 2 excuses the boilers using wet scrubbers from requiring COMs to monitor visible emissions, which applies for this case. Rule 2 requires a monitoring plan, which the applicant does not cover.

Subpart Db only relieve sources from the requirement to use COMs for using a bag leak detector. Subpart Db requires sources without COMs to monitor visible emission using one of three compliance options which are:

1. Conduct Subsequent visible emission test with the frequency based on result of the most recent test. The frequent can vary from 12 months, 6 months, or 3 months;

2. Monitor visible emissions using Method 22 for each operating day with an option to reduce the frequency to once a week if no visible emissions are observed for 10 operating days: or

3. Use a digital opacity compliance system in accordance with a site-specific monitoring plan approved by the Administrator.

Options 2 and 3 are only available for sources that the results of most recent the Method 9 test show the maximum 6-minute average is less than 10% opacity. Under Rule 2, the visible emission standard is 10% opacity is less. Thus, a source meeting Rule 2 standard would most likely qualify for options 2 and 3. This applicant must meet the Rule 2 standard.

Option 3 is not truly because available to this applicant at this time because a site-specific monitoring plan must be developed and approved. It will not be discussed any further in this evaluation. The permit will require option 1 (subsequent testing) and include option 2 if the most recent test results show the maximum 6-minute average is less than 10% opacity.

Rule 2 requires a monitoring plan and under Rule 2A this plan for sources without non-COMs must include Method 9 observation at least once per month. Neither of these two rules recognized the specific use of other continuous monitoring systems such as PM Continuous Emission Monitoring (PMCEMs) or Bag Leak Detection Systems with regards as part of monitoring plan. This writer views the PMCEMs to continuously monitor compliance directly with the PM emission standard and therefore, a more stringent monitoring system than COMs.

This writer views the Bag Leak Detection Systems as an instrument that continuously measures the amount of filterability particulate matter to determining if the measured amount is or is not above a specific set point (e.g. qualitative measurement). The instrument used in these Bag Leak Detection System is counting the number of particles downstream of the baghouse (PM control device).

The requirements for bag leak detection system in Subpart Db refers requirements in Subpart Da which are summarized in the following:

- Instruments must be certified by the manufacturer to be capable of detecting PM emissions at concentrations of 1 milligram per actual cubic meter or less.
- Sensor/instrument must provide output of relative PM loadings.
- Alarm system to alert operators that concentrations are above the alarm setpoint.
- Establish a minimum baseline output and averaging period.
- Senor/instrument must be located downstream of the fabric filter and upstream of any wet scrubber.
- Development and submit a site-specific monitoring plan.
- Must initiate procedures to casus of every alarm event with one hour of the alarm.
- If the alarm rate exceeds 5 percent of any 30 operating days, the source must conduct a PM test within 60 calendar days.

These requirements will be established in the permit.

The permit will require subsequent PM testing according to the schedule established in 45CSR2A. Based on the proposed $PM_{10}/PM_{2.5}$ emissions, which included both forms of PM, the unit following Cycle 3 of 45CSR2A for actual PM emissions less than 50% of the PM standard of 45CSR2, which would be conducting a performance test once every 36 months.

The application only contained very few details (specifications/operating parameters) for the proposed controls. The writer developed a few initial operating parameters for these controls until initial testing can be conducted to demonstrate compliance with the emission limits and establish the actual operating parameter limits.

- SCR
  - Minimum exhaust temperature of 200°F to begin injecting ammonia.[1]
- Oxidization Catalyst
  - Minimum catalyst bed temperature of 500 °F.
  - Maximum pressure drop of 2 inches of water column across the catalyst.
  - Minimum Oxygen content of 4% at the inlet of the catalyst.
- Dry Sorbent Injection
  - Maximum exhaust temperature of 500°F with a daily average temperature of no greater than 400 °F.[2]
  - Minimum exhaust temperature of 250°F during startup to begin injection of the sorbent. [1]
  - Minimum injection rate of sorbent based on manufacturer minimum rate.
- Wet Scrubber
  - Minimum circulation rate of 16.85 gpm of solution.
  - Minimum Daily average pH of 12.2.
  - Manufacturers' minimum pressure drop across the scrubber.
- Carbon Capture Unit (Amine Unit)

- Establish maximum lean amine circulation rate.
- Maximum amine solvent loss rate of 0.48 lb per hour.
- Maximum stripper column temperature of 120°F.[3]

[1] These parameter limits are a startup setpoint at which the permittee must begin operating the control device.
[2] This limitation is in place to prevent sintering of the sodium bicarbonate.
[3] This limit is in place to minimize thermal degradation of the amine.

Most of these initial operating limits were established on basic knowledge of these control or principles of these control devices or physical property of proposed sorbent. The minimum circulation rate was based on results of simulation a caustic scrubber in process simulation with uncontrolled SO_2, H_2SO_4, and HCl loading from the application to predict a circulation rate of 10% caustic solution to achieve a SO_2 control outlet rate of 11.53 pounds per hour, which is less than the permitted limit of 11.58 pounds per hour. The selected solvent rate was from the application.

The applicant has proposed a bypass vent for the divert the exhaust from Biomass Boiler from passing through the carbon capture unit (amine's unit absorber column). This divert valve will be locate downstream of the wet scrubber and the amine's unit absorber column. There is no regulatory mechanism that requires the applicant to control carbon dioxide emissions (CO_2). The amine's unit generates additional VOCs and volatile HAPs from the amine process. The permit will require monitoring the position of this divert value to know when the emissions from the boiler are bypassing the carbon capture unit.

The permit will require initial performance testing for CO, SO_2, H_2SO_4, HCl, and 21 individual volatile HAPs which were selected based on the have the potential to emit 0.01 tons per year. These 21 individual volatile HAPs make up 99.5% of the total volatile HAPs on a mass annual basis. The applicant will be required to measure the emission rate of several other pollutants which are carbon dioxide (CO_2), methane, and ethane. To get the total VOC rate, a method 25A test will be required to be conducted concurrently with the Method 320 (FTIR Method) test. The applicant will use methane and ethane rates measured with the FTIR Method, which are hydrocarbons but are not classified as VOCs, to be deducted out of the total VOC rate measured using Method 25A, which will yield just VOCs as defined in 40CFR51. Method 25A detects and measures total VOCs to include non-VOCs (e.g., methane and ethane).

During this initial testing, the applicant will be required to establish operating parameter limits that can be directly linked to the results of the testing that demonstrated compliance with the permitted limits.

The amine unit for the carbon capture unit will capture significant portions of the acid gas (SO2, H_2SO_4, HCl) that are not captured by the dry sorbent injection system or the caustic soda scrubber. A portion of these acid gases will be emitted to the atmosphere from the CO_2 dehydration unit (flash tank and/or regenerator still vent), or compressor blow down. The writer suspects a good portion of these acid gases will be entrained the collected water as result of in the dewatering operations/activities associated with the draining of knock-out vessels and 2-phase separators. The collected water will be routed to the wastewater treatment unit at the facility. The writer recommends that the applicant utilize a process simulator to determine the actual emissions from the CO_2 dehydration units and compressor blow down emissions of SO_2, HCl, and H_2SO_4.

Other parameters to be monitored for the Biomass Boilers are the following:

- Exhaust flow rate on a continuous basis to determine the actual heat input.
- Natural gas usage rate.
- Electric output of the generator on a continuous basis.
- Steam production to include pressure and temperature of the stream.
- Amount of ammonia injected into the SCR.
- Fuel analysis to determine dry F factor of combustion (scf of exhaust flow per MMBtu of fuel combusted).

Material Handling Activities

The writer recommends the following monitoring activities for fuel handling, sand, ash, and other consumable material (e.g., caustic soda, sodium bicarbonate):

- Record the amount of material delivered to the facility.
- Conduct monthly visible emission observation of point sources (e.g., outlet of fabric filter duct collector).
- Conduct monthly visual inspection of equipment and associated control device (e.g., covers, enclosers, fabric filters).
- Conduct monthly inspection of the paved haul road for defects or excessive silt.

Engines – NG Startup Generator and Firewater Pump

The permit will require the applicant to track hours of operation of both engines though a non-resettable hour meter and the purpose of the operation; and keep records indicating the diesel used/delivered for the Firewater Pump engine meets the standard as “ultra-low sulfur diesel”.

Also, the permittee will be required to perform maintenance on each engine in accordance with the respective manufacturer and maintained documentation that each engine is certified to comply with the appropriate emission standard under 40CFR60.

Cooling Tower

For the cooling tower, the applicant will need to monitor the cooling water flow rate and either the concentration of the total dissolved solids in the make-up water or the specific conductivity daily. Also, the permittee will be required to determine the actual PM emissions monthly.

Storage Tanks/Loadout/Wastewater Treatment

The permit will require monitoring the temperature in the lean amine storage tank and the permittee will have to determine the maximum true vapor pressure of the VOL stored in the vessel. On a semiannual (once every six months) basis, the permittee will be required to conduct a leak survey of all process piping in VOC.

RECOMMENDATION TO DIRECTOR

The information provided in Permit Application R13-3708 indicates that compliance with all applicable state and federal air quality regulations will be achieved. Therefore, I recommend to the Director that the DAQ go to public notice with a preliminary determination to issue Permit Number R13-3708 to MGS CNP 1, LLC for the proposed construction of a biomass fired boiler with a carbon capture unit and associated equipment to be located near Point Pleasant, Mason County, WV.

Edward S. Andrews

Digitally signed by: Edward S. Andrews
DN: CN = Edward S. Andrews email = edward.s.andrews@wv.gov C = US O = West Virginia Department of Environmental Protection OU = Division of Air Quality
Date: 2025.08.12 16:06:12 -04'00'

Edward Andrews, P.E.
Engineer

Public Notice R13-3708

AIR QUALITY PERMIT NOTICE

Notice of Open Comment Period

On February 24, 2025, MGS CNP 1, LLC applied to the WV Department of Environmental Protection, Division of Air Quality (DAQ) for a construction permit for the installation and operation of a biomass boiler for purpose to generate electricity with a carbon capture unit to be located near 5801 Ohio River Road, Point Pleasant, Mason County, WV, at latitude 38.92450 and longitude -82.10822. A preliminary evaluation has determined that all State and Federal air quality requirements will be met by the proposed construction. The DAQ is providing notice to the public of an open comment period for permit application R13-3708.

The following potential emissions, which includes fugitives, will be authorized by this permit action: Particulate Matter less than 2.5 microns, 75.65 tons per year (TPY); Particulate Matter less than 10 microns, 83.95 tons per year (TPY); and Particulate Matter, 59.09 TPY; Oxides of Nitrogen, 90.90 TPY; Carbon Monoxide, 46.48 TPY; Sulfur Dioxide, 50.79 TPY; Volatile Organic Compounds, 55.78 TPY; Sulfuric Acid Mist, 27.87 and Total Hazardous Air Pollutants, 24.01 TPY of which 8.15 tons of Acetaldehyde and 6.22 tons of Hydrogen Chloride.

Written comments or requests for a public meeting must be received by the DAQ before 5:00 p.m. on Thursday, September 18, 2025. A public meeting may be held if the Director of the DAQ determines that significant public interest has been expressed, in writing, or when the Director deems it appropriate.

According to information given in the permit application, start-up of the facility was estimated by the applicant to be January 1, 2029. The purpose of the DAQ's permitting process is to make a preliminary determination if the proposed construction will meet all state and federal air quality requirements. The purpose of the public review process is to accept public comments on air quality issues relevant to this determination. Only written comments received at the address noted below within the specified time frame, or comments presented orally at a scheduled public meeting, will be considered prior to final action on the permit. All such comments will become part of the public record.

Edward Andrews, P.E.
WV Department of Environmental Protection
Division of Air Quality
601 57th Street, SE
Charleston, WV 25304
Telephone: 304/926-0499, ext. 41244
Email: edward.s.andrews@wv.gov

Additional information, including copies of the draft permit, application and all other supporting materials relevant to the permit decision may be obtained by contacting the engineer listed above. The draft permit and engineering evaluation can be downloaded at:

https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx

Affidavit of Publication R13-3708

River Cities Tribune & Register

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CHARLESTON, WV 25304

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AIR QUALITY PERMIT NOTICE
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Division of Air Quality
601 57th Street, SE
Charleston, WV 25304
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Additional information, including copies of the draft permit, application and all other supporting materials relevant to the permit decision may be obtained by contacting the engineer listed above. The draft permit and engineering evaluation can be downloaded at:

https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx

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WV DEP / DIV OF AIR QUALITY

PUBLISHER'S CERTIFICATE

I, Tamra Lawson,
Classified Manager of THE RIVER CITIES TRIBUNE, a newspaper of general circulation published in the city of Gallipolis, Gallia Co. OH, Pomeroy, Meigs Co. OH, and Point Pleasant, Mason Co. WV, County and state aforesaid, do hereby certify that the annexed:

AIR QUALITY PERMIT NOTICE

Ad# 1481946

was published in THE RIVER CITIES TRIBUNE 1 time(s) commencing on 08/19/2025 and ending on 08/19/2025 at the request of

WV DEP - AIR QUALITY.

Given under my hand this 08/19/2025.

The publisher's fee for said publication is: $45.45.

Tamra Lawson
Classified Manager of
THE RIVER CITIES TRIBUNE

Subscribed to and sworn to before me this
08/19/2025

Notary Public in and for Gallia, Meigs and Mason Counties

My commission expires on

The 7th day of January 20 30

OFFICIAL SEAL
NOTARY PUBLIC
STATE OF WEST VIRGINIA
Tina Kocher
510 Main Street
Pt Pleasant WV 25550
My Commission Expires January 7, 2030

Public Meeting Presentation 10/07/2025

West Virginia Department of Environmental Protection

Division of Air Quality

Public Meeting on MSG CNP 1, LLC BECCS Facility

Permit R13-3708

Joe Kessler, P.E., Ed Andrews, P.E.

October 7, 2025

west virginia department of environmental protection

WVDEP/DAQ Staff

WVDEP

- Terry Fletcher, Chief Communications Officer
- Carrie Jones, Public Information Specialist
- Dennis Stottlemyer, Acting Environmental Advocate

Division of Air Quality

- Laura Crowder, Director
- James Robertson, Deputy Director/Compliance & Enforcement
- Joe Kessler, NSR Program Manager
- Ed Andrews, Permit Engineer
- Nicole Ernest, Information Manager

Meeting Purpose

- Provide Information
- Answer Questions
- Accept Official Comments (Statutory Requirement)

  - No decision made this evening. All comments submitted prior to close of the comment period (verbal & written) will be reviewed and considered by staff and you will be notified of the agency's final determination.

Comment Period

- Opened August 19, 2025.
- Closes at 5 p.m., October 8, 2025.

- Email: Edward.S.Andrews@WV.gov with "MGS CNP1 - BECCS Comments" as the subject line, or

- Mail: WVDEP - Air Quality,
  Attention: Edward Andrews,
  601 57th Street SE,
  Charleston, WV 25304

Agenda

- DAQ Presentation
- Question/Answer Session (Write **questions** on notecards)
- Official Comments (Timed, verbal statements on draft permit for the record)
  - Please keep questions and comments relevant to air quality issues and the draft permit.
  - DAQ has no authority to factor in other important, but non-air quality related issues such as zoning, water quality/quantity, noise/light pollution, economics, etc.

Overview

- Permitting Process
- What Is Being Permitted?
- Permit Requirements
  - Limits/Monitoring/Testing
- Summary

Permitting Process

- Company applies for an air permit and publishes a legal ad, beginning a 30-day public comment period.
- Application is reviewed for completeness and company is notified of any deficiencies.
- Application undergoes a technical review to determine which air quality rules apply, and if the proposal meets those rules.

Permitting Process (cont'd.)

- If proposed project meets all applicable air quality rules, DAQ publishes a legal ad, beginning a second 30-day public comment period.

- At this time, a copy of the evaluation and draft permit is made available for public review.

  - All documents can be found under "Popular Searches" at: https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx

- After the close of the comment period, all comments received are reviewed and addressed, and DAQ takes final action.

Permitting Process (cont'd.)

- **Minor Source (45CSR13) Permitting Process: What it does do:**
  - Determine/enforce compliance with state/federal air quality rules and regulations.
  - Review and verify potential to emit of the facility is reasonable.
  - Develop requirements to enforce compliance with facility's proposed air emissions.
  - Provide framework of public notification/participation.

- **Minor Source (45CSR13) Permitting Process: What it does not do:**
  - Not designed to prevent industrial development.
  - Require a full Environmental Impact Statement (EIS) or require a cumulative impact analysis that includes nearby sources.
  - Address Greenhouse Gases (GHGs).
  - Take into consideration any other important but non-air quality benefits/impacts such as jobs, property values, traffic, zoning, national energy issues, economics of project, infrastructure, archaeology, etc.

Permitting Process (cont'd.)

- **Governing Statute for Permit Issuance (§45-13-5.7)**

  - ***"The Secretary <u>shall</u> issue such permit or registration unless he or she determines that the proposed construction, modification, registration or relocation will violate applicable emission standards, will interfere with attainment or maintenance of an applicable ambient air quality standard, cause or contribute to a violation of an applicable air quality increment, or be inconsistent with the intent and purpose of this rule or W. Va. Code § 22-5-1, et seq., in which case the Secretary shall issue an order denying such construction, modification, relocation and operation. The Secretary shall, to the extent possible, give priority to the issuance of any such permit so as to avoid undue delay and hardship."***

What is Being Permitted?

- Biomass boiler: 944 MMBtu/hr max heat input
- Natural gas generator: 3,000 horsepower (hp)
- Firewater pump: 614 hp
- Cooling tower & wastewater treatment
- Fuel & ash handling systems

Emission Controls for Boiler

- Baghouse Filter → Controls (reduces) Particulate Matter (dust/soot)
- Dry Sorbent Injection → Controls acid gases
- Selective Catalytic Reduction (SCR) → Controls Nitrogen Oxides (NOx)
- Oxidation Catalyst → Controls Carbon Monoxide (CO) & Volatile Organic Compounds (VOCs)
- Wet scrubber → Controls Sulfur Dioxide (SO_2)

Permit Limits

- Boiler: Can only burn biomass + natural gas (NG max 180 MMBtu/hr).
- Electricity generated by the boiler cannot be sold.
- Carbon Capture Unit limited to 7,937 hrs/year.
- NG generator & fire pump are limited to 100 hrs/year.

Proposed Emissions (tons per year)

Pollutant	Biomass Boiler	Facility Total	Major Source Threshold Levels
NO_x	90.42	90.90	100
CO	45.65	46.48	100
SO_2	50.78	50.79	100
PM	34.88	59.09	100
$PM_{10}/PM_{2.5}$	67.84	83.95/75.65	100
VOCs	19.04	36.46	100
H_2SO_4	27.87	27.87	N/A
Total HAPs	23.36	24.01	25

337 of 855

Applicable Requirements

- Particulate Matter (PM) Standard: 40 CFR 60 Subpart Db/40 CFR 63 Subpart JJJJJJ
  - 0.030 lb of PM/MMBtu

- Sulfur Dioxide (SO2) Standard: 40 CFR 60 Subpart Db
  - 0.32 lb of SO2/MMBtu

- Nitrogen Oxides (NOx) Standard: 40 CFR 60 Subpart Db
  - 0.20 lb of NOx/MMBtu

- Visible Emission (Opacity): 45 CSR 2
  - 10% Opacity

Monitoring Requirements

- Continuous NOx monitoring.
- Track temperatures, oxygen, pressure, flow.
- Baghouse leak detector.
- Track type/amount of fuel, heat content & sulfur content.
- Record hours for engines & carbon capture.
- Visible emissions from boiler.

Testing Requirements

- Initial tests for: PM, PM10, PM2.5, CO, SO_2, NOx, VOCs, HAPs.
  - Demonstrate compliance and establish operating limits.
- Retest at least once every 5 years (reverify operating limits).
- Additional PM tests if baghouse alarms trigger too often.
  - Greater than 5 percent of the operating time in a 30-day period.

Summary

- The draft permit allows this facility to be operated with a potential to emit (with controls) below major source threshold levels, making the facility an area source of HAPs and minor source of criteria pollutants.

- The DAQ will accept public comments until 5 p.m. on October 8, 2025.

- After October 8th, the DAQ will review and respond to all timely, air-quality related comments submitted and take final action on the draft permit.

Comment Period

- Opened August 19, 2025.
- Closes at 5 p.m., October 8, 2025.

- Email: Edward.S.Andrews@WV.gov with "MGS CNP1 - BECCS Comments" as the subject line, or

- Mail: WVDEP - Air Quality,
  Attention: Edward Andrews,
  601 57th Street SE,
  Charleston, WV 25304

Question & Answer

- Submit written questions; Staff will read aloud and provide a response.
  - Raise hand if you need assistance.

Official Comments

- Timed, verbal statements on draft permit for the record.
- Each commenter will have 5 minutes to speak.

5:00

Contact Information

- Email: Edward.S.Andrews@WV.gov with "MGS CNP1 - BECCS Comments" as the subject line, or

- Mail: WVDEP - Air Quality,
  Attention: Edward Andrews,
  601 57th Street SE,
  Charleston, WV 25304

Thank You!

Public Meeting Handout 10/7/2025

Proposed Air Quality Permit for MGS CNP 1, LLC

(Permit Application R13-3708)

Public Notice dates:

- DAQ Notice – August 19, 2025 (start of official comment period)
- Extension Notice – September 23, 2025

Written comments due by:

5 p.m. on Wednesday, October 8, 2025. Submit by:

- Email: Edward.s.andrews@WV.gov with "MGS CNP1 - BECCS Comments" as the subject line, or
- Mail: WVDEP - Air Quality, Attention: Edward Andrews, 601 57th Street SE, Charleston, WV 25304

How can I review documents?

The application is available at: https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx → "Popular Searches" → "MGS CNP1, LLC; BECCS Plant".

What is the purpose of this public meeting?

- Provide information and answer questions about the air quality application
- Accept official comments related to the application and air quality issues
- Only written comments submitted by the deadline or spoken comments provided at the meeting will be considered.

Applicant:

MGS CNP 1, LLC, is a subsidiary of Fidelis New Energy, LLC.

Proposed Location:

5801 Ohio River Road, Pleasant, W.Va. (North of Mason County Airport, next to Steel Specialties) – see map on back of sheet.

What is proposed?

- Construction/operation of biomass fired boiler (944 MMBtu/hr max heat input) for the purpose of generating electricity not for sale.
- Fuel limited to clean biomass (woodchips, brush, yard waste, etc.) and natural gas (NG capped at 180 MMBtu/hr).
- The steam generated runs a turbine to produce electricity, which powers equipment at the facility (e.g., carbon capture unit).

How is the air quality in Mason County?

Mason County currently meets all federal air quality standards ("In Attainment").

Proposed emissions:

Pollutant	Emission Rate (tons per year)	
	Biomass Boiler	Facility Total
Particulate Matter (PM)	34.88	59.09
$PM_{10}/PM_{2.5}$	67.84	83.95/75.65
Sulfur Dioxide (SO_2)	50.78	50.79
Nitrogen Oxides (NO_X)	90.42	90.90
Carbon Monoxide (CO)	45.65	46.48
Volatile Organic Compounds (VOCs)	19.04	36.46
Sulfuric Acid Mist (H_2SO_4)	27.87	27.87
Hydrogen Chloride (HCl)	5.65	6.22
Total Hazardous Air Pollutants (HAPs)	23.36	24.01

Applicable Rules/Regulations:

The Biomass Boiler is subject to several state rules and federal regulations and the following emission standards:

Pollutant	Standard	Regulation
PM	0.030 lb/MMBtu	Subpart Db
NO_x	0.20 lb/MMBtu	Subpart Db
SO_2	0.32 lb/MMBtu	Subpart Db
Opacity	10%	State Rule 2

No state or federal emission limits for H_2SO_4 or HCl.

What DAQ Does Not Regulate:

- Noise, lighting, zoning/siting, or local building codes
- Pipeline siting (only air emissions from pipeline equipment are regulated by the DAQ)
- Water use, wastewater, waste disposal, CO_2 injection wells (regulated by WVDEP's Division of Water & Waste Management)
- Chemical safety under the Federal Risk Management Program (U.S. EPA jurisdiction)

What about the Hydrogen Plant?

The proposed Hydrogen (H2) Plant is not part of this permit. It has a separate application (R13-3724) that has been deemed incomplete and not yet under DAQ review.

How can one stay informed of other actions made by the WVDEP?

- Subscribe to WVDEP Public Notice email listserv:

  https://apps.dep.wv.gov/listserv/?window=archive&listID=1

- Also, the DAQ maintains a list of current permit applications that is updated daily at:

  https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx

Key Principles for Effective Comments:

- **Focus on This Permit:** Comments should relate directly to the proposed facility and the air quality permit under review. Broader concerns, such as unrelated projects or general policy issues, are outside the scope of this decision.
- **Stay Within WVDEP-DAQ's Authority:** The most helpful comments request actions WVDEP-DAQ can legally take. For example, asking DAQ to review emissions calculations or to deny a permit if an air standard would be exceeded is within our authority. Asking DAQ to deny or approve a permit based on issues or information outside of our authority, or to stop a separate, unrelated facility, is not.
- **Provide New or Relevant Information:** Effective comments bring forward information not already in the record. This can include:
  - Specific data or studies that challenge or support the applicant's claims.
  - Observations about conditions near the site that the application may not have addressed.
  - References to rules, standards, or policies that may apply but were not discussed in the application.

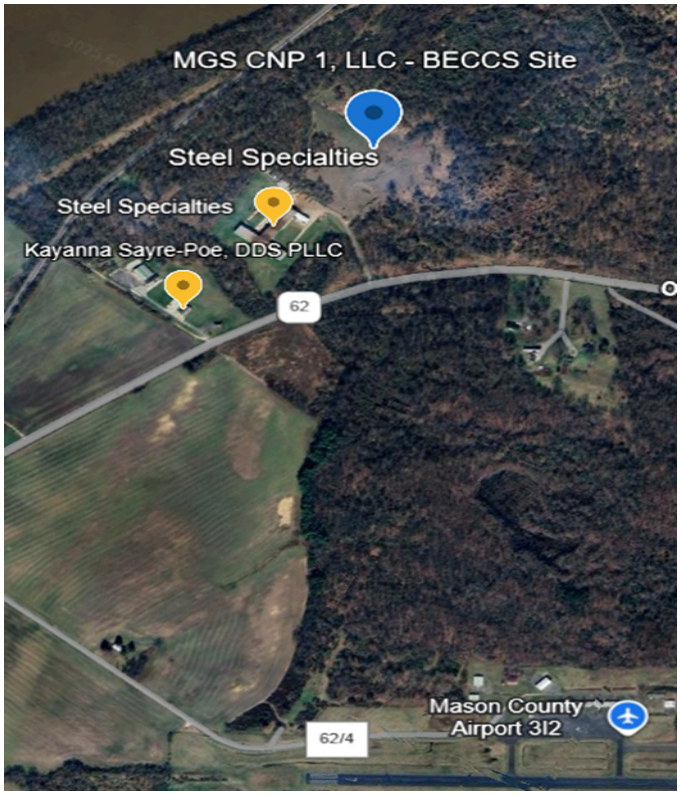

Figure 1 - Map of MGS CNP 1 Proposed BECCS Site

Public Meeting Notice & Affidavit

AIR QUALITY PERMIT NOTICE

Notice of Public Meeting and Extension to the Comment Period

On February 24, 2025, MGS CNP 1, LLC applied to the WV Department of Environmental Protection (WVDEP), Division of Air Quality (DAQ) for a construction permit for the installation and operation of a biomass boiler for the purpose of generating electricity with a carbon capture unit to be located near 5801 Ohio River Road, Point Pleasant, Mason County, WV, at latitude 38.92450 and longitude -82.10822. On August 19, 2025, the DAQ notified the public that a preliminary evaluation has determined that all State and Federal air quality requirements will be met by the proposed facility and made available a draft permit and engineering evaluation. The DAQ is now providing notice to the public of a public meeting and an extension to the comment period for permit application R13-3708.

The DAQ will hold an in-person public meeting to provide information, answer questions, and accept oral comments for the record for this permitting action. The meeting will be held at the Mason County Courthouse, 200 Sixth Street, Point Pleasant, WV 25550, on Tuesday, October 7, 2025, at 6:00 p.m. Doors will open at 5:30 p.m. to register Attendees.

If you plan to attend the in-person public meeting, to save time and ensure all participants in attendance are registered, please fill out the pre-registration form at <https://forms.gle/e7gmt8WxugthGEfbA> by 5:00 p.m. on Monday, October 6, 2025. While pre-registration is not required, it is encouraged to save time and ensure all participants in attendance are registered. To register to ask questions and/or provide oral comments, please indicate “yes” that you want to ask a question and/or provide oral comments for the record when you register. A confirmation email will be sent with your responses when you register. If you do not have internet access and want to register via telephone, please contact Nicole Ernest at (304) 926-0499 x41256. Oral comments are limited to five (5) minutes.

The purpose of the DAQ’s permitting process is to determine if the proposed facilities will meet all state and federal requirements. The purpose of the public review process is to provide information and accept public comments on air quality issues relevant to this determination. Only written comments received at the addresses noted below within the specified time frame, or comments presented orally at the public meeting, will be considered prior to final action on the permits. All such comments will become part of the public record.

The public comment period has been extended to 5:00 p.m. on Wednesday, October 8, 2025. Written comments may be submitted by:

Email: Edward.s.andrews@WV.gov with "MGS CNP1 - BECCS Comments" as the subject line, or

Mail: WVDEP - Air Quality, Attention: Edward Andrews, 601 57th Street SE, Charleston, WV 25304.

Instructions for downloading additional information, including copies of the draft permits, applications, and all other supporting materials relevant to the permit decisions, are available at: https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx.

River Cities Tribune & Register

WV News
PO Box 2000
Clarksburg, WV 26302-2000
(304) 626-1400
classifieds@wvnews.com

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SEP 24 2025
WV DEP / DIV OF AIR QUALITY

Advertising Invoice

WV DEPARTMENT OF ENVIRONMENTAL P
601 57TH ST SE
CHARLESTON, WV 25304

Acct#:60477
Ad#:1485736
Phone#:304-788-5886
Date:09/23/25

Salesperson: CWILKINSON | Classification: River City Tribune Legal | Ad Size: 1 x 1.0

Advertisement Information: AIR QUALITY PERMIT NOTICE

Description	Start	Stop	Ins.	Cost/Day	Total
River Cities Classified	09/23/2025	09/23/2025	1	41.31	41.31
Affidavit Fee	-	-	-	-	10.00

Payment Information:

Date:	Order#	Type
09/23/2025	1485736	BILLED ACCOUNT

Total Amount: 51.31
Amount Due: 51.31

Attention: Please return the top portion of this invoice with your payment including account and ad number.

Ad Copy

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Ad#1485736

PUBLISHER'S CERTIFICATE

I, Carole Wilkinson,
Classified Manager of THE RIVER CITIES TRIBUNE, a newspaper of general circulation published in the city of Gallipolis, Gallia Co. OH, Pomeroy, Meigs Co. OH, and Point Pleasant, Mason Co. WV, County and state aforesaid, do hereby certify that the annexed:

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The publisher's fee for said publication is: $51.31.

Classified Manager of
THE RIVER CITIES TRIBUNE

Subscribed to and sworn to before me this
09/23/2025

Notary Public in and for Gallia, Meigs and Mason Counties

My commission expires on
The 7th day of Jan 20 30

OFFICIAL SEAL
NOTARY PUBLIC
STATE OF WEST VIRGINIA
Tina Kocher
510 Main Street
Pt Pleasant WV 25550
My Commission Expires January 7, 2030

IPR Documents R13-3708

Andrews, Edward S <edward.s.andrews@wv.gov>

West Virginia Air Quality Permit Issued

1 message

Mink, Stephanie R <stephanie.r.mink@wv.gov> Thu, Nov 20, 2025 at 1:28 PM
To: jack.calhoun@fidelisinfra.com, Michael Dearing <Michael.Dearing@erm.com>, anand.rathinasamy@erm.com
Cc: Joseph R Kessler <joseph.r.kessler@wv.gov>, "Andrews, Edward S" <edward.s.andrews@wv.gov>

Permit Issued
MGS CNP 1, LLC; BECCS
Permit Application No. R13-3708
Plant ID No. 053-00134

Mr. Calhoun:

Your application for a permit as required by Section 5 of 45CSR13 - "Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Administrative Updates, Temporary Permits, General Permit Registrations, and Procedures for Evaluation" **has been approved**.

The attached R13-3708 is hereby issued pursuant to Subsection 5.7 of 45CSR13. Please be aware of the notification requirements in the permit which pertain to commencement of construction, modification, or relocation activities; startup of operations; and suspension of operations.

As specified in Section 2 of the permit, approval of this permit does not relieve the permittee of the responsibility to apply for and obtain all other permits, licenses and/or approvals from other agencies; i.e., local, state and federal, which may have jurisdiction over the construction and/or operation of the source(s) and/or facility herein permitted.

A copy of the signed permit can be sent via USPS upon request, by contacting Stephanie Mink at (304) 926-0499 ext. 41281.

Any person whose interest may be affected, including, but not necessarily limited to, the applicant and any person who participated in the public comment process, by a permit issued, modified or denied by the Secretary may appeal such action of the Secretary to the Air Quality Board pursuant to article one [§§22B-1-1 et seq.], Chapter 22B of the Code of West Virginia. West Virginia Code §§22-5-14.

Should you have any questions, please contact Ed Andrews at 304-926-0499 ext. 41244.

--

Stephanie Mink

Environmental Resources Associate

West Virginia Department of Environmental Protection

Division of Air Quality, Title V & NSR Permitting

601 57th Street SE

Charleston, WV 25304

Phone: 304-926-0499 x41281

053-00134_PERM_R13-3708-review-final.pdf
764K

UC Defaulted Accounts Search 11/10/2025

Monday, November 10, 2025 8:50 AM

UC Defaulted Accounts Search Results

Sorry, no records matching your criteria were found.

FEIN:
Business name: MGS CNP 1
Doing business as/Trading as:

Please use your browsers back button to try again.

WorkforceWV	Unemployment Compensation	Offices of the Insurance Commissioner

PM Affidavit

Wednesday, September 24, 2025 8:43 AM

Andrews, Edward S <edward.s.andrews@wv.gov>

MGS public meeting affidavit

1 message

Mink, Stephanie R <stephanie.r.mink@wv.gov> Wed, Sep 24, 2025 at 8:41 AM
To: Edward Andrews <edward.s.andrews@wv.gov>
Cc: Nicole D Ernest <nicole.d.ernest@wv.gov>

Please see attached.

--

Stephanie Mink

Environmental Resources Associate

West Virginia Department of Environmental Protection

Division of Air Quality, Title V & NSR Permitting

601 57th Street SE

Charleston, WV 25304

Phone: 304-926-0499 x41281

River Cities - MGS public meeting affidavit - Ed.pdf
200K

River Cities
- MGS pu...

River Cities Tribune & Register

WV News
PO Box 2000
Clarksburg, WV 26302-2000
(304) 626-1400
classifieds@wvnews.com

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Subscribed to and sworn to before me this
09/23/2025

Notary Public in and for Gallia, Meigs and Mason Counties

My commission expires on

The 7th day of Jan 20 30

OFFICIAL SEAL
NOTARY PUBLIC
STATE OF WEST VIRGINIA
Tina Kocher
510 Main Street
Pt Pleasant WV 25550
My Commission Expires January 7, 2030

MGS CNP 1
- PM Pres...

West Virginia Department of Environmental Protection

Division of Air Quality
Public Meeting on MSG CNP 1, LLC BECCS Facility
Permit R13-3708

Joe Kessler, P.E., Ed Andrews, P.E.
October 7, 2025

dep
west virginia department of environmental protection

WVDEP/DAQ Staff

dep

WVDEP

- Terry Fletcher, Chief Communications Officer
- Carrie Jones, Public Information Specialist
- Dennis Stottlemyer, Acting Environmental Advocate

Division of Air Quality

- Laura Crowder, Director
- James Robertson, Deputy Director/Compliance & Enforcement
- Joe Kessler, NSR Program Manager
- Ed Andrews, Permit Engineer
- Nicole Ernest, Information Manager

2

Meeting Purpose

- Provide Information
- Answer Questions
- Accept Official Comments (Statutory Requirement)
  - ➢ No decision made this evening. All comments submitted prior to close of the comment period (verbal & written) will be reviewed and considered by staff and you will be notified of the agency's final determination.

3

Comment Period

- Opened August 19, 2025.
- Closes at 5 p.m., October 8, 2025.
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- Mail: WVDEP - Air Quality,
  Attention: Edward Andrews,
  601 57th Street SE,
  Charleston, WV 25304

4

Agenda

- DAQ Presentation
- Question/Answer Session (Write **questions** on notecards)
- Official Comments (Timed, verbal statements on draft permit for the record)
  - Please keep questions and comments relevant to air quality issues and the draft permit.
  - DAQ has no authority to factor in other important, but non-air quality related issues such as zoning, water quality/quantity, noise/light pollution, economics, etc.

5

Overview

- Permitting Process
- What Is Being Permitted?
- Permit Requirements
  - Limits/Monitoring/Testing
- Summary

6

Permitting Process

- Company applies for an air permit and publishes a legal ad, beginning a 30-day public comment period.
- Application is reviewed for completeness and company is notified of any deficiencies.
- Application undergoes a technical review to determine which air quality rules apply, and if the proposal meets those rules.

7

Permitting Process (cont'd.)

- If proposed project meets all applicable air quality rules, DAQ publishes a legal ad, beginning a second 30-day public comment period.
- At this time, a copy of the evaluation and draft permit is made available for public review.
  - All documents can be found under "Popular Searches" at: https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx
- After the close of the comment period, all comments received are reviewed and addressed, and DAQ takes final action.

8

Permitting Process (cont'd.)

- **Minor Source (45CSR13) Permitting Process: What it does do:**
  - Determine/enforce compliance with state/federal air quality rules and regulations.
  - Review and verify potential to emit of the facility is reasonable.
  - Develop requirements to enforce compliance with facility's proposed air emissions.
  - Provide framework of public notification/participation.

- **Minor Source (45CSR13) Permitting Process: What it does not do:**
  - Not designed to prevent industrial development.
  - Require a full Environmental Impact Statement (EIS) or require a cumulative impact analysis that includes nearby sources.
  - Address Greenhouse Gases (GHGs).
  - Take into consideration any other important but non-air quality benefits/impacts such as jobs, property values, traffic, zoning, national energy issues, economics of project, infrastructure, archaeology, etc.

9

Permitting Process (cont'd.)

- **Governing Statute for Permit Issuance (§45-13-5.7)**

  - ***"The Secretary shall issue such permit or registration unless he or she determines that the proposed construction, modification, registration or relocation will violate applicable emission standards, will interfere with attainment or maintenance of an applicable ambient air quality standard, cause or contribute to a violation of an applicable air quality increment, or be inconsistent with the intent and purpose of this rule or W. Va. Code § 22-5-1, et seq., in which case the Secretary shall issue an order denying such construction, modification, relocation and operation. The Secretary shall, to the extent possible, give priority to the issuance of any such permit so as to avoid undue delay and hardship."***

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What is Being Permitted?

- Biomass boiler: 944 MMBtu/hr max heat input
- Natural gas generator: 3,000 horsepower (hp)
- Firewater pump: 614 hp
- Cooling tower & wastewater treatment
- Fuel & ash handling systems

11

Emission Controls for Boiler

- Baghouse Filter → Controls (reduces) Particulate Matter (dust/soot)
- Dry Sorbent Injection → Controls acid gases
- Selective Catalytic Reduction (SCR) → Controls Nitrogen Oxides (NOx)
- Oxidation Catalyst → Controls Carbon Monoxide (CO) & Volatile Organic Compounds (VOCs)
- Wet scrubber → Controls Sulfur Dioxide (SO_2)

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Permit Limits

- Boiler: Can only burn biomass + natural gas (NG max 180 MMBtu/hr).
- Electricity generated by the boiler cannot be sold.
- Carbon Capture Unit limited to 7,937 hrs/year.
- NG generator & fire pump are limited to 100 hrs/year.

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Proposed Emissions (tons per year)

Pollutant	Biomass Boiler	Facility Total	Major Source Threshold Levels
NO_x	90.42	90.90	100
CO	45.65	46.48	100
SO_2	50.78	50.79	100
PM	34.88	59.09	100
$PM_{10}/PM_{2.5}$	67.84	83.95/75.65	100
VOCs	19.04	36.46	100
H_2SO_4	27.87	27.87	N/A
Total HAPs	23.36	24.01	25

14

Applicable Requirements

- Particulate Matter (PM) Standard: 40 CFR 60 Subpart Db/40 CFR 63 Subpart JJJJJJ
  - 0.030 lb of PM/MMBtu
- Sulfur Dioxide (SO2) Standard: 40 CFR 60 Subpart Db
  - 0.32 lb of SO2/MMBtu
- Nitrogen Oxides (NOx) Standard: 40 CFR 60 Subpart Db
  - 0.20 lb of NOx/MMBtu
- Visible Emission (Opacity): 45 CSR 2
  - 10% Opacity

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Monitoring Requirements

- Continuous NOx monitoring.
- Track temperatures, oxygen, pressure, flow.
- Baghouse leak detector.
- Track type/amount of fuel, heat content & sulfur content.
- Record hours for engines & carbon capture.
- Visible emissions from boiler.

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Testing Requirements

- Initial tests for: PM, PM10, PM2.5, CO, SO_2, NOx, VOCs, HAPs.
  - Demonstrate compliance and establish operating limits.
- Retest at least once every 5 years (reverify operating limits).
- Additional PM tests if baghouse alarms trigger too often.
  - Greater than 5 percent of the operating time in a 30-day period.

17

Summary

- The draft permit allows this facility to be operated with a potential to emit (with controls) below major source threshold levels, making the facility an area source of HAPs and minor source of criteria pollutants.
- The DAQ will accept public comments until 5 p.m. on October 8, 2025.
- After October 8th, the DAQ will review and respond to all timely, air-quality related comments submitted and take final action on the draft permit.

18

Comment Period

- Opened August 19, 2025.
- Closes at 5 p.m., October 8, 2025.

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- Mail: WVDEP - Air Quality,
  Attention: Edward Andrews,
  601 57th Street SE,
  Charleston, WV 25304

19

Question & Answer

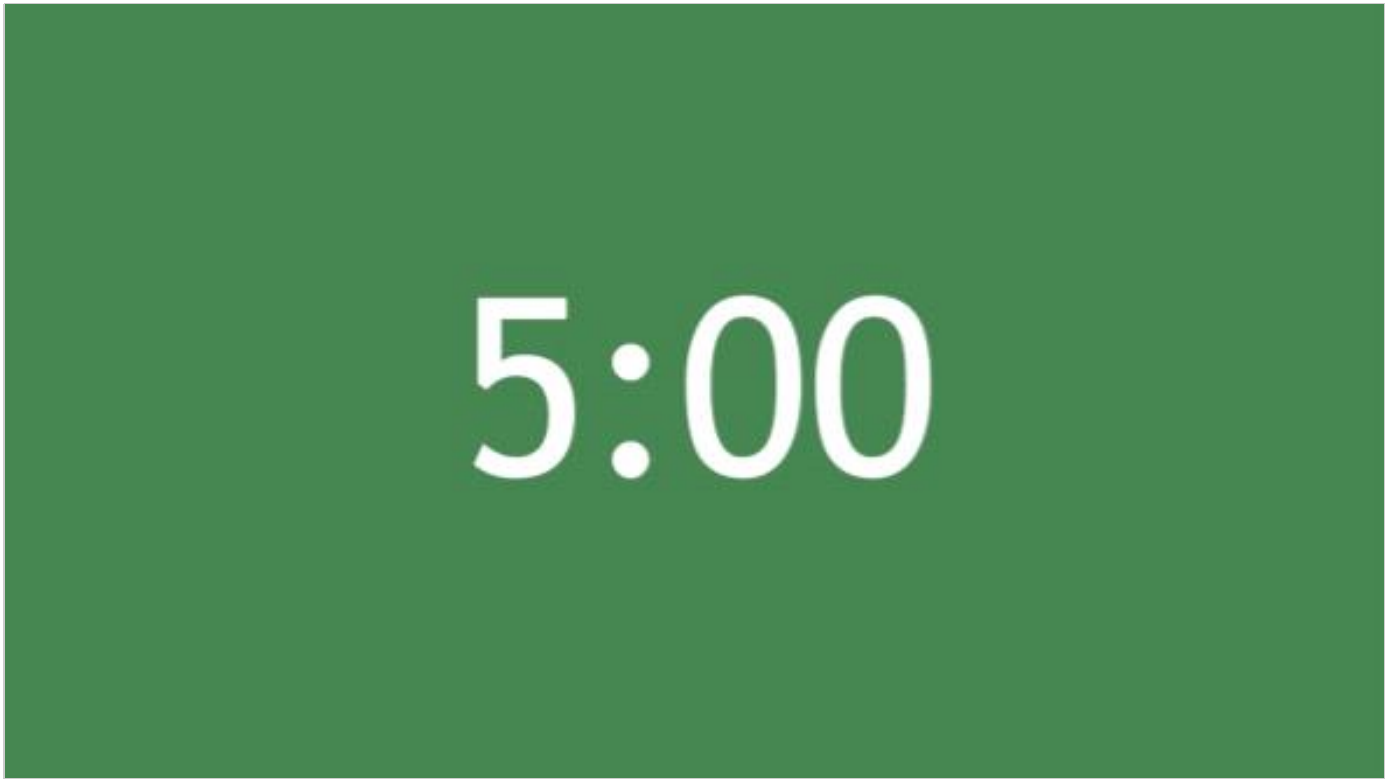
- Submit written questions; Staff will read aloud and provide a response.
  - Raise hand if you need assistance.

20

Official Comments

- Timed, verbal statements on draft permit for the record.
- Each commenter will have 5 minutes to speak.

21



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Thank You!

22

MGS CNP1
Public Me...

Proposed Air Quality Permit for MGS CNP 1, LLC

(Permit Application R13-3708)

Public Notice dates:

- DAQ Notice – August 19, 2025 (start of official comment period)
- Extension Notice – September 23, 2025

Written comments due by:

5 p.m. on Wednesday, October 8, 2025. Submit by:

- Email: Edward.s.andrews@WV.gov with "MGS CNP1 - BECCS Comments" as the subject line, or
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How can I review documents?

The application is available at: https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx → "Popular Searches" → "MGS CNP1, LLC; BECCS Plant".

What is the purpose of this public meeting?

- Provide information and answer questions about the air quality application
- Accept official comments related to the application and air quality issues
- Only written comments submitted by the deadline or spoken comments provided at the meeting will be considered.

Applicant:

MGS CNP 1, LLC, is a subsidiary of Fidelis New Energy, LLC.

Proposed Location:

5801 Ohio River Road, Pleasant, W.Va. (North of Mason County Airport, next to Steel Specialties) – see map on back of sheet.

What is proposed?

- Construction/operation of biomass fired boiler (944 MMBtu/hr max heat input) for the purpose of generating electricity not for sale.
- Fuel limited to clean biomass (woodchips, brush, yard waste, etc.) and natural gas (NG capped at 180 MMBtu/hr).
- The steam generated runs a turbine to produce electricity, which powers equipment at the facility (e.g., carbon capture unit).

How is the air quality in Mason County?

Mason County currently meets all federal air quality standards ("In Attainment").

Proposed emissions:

Pollutant	Emission Rate (tons per year)	
	Biomass Boiler	Facility Total
Particulate Matter (PM)	34.88	59.09
$PM_{10}/PM_{2.5}$	67.84	83.95/75.65
Sulfur Dioxide (SO_2)	50.78	50.79
Nitrogen Oxides (NO_X)	90.42	90.90
Carbon Monoxide (CO)	45.65	46.48
Volatile Organic Compounds (VOCs)	19.04	36.46
Sulfuric Acid Mist (H_2SO_4)	27.87	27.87
Hydrogen Chloride (HCl)	5.65	6.22
Total Hazardous Air Pollutants (HAPs)	23.36	24.01

Applicable Rules/Regulations:

The Biomass Boiler is subject to several state rules and federal regulations and the following emission standards:

Pollutant	Standard	Regulation
PM	0.030 lb/MMBtu	Subpart Db
NO_x	0.20 lb/MMBtu	Subpart Db
SO_2	0.32 lb/MMBtu	Subpart Db
Opacity	10%	State Rule 2

No state or federal emission limits for H_2SO_4 or HCl.

What DAQ Does Not Regulate:

- Noise, lighting, zoning/siting, or local building codes
- Pipeline siting (only air emissions from pipeline equipment are regulated by the DAQ)
- Water use, wastewater, waste disposal, CO_2 injection wells (regulated by WVDEP's Division of Water & Waste Management)
- Chemical safety under the Federal Risk Management Program (U.S. EPA jurisdiction)

What about the Hydrogen Plant?

The proposed Hydrogen (H2) Plant is not part of this permit. It has a separate application (R13-3724) that has been deemed incomplete and not yet under DAQ review.

How can one stay informed of other actions made by the WVDEP?

- Subscribe to WVDEP Public Notice email listserv:

  https://apps.dep.wv.gov/listserv/?window=archive&listID=1

- Also, the DAQ maintains a list of current permit applications that is updated daily at:

  https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx

Key Principles for Effective Comments:

- **Focus on This Permit:** Comments should relate directly to the proposed facility and the air quality permit under review. Broader concerns, such as unrelated projects or general policy issues, are outside the scope of this decision.
- **Stay Within WVDEP-DAQ's Authority:** The most helpful comments request actions WVDEP-DAQ can legally take. For example, asking DAQ to review emissions calculations or to deny a permit if an air standard would be exceeded is within our authority. Asking DAQ to deny or approve a permit based on issues or information outside of our authority, or to stop a separate, unrelated facility, is not.
- **Provide New or Relevant Information:** Effective comments bring forward information not already in the record. This can include:
  - Specific data or studies that challenge or support the applicant's claims.
  - Observations about conditions near the site that the application may not have addressed.
  - References to rules, standards, or policies that may apply but were not discussed in the application.

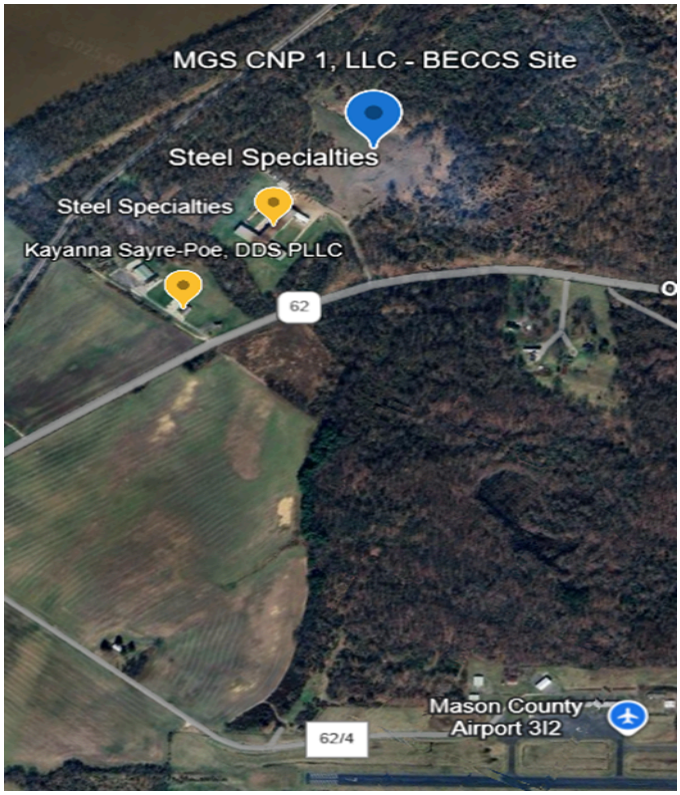

Figure 1 - Map of MGS CNP 1 Proposed BECCS Site

west virginia department of environmental protection

WVDEP - Air Quality In-Person Public Meeting for MGS CNP 1, LLC's Proposed Air Quality Permit R13-3708
Tuesday, October 7, 2025, at 6:00 PM: Mason County Courthouse, 200 Sixth Street, Point Pleasant, WV 25550

Page 1 of 2

PRE-REGISTRATION SIGN-IN SHEET

The Department of Environmental Protection requests the information below so that agency staff can provide responses and information to you.
The information you voluntarily provide on this sheet becomes part of the public record related to this topic and may be released if requested under the Freedom of Information Act.

Last Name, First Name	Group or Organization	Signature	Question (Y/N)	Comment (Y/N)
Bush, Jason			No	No
Bush, Sabrina			No	No
Darst, Mary			No	No
Darst, Paul			No	No
Eshenaur, Maria			No	No
Flowers, Teresa			No	No
Frame, Marsha			Yes	Yes
Frame, Randy			No	No
Jeffers, Josh			Yes	Yes
King, Morgan	West Virginia Citizen Action		Yes	Yes

west virginia department of environmental protection

WVDEP - Air Quality In-Person Public Meeting for MGS CNP 1, LLC's Proposed Air Quality Permit R13-3708
Tuesday, October 7, 2025, at 6:00 PM: Mason County Courthouse, 200 Sixth Street, Point Pleasant, WV 25550

Page 2 of 2

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Last Name, First Name	Group or Organization	Signature	Question (Y/N)	Comment (Y/N)
Lieving, Elizabeth			No	No
Matheny, Carl			Yes	Yes
Matheny, Elaine			Yes	Yes
Mullins, Howard			Yes	Yes
Pyle, James			No	No
Turnbull, Greta			Yes	No

west virginia department of environmental protection

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Tuesday, October 7, 2025, at 6:00 PM: Mason County Courthouse, 200 Sixth Street, Point Pleasant, WV 25550

SIGN-IN SHEET

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Name (First and Last)	Group or Organization	Email Address: PLEASE PRINT NEATLY	Comment (Y/N)
Rhonda Cross		rhocro @ yahoo.com	
Charise Robinson		crobinson @ wvrivers.org	
Virginia Huffman		gshuffman1@ gmail.com	no
Shawn Huffman		"	no
Doug Mitchell			NO
Zachary Atkins	Valley Fire Marion	Z.Atkins@ValleyVFD.com	NO
Alex Cole		alexcole989@ gmail	No
Candice Grigsby		k13grigsby@gmail.com	YES
David Grigsby		[illegible]	[illegible]
Jason Shepherd		[illegible]	YES
			NO

west virginia department of environmental protection

WVDEP - Air Quality In-Person Public Meeting for MGS CNP 1, LLC's Proposed Air Quality Permit R13-3708
Tuesday, October 7, 2025, at 6:00 PM: Mason County Courthouse, 200 Sixth Street, Point Pleasant, WV 25550

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Name (First and Last)	Group or Organization	Email Address: PLEASE PRINT NEATLY	Comment (Y/N)
Paul Nichols			N
Lani Wean	Moms Clean air force	lwean@momscleanairforce.org	N
Elizabeth Knapp		Elizabethknapp11@yahoo.com	N
Beulah Thorne		"	
James Knapp		Elizabeth knapp 11@yahoo.com	N
Eric S. Tarr	WV State Senate	Eric.Tarr@WVSenate.gov	✓
Amy Mullins	Resident in Area	abundette75@yahoo.com	N
Sarah Stephens	Area resident	sarahestephens@yahoo.com	N
Jean Butler	House of Delegates	[illegible]	N
Evan Wilson		[illegible]	✓

west virginia department of environmental protection

WVDEP - Air Quality In-Person Public Meeting for MGS CNP 1, LLC's Proposed Air Quality Permit R13-3708
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Name (First and Last)	Group or Organization	Email Address: PLEASE PRINT NEATLY	Comment (Y/N)
Jonathan Pierson	WV House	JonathanPierson@yahoo.com	N

SKM_C750
i2510081...

What are your plans for keeping these [illegible] maintained?

How are these proposed emmissions even calculated not knowing exactly what the plant will even release.

What impacts could happen to surrounding areas if your system fails?

The plant put all these extra "pratices" inplace for a "safe" plant, why here? We already have enough plants in our area.

The Gavin Power Plant is located in Cheshire, OH. Is there any consideration for those pollutants PLUS the new proposed Pleasant facility's impact on the air quality for our area? OH DEP vs. WVDEP.

1. Will the facility be subject to title V permitting?
2. What is the source of the natural gas for startup?
3. Why was AP-42 not used for all emmissions factors? (specifically VOCs)
4. What is the expected carbon capture rate?
5. Can the public access air monitoring data (i.e. NOx)?

What setback / stack height will be required to keep air quality from the biomass boiler and ash emissions within safe limits for nearby homes? What penalty will be given if these emission standards are violated?

Since the Biomass Boiler will be classified as a minor source and from what we hear will Hopefully burn clean wood chips what is the expected Air Quality impact from the ash, emissions?
- And are there specific limits or testing requirements for particulate matter or Heavy metals in the fly ash and bottom ash?
- Also will stack testing for particulate matter or visible emissions be required annually or only at initional setup? *
- If the company does not comply what would the penality be? Please Dont tell me just a fine and let them continue polluting the air we breath * 75 yrs

1. Where will the facility be sourcing the Wood chips, and how can we ensure they are clean?

2. Why is the source of the wood chips classified as confidential business information?

Who monitors the emissions from this facility? The WVDEP or are you taking the word of the Corporation?

How much experience does WVDEP have with this type of industry?

How long after the close of comments is the final determination made?

Are the air emissions from the gas generator included in the permit

Source of Biomass?

- What is the schedule for air quality testing and where will testing take place?
- How will test results be distinguished from other nearby facilities (coal power plants)?
- Can higher than proposed emissions be blamed on other plants for this facility to avoid being required to obtain major source status?

Which newspaper ~~is~~ are the ads published in for this area?

How can we get a full Environmental Impact analysis?

What does the statement that M.C. meets federal air quality standards "in attainment"

Where has carbon capture been successful?

DAQ Affidavit 8/25/2025

Monday, August 25, 2025 1:16 PM

Andrews, Edward S <edward.s.andrews@wv.gov>

River Cities affidavit

1 message

Mink, Stephanie R <stephanie.r.mink@wv.gov> Mon, Aug 25, 2025 at 1:13 PM
To: Edward Andrews <edward.s.andrews@wv.gov>

Please see attached.

--

Stephanie Mink

Environmental Resources Associate

West Virginia Department of Environmental Protection

Division of Air Quality, Title V & NSR Permitting

601 57th Street SE

Charleston, WV 25304

Phone: 304-926-0499 x41281

River Cities - MGS CNP1 (13-3708) affidavit - Ed.pdf
267K

River Cities
- MGS CN...

River Cities
Tribune & Register

WV News
PO Box 2000
Clarksburg, WV 26302-2000
(304) 626-1400
classifieds@wvnews.com

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AUG 22 2025
WV DEP / DIV OF AIR QUALITY

Advertising Invoice

WV DEP - AIR QUALITY
DIVISION OF AIR QUALITY
601 57TH ST SE
CHARLESTON, WV 25304

Acct#:27207
Ad#:1481946
Phone#:304
Date:08/19/25

Salesperson: CHARDY | Classification: River City Tribune Legal | Ad Size: 1 x 417.0

Advertisement Information: AIR QUALITY PERMIT NOTICE

Description	Start	Stop	Ins.	Cost/Day	Total
River Cities Classified	08/19/2025	08/19/2025	1	35.45	35.45
Affidavit Fee	-	-	-	-	10.00

Payment Information:

Date:	Order#	Type
08/19/2025	1481946	BILLED ACCOUNT

Total Amount: 45.45
Amount Due: 45.45

Attention: Please return the top portion of this invoice with your payment including account and ad number.

Ad Copy

RECEIVED
AUG 22 2025
WV DEP / DIV OF AIR QUALITY

AIR QUALITY PERMIT NOTICE
Notice of Open Comment Period

On February 24, 2025, MGS CNP 1, LLC applied to the WV Department of Environmental Protection, Division of Air Quality (DAQ) for a construction permit for the installation and operation of a biomass boiler for purpose to generate electricity with a carbon capture unit to be located near 5801 Ohio River Road, Point Pleasant, Mason County, WV, at latitude 38.92450 and longitude -82.10822. A preliminary evaluation has determined that all State and Federal air quality requirements will be met by the proposed construction. The DAQ is providing notice to the public of an open comment period for permit application R13-3708.

The following potential emissions, which includes fugitives, will be authorized by this permit action: Particulate Matter less than 2.5 microns, 75.65 tons per year (TPY); Particulate Matter less than 10 microns, 83.95 tons per year (TPY); and Particulate Matter, 59.09 TPY; Oxides of Nitrogen, 90.90 TPY; Carbon Monoxide, 46.48 TPY; Sulfur Dioxide, 50.79 TPY; Volatile Organic Compounds, 55.78 TPY; Sulfuric Acid Mist, 27.87 and Total Hazardous Air Pollutants, 24.01 TPY of which 8.15 tons of Acetaldehyde and 6.22 tons of Hydrogen Chloride.

Written comments or requests for a public meeting must be received by the DAQ before 5:00 p.m. on Thursday, September 18, 2025. A public meeting may be held if the Director of the DAQ determines that significant public interest has been expressed, in writing, or when the Director deems it appropriate.

According to information given in the permit application, start-up of the facility was estimated by the applicant to be January 1, 2029. The purpose of the DAQ's permitting process is to make a preliminary determination if the proposed construction will meet all state and federal air quality requirements. The purpose of the public review process is to accept public comments on air quality issues relevant to this determination. Only written comments received at the address noted below within the specified time frame, or comments presented orally at a scheduled public meeting, will be considered prior to final action on the permit. All such comments will become part of the

meeting, will be considered prior to final action on the permit. All such comments will become part of the public record.

Edward Andrews, P.E.
WV Department of Environmental Protection
Division of Air Quality
601 57th Street, SE
Charleston, WV 25304
Telephone: 304/926-0499, ext. 41244
Email: edward.s.andrews@wv.gov

Additional information, including copies of the draft permit, application and all other supporting materials relevant to the permit decision may be obtained by contacting the engineer listed above. The draft permit and engineering evaluation can be downloaded at:

https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx

Ad#1481946

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AUG 22 2025
WV DEP / DIV OF AIR QUALITY

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WV DEP / DIV OF AIR QUALITY

PUBLISHER'S CERTIFICATE

I, Tamra Lawson,
Classified Manager of THE RIVER CITIES TRIBUNE, a newspaper of general circulation published in the city of Gallipolis, Gallia Co. OH, Pomeroy, Meigs Co. OH, and Point Pleasant, Mason Co. WV, County and state aforesaid, do hereby certify that the annexed:

AIR QUALITY PERMIT NOTICE

Ad# 1481946

was published in THE RIVER CITIES TRIBUNE 1 time(s) commencing on 08/19/2025 and ending on 08/19/2025 at the request of

WV DEP - AIR QUALITY.

Given under my hand this 08/19/2025.

The publisher's fee for said publication is: $45.45.

Tamra Lawson
Classified Manager of
THE RIVER CITIES TRIBUNE

Subscribed to and sworn to before me this
08/19/2025

Notary Public in and for Gallia, Meigs and Mason Counties

My commission expires on

The 7th day of January 20 30

OFFICIAL SEAL
NOTARY PUBLIC
STATE OF WEST VIRGINIA
Tina Kocher
510 Main Street
Pt Pleasant WV 25550
My Commission Expires January 7, 2030

Andrews, Edward S <edward.s.andrews@wv.gov>

CORRECTION: Re: WV Draft Permit R13-3708 for MGS CNP 1, LLC; BECCS Plant/Point Pleasant

1 message

Mink, Stephanie R <stephanie.r.mink@wv.gov> Thu, Aug 14, 2025 at 11:03 AM
To: "Supplee, Gwendolyn" <supplee.gwendolyn@epa.gov>, "Whapham, Joseph" <Whapham.Joseph@epa.gov>, jack.calhoun@fidelisinfra.com, Michael Dearing <michael.dearing@erm.com>, anand.rathinasamy@erm.com
Cc: "Crowder, Laura M" <Laura.M.Crowder@wv.gov>, "McKeone, Beverly D" <Beverly.D.Mckeone@wv.gov>, "McCumbers, Carrie" <Carrie.McCumbers@wv.gov>, Nicole D Ernest <nicole.d.ernest@wv.gov>, "Andrews, Edward S" <Edward.S.Andrews@wv.gov>, "Johnson, Rebecca H" <Rebecca.H.Johnson@wv.gov>

Everyone,

Please be aware that the facility name referenced in yesterday's email was incorrect. The facility name is BECCS Plant/Point Pleasant. (not Tableting & Packaging Facility). All of the attachments contain the correct name. My apologies for any confusion.

Have a good day,
Stephanie

On Wed, Aug 13, 2025 at 3:08 PM Mink, Stephanie R <stephanie.r.mink@wv.gov> wrote:

> Please find attached the Draft Permit R13-3708, Engineering Evaluation and Public Notice for MGS CNP 1, LLC's Tableting & Packaging Facility located in Mason County.
>
> The public notice will be published in *The River Cities Tribune* on Tuesday, August 19, 2025 and the thirty day comment period will end on Thursday, September 18, 2025.
>
> Should you have any questions or comments, please contact the permit writer, Ed Andrews, at 304-926-0499 ext. 41244 or Edward.S.Andrews@wv.gov.
>
> --
>
> Stephanie Mink
>
> Environmental Resources Associate
>
> West Virginia Department of Environmental Protection
>
> Division of Air Quality, Title V & NSR Permitting
>
> 601 57th Street SE
>
> Charleston, WV 25304
>
> Phone: 304-926-0499 x41281

3 attachments

053-00134_PERM_R13-3708-Draft.pdf
598K

053-00134_EVAL_13-3708.pdf
337K

053_00134_Notice_13-3708_.pdf
87K

Another Courtesy Draft 8/7/2025

Friday, August 8, 2025 1:48 PM

Andrews, Edward S <edward.s.andrews@wv.gov>

Re: Pre Draft for Permit App 13-3708

1 message

Andrews, Edward S <edward.s.andrews@wv.gov> Thu, Aug 7, 2025 at 8:58 AM
To: Michael Dearing <Michael.Dearing@erm.com>, William Calhoun <jack.calhoun@fidelisinfra.com>, Anand Rathinasamy <anand.rathinasamy@erm.com>

Michael,

Attached is an updated pre-draft for you to review as a courtesy.

Should you have any questions or concerns, please let me know.

Thanks,

Ed

--

Edward Andrews, P.E.

Engineer

WVDEP/Division of Air Quality

304-414-1244

601 57th Street, SE

Charleston, WV 25304

On Wed, Aug 6, 2025 at 4:53 PM Michael Dearing <Michael.Dearing@erm.com> wrote:

> Ed,
>
> Attached is the updated throughput gallons on the attachment L for the water water treatment plant as we discussed on the call.
>
> Thanks

Michael Dearing

Principal Consultant, Scientist

Sustainability is our business

Charleston (WV) **erm.com**

O +1-(612)-347-7144

C +1-(304)-654-2227

From: Andrews, Edward S <edward.s.andrews@wv.gov>
Sent: Monday, July 21, 2025 2:51 PM
To: Michael Dearing <Michael.Dearing@erm.com>; Anand Rathinasamy <anand.rathinasamy@erm.com>
Cc: William Calhoun <jack.calhoun@fidelisinfra.com>
Subject: Pre Draft for Permit App 13-3708

EXTERNAL MESSAGE

Michael and Anand,

Attached is a pre-draft for you to review as a courtesy.

Should you have any questions or concerns, please let me know.

Thanks,

Ed

--

Edward Andrews, P.E.

Engineer

WVDEP/Division of Air Quality

304-414-1244

601 57th Street, SE

Charleston, WV 25304

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053-00134_PERM_R13-3708-working_draft_V_1.pdf
601K

Wastewater Treatment update 8/6/2025

Thursday, August 7, 2025 8:46 AM

Andrews, Edward S <edward.s.andrews@wv.gov>

RE: Pre Draft for Permit App 13-3708

1 message

Michael Dearing <Michael.Dearing@erm.com> Wed, Aug 6, 2025 at 4:53 PM
To: "Andrews, Edward S" <edward.s.andrews@wv.gov>, Anand Rathinasamy <anand.rathinasamy@erm.com>
Cc: William Calhoun <jack.calhoun@fidelisinfra.com>

Ed,

Attached is the updated throughput gallons on the attachment L for the water water treatment plant as we discussed on the call.

Thanks

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Michael Dearing

Principal Consultant, Scientist

Charleston (WV) **erm.com**

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Sent: Monday, July 21, 2025 2:51 PM
To: Michael Dearing <Michael.Dearing@erm.com>; Anand Rathinasamy <anand.rathinasamy@erm.com>
Cc: William Calhoun <jack.calhoun@fidelisinfra.com>
Subject: Pre Draft for Permit App 13-3708

EXTERNAL MESSAGE

Michael and Anand,

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Should you have any questions or concerns, please let me know.

Thanks,

Ed

--

Edward Andrews, P.E.

Engineer

WVDEP/Division of Air Quality

304-414-1244

601 57th Street, SE

Charleston, WV 25304

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WWTP - Attachment-L.pdf
71K

WWTP -
Attachme...

Attachment L
EMISSIONS UNIT DATA SHEET
GENERAL

To be used for affected sources other than asphalt plants, foundries, incinerators, indirect heat exchangers, and quarries.
Identification Number (as assigned on *Equipment List Form*):

1. Name or type and model of proposed affected source:

   Wastewater Treatment Plant (127-PKG-0001)

2. On a separate sheet(s), furnish a sketch(es) of this affected source. If a modification is to be made to this source, clearly indicated the change(s). Provide a narrative description of all features of the affected source which may affect the production of air pollutants.

3. Name(s) and maximum amount of proposed process material(s) charged per hour:

   Wastewater 38,760 gal/hr

4. Name(s) and maximum amount of proposed material(s) produced per hour:

   Wastewater 38,760 gal/hr

5. Give chemical reactions, if applicable, that will be involved in the generation of air pollutants:

   The following compounds will be emitted from the wastewater treatment process due to evaporation
   NH3
   H2SO4
   HCL

* The identification number which appears here must correspond to the air pollution control device identification number appearing on the *List Form*.

6. Combustion Data (if applicable):

(a) Type and amount in appropriate units of fuel(s) to be burned:

NA

(b) Chemical analysis of proposed fuel(s), excluding coal, including maximum percent sulfur and ash:

NA

(c) Theoretical combustion air requirement (ACF/unit of fuel):

@ °F and psia.

(d) Percent excess air:

(e) Type and BTU/hr of burners and all other firing equipment planned to be used:

NA

(f) If coal is proposed as a source of fuel, identify supplier and seams and give sizing of the coal as it will be fired:

NA

(g) Proposed maximum design heat input: $\times 10^6$ BTU/hr.

7. Projected operating schedule:

Hours/Day 24	Days/Week 7	Weeks/Year 52

8. Projected amount of pollutants that would be emitted from this affected source if no control devices were used:

@ °F and psia

a.	NO_X		lb/hr	grains/ACF
b.	SO_2		lb/hr	grains/ACF
c.	CO		lb/hr	grains/ACF
d.	PM_{10}		lb/hr	grains/ACF
e.	Hydrocarbons		lb/hr	grains/ACF
f.	VOCs		lb/hr	grains/ACF
g.	Pb		lb/hr	grains/ACF
h.	Specify other(s)			
	NH3	0.51	lb/hr	grains/ACF
	H2SO4	0.64	lb/hr	grains/ACF
	HCL	0.12	lb/hr	grains/ACF
			lb/hr	grains/ACF

NOTE: (1) An Air Pollution Control Device Sheet must be completed for any air pollution device(s) used to control emissions from this affected source.

(2) Complete the Emission Points Data Sheet.

9. Proposed Monitoring, Recordkeeping, Reporting, and Testing
Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

MONITORING	RECORDKEEPING
REPORTING	TESTING

MONITORING. PLEASE LIST AND DESCRIBE THE PROCESS PARAMETERS AND RANGES THAT ARE PROPOSED TO BE MONITORED IN ORDER TO DEMONSTRATE COMPLIANCE WITH THE OPERATION OF THIS PROCESS EQUIPMENT OPERATION/AIR POLLUTION CONTROL DEVICE.

RECORDKEEPING. PLEASE DESCRIBE THE PROPOSED RECORDKEEPING THAT WILL ACCOMPANY THE MONITORING.

REPORTING. PLEASE DESCRIBE THE PROPOSED FREQUENCY OF REPORTING OF THE RECORDKEEPING.

TESTING. PLEASE DESCRIBE ANY PROPOSED EMISSIONS TESTING FOR THIS PROCESS EQUIPMENT/AIR POLLUTION CONTROL DEVICE.

10. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty

TBD

Comment 8/4/2025

Monday, August 4, 2025 8:07 AM

Andrews, Edward S <edward.s.andrews@wv.gov>

RE: Pre Draft for Permit App 13-3708

1 message

Michael Dearing <Michael.Dearing@erm.com> Fri, Aug 1, 2025 at 4:25 PM
To: "Andrews, Edward S" <edward.s.andrews@wv.gov>, Anand Rathinasamy <anand.rathinasamy@erm.com>
Cc: William Calhoun <jack.calhoun@fidelisinfra.com>

Ed,

The only thing to jumped out to us was the wastewater treatment plant throughput limit. We would like to request it be increased to 646 gpm or 930,240 gpd.

9.1.7. The following requirements are specific to the wastewater treatment plant identified as 127-PKG-001:

a. HCl emissions from the collection of process units and fugitive sources associated with the wastewater treatment plant shall not exceed 0.57 tons per year on a 12-month rolling total basis.

b. Sulfuric acid mist (H2SO4) emissions from the collection of process units and fugitive sources associated with the wastewater treatment plant shall not exceed 2.79 tons per year on a 12-month rolling total basis.

c. The wastewater treatment plant shall not process/treat more than 4,152 gallons per day.

Thanks

ERM
Sustainability is our business

Michael Dearing

Principal Consultant, Scientist

Charleston (WV) **erm.com**

O +1-(612)-347-7144

C +1-(304)-654-2227

From: Andrews, Edward S <edward.s.andrews@wv.gov>
Sent: Monday, July 21, 2025 2:51 PM
To: Michael Dearing <Michael.Dearing@erm.com>; Anand Rathinasamy <anand.rathinasamy@erm.com>
Cc: William Calhoun <jack.calhoun@fidelisinfra.com>
Subject: Pre Draft for Permit App 13-3708

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Michael and Anand,

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Should you have any questions or concerns, please let me know.

Thanks,

Ed

--

Edward Andrews, P.E.

Engineer

WVDEP/Division of Air Quality

304-414-1244

601 57th Street, SE

Charleston, WV 25304

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Complete App 6/23/2025

Monday, June 23, 2025 11:55 AM

Andrews, Edward S <edward.s.andrews@wv.gov>

Complete App Email for R13-3708

1 message

Andrews, Edward S <edward.s.andrews@wv.gov> Mon, Jun 23, 2025 at 11:00 AM
To: William Calhoun <jack.calhoun@fidelisinfra.com>
Cc: Michael Dearing <Michael.Dearing@erm.com>, Anand Rathinasamy <anand.rathinasamy@erm.com>, Joseph R Kessler <joseph.r.kessler@wv.gov>

RE: Application Status: Complete
MGS CNP 1, LLC
Permit Application R13-3708
Plant ID No. 053-00134

Mr. Calhoun,

Your application for a biomass boiler was received by this Division of Air Quality on February 24, 2025, and assigned to the writer for review. Upon review of said application, it has been determined that the application is complete and, therefore, the statutory review period ***90*** commenced on June 23, 2025.

This determination of completeness shall not relieve the permit applicant of the requirement to subsequently submit, in a timely manner, any additional or corrected information deemed necessary for a final permit determination. **Please note that any additional information requests may pause the statutory review clock.**

Should you have any questions, please contact Ed Andrews at (304) 414-1244 or reply to this email.

--
Edward Andrews, P.E.
Engineer
WVDEP/Division of Air Quality
304-926-0499 Ext 41244
601 57th Street, SE
Charleston, WV 20304

Response to 6/6 Inc Email 6/20/2025

Monday, June 23, 2025 7:36 AM

Andrews, Edward S <edward.s.andrews@wv.gov>

RE: Incomplete App Email for Permit Application R13-3708

1 message

Michael Dearing <Michael.Dearing@erm.com> Fri, Jun 20, 2025 at 3:56 PM
To: "Andrews, Edward S" <edward.s.andrews@wv.gov>, Anand Rathinasamy <anand.rathinasamy@erm.com>, William Calhoun <jack.calhoun@fidelisinfra.com>
Cc: Joseph R Kessler <joseph.r.kessler@wv.gov>

Ed,

Please see the attached file for a MGS CNP 1, LLC response to comments that were sent on 6/6/2025.

If you have any questions, please let us know.

Thanks

ERM
Sustainability is our business

Michael Dearing
Principal Consultant, Scientist

Charleston (WV) **erm.com**

O +1-(612)-347-7144

C +1-(304)-654-2227

From: Andrews, Edward S <edward.s.andrews@wv.gov>
Sent: Friday, June 6, 2025 4:08 PM
To: Anand Rathinasamy <anand.rathinasamy@erm.com>; William Calhoun <jack.calhoun@fidelisinfra.com>;

Michael Dearing <Michael.Dearing@erm.com>
Cc: Joseph R Kessler <joseph.r.kessler@wv.gov>
Subject: Incomplete App Email for Permit Application R13-3708

EXTERNAL MESSAGE

RE: Application Status: Incomplete
MGS CNP 1, LLC/BECCS Plant
Permit Application No. R13-3708
Plant ID No. 053-00134

Mr. Calhoun:

Your application for a construction permit for a steam to electric generation facility was received by this Division on February 24, 2025, and assigned to the writer for review. It has been determined that the application as submitted is incomplete based on the following items:

1. The emission of non methane hydrocarbons (NMHC) plus nitrogen oxides (NOx) presented in the application from the emergency engine for the firewater pump (Emission Unit ID 129-P-9402) indicate potentially non-compliance with the NMHC + NOx standard for stationary fire pump engines of Subpart IIII to 40CFR60. Please update your application accordingly.

Please address the above issue by June 23, 2025. Application review will not commence until the application has been deemed to be technically complete. Failure to respond to this request in a timely manner may result in the denial of the application.

Should you have any questions, please contact Ed Andrews at (304) 926-0499 ext. 41244 or reply to this email.

Thanks,
Ed

--
Edward Andrews, P.E.
Engineer
WVDEP/Division of Air Quality
304-926-0499 Ext 41244
601 57th Street, SE

MGS CNP 1, LLC
109 Post Oak Lane, Suite 140
Houston, TX 77024

FIDELIS

June 18, 2025

Laura M. Crowder, Director
WV Department of Environmental Protection (WVDEP)
Division of Air Quality (DAQ)
601 57th Street SE
Charleston, WV 25304

Re: Application Status: Incomplete
MGS CNP 1, LLC/BECCS Plant
Permit Application No. R13-3708
Plant ID No. 053-00134

Ms. Crowder,

Please find our responses to each of your questions/comments in the incomplete application notice sent to MGS CNP 1, LLC (MGS) on June 6th 2025. MGS has provided a response in italics to address all the questions surrounding the application for the BECCS plant.

The following items will be attached to address comments.

- Attachment N - Updated emission calculations
- Attachment L - Engine Data Sheet
- Emission Specification for the Fire Pump Engine.

If you have additional questions, please do not hesitate to contact us.

Sincerely,

Jack Calhoun
Vice President

MGS CNP 1, LLC
109 Post Oak Lane, Suite 140
Houston, TX 77024

RE: Application Status: Incomplete
MGS CNP 1, LLC/BECCS Plant
Permit Application No. R13-3708
Plant ID No. 053-00134

Mr. Calhoun:

Your application for a construction permit for a steam to electric generation facility was received by this Division on February 24, 2025, and assigned to the writer for review. It has been determined that the application as submitted is incomplete based on the following items:

1. The emission of non methane hydrocarbons (NMHC) plus nitrogen oxides (NOx) presented in the application from the emergency engine for the firewater pump (Emission Unit ID 129-P-9402) indicate potentially non-compliance with the NMHC + NOx standard for stationary fire pump engines of Subpart IIII to 40CFR60. Please update your application accordingly.
   a. ***Attachment N shows the updated emissions for the proposed fire pump unit.***
   b. ***Attachment L has been updated with proposed fire pump engine information.***
   c. ***The emission specification for the fire pump engine has been provided to demonstrate compliance NSPS IIII.***

Please address the above issue by June 23, 2025. Application review will not commence until the application has been deemed to be technically complete. Failure to respond to this request in a timely manner may result in the denial of the application.

Should you have any questions, please contact Ed Andrews at (304) 926-0499 ext. 41244 or reply to this email.

Thanks,
Ed

MGS CNP 1, LLC Biomass Fired Power Plant Initial Minor NSR Application Emission Calculations Summary

Emission ID	NO_x		CO		PM		PM_{10}		$PM_{2.5}$		PM- Filterable		PM_{10} - Filterable		$PM_{2.5}$ - Filterable		VOC		SO_2		NH_3		H_2SO_4		Pb	
	lb/hr	Tons/Yr	lb/hr	Tons/Yr	lb/hr	Tons/Yr	lb/hr	Tons/Yr	lb/hr	Tons/Yr	lb/hr	Tons/Yr	lb/hr	Tons/Yr	lb/hr	Tons/Yr	lb/hr	Tons/Yr	lb/hr	Tons/Yr	lb/hr	Tons/Yr	lb/hr	Tons/Yr	lb/hr	Tons/Yr
121-H-2001	20.20	90.42	10.20	45.65	15.54	67.83	15.54	67.83	15.54	67.83	7.99	34.87	7.99	34.87	7.99	34.87	4.43	18.33	11.58	50.78	5.09	20.98	6.35	27.86	0.05	0.20
129-P-9402	3.07	0.08	3.33	0.08	0.20	<0.01	0.20	<0.01	0.20	<0.01	0.20	<0.01	0.20	<0.01	0.20	<0.01	0.11	<0.01	<0.01	<0.01	--	--	--	--	--	--
129-PKG-0001	6.61	0.17	13.23	0.33	0.20	<0.01	0.20	<0.01	0.20	<0.01	0.20	<0.01	0.20	<0.01	0.20	<0.01	5.67	0.14	0.03	<0.01	--	--	--	--	--	--
127-PKG-0001	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.51	2.10	0.64	2.79	--	--
121-LS-1001 / 121-LS-1002	--	--	--	--	1.08	4.72	1.08	4.72	1.08	4.72	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-1001	--	--	--	--	0.06	0.19	0.03	0.09	<0.01	0.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-1002	--	--	--	--	0.06		0.03		<0.01		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHIP-1	--	--	--	--	0.11	0.37	0.05	0.18	<0.01	0.03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-S-1001	--	--	--	--	0.11	0.37	0.05	0.18	<0.01	0.03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-1003	--	--	--	--	0.06	0.19	0.03	0.09	<0.01	0.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-2001 A	--	--	--	--	0.06	0.19	0.03	0.09	<0.01	0.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-2001 B	--	--	--	--	0.06		0.03		<0.01		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-S-2001 A	--	--	--	--	0.06	0.19	0.03	0.09	<0.01	0.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-S-2001 B	--	--	--	--	0.06		0.03		<0.01		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHIP-2	--	--	--	--	--	0.21	--	0.11	--	0.02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-4001 A	--	--	--	--	0.54	1.79	0.25	0.85	0.04	0.13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-4001 B	--	--	--	--	0.54		0.25		0.04		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-4002	--	--	--	--	0.54	1.79	0.25	0.85	0.04	0.13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-4003	--	--	--	--	0.54	1.79	0.25	0.85	0.04	0.13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-4004	--	--	--	--	0.54	1.79	0.25	0.85	0.04	0.13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-4005	--	--	--	--	0.54	1.79	0.25	0.85	0.04	0.13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-4006 A	--	--	--	--	0.39	1.31	0.19	0.62	0.03	0.09	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-4006 B	--	--	--	--	0.39		0.19		0.03		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-4007 A	--	--	--	--	0.39	1.31	0.19	0.62	0.03	0.09	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-4007 B	--	--	--	--	0.39		0.19		0.03		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-S-4001 A	--	--	--	--	0.02	0.06	<0.01	0.03	<0.01	<0.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-S-4001 B	--	--	--	--	0.02		<0.01		<0.01		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-TL-0001	--	--	--	--	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-5001 A	--	--	--	--	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-5001 B	--	--	--	--	<0.01		<0.01		<0.01		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-5002A	--	--	--	--	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-5002B	--	--	--	--	<0.01		<0.01		<0.01		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-S-1002	--	--	--	--	0.35	<0.01	0.17	<0.01	0.17	<0.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-1004	--	--	--	--	0.17	<0.01	0.08	<0.01	0.08	<0.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-5003 A	--	--	--	--	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-5003 B	--	--	--	--	<0.01		<0.01		<0.01		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-5004 A	--	--	--	--	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-5004 B	--	--	--	--	<0.01		<0.01		<0.01		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-S-9902 A	--	--	--	--	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-S-9902 B	--	--	--	--	<0.01		<0.01		<0.01		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-X-9901 A / 121-X-9901 B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
129-CT-9301	--	--	--	--	2.02	3.01	1.48	2.52	0.67	1.26	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PM-PlantRd	--	--	--	--	10.74	9.38	2.15	1.88	0.53	0.46	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
129-TK-9402	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
122-TK-9902	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.01	<0.01	--	--	--	--	--	--	--	--
122-TK-9901	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.01	<0.01	--	--	--	--	--	--	--	--
BECCS-FUG	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	8.32	36.46	--	--	0.60	2.64	--	--	--	--
VOC - Amine -LOAD	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.01	<0.01	--	--	--	--	--	--	--	--
Totals:	**29.88**	**90.66**	**26.76**	**46.06**	**35.77**	**98.38**	**23.48**	**83.31**	**18.87**	**75.26**	**8.39**	**34.88**	**8.39**	**34.88**	**8.39**	**34.88**	**18.57**	**54.93**	**11.62**	**50.78**	**6.20**	**25.72**	**6.99**	**30.65**	**0.05**	**0.20**

MGS CNP 1, LLC Biomass Fired Power Plant Initial Minor NSR Application Emission Calculations HAPs Summary																
Emission ID	**Total HAPs**		**Acetaldehyde**		**Acrolein**		**Benzene**		**Formaldehyde**		**HCl**		**Styrene**		**Toluene**	
	lb/hr	**Tons/Yr**	**lb/hr**	**Tons/Yr**	**lb/hr**	**Tons/Yr**	**lb/hr**	**Tons/Yr**	**lb/hr**	**Tons/Yr**	**lb/hr**	**Tons/Yr**	**lb/hr**	**Tons/Yr**	**lb/hr**	**Tons/Yr**
121-H-2001	5.43	23.36	--	8.14	--	1.95	--	2.05	--	2.56	1.18	5.65	--	0.93	--	0.45
129-P-9402	0.02	<0.01	--	<0.01	--	<0.01	--	<0.01	--	<0.01	--	--	--	--	--	<0.01
129-PKG-0001	1.43	0.04	--	<0.01	--	<0.01	--	<0.01	--	0.03	--	--	--	<0.01	--	<0.01
127-PKG-0001	0.12	0.57	--	--	--	--	--	--	--	--	0.12	0.57	--	--	--	--
Totals:	**6.99**	**23.96**	**<0.01**	**8.14**	**<0.01**	**1.96**	**<0.01**	**2.05**	**<0.01**	**2.58**	**1.30**	**6.22**	**<0.01**	**0.93**	**<0.01**	**0.45**

There will be one diesel-fired fire water pump, with rating @ 600 hp.
Sulfur content of fuel used in engines will be 15 ppm sulfur or less.
Annual non-emergency operating hours will be limited to 100 hr/yr.
Engines will be new (model year 2024 or later).

FIN: **129-P-9402** **EPN:** **129-P-9402**

Fuel Type:	**Diesel**	
Year	2024	
Total Engines:	1	
Fuel Consumption per Engine:	35.90	gal/hr
Diesel Density [1]	7.001	lb/gal
Fuel Consumption per Engine:	251.34	lbs/hr
Diesel Fuel Heat Content (HHV): [1]	19,300	Btu/lb
Heat Input (HHV) per Engine:	4.85	MMBtu/hr
Engine Horsepower Output:	614	hp
Engine Output:	458	kW
Annual Operation:	50	hr/yr
Engine Load:	100%	
Displacement per Cylinder	< 30 L per cylinder	
Brake Specific Fuel Consumptions: [2]	7900.30	Btu/hp-hr

Notes:
[1] 19,300 Btu/lb is the average heating value of diesel and 7.001 lb/gal is the density of diesel as provided by vendor.
[2] Brake specific fuel consumption per hour = (Heat Input (HHV)) / (Engine Horsepower Output (hp)).

Water Pump Diesel Engine Emission Rates

Pollutant	**Emission Factor** [1,2,3]		**Emissions Rates (Per Engine)**		
			Max. Hourly	**Annual Average**[4]	**Annual**
			lb/hr	**lb/hr**	**tpy**
NOX [1]	3.04	g/kw-hr	3.07	0.02	0.08
CO [1]	3.30	g/kw-hr	3.33	0.02	0.08
PM10 [1,3]	0.20	g/kw-hr	0.20	0.00	0.01
PM2.5 [1,3]	0.20	g/kw-hr	0.20	0.00	0.01
VOC [1]	0.11	g/kw-hr	0.11	0.00	0.00
SO2 [2]	0.00	lb/hp-hr	0.01	0.00	0.000

Notes:
1. NOX, CO, PM, and VOC emission factors are from 40 CFR 60.4205(c) for engines with rated power greater than or equal to 600 hp (450 kW) but less than or equal to 750 hp (560 kW). NSPS Subpart IIII specifies to use emission factors from Table 4 to 40 CFR Subpart IIII.
2. Emission factors for SO2 based on 15 ppmw ULSD.
3. All PM is assumed to be less than 1.0 μm in diameter. Therefore, the PM emission factor is used to estimate emissions of PM10 and PM2.5.
4. Annual average hourly emission rates are (annual emissions in tpy)*2000 lb/ton*1 year/8760 hours.

Example Calculation:

$$\text{Hourly } NO_X = \frac{3.0\text{ g}}{\text{kW-hr}} \times \frac{457.87\text{ kW}}{} \times \frac{1\text{ lb}}{453.59\text{ g}} = \frac{3.07\text{ lb}}{\text{hr}}$$

$$\text{Annual } NO_X = \frac{3.07\text{ lb}}{\text{hr}} \times \frac{50\text{ hrs}}{\text{yr}} \times \frac{1\text{ ton}}{2000\text{ lbs}} = \frac{0.08\text{ ton}}{\text{yr}}$$

HAP Emissions from Engines

HAP Emission Estimation

***Max Input* =** 4.85 MMBtu/hr each engine
***Annual Hours @ Max Rating* =** 50.0 hrs/yr
***Hourly Emissions* =** (Max Heat Input - MMBtu/hr) x (1 SCF/1,020 Btu) x (EF - lb/MMSCF)
***Annual Emissions* =** (Max Heat Input - MMBtu/hr) x (1 SCF/1,020 Btu) x (EF - lb/MMSCF) x (Annual Operating Hours) / (2,000 lb/Ton)

Pollutant	EF [1] (lb/MMBtu)	Source	§112 HAP? [2]	Max. Hourly Emission [3] (lb/hr)	Annual Emission (lb/yr) [4]	Annual Emissions (tpy) [5]
Benzene	9.33E-04	AP42; Table 3.3-2; 10/96.	YES	4.53E-03	2.26E-01	1.13E-04
Toluene	4.09E-04	AP42; Table 3.3-2; 10/96.	YES	1.98E-03	9.92E-02	4.96E-05
Xylenes	2.85E-04	AP42; Table 3.3-2; 10/96.	YES	1.38E-03	6.91E-02	3.46E-05
Propylene	2.58E-03	AP42; Table 3.3-2; 10/96.	NO	1.25E-02	6.26E-01	3.13E-04
1,3-Butadiene	<3.91E-05	AP42; Table 3.3-2; 10/96.	YES	1.90E-04	9.48E-03	4.74E-06
Formaldehyde	1.18E-03	AP42; Table 3.3-2; 10/96.	YES	5.72E-03	2.86E-01	1.43E-04
Acetaldehyde	7.67E-04	AP42; Table 3.3-2; 10/96.	YES	3.72E-03	1.86E-01	9.30E-05
Acrolein	<9.25E-05	AP42; Table 3.3-2; 10/96.	YES	4.49E-04	2.24E-02	1.12E-05
Total PAH	<1.68E-04	AP42; Table 3.3-2; 10/96.	YES	8.15E-04	4.07E-02	2.04E-05
Naphthalene	8.48E-05	AP42; Table 3.3-2; 10/96.	YES	4.11E-04	2.06E-02	1.03E-05
Acenaphthylene	<5.06E-06	AP42; Table 3.3-2; 10/96.	YES	2.45E-05	1.23E-03	6.14E-07
Acenaphthene	<1.42E-06	AP42; Table 3.3-2; 10/96.	YES	6.89E-06	3.44E-04	1.72E-07
Fluorene	2.92E-05	AP42; Table 3.3-2; 10/96.	YES	1.42E-04	7.08E-03	3.54E-06
Phenanthrene	2.94E-05	AP42; Table 3.3-2; 10/96.	YES	1.43E-04	7.13E-03	3.57E-06
Anthracene	1.87E-06	AP42; Table 3.3-2; 10/96.	YES	9.07E-06	4.54E-04	2.27E-07
Fluoranthene	7.61E-06	AP42; Table 3.3-2; 10/96.	YES	3.69E-05	1.85E-03	9.23E-07
Pyrene	4.78E-06	AP42; Table 3.3-2; 10/96.	YES	2.32E-05	1.16E-03	5.80E-07
Benzo(a)anthracene	1.68E-06	AP42; Table 3.3-2; 10/96.	YES	8.15E-06	4.07E-04	2.04E-07
Chrysene	3.53E-07	AP42; Table 3.3-2; 10/96.	YES	1.71E-06	8.56E-05	4.28E-08
Benzo(b)fluoranthene	<9.91E-08	AP42; Table 3.3-2; 10/96.	YES	4.81E-07	2.40E-05	1.20E-08
Benzo(k)fluoranthene	<1.55E-07	AP42; Table 3.3-2; 10/96.	YES	7.52E-07	3.76E-05	1.88E-08
Benzo(a)pyrene	<1.88E-07	AP42; Table 3.3-2; 10/96.	YES	9.12E-07	4.56E-05	2.28E-08
Indeno(1,2,3-cd)pyrene	<3.75E-07	AP42; Table 3.3-2; 10/96.	YES	1.82E-06	9.10E-05	4.55E-08
Dibenzo(a,h)anthracene	<5.83E-07	AP42; Table 3.3-2; 10/96.	YES	2.83E-06	1.41E-04	7.07E-08
Benzo(g,h,I)perylene	<4.89E-07	AP42; Table 3.3-2; 10/96.	YES	2.37E-06	1.19E-04	5.93E-08
Total §112 HAP =	3.87E-03			1.88E-02	9.39E-01	4.70E-04

[1] Emission factors obtained from US EPA AP-42 Section 3.3 Gasoline and Diesel Engines (10/96), Table 3.3-2.
[2] Listed US EPA Hazardous Air Pollutants.
[3] Max. Hourly Emissions = Emission Factor (lb/MMBtu) *Max Heat Input Capacity per Engine (MMBtu/hr)
[4] Maximum Annual Emission Rate (lb/yr) = Hourly Emissions (lb/hr) * Annual Operating Hours (hr/yr)
[4] Maximum Annual Emission Rate (lb/yr) = Hourly Emissions (lb/hr) * Annual Operating Hours (hr/yr)
[5] Maximum Potential Annual Emission Rate (tpy) = Hourly Emissions (lb/hr) * Annual Hours (hr/yr) ((1 ton/2000 lb).

ATTACHMENT L – INTERNAL COMBUSTION ENGINE DATA SHEET

Complete this data sheet for each internal combustion engine at the facility. Include manufacturer performance data sheet(s) or any other supporting document if applicable. Use extra pages if necessary. *Generator(s) and microturbine generator(s) shall also use this form.*

Emission Unit ID#[1]	129-PKG-0001	129-P-9402	
Engine Manufacturer/Model	TBD	Clarke / C18H0-UFAD42	
Manufacturers Rated bhp/rpm	3,000	614	
Source Status[2]	NS	NS	
Date Installed/ Modified/Removed/Relocated[3]	2025	2025	
Engine Manufactured /Reconstruction Date[4]	2025	2025	
Check all applicable Federal Rules for the engine (include EPA Certificate of Conformity if applicable)[5]	☒40CFR60 Subpart JJJJ ☒JJJJ Certified? ☐40CFR60 Subpart IIII ☐IIII Certified? ☐40CFR63 Subpart ZZZZ ☐ NESHAP ZZZZ/ NSPS JJJJ Window ☐ NESHAP ZZZZ Remote Sources	☐40CFR60 Subpart JJJJ ☐JJJJ Certified? ☒40CFR60 Subpart IIII ☒IIII Certified? ☐40CFR63 Subpart ZZZZ ☐ NESHAP ZZZZ/ NSPS JJJJ Window ☐ NESHAP ZZZZ Remote Sources	☐40CFR60 Subpart JJJJ ☐JJJJ Certified? ☐40CFR60 Subpart IIII ☐IIII Certified? ☐40CFR63 Subpart ZZZZ ☐ NESHAP ZZZZ/ NSPS JJJJ Window ☐ NESHAP ZZZZ Remote Sources
Engine Type[6]	4SLB		
APCD Type[7]			
Fuel Type[8]	PQ	D	
H_2S (gr/100 scf)	0.25		
Operating bhp/rpm	3000	614	
BSFC (BTU/bhp-hr)	6589	7900.3	
Hourly Fuel Throughput	18,808 ft^3/hr gal/hr	ft^3/hr 35.90 gal/hr	ft^3/hr gal/hr
Annual Fuel Throughput (Must use 8,760 hrs/yr unless emergency generator)	1.88 $MMft^3$/yr gal/yr	$MMft^3$/yr 3590 gal/yr	$MMft^3$/yr gal/yr
Fuel Usage or Hours of Operation Metered	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☐ No ☐

Calculation Methodology[9]	Pollutant[10]	Hourly PTE (lb/hr)[11]	Annual PTE (tons/year)[11]	Hourly PTE (lb/hr)[11]	Annual PTE (tons/year)[11]	Hourly PTE (lb/hr)[11]	Annual PTE (tons/year)[11]
OT	NO_x	6.61	0.33	3.07	0.08		
OT	CO	13.23	0.66	3.33	0.08		
OT	VOC	5.67	0.28	0.11	<0.01		
OT	SO_2	0.03	0.002	0.01	<0.01		
OT	PM_{10}	0.20	0.01	0.20	0.01		
AP	Formaldehyde	1.04	0.05	<0.01	<0.01		
AP	Total HAPs	1.43	0.07	0.02	<0.01		
	GHG (CO_2e)						

1 Enter the appropriate Source Identification Number for each natural gas-fueled reciprocating internal combustion compressor/generator engine located at the compressor station. Multiple compressor engines should be designated CE-1, CE-2, CE-3 etc. Generator engines should be designated GE-1, GE-2, GE-3 etc. Microturbine generator engines should be designated MT-1, MT-2, MT-3 etc. If more than three (3) engines exist, please use additional sheets.

2 Enter the Source Status using the following codes:

NS	Construction of New Source (installation)	ES	Existing Source
MS	Modification of Existing Source	RS	Relocated Source
REM	Removal of Source		

3 Enter the date (or anticipated date) of the engine's installation (construction of source), modification, relocation or removal.

4 Enter the date that the engine was manufactured, modified or reconstructed.

5 Is the engine a certified stationary spark ignition internal combustion engine according to 40CFR60 Subpart IIII/JJJJ? If so, the engine and control device must be operated and maintained in accordance with the manufacturer's emission-related written instructions. You must keep records of conducted maintenance to demonstrate compliance, but no performance testing is required. If the certified engine is not operated and maintained in accordance with the manufacturer's emission-related written instructions, the engine will be considered a non-certified engine and you must demonstrate compliance as appropriate.

Provide a manufacturer's data sheet for all engines being permitted.

6 Enter the Engine Type designation(s) using the following codes:

2SLB	Two Stroke Lean Burn	4SRB	Four Stroke Rich Burn
4SLB	Four Stroke Lean Burn		

7 Enter the Air Pollution Control Device (APCD) type designation(s) using the following codes:

A/F	Air/Fuel Ratio	IR	Ignition Retard
HEIS	High Energy Ignition System	SIPC	Screw-in Precombustion Chambers
PSC	Prestratified Charge	LEC	Low Emission Combustion
NSCR	Rich Burn & Non-Selective Catalytic Reduction	OxCat	Oxidation Catalyst
SCR	Lean Burn & Selective Catalytic Reduction		

8 Enter the Fuel Type using the following codes:

PQ	Pipeline Quality Natural Gas	RG	Raw Natural Gas /Production Gas	D	Diesel

9 Enter the Potential Emissions Data Reference designation using the following codes. Attach all reference data used.

MD	Manufacturer's Data	AP	AP-42	
GR	GRI-HAPCalc™	OT	Other 40 CFR 60 JJJJ / IIII	(please list)

10 Enter each engine's Potential to Emit (PTE) for the listed regulated pollutants in pounds per hour and tons per year. PTE shall be calculated at manufacturer's rated brake horsepower and may reflect reduction efficiencies of listed Air Pollution Control Devices. Emergency generator engines may use 500 hours of operation when calculating PTE. PTE data from this data sheet shall be incorporated in the *Emissions Summary Sheet*.

11 PTE for engines shall be calculated from manufacturer's data unless unavailable.

Clarke Model			C18H0-UFAD42	
Derived Rating	458	kW	614	hp
Rated Speed	1760	rpm	1760	rpm
NOx	3.04	g/kW-hr	2.27	g/hp-hr
HC	0.11	g/kW-hr	0.08	g/hp-hr
PM	0.113	g/kW-hr	0.085	g/hp-hr
CO	3.30	g/kW-hr	2.46	g/hp-hr
Certified Rating	522 kW		700 hp	
Rated Speed	2100 rpm		2100 rpm	
NOx	4.25 g/kW-hr		3.17 g/hp-hr	
HC	0.07 g/kW-hr		0.05 g/hp-hr	
PM	0.12 g/kW-hr		0.09 g/hp-hr	
CO	0.54 g/kW-hr		0.40 g/hp-hr	

-Applicable to Cat C18 700hp Tier 3, 630hp Tier 3 fire pump driver engines.
-PQ3060, PQ3061 respectively

-700 hp and 630 hp ratings are U.S. EPA certified as variable speed Emergency Stationary engines per 40 CFR Part 60 Subpart IIII.

-Estimated Nominal Emissions data for the fire pump rating cycle emissions are shown above.

-These engines are Certified to the variable speed 8 Mode C1 cycle that can be used in either constant or variable speed applications.

-This information is Caterpillar Confidential. Unauthorized distribution of this information beyond its intended audience is prohibited.

INC RE: FWP 6/6/2025

Friday, June 6, 2025 4:08 PM

Andrews, Edward S <edward.s.andrews@wv.gov>

Incomplete App Email for Permit Application R13-3708

1 message

Andrews, Edward S <edward.s.andrews@wv.gov> Fri, Jun 6, 2025 at 4:07 PM
To: Anand Rathinasamy <anand.rathinasamy@erm.com>, William Calhoun <jack.calhoun@fidelisinfra.com>, Michael Dearing <Michael.Dearing@erm.com>
Cc: Joseph R Kessler <joseph.r.kessler@wv.gov>

RE: Application Status: Incomplete
MGS CNP 1, LLC/BECCS Plant
Permit Application No. R13-3708
Plant ID No. 053-00134

Mr. Calhoun:

Your application for a construction permit for a steam to electric generation facility was received by this Division on February 24, 2025, and assigned to the writer for review. It has been determined that the application as submitted is incomplete based on the following items:

1. The emission of non methane hydrocarbons (NMHC) plus nitrogen oxides (NOx) presented in the application from the emergency engine for the firewater pump (Emission Unit ID 129-P-9402) indicate potentially non-compliance with the NMHC + NOx standard for stationary fire pump engines of Subpart IIII to 40CFR60. Please update your application accordingly.

Please address the above issue by June 23, 2025. Application review will not commence until the application has been deemed to be technically complete. Failure to respond to this request in a timely manner may result in the denial of the application.

Should you have any questions, please contact Ed Andrews at (304) 926-0499 ext. 41244 or reply to this email.

Thanks,
Ed
--
Edward Andrews, P.E.
Engineer
WVDEP/Division of Air Quality
304-926-0499 Ext 41244
601 57th Street, SE
Charleston, WV 20304

Emission Cals and Amine Absorber 5/9/2025

Friday, May 9, 2025 7:39 AM

Andrews, Edward S <edward.s.andrews@wv.gov>

Re: Emission Calculations & The Amine Absorber

1 message

Andrews, Edward S <edward.s.andrews@wv.gov> Fri, May 9, 2025 at 7:38 AM
To: Michael Dearing <Michael.Dearing@erm.com>

Michael,

Here is the pdf of the caustic and amine scrubbers. I am still having issues getting a pipeline block to converge in a compression flow sheet.

Thanks
Ed

On Thu, May 8, 2025 at 2:51 PM Andrews, Edward S <edward.s.andrews@wv.gov> wrote:

> Michael,
>
> Using US EPA Method 19 with the default Fd for wood (9400 dscf/MMBtu) and the conc. listed in the app, I am getting different results than presented in the application.

	Emission Data		Emission Rates		
Pollutant	ppmvd	% O2	lb/MMBtu	lb/hr	TPY
NOx	13.55	5.23	0.020	19.110	82.843
CO	11.24	5.23	0.010	9.651	41.836
SO2	5.58	5.23	0.012	10.957	47.499
H2SO4	2	5.23	0.006	6.013	26.066
HCl	1	5.23	0.001	1.105	4.790

> Method 19 does outline a method to calculate the Fd for a specific fuel if ultimate analysis of the fuel is available.
>
> I notice the selected amine in the application is MDEA. MDEA a lone will be very difficult to achieve a 90% removal efficiency for CO2. I would have expected a see a mixture of MDEA plus piperazine (40 + 5 up to 10% by wt.) as the amine.
> Using either solely MDEA or a mixture of MDEA plus piperazine, any and all of the residual SO2 exiting the caustic scrubber with be absorbed in the rich amine or lockup in the amine. The real question is does the CO2 dehydrator release any of this captured SO2.
> I would assume it does. I found that if the caustic scrubber is ran a little harder the amine unit converges completely.
> Once I get the "compression and injection" and "dehydration" flow sheet intergraded completely, I will share the Promax file with you.
>
> Thanks,
> Ed

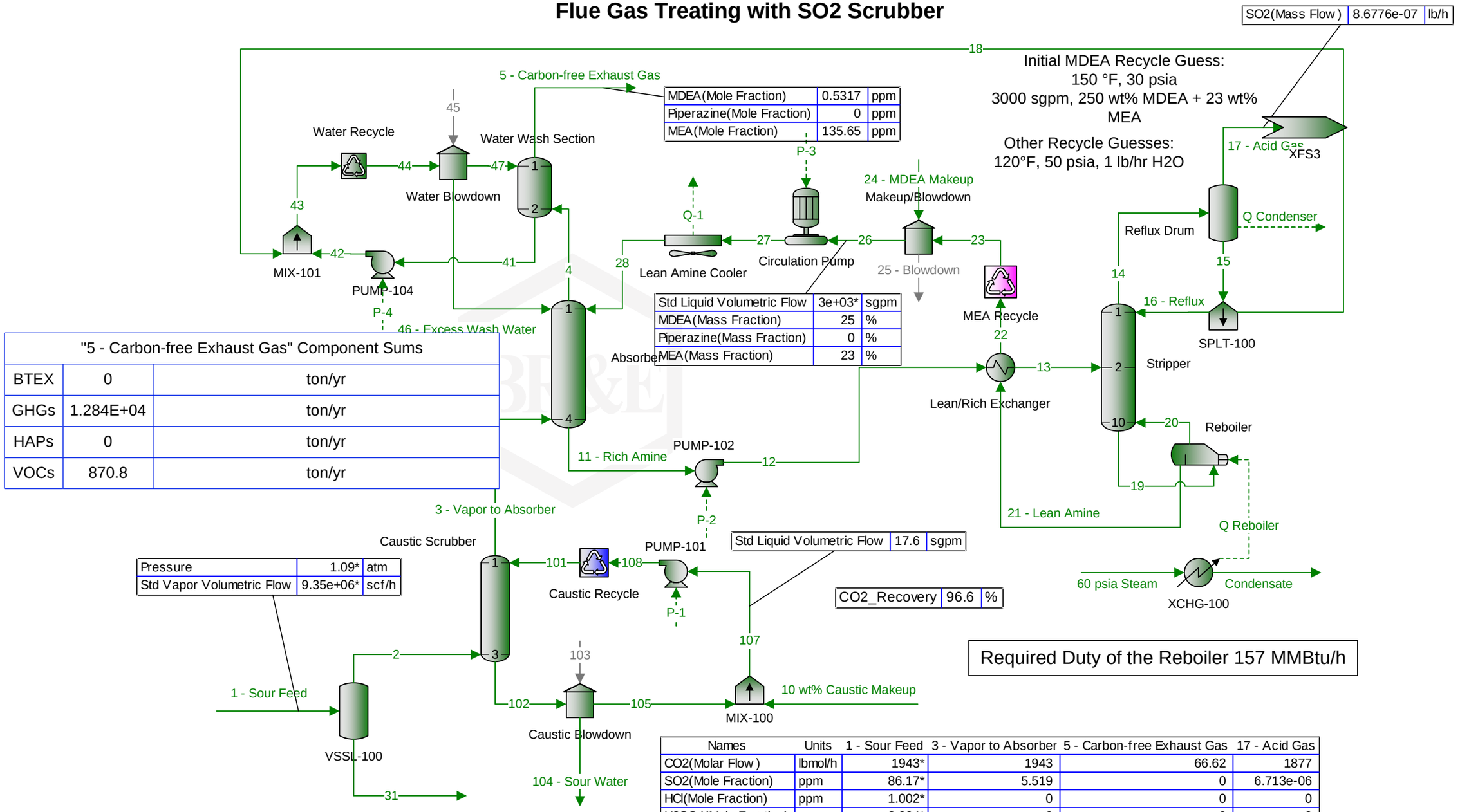
--
Edward Andrews, P.E.
Engineer
WVDEP/Division of Air Quality

304-414-1244
601 57th Street, SE
Charleston, WV 25304

Visio-SO2_CO2_scrubbers_W_Compression_Dehy_units.pdf
39K

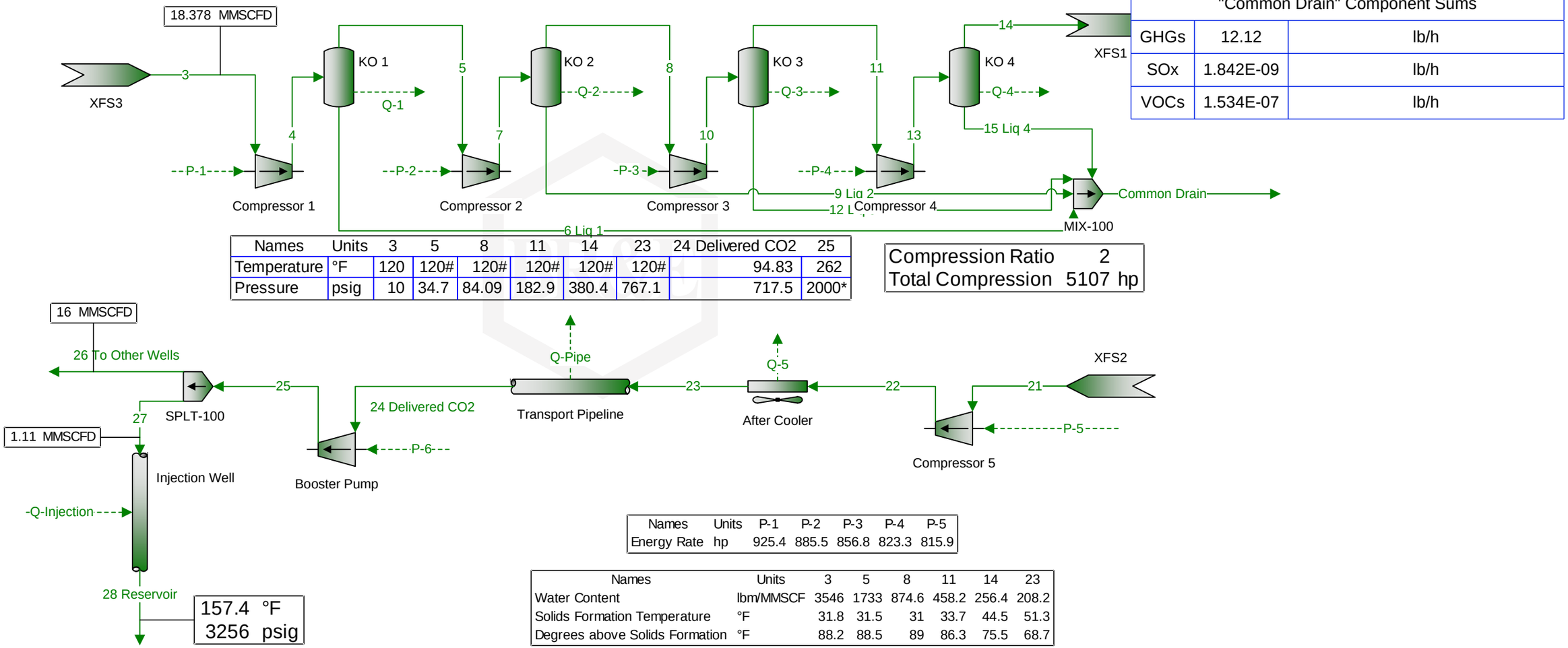
Visio-SO2_
CO2_scru...

Flue Gas Treating with SO2 Scrubber



Names	Units	1 - Sour Feed	3 - Vapor to Absorber	5 - Carbon-free Exhaust Gas	17 - Acid Gas
CO2(Molar Flow)	lbmol/h	1943*	1943	66.62	1877
SO2(Mole Fraction)	ppm	86.17*	5.519	0	6.713e-06
HCl(Mole Fraction)	ppm	1.002*	0	0	0
H2SO4(Mole Fraction)	ppm	2.004*	0	0	0

CO_2 Compression, Dehydration, and Sequestration



"Common Drain" Component Sums		
GHGs	12.12	lb/h
SOx	1.842E-09	lb/h
VOCs	1.534E-07	lb/h

Names	Units	3	5	8	11	14	23	24 Delivered CO2	25
Temperature	°F	120	120#	120#	120#	120#	120#	94.83	262
Pressure	psig	10	34.7	84.09	182.9	380.4	767.1	717.5	2000*

Compression Ratio	2
Total Compression	5107 hp

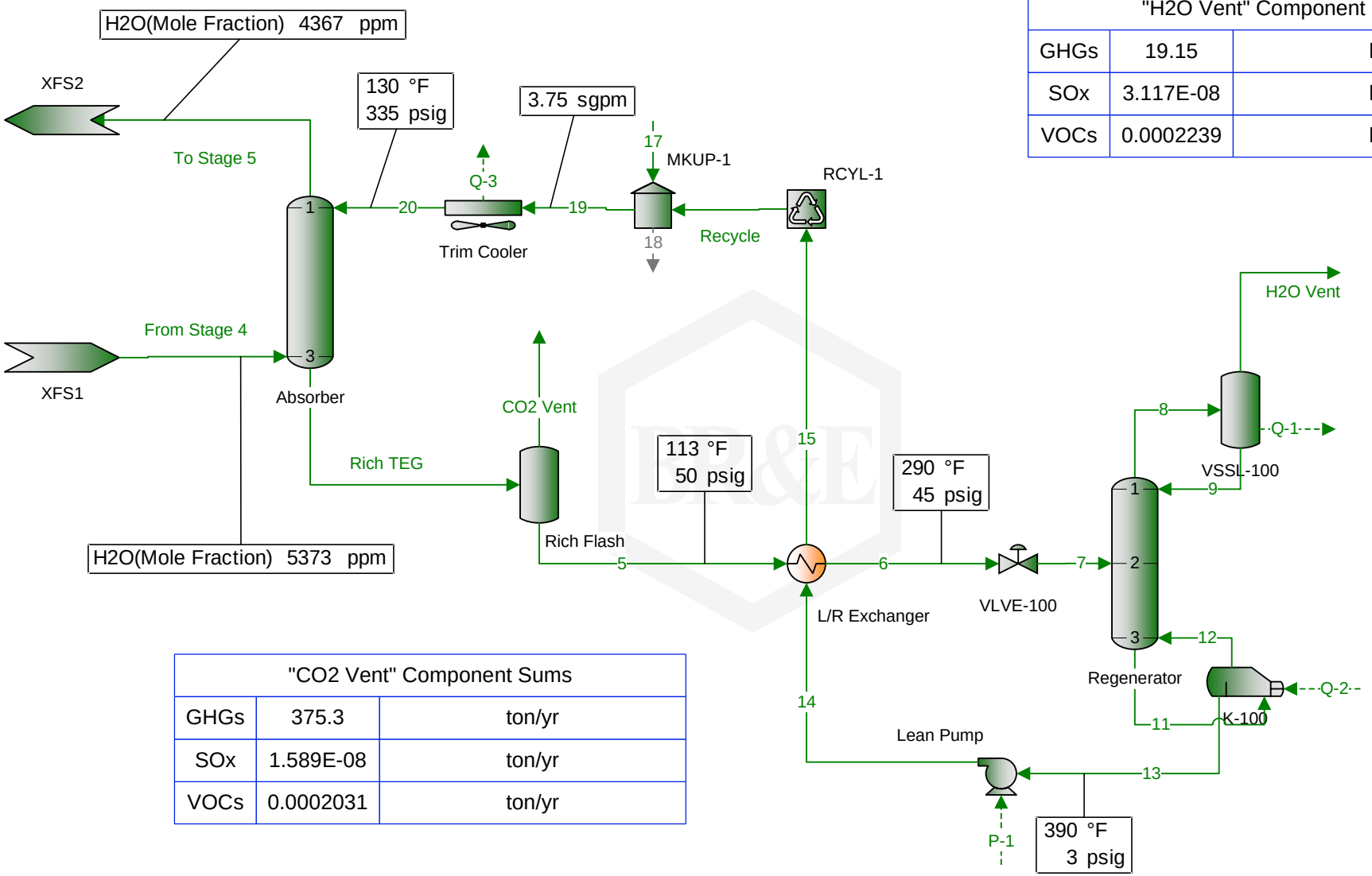
Names	Units	P-1	P-2	P-3	P-4	P-5
Energy Rate	hp	925.4	885.5	856.8	823.3	815.9

Names	Units	3	5	8	11	14	23
Water Content	lbm/MMSCF	3546	1733	874.6	458.2	256.4	208.2
Solids Formation Temperature	°F	31.8	31.5	31	33.7	44.5	51.3
Degrees above Solids Formation	°F	88.2	88.5	89	86.3	75.5	68.7

CO2_Sequestered 99.9 %

CO2 Dehydration with TEG

"H2O Vent" Component Sums		
GHGs	19.15	lb/h
SOx	3.117E-08	lb/h
VOCs	0.0002239	lb/h



"CO2 Vent" Component Sums		
GHGs	375.3	ton/yr
SOx	1.589E-08	ton/yr
VOCs	0.0002031	ton/yr

Updated Response 5/8/2028

Friday, May 9, 2025 7:42 AM

Andrews, Edward S <edward.s.andrews@wv.gov>

RE: Incomplete App Email

1 message

Michael Dearing <Michael.Dearing@erm.com> Thu, May 8, 2025 at 3:47 PM
To: "Andrews, Edward S" <edward.s.andrews@wv.gov>, William Calhoun <jack.calhoun@fidelisinfra.com>
Cc: Joseph R Kessler <joseph.r.kessler@wv.gov>, Anand Rathinasamy <anand.rathinasamy@erm.com>

Ed,

I just realized that one of the pages of comment responses got removed on accident I've attached the full comments here.

Thanks

ERM
Sustainability is our business

Michael Dearing

Principal Consultant, Scientist

Charleston (WV) **erm.com**

O +1-(612)-347-7144

C +1-(304)-654-2227

From: Michael Dearing <Michael.Dearing@erm.com>
Sent: Thursday, May 8, 2025 10:57 AM
To: Andrews, Edward S <edward.s.andrews@wv.gov>; William Calhoun <jack.calhoun@fidelisinfra.com>
Cc: Joseph R Kessler <joseph.r.kessler@wv.gov>; Anand Rathinasamy <anand.rathinasamy@erm.com>
Subject: RE: Incomplete App Email

Ed,

Attached is MGS CNP 1, LLC response to comments WV DEP issued on 4/22/2025 and 4/25/2025.

Let us know if you have additional questions.

Thanks

ERM
Sustainability is our business

Michael Dearing

Principal Consultant, Scientist

Charleston (WV) **erm.com**

O +1-(612)-347-7144

C +1-(304)-654-2227

From: Andrews, Edward S <edward.s.andrews@wv.gov>
Sent: Tuesday, April 22, 2025 3:21 PM
To: William Calhoun <jack.calhoun@fidelisinfra.com>; Michael Dearing <Michael.Dearing@erm.com>
Cc: Joseph R Kessler <joseph.r.kessler@wv.gov>
Subject: Incomplete App Email

EXTERNAL MESSAGE

RE: Application Status: Incomplete

MGS CNP 1, LLC/BECCS Plant

Permit Application No. R13-3708

Plant ID No. 053-00134

Mr. Calhoun:

Your application for a construction permit for a steam to electric generation facility was received by this Division on February 24, 2025, and assigned to the writer for review. Upon initial review of said application, it has been determined that the application as submitted is incomplete. It has been determined that the application as submitted is incomplete based on the following items:

1. Missing an discussion on the purpose (e.g. sell of electricity) of the excess electricity generated by the proposed boiler/steam turbine generator. If your proposed generation is to be used for a data center or other use that requires a redundant (backup) supply of electrical, please identify this alternative/backup source of electricity for the primary end user. This discussion needs to clearly answer whether the electricity is being sold, the planned amount of electricity to be sold, is there a purchase power agreement in place, please note the source of required electricity for normal startup operations will be purchased/supplied from local electricity wholesaler/another generating unit, and the nameplate rating of the generator. Please note if the facility is going to be connected to the electrical grid system (e.g. PJM), please explain the relationship (e.g., solely purchaser/consumer, wholesaler/generator).

Please note the amount of excess steam will be utilized to provide heat energy for the amine regenerator (temperature and pressure is also needed). Please provide details of the energy consumption of the facility, type of energy consumed (e.g. electricity, steam, natural gas) for the CO2 dehydration unit and compression and whether these energy requirements for these activities will be part of the auxiliary load of the facility or require additional combustion units.

The DAQ has an unclear understanding of what will be the source of the electricity to start the proposed emissions units. Please keep in mind, the emergency engine for the emergency generator can only be operated for 50 hours per year of non-emergency use. This discussion needs to describe the electrical system that the steam turbine/generator will be connected to and the source of the electricity needed for normal startup/shutdown operations. Please explain in further detail exactly how the fluidized bed boiler will be preheated for startup with the use of steam from an auxiliary boiler or other steam generator.

2. Missing completed individual control device sheets for the SCR, OxyCat, Wet FGD, and DSI for the boiler. Please identify key parameters that will be monitored to ensure compliance with the proposed emissions with respect to the pollutant(s) being controlled by the associated control device. Also, provide additional information regarding your proposed wet FGD system to determine if the residual moisture exiting the scrubber will pose a possible interference issue with a continuous opacity monitoring system as required in 45CSR2 and 45CSR2A. Given that the application is proposed to be a synthetic minor source under the Title V Program, please provide a monitoring plan for the CO Catalyst, Wet FGD and DSI control device to ensure compliance with proposed emission limits.

3. Please provide supporting information to support the claim that the proposed fuel will have sulfur content to satisfy the exemption criteria of 40CFR60.42b(k)(2). Regarding the wood (primary fuel) to be used as fuel for the boiler, the application does not identify the source(s) and species of wood to be used as fuel. If the source(s) of the wood fuel is going to be discarded from a manufacturing process, this/these source(s) of wood need to be identified and evaluated whether the material is a waste/fuel in accordance with 40 CFR 241.

4. Please separate the startup emissions for control devices that the performance is impacted/cannot be operated during startup conditions (e.g. SCR, oxidation catalyst, wet FGD) on startup event basis. If a control device performance is impacted during an shutdown, thus shutdown emissions on a short term basis needs to be identified as well. Any by-passing of a proposed control device needs to be identified for startup and shutdown events. Please define the ending of a startup event. The emission calculations are based on NG firing for 10 hours per startup and a total of 55 hours per year for start operations. This accounts for 5 startup events per year with 5 hours unaccounted for. Please explain these 5 unaccounted for hours per year for startup and are the emissions based on firing 100% wood for these hours on an uncontrolled basis.

5. Please justify reducing the organic HAPs emission factors published in AP-42 by 88% for the use of CO catalyst when the VOC removal efficiency of 60% for the CO catalyst was applied to account for the control VOC emissions for the boiler.

7. Regarding haul road emissions: Please provide the minimum and maximum weight of the vehicles for each of the percentiles used to determine the average weight of the vehicle, and justification of the silt loading. Did the average weight of the vehicles and distance traveled account for equipment used to manage the open stockpile? Given that all haul roads are proposed to be paved, is the open stockpile going to be located on a paved surface?

8. Please provide additional details on how the HCl emissions from the wastewater treatment unit were determined and how these HCl emissions will be determined when the wastewater treatment unit is in operation.

Please address the above deficiencies in writing by no later than May 12, 2025. Application review will not commence until the application has been deemed to be technically complete. Failure to respond to this request in a timely manner may result in the denial of the application.

Should you have any questions, please contact Ed Andrews at (304) 926-0499 ext. 41244 or reply to this email.

--

Edward Andrews, P.E.

Engineer

WVDEP/Division of Air Quality

304-414-1244

601 57th Street, SE

Charleston, WV 25304

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Incomplete Notice signed v0.04.pdf
975K

Incomplete
Notice sig...

MGS CNP 1, LLC
109 Post Oak Lane, Suite 140
Houston, TX 77024

FIDELIS

May 6, 2025

Laura M. Crowder, Director
WV Department of Environmental Protection (WVDEP)
Division of Air Quality (DAQ)
601 57th Street SE
Charleston, WV 25304

Re: Application Status: Incomplete
MGS CNP 1, LLC/BECCS Plant
Permit Application No. R13-3708
Plant ID No. 053-00134

Ms. Crowder,

Please find our responses to each of your questions/comments in the incomplete application notice sent to MGS CNP 1, LLC (MGS) on April 25th 2025. MGS has provided a detailed response in *italics* to address all the questions surrounding the application for the BECCS plant.

The following items will be attached to address comments.

- Updated emission calculations
- Fuel analysis
- Updated Equipment Table (Attachment I)

If you have additional questions, please do not hesitate to contact us.

Sincerely,

William D (Jack) Calhoun, P.E.
Vice President, HSE

MGS CNP 1, LLC
109 Post Oak Lane, Suite 140
Houston, TX 77024

WVDEP Questions and MGS Response
MGS CNP 1, LLC/BECCS Plant
Permit Application No. R13-3708
Plant ID No. 053-00134

WVDEP Question NO.1:

1. Missing an discussion on the purpose (e.g. sell of electricity) of the excess electricity generated by the proposed boiler/steam turbine generator. If your proposed generation is to be used for a data center or other use that requires a redundant (backup) supply of electrical, please identify this alternative/backup source of electricity for the primary end user. This discussion needs to clearly answer whether the electricity is being sold, the planned amount of electricity to be sold, is there a purchase power agreement in place, please note the source of required electricity for normal startup operations will be purchased/supplied from local electricity wholesaler/another generating unit, and the nameplate rating of the generator. Please note if the facility is going to be connected to the electrical grid system (e.g. PJM), please explain the relationship (e.g., solely purchaser/consumer, wholesaler/generator).
   MGS Response
   a. *All electricity generated by the steam turbine generator will be consumed by the biomass feed handling, biomass boiler, flue gas treatment, ash handling, post-combustion carbon capture, compression, chemical storage, raw water treatment, wastewater treatment, and utilities. The biomass boiler will combust sufficient biomass to produce approximately 2,300 metric tonnes per day of CO2 (210,000 lb/hr), which is the amount of carbon dioxide required to achieve the project's targeted carbon dioxide removal (CDR) credits. Steam generated in the boiler from the heat of combustion from the biomass is sent to the steam turbine generator to produce electricity to support the operating load of the facility. Any excess steam produced from the boiler will bypass the steam turbine generator to produce low-pressure steam or be condensed in the surface condenser. The steam turbine generator only produces electricity to support the operation of the facility and does not produce excess electricity for the local electrical grid or any onsite user such as a datacenter. The facility will be built to start-up and operate in island-mode and does not have a connection to the local electrical grid. Please note that only the onsite administration building, warehouse, and laboratory will have a connection to the local grid. Electricity for start-up will be provided by a 3,000 hp natural gas generator and start-up emissions from the natural gas generator have been accounted for in this application at emission (129-PKG-0001– EP) .*

   Please note the amount of excess steam will be utilized to provide heat energy for the amine regenerator (temperature and pressure is also needed). Please provide details of the energy consumption of the facility, type of energy consumed (e.g. electricity, steam,

natural gas) for the CO2 dehydration unit and compression and whether these energy requirements for these activities will be part of the auxiliary load of the facility or require additional combustion units.

MGS Response

Electricity and steam for CO2 dehydration and compression are included in the total energy consumption of the facility. The total normal operating electrical demand for the facility is approximately 40,000 hp, of which, 23,275 hp is required for the carbon capture unit, CO2 compression and conditioning systems (i.e., dehydration and deoxygenation). The biomass boiler produces approximately 572 klb/hr of high-pressure steam (1,710 psig at 1,000°F), of which, approximately half of the high-pressure steam bypasses the steam turbine and is flashed to generate 314 klb/hr of low-pressure steam (100 psig at 338°F) of which 257 klb/hr is used by the carbon capture unit. The balance of the high-pressure steam is used to generate electricity in the steam turbine.

The DAQ has an unclear understanding of what will be the source of the electricity to start the proposed emissions units. Please keep in mind, the emergency engine for the emergency generator can only be operated for 50 hours per year of non-emergency use. This discussion needs to describe the electrical system that the steam turbine/generator will be connected to and the source of the electricity needed for normal startup/shutdown operations. Please explain in further detail exactly how the fluidized bed boiler will be preheated for startup with the use of steam from an auxiliary boiler or other steam generator.

MGS Response

A 3,000 hp natural gas generator will be used to provide electricity to start-up the auxiliary and utility systems (e.g., raw water treatment, boiler feedwater, instrument air, etc.) required prior to starting up the biomass boiler. The biomass boiler will combust natural gas to pre-heat the fluidized bed. Boiler feedwater will be introduced to the biomass boiler to generate high-pressure steam. Once the heat input on the boiler has been established, biomass is introduced to the boiler, natural gas to the boiler as fuel is decreased, and the high-pressure steam production rate increases. The high-pressure steam is sent to the steam generator to produce electricity to support the operation of the facility, and the natural gas generator is slowly phased out. The application includes durations for operating the natural gas generator (100 hours) and for start-up of the biomass boiler (55 hours).

Please note, the emergency engine is only used for the firewater pumps. The application includes a duration of 100 hours for emissions from the firewater pumps; however, these pumps are only anticipated to be operated for testing and maintenance. If this needs to be reduced to 50 hours, we are accepting the recommendation and emission calculation have been updated..

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MGS Response

a. *Currently MGS CNP 1 does not have specification sheets from its vendors for each of these control devices, as the design of the plant is ongoing, and equipment vendors have not been finalized yet. All emission calculations are based on minimum guarantees provided by the vendors.*
b. *At this Time MGS CNP 1 does not have a complete monitoring plan as the plant design is not complete. Once design is finalized a modification will be filed to update these requirements.*

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MGS REsponse

a. *At this time MGS CNP 1 has determined that the Biomass analysis is proprietary information and will be following all procedures to maintain confidentiality for this analysis and for any future biomass samples. A redacted analysis will be provided that will include only the necessary information to verify the emissions. The Natural gas sample will be attached to this response.*

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shutdown events. Please define the ending of a startup event. The emission calculations are based on NG firing for 10 hours per startup and a total of 55 hours per year for start operations. This accounts for 5 startup events per year with 5 hours unaccounted for. Please explain these 5 unaccounted for hours per year for startup and are the emissions based on firing 100% wood for these hours on an uncontrolled basis.

MGS Response

a. *The SCR and CO Catalyst are bypassed for 11 hours during start-up of the biomass boiler (5 x 11 = 55 hrs). During this duration, the biomass boiler combusts natural gas for 10 hours to pre-heat the fluidized bed. The application includes allowances for start-up emissions based on guarantees provided by the biomass boiler vendor.*
b. *Please note, no reduction in emissions were assumed for the Direct Contact Cooler / Polishing Scrubber (DCCPS) – this is the same device as the wet FGD.*
c. *Emission have been separated into normal operation and startup operations and are attached to this email.*

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5. Please justify reducing the organic HAPs emission factors published in AP-42 by 88% for the use of CO catalyst when the VOC removal efficiency of 60% for the CO catalyst was applied to account for the control VOC emissions for the boiler.

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a. *The organic HAPs were adjusted by multiplying the ratio of the biomass boiler vendor's guaranteed VOC emission factor to the AP-42 VOC emission factor. These adjusted emission factors are also used to calculate the biomass boiler's organic HAPs.*

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6. Regarding haul road emissions: Please provide the minimum and maximum weight of the vehicles for each of the percentiles used to determine the average weight of the vehicle, and justification of the silt loading. Did the average weight of the vehicles and distance traveled account for equipment used to manage the open stockpile? Given that all haul roads are proposed to be paved, is the open stockpile going to be located on a paved surface?

MGS Response

a. *In the updated calculations, min and max weight for each vehicle type have been provided.*
b. *Due to BECCS facility not fitting into one of the defined categories in table 13.2.1-3. BECCS facility used Table 13.2.1-2. The Ubiquitous Baseline 0.6 g/m^2 and a multiplier of 4 is applied for low volume roads (< 500 Average Daily Traffic) to obtain a wintertime baseline silt loading of 4 X 0.6 = 2.4 g/m^2.*

c. *The biomass stockpile will be placed on a paved surface.*

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7. provide additional details on how the HCl emissions from the wastewater treatment unit were determined and how these HCl emissions will be determined when the wastewater treatment unit is in operation.

MGS Response

a. *It was conservatively assumed that approximately 10% of the HCl would be absorbed in the solution from the flue gas in the Direct Contact Cooler/ Polishing Scrubber. The solution is then sent to WWTP and it is conservatively assumed that all the HCl will be emitted to the atmosphere.*
b. *Once the operation of the plant begins, HCL emissions from the WWTP will be determined by sampling for HCl periodically at the inlet and outlet of the WWTP. Sampling data will be used to estimate HCl emissions and verify compliance.*

Additional DAQ Questions:

8. I notice that some (not all) of the control devices have the same ID number as the emission point. Also, the equipment id is also used as the emission point id. A different ID needs to be used for the emission point.

MGS Response

The attachment I have been updated to have separate Emission unit IDs and Emission Point IDs. Control Device IDs have changed as well.

9. From Attachment I, I read that the makeup sand and sodium bicarbonate storage silos are venting into the BFB boiler and therefore the exhaust is controlled by the same boiler control devices. Also, there is a by-pass stack for the CCU (122-T-1001).

MGS Response

Correct; however, the bypass stack is 121-PKG-3001 not 122-T-1001.

10. For the Sand Receiving Bin (121-S-1002), it lists as the control device that vent is piped to BFB. If that is the case, the emission point for the sand receiving bin would be either 121-PKG-3001 or 122-T-1001 and not 121-S-1002.

MGS Response

The Sand Receiving Hopper (121-S-1002) is not vented to 121-PKG-3001 (BFB Boiler Stack) or 122-T-1001 (Absorber). The Sand Receiving Hopper collects sand from the truck and directs it to the Inclined Sand Conveyor. The sand from the conveyor is stored in the Makeup Sand Silo (121-S-5001) which vents to the BFB Boiler Stack, when the carbon capture unit is not in operation or the Absorber during normal operation. The Sand Receiving Hopper is open to the atmosphere.

11. For the capacity of silo and bins, please list the mass capacity for the silo or bin and not the throughput rate. The open storage pile for the wood chips needs a capacity value either on a mass or area basis.

    MGS Response

    All sizes are preliminary and not finalized. It should also be noted that the emissions from these sources are based on the throughput handled and not depended on size of the silo or bins.

    a. *121-LS-1001 – Biomass Receiving Hopper = approx. 6,000 ft3*
    b. *121-LS-1002 – Biomass Receiving Hopper = approx. 6,000 ft3*
    c. *121-S-1001 – Biomass Feed Hopper = 1,800 ft3*
    d. *121-S-1002 – Sand Receiving Hopper = 6,000 ft3*
    e. *121-S-2001A/B – Biomass Fuel Metering Bin = 4,200 ft3 each*
    f. *121-S-4001A/B – Fly Ash Storage Silo = 9,500 ft3 each (166 tons each)*
    g. *121-S-5001 – Makeup Sand Silo = 1,660 ft3*
    h. *121-S-9901 – Sodium Bicarbonate Storage Silo = 2,000 ft3*
    i. *Chip Pile = 14 days of storage (71,265.6 klbs = 212.1 klb/hr x 24 hrs/day x 14 days)*

Response to Incomplete App 5/8/2025

Thursday, May 8, 2025 10:59 AM

Andrews, Edward S <edward.s.andrews@wv.gov>

RE: Incomplete App Email

1 message

Michael Dearing <Michael.Dearing@erm.com> Thu, May 8, 2025 at 10:57 AM
To: "Andrews, Edward S" <edward.s.andrews@wv.gov>, William Calhoun <jack.calhoun@fidelisinfra.com>
Cc: Joseph R Kessler <joseph.r.kessler@wv.gov>, Anand Rathinasamy <anand.rathinasamy@erm.com>

Ed,

Attached is MGS CNP 1, LLC response to comments WV DEP issued on 4/22/2025 and 4/25/2025.

Let us know if you have additional questions.

Thanks

ERM
Sustainability is our business

Michael Dearing

Principal Consultant, Scientist

Charleston (WV) **erm.com**

O +1-(612)-347-7144

C +1-(304)-654-2227

From: Andrews, Edward S <edward.s.andrews@wv.gov>
Sent: Tuesday, April 22, 2025 3:21 PM
To: William Calhoun <jack.calhoun@fidelisinfra.com>; Michael Dearing <Michael.Dearing@erm.com>
Cc: Joseph R Kessler <joseph.r.kessler@wv.gov>
Subject: Incomplete App Email

EXTERNAL MESSAGE

RE: Application Status: Incomplete
MGS CNP 1, LLC/BECCS Plant
Permit Application No. R13-3708
Plant ID No. 053-00134

Mr. Calhoun:

Your application for a construction permit for a steam to electric generation facility was received by this Division on February 24, 2025, and assigned to the writer for review. Upon initial review of said application, it has been determined that the application as submitted is incomplete. It has been determined that the application as submitted is incomplete based on the following items:

1. Missing an discussion on the purpose (e.g. sell of electricity) of the excess electricity generated by the proposed boiler/steam turbine generator. If your proposed generation is to be used for a data center or other use that requires a redundant (backup) supply of electrical, please identify this alternative/backup source of electricity for the primary end user. This discussion needs to clearly answer whether the electricity is being sold, the planned amount of electricity to be sold, is there a purchase power agreement in place, please note the source of required electricity for normal startup operations will be purchased/supplied from local electricity wholesaler/another generating unit, and the nameplate rating of the generator. Please note if the facility is going to be connected to the electrical grid system (e.g. PJM), please explain the relationship (e.g., solely purchaser/consumer, wholesaler/generator).

Please note the amount of excess steam will be utilized to provide heat energy for the amine regenerator (temperature and pressure is also needed). Please provide details of the energy consumption of the facility, type of energy consumed (e.g. electricity, steam, natural gas) for the CO2 dehydration unit and compression and whether these energy requirements for these activities will be part of the auxiliary load of the facility or require additional combustion units.

The DAQ has an unclear understanding of what will be the source of the electricity to start the proposed emissions units. Please keep in mind, the emergency engine for the emergency generator can only be operated for 50 hours per year of non-emergency use. This discussion needs to describe the electrical system that the steam turbine/generator will be connected to and the source of the electricity needed for normal startup/shutdown operations. Please explain in further detail exactly how the fluidized bed boiler will be preheated for startup with the use of steam from an auxiliary boiler or other steam generator.

2. Missing completed individual control device sheets for the SCR, OxyCat, Wet FGD, and DSI for the boiler. Please identify key parameters that will be monitored to ensure compliance with the proposed emissions with respect to the pollutant(s) being controlled by the associated control device. Also, provide additional information regarding your proposed wet FGD system to determine if the residual moisture exiting the scrubber will pose a possible interference issue with a continuous opacity monitoring system as required in 45CSR2 and 45CSR2A. Given that the application is proposed to be a synthetic minor source under the Title V Program, please provide a monitoring plan for the CO Catalyst, Wet FGD and DSI control device to ensure compliance with proposed emission limits.

3. Please provide supporting information to support the claim that the proposed fuel will have sulfur content to satisfy the exemption criteria of 40CFR60.42b(k)(2). Regarding the wood (primary fuel) to be used as fuel for the boiler, the application does not identify the source(s) and species of wood to be used as fuel. If the source(s) of the wood fuel is going to be discarded from a manufacturing process, this/these source(s) of wood need to be identified and evaluated whether the material is a waste/fuel in accordance with 40 CFR 241.

4. Please separate the startup emissions for control devices that the performance is impacted/cannot be operated during startup conditions (e.g. SCR, oxidation catalyst, wet FGD) on startup event basis. If a control device performance is impacted during an shutdown, thus shutdown emissions on a short term basis needs to be identified as well. Any by-passing of a proposed control device needs to be identified for startup and shutdown events. Please define the ending of a startup event. The emission calculations are based on NG firing for 10 hours per startup and a total of 55 hours per year for start operations. This accounts for 5 startup events per year with 5 hours unaccounted for. Please explain these 5 unaccounted for hours per year for startup and are the emissions based on firing 100% wood for these hours on an uncontrolled basis.

5. Please justify reducing the organic HAPs emission factors published in AP-42 by 88% for the use of CO catalyst when the VOC removal efficiency of 60% for the CO catalyst was applied to account for the control VOC emissions for the boiler.

7. Regarding haul road emissions: Please provide the minimum and maximum weight of the vehicles for each of the percentiles used to determine the average weight of the vehicle, and justification of the silt loading. Did the average weight of the vehicles and distance traveled account for equipment used to manage the open stockpile? Given that all haul roads are proposed to be paved, is the open stockpile going to be located on a paved surface?

8. Please provide additional details on how the HCl emissions from the wastewater treatment unit were determined and how these HCl emissions will be determined when the wastewater treatment unit is in operation.

Please address the above deficiencies in writing by no later than May 12, 2025. Application review will not commence until the application has been deemed to be technically complete. Failure to respond to this request in a timely manner may result in the denial of the application.

Should you have any questions, please contact Ed Andrews at (304) 926-0499 ext. 41244 or reply to this email.

--

Edward Andrews, P.E.
Engineer
WVDEP/Division of Air Quality
304-414-1244
601 57th Street, SE
Charleston, WV 25304

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Incomplete Notice Response v0.01.pdf
190SK

Incomplete Notice Re...

MGS CNP 1, LLC
109 Post Oak Lane, Suite 140
Houston, TX 77024

FIDELIS

May 6, 2025

Laura M. Crowder, Director
WV Department of Environmental Protection (WVDEP)
Division of Air Quality (DAQ)
601 57th Street SE
Charleston, WV 25304

Re: Application Status: Incomplete
MGS CNP 1, LLC/BECCS Plant
Permit Application No. R13-3708
Plant ID No. 053-00134

Ms. Crowder,

Please find our responses to each of your questions/comments in the incomplete application notice sent to MGS CNP 1, LLC (MGS) on April 25th 2025. MGS has provided a detailed response in *italics* to address all the questions surrounding the application for the BECCS plant.

The following items will be attached to address comments.

- Updated emission calculations
- Fuel analysis
- Updated Equipment Table (Attachment I)

If you have additional questions, please do not hesitate to contact us.

Sincerely,

William D (Jack) Calhoun, P.E.
Vice President, HSE

natural gas) for the CO2 dehydration unit and compression and whether these energy requirements for these activities will be part of the auxiliary load of the facility or require additional combustion units.

MGS Response

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    f. *121-S-4001A/B – Fly Ash Storage Silo = 9,500 ft3 each (166 tons each)*
    g. *121-S-5001 – Makeup Sand Silo = 1,660 ft3*
    h. *121-S-9901 – Sodium Bicarbonate Storage Silo = 2,000 ft3*
    i. *Chip Pile = 14 days of storage (71,265.6 klbs = 212.1 klb/hr x 24 hrs/day x 14 days)*

Natural Gas Analysis

Parameter	Units	Design Value
Higher Heating Value	BTU/scf	1,051
Lower Heating Value	BTU/scf	955
Pressure	psig	600
Temperature	°F	60
Composition (typical)		
Nitrogen	mol%	0.35
Carbon Dioxide	mol%	0.17
Methane	mol%	93.10
Ethane	mol%	5.99
Propane	mol%	0.33
n-Butane	mol%	0.03
i-Butane	mol%	0.02
n-Pentane	mol%	0.004
i-Pentane	mol%	0.007
Hexane	mol%	0.007
Total Sulfur	ppmv	10
Organic Sulfur	ppmv	10
H_2S	Grains / 100 SCF	0.25 (max)

Biomass Analysis

Parameter	Units	Value
Redacted		
Composition (base case)		
Redacted		
Sulfur	wt%, wet basis	0.01%
Redacted		

MGS CNP 1, LLC Biomass Fired Power Plant Initial Minor NSR Application Emission Calculations Summary

Emission ID	NO_x		CO		PM		PM_{10}		$PM_{2.5}$		PM- Filterable		PM_{10} - Filterable		$PM_{2.5}$ - Filterable		VOC		SO_2		NH_3		H_2SO_4		Pb	
	lb/hr	Tons/Yr	lb/hr	Tons/Yr	lb/hr	Tons/Yr	lb/hr	Tons/Yr	lb/hr	Tons/Yr	lb/hr	Tons/Yr	lb/hr	Tons/Yr	lb/hr	Tons/Yr	lb/hr	Tons/Yr	lb/hr	Tons/Yr	lb/hr	Tons/Yr	lb/hr	Tons/Yr	lb/hr	Tons/Yr
121-H-2001	20.20	90.42	10.20	45.65	15.54	67.83	15.54	67.83	15.54	67.83	7.99	34.87	7.99	34.87	7.99	34.87	4.43	18.33	11.58	50.78	5.09	20.98	6.35	27.86	0.05	0.20
129-P-9402	3.95	0.10	3.45	0.09	0.20	<0.01	0.20	<0.01	0.20	<0.01	0.20	<0.01	0.20	<0.01	0.20	<0.01	3.95	0.10	<0.01	<0.01	--	--	--	--	--	--
129-PKG-0001	6.61	0.17	13.23	0.33	0.20	<0.01	0.20	<0.01	0.20	<0.01	0.20	<0.01	0.20	<0.01	0.20	<0.01	5.67	0.14	0.03	<0.01	--	--	--	--	--	--
127-PKG-0001	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.51	2.10	0.64	2.79	--	--
121-LS-1001 / 121-LS-1002	--	--	--	--	1.08	4.72	1.08	4.72	1.08	4.72	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-1001	--	--	--	--	0.06	0.19	0.03	0.09	<0.01	0.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-1002	--	--	--	--	0.06		0.03		<0.01		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHIP-1	--	--	--	--	0.11	0.37	0.05	0.18	<0.01	0.03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-S-1001	--	--	--	--	0.11	0.37	0.05	0.18	<0.01	0.03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-1003	--	--	--	--	0.06	0.19	0.03	0.09	<0.01	0.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-2001 A	--	--	--	--	0.06	0.19	0.03	0.09	<0.01	0.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-2001 B	--	--	--	--	0.06		0.03		<0.01		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-S-2001 A	--	--	--	--	0.06	0.19	0.03	0.09	<0.01	0.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-S-2001 B	--	--	--	--	0.06		0.03		<0.01		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHIP-2	--	--	--	--	--	0.21	--	0.11	--	0.02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-4001 A	--	--	--	--	0.54	1.79	0.25	0.85	0.04	0.13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-4001 B	--	--	--	--	0.54		0.25		0.04		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-4002	--	--	--	--	0.54	1.79	0.25	0.85	0.04	0.13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-4003	--	--	--	--	0.54	1.79	0.25	0.85	0.04	0.13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-4004	--	--	--	--	0.54	1.79	0.25	0.85	0.04	0.13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-4005	--	--	--	--	0.54	1.79	0.25	0.85	0.04	0.13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-4006 A	--	--	--	--	0.39	1.31	0.19	0.62	0.03	0.09	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-4006 B	--	--	--	--	0.39		0.19		0.03		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-4007 A	--	--	--	--	0.39	1.31	0.19	0.62	0.03	0.09	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-4007 B	--	--	--	--	0.39		0.19		0.03		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-S-4001 A	--	--	--	--	0.02	0.06	<0.01	0.03	<0.01	<0.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-S-4001 B	--	--	--	--	0.02		<0.01		<0.01		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-TL-0001	--	--	--	--	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-5001 A	--	--	--	--	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-5001 B	--	--	--	--	<0.01		<0.01		<0.01		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-5002A	--	--	--	--	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-5002B	--	--	--	--	<0.01		<0.01		<0.01		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-S-1002	--	--	--	--	0.35	<0.01	0.17	<0.01	0.17	<0.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-1004	--	--	--	--	0.17	<0.01	0.08	<0.01	0.08	<0.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-5003 A	--	--	--	--	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-5003 B	--	--	--	--	<0.01		<0.01		<0.01		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-5004 A	--	--	--	--	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-CV-5004 B	--	--	--	--	<0.01		<0.01		<0.01		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-S-9902 A	--	--	--	--	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-S-9902 B	--	--	--	--	<0.01		<0.01		<0.01		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
121-X-9901 A / 121-X-9901 B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
129-CT-9301	--	--	--	--	2.02	3.01	1.48	2.52	0.67	1.26	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PM-PlantRd	--	--	--	--	10.74	9.38	2.15	1.88	0.53	0.46	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
129-TK-9402	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
122-TK-9902	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.01	<0.01	--	--	--	--	--	--	--	--
122-TK-9901	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.01	<0.01	--	--	--	--	--	--	--	--
BECCS-FUG	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	8.32	36.46	--	--	0.60	2.64	--	--	--	--
VOC - Amine -LOAD	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.01	<0.01	--	--	--	--	--	--	--	--
Totals:	**30.76**	**90.68**	**26.88**	**46.06**	**35.76**	**98.38**	**23.48**	**83.31**	**18.86**	**75.26**	**8.38**	**34.88**	**8.38**	**34.88**	**8.38**	**34.88**	**22.40**	**55.03**	**11.62**	**50.78**	**6.20**	**25.72**	**6.99**	**30.65**	**0.05**	**0.20**

MGS CNP 1, LLC Biomass Fired Power Plant Initial Minor NSR Application Emission Calculations HAPs Summary																
Emission ID	**Total HAPs**		**Acetaldehyde**		**Acrolein**		**Benzene**		**Formaldehyde**		**HCl**		**Styrene**		**Toluene**	
	lb/hr	**Tons/Yr**	**lb/hr**	**Tons/Yr**	**lb/hr**	**Tons/Yr**	**lb/hr**	**Tons/Yr**	**lb/hr**	**Tons/Yr**	**lb/hr**	**Tons/Yr**	**lb/hr**	**Tons/Yr**	**lb/hr**	**Tons/Yr**
121-H-2001	5.43	23.36	--	8.14	--	1.95	--	2.05	--	2.56	1.18	5.65	--	0.93	--	0.45
129-P-9402	0.02	<0.01	--	<0.01	--	<0.01	--	<0.01	--	<0.01	--	--	--	--	--	<0.01
129-PKG-0001	1.43	0.04	--	<0.01	--	<0.01	--	<0.01	--	0.03	--	--	--	<0.01	--	<0.01
127-PKG-0001	0.12	0.57	--	--	--	--	--	--	--	--	0.12	0.57	--	--	--	--
Totals:	**6.99**	**23.96**	**<0.01**	**8.14**	**<0.01**	**1.96**	**<0.01**	**2.05**	**<0.01**	**2.58**	**1.30**	**6.22**	**<0.01**	**0.93**	**<0.01**	**0.45**

List of Tables in Attachment N - Emission Calculations

Table N-1 Bubbling Fluidized Bed Boiler
Table N-2 Biomass Unloading (Receiving Hoppers)
Table N-3 Emission Factors for Biomass Handling Process
Table N-4 Emissions from Biomass Handling Process
Table N-5 Storage Pile Wind Erosion
Table N-6 Fly Ash Handling Process
Table N-7 Sand Handling Process
Table N-8 Sodium Bicarbonate Handling Process
Table N-9 Cooling Tower
Table N-10 Transport Truck Road Particulate Matter Emissions
Table N-11 Fixed Roof Tanks
Table N-12 Fire Water Pump
Table N-13 NG Startup Generator
Table N-14 Equipment Leaks
Table N-15 Degraded Amine Loadout
Table N-16 Waste Water Treatment Plant

Table N-1 Bubbling Fluidized Bed Boiler
MGS CNP 1, LLC

Source Name:	Wood Chip Fired Fluidized Bed Boiler	**EPN:**	121-PKG-3001; 122-T-1001		
Proposed MAERT Limits		**Date:**	5/6/2025		
FIN	**EPN**	**Air Contaminant**		**lbs/hr [1]**	**tpy**
121-H-2001	121-PKG-3001 122-T-1001	NOx		20.20	90.42
		CO		10.20	45.65
		PM- Filterable		7.99	34.87
		PM10 - Filterable		7.99	34.87
		PM2.5 - Filterable		7.99	34.87
		PM		15.54	67.67
		PM10		15.54	67.67
		PM2.5		15.54	67.67
		Total VOC		4.43	18.33
		SO2		11.58	50.78
		NH3		5.09	20.98
		H2SO4		6.35	27.86
		Pb		0.05	0.20
		HCl		1.18	5.65
		HAPs		5.42	23.34

[1] hourly emission rate is the emission rate under normal operating conditions.

Process Description:

Emissions from the boiler result from combustion of clean wood products. Emissions from the boiler are controlled by the following equipment:

-Pulse Jet Fabric Filter to control PM/PM10/PM2.5

-Selective Catalytic Reduction unit fed with aqueous ammonia to control NOx

-CO Oxidation Catalyst to control CO

-Injection of Caustic to Control SOx (Wet Flue Gas Desulfurization)

-Dry Sorbent injection system injects Sodium Bicarbonate (NaHCO3) into the flue gas to control HCl and H2SO4

Bases and Factors:

Factors are based on Vendor's Guarantee. The emission calculations are based on emission factors provided by the boiler supplier.

The carbon capture unit will capture 95% of the CO2 in the boiler flue gas. It is assumed that the carbon capture unit will not reduce the NO_X, CO and VOC emissions from boiler combustion.

As a result of the absorption process and reactions in the CCU, a small amount of solvent amines, nitrosamines, nitramines, acetaldehyde, formaldehyde and ammonia are produced and released into the atmosphere along with the CO2-depleted gas stream. These emissions are added to those from boiler combustion to arrive at total emissions of these compounds.

Emissions of these compounds are estimated based on the best information currently available.

Since the flue gas temperature after the CCCU is close to the ambient air temperature, it is assumed that no condensable particulate matter will be formed in the flue gas after the CCU.

Pounds per Hour Emissions:

Max Emissions (lb/hr) = Emission Factor (lb/MMBtu) x Boiler Max Heat Input (MMBtu/hr)

Tons per Year Emissions:

Max Emissions (tpy) = [Max Emissions (lbs/hr) x Annual Operating Hours (hr/yr)] / 2,000 (lbs/ton)

Emission Calculations

Ideal Gas Law Constant R:	0.73024	$atm.ft^3.lbmol^{-1}.°R^{-1}$	
Volume of 1 lbmol gas @ 1.04 atm and 104 °F	396.04	ft3/lbmol	
Volume of 1 lbmol gas @ 1 atm and 32 °F:	359.04	ft3/lbmol	
1 hour:	60.00	min	
Gas Temperature	104.00	°F	
Gas Pressure	16.00	inwg	
Gas Pressure	1.04	atm, absolute	1 atm = 406.78 in H2O
Total Mass Flow	1,036,759	lb/hr	
CO2	210,734	lb/hr	
H2O	45,945	lb/hr	
O2	54,236	lb/hr	
Water Vapor Volumetric Flow before CCU	16829.40	acfm	
Dry Flue Gas Volumetric Flow before CCU	213,814.19	acfm, dry	
Wet Flue Gas Volumetric Flow before CCU	230,643.59	acfm, wet	
Wet Flue Gas Volumetric Flow before CCU	220,995.00	scfm, wet	
CO2 Removal Efficiency	95%		
Wet Flue Gas Flow after CCU	835,337.00	lb/hr	
MW of the Wet Flue Gas after CCU	27.38	lb/lbmol	
Wet Flue Gas Volumetric Flow after CCU	310,179.62	Nm3/hr	

Data:

Boiler Maximum Heat Input:	944	MMBtu/hr, HHV
Annual Operating Hours:	8760	hours/year
Startup Hours per Year:	55	hours/yr
Startup Hours + CCU Out of Service	823	hours/yr
CCU Hours Out of Service	768	hours/yr
Maximum Heat Input from NG during Startup:	180	MMBtu/hr
Average Heat Input from NG during Startup:	131.1	MMBtu/hr
Duration of NG Combustion during each Startup:	10	hours
Average Heat Input from NG + Biomass during Startup:	414.3	MMBtu/hr
No. of Startups:	5	
Duration per Startup:	11	hours/startup (before SCR / CO catalyst inlet temperature is achieved)

Table N-1 Bubbling Fluidized Bed Boiler
MGS CNP 1, LLC

Total Boiler Operations Emissions with Startup + Normal Ops

Pollutant	Startup		Normal Ops w/ CCU		Total	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
NOx	90.91	2.50	20.20	87.92	20.20	90.42
CO	0.29	1.25	10.20	44.40	10.20	45.65
PM 2.5/10/FIL	3.51	0.10	7.99	34.78	7.99	34.87
Total PM	6.82	0.02	15.54	67.65	15.54	67.67
Total VOC	0.73	0.02	4.43	18.31	4.43	18.33
SO2	13.74	0.38	11.58	50.40	11.58	50.78
NH3	3.08	12.21	5.09	20.98	5.09	20.98
H2SO4	7.54	0.21	6.35	27.66	6.35	27.86
Pb	-	-	0.05	0.20	0.05	0.20
HCl	18.64	0.51	1.18	5.14	1.18	5.65
Hg	0.11	0.02	<0.01	0.01	<0.01	0.03
Organic HAPs [3]	0.73	<0.01	1.91	8.32	2.64	8.32
Metallic HAPs [4]	0.12	<0.01	0.27	1.20	0.39	1.20
HAPs from CCU[5]	-	-	2.06	8.17	2.06	8.17

Boiler Normal Operations (with CCU) 8705 hours

Pollutant	**Normal Operation Emission Factor**	**Normal Operation Emission Factor**	**Normal Operation (Hourly Maximum)**	**Normal Operation (Annual)**	**Note**
	ppmvd	lb/MMBtu	lb/hr	tpy	
NOx	13.55	0.021398	20.20	87.92	SCR Vendor's guarantee
CO	11.24	0.010805	10.20	44.40	CO Catalyst Vendor's guarantee
PM 2.5/10/FIL	-	0.008464	7.99	34.78	Vendor's Guarantee; Same emission factor with Pulse Jet Filter
Total PM	-	0.016464	15.54	67.65	See Note 1
VOC (CCU)	-	0.002695	2.54	10.10	See "Emissions from CCU"
VOC (Boiler Combustion)	-	0.002000	1.89	8.22	Vendor's Guarantee
SO2	5.58	0.012267	11.58	50.40	Wet DesulfurizationVendor's guarantee
NH3	3.65	0.002133	2.01	8.76	Vendor's guarantee
H2SO4	2.00	0.006731	6.35	27.66	63% removal efficiency by wet desulfurization
Pb	-	0.000048	0.05	0.20	Table 1.4-4 in AP-42
HCl	1.00	0.001251	1.18	5.14	Dry In-Duct Sorbent Injection
Hg	-	0.000004	<0.01	0.01	Table 1.4-4 AP-42
Organic HAPs [3]	-	0.002025	1.91	8.32	Adjusted AP-42 Chapter 1.6 Table 1.6-3
Metallic HAPs [4]	-	0.000291	0.27	1.20	See Note 4

Boiler Startup Emissions (without CCU) 55 hours

Pollutant:	**Startup Emission Factor**	**Startup Operation (Hourly Maximum)**	**Vendor Guaranteed Emissions Per Startup Annual**	**Startup Annual Total**	**Note**
	lb/MMBtu	lb/h	tpy	tpy	
NOx	-	90.91	0.5	2.5	Vendor's Guarantee
CO	-	45.45	0.25	1.25	Vendor's Guarantee
PM 2.5/10/FIL	0.0085	3.51	-	0.10	Vendor's Guarantee; Same emission factor with Pulse Jet Filter
Total PM	0.0165	6.82	-	0.19	Vendor's Guarantee for filterable PM + adjusted AP-42 emission factor for condensable PM. See Note 7
VOC (Boiler Combustion)	-	0.73	0.004	0.02	Vendor's Guarantee
SO2	0.0332	13.74	-	0.38	See Note 6
H2SO4	0.0182	7.54	-	0.21	63% removal efficiency by wet desulfurization.
Pb	0.00005	0.02	-	0.00	Table 1.4-2 in AP-42
HCl	0.045	18.64	-	0.51	97.22% removal efficiency by DSI
Hg	0.0003	0.11	-	0.00	Table 1.4-4 in AP-42
Organic HAPs [3]	-	0.73	0.004	0.02	Equal to VOC value
Metallic HAPs [4]	0.0003	0.12	-	0.003	See Note 4

1. Total particulate matter (PM) = filterable PM + condensable PM. Emission factor of 0.0085 lb/MMBtu for filterable PM, PM10, and PM2.5 is based on vendor's guarantee; Emission factor of 0.008 lb/MMBtu is based on a aggregation of test data collected from operating units. The flue gas from the proposed boiler will pass through the amine absorber and the wash water column. These steps will reduce the temperature of the flue gas to approximately 110 °F before it is discharged to the atmosphere. Therefore, the data entries for stokers using a wet scrubber as PM control and with complete test data records were used to derive the average emissions factor of condensable PM. The data are attached as supporting material at the end of the boiler emissions calculation.

2. Amine emissions from the CCU absorber stack are quantified based on engineering judgement and similar projects.

3. It is assumed that the amount of organic HAPs is the same as the amount of VOCs from fuel combustion. This assumption is supported by Table 1.6-3 in AP-42.

4. The emission factor for total metallic HAPs is based on Table 1.6-4 in AP-42. However, the emission factor for Manganese in AP-42 is adjusted after auditing AP-42 for outlier data. There is one FBC entry in the supporting database with an Manganese emission factor of 1.14E-05. The data used for this project is 10 times that value.

5. The vendor guaranteed VOC emission factor is 0.005 lb/MMBtu in the flue gas before the SCR/CO catalyst. Due to the presence of the CO catalyst, a VOC removal efficiency of 60% is applied to reduce the VOC emissions.

6. The emission factor for startup is the higher of the two emission factors of biomass combustion and natural gas combustion. For natural gas combustion during startup, the SO2 emissions are calculated as follows,

(131.1 MMBtu/hr * 1000000 Btu/MMBtu * 55 hrs for startup/yr)/(1051 Btu/Scf)/(379.48 Scf/lbmol) * (10 ppmv S/Scf) / 1000000 * 64 lb/lbmol = 11.57 lb/yr = 0.01 tpy

7. The amount of filterable PM/PM10/PM2.5 includes the particulates from the fresh sand storage silo and the sodium bicarbonate storage silo.

Table N-1 Bubbling Fluidized Bed Boiler
MGS CNP 1, LLC

Emissions from CCU

Pollutant	Normal Operation Emission Factor	Normal Operation (Hourly Maximum)	Normal Operation (Annual)
	mg/Nm3	lb/hr	tpy
Solvent Amines	0.70	0.48	1.90
Ammonia	4.50	3.08	12.21
Nitrosamines [1]	0.01	0.01	0.03
Nitramines	0.01	0.01	0.03
Acetaldehyde [1]	2.85	1.95	7.73
Formaldehyde [1]	0.15	0.10	0.41
Total VOCs from CCU	3.72	2.54	10.10
Total HAPs from CCU	3.01	2.06	8.17

1. HAPs

HAP Emissions from Boiler Combustion

Reference: Table 1.6-3 of AP-42

Organic Compound	Average Emission Factor (lb/MMBtu)	CAS	HAP	HAP EF (lb/MMBtu)	Project HAP EF (lb/MMBtu) [3]	Emissions (tpy) [4]	Notes
Acenaphthene	9.10E-07	83-32-9	Yes	9.10E-07	1.08E-07	0.00	
Acenaphthylene	5.00E-06	208-96-8	Yes	5.00E-06	5.91E-07	0.00	
Acetaldehyde	8.30E-04	75-07-0	Yes	8.30E-04	9.81E-05	0.41	
Acetone	1.90E-04	67-64-1	No	0.00E+00	0.00E+00	0.00	Not a VOC or a HAP
Acetophenone	3.20E-09	98-86-2	Yes	3.20E-09	3.78E-10	0.00	
Acrolein	4.00E-03	107-02-8	Yes	4.00E-03	4.73E-04	1.95	
Anthracene	3.00E-06	120-12-7	Yes	3.00E-06	3.55E-07	0.00	
Benzaldehyde	<8.5E-07	100-52-7	No	0.00E+00	0.00E+00	0.00	
Benzene	4.20E-03	71-43-2	Yes	4.20E-03	4.96E-04	2.05	
Benzo(a)anthracene	6.50E-08	56-55-3	Yes	6.50E-08	7.68E-09	0.00	
Benzo(a)pyrene	2.60E-06	50-32-8	Yes	2.60E-06	3.07E-07	0.00	
Benzo(b)fluoranthene	1.00E-07	205-99-2	Yes	1.00E-07	1.18E-08	0.00	
Benzo(e)pyrene	2.60E-09	192-97-2	Yes	2.60E-09	3.07E-10	0.00	
Benzo(g,h,i)perylene	9.30E-08	191-24-2	Yes	9.30E-08	1.10E-08	0.00	
Benzo(j,k)fluoranthene	1.60E-07	205-82-3	Yes	1.60E-07	1.89E-08	0.00	
Benzo(k)fluoranthene	3.60E-08	207-08-9	Yes	3.60E-08	4.26E-09	0.00	
Benzoic acid	4.70E-08	65-85-0	No	0.00E+00	0.00E+00	0.00	
bis(2-Ethylhexyl)phthalate	4.70E-08	117-81-7	Yes	4.70E-08	5.56E-09	0.00	
Bromomethane	1.50E-05	74-83-9	Yes	1.50E-05	1.77E-06	0.01	
2-Butanone (MEK)	5.40E-06	78-93-3	Yes	5.40E-06	6.38E-07	0.00	
Carbazole	1.80E-06	86-74-8	Yes	1.80E-06	2.13E-07	0.00	
Carbon tetrachloride	4.50E-05	56-23-5	Yes	4.50E-05	5.32E-06	0.02	
Chlorine	7.90E-04	7782-50-5	Yes	7.90E-04			
Chlorobenzene	3.30E-05	108-90-7	Yes	3.30E-05	3.90E-06	0.02	
Chloroform	2.80E-05	67-66-3	Yes	2.80E-05	3.31E-06	0.01	
Chloromethane	2.30E-05	74-87-3	Yes	2.30E-05	2.72E-06	0.01	
2-Chloronaphthalene	2.40E-09	91-58-7	Yes	2.40E-09	2.84E-10	0.00	
2-Chlorophenol	2.40E-08	95-57-8	No	0.00E+00	0.00E+00	0.00	
Chrysene	3.80E-08	218-01-9	Yes	3.80E-08	4.49E-09	0.00	
Crotonaldehyde	9.90E-06	4170-30-3/123-73-9/15798-64-8	No	0.00E+00	0.00E+00	0.00	
Decachlorobiphenyl	2.70E-10	2051-24-3	Yes	2.70E-10	3.19E-11	0.00	
Dibenzo(a,h)anthracene	9.10E-09	53-70-3	Yes	9.10E-09	1.08E-09	0.00	
1,2-Dibromoethene	5.50E-05	540-49-8/590-12-5	No	0.00E+00	0.00E+00	0.00	
Dichlorobiphenyl	7.40E-10	34883-43-7	Yes	7.40E-10	8.75E-11	0.00	
1,2-Dichloroethane	2.90E-05	107-06-2	Yes	2.90E-05	3.43E-06	0.01	
Dichloromethane	2.90E-04	75-09-2	Yes	2.90E-04	3.43E-05	0.14	
1,2-Dichloropropane	3.30E-05	78-87-5	Yes	3.30E-05	3.90E-06	0.02	
2,4-Dinitrophenol	1.70E-07	51-28-5	Yes	1.70E-07	2.01E-08	0.00	
Ethylbenzene	3.10E-05	100-41-4	Yes	3.10E-05	3.66E-06	0.02	
Fluoranthene	1.60E-06	206-44-0	Yes	1.60E-06	1.89E-07	0.00	
Fluorene	3.40E-06	86-73-7	Yes	3.40E-06	4.02E-07	0.00	
Formaldehyde	4.40E-03	50-00-0	Yes	4.40E-03	5.20E-04	2.15	
Heptachlorobiphenyl	6.60E-11	28655-71-2	Yes	6.60E-11	7.80E-12	0.00	
Hexachlorobiphenyl	5.50E-10	Multiple	Yes	5.50E-10	6.50E-11	0.00	
Hexanal	7.00E-06	66-25-1	No	0.00E+00	0.00E+00	0.00	
Heptachlorodibenzo-p-dioxins	2.00E-09	Multiple	Yes	2.00E-09	2.36E-10	0.00	
Heptachlorodibenzo-p-furans	2.40E-10	Multiple	Yes	2.40E-10	2.84E-11	0.00	
Hexachlorodibenzo-p-dioxins	1.60E-06	Multiple	Yes	1.60E-06	1.89E-07	0.00	
Hexachlorodibenzo-p-furans	2.80E-10	Multiple	Yes	2.80E-10	3.31E-11	0.00	
Hydrogen chloride	1.90E-02	7647-01-0	Yes	1.90E-02			
Indeno(1,2,3,c,d)pyrene	8.70E-08	193-39-5	Yes	8.70E-08	1.03E-08	0.00	
Isobutyraldehyde	1.20E-05	78-84-2	No	0.00E+00	0.00E+00	0.00	
Methane	2.10E-02	74-82-8	No	0.00E+00	0.00E+00	0.00	
2-Methylnaphthalene	1.60E-07	91-57-6	Yes	1.60E-07	1.89E-08	0.00	
Monochlorobiphenyl	2.20E-10	27323-18-8	Yes	2.20E-10	2.60E-11	0.00	
Naphthalene	9.70E-05	91-20-3	Yes	9.70E-05	1.15E-05	0.05	

Table N-1 Bubbling Fluidized Bed Boiler
MGS CNP 1, LLC

Organic Compound	Average Emission Factor (lb/MMBtu)	CAS	HAP	HAP EF (lb/MMBtu)	Project HAP EF (lb/MMBtu) [3]	Emissions (tpy) [4]	Notes
2-Nitrophenol	2.40E-07	88-75-5	No	0.00E+00	0.00E+00	0.00	
4-Nitrophenol	1.10E-07	100-02-7	Yes	1.10E-07	1.30E-08	0.00	
Octachlorodibenzo-p-dioxins	6.60E-08	3268-87-9	Yes	6.60E-08	7.80E-09	0.00	
Octachlorodibenzo-p-furans	8.80E-11		Yes	8.80E-11	1.04E-11	0.00	
Pentachlorodibenzo-p-dioxins	1.50E-09		Yes	1.50E-09	1.77E-10	0.00	
Pentachlorodibenzo-p-furans	4.20E-10		Yes	4.20E-10	4.96E-11	0.00	
Pentachlorobiphenyl	1.20E-09		Yes	1.20E-09	1.42E-10	0.00	
Pentachlorophenol	5.10E-08	87-86-5	Yes	5.10E-08	6.03E-09	0.00	
Perylene	5.20E-10	198-55-0	Yes	5.20E-10	6.15E-11	0.00	
Phenanthrene	7.00E-06	85-01-8	Yes	7.00E-06	8.27E-07	0.00	
Phenol	5.10E-05	108-95-2	Yes	5.10E-05	6.03E-06	0.02	
Propanal (propionaldehyde)	3.20E-05	123-38-6	Yes	3.20E-05	3.78E-06	0.02	
Pyrene	3.70E-06	129-00-0	No	0.00E+00	0.00E+00	0.00	
Styrene	1.90E-03	100-42-5	Yes	1.90E-03	2.25E-04	0.93	
2,3,7,8-Tetrachlorodibenzo-p-dioxins	8.60E-12	1746-01-6	Yes	8.60E-12	1.02E-12	0.00	
Tetrachlorodibenzo-p-dioxins	4.70E-10		Yes	4.70E-10	5.56E-11	0.00	
2,3,7,8-Tetrachlorodibenzo-p-furans	9.00E-11		Yes	9.00E-11	1.06E-11	0.00	
Tetrachlorodibenzo-p-furans	7.50E-10		Yes	7.50E-10	8.86E-11	0.00	
Tetrachlorobiphenyl	2.50E-09	35693-99-3	No	0.00E+00	0.00E+00	0.00	
Tetrachloroethene	3.80E-05	127-18-4	Yes	3.80E-05	4.49E-06	0.02	Not a VOC
o-Tolualdehyde	7.20E-06	529-20-4	No	0.00E+00	0.00E+00	0.00	
p-Tolualdehyde	1.10E-05	104-87-0	No	0.00E+00	0.00E+00	0.00	
Toluene	9.20E-04	108-88-3	Yes	9.20E-04	1.09E-04	0.45	
Trichlorobiphenyl	2.60E-09	7012-37-5	Yes	2.60E-09	3.07E-10	0.00	
1,1,1-Trichloroethane	3.10E-05	71-55-6	Yes	3.10E-05	3.66E-06	0.02	Not a VOC
Trichloroethene	3.00E-05	79-01-6	Yes	3.00E-05	3.55E-06	0.01	
Trichlorofluoromethane	4.10E-05	75-69-4	No	0.00E+00	0.00E+00	0.00	
2,4,6-Trichlorophenol	<2.2E-08	88-06-2	Yes	<2.2E-08	2.60E-09	0.00	
Vinyl Chloride	1.80E-05	85-01-4	Yes	1.80E-05	2.13E-06	0.01	
o-Xylene	2.50E-05	95-47-6	Yes	2.50E-05	2.95E-06	0.01	
Total organic compounds (TOC) [1]	0.039						
Volatile organic compounds (VOC) [2]	0.017						
Nitrous Oxide (N2O)	0.013	10024-97-2	No	0.00E+00	0.00E+00		
Carbon Dioxide (CO2)	195	124-38-9	No	0.00E+00	0.00E+00		
VOC Total	1.69E-02						
HAPs Total (Organic + Inorganic)				**0.036923**			
Organic HAPs				**1.71E-02**	**2.03E-03**	8.37	

1. Per note *ai* in AP-42 Section 1.6, factor for TOC is the sum of all factors in table except nitrous oxide and carbon dioxide.
2. Per note *aj* in AP-42 Section 1.6, factor for VOC is the sum of all factors in table except hydrogen chloride, chlorine, formaldehyde, tetrachloroethene, 1,1,1,-trichloroethane, dichloromethane, acetone, nitrous oxide, methane, and carbon dioxide.
3. Project HAP EFs are proportionally adjusted to match the project VOC EFs.
4. The annual emissions are conservatively estimated using the maximum heat input capacity of the boiler and 8760 hours per year.

Reference: Table 1.6-4 of AP-42

Trace Element	Average Emission Factor (lb/MMBtu)	HAP	HAP EF (lb/MMBtu)
Antimony	7.90E-06	Yes	0.0000079
Arsenic	2.20E-05	Yes	0.000022
Barium	1.70E-04	No	0
Beryllium	1.10E-06	Yes	0.0000011
Cadmium	4.10E-06	Yes	0.0000041
Chromium, total	2.10E-05	Yes	0.000021
Chromium, hexavalent	3.50E-06	Yes	0.0000035
Cobalt	6.50E-06	Yes	0.0000065
Copper	4.90E-05	No	0
Iron	9.90E-04	No	0
Lead	4.80E-05	Yes	0.000048
Manganese [1]	1.14E-04	Yes	**0.000114**
Mercury	3.50E-06	Yes	0.0000035
Molybdenum	2.10E-06	No	0
Nickel	3.30E-05	Yes	0.000033
Phosphorus	2.70E-05	Yes	0.000027
Potassium	3.90E-02	No	0
Selenium	2.80E-06	Yes	0.0000028
Silver	1.70E-03	No	0
Sodium	3.60E-04	No	0
Strontium	1.00E-05	No	0
Tin	2.30E-05	No	0
Titanium	2.00E-05	No	0
Vanadium	9.80E-07	No	0
Yttrium	3.00E-07	No	0
Zinc	4.20E-04	No	0
Hazardous Trace Elements Total			**0.0002909**

1. For Manganese, the emission factors is an adjusted emission factor after auditing AP-42 for outlier data. There is one FBC entry in the supporting database with an Manganese emission factor of 1.14E-05. The data used for this project is 10 times that value.

Table N-2 Wood Chips Receiving Hoppers
MGS CNP 1, LLC

Source Name:	Biomass Unloading Baghouse	**EPN:**	121-PKG-1001	
Proposed MAERT Limits		**Date:**	5/6/2025	
FIN	**EPN**	**Air Contaminant**	**lbs/hr**	**TPY**
121-LS-1001 121-LS-1002	121-PKG-1001	PM	1.08	4.72
		PM10	1.08	4.72
		PM2.5	1.08	4.72

Process Description:

Wood fuel is delivered to the site by trucks. Trucks unload wood fuel into two receiving hoppers (121-LS-1001 and 121-LS-1002). Dust control is provided by a slight negative pressure in the dumping area. The extracted dust laden air will be directed through a bag house (121-PKG-1001) before discharge to atmosphere.
The bag house will reduce the particulate matter emissions to reach a PM loading of 0.01 grains/cf.

To represent worst case emissions, maximum hourly emissions for 121-LS-1001 and 121-LS-1002 are both based on the total amount of wood fuel to be delivered to the site, rather than splitting the emissions in half. This scenario is conservative, as if one of the truck unloaders fails, fuel can be delivered via the other unloader and all the wood chips would be delivered to one hopper. The annual emissions of 121-LS-1001 and 121-LS-1002 are permitted under a cap quantified based on the maximum amount of wood chips delivered each year.

Bases and Factors:
Particulate Matter (PM) emissions from truck unloading are estimated using the following design information:

Baghouse volumetric exhaust flow rate: 12566 ft3/min

The bag house will reduce the particulate matter emissions to a PM loading of 0.01 grains/cf.

Hourly emission rates are determined as follows:

Hourly Emissions (lb/hr) = exhaust flow (ft3/min) x 60 min/hr x PM loading in exhaust (0.01 grains/cf)
Annual emission rates are determined as follows:
Annual Emissions (tpy) = [hourly emissions (lb/hr) * annnual operating hours (hr)] / 2,000 (lb/ton)

Table N-2 Wood Chips Receiving Hoppers
MGS CNP 1, LLC

Data:

	Fuel Delivered Per Year	Exhaust Flow	PM Loading in Exhaust	Controlled Max Hourly Emissions	Annual Operating Hours	Controlled Annual Emissions
Pollutant	tons/yr	ft3/min	gr/cf	lb/hr	hr/year	tpy
PM	929146.92	12566	0.01	**1.08**	8760	**4.72**
PM10	929146.92	12566	0.01	**1.08**	8760	**4.72**
PM2.5	929146.92	12566	0.01	**1.08**	8760	**4.72**

Emission Factors for Biomass Handling Process:

Emissions are based on AP-42 emission factors for Aggregate Handling and Storage Piles (AP-42 V5, Section 13.2.4.3, November 2006)

Average Wind Speed is obtained from US EPA AP-42 Table 7.1-7 for Huntington, West Virginia (closest data collection point)

Data:

Source Parameters				
Pollutant	**Particle Size (µm)**	**# of Drops in Transfer Process**	**Average Moisture % (M) [1]**	**k[2]**
PM/TSP	**< 30**	**1**	**4.8**	**0.74**
PM_{10}	**< 10**	**1**	**4.8**	**0.35**
$PM_{2.5}$	**< 2.5**	**1**	**4.8**	**0.053**

[1] 0.25% -4.8% maintains the quality rating level A of the equation. The moisture content of the wood chips is 45%. 4.8% is used in the calculations to get conservative results.

Hours of Operation	**8,760**	hours/year (24 hours/day X 7 days/week X 52 weeks/year)	
Annual Average Wind Speed of Area (U)=	**5.6**	mph	annual average and highest monthly average wind speed for Huntington, WV taken from US EPA AP-42 Table 7.1-7.
Highest Monthly Average Wind Speed of Area (U)=	**6.9**	mph	

Calculations:

AP-42 (section 13.2.4.3) lb/ton of material

$$Emission\ factor\ (lb/ton) = k * (0.0032) * \frac{\left(\frac{U}{5}\right)^{1.3}}{\left(\frac{M}{2}\right)^{1.4}}$$

Where: k = particle size multiplier from AP-42 Section 13.2.4.3
M = material moisture content (%)
U = mean wind speed

TSP/PM hourly emission factor:			**TSP/PM annual emission factor:**		
= (0.74) x (0.0032) x [(6.9/5)^1.3/(4.8/2)^1.4]			= (0.74) x (0.0032) x [(5.6/5)^1.3/(4.8/2)^1.4]		
=	***0.0011***	lbs/ton	=	***0.0008***	lbs/ton

PM_{10} hourly emission factor:			**PM_{10} annual emission factor:**		
= (0.35) x (0.0032) x [(6.9/5)^1.3/(4.8/2)^1.4]			= (0.35) x (0.0032) x [(5.6/5)^1.3/(4.8/2)^1.4]		
=	***0.0005***	lbs/ton	=	***0.0004***	lbs/ton

$PM_{2.5}$ hourly average emission factor:			**$PM_{2.5}$ annual average emission factor:**		
= (0.053) x (0.0032) x [(6.9/5)^1.3/(4.8/2)^1.4]			= (0.053) x (0.0032) x [(5.6/5)^1.3/(4.8/2)^1.4]		
=	***0.0001***	lbs/ton	=	***0.0001***	lbs/ton

Table N-4 Biomass Handling Process
MGS CNP 1, LLC

Emission Unit	Emission Point	Description
121-CV-1001	**121-CV-1001**	Conveyor #1 from Biomass Receiving Hopper 1001 to Storage Pile
121-CV-1002	**121-CV-1002**	Conveyor #2 from Biomass Receiving Hopper 1002 to Storage Pile
CHIP-1	**CHIP-1**	Biomass Storage Pile Loading Fugitives
121-S-1001	**121-S-1001**	Biomass Feed Hopper
121-CV-1003	**121-CV-1003**	Conveyor from Feed Hopper to 121-CV-2001 A/B
121-CV-2001 A	**121-CV-2001 A**	Screw Conveyor from 121-CV-1003 to Biomass Fuel Metering Bin 121-S-2001 A
121-CV-2001 B	**121-CV-2001 B**	Screw Conveyor from 121-CV-1003 to Biomass Fuel Metering Bin 121-S-2001 B
121-S-2001 A	**121-S-2001 A**	Biomass Fuel Metering Bin A
121-S-2001 B	**121-S-2001 B**	Biomass Fuel Metering Bin B

Process Description:

From the receiving hoppers, biomass is conveyed via covered conveyors (121-CV-1001 and 121-CV-1002) to an uncovered chip pile **(CHIP-1)**.

The biomass is loaded from the chip pile into a biomass feed hopper (121-S-1001) using front end loaders.

The biomass is conveyed from the biomass feed hopper (121-S-1001) to the fuel metering bins (121-S-2001 A/B) through a covered transfer conveyor (121-CV-1003) and two covered screw conveyors (121-CV-2001 A/B).

The above description indicates that the faiclity will be equipped with two identical biomass transfer processes from the receiving hopper to the BFB (except there will be just one biomass feed hopper and one conveyor from the feed hopper to the screw conveyors). For each transfer process, there will be 6 drop points from the receiving hoppers to

To represent worst case emissions, the maximum hourly emissions for each drop point are based on the total amount of wood fuel to be delivered to the site, rather than splitting the emissions in half. The annual emissions for both drop points at each step are permitted under a cap.

Bases and Factors:

Emission factors are based on AP-42 emission factors for Aggregate Handling and Storage Piles (AP-42 V5, Section 13.2.4.3, November 2006). Please refer to Table N-3 for emission factor calculations.

Hourly emission rates are determined as follows:
Hourly Emissions (lb/hr) = annual emissions (tpy) / annual operating hours (hr) x 2,000 lb/ton

Annual emission rates are determined as follows:
Annual Emissions (tpy) = [wood conveyed (tpy) * emission factor (lb emissions per ton of wood conveyed per drop point) * number of drop points] / 2,000 (lb/ton)

Total Emissions:

Pollutant	Wood Chips Conveyed at Each Transfer Step TPY	Emission Factor lb PM/ ton of wood/ drop point	Number of Drop Points	Annual Emissions TPY	Annual Operating Hours	Hourly Emission lb/hr
PM	929,147	0.0011	6	**2.95**	8,760	**0.67**
PM10	929,147	0.0005	6	**1.39**	8,760	**0.32**
PM2.5	929,147	0.0001	6	**0.21**	8,760	**0.05**

Note: Because the amount of biomass transferred are not split in half, the hourly emissions calculated above represent the maximum hourly emission rate at each of the 8 drop points in the two transfer processes. The annual emissions calculated above represent the cap for the two drop points at each transfer step.

Emissions at each individual piece of equipment:

Source	Transfer Rate		Emission Factor (lb/ton)						Emissions						Protection from Wind	Efficiency [1]
			Hourly			Annual			Short-term Emissions (lb/hr)			Annual Emissions (tpy)				
	(tons/hr)	(tons/yr)	PM	PM10	PM2.5	PM	PM10	PM2.5	PM	PM10	PM2.5	PM	PM10	PM2.5		
121-CV-1001	106.07	929146.92	0.0011	0.0005	0.0001	0.0008	0.0004	0.0001	0.056	0.027	0.004	0.187	0.088	0.013	Yes	50%
121-CV-1002	106.07		0.0011	0.0005	0.0001	0.0008	0.0004	0.0001	0.056	0.027	0.004				Yes	50%
CHIP-1	106.07	929146.92	0.0011	0.0005	0.0001	0.0008	0.0004	0.0001	0.112	0.053	0.008	0.374	0.177	0.027	No	0%
121-S-1001	106.07	929146.92	0.0011	0.0005	0.0001	0.0008	0.0004	0.0001	0.112	0.053	0.008	0.374	0.177	0.027	No	0%
121-CV-1003	106.07	929146.92	0.0011	0.0005	0.0001	0.0008	0.0004	0.0001	0.056	0.027	0.004	0.187	0.088	0.013	Yes	50%
121-CV-2001 A	106.07	929146.92	0.0011	0.0005	0.0001	0.0008	0.0004	0.0001	0.056	0.027	0.004	0.187	0.088	0.013	Yes	50%
121-CV-2001 B	106.07		0.0011	0.0005	0.0001	0.0008	0.0004	0.0001	0.056	0.027	0.004				Yes	50%
121-S-2001 A [2]	106.07	929146.92	0.0011	0.0005	0.0001	0.0008	0.0004	0.0001	0.056	0.027	0.004	0.187	0.088	0.013	Yes	50%
121-S-2001 B [2]	106.07		0.0011	0.0005	0.0001	0.0008	0.0004	0.0001	0.056	0.027	0.004				Yes	50%
								TOTAL	-	-	-	1.50	0.71	0.11		

[1] Design is still in progress. Because there will be covers on the conveyors to reduce wind speed, an emission control efficiency of 50% is used in the calculations.
[2] Both biomass metering bins adopt gooseneck opening.

PM PM10 PM2.5 PM PM10 PM2.5

Table N-5 Storage Pile Wind Erosion
MGS CNP 1, LLC

Source Name:	Wood Chips Storage Pile Wind Erosion	**EPN:**	CHIP-2		
Proposed MAERT Limits		**Date:**	5/6/2025		
FIN	**EPN**	**Air Contaminant**		**lbs/hr**	**TPY**
CHIP-2	CHIP-2	PM		--	0.21
		PM10		--	0.11
		PM2.5		--	0.02

Process Description:

Wood chips are stored outside in one storage pile.

Bases and Factors:

Emissions from wood chip storage wind erosion are estimated using the AP-42, Section 13.2.5, Industrial Wind Erosion, November 2006 - Equation (2).

Monthly fastest mile is obtained for Mason County, West Virginia (closest data collection point).
Measusred wind gust speed plus additional 10 mph to account for yearly fluctuations.
Storage piles will be sprayed with water as necessary to control particulate emissions.

Data:

Calculations:

AP-42 (section 13.2.5, Industrial Wind Erosion, November 2006 - Equation (2)) lb/ton of material

$$\text{Emission factor} = k \sum_{i=1}^{N} P_i \qquad (2)$$

Where: EF = emission factor ($g/m^2/yr$)
k = particle size multiplier from AP-42 Section 13.2.5
N = number of disturbances per year
P_i = erosion potential corresponding to the observed (or probable) fastest mile of wind for the ith period between disturbances, g/m^2
$P = 58 (u^* - u_t^*)^2 + 25 (u^* - u_t^*)$ (equation 3)
$p = 0$ for $u^* < u_t^*$
u^* = friction velocity = 0.053 X the fastest mile (m/s) (equation 4)
u_t^* = threshold friction velocity (m/s) = 1.02 m/s for overburden from AP-42 Table 13.2.5-2
The fastest mile is defined as the fastest observed mile of wind from Huntington, WV for the years 1980 - 2010.

Input

Aerodynamic Particle Size Multipliers for Equation 2		
Pollutant	**Particle Size (µm)**	**k**
PM/TSP	**< 30**	**1.0**
PM_{10}	**< 10**	**0.5**
$PM_{2.5}$	**< 2.5**	**0.075**

Threshold friction velocity (u_t^*)	1.02	m/s
Frequency of disturbance	35040	per year
Average frequency of wind events resulting in wind erosion	125	per month

Erosion Potential Emission Factors

Month	Fastest Mile		u^*	$(u^* - u_t^*)$	$(u^* - u_t^*)^2$	P_{PM}	P_{PM10}	$P_{PM2.5}$
	(mph)	(m/s)	(m/s)			(g/m^2)	(g/m^2)	(g/m^2)
Jan	40	17.88	0.95	-0.07	0.01	0	0	0
Feb	53	23.69	1.26	0.24	0.06	9.12	4.56	0.68
Mar	48	21.46	1.14	0.12	0.01	3.73	1.86	0.28
Apr	49	21.90	1.16	0.14	0.02	4.68	2.34	0.35
May	38	16.99	0.90	-0.12	0.01	0.00	0.00	0.00
Jun	46	20.56	1.09	0.07	0.00	2.03	1.02	0.15
Jul	43	19.22	1.02	0.00	0.00	0.00	0.00	0.00
Aug	33	14.75	0.78	-0.24	0.06	0.00	0.00	0.00
Sep	35	15.65	0.83	-0.19	0.04	0.00	0.00	0.00
Oct	33	14.75	0.78	-0.24	0.06	0.00	0.00	0.00
Nov	42	18.78	1.00	-0.02	0.00	0.00	0.00	0.00
Dec	46	20.56	1.09	0.07	0.00	2.03	1.02	0.15
					Maximum Erosion Potential	9.12	4.56	0.68
					Annualized Erosion Factor (g/m^2-yr)	91.90	45.97	6.85

Wind Erosion Emissions

Emission Source	**Total Area**	**Disturbed Area**		**Control Efficiency**	**PM**	**PM10**	**PM2.5**
	(m^2)	(%)	(m^2)	(%)	(tpy)	(tpy)	(tpy)
Chip Storage	21,000	10	2100	0	0.21	0.11	0.02

Table N-6 Fly Ash Handling Process
MGS CNP 1, LLC

Emission Unit	Emission Point	Description	Hourly Rate (tons/hr)	Annual Rate (tons/yr)	Control	Note
121-CV-4001 A	121-CV-4001 A	PJFF Ash Collection Drag Chain Conveyor A (From boiler hopper to surge bin A)	4.5	39420	Covered	
121-CV-4001 B	121-CV-4001 B	PJFF Ash Collection Drag Chain Conveyor B (from boiler hopper to surge bin B)	4.5		Covered	
121-S-4002 A	121-S-4002 A	PJFF Ash Collection Surge Bin A	4.5	39420	NA	Hoppers are not open to the atmosphere. According to information provided by the boiler supplier, Babcock & Wilcox (B&W), the hopper does not produce any emissions.
121-S-4002 B	121-S-4002 B	PJFF Ash Collection Suge Bin B	4.5		NA	
121-CV-4002	121-CV-4002	PJFF Ash Transport Drag Chain Conveyor (From Surge Bins #1 and #2 to PJFF Ash Transfer Drag Chain Conveyor)	4.5	39420	Covered	
121-CV-4003	121-CV-4003	PJFF Ash Transfer Drag Chain Conveyor (to Ash Bucket Elevator)	4.5	39420	Covered	
121-CV-4004	121-CV-4004	Ash Bucket Elevator	4.5	39420	Covered	
121-CV-4005	121-CV-4005	Ash Distrubution Drag Chain Conveyor (From Ash Bucket Elevator to Fly Ash Storage Silos)	4.5	39420	Covered	
121-CV-4006 A	121-CV-4006 A	Economizer Hopper Ash Drag Chain Conveyor A (From Economizer Hopper to Economizer Hopper Ash Surge Bin A)	3.3	28908	Covered	
121-CV-4006 B	121-CV-4006 B	Economizer Hopper Ash Drag Chain Conveyor B (From Economizer Hopper to Economizer Hopper Ash Surge Bin B)	3.3		Covered	
121-S-4003 A	121-S-4002 A	Economizer Hopper Ash Surge Bin A	3.3	28908	NA	Hoppers are not open to the atmosphere. According to information provided by the

Table N-6 Fly Ash Handling Process
MGS CNP 1, LLC

Emission Unit	Emission Point	Description	Hourly Rate (tons/hr)	Annual Rate (tons/yr)	Control	Note
121-S-4003 B	121-S-4002 B	Economizer Hopper Ash Surge Bin B	3.3	28908	NA	boiler supplier, B&W, the hoppers will not produce any emissions.

Table N-6 Fly Ash Handling Process
MGS CNP 1, LLC

Emission Unit	Emission Point	Description	Hourly Rate (tons/hr)	Annual Rate (tons/yr)	Control	Note
121-CV-4007 A	121-CV-4007 A	Economizer Ash Transport Conveyor A (From Economizer Ash Surge Bin A to Fly Ash Silo A)	3.3	28908	Covered	
121-CV-4007 B	121-CV-4007 B	Economizer Ash Transport Conveyor B (From Economizer Ash Surge Bin B to Fly Ash Silo B)	3.3		Covered	
121-S-4001 A	121-S-4001 A	Fly Ash Storage Silo A	7.8	68328	Pulse Jet Filter 121-F-4001 A	
121-S-4001 B	121-S-4001 B	Fly Ash Storage Silo B	7.8		Pulse Jet Filter 121-F-4001 B	
121-MX-4001 A	121-MX-4001 A	Pugmill A	7.8	68328	NA	There will be no emissions per B&W.
121-MX-4001 B	121-MX-4001 B	Pugmill B	7.8		NA	
121-TL-0001	121-TL-0001	Fly Ash Truck Loading	8.6	75336	Wet fly ash, with a moisture content of at least 10%	

Table N-6 Fly Ash Handling Process
MGS CNP 1, LLC

Fugitive emissions can be expected from conveying and transferring of fly ash due to wind and conveyor vibration.

Source	No. of Transfer	Transfer Rate		Emission Factors (lb/ton)						Emissions						Protection from Wind	Efficiency [1]
				Hourly			Annual			Short-term Emissions (lb/hr)			Annual Emissions (tpy)				
		(tons/hr)	(tons/yr)	PM	PM10	PM2.5	PM	PM10	PM2.5	PM	PM10	PM2.5	PM	PM10	PM2.5		
121-CV-4001 A	1	4.5	39420	0.2386	0.1129	0.0171	0.1819	0.0860	0.0130	0.537	0.254	0.038	1.793	0.848	0.128	Yes	50%
121-CV-4001 B	1	4.5		0.2386	0.1129	0.0171	0.1819	0.0860	0.0130	0.537	0.254	0.038				Yes	50%
121-CV-4002	1	4.5	39420	0.2386	0.1129	0.0171	0.1819	0.0860	0.0130	0.537	0.254	0.038	1.793	0.848	0.128	Yes	50%
121-CV-4003	1	4.5	39420	0.2386	0.1129	0.0171	0.1819	0.0860	0.0130	0.537	0.254	0.038	1.793	0.848	0.128	Yes	50%
121-CV-4004	1	4.5	39420	0.2386	0.1129	0.0171	0.1819	0.0860	0.0130	0.537	0.254	0.038	1.793	0.848	0.128	Yes	50%
121-CV-4005	1	4.5	39420	0.2386	0.1129	0.0171	0.1819	0.0860	0.0130	0.537	0.254	0.038	1.793	0.848	0.128	Yes	50%
121-CV-4006 A	1	3.3	28908	0.2386	0.1129	0.0171	0.1819	0.0860	0.0130	0.394	0.186	0.028	1.315	0.622	0.094	Yes	50%
121-CV-4006 B	1	3.3		0.2386	0.1129	0.0171	0.1819	0.0860	0.0130	0.394	0.186	0.028				Yes	50%
121-CV-4007 A	1	3.3	28908	0.2386	0.1129	0.0171	0.1819	0.0860	0.0130	0.394	0.186	0.028	1.315	0.622	0.094	Yes	50%
121-CV-4007 B	1	3.3		0.2386	0.1129	0.0171	0.1819	0.0860	0.0130	0.394	0.186	0.028				Yes	50%
121-S-4001 A	1	7.8	68328	0.2386	0.1129	0.0171	0.1819	0.0860	0.0130	Refer to emission calculations for fly ash storage silos							
121-S-4001 B	1	7.8		0.2386	0.1129	0.0171	0.1819	0.0860	0.0130								
121-TL-0001	1	8.6	75336	-	-	-	-	-	-	Refer to emission calculations for fly ash truck loading							
						TOTAL				4.796	2.268	0.343	11.592	5.483	0.830		

[1] Design is still in progress. Because there will be covers on the conveyors to reduce wind speed, an emission control efficiency of 50% is used in the calculations.

Emission Factors for Dry Fly Ash Handling Process:
Emissions are based on AP-42 emission factors for Aggregate Handling and Storage Piles (AP-42 V5, Section 13.2.4.3, Equation (1), November 2006)

Average Wind Speed is obtained from US EPA AP-42 Table 7.1-7 for Huntington, West Virginia (closest data collection point)

Data:

Source Parameters				
Pollutant	Particle Size (µm)	# of Drops in Transfer Process	Average Moisture % (M) [1]	k(2)
PM/TSP	< 30	1	0.10	0.74
PM_{10}	< 10	1	0.10	0.35
$PM_{2.5}$	< 2.5	1	0.10	0.053

[1] 0.25% -4.8% maintains the quality rating level A of the equation. The moisture content of the dry fly ash is conservatively assumed to be 0.1%.

Hours of Operation	**8,760**	hours/year (24 hours/day X 7 days/week X 52 weeks/year)	
Annual Average Wind Speed of Area (U)=	**5.6**	mph	annual average and highest monthly average wind speeds for Huntington, WV taken from US EPA AP-42 Table 7.1-7.
Highest Monthly Average Wind Speed of Area (U)=	**6.9**	mph	

Calculations:

AP-42 (section 13.2.4.3) lb/ton of material

$$Emission\ factor\ (lb/ton) = k*(0.0032)*\frac{\left(\frac{U}{5}\right)^{1.3}}{\left(\frac{M}{2}\right)^{1.4}}$$

Where: k = particle size multiplier from AP-42 Section 13.2.4.3
M = material moisture content (%)
U = mean wind speed

TSP/PM hourly emission factor:		
= (0.74) x (0.0032) x [(6.9/5)^1.3/(0.1/2)^1.4]		
=	***0.2386***	lbs/ton

TSP/PM annual average emission factor:		
= (0.74) x (0.0032) x [(5.6/5)^1.3/(0.1/2)^1.4]		
=	***0.1819***	lbs/ton

$PM_{10\ hourly}$ emission factor:		
= (0.35) x (0.0032) x [(6.9/5)^1.3/(0.1/2)^1.4]		
=	***0.1129***	lbs/ton

$PM_{10\ annual}$ average emission factor:		
= (0.35) x (0.0032) x [(5.6/5)^1.3/(0.1/2)^1.4]		
=	***0.0860***	lbs/ton

$PM_{2.5\ hourly}$ emission factor:		
= (0.053) x (0.0032) x [(6.9/5)^1.3/(0.1/2)^1.4]		
=	***0.0171***	lbs/ton

$PM_{2.5\ annual}$ average emission factor:		
= (0.053) x (0.0032) x [(5.6/5)^1.3/(0.1/2)^1.4]		
=	***0.0130***	lbs/ton

Table N-6 Fly Ash Handling Process
MGS CNP 1, LLC

Source Name:	Fly Ash Storage Silos A & B	**EPN:**	121-F-4001 A / 121-F-4001 B	
Proposed MAERT Limits		**Date:**	5/6/2025	
FIN	**EPN**	**Air Contaminant**	**lbs/hr**	**TPY**
121-S-4001 A 121-S-4001 B	121-F-4001 A / 121-F-4001 B	PM	0.02	0.06
		PM10	0.01	0.03
		PM2.5	0.00	0.00

Process Description:

Generated fly ash will be transferred to two ash storage silos via an enclosed conveyor. When a sufficient volume has been collected, the fly ash will be mixed with utility water before removed from site for disposal by trucks.

The emissions from the fly ash silos were conservatively estimated using emission factors for Aggregate Handling and Storage Piles (AP-42 V5, Section 13.2.4.3, Equation (1), November 2006).

The two fly ash silos will be used alternately. Therefore, the annual emissions from the two silos will be permitted under a cap.

Bases and Factors:

The emission factors used to estimate the uncontrolled PM, PM10 and PM2.5 emissions were presented in Table N-6 Fly Ash Handling (2). A filter will be installed on each silo and run continuously, reducing particulate emissions by 99%.

Data:

Filter control efficiency: 99%

					Uncontrolled		**Controlled**	
Pollutant	**Emission Factor (lb/ton)**		**Feed Rate per Hour**	**Feed Rate per Year**	**Hourly Emissions**	**Annual Emissions**	**Hourly Emissions**	**Annual Emissions**
	Hourly	**Annual**	**Tons/hr**	**Tons/yr**	**lb/hr**	**TPY**	**lb/hr**	**TPY**
PM	0.2386	0.1819	7.8	68328.00	**1.86**	**6.21**	**0.02**	**0.06**
PM10	0.1129	0.0860	7.8	68328.00	**0.88**	**2.94**	**0.01**	**0.03**
PM2.5	0.0171	0.0130	7.8	68328.00	**0.13**	**0.45**	**0.00**	**0.0045**

Source Name:	Fly Ash Truck Loading	EPN:	121-TL-0001	
Proposed MAERT Limits		Date:	5/6/2025	
FIN	EPN	Air Contaminant	lbs/hr	TPY
121-TL-0001	121-TL-0001	PM	0.00	0.01
		PM10	0.00	0.01
		PM2.5	0.00	0.00

Process Description:

Generated fly ash will be transferred to the ash storage silos via a conveying system. When a sufficient volume has been collected, the fly ash will be mixed with utility water before removed from site for disposal by trucks. The fly ash will have a minimum moisture content of 10% when loaded into trucks.

The particulate matter emissions will be controlled by keeping high moisture content of the fly ash.

Fly Ash Loading into Trucks

Data:

Pollutant	Emission Factor	Ash Produced per Hour	Ash Produced per Year	Hourly Emissions	Annual Emissions
	lb/Ton	Tons/hr	Tons/yr	lb/hr	TPY
PM	0.0004	8.6	75336	0.0033	0.01
PM10	0.0002	8.6	75336	0.0015	0.01
PM2.5	0.0000	8.6	75336	0.0002	0.001

Emission Factors for Dry Fly Ash Handling Process:

Emissions are based on AP-42 emission factors for Aggregate Handling and Storage Piles (AP-42 V5, Section 13.2.4.3, Equation (1), November 2006)

Average Wind Speed is obtained from US EPA AP-42 Table 7.1-7 for Huntington, West Virginia (closest data collection point)

Data:

Source Parameters				
Pollutant	Particle Size (µm)	# of Drops in Transfer Process	Average Moisture % (M) [1]	$k^{(2)}$
PM/TSP	**< 30**	**1**	**10**	**0.74**
PM_{10}	**< 10**	**1**	**10**	**0.35**
$PM_{2.5}$	**< 2.5**	**1**	**10**	**0.053**

[1] 0.25% -4.8% maintains the quality rating level A of the equation. The minimum moisture content of the wet fly ash is 10%.

Table N-6 Fly Ash Handling Process
MGS CNP 1, LLC

Hours of Operation	**8,760**	hours/year (24 hours/day X 7 days/week X 52 weeks/year)	
Annual Average Wind Speed of Area (U)=	**5.6**	mph	annual average and highest monthly average wind speeds for Huntington, WV taken from US EPA AP-42 Table 7.1-7.
Highest Monthly Average Wind Speed of Area (U)=	**6.9**	mph	

Calculations:

AP-42 (section 13.2.4.3) lb/ton of material

$$Emission\ factor\ (lb/ton) = k * (0.0032) * \frac{\left(\frac{U}{5}\right)^{1.3}}{\left(\frac{M}{2}\right)^{1.4}}$$

Where: k = particle size multiplier from AP-42 Section 13.2.4.3
M = material moisture content (%)
U = mean wind speed

TSP/PM average emission factor:		
= (0.74) x (0.0032) x [(6.9/5)^1.3/(10/2)^1.4]		
=	***0.0004***	lbs/ton

PM_{10} average emission factor:		
= (0.35) x (0.0032) x [(6.9/5)^1.3/(10/2)^1.4]		
=	***0.0002***	lbs/ton

$PM_{2.5}$ average emission factor:		
= (0.053) x (0.0032) x [(6.9/5)^1.3/(10/2)^1.4]		
=	***0.00003***	lbs/ton

Table N-7 Sand Handling Process
MGS CNP 1, LLC

Bottom Ash and Sand Handling Process

			Hourly Rate	Annual Rate		
Emission Unit ID	**Emission Point ID**	**Description**	**lb/hr**	**tpy**	**Control**	**Note**
121-CV-5001 A	121-CV-5001 A	Metering Conveyor A (Bed Ash Screw A)	2250	9855	Covered	
121-CV-5001 B	121-CV-5001 B	Metering Conveyor B (Bed Ash Screw B)	2250		Covered	
121-CV-5002A	121-CV-5002A	Vibrating Screener A (to separate bottom ash and sand)	2250	9855	Trough hood (Partial enclosure)	
121-CV-5002B	121-CV-5002B	Vibrating Screener B (to separate bottom ash and sand)	2250		Trough hood (Partial enclosure)	
121-S-6001 A	121-S-6001 A	Bottom Ash Storage Bin A	2000	8760	NA	No emissions are expected due to the size of the material.
121-S-6001 B	121-S-6001 B	Bottom Ash Storage Bin B	2000		NA	
121-S-1002	121-S-1002	Sand Receiving Hopper	100000	1752	NA	
121-CV-1004	121-CV-1004	Inclined Sand Hopper Conveyor	100000	1752	Covered	
121-S-5001	121-S-5001	Makeup Sand Silo	100000	1752	Vent piping to the BFB	
NA	NA	Chute (From Makeup Sand Silo to Sand Bucket Elevator)	400	1752	Full enclosure (Pipe)	
121-CV-5003 A	121-CV-5003 A	Transfer Conveyor A (Recycled Sand) (From Vibrating Screener A to Sand Bucket Elevator A)	250	1095	Cover assembly (partial enclosure)	
121-CV-5003 B	121-CV-5003 B	Transfer Conveyor B (Recycled Sand) (From Vibrating Screener B to Sand Bucket Elevator B)	250		Cover assembly (partial enclosure)	
121-CV-5004 A	121-CV-5004 A	Sand Bucket Elevator A (Recycled Sand + Fresh Sand)	650	2847	Covered	250 lbs/hr of reclaimed sand + 400 lbs/hr of makeup sand
121-CV-5004 B	121-CV-5004 B	Sand Bucket Elevator B (Recycled Sand + Fresh Sand)	650		Covered	251 lbs/hr of reclaimed sand + 400 lbs/hr of makeup sand
NA	NA	Recycle Sand Chute A (From Sand Bucket Elevator A Discharge to Boiler)	6000 lbs/24 hours		Full enclosure (Pipe)	No emissions
NA	NA	Recycle Sand Chute B (From Sand Bucket Elevator B Discharge to Boiler)	6000 lbs/24 hours		Full enclosure (Pipe)	No emissions

Table N-7 Sand Handling Process
MGS CNP 1, LLC

Fugitive emissions can be expected from conveying and transferring of sand due to wind and conveyor vibration.

Basis:
Particulate emissions from the sand handling process are conservatively estimated using uncontrolled emission factors in AP-42 Table 11.12-2 for aggregate transfer.

Source	No. of Transfer Points	Transfer Rate		Emission Factor (lb/ton)			Emissions						Protection from Wind	Efficiency [1]
							Short-term Emissions (lb/hr)			Annual Emissions (tpy)				
		(tons/hr)	(tons/yr)	PM	PM10	PM2.5	PM	PM10	PM2.5	PM	PM10	PM2.5		
121-CV-5001 A	1	1.125	9855	0.0069	0.0033	0.0033	0.004	0.002	0.002	0.017	0.008	0.008	Yes	50%
121-CV-5001 B	1	1.125		0.0069	0.0033	0.0033	0.004	0.002	0.002				Yes	50%
121-CV-5002A	1	1.125	9855	0.0069	0.0033	0.0033	0.004	0.002	0.002	0.017	0.008	0.008	Yes	50%
121-CV-5002B	1	1.125		0.0069	0.0033	0.0033	0.004	0.002	0.002				Yes	50%
121-S-1002	1	50	1752	0.0069	0.0033	0.0033	0.345	0.165	0.165	0.006	0.003	0.003	No	0%
121-CV-1004	1	50	1752	0.0069	0.0033	0.0033	0.173	0.083	0.083	0.003	0.001	0.001	Yes	50%
121-CV-5003 A	1	0.125	1095	0.0069	0.0033	0.0033	0.000	0.000	0.000	0.002	0.001	0.001	Yes	50%
121-CV-5003 B	1	0.125		0.0069	0.0033	0.0033	0.000	0.000	0.000				Yes	50%
121-CV-5004 A	1	0.325	2847	0.0069	0.0033	0.0033	0.001	0.001	0.001	0.005	0.002	0.002	Yes	50%
121-CV-5004 B	1	0.325		0.0069	0.0033	0.0033	0.001	0.001	0.001				Yes	50%
						TOTAL	0.536	0.256	0.256	0.050	0.024	0.024		

[1] Design is still in progress. Because there will be covers on the conveyors to reduce wind speed, an emission control efficiency of 50% is used in the calculations.

Table N-8 Sodium Bicarbonate Handling Process
MGS CNP 1, LLC

			Hourly Rate	Annual Rate		
Emission Unit	**Emission Point**	**Description**	**lb/hr**	**tpy**	**Control**	**Note**
121-S-9901	121-PKG-3001; 122-T-1001	Sodium Bicarbonate Storage Silo	13000	438	Vent routed to boiler and controlled by the boiler PJFF	Batch operation; NaHCO3 will be pneumatically transferred to the silo.
121-S-9902 A	121-F-9902 A	Sodium Bicarbonate Vent Hopper A	100	438	Pulse Jet Filter 121-F-9902 A	
121-S-9902 B	121-F-9902 B	Sodium Bicarbonate Vent Hopper B	100		Pulse Jet Filter 121-F-9902 B	

Table N-8 Sodium Bicarbonate Handling Process
MGS CNP 1, LLC

Source Name:	Sodium Bicarbonate Vent Hoppers	EPN:	121-F-9902 A; 121-F-9902 B		
Proposed MAERT Limits		Date:	5/6/2025		
FIN	EPN	Air Contaminant		lbs/hr	TPY
121-F-9902 A; 121-F-9902 B	121-F-9902A; 121-F-9902 B	PM		1.95E-04	8.54E-04
		PM10		7.50E-05	3.29E-04
		PM2.5		7.50E-05	3.29E-04

Process Description:

From the NaHCO3 Silo, NaHCO3 will be gravity fed to the vent hoppers.
The emissions from the vent hoppers are estimated using emission factors from Table 11.19.2-2 in Section 11.19.2 of AP-42.

Bases and Factors:

0.039 lb/ton and 0.015 lb/ton are used to estimate the uncontrolled PM and PM10/PM2.5 emissions.
Each vent hopper will be equipped with one filter and will reduce particulate emissions by 90%.

To represent worst case emissions, the maximum hourly emissions for each vent hopper are based on the total amount of NaHCO3 to flow through the vent hoppers, rather than splitting the emissions in half. The annual emissions for both vent hoppers are permitted under a cap.

Data:

Filter control efficiency: 90%

				Uncontrolled		Controlled	
Pollutant	Emission Factor	Feed Rate per Hour	Feed Rate per Year	Hourly Emissions	Annual Emissions	Hourly Emissions	Annual Emissions
	lb/ton	Tons/hr	Tons/yr	lb/hr	TPY	lb/hr	TPY
PM	0.039	0.05	438.00	0.00195	0.0085	0.0002	0.0009
PM10	0.015	0.05	438.00	0.00075	0.0033	0.0001	0.0003
PM2.5	0.015	0.05	438.00	0.00075	0.0033	0.0001	0.0003

Cooling Tower

One open recirculating, induced draft and counterflow cooling tower will be installed to support the facility's operation. The cooling tower will have 6 cells.

		Cooling Tower	Notes
	Emission Unit ID	129-CT-9301	
	EPN	129-CT-9301	
Input	Recirculation Rate (gpm)	80,762	Rated capacity, Design Info
	Drift (%)[2]	0.001	Design Info
	Maximum TDS (ppm)	5000	
	Annual Average TDS (ppm)	1700	
	Annual operating hours	8760	
Calculated Emissions	Avg. PM (lb/hr)	0.69	
	Max. PM (lb/hr)	2.02	
	PM (tpy)	3.01	
	Avg. PM10 (lb/hr)	0.57	
	Max. PM10 (lb/hr)	1.48	
	PM10 (tpy)	2.52	
	Avg. PM2.5 (lb/hr)	0.29	
	Max. PM2.5 (lb/hr)	0.67	
	PM2.5 (tpy)	1.26	

Cooling Tower Water Info:

concentration ratio:	5		Design Info
TDS (average) make up water:	340	ppmw	Design Info
TDS (maximum) make up water:	1,000	ppmw	
Maximum TDS:	5,000	ppmw	
Annual Average TDS:	1700	ppmw	

Recirculation Rate:	18,386	m3/hr
Water density:	8.34	lb/gal
	997	kg/m3
1 lb =	453.59	grams
1 hr =	60	min
1 kg =	1000	grams

Equation: PM = Recirculation Rate, gpm * Drift% * 8.34 lb/gal * 60 min/hr * TDS ppm/1000000 Reference (1)

Particle Size Calculation (Hourly Max.)[3]

Cooling Tower Droplet Size			Particle Size		
Droplet (Dd, microns)	Mean (Dd, microns)	Distribution (% Mass Smaller Than)	(Dp, microns)	PM 10 %Mass	PM2.5 %Mass
< 15	7.5	20.00	0.983		33.23
15 - 35	25	40.00	3.277		
35 - 65	50	60.00	6.554	73.14	
65 - 115	90	80.00	11.797		
115 - 170	142.5	90.00	18.679		
170 - 230	200	95.00	26.216		
230 - 275	252.5	99.00	33.098		
275 - 525	400	99.80	52.432		
> 525	525	100.00	68.817		

Particle Size Calculation (Annual Emis.)[3]					
Cooling Tower Droplet Size			**Particle Size**		
Droplet (Dd, microns)	**Mean (Dd, microns)**	**Distribution (% Mass Smaller Than)**	**(Dp, microns)**	**PM 10 %Mass**	**PM2.5 %Mass**
< 15	7.5	20.00	0.686		
15 - 35	25	40.00	2.287		41.86
35 - 65	50	60.00	4.574		
65 - 115	90	80.00	8.234	83.68	
115 - 170	142.5	90.00	13.037		
170 - 230	200	95.00	18.298		
230 - 275	252.5	99.00	23.101		
275 - 525	400	99.80	36.595		
> 525	525	100.00	48.031		

Dp = Dd * [(pd/pp) * (TDS) / 1,000,000)] ^ 1/3

where: Density of Water (pd)= 1
Density of TDS (pp) = 2.22
TDS is assumed to be sodium chloride.

Equations and Example Calculations:

Max. PM Hourly Emissions (lb/hr) = Cooling Water Circulation Rate (gpm) * Drift (%) * 60 * 8.34 * Max. TDS in Circulating Water (ppm)/1000000

$$= \frac{80{,}762\ \text{gal}}{\text{min}} \times \frac{0.0010\%}{} \times \frac{60\ \text{min}}{\text{hr}} \times \frac{8.34\ \text{lb}}{\text{gal}} \times \frac{5000\ \text{parts}}{1000000\ \text{parts}} = \frac{2.02\ \text{lb}}{\text{hr}}$$

PM Annual Emissions (tpy) = Average PM Emissions (lb/hr) * Maximum Hours of Operation * Conversion (1 ton/2000 lb)

$$= \frac{0.69\ \text{lb}}{\text{hr}} \times \frac{8760\ \text{hrs}}{\text{yr}} \times \frac{1\ \text{ton}}{2000\ \text{lbs}} = \frac{3.01\ \text{tons}}{\text{yr}}$$

Max. PM10 Hourly Emissions (lb/hr) = Max. PM Hourly Emissions (lb/hr) * Mass of drift with PM10 (%)

$$= \frac{2.02\ \text{lb}}{\text{hr}} \times \frac{73.14\%}{} = \frac{1.48\ \text{lbs}}{\text{hr}}$$

PM10 Annual Emissions (tpy) = Average PM10 Hourly Emissions (lb/hr) *Maximum Hours of Operation (hr/yr) * (1 ton/2000 lb)

$$= \frac{0.57\ \text{lb}}{\text{hr}} \times \frac{8760\ \text{hrs}}{\text{yr}} \times \frac{1\ \text{ton}}{2000\ \text{lbs}} = \frac{2.52\ \text{tons}}{\text{yr}}$$

Max. PM2.5 Hourly Emissions (lb/hr) = Max. PM Hourly Emissions (lb/hr) * Mass of drift with PM2.5 (%)

$$= \frac{2.02\ \text{lb}}{\text{hr}} \times \frac{33.23\%}{} = \frac{0.67\ \text{lbs}}{\text{hr}}$$

PM2.5Annual Emissions (tpy) = Average PM2.5 Hourly Emissions (lb/hr) *Maximum Hours of Operation (hr/yr) * (1 ton/2000 lb)

$$= \frac{0.29\ \text{lb}}{\text{hr}} \times \frac{8760\ \text{hrs}}{\text{yr}} \times \frac{1\ \text{ton}}{2000\ \text{lbs}} = \frac{1.26\ \text{tons}}{\text{yr}}$$

References

1. AP-42 Chapter 13.4 Cooling Towers.
2. 0.001% Drift is based on design.
3. Calculation Methodology is based on "Calculating Realistic PM10 Emissions from Cooling Towers", Joel Reisman and Gordon Frisbie, Greystone Environmental Consultants, Sacramento, CA.

Table N-10a Fugitive Road - Annual
MGS CNP 1, LLC

Annual Emission Rate

Unit EPN	Vehicles Per Day	Hours of Vehicle Traffic (hrs/day)	Road Length (miles)	Vehicle Mile Travelled Hourly (VMT/hr)
PM-PlantRd	107	24	0.63	2.81

Constituents	Emission Factor		Average Hourly Emissions (lb/hr)	Annual Emissions (ton/yr)
Criteria Pollutants	Factor	Units		
PM	0.7626	lb/VMT	2.14	9.38
PM 2.5	0.0374	lb/VMT	0.11	0.46
PM 10	0.1525	lb/VMT	0.43	1.88

Assumptions:

All roads paved

Maximum annual emission rate assumes 107 vehicle/24 hr day.

Mix of vehicles	Average Vehicle Weight	Min Vehicle Weight	Max Vehicle Weight	Unit
4.90%	25.5	24	27	ton
5.88%	30	20	40	ton
94.12%	31.5	18	42	ton
Average weight	32.7	-	-	ton

Maximum inside plant speed (posted speed limit) 20 mph.

Number of days with rainfall greater than 0.01 inch is 140 days.

Table N-10a Fugitive Road - Annual
MGS CNP 1, LLC

Constants:

k for PM	0.011	lb/VMT, Particle size multiplier for particle size range.
k for PM2.5	0.00054	lb/VMT, Particle size multiplier for particle size range.
k for PM10	0.0022	lb/VMT, Particle size multiplier for particle size range.
sL	2.4	g/m^2, Road surface silt loading
W	32.7	ton, Average weight of the vehicles travelling the road.
P	157	days, Number of "wet" days with at least 0.254 mm (0.01 in) of precipitation during the averaging period based on Figure 13.2.1-2 in AP-42.
N	365	days, Number of days in the averaging period.
	8760	hrs, Annual operation

Equations and Example Calculations:

(1) PM Emission Factor (lb/VMT) = $EF = [k * (sL)^{0.91} * (W)^{1.02}](1-P/4N)$

= 0.011 lb/VMT * $(2.4\ g/m^2)^{0.91}$ *$(32.7\ ton)^{1.02}$ * (1-140/(4*365))

0.7626 lb/VMT

(2) PM Average Hourly Emission (lb/hr) = (VMT Hourly) * (EF for PM)

(2.79 VMT/hr) * (0.7725 lb/VMT)

2.14 lb/hr

(3) PM Annual Emission (ton/yr) = (PM Hourly Emission * Annual Operation) / 2000 lb/ton

(2.17 lb/hr * 8760 yrs) / 2000 lb/ton

9.38 ton/yr

References:

(1) AP-42, 13.2.1 Paved Roads

(2) Particle size multiplier, k, from Table 13.2.1-1

(3) Road surface silt loading constant, sL, estimated based on low traffic travel in Table 13.2.1-2 with application of identified controls:

•Paving of all in-plant haul roads

•Post and limit the maximum travelling speed to 20 mph

Table N-10b Fugitive Road - Hourly
MGS CNP 1, LLC

Max Hourly Rate

Unit EPN	Vehicles Per Day	Hours of Vehicle Traffic (hrs/day)	Road Length (miles)	Vehicle Mile Travelled Hourly (VMT/hr)
PM-PlantRd	203	10	0.63	12.79

Constituents	Emission Factor		Max Hourly Emissions (lb/hr)
Criteria Pollutants	Factor	Units	
PM	0.8395	lb/VMT	10.74
PM 2.5	0.0412	lb/VMT	0.527
PM 10	0.1679	lb/VMT	2.15

Assumptions:

All roads paved

Maximum hourly emission rate assumes 198 vehicle/10 hr day.

Mix of vehicles	Average Vehicle Weight	Min Vehicle Weight	Max Vehicle Weight	Units
2.53%	25.5	24	27	ton
3.03%	30	20	40	ton
96.97%	31.5	18	45	ton
Average weight	32.1	-	-	ton

Maximum inside plant speed (posted speed limit) 20 mph.

Number of hours with rainfall greater than 0.01 inch is 0 days.

Table N-10b Fugitive Road - Hourly
MGS CNP 1, LLC

Constants:

k for PM	0.011	lb/VMT, Particle size multiplier for particle size range.
k for PM2.5	0.00054	lb/VMT, Particle size multiplier for particle size range.
k for PM10	0.0022	lb/VMT, Particle size multiplier for particle size range.
sL	2.4	g/m^2, Road surface silt loading
W	32.1	ton, Average weight of the vehicles travelling the road.
P	0	days, Number of "wet" days with at least 0.254 mm (0.01 in) of precipitation during the averaging period.
N	1	days, Number of days in the averaging period.

Equations and Example Calculations:

(1) PM Emission Factor (lb/VMT) = $EF = k * (sL)^{0.91} * (W)^{1.02}$

= 0.011 lb/VMT * $(2.4\ g/m^2)^{0.91}$ *$(32.1\ ton)^{1.02}$ * (1-0/4*1)

0.8395 lb/VMT

(2) PM Hourly Emission (lb/hr) = (VMT Hourly) * (EF for PM)

(12.79 VMT/hr) * (0.8395 lb/VMT)

10.74 lb/hr

References:

(1) AP-42, 13.2.1 Paved Roads

(2) Particle size multiplier, k, from Table 13.2.1-1

(3) Road surface silt loading constant, sL, estimated based on low traffic travel in Table 13.2.1-2 with application of identified controls:

•Paving of all in-plant haul roads

•Post and limit the maximum travelling speed to 20 mph

Table N-11 Fixed Roof Tanks Emissions
MGS CNP 1, LLC

Fixed roof tank emissions:
Breathing and working losses from fixed roof tanks were estimated using equations and methodology from AP-42 Chapter 7.
Emissions are based on the anticipated annual throughput for each tank along with the material composition to be stored.

Equipment ID	Description	Tank Type	Throughput	Maximum Filling Rate	Working Volume		Shell Height/Length	Max. Liquid Height	Diameter	Heated/Insulated		Control
			(bbl/yr)	(bbl/hr)	(bbl)	(gal)	(ft)	(ft)	(ft)	(Y/N)	°F	
128-V-9001	Ammonia Storage Tank	Vertical	11,140.00	154.70	196	8,225	17.5	14	10	N	NA	to atmosphere
122-TK-9901	Lean Amine Tank	Vertical	7,670.63	1,167.00	7,162	300,789	40	32	40	Y	50	to atmosphere
TOTAL	**2**											

Table N-11 Fixed Roof Tanks Emissions - Amine Tanks
MGS CNP 1, LLC

Company Name				MGS CNP 1, LLC	
Site Name				**BECCS Plant**	
Emission Unit ID				**122-TK-9902**	**122-TK-9901**
Description				**Amine Makeup Tank**	**Lean Amine Tank**
INPUT DATA					
Tank Data					
Tank Type (Vertical or Horizontal)				Vertical Fixed Roof	Vertical Fixed Roof
Diameter, D	**D**	**ft**		10.00	40
Height, H (or length for horizontal tanks)	H_S	ft		15.00	40
Roof Type				Cone	Cone
Cone Roof Slope (cone roof only), S_R	S_R	dimensionless, default 0.0625		0.0625	0.0625
Shell Paint Color				White	White
Shell Paint Condition				Good	Good
Roof Paint Color				White	White
Roof Paint Condition				Good	Good
Breather Vent Pressure Setting, P_{BP}	P_{BP}	psig (default is 0.03)		0.03	0.03
Breather Vent Vacuum Setting, P_{BV}	**P_{BV}**	psig (default is - 0.03)		-0.03	-0.03
Pressure of Vapor Space at Normal Conditions, P_I	P_I	psig (default is 0)		0	0
Maximum Liquid Height, H_{LX}	**H_{LX}**	**ft**		12.00	32.00
Minimum Liquid Height, H_{LN}	**H_{LN}**	**ft**		1	2
Average Liquid Height, H_{LA}	H_{LA}	ft	$H_{LX}/2$	6.00	16.00
Maximum Hourly Throughput, Q_{MAX}	**Q_{MAX}**	**bbl/hr**		167.85	1167.00
Annual Throughput, Q_{ANN}	Q_{ANN}	bbl/yr		509.00	7670.63
Control Type				NA	NA
Control Efficiency				NA	NA
Tank insulated?				Yes	Yes
	T_{LA}, T_B, T_{LX}, T_{LN}	°R		509.67	509.67
Tank Maximum Liquid Volume, V_{LX}	V_{LX}	Gal		6462.71	282008.96
Meteorological Data					
Daily Min. Ambient Temp, T_{AN}	T_{AN}	°F		46.2	46.2
Daily Max. Ambient Temp, T_{AX}	T_{AX}	°F		65.3	65.3
Daily Total Solar Insolation, I	I	Btu/(ft^2-day)		1250	1250
Atmospheric Pressure, P_A	P_A	psia (default is 14.7)		14.26	14.26

Table N-11 Fixed Roof Tanks Emissions - Amine Tanks
MGS CNP 1, LLC

Material Data

Working Loss Product Factor, K_P	K_P	dimensionless (0.75 for crude oils, 1.0 for all other organic		1	1

Total Losses, L_T (Eq. 1-1)	**L_T**	**tpy**	**$L_T = L_S + L_W$**	0.001	0.010
Total Losses, L_T (Eq. 1-1)	**L_T**	**lb/yr**	**$L_T = L_S + L_W$**	1.35	20.34
Standing Storage Losses, L_S (Eq. 1-4)	**Ls**	lb/yr	**$L_S = 365V_VW_VK_EK_S$**	0.00	0.00
Tank Vapor Space Volume, V_V (Eq. 1-3)	V_V	ft^3	**$V_V = ((\pi/4)D_E^2)H_{VO}$**	715.04	30682.89
Vapor Space Outage, H_{VO} (Eq. 1-16)	H_{VO}	ft	**$H_{VO} = H_S - H_L + H_{RO}$ (vertical tanks)**	9.10	24.42
Cone Roof Outage, H_{RO} (Eq. 1-17)	H_{RO}	ft	**$H_{RO} = H_R/3$ (cone roof)**	0.10	0.42
Cone Tank Roof Height, H_R (Eq. 1-18)	H_R	ft	**$H_R = S_RR_S$ (cone roof)**	0.31	1.25
Vapor Space Expansion Factor, K_E (Eq. 1-5)	K_E	dimensionless	**$K_E = \Delta T_V/T_{LA} + (\Delta P_V - \Delta P_B)/(P_A - P_{VA})$**	0.00	0.00
Vapor Space Expansion Factor, K_E (Eq. 1-12)	K_E	dimensionless	$K_E = 0.0018\Delta T_V$	0.00	0.00
Average Daily Vapor Temperature Range, ΔT_V (Eq. 1-6)	ΔT_V	°R	**$\Delta T_V = (1-0.8/(2.2*(Hs/D)+1.9))\Delta T_A + (0.042\alpha_RI+0.026(Hs/D)\alpha_SI)/(2.2(Hs/D)+1.9)$**	0.00	0.00
Average Daily Vapor Temperature Range, ΔT_V (Eq. 1-7)	ΔT_V	°R	**$\Delta T_V = 0.7\Delta T_A + 0.02\alpha I$**	0.00	0.00
Paint Solar Absorptance, α (Table 7.1-6)		dimensionless		0.17	0.17
Average Daily Ambient Temperature Range, ΔT_A (Eq. 1-11)	ΔT_A	°R	**$\Delta T_A = T_{AX} - T_{AN}$**	19.10	19.10
Average daily liquid Surface Temperature, T_{LA} (Eq. 1-27)	T_{LA}	°R	**$T_{LA} = (0.5-0.8/(4.4(Hs/D)+3.8))T_{AA} + (0.5 + 0.8/(4.4(Hs/D)+3.8))T_B + (0.021\alpha_RI + 0.013 (Hs/D)\alpha_sI)/(4.4(Hs/D)+3.8))$**	509.67	509.67
		°F		50.00	50.00
		°C		10.00	10.00
		K		283.15	283.15
Average daily Liquid Surface Temperature, T_{LA} (Eq. 1-28)	T_{LA}	°R	**$T_{LA} = 0.4T_{AA} + 0.6T_B+0.005\alpha I$**	509.67	509.67
		°F		50.00	50.00
		°C		10.00	10.00
		K		283.15	283.15
Liquid Bulk Temperature, T_B (Eq. 1-31)	T_B	°R	**$T_B = T_{AA} + 0.003\alpha I$**	509.67	509.67
		°F		50.00	50.00
Average Daily Ambient Temperature, T_{AA} (Eq. 1-30)	T_{AA}	°R	**$T_{AA} = (T_{AX} + T_{AN})/2$**	515.42	515.42
Average Daily Minimum Liquid Surface Temperature, T_{LN} (Fig 7.1-17)	T_{LN}	°R	**$T_{LN} = T_{LA} - 0.25\Delta T_V$**	509.67	509.67
		°F		50.00	50.00
		°C		10.00	10.00
		K		283.15	283.15
		°R	**$T_{LX} = T_{LA} + 0.25\Delta T_V$**	509.67	509.67

Table N-11 Fixed Roof Tanks Emissions - Amine Tanks
MGS CNP 1, LLC

Average Daily Maximum Liquid Surface Temperature, T_{LX} (Fig. 7.1-17)	T_{LX}	°F		50.00	50.00
		°C		10.00	10.00
		K		283.15	283.15
Daily Vapor Pressure Range, ΔP_V (Eq. 1-9)	ΔP_V	psia	$\mathbf{\Delta P_V = P_{VX} - P_{VN}}$	0.000	0.000
Is the fixed roof tank of bolted or riveted construction?				No	No

Table N-11 Fixed Roof Tanks Emissions - Amine Tanks
MGS CNP 1, LLC

Breather Vent Pressure Setting Range, ΔP_B (Eq. 1-10)	ΔP_B	psig	**$\Delta P_B = P_{BP} - P_{BV}$**	0.06	0.06
Vented Vapor Saturation Factor, K_S (Eq. 1-21)	K_S	dimensionless	**$K_S = 1/(1 + 0.053 P_{VA} H_{VO})$**	0.93	0.84
Vapor Pressure at the Average Daily Liquid Surface Temp., P_{VA} (Eq. 1-24)	P_{VA}	psia		0.1451	0.1451
Stock Vapor Density, W_V (Eq. 1-22)	W_V	lb/ft^3	**$W_V = (M_V P_{VA})/(RTv)$**	4.73E-04	4.73E-04
Vapor Molecular Weight, M_V (Eq. 1-23)	M_V	lb/lb-mol		18.06	18.06
Average Vapor Temperature, T_V (Eq. 1-32)	T_V	°R	**$T_V = ((2.2(Hs/D)+1.1)T_{AA} + 0.8T_B + 0.021\alpha_R I + 0.013(Hs/D)\alpha_s I)/(2.2(Hs/D)+1.9)$**	516.19	516.06
Average Vapor Temperature, T_V (Eq. 1-33)	T_V	°R	$T_V = 0.7T_{AA} + 0.3T_B + 0.009\alpha I$	509.67	509.67
Working Loss, L_W (Eq. 1-29)	**L_W**	lb/yr	**$L_W = V_Q K_N K_P W_V K_B$**	1.35	20.34
Number of Turnovers per Year, N (Eq. 1-30)	N	dimensionless	**$N = 5.614Q/V_{LX}$**	3.31	1.14
Working Loss Turnover (saturation) factor, K_N	K_N	dimensionless		1.00	1.00
Working Loss Product Factor, K_P	K_P	dimensionless		1	1
Tank Maximum Liquid Volume, V_{LX} (Eq. 1-31)	V_{LX}	ft^3	**$V_{LX} = (\pi/4)D^2(H_{LX}-H_{LN})_)$**	863.94	37699.11
Vent Setting Correction Factor Test (Eq. 1-40)			**$K_N(P_{BP} + P_A)/(P_I + P_A) > 1.0$**	1.002	1.002
Vent Setting Correction Factor, K_B (Eq. 1-41)	K_B	dimensionless		0.998	0.998
Vent Setting Correction Factor, K_B	K_B	dimensionless	**$K_B = (((P_I + P_A)/K_N) - P_{VA})/(P_{BP} + P_A - P_{VA})$**	0.998	0.998

MAXIMUM HOURLY EMISSIONS (TCEQ GUIDANCE DOCUMENT "ESTIMATING SHORT TERM EMISSION RATES FROM FIXED ROOF TANKS", 02/20)

Maximum Short-Term Emission Rate, L_{MAX} (Eq. 1)	L_{MAX}	lb/hr	**$L_{MAX} = (M_V \times P_{VA} \times FR_M)/(R \times T)$**	0.45	3.14
Vapor Molecular Weight of the Compound, M_V		lb/lbmol		18.06	18.06
Maximum Filling Rate, FR_M		gal/hr		7049.73	49014.00
Ideal Gas Constant, R	R	[(psia × gal)/(lbmol × ° R)]		80.27	80.27
Worst Case Liquid Surface Temperature, T	T_{LX} + 10	°R	input or 95 as max. ambient	509.67	509.67
Vapor Pressure of the Tank Contents at T_{MAX}	P_{VA}	psia		0.15	0.15

Speciated Emissions (122-TK-9901)

					122-TK-9901	
	Vapor Phase @ T_{LA}	Vapor Phase @ T_{LX}	Vapor Phase @ T_{LN}	Vapor Phase @ T_{max}	Uncontrolled Emissions	
Components	**wt%**	**wt%**	**wt%**	**wt%**	**(lb/hr)**	**(tpy)**
MEA	0.27	0.27	0.27	0.27	1.20E-03	1.79E-06
MDEA	0.05	0.05	0.05	0.05	2.40E-04	3.59E-07
Water	99.68	99.68	99.68	99.68	0.4502	0.0007

Speciated Emissions (122-TK-2001)

					122-TK-2201	
	Vapor Phase @ T_{LA}	Vapor Phase @ T_{LX}	Vapor Phase @ T_{LN}	Vapor Phase @ T_{max}	Uncontrolled Emissions	
Components	**wt%**	**wt%**	**wt%**	**wt%**	**(lb/hr)**	**(tpy)**
MEA	0.27	0.27	0.27	0.27	8.33E-03	2.70E-05

Table N-11 Fixed Roof Tanks Emissions - Amine Tanks
MGS CNP 1, LLC

MDEA	0.05	0.05	0.05	0.05	1.67E-03	5.41E-06
Water	99.68	99.68	99.68	99.68	3.1299	0.0101

Table N-11 Fixed Roof Tanks Emissions - Vapor Pressure Amine
MGS CNP 1, LLC

Vapor Pressure Calculations for Tanks 122-TK-9901 and 122-TK-9902

				a	b	c	P_{VAi}	P_{VXi}	P_{VNi}	P_{max}	Vapor Phase @ T_{LA}	Vapor Phase @ T_{LX}	Vapor Phase @ T_{LN}	Vapor Phase @ T_{max}	Vapor Phase @ T_{LA}	Vapor Phase @ T_{LX}	Vapor Phase @ T_{LN}	Vapor Phase @ T_{max}
Components	MW	Wt.%	mol%	dimensionless	(°K)	(°K)	psia	psia	psia	psia	mol%	mol%	mol%	mol%	wt%	wt%	wt%	wt%
MEA [1]	61.08	23.00	10.85	4.29252	1408.87	-116.093	0.0010484	0.0010484	0.0010484	0.0010484	0.0785	0.0785	0.0785	0.0785	0.2653	0.2653	0.2653	0.2653
MDEA [2]	119.163	25.00	6.04				0.0001934	0.0001934	0.0001934	0.0001934	0.008	0.008	0.008	0.008	0.05	0.05	0.05	0.05
Water [3]	18.02	52.00	83.11	4.6543	1435.264	-64.848	0.17	0.17	0.17	0.17	99.913	99.913	99.913	99.913	99.68	99.68	99.68	99.68
							0.14	0.14	0.14	0.14								
	MW of Liquid Product						Vapor Pressures				MW of Vapor							
	MW	28.80				**TOTAL**	0.15	0.15	0.15	0.15	18.06	18.06	18.06	18.06				

[1] Pressure equation for MEA is P_{VA} in bar and T in °K. P = 10^(A-B/(C+T)). (https://webbook.nist.gov/cgi/cbook.cgi?ID=C141435&Mask=4&Type=ANTOINE&Plot=on).
P_{VA} in bar is converted to psia by multiplying 14.50377. Temperature range [338.6 to 444.1] K.

[2] MDEA has a vapor pressure less than 0.01 mm Hg at 20 °C. The amine tank is kept at 10 °C. 0.01 mmHg was used in the calculation to obtain conservative results.

[3] Pressure equation for water is P_{VA} in bar and T in °K. P = 10^(A-B/(C+T)). (https://webbook.nist.gov/cgi/cbook.cgi?ID=C7732185&Mask=4&Type=ANTOINE&Plot=on).
P_{VA} in bar is converted to psia by multiplying 14.50377. Temperature range [255.9 - 373] K.

There will be one diesel-fired fire water pump, with rating @ 600 hp.
Sulfur content of fuel used in engines will be 15 ppm sulfur or less.
Annual non-emergency operating hours will be limited to 100 hr/yr.
Engines will be new (model year 2024 or later).

FIN: **129-P-9402** **EPN:** **129-P-9402**

Fuel Type:	**Diesel**	
Year	2024	
Total Engines:	1	
Fuel Consumption per Engine:	35.90	gal/hr
Diesel Density [1]	7.001	lb/gal
Fuel Consumption per Engine:	251.34	lbs/hr
Diesel Fuel Heat Content (HHV): [1]	19,300	Btu/lb
Heat Input (HHV) per Engine:	4.85	MMBtu/hr
Engine Horsepower Output:	600	hp
Engine Output:	447	kW
Annual Operation:	50	hr/yr
Engine Load:	100%	
Displacement per Cylinder	< 30 L per cylinder	
Brake Specific Fuel Consumptions: [2]	8084.64	Btu/hp-hr

Notes:
[1] 19,300 Btu/lb is the average heating value of diesel and 7.001 lb/gal is the density of diesel as provided by vendor.
[2] Brake specific fuel consumption per hour = (Heat Input (HHV)) / (Engine Horsepower Output (hp)).

Water Pump Diesel Engine Emission Rates

Pollutant	**Emission Factor** [1,2,3]		**Emissions Rates (Per Engine)**		
			Max. Hourly	**Annual Average**[4]	**Annual**
			lb/hr	**lb/hr**	**tpy**
NOX [1]	4.0	g/kw-hr	3.95	0.02	0.10
CO [1]	3.5	g/kw-hr	3.45	0.02	0.09
PM10 [1,3]	0.2	g/kw-hr	0.20	0.001	0.00
PM2.5 [1,3]	0.2	g/kw-hr	0.20	0.0011	0.00
VOC [1]	4.0	g/kw-hr	3.95	0.02	0.10
SO2 [2]	1.26E-05	lb/hp-hr	0.01	0.00	0.000

Notes:
1. NOX, CO, PM, and VOC emission factors are from 40 CFR 60.4205(c) for engines with rated power greater than or equal to 600 hp (450 kW) but less than or equal to 750 hp (560 kW). NSPS Subpart IIII specifies to use emission factors from Table 4 to 40 CFR Subpart IIII.
2. Emission factors for SO2 based on 15 ppmw ULSD.
3. All PM is assumed to be less than 1.0 μm in diameter. Therefore, the PM emission factor is used to estimate emissions of PM10 and PM2.5.
4. Annual average hourly emission rates are (annual emissions in tpy)*2000 lb/ton*1 year/8760 hours.

Example Calculation:

$$\text{Hourly } NO_X = \frac{4.0\text{ g}}{\text{kW-hr}} \times 447.43\text{ kW} \times \frac{1\text{ lb}}{453.59\text{ g}} = \frac{3.95\text{ lb}}{\text{hr}}$$

$$\text{Annual } NO_X = \frac{3.95\text{ lb}}{\text{hr}} \times \frac{50\text{ hrs}}{\text{yr}} \times \frac{1\text{ ton}}{2000\text{ lbs}} = \frac{0.10\text{ ton}}{\text{yr}}$$

HAP Emissions from Engines

HAP Emission Estimation

Max Input = 4.85 MMBtu/hr each engine
Annual Hours @ Max Rating = 50.0 hrs/yr
Hourly Emissions = (Max Heat Input - MMBtu/hr) x (1 SCF/1,020 Btu) x (EF - lb/MMSCF)
Annual Emissions = (Max Heat Input - MMBtu/hr) x (1 SCF/1,020 Btu) x (EF - lb/MMSCF) x (Annual Operating Hours) / (2,000 lb/Ton)

Pollutant	EF [1] (lb/MMBtu)	Source	§112 HAP? [2]	Max. Hourly Emission [3] (lb/hr)	Annual Emission (lb/yr) [4]	Annual Emissions (tpy) [5]
Benzene	9.33E-04	AP42; Table 3.3-2; 10/96.	YES	4.53E-03	2.26E-01	1.13E-04
Toluene	4.09E-04	AP42; Table 3.3-2; 10/96.	YES	1.98E-03	9.92E-02	4.96E-05
Xylenes	2.85E-04	AP42; Table 3.3-2; 10/96.	YES	1.38E-03	6.91E-02	3.46E-05
Propylene	2.58E-03	AP42; Table 3.3-2; 10/96.	NO	1.25E-02	6.26E-01	3.13E-04
1,3-Butadiene	<3.91E-05	AP42; Table 3.3-2; 10/96.	YES	1.90E-04	9.48E-03	4.74E-06
Formaldehyde	1.18E-03	AP42; Table 3.3-2; 10/96.	YES	5.72E-03	2.86E-01	1.43E-04
Acetaldehyde	7.67E-04	AP42; Table 3.3-2; 10/96.	YES	3.72E-03	1.86E-01	9.30E-05
Acrolein	<9.25E-05	AP42; Table 3.3-2; 10/96.	YES	4.49E-04	2.24E-02	1.12E-05
Total PAH	<1.68E-04	AP42; Table 3.3-2; 10/96.	YES	8.15E-04	4.07E-02	2.04E-05
Naphthalene	8.48E-05	AP42; Table 3.3-2; 10/96.	YES	4.11E-04	2.06E-02	1.03E-05
Acenaphthylene	<5.06E-06	AP42; Table 3.3-2; 10/96.	YES	2.45E-05	1.23E-03	6.14E-07
Acenaphthene	<1.42E-06	AP42; Table 3.3-2; 10/96.	YES	6.89E-06	3.44E-04	1.72E-07
Fluorene	2.92E-05	AP42; Table 3.3-2; 10/96.	YES	1.42E-04	7.08E-03	3.54E-06
Phenanthrene	2.94E-05	AP42; Table 3.3-2; 10/96.	YES	1.43E-04	7.13E-03	3.57E-06
Anthracene	1.87E-06	AP42; Table 3.3-2; 10/96.	YES	9.07E-06	4.54E-04	2.27E-07
Fluoranthene	7.61E-06	AP42; Table 3.3-2; 10/96.	YES	3.69E-05	1.85E-03	9.23E-07
Pyrene	4.78E-06	AP42; Table 3.3-2; 10/96.	YES	2.32E-05	1.16E-03	5.80E-07
Benzo(a)anthracene	1.68E-06	AP42; Table 3.3-2; 10/96.	YES	8.15E-06	4.07E-04	2.04E-07
Chrysene	3.53E-07	AP42; Table 3.3-2; 10/96.	YES	1.71E-06	8.56E-05	4.28E-08
Benzo(b)fluoranthene	<9.91E-08	AP42; Table 3.3-2; 10/96.	YES	4.81E-07	2.40E-05	1.20E-08
Benzo(k)fluoranthene	<1.55E-07	AP42; Table 3.3-2; 10/96.	YES	7.52E-07	3.76E-05	1.88E-08
Benzo(a)pyrene	<1.88E-07	AP42; Table 3.3-2; 10/96.	YES	9.12E-07	4.56E-05	2.28E-08
Indeno(1,2,3-cd)pyrene	<3.75E-07	AP42; Table 3.3-2; 10/96.	YES	1.82E-06	9.10E-05	4.55E-08
Dibenzo(a,h)anthracene	<5.83E-07	AP42; Table 3.3-2; 10/96.	YES	2.83E-06	1.41E-04	7.07E-08
Benzo(g,h,I)perylene	<4.89E-07	AP42; Table 3.3-2; 10/96.	YES	2.37E-06	1.19E-04	5.93E-08
Total §112 HAP =	3.87E-03			1.88E-02	9.39E-01	4.70E-04

[1] Emission factors obtained from US EPA AP-42 Section 3.3 Gasoline and Diesel Engines (10/96), Table 3.3-2.
[2] Listed US EPA Hazardous Air Pollutants.
[3] Max. Hourly Emissions = Emission Factor (lb/MMBtu) *Max Heat Input Capacity per Engine (MMBtu/hr)
[4] Maximum Annual Emission Rate (lb/yr) = Hourly Emissions (lb/hr) * Annual Operating Hours (hr/yr)
[4] Maximum Annual Emission Rate (lb/yr) = Hourly Emissions (lb/hr) * Annual Operating Hours (hr/yr)
[5] Maximum Potential Annual Emission Rate (tpy) = Hourly Emissions (lb/hr) * Annual Hours (hr/yr) ((1 ton/2000 lb).

There will be one NG-fired startup generator, with power rating @ 2237 kW
Sulfur content of fuel used in engine will be 10 ppmv sulfur or less.
Annual operating hours will be limited to 100 hr/yr.
Engines will be new (model year 2024 or later).

FIN: **129-PKG-0001** **EPN:** **129-PKG-0001**
Engine Type 4-stroke, lean burn engine

Fuel Type:	**Natural Gas**	
Year	2024	
Total Engines:	1	
Fuel Consumption:	18808	Scf/hr
NG HHV	1051.00	Btu/Scf
Heat Input (HHV):	19.77	MMBtu/hr
Engine Horsepower Output:	3000	hp
Engine Output:	2237	kW
Annual Operation:	50	hr/yr
Engine Load:	100%	
Brake Specific Fuel Consumptions: [1]	8836.00	Btu/kW-hr

1 hp = 2544 Btu/hr
1 kW = 1.341 hp

Standard Temperature:	60 °F	15.56 °C
Standard Pressure:	1 atm	
Standard Volume:	379.48 ft3/lbmol	

Notes:
[1] Vendor supplied data - 8836 Btu/kW-hr

Generator Gas Engine Emission Rates

Pollutant	**Emission Factor** [1,2,3,4]		**Emissions Rates**		
			Max. Hourly	**Annual Average**[5]	**Annual**
			Max lb/hr	**annual avg lb/hr**	**tpy**
NOX [1]	1.0	g/hp-hr	6.61	0.04	0.17
CO [1]	2.0	g/hp-hr	13.23	0.08	0.33
PM [2,4]	0.0099871	lb/MMBtu	0.20	0.0011	0.00
PM10 [2,4]	0.0099871	lb/MMBtu	0.20	0.0011	0.00
PM2.5 [2,4]	0.0099871	lb/MMBtu	0.20	0.0011	0.00
VOC_{JJJJ} [1]	0.7	g/hp-hr	4.63	0.03	0.12
VOC [6]	-	-	5.67	0.03	0.14
SO2 [3]	1.06E-05	lb/hp-hr	0.03	0.00	0.001

Table N-13 NG Startup Generator
MGS CNP 1, LLC

Notes:
1. NOX, CO, and VOC_{JJJJ} emission factors are Table 1 to 40 CFR 60 Subpart JJJJ for engines with rated power greater than or equal to 500 hp and manufactured after 7/1/2010.
40 CFR 60.4233(e) specifies to use emission factors from Table 1 to 40 CFR 60 Subpart JJJJ.
2. PM/PM10/PM2.5 emission factors come from Table 3.2-2 in AP-42.
3. Emission factors for SO2 based on 10 ppmv sulfur in NG.
4. All PM is assumed to be less than 1.0 μm in diameter. Therefore, the PM emission factor is used to estimate emissions of PM10 and PM2.5.
5. Annual average hourly emission rates are (annual emissions in tpy)*2000 lb/ton*1 year/8760 hours.
6. As indicated in 4*0 CFR 60 Subpart JJJJ, Table 1, Note d,* , VOC_{JJJJ} does not include formaldehyde. Total VOC = VOC_{JJJJ} + Formaldehyde. Formaldehyde is quantified using emission factor in Section 3.2 of AP-42.

Example Calculation:

$$\text{Hourly } NO_X = \frac{1.00\text{ g}}{\text{hp-hr}} \times 3000.00\text{ hp} \times \frac{1\text{ lb}}{453.59\text{ g}} = \frac{6.61\text{ lb}}{\text{hr}}$$

$$\text{Annual } NO_X = \frac{6.61\text{ lb}}{\text{hr}} \times \frac{50\text{ hrs}}{\text{yr}} \times \frac{1\text{ ton}}{2000\text{ lbs}} = \frac{0.17\text{ ton}}{\text{yr}}$$

HAP Emissions from NG Engine

HAP Emission Estimation

Max Input = 19.77 MMBtu/hr each engine
Annual Hours @ Max Rating = 50.0 hrs/yr
Hourly Emissions = (Max Heat Input - MMBtu/hr) x (EF - lb/MMBtu)
Annual Emissions = (Max Heat Input - MMBtu/hr) x (EF - lb/MMBtu) x (Annual Operating Hours) / (2,000 lb/Ton)

4-Stroke, Lean Burn Engine (37 HAPs)

Pollutant	HAPs [2]	Emission Factor [1]	Emission Factor Rating	HAPs Emission Factor	Max Hourly Emission [3]	Annual Emission	Annual Emissions
		lb/MMBtu(fuel input)		lb/MMBtu(fuel input)	(lb/hr)	(lb/yr) [4]	(tpy) [5]
1,1,2,2-Tetrachloroethanek	Yes	0.00004	E	0.00004	7.91E-04	3.95E-02	1.98E-05
1,1,2-Trichloroethanek	Yes	0.0000318	E	0.0000318	6.29E-04	3.14E-02	1.57E-05
1,1-Dichloroethane	No	0.0000236	E	0	0.00E+00	0.00E+00	0.00E+00
1,2,3-Trimethylbenzene	No	2.30E-05	D	0	0.00E+00	0.00E+00	0.00E+00
1,2,4-Trimethylbenzene	No	1.43E-05	C	0	0.00E+00	0.00E+00	0.00E+00
1,2-Dichloroethane	No	0.0000236	E	0	0.00E+00	0.00E+00	0.00E+00
1,2-Dichloropropane	No	0.0000269	E	0	0.00E+00	0.00E+00	0.00E+00
1,3,5-Trimethylbenzene	No	3.38E-05	D	0	0.00E+00	0.00E+00	0.00E+00
1,3-Butadienek	Yes	2.67E-04	D	2.67E-04	5.28E-03	2.64E-01	1.32E-04
1,3-Dichloropropenek	Yes	0.0000264	E	0.0000264	5.22E-04	2.61E-02	1.30E-05
2-Methylnaphthalenek	Yes	3.32E-05	C	3.32E-05	6.56E-04	3.28E-02	1.64E-05
2,2,4-Trimethylpentanek	Yes	2.50E-04	C	2.50E-04	4.94E-03	2.47E-01	1.24E-04
Acenaphthenek	Yes	1.25E-06	C	1.25E-06	2.47E-05	1.24E-03	6.18E-07
Acenaphthylenek	Yes	5.53E-06	C	5.53E-06	1.09E-04	5.47E-03	2.73E-06
Acetaldehydek,l	Yes	8.36E-03	A	8.36E-03	1.65E-01	8.26E+00	4.13E-03
Acroleink,l	Yes	5.14E-03	A	5.14E-03	1.02E-01	5.08E+00	2.54E-03
Benzenek	Yes	4.40E-04	A	4.40E-04	8.70E-03	4.35E-01	2.17E-04
Benzo(b)fluoranthenek	Yes	1.66E-07	D	1.66E-07	3.28E-06	1.64E-04	8.20E-08
Benzo(e)pyrenek	Yes	4.15E-07	D	4.15E-07	8.20E-06	4.10E-04	2.05E-07
Benzo(g,h,i)perylenek	Yes	4.14E-07	D	4.14E-07	8.18E-06	4.09E-04	2.05E-07

Table N-13 NG Startup Generator
MGS CNP 1, LLC

Pollutant	HAPs [2]	Emission Factor [1]	Emission Factor Rating	HAPs Emission Factor	Max Hourly Emission [3]	Annual Emission	Annual Emissions
		lb/MMBtu(fuel input)		lb/MMBtu(fuel input)	(lb/hr)	(lb/yr) [4]	(tpy) [5]
Biphenylk	Yes	2.12E-04	D	2.12E-04	4.19E-03	2.10E-01	1.05E-04
Butane	No	5.41E-04	D	0	0.00E+00	0.00E+00	0.00E+00
Butyr/Isobutyraldehyde	No	1.01E-04	C	0	0.00E+00	0.00E+00	0.00E+00
Carbon Tetrachloridek	Yes	0.0000367	E	0.0000367	7.25E-04	3.63E-02	1.81E-05
Chlorobenzenek	Yes	0.0000304	E	0.0000304	6.01E-04	3.00E-02	1.50E-05
Chloroethane	No	1.87E-06	D	0	0.00E+00	0.00E+00	0.00E+00
Chloroformk	Yes	0.0000285	E	0.0000285	5.63E-04	2.82E-02	1.41E-05
Chrysenek	Yes	6.93E-07	C	6.93E-07	1.37E-05	6.85E-04	3.42E-07
Cyclopentane	No	2.27E-04	C	0	0.00E+00	0.00E+00	0.00E+00
Ethane	No	1.05E-01	C	0	0.00E+00	0.00E+00	0.00E+00
Ethylbenzenek	Yes	3.97E-05	B	3.97E-05	7.85E-04	3.92E-02	1.96E-05
Ethylene Dibromidek	Yes	0.0000443	E	0.0000443	8.76E-04	4.38E-02	2.19E-05
Fluoranthenek	Yes	1.11E-06	C	1.11E-06	2.19E-05	1.10E-03	5.49E-07
Fluorenek	Yes	5.67E-06	C	5.67E-06	1.12E-04	5.60E-03	2.80E-06
Formaldehydek,l	Yes	5.28E-02	A	5.28E-02	1.04E+00	5.22E+01	2.61E-02
Methanolk	Yes	2.50E-03	B	2.50E-03	4.94E-02	2.47E+00	1.24E-03
Methylcyclohexane	No	1.23E-03	C	0	0.00E+00	0.00E+00	0.00E+00
Methylene Chloridek	Yes	2.00E-05	C	2.00E-05	3.95E-04	1.98E-02	9.88E-06
n-Hexanek	Yes	1.11E-03	C	1.11E-03	2.19E-02	1.10E+00	5.49E-04
n-Nonane	No	1.10E-04	C	0	0.00E+00	0.00E+00	0.00E+00
n-Octane	No	3.51E-04	C	0	0.00E+00	0.00E+00	0.00E+00
n-Pentane	No	2.60E-03	C	0	0.00E+00	0.00E+00	0.00E+00
Naphthalenek	Yes	7.44E-05	C	7.44E-05	1.47E-03	7.35E-02	3.68E-05
PAHk	Yes	2.69E-05	D	2.69E-05	5.32E-04	2.66E-02	1.33E-05
Phenanthrenek	Yes	1.04E-05	D	1.04E-05	2.06E-04	1.03E-02	5.14E-06
Phenolk	Yes	2.40E-05	D	2.40E-05	4.74E-04	2.37E-02	1.19E-05
Propane	No	4.19E-02	C	0	0.00E+00	0.00E+00	0.00E+00
Pyrenek	Yes	1.36E-06	C	1.36E-06	2.69E-05	1.34E-03	6.72E-07
Styrenek	Yes	0.0000236	E	0.0000236	4.67E-04	2.33E-02	1.17E-05
Tetrachloroethanek	Yes	2.48E-06	D	2.48E-06	4.90E-05	2.45E-03	1.23E-06
Toluenek	Yes	4.08E-04	B	4.08E-04	8.07E-03	4.03E-01	2.02E-04
Vinyl Chloridek	Yes	1.49E-05	C	1.49E-05	2.95E-04	1.47E-02	7.36E-06
Xylenek	Yes	1.84E-04	B	1.84E-04	3.64E-03	1.82E-01	9.09E-05
			Total HAPs	0.0002617	1.43	71.36	0.04

[1] Emission factors obtained from US EPA AP-42 Section 3.4 Large Stationary Diesel and All Stationary Dual-fuel Engines (10/96), Tables 3.4-3 and 3.4-4.
[2] Listed US EPA Hazardous Air Pollutants.
[3] Max. Hourly Emissions = Emission Factor (lb/MMBtu) *Max Heat Input Capacity per Engine (MMBtu/hr)
[4] Maximum Annual Emission Rate (lb/yr) = Hourly Emissions (lb/hr) * Annual Operating Hours (hr/yr)
[5] Maximum Potential Annual Emission Rate (tpy) = Hourly Emissions (lb/hr) * Annual Hours (hr/yr) ((1 ton/2000 lb).

Company:	MGS CNP 1, LLC
Emission Point ID:	BECCS-FUG BECCS Plant Equipment Leaks
HOURS OF OPERATION:	8,760

Emission Summary

Pollutant	Hourly Emission Rate lb/hr	Annual Emission Rate tpy
VOC	8.32	36.46
NH_3	0.60	2.64

Emission Calculation

Component	Product (Service)	Component Count[1]	TOC Emission Factor[2] kg/comp-hr	Stream Composition, wt%		Hourly Emissions, lb/hr	
				VOC	NH_3	VOC	NH_3
Valves	Rich Amine (Heavy Liquid)	58	0.00023	44%	0.0001%	0.01	2.93E-08
Pump Seals		2	0.00862			0.02	3.79E-08
Compressor Seals		0	-			-	-
Pressure Relief Valves (Gas Service)		5	0.104			0.50	1.14E-06
Flanges		200	0.00183			0.36	8.05E-07
Open-ended Lines [3]		15	0			0.00	0.00E+00
Valves	Lean Amine (Heavy Liquid)	410	0.00023	47%	-	0.10	-
Pump Seals		10	0.00862			0.09	-
Compressor Seals		0	-			-	-
Pressure Relief Valves (Gas Service)		37	0.104			3.96	-
Flanges		1362	0.00183			2.57	-
Open-ended Lines [3]		104	0			0.00	-
Valves	Natural Gas (Gas)	6	0.00597	12%	-	0.01	-
Pump Seals		0	-			-	-
Compressor Seals		0	0.228			0.00	-
Pressure Relief Valves		0	0.104			0.00	-
Flanges		22	0.00183			0.01	-
Open-ended Lines [3]		1	0			0.00	-

Table N-14 Equipment Leaks
MGS CNP 1, LLC

Component	Product (Service)	Component Count[1]	TOC Emission Factor[2] kg/comp-hr	Stream Composition, wt%		Hourly Emissions, lb/hr	
				VOC	NH_3	VOC	NH_3
Valves	Diesel (Heavy Liquid)	29	0.00023	100%	-	0.01	-
Pump Seals		1	0.00862			0.02	-
Compressor Seals		0	-			-	-
Pressure Relief Valves (Gas Service)		1	0.104			0.23	-
Flanges		109	0.00183			0.44	-
Open-ended Lines [3]		6	0			0.00	-
Valves	Aqueous Ammonia (Light Liquid)	61	0.00403	-	25%	-	1.35E-01
Pump Seals		2	0.0199			-	2.19E-02
Compressor Seals		0	-			-	-
Pressure Relief Valves (Gas Service)		4	0.104			-	2.29E-01
Flanges		216	0.00183			-	2.17E-01
Open-ended Lines [3]		14	0			-	0.00E+00
Total Hourly Emissions, lb/hr						8.32	0.60

[1] *Component Count is estimated based on similar projects.*

[2] *TOC emission factor is obtained from protocol for equipment leak emission estimates, EPA-453/R-95-017, November 1995, Table 2-1. SOCMI Average Emission Factors*

[3] *Open-ended Lines will be equipped with a cap, blind flange, plug, or a second valve; therefore a 100% control credit is taken.*

[4] *Sampling connections will be closed-purge connections; therefore a 100% control credit is taken.*

Truck Loadout of Degraded Amine
Overview:
Degraded amine removed from the reclaiming system will be loaded offsite by trucks. Maximum permit calculations are based on 2000 barrels per year. For hourly maximum, the loading rate is 105 GPM (150 barrels per hour). MEA is used to represent the amine.

Emissions Methodology:
AP-42, Section 5.2 : Transport and Marketing of Petroleum Liquids
Formula for calculating loading losses:

$$L_L = 12.46 \frac{S * P * M}{T}$$ AP-42, Section 5.2 6/08, Equation 1

where:
L_L = Loading loss, pounds per 1000 gallons (lb/10^3 gal) of liquid loaded
S = A saturation factor (based on type and service of loaded vessel)
P = True vapor pressure of liquid loaded, pounds per square inch absolute
M = molecular weight of vapors, pounds per pound-mole (lb/lb-mole)
T = temperature of bulk liquid loaded, °R 524.97 °R

Physical and Chemical Properties:

Emission Unit ID	True Vapor Pressure [1] (psia)	MW of Vapors [1] (lb / lb-mole)	Loading Loss (lb / 10^3 gal)	Notes
VOC - Amine -LOAD	0.0027	61.08	0.002	Submerged Loading: dedicated normal service, Uncontrolled

Throughput and Emissions:

Emission Unit ID	Max Hourly Mgal/hr	Annual Mgal/yr	Max Hourly Vapor Released (lb / hr)	Maximum Annual Vapor Released (lb/yr)	Notes
VOC - Amine -LOAD	6.3	84	0.015	0.20	Submerged Loading: dedicated normal service, Uncontrolled

Degraded Amine loading vapors - Uncontrolled

Emissions	Average lb / hr	Maximum lb / hr	Maximum tons /yr
VOC - Amine -LOAD	0.000022	0.015	0.00010

Table N-15 Degraded Amine Truck Loadout
MGS CNP 1, LLC

Calculation of MEA vapor pressure

				a	b	c
Components	MW	Wt.%	mol%	dimensionless	(°K)	(°K)
MEA [1]	61.08	100.00	100.00	4.29252	1408.87	-116.093

P_{VA}	0.0026844	psia

[1] Pressure equation for MEA is P_{VA} in bar and T in °K. P = 10^(A-B/(C+T)). (https://webbook.nist.gov/cgi/cbook.cgi?ID=C141435&Mask=4&Type=ANTOINE&Plot=on).
P_{VA} in bar is converted to psia by multiplying 14.50377. Temperature range [338.6 to 444.1] K.

Table N-16 Wastewater Treatment Plant
MGS CNP 1, LLC

Source Name:	Wastewater Treatment Plant	**EPN:**	127-PKG-0001	
Proposed Limits		**Date:**	5/6/2025	
FIN	**EPN**	**Air Contaminant[3]**	**lbs/hr [1]**	**tpy**
127-PKG-0001	127-PKG-0001	NH3	0.51	2.10
		H2SO4	0.64	2.79
		HCl[2]	0.12	0.57

[1] Hourly emission rate is the emission rate under normal operating conditions.

[2] Hazardous Air Pollutant

[3] VOC and HAPs were excluded from this calculation

Process Description:
The wastewater treatment plant will receive water from the direct contact cooler/polishing scrubber system. The scrubbing liquid will have direct contact with the flue gas exhaust from the boiler. The scrubber solution will adsorb ammonia, sulfuric acid and hydrochloric acid that could be present in the flue gas. The scrubbing solution will be sent to the Wastewater Treatment Plant for further processing before it is discharged to the outfall. It is conservatively assumed that 10% of the ammonia, sulfuric acid and hydrochloric acid in the flue gas could be emitted from the Wastewater Treatment plant. The wastewater treatment plant will also receive water from the demineralized water system, raw water treatment, flush pond water, cooling tower water and boiler blowdown water. These streams are not expected to contribute emissions from the wastewater treatment plant.

Emission Unit ID	Emission Point ID	Proposed Emission Point ID	Emission Unit Description	Year Installed	Design Capacity	Control Device
BFB Boiler						
121-H-2001	121-PKG-3001 or 122-T-1001	121-PKG-3001 - EP or 122-T-1001 - EP	Wood Chip Fired Fluidized Bed Boiler	2026	944 MMBtu/hr	H2001-1C - Pulse Jet Fabric Filter H2001-2C - SCR H2001-3C - CO Oxidation Catalyst H2001-4C - Wet Flue Gas Desulfurization H2001-5C - Dry Sorbent Injection
121-S-5001			Makeup Sand Silo	2026	50 Tons/hr	
121-S-9901			Sodium Bicarbonate Storage Silo	2026	100 lbs/hr	
Biomass Handling Process						
121-LS-1001	121-PKG-1001	121-PKG-1001 - EP	Biomass Receiving Hopper 1001	2026	212 tons/hr	Baghouse 121-PKG-1001
121-LS-1002			Biomass Receiving Hopper 1002	2026	212 tons/hr	
121-CV-1001	121-CV-1001	121-CV-1001 - EP	Conveyor #1 from Biomass Receiving Hopper 1001 to Storage Pile	2026	106.07 tons/hr	Covered
121-CV-1002	121-CV-1002	121-CV-1002 - EP	Conveyor #2 from Biomass Receiving Hopper 1002 to Storage Pile	2026	106.07 tons/hr	Covered
CHIP-1	CHIP-1	CHIP-1 - EP	Biomass Storage Pile Loading Fugitives	2026	106.07 tons/hr	NA
121-S-1001	121-S-1001	121-S-1001 - EP	Biomass Feed Hopper	2026	106.07 tons/hr	NA
121-CV-1003	121-CV-1003	121-CV-1003 - EP	Conveyor from Feed Hopper to 121-CV-2001 A/B	2026	106.07 tons/hr	Covered
121-CV-2001 A	121-CV-2001 A	121-CV-2001 A - EP	Screw Conveyor from Biomass Feed Hopper A to Biomass Fuel Metering Bin 121-S-2001 A	2026	106.07 tons/hr	Covered
121-CV-2001B	121-CV-2001B	121-CV-2001B - EP	Screw Conveyor from Biomass Feed Hopper B to Biomass Fuel Metering Bin 121-S-2001 B	2026	106.07 tons/hr	Covered
121-S-2001 A	121-S-2001 A	121-S-2001 A - EP	Biomass Fuel Metering Bin A	2026	106.07 tons/hr	NA
121-S-2001 B	121-S-2001 B	121-S-2001 B - EP	Biomass Fuel Metering Bin B	2026	106.07 tons/hr	NA
CHIP-2	CHIP-2	CHIP-2 - EP	Wood Chips Storage Pile	2026	-	NA

Fly Ash / Economizer Ash Handling Process						
121-CV-4001 A	121-CV-4001 A	121-CV-4001 A - EP	PJFF Ash Collection Drag Chain Conveyor A (From boiler hopper to surge bin A)	2026	4.5 tons/hr	Covered
121-CV-4001 B	121-CV-4001 B	121-CV-4001 B - EP	PJFF Ash Collection Drag Chain Conveyor B (from boiler to surge bin B)	2026	4.5 tons/hr	Covered
121-CV-4002	121-CV-4002	121-CV-4002 - EP	PJFF Ash Transport Drag Chain Conveyor (From Surge Bins #1 and #2 to PJFF Ash Transfer Drag Chain Conveyor)	2026	4.5 tons/hr	Covered
121-CV-4003	121-CV-4003	121-CV-4003 - EP	PJFF Ash Transfer Drag Chain Conveyor (to Ash Bucket Elevator)	2026	4.5 tons/hr	Covered
121-CV-4004	121-CV-4004	121-CV-4004 - EP	Ash Bucket Elevator	2026	4.5 tons/hr	Covered
121-CV-4005	121-CV-4005	121-CV-4005 - EP	Ash Distribution Drag Chain Conveyor (From Ash Bucket Elevator to Fly Ash Storage Silos)	2026	4.5 tons/hr	Covered
121-CV-4006 A	121-CV-4006 A	121-CV-4006 A - EP	Economizer Hopper Ash Drag Chain Conveyor A (From Economizer Hopper to Economizer Hopper Ash Surge Bin A)	2026	3.3 tons/hr	Covered
121-CV-4006 B	121-CV-4006 B	121-CV-4006 B - EP	Economizer Hopper Ash Drag Chain Conveyor B (From Economizer Hopper to Economizer Hopper Ash Surge Bin B)	2026	3.3 tons/hr	Covered
121-CV-4007 A	121-CV-4007 A	121-CV-4007 A - EP	Economizer Ash Transport Conveyor A (From Economizer Ash Surge Bin A to Fly Ash Silo A)	2026	3.3 tons/hr	Covered
121-CV-4007 B	121-CV-4007 B	121-CV-4007 B - EP	Economizer Ash Transport Conveyor B (From Economizer Ash Surge Bin B to Fly Ash Silo B)	2026	3.3 tons/hr	Covered
121-S-4001 A	121-F-4001 A	121-F-4001 A - EP	Fly Ash Storage Silo A	2026	7.8 tons/hr	PJF 121-F-4001 A
121-S-4001 B	121-F-4001 B	121-F-4001 B - EP	Fly Ash Storage Silo B	2026	7.8 tons/hr	PJF 121-F-4001 B
121-TL-0001	121-TL-0001	121-TL-0001 - EP	Fly Ash Truck Loading	2026	8.6 tons/hr	N/A

Bottom Ash and Sand Handling Process						
121-CV-5001 A	121-CV-5001 A	121-CV-5001 A - EP	Metering Conveyor A (Bed Ash Screw A)	2026	2250 lbs/hr	Covered
121-CV-5001 B	121-CV-5001 B	121-CV-5001 B - EP	Metering Conveyor B (Bed Ash Screw B)	2026	2250 lbs/hr	Covered
121-CV-5002A	121-CV-5002A	121-CV-5002A - EP	Vibrating Screener A (to separate bottom ash and sand)	2026	2250 lbs/hr	Partial Enclosure
121-CV-5002B	121-CV-5002B	121-CV-5002B - EP	Vibrating Screener B (to separate bottom ash and sand)	2026	2250 lbs/hr	Trough hood (Partial enclosure)
121-S-1002	121-PKG-3001 or 122-T-1001	121-PKG-3001 or 122-T-1001 - EP	Sand Receiving Hopper	2026	50 tons/hr	NA Covered Vent piping to the BFB
121-CV-1004	121-CV-1004	121-CV-1004 - EP	Inclined Sand Hopper Conveyor	2026	50 tons/hr	
121-S-5001	121-PKG-3001; 122-T-1001	121-PKG-3001; - EP	Makeup Sand Silo	2026	50 tons/hr 1752 tons/yr	
121-CV-5003 A	121-CV-5003 A	121-CV-5003 A - EP	Transfer Conveyor A (Recycled Sand) (From Vibrating Screener A to Sand Bucket Elevator A)	2026	6000 lbs/24 hours	Partial Enclosure)
121-CV-5003 B	121-CV-5003 B	121-CV-5003 B - EP	Transfer Conveyor B (Recycled Sand) (From Vibrating Screener B to Sand Bucket Elevator B)	2026	6000 lbs/24 hours	Partial Enclosure)
121-CV-5004 A	121-CV-5004 A	121-CV-5004 A - EP	Sand Bucket Elevator A (Recycled Sand + Fresh Sand)	2026	650	Covered
121-CV-5004 B	121-CV-5004 B	121-CV-5004 B - EP	Sand Bucket Elevator B (Recycled Sand + Fresh Sand)	2026	650	Covered

NaHCO3 Handling Process						
121-S-9901	121-PKG-3001; 122-T-1001	121-PKG-3001; - EP122-T-1001 - EP	Sodium Bicarbonate Storage Silo	2026	1400 scfm gas flow (intermittent, 86 hrs/yr)	Vent routed to PJFF
121-S-9902 A	121-F-9902 A	121-F-9902 A - EP	Sodium Bicarbonate Vent Hopper A	2026	126 lbs/hr	PFJ 121-F-9902 A
121-S-9902 B	121-F-9902 B	121-F-9902 B - EP	Sodium Bicarbonate Vent Hopper B	2026	126 lbs/hr	PJF 121-F-9902 B
Others Point Sources						
129-CT-9301	129-CT-9301	129-CT-9301 - EP	Cooling Tower	2026	80,762 gpm	NA
PM-PlantRd	PM-PlantRd	PM-PlantRd - EP	Truck Road Fugitive Particulate Emissions	2026	Max 203 vehicles per day; On average 107 vehicles per day	NA
122-TK-9902	122-TK-9901	122-TK-9901 - EP	Amine Makeup Tank	2026	8812 gal (max)	NA
122-TK-9901	122-TK-9901	122-TK-9901 - EP	Lean Amine Tank	2026	375,986 gal (max)	NA
129-P-9402	129-P-9402	129-P-9402 - EP	Fire Water Pump	2026	600 HP	NA
129-PKG-0001	129-PKG-0001	129-PKG-0001 - EP	NG Startup Generator	2026	3000 HP	NA
VOC-Amine-LOAD	VOC-Amine-LOAD	VOC-Amine-LOAD - EP	Truck Loadout of Degraded Amine	2026	6.3 Mgal/hr	NA
127-PKG-0001	127-PKG-001	127-PKG-001 - EP	Wastewater Treatment Plant	2026	0.17 Mgal/yr 1,517.49 Mgal/yr	NA
Tanks						
129-TK-9402	129-TK-9402	129-TK-9402 - EP	Diesel Tank	2026	1616 gal (max)	NA
122-PKG-2001	122-PKG-2001	122-PKG-2001 - EP	Biodegraded Amine Tank	2026	4,488 gal (max)	NA

MGS CNP 1, LLC
109 Post Oak Lane, Suite 140
Houston, TX 77024

FIDELIS

RECEIVED
MAY 09 2025
WV DEP / DIV OF AIR QUALITY

May 6, 2025

Laura M. Crowder, Director
WV Department of Environmental Protection (WVDEP)
Division of Air Quality (DAQ)
601 57th Street SE
Charleston, WV 25304

Re: Application Status: Incomplete
MGS CNP 1, LLC/BECCS Plant
Permit Application No. R13-3708
Plant ID No. 053-00134

Ms. Crowder,

Please find our claims of confidentiality this information is being provided to the WV DEP based on incomplete notice sent to MGS CNP 1, LLC (MGS) issued on April 25th, 2025. This information addresses the comments regarding the biomass analysis.

The following items will be attached to support our claims.

- Claims of confidentiality and supporting rational
- Confidential information

If you have additional questions, please do not hesitate to contact us.

Sincerely,

Jack Calhoun
Vice President

RECEIVED
MAY 09 2025
WV DEP / DIV OF AIR QUALITY

Company Name	MGS CNP 1, LLC	Responsible Official		William D. Calhoun
Company Address	109 North Post Oak Lane, Suite 140	Confidential Information Designee in State of WV	Name	Michael Dearing
	Houston, TX 77024		Title	Principal Consultant
			Address	1038 Quarrier St, Suite 100
Person/Title *Submitting* Confidential Information	William D. Calhoun			Charleston, WV, 25301
	Vice President HSE		Phone	
			Fax	

Reason for Submittal of Confidential Information:

The biomass analysis is part of the equipment vendors proprietary database of biomass analyses. If companies seeking to engage in the same business as MGS CNP 1, LLC were gain access to this information it would provide them knowledge that is not publicly available or accessible by another vendor. This would convey a competitive advantage by streamlining competitors data collection and the cost associated with it.

Identification of Confidential Information	Rationale for Confidential Claim	Confidential Treatment Time Period
The non sulfur chemical properties of the biomass analysis	Provide justification that the criteria set forth in § 45CSR31-4.1.a - e have been met. **4.1.a:** This information has not been provided publicly before therefore the claim of confidentiality has not been waived nor expired. **4.1.b:** This information has not been provided publicly before and the applicant intends to maintain confidently with the information for the foreseeable future. **4.1.c:** This information was provided to the applicant by the vendor of the equipment. This analysis is part of the vendor proprietary database of biomass analysis. If competitors were to engage in similar actives with different vendors having access to this analysis would provide them with information that is not readily available to the public or with other vendors. **4.1.d**: No statute currently requires the discloser of the non sulfur components of the biomass analysis **4.1.e.1:** If competitors were to engage in similar activities with different vendors having access to this analysis would provide them with information that is not readily available to the public and therefore providing them with a completive advantage and reduced cost associated with data collection.	Indefinitely

Responsible Official Signature:	WILLIAM D. (JACK) CALHOUN
Responsible Official Title:	Vice President HSE
Date Signed:	5/7/2025

NOTE: Must be signed and dated in **BLUE INK**.

Andrews, Edward S <edward.s.andrews@wv.gov>

Rule 31 CBI

1 message

Andrews, Edward S <edward.s.andrews@wv.gov> Wed, Apr 30, 2025 at 12:34 PM
To: Michael Dearing <Michael.Dearing@erm.com>

Here is a link to our Rule 31 regarding CBI Claims with our office.

https://dep.wv.gov/daq/rulessummary/Documents/2024%20Final%20Rules/45-31.pdf

The items applicant's either overlook or fail to satisfy are 4.1.b. and 4.1.c.

Please look over the pdf at this link regarding filing a claim, which includes a sample form.

https://dep.wv.gov/daq/Documents/Longview%20Power/Claim%20of%20Confidentiality%203%2023%202020.pdf

Should you have any questions, please let me know.

Thanks,
Ed

--
Edward Andrews, P.E.
Engineer
WVDEP/Division of Air Quality
304-414-1244
601 57th Street, SE
Charleston, WV 25304

Inc Email 4/22/2025

Tuesday, April 22, 2025 3:21 PM

Andrews, Edward S <edward.s.andrews@wv.gov>

Incomplete App Email

1 message

Andrews, Edward S <edward.s.andrews@wv.gov> Tue, Apr 22, 2025 at 3:20 PM
To: William Calhoun <jack.calhoun@fidelisinfra.com>, Michael Dearing <Michael.Dearing@erm.com>
Cc: Joseph R Kessler <joseph.r.kessler@wv.gov>

RE: Application Status: Incomplete
MGS CNP 1, LLC/BECCS Plant
Permit Application No. R13-3708
Plant ID No. 053-00134

Mr. Calhoun:

Your application for a construction permit for a steam to electric generation facility was received by this Division on February 24, 2025, and assigned to the writer for review. Upon initial review of said application, it has been determined that the application as submitted is incomplete. It has been determined that the application as submitted is incomplete based on the following items:

1. Missing an discussion on the purpose (e.g. sell of electricity) of the excess electricity generated by the proposed boiler/steam turbine generator. If your proposed generation is to be used for a data center or other use that requires a redundant (backup) supply of electrical, please identify this alternative/backup source of electricity for the primary end user. This discussion needs to clearly answer whether the electricity is being sold, the planned amount of electricity to be sold, is there a purchase power agreement in place, please note the source of required electricity for normal startup operations will be purchased/supplied from local electricity wholesaler/another generating unit, and the nameplate rating of the generator. Please note if the facility is going to be connected to the electrical grid system (e.g. PJM), please explain the relationship (e.g., solely purchaser/consumer, wholesaler/generator).

Please note the amount of excess steam will be utilized to provide heat energy for the amine regenerator (temperature and pressure is also needed). Please provide details of the energy consumption of the facility, type of energy consumed (e.g. electricity, steam, natural gas) for the CO2 dehydration unit and compression and whether these energy requirements for these activities will be part of the auxiliary load of the facility or require additional combustion units.

The DAQ has an unclear understanding of what will be the source of the electricity to start the proposed emissions units. Please keep in mind, the emergency engine for the emergency generator can only be operated for 50 hours per year of non-emergency use. This discussion needs to describe the electrical system that the steam turbine/generator will be connected to and the source of the electricity needed for normal startup/shutdown operations. Please explain in further detail exactly how the fluidized bed boiler will be preheated for startup with the use of steam from an auxiliary boiler or other steam generator.

2. Missing completed individual control device sheets for the SCR, OxyCat, Wet FGD, and DSI for the boiler. Please identify key parameters that will be monitored to ensure compliance with the proposed emissions with respect to the pollutant(s) being controlled by the associated control device. Also, provide additional information regarding your proposed wet FGD system to determine if the residual moisture exiting the scrubber will pose a possible interference issue with a

continuous opacity monitoring system as required in 45CSR2 and 45CSR2A. Given that the application is proposed to be a synthetic minor source under the Title V Program, please provide a monitoring plan for the CO Catalyst, Wet FGD and DSI control device to ensure compliance with proposed emission limits.

3. Please provide supporting information to support the claim that the proposed fuel will have sulfur content to satisfy the exemption criteria of 40CFR60.42b(k)(2). Regarding the wood (primary fuel) to be used as fuel for the boiler, the application does not identify the source(s) and species of wood to be used as fuel. If the source(s) of the wood fuel is going to be discarded from a manufacturing process, this/these source(s) of wood need to be identified and evaluated whether the material is a waste/fuel in accordance with 40 CFR 241.

4. Please separate the startup emissions for control devices that the performance is impacted/cannot be operated during startup conditions (e.g. SCR, oxidation catalyst, wet FGD) on startup event basis. If a control device performance is impacted during an shutdown, thus shutdown emissions on a short term basis needs to be identified as well. Any by-passing of a proposed control device needs to be identified for startup and shutdown events. Please define the ending of a startup event. The emission calculations are based on NG firing for 10 hours per startup and a total of 55 hours per year for start operations. This accounts for 5 startup events per year with 5 hours unaccounted for. Please explain these 5 unaccounted for hours per year for startup and are the emissions based on firing 100% wood for these hours on an uncontrolled basis.

5. Please justify reducing the organic HAPs emission factors published in AP-42 by 88% for the use of CO catalyst when the VOC removal efficiency of 60% for the CO catalyst was applied to account for the control VOC emissions for the boiler.

7. Regarding haul road emissions: Please provide the minimum and maximum weight of the vehicles for each of the percentiles used to determine the average weight of the vehicle, and justification of the silt loading. Did the average weight of the vehicles and distance traveled account for equipment used to manage the open stockpile? Given that all haul roads are proposed to be paved, is the open stockpile going to be located on a paved surface?

8. Please provide additional details on how the HCl emissions from the wastewater treatment unit were determined and how these HCl emissions will be determined when the wastewater treatment unit is in operation.

Please address the above deficiencies in writing by no later than May 12, 2025. Application review will not commence until the application has been deemed to be technically complete. Failure to respond to this request in a timely manner may result in the denial of the application.

Should you have any questions, please contact Ed Andrews at (304) 926-0499 ext. 41244 or reply to this email.

--
Edward Andrews, P.E.
Engineer
WVDEP/Division of Air Quality
304-414-1244
601 57th Street, SE
Charleston, WV 25304

Affidavit 3/2/2025

Thursday, April 3, 2025 10:49 AM

Andrews, Edward S <edward.s.andrews@wv.gov>

RE: WV DAQ Permit Application Status for MGS CNP 1, LLC; BECCS Plant

1 message

Michael Dearing <michael.dearing@erm.com> Wed, Apr 2, 2025 at 4:35 PM
To: "Mink, Stephanie R" <stephanie.r.mink@wv.gov>, "jack.calhoun@fidelisinfra.com" <jack.calhoun@fidelisinfra.com>
Cc: Joseph R Kessler <joseph.r.kessler@wv.gov>, "Andrews, Edward S" <edward.s.andrews@wv.gov>, Gregory L Null <gregory.l.null@wv.gov>, Casey M Samples <casey.m.samples@wv.gov>, Kathy M Sullivan <kathy.m.sullivan@wv.gov>

Hello,

Attached is the affidavit for this application.

Thanks

ERM
Sustainability is our business

Michael Dearing

Managing Consultant, Scientist

Charleston WV **erm.com**

O +1-(612)-347-7144

C +1-(304)-654-2227

From: Mink, Stephanie R <stephanie.r.mink@wv.gov>
Sent: Tuesday, February 25, 2025 9:04 AM
To: jack.calhoun@fidelisinfra.com; Michael Dearing <michael.dearing@erm.com>
Cc: Joseph R Kessler <joseph.r.kessler@wv.gov>; Andrews, Edward S <edward.s.andrews@wv.gov>; Gregory L Null <gregory.l.null@wv.gov>; Casey M Samples <casey.m.samples@wv.gov>; Kathy M Sullivan <kathy.m.sullivan@wv.gov>
Subject: WV DAQ Permit Application Status for MGS CNP 1, LLC; BECCS Plant

You don't often get email from stephanie.r.mink@wv.gov. Learn why this is important

EXTERNAL MESSAGE

Application Status

MGS CNP 1, LLC; BECCS Plant
Facility ID No. 053-00134
Application No. R13-3708

Mr. Calhoun:

Your application for a Construction Permit for the BECCS Plant was received by this Division via email on February 24, 2025 and was assigned to Ed Andrews. The following items were not included in the initial application submittal:

Copy of Class I legal advertisement affidavit.

Application fee of $4,500.00.

- Credit card payments may be made by contacting the Accounts Receivable section at 304-926-0499 x 41195. DEP accepts Visa and MasterCard only. Please have the Facility ID and Application Number available when calling.

- Checks may be sent by mail. You must include the Facility ID Number and Application Number on the check as an identifier. A check may be mailed to:

  WVDEP - DAQ - Permitting
  ATTN: NSR Permitting Secretary
  601 57th Street, SE
  Charleston, WV 25304

These items are necessary for the assigned permit writer to continue the 30-day completeness review.

Within 30 days, you should receive notification from Ed Andrews stating the status of the permit application and, if complete, given an estimated time frame for the agency's final action on the permit.

Any determination of completeness shall not relieve the permit applicant of the requirement to subsequently submit, in a timely manner, any additional or corrected information deemed necessary for a final permit decision.

Should you have any questions, please contact the assigned engineer, Ed Andrews, at 304-926-0499 x41244.

--

Stephanie Mink

Environmental Resources Associate

West Virginia Department of Environmental Protection

Division of Air Quality, Title V & NSR Permitting

601 57th Street SE

Charleston, WV 25304

Phone: 304-926-0499 x41281

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Affidavit -...

PUBLISHER'S CERTIFICATE

I, Tamra Lawson,
Classified Manager of THE RIVER CITIES TRIBUNE, a newspaper of general circulation published in the city of Gallipolis, Gallia Co. OH, Pomeroy, Meigs Co. OH, and Point Pleasant, Mason Co. WV, County and state aforesaid, do hereby certify that the annexed:

25033EE0 Environmental Resources Management

Ad# 1465369

was published in THE RIVER CITIES TRIBUNE 1 time(s) commencing on 03/18/2025 and ending on 03/18/2025 at the request of

WV PRESS ASSOCIATION LEGAL NOTIC.

Given under my hand this 03/18/2025.

The publisher's fee for said publication is: $30.23.

Tamra Lawson
Classified Manager of
THE RIVER CITIES TRIBUNE

Subscribed to and sworn to before me this
03/18/2025

Tina Kocher
Notary Public in and for Gallia, Meigs and Mason Counties

My commission expires on
The 7th day of January 20 30

OFFICIAL SEAL
NOTARY PUBLIC
STATE OF WEST VIRGINIA
Tina Kocher
510 Main Street
Pt Pleasant WV 25550
My Commission Expires January 7, 2030

AIR QUALITY PERMIT NOTICE
Notice of Application

Notice is given that MGS CNP 1, LLC has applied to the West Virginia Department of Environmental Protection, Division of Air Quality, for a Construction Permit for a Biomass Energy and Carbon Capture Sequestration Plant located off of WV Route 62, near Point Pleasant, in Mason County, West Virginia. The facility will be utilized primarily in the production of carbon dioxide removal (CDR) credits with future power/steam generation. The latitude and longitude coordinates are: 38.92450, -82.10822.

The applicant estimates the potential to discharge the following Regulated Air Pollutants will be: Nitrogen Oxides, 90.95 tons per year (TPY); Carbon Monoxide, 46.48 TPY; Volatile Organic Compounds, 55.27 TPY; Sulfur Dioxide, 55.27 TPY; Particulate Matter-10, 83.35 TPY; Total Hazardous Air Pollutants, 24.00 TPY.

Startup of operation is planned to begin on or about the 15th day of November, 2028. Written comments will be received by the West Virginia Department of Environmental Protection, Division of Air Quality, 601 57th Street, SE, Charleston, WV 25304, for at least 30 calendar days from the date of publication of this notice. Written comments will also be received via email at DEPAirQualityPermitting@WV.gov.

Any questions regarding this permit application should be directed to the DAQ at (304) 926-0499, extension 41281, during normal business hours. Dated this the 6th day of February 2025.

By: MGS CNP 1, LLC
Jack Calhoun
Vice President
109 Post Oak Lane, Suite 140
Houston, TX 77024

Ad#1465369

Additional Info 4/3/2025

Thursday, April 3, 2025 10:51 AM

Andrews, Edward S <edward.s.andrews@wv.gov>

RE: Application Status for 13-3708

1 message

Michael Dearing <Michael.Dearing@erm.com> Thu, Apr 3, 2025 at 9:51 AM
To: "Andrews, Edward S" <edward.s.andrews@wv.gov>, William Calhoun <jack.calhoun@fidelisinfra.com>
Cc: Joseph R Kessler <joseph.r.kessler@wv.gov>, Jonathan Rosenbaum <laura.m.crowder@wv.gov>

Ed,

I sent the affidavit in yesterday. Also, I have attached the list of question you sent 3/31/25 with responses from the team at Fidels. Some of the question we were unsure how to answer and may require a meeting to discuss.

Thanks

ERM
Sustainability is our business

Michael Dearing

Managing Consultant, Scientist

Charleston WV **erm.com**

O +1-(612)-347-7144

C +1-(304)-654-2227

From: Andrews, Edward S <edward.s.andrews@wv.gov>
Sent: Friday, March 21, 2025 11:14 AM
To: William Calhoun <jack.calhoun@fidelisinfra.com>; Michael Dearing <Michael.Dearing@erm.com>
Cc: Joseph R Kessler <joseph.r.kessler@wv.gov>; Jonathan Rosenbaum <laura.m.crowder@wv.gov>
Subject: Application Status for 13-3708

You don't often get email from edward.s.andrews@wv.gov. Learn why this is important

EXTERNAL MESSAGE

Mr. Calhoun;

Our office has not received a copy of the affidavit of publication and therefore your application cannot be deam complete at this time.

We do have some concerns/questions with the application as follows, which need to be addressed/answered, which we can do during my site visit on Monday, March 25, 2025.

Attach is a word file of these concerns/issues/questions.

At this time, I feel that the monitoring for the proposed boiler is going to depend on whether the boiler is subject to the Acid Rain Program. Thus, the agency needs to know the capacity of the generator and whether the electricity generated by your proposed generator is going to be sold.

I would like to mention to you that 45CSR30.2.2. defines an affected source as a source that includes one or more affected units under 45CSR33 and Title IV of the Clean Air Act (Acid Deposition Control). Section 3.2. does not exclude "affected sources" that are non-major sources under 45CSR30 from the permitting requirements of Title V.

" *3.2. Exemptions and deferrals.*

3.2.a. Except as provided in section 4, all sources listed in subsection 3.1 that are not major sources, affected sources, or solid waste incineration units required to obtain a permit pursuant to §129(e) of the Clean Air Act may be deferred by the Secretary on a specific source category basis from the obligation to obtain a Title V operating permit under this rule. Any such deferral by the Secretary shall be consistent with the timetable established by the U.S. EPA for non-major sources to which this rule applies except as provided under subdivision 4.1.a."

As part of my review, I will review EPA's past Acid Rain Applicability Determinations whether your proposed boiler is an "affected source" under the Acid Rain Program (Title IV of the CAA) before making any applicability determination regarding your permit application. https://www.epa.gov/acidrain/acid-rain-program-applicability-determinations

Should you have any questions, please let me know.

Thanks,

Ed

--

Edward Andrews, P.E.

Engineer

WVDEP/Division of Air Quality

304-414-1244

601 57th Street, SE

Charleston, WV 25304

This e-mail and any attachments may contain proprietary, confidential and/or privileged information. No confidentiality or privilege is waived or lost by any transmission errors. This communication is intended solely for the intended recipient, and if you are not the intended recipient, please notify the sender immediately, delete it from your system and do not copy, distribute, disclose, or otherwise act upon any part of this email communication or its attachments. To find out how the ERM Group manages personal data please review our Privacy Policy

DAQ list of Issues for 13-3708 - Reviewed.docx
27K

DAQ list of Issues for 13-3708 - Reviewed

DAQ list of Issues/Concern/Questions regarding Permit Application 13-3708 for MGS CNP1/BECCS Plant.

1. Parts of the application are blacked out and there is no claim of "confidential business information" in the February 24, 2025, submittal. (e.g., MSDS for natural gas (sweet), SOS Business Certificate)
    - This was not meant to be confidential information, but rather a generic SDS for natural gas in the area.
2. Under Section 4.8.4. of the application, the application notes that the electricity is being sold. The electricity generated by the proposed boiler being sold needs to be clearly answered. Please clarify this. Also, keep in mind this answer impacts the proposed boiler with the interstate trade rules (e.g., acid rain).
    - Electricity will not be supplied to the grid. Rather steam generated from the combustion of the biomass can be sent to the STG to produce the hotel load for the facility. Excess steam can bypass the STG and be condensed. In future activities, this steam can be added to STG to create additional electricity as required for future projects.
3. The application under the EUDS for the boiler notes that NOx and CO2 CEMS will be utilized for monitoring NOx emissions. Given that your proposed unit will include a CO2 adsorber to remove carbon dioxide the location of the NOx CO2 CEMS needs to be upstream of the CO2 adsorber to properly monitor NOx emissions.
    - In the configuration, the approach is through the DCC, Absorber and then wash column. The DCC will control the emissions, and the amine in the absorber will react with the oxides present in the flue gas to create degraded products. The monitoring arrangement is setup to capture the stream after the absorber as NOx and other pollutants including NH3 are expected to be lower exit the absorber due to reaction and only control.
4. After Table N-1 BFB (pdf page 183) is a table of summary of stack data, the significance of the data or how the data was used with respect to this application to be explained.
    - Table N-1 is detailed description of the values used in the MAERT table along with the emission data source (i.e., vendor data/guarantee).
5. Did H2SO4 emission rates for the boiler consider the use of the DSI control device?
    - Yes, DSI controls are considered.
6. Would the H2SO4 emissions be knocked out in the CO2 adsorber?
    - No, the DCC will knock out the H2SO4 but to be conservative, the H2SO4 is shown as a pass through.
7. Did the HCl emission rates for the boiler consider the use of the wet scrubber? If not, explain why.
    - No, the DCC will knock out the HCL but to be conservative, the HCL is shown as a pass through.
8. The application lacks specific monitoring of the control devices for the respective pollutants except for NOx emissions. The DAQ would prefer to separate the control device sheet for each of the different types of control device. The exception could be made for dual catalysts (SCR and oxidation catalyst integrated into a single bed configuration) style control device. Information needed in the application from these sheets is needed to

develop clear set points for the permit when these controls are in operation (e.g., end of startup and when shutdown begins).
    - This topic needs further discussion with DEP to get clarity
9. Also, NOx mass emission needs to be accounted for under the Acid Rain and to ensure that the facility does not trigger the Title V major source status.
    - Nox is list in lbs./day and tons/yr in emission calculations. We are unsure of the location of this comment.
10. Does the PM rate of 67.83 tpy for the boiler in the summary table on PDF page 172 include condensable PM?
    - Yes, this does include condensable PM.
11. There is clearly a great deal of effort put into this application. However, most of my concerns in the application are focused on monitoring emissions/control devices with regards to NOx, CO, SO2, and HCl.
    - Is there a related question for this item?
12. The application does not contain supporting information that the SO2 potential of the fuel (e.g. sulfur content of the fuel) for the boiler will be below 0.32 lb/MMBtu to satisfy the exemption under 40CFR60.42b(k)(2).
    - MGS CNP has a representative wood analysis sample where SO2 would be less than 0.1 lb./MMBtu emitted.

DAQ list of Issues/Concern/Questions regarding Permit Application 13-3708 for MGS CNP1/BECCS Plant.

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    - MGS CNP has a representative wood analysis sample where SO2 would be less than 0.1 lb./MMBtu emitted.

App Status 2/25/2025

Wednesday, April 2, 2025 7:58 AM

Andrews, Edward S <edward.s.andrews@wv.gov>

WV DAQ Permit Application Status for MGS CNP 1, LLC; BECCS Plant

1 message

Mink, Stephanie R <stephanie.r.mink@wv.gov> Tue, Feb 25, 2025 at 9:03 AM
To: jack.calhoun@fidelisinfra.com, michael.dearing@erm.com
Cc: Joseph R Kessler <joseph.r.kessler@wv.gov>, "Andrews, Edward S" <edward.s.andrews@wv.gov>, Gregory L Null <gregory.l.null@wv.gov>, Casey M Samples <casey.m.samples@wv.gov>, Kathy M Sullivan <kathy.m.sullivan@wv.gov>

Application Status
MGS CNP 1, LLC; BECCS Plant
Facility ID No. 053-00134
Application No. R13-3708

Mr. Calhoun:

Your application for a Construction Permit for the BECCS Plant was received by this Division via email on February 24, 2025 and was assigned to Ed Andrews. The following items were not included in the initial application submittal:

Copy of Class I legal advertisement affidavit.

Application fee of $4,500.00.

- Credit card payments may be made by contacting the Accounts Receivable section at 304-926-0499 x 41195. DEP accepts Visa and MasterCard only. Please have the Facility ID and Application Number available when calling.
- Checks may be sent by mail. You must include the Facility ID Number and Application Number on the check as an identifier. A check may be mailed to:

  WVDEP - DAQ - Permitting
  ATTN: NSR Permitting Secretary
  601 57th Street, SE
  Charleston, WV 25304

These items are necessary for the assigned permit writer to continue the 30-day completeness review.

Within 30 days, you should receive notification from Ed Andrews stating the status of the permit application and, if complete, given an estimated time frame for the agency's final action on the permit.

Any determination of completeness shall not relieve the permit applicant of the requirement to subsequently submit, in a timely manner, any additional or corrected information deemed necessary for a final permit decision.

Should you have any questions, please contact the assigned engineer, Ed Andrews, at 304-926-0499 x41244.

--

Stephanie Mink

Environmental Resources Associate

West Virginia Department of Environmental Protection

Division of Air Quality, Title V & NSR Permitting

601 57th Street SE

Charleston, WV 25304

Phone: 304-926-0499 x41281

Final Permit R13-3708

West Virginia Department of Environmental Protection

Harold D. Ward
Cabinet Secretary

Construction Permit

R13-3708

This permit is issued in accordance with the West Virginia Air Pollution Control Act (West Virginia Code §§22-5-1 et seq.) and 45 CSR 13 – Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Temporary Permits, General Permits and Procedures for Evaluation. The permittee identified at the above-referenced facility is authorized to construct the stationary sources of air pollutants identified herein in accordance with all terms and conditions of this permit.

Issued to:
MGS CNP1, LLC
053-00134
BECCS Plant/Point Pleasant

Laura M. Crowder

Laura M. Crowder
Director, Division of Air Quality

Issued: November 20, 2025

Facility Location:	5801 Ohio River Rd Point Pleasant, Mason County, West Virginia 2550
Mailing	109 N. Post Oak Ln Ste. 140 Houston, TX 77024
Facility Description:	Biomass fired, steam to electricity power plant
NAICS Codes:	221117 - Biomass Electric Power Generation
UTM Coordinates:	403.93 km Easting • 4,308.98 km Northing • Zone 17N
Latitude/Longitude:	39.9245069°N/-82.1082251°W
Permit Type:	Construction
Description of Change:	This action is for the construction of a biomass fired, bubbling bed boiler to generate steam which is used to generate electricity that is not for sale. Other emission units associated with the facility are biomass (fuel) handling/processing/storage, cooling towers, and two engines.

Any person whose interest may be affected, including, but not necessarily limited to, the applicant and any person who participated in the public comment process, by a permit issued, modified or denied by the Secretary may appeal such action of the Secretary to the Air Quality Board pursuant to article one [§§22B-1-1 et seq.], Chapter 22B of the Code of West Virginia. West Virginia Code §§22-5-14.

As a result of the granting of this permit, the source is a nonmajor source subject to 45CSR30. The permittee shall apply for a Title V (45CSR30) permit in accordance with the requirements of 45CSR30 unless granted a deferral or exemption by the Director from such filing deadline pursuant to a request from the permittee.

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1.0. Emission Units

Emission Unit ID	Emission Point ID	Emission Unit Description	Year Installed	Design Capacity	Control Device
BFB Boiler					
121-H-2001	122-T-1001 or 121-PKG-3001	Wood Chip Fired Fluidized Bed Boiler	2026	944 MMBtu/hr	H2001-1C/2C/3C/4C/5C
121-S-5001		Makeup Sand Silo	2026	1,660 ft^3	
121-S-9901		Sodium Bicarbonate Storage Silo	2026	2,000 ft^3	
Biomass Handling Process					
121-LS-1001	121-PKG-1001	Biomass Receiving Hopper 1001	2026	6,000 ft^3	121-PKG-1001
121-LS-1002		Biomass Receiving Hopper 1002	2026	6,000 ft^3	
121-CV-1001	121-CV-1001	Conveyor #1 from Biomass Receiving Hopper 1001 to Storage Pile	2026	106.07 tons/hr	Covered
121-CV-1002	121-CV-1002	Conveyor #2 from Biomass Receiving Hopper 1002 to Storage Pile	2026	106.07 tons/hr	Covered
CHIP-1	CHIP-1	Biomass Storage Pile Loading Fugitives	2026	106.07 tons/hr	NA
121-S-1001	121-S-1001	Biomass Feed Hopper	2026	1800 ft^3	NA
121-CV-1003	121-CV-1003	Conveyor from Feed Hopper to 121-CV-2001 A/B	2026	106.07 tons/hr	Covered
121-CV-2001 A	121-CV-2001 A	Screw Conveyor from Biomass Feed Hopper A to Biomass Fuel Metering Bin 121-S-2001 A	2026	106.07 tons/hr	Covered
121-CV-2001B	121-CV-2001B	Screw Conveyor from Biomass Feed Hopper B to Biomass Fuel Metering Bin 121-S-2001 B	2026	106.07 tons/hr	Covered
121-S-2001 A	121-S-2001 A	Biomass Fuel Metering Bin A	2026	4,200 ft^3	NA
121-S-2001 B	121-S-2001 B	Biomass Fuel Metering Bin B	2026	4,200 ft^3	NA
CHIP-2	CHIP-2	Wood Chips Storage Pile	2026	35,628 tons	NA
Fly Ash / Economizer Ash Handling Process					
121-CV-4001 A	121-CV-4001 A	PJFF Ash Collection Drag Chain Conveyor A (From boiler hopper to surge bin A)	2026	4.5 tons/hr	Covered
121-CV-4001 B	121-CV-4001 B	PJFF Ash Collection Drag Chain Conveyor B (from boiler to surge bin B)	2026	4.5 tons/hr	Covered
121-CV-4002	121-CV-4002	PJFF Ash Transport Drag Chain Conveyor (From Surge Bins #1 and #2 to PJFF Ash Transfer Drag Chain Conveyor)	2026	4.5 tons/hr	Covered
121-CV-4003	121-CV-4003	PJFF Ash Transfer Drag Chain Conveyor (to Ash Bucket Elevator)	2026	4.5 tons/hr	Covered
121-CV-4004	121-CV-4004	Ash Bucket Elevator	2026	4.5 tons/hr	Covered

121-CV-4005	121-CV-4005	Ash Distribution Drag Chain Conveyor (From Ash Bucket Elevator to Fly Ash Storage Silos)	2026	4.5 tons/hr	Covered
121-CV-4006 A	121-CV-4006 A	Economizer Hopper Ash Drag Chain Conveyor A (From Economizer Hopper to Economizer Hopper Ash Surge Bin A)	2026	3.3 tons/hr	Covered
121-CV-4006 B	121-CV-4006 B	Economizer Hopper Ash Drag Chain Conveyor B (From Economizer Hopper to Economizer Hopper Ash Surge Bin B)	2026	3.3 tons/hr	Covered
121-CV-4007 A	121-CV-4007 A	Economizer Ash Transport Conveyor A (From Economizer Ash Surge Bin A to Fly Ash Silo A)	2026	3.3 tons/hr	Covered
121-CV-4007 B	121-CV-4007 B	Economizer Ash Transport Conveyor B (From Economizer Ash Surge Bin B to Fly Ash Silo B)	2026	3.3 tons/hr	Covered
121-S-4001 A	121-F-4001 A	Fly Ash Storage Silo A	2026	9,500 ft^3	121-F-4001 A
121-S-4001 B	121-F-4001 B	Fly Ash Storage Silo B	2026	9,500 ft^3	121-F-4001 B
121-TL-0001	121-TL-0001	Fly Ash Truck Loading	2026	8.6 tons/hr	N/A
Bottom Ash and Sand Handling Process					
121-CV-5001 A	121-CV-5001 A	Metering Conveyor A (Bed Ash Screw A)	2026	2250 lbs/hr	Covered
121-CV-5001 B	121-CV-5001 B	Metering Conveyor B (Bed Ash Screw B)	2026	2250 lbs/hr	Covered
121-CV-5002A	121-CV-5002A	Vibrating Screener A (to separate bottom ash and sand)	2026	2250 lbs/hr	Partial Enclosure
121-CV-5002B	121-CV-5002B	Vibrating Screener B (to separate bottom ash and sand)	2026	2250 lbs/hr	Trough hood (Partial enclosure)
121-S-1002	121-S-1002	Sand Receiving Hopper	2026	6,000 ft^3	NA Covered Vent piping to the BFB
121-CV-1004	121-CV-1004	Inclined Sand Hopper Conveyor	2026	50 tons/hr	
121-CV-5003 A	121-CV-5003 A	Transfer Conveyor A (Recycled Sand) (From Vibrating Screener A to Sand Bucket Elevator A)	2026	6,000 lbs/24 hours	Partial Enclosure)
121-CV-5003 B	121-CV-5003 B	Transfer Conveyor B (Recycled Sand) (From Vibrating Screener B to Sand Bucket Elevator B)	2026	6000 lbs/24 hours	Partial Enclosure)

121-CV-5004 A	121-CV-5004 A	Sand Bucket Elevator A (Recycled Sand + Fresh Sand)	2026	650	Covered
121-CV-5004 B	121-CV-5004 B	Sand Bucket Elevator B (Recycled Sand + Fresh Sand)	2026	650	Covered
$NaHCO_3$ Handling Process					
121-S-9901	121-PKG-3001; 122-T-1001	Sodium Bicarbonate Storage Silo	2026	1400 scfm gas flow (intermittent, 86 hrs/yr)	Vent routed to PJFF
121-S-9902 A	121-F-9902 A	Sodium Bicarbonate Vent Hopper A	2026	126 lbs/hr	121-F-9902 A
121-S-9902 B	121-F-9902 B	Sodium Bicarbonate Vent Hopper B	2026	126 lbs/hr	121-F-9902 B
Others Point Sources					
129-CT-9301	129-CT-9301	Cooling Tower	2026	80,762 gpm	NA
PM-PlantRd	PM-PlantRd	Truck Road Fugitive Particulate Emissions	2026	Max 203 vehicles per day; On average 107 vehicles per day	NA
122-TK-9902	122-TK-9901	Amine Makeup Tank	2026	8812 gal (max)	NA
122-TK-9901	122-TK-9901	Lean Amine Tank	2026	375,986 gal (max)	NA
129-P-9402	129-P-9402	Fire Water Pump (emergency engine)	2026	614 HP	NA
129-PKG-0001	129-PKG-0001	NG Startup Generator (non-emergency engine)	2026	3,000 HP	NA
VOC-Amine-LOAD	VOC-Amine-LOAD	Truck Loadout of Degraded Amine	2026	6.3 Mgal/hr	NA
127-PKG-0001	127-PKG-001	Wastewater Treatment Plant	2026	0.17 Mgal/yr 1,517.49 Mgal/yr	NA
Tanks					
129-TK-9402	129-TK-9402	Diesel Tank	2026	1616 gal (max)	NA
122-PKG-2001	122-PKG-2001	Biodegraded Amine Tank	2026	4,488 gal (max)	NA

LNB – Low NO_x Burner
SCR – Selective Catalytic Reduction to control oxides of nitrogen emissions.
Ox Cat – Oxidation Catalyst to control carbon monoxide and VOC emissions.

2.0. General Conditions

2.1. Definitions

2.1.1. All references to the "West Virginia Air Pollution Control Act" or the "Air Pollution Control Act" mean those provisions contained in W.Va. Code §§ 22-5-1 to 22-5-18.

2.1.2. The "Clean Air Act" means those provisions contained in 42 U.S.C. §§ 7401 to 7671q, and regulations promulgated thereunder.

2.1.3. "Secretary" means the Secretary of the Department of Environmental Protection or such other person to whom the Secretary has delegated authority or duties pursuant to W.Va. Code §§ 22-1-6 or 22-1-8 (45CSR§30-2.12.). The Director of the Division of Air Quality is the Secretary's designated representative for the purposes of this permit.

2.2. Acronyms

CAAA	Clean Air Act Amendments	**NO_X**	Nitrogen Oxides
CBI	Confidential Business Information	**NSPS**	New Source Performance Standards
CEM	Continuous Emission Monitor	**PM**	Particulate Matter
CES	Certified Emission Statement	**$PM_{2.5}$**	Particulate Matter less than 2.5 µm in diameter
CFR	Code of Federal Regulations		
CO	Carbon Monoxide	**PM_{10}**	Particulate Matter less than 10µm in diameter
CSR	Codes of State Rules		
DAQ	Division of Air Quality	**ppb**	Pounds per Batch
DEP	Department of Environmental Protection	**pph**	Pounds per Hour
		ppm	Parts per Million
dscm	Dry Standard Cubic Meter	**ppm_V**	Parts per Million by Volume
FOIA	Freedom of Information Act		
GHG	Greenhouse Gases	**PSD**	Prevention of Significant Deterioration
HAP	Hazardous Air Pollutant		
HON	Hazardous Organic NESHAP	**psi**	Pounds per Square Inch
HP	Horsepower	**SIC**	Standard Industrial Classification
lbs/hr	Pounds per Hour		
LDAR	Leak Detection and Repair	**SIP**	State Implementation Plan
M	Thousand	**SO_2**	Sulfur Dioxide
MACT	Maximum Achievable Control Technology	**TAP**	Toxic Air Pollutant
		TPY	Tons per Year
MDHI	Maximum Design Heat Input	**TRS**	Total Reduced Sulfur
MM	Million	**TSP**	Total Suspended Particulate
MMBtu/hr *or* mmbtu/hr	Million British Thermal Units per Hour	**USEPA**	United States Environmental Protection Agency
MMCF/hr *or* mmcf/hr	Million Cubic Feet per Hour	**UTM**	Universal Transverse Mercator
		VEE	Visual Emissions Evaluation
NA	Not Applicable	**VOC**	Volatile Organic Compounds
NAAQS	National Ambient Air Quality Standards	**VOL**	Volatile Organic Liquids
NESHAPS	National Emissions Standards for Hazardous Air Pollutants		

2.3. Authority

This permit is issued in accordance with West Virginia Air Pollution Control Act W.Va. Code §§ 22-5-1. et seq. and the following Legislative Rules promulgated thereunder:

2.3.1. 45CSR13 – *Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Temporary Permits, General Permits and Procedures for Evaluation*.

2.4. Term and Renewal

2.4.1. This Permit shall remain valid, continuous and in effect unless it is revised, suspended, revoked or otherwise changed under an applicable provision of 45CSR13 or any other applicable legislative rule;

2.5. Duty to Comply

2.5.1. The permitted facility shall be constructed and operated in accordance with the plans and specifications filed in Permit Application R13-3708, and any modifications, administrative updates, or amendments thereto. The Secretary may suspend or revoke a permit if the plans and specifications upon which the approval was based are not adhered to;
[45CSR§§13-5.10 and 10.3.]

2.5.2. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the West Virginia Code and the Clean Air Act and is grounds for enforcement action by the Secretary or USEPA;

2.5.3. Violations of any of the conditions contained in this permit, or incorporated herein by reference, may subject the permittee to civil and/or criminal penalties for each violation and further action or remedies as provided by West Virginia Code 22-5-6 and 22-5-7;

2.5.4. Approval of this permit does not relieve the permittee herein of the responsibility to apply for and obtain all other permits, licenses, and/or approvals from other agencies; i.e., local, state, and federal, which may have jurisdiction over the construction and/or operation of the source(s) and/or facility herein permitted.

2.6. Duty to Provide Information

The permittee shall furnish to the Secretary within a reasonable time any information the Secretary may request in writing to determine whether cause exists for administratively updating, modifying, revoking, or terminating the permit or to determine compliance with the permit. Upon request, the permittee shall also furnish to the Secretary copies of records to be kept by the permittee. For information claimed to be confidential, the permittee shall furnish such records to the Secretary along with a claim of confidentiality in accordance with 45CSR31. If confidential information is to be sent to USEPA, the permittee shall directly provide such information to USEPA along with a claim of confidentiality in accordance with 40 CFR Part 2.

2.7. Duty to Supplement and Correct Information

Upon becoming aware of a failure to submit any relevant facts or a submittal of incorrect information in any permit application, the permittee shall promptly submit to the Secretary such supplemental facts or corrected information.

2.8. Administrative Update

The permittee may request an administrative update to this permit as defined in and according to the procedures specified in 45CSR13.
[45CSR§13-4.]

2.9. Permit Modification

The permittee may request a minor modification to this permit as defined in and according to the procedures specified in 45CSR13.
[45CSR§13-5.4.]

2.10 Major Permit Modification

The permittee may request a major modification as defined in and according to the procedures specified in 45CSR14 or 45CSR19, as appropriate.
[45CSR§13-5.1]

2.11. Inspection and Entry

The permittee shall allow any authorized representative of the Secretary, upon the presentation of credentials and other documents as may be required by law, to perform the following:

a. At all reasonable times (including all times in which the facility is in operation) enter upon the permittee's premises where a source is located or emissions related activity is conducted, or where records must be kept under the conditions of this permit;

b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

c. Inspect at reasonable times (including all times in which the facility is in operation) any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under the permit; and

d. Sample or monitor at reasonable times substances or parameters to determine compliance with the permit or applicable requirements or ascertain the amounts and types of air pollutants discharged.

[WV Code § 22-5-4(a)(9)]

2.12. Reserved

2.13. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a permittee in an enforcement action that it should have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. However, nothing in this paragraph shall be construed as precluding consideration of a need to halt or reduce activity as a mitigating factor in determining penalties for noncompliance if the health, safety, or environmental impacts of halting or reducing operations would be more serious than the impacts of continued operations.

2.14. Suspension of Activities

In the event the permittee should deem it necessary to suspend, for a period in excess of sixty (60) consecutive calendar days, the operations authorized by this permit, the permittee shall notify the Secretary, in writing, within two (2) calendar weeks of the passing of the sixtieth (60) day of the suspension period.

2.15. Property Rights

This permit does not convey any property rights of any sort or any exclusive privilege.

2.16. Severability

The provisions of this permit are severable and should any provision(s) be declared by a court of competent jurisdiction to be invalid or unenforceable, all other provisions shall remain in full force and effect.

2.17. Transferability

This permit is transferable in accordance with the requirements outlined in Section 10.1 of 45CSR13. **[45CSR§13-10.1.]**

2.18. Notification Requirements

The permittee shall notify the Secretary, in writing, no later than thirty (30) calendar days after the actual startup of the operations authorized under this permit.

2.19. Credible Evidence

Nothing in this permit shall alter or affect the ability of any person to establish compliance with, or a violation of, any applicable requirement through the use of credible evidence to the extent authorized by law. Nothing in this permit shall be construed to waive any defense otherwise available to the permittee including, but not limited to, any challenge to the credible evidence rule in the context of any future proceeding.

3.0. Facility-Wide Requirements

3.1. Limitations and Standards

3.1.1. **Open burning.** The open burning of refuse by any person, firm, corporation, association or public agency is prohibited except as noted in 45CSR§6-3.1.
[45CSR§6-3.1.]

3.1.2. **Open burning exemptions.** The exemptions listed in 45CSR§6-3.1 are subject to the following stipulation: Upon notification by the Secretary, no person shall cause, suffer, allow or permit any form of open burning during existing or predicted periods of atmospheric stagnation. Notification shall be made by such means as the Secretary may deem necessary and feasible.
[45CSR§6-3.2.]

3.1.3. **Asbestos.** The permittee is responsible for thoroughly inspecting the facility, or part of the facility, prior to commencement of demolition or renovation for the presence of asbestos and complying with 40 CFR § 61.145, 40 CFR § 61.148, and 40 CFR § 61.150. The permittee, owner, or operator must notify the Secretary at least ten (10) working days prior to the commencement of any asbestos removal on the forms prescribed by the Secretary if the permittee is subject to the notification requirements of 40 CFR § 61.145(b)(3)(i). The USEPA, the Division of Waste Management, and the Bureau for Public Health - Environmental Health require a copy of this notice to be sent to them.
[40CFR§61.145(b) and 45CSR§34]

3.1.4. **Odor.** No person shall cause, suffer, allow or permit the discharge of air pollutants which cause or contribute to an objectionable odor at any location occupied by the public.
[45CSR§4-3.1] ***[State Enforceable Only]***

3.1.5. **Permanent shutdown.** A source which has not operated at least 500 hours in one 12-month period within the previous five (5) year time period may be considered permanently shutdown, unless such source can provide to the Secretary, with reasonable specificity, information to the contrary. All permits may be modified or revoked and/or reapplication or application for new permits may be required for any source determined to be permanently shutdown.
[45CSR§13-10.5.]

3.1.6. **Standby plan for reducing emissions.** When requested by the Secretary, the permittee shall prepare standby plans for reducing the emissions of air pollutants in accordance with the objectives set forth in Tables I, II, and III of 45CSR11.
[45CSR§11-5.2.]

3.2. Monitoring Requirements

[Reserved]

3.3. Testing Requirements

3.3.1. **Stack testing.** As per provisions set forth in this permit or as otherwise required by the Secretary, in accordance with the West Virginia Code, underlying regulations, permits and orders, the permittee shall conduct test(s) to determine compliance with the emission limitations set forth in this permit and/or established or set forth in underlying documents. The Secretary, or his duly authorized representative, may at his option witness or conduct such test(s). Should the Secretary exercise his option to conduct such test(s), the operator shall provide all necessary sampling

connections and sampling ports to be located in such manner as the Secretary may require, power for test equipment and the required safety equipment, such as scaffolding, railings and ladders, to comply with generally accepted good safety practices. Such tests shall be conducted in accordance with the methods and procedures set forth in this permit or as otherwise approved or specified by the Secretary in accordance with the following:

a. The Secretary may on a source-specific basis approve or specify additional testing or alternative testing to the test methods specified in the permit for demonstrating compliance with 40 CFR Parts 60, 61, and 63 in accordance with the Secretary's delegated authority and any established equivalency determination methods which are applicable. If a testing method is specified or approved which effectively replaces a test method specified in the permit, the permit may be revised in accordance with 45CSR§13-4. or 45CSR§13-5.4 as applicable.

b. The Secretary may on a source-specific basis approve or specify additional testing or alternative testing to the test methods specified in the permit for demonstrating compliance with applicable requirements which do not involve federal delegation. In specifying or approving such alternative testing to the test methods, the Secretary, to the extent possible, shall utilize the same equivalency criteria as would be used in approving such changes under Section 3.3.1.a. of this permit. If a testing method is specified or approved which effectively replaces a test method specified in the permit, the permit may be revised in accordance with 45CSR§13-4. or 45CSR§13-5.4 as applicable.

c. All periodic tests to determine mass emission limits from or air pollutant concentrations in discharge stacks and such other tests as specified in this permit shall be conducted in accordance with an approved test protocol. Unless previously approved, such protocols shall be submitted to the Secretary in writing at least thirty (30) days prior to any testing and shall contain the information set forth by the Secretary. In addition, the permittee shall notify the Secretary at least fifteen (15) days prior to any testing so the Secretary may have the opportunity to observe such tests. This notification shall include the actual date and time during which the test will be conducted and, if appropriate, verification that the tests will fully conform to a referenced protocol previously approved by the Secretary.

d. The permittee shall submit a report of the results of the stack test within sixty (60) days of completion of the test. The test report shall provide the information necessary to document the objectives of the test and to determine whether proper procedures were used to accomplish these objectives. The report shall include the following: the certification described in paragraph 3.5.1.; a statement of compliance status, also signed by a responsible official; and a summary of conditions which form the basis for the compliance status evaluation. The summary of conditions shall include the following:

1. The permit or rule evaluated, with the citation number and language;
2. The result of the test for each permit or rule condition; and,
3. A statement of compliance or noncompliance with each permit or rule condition.

[WV Code § 22-5-4(a)(14-15) and 45CSR13]

3.4. Recordkeeping Requirements

3.4.1. **Retention of records.** The permittee shall maintain records of all information (including monitoring data, support information, reports, and notifications) required by this permit recorded in a form suitable and readily available for expeditious inspection and review. Support information includes all calibration and maintenance records and all original strip-chart recordings for

continuous monitoring instrumentation. The files shall be maintained for at least five (5) years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. Said records shall be maintained on site or in a readily accessible off-site location maintained by the permittee for a period of five (5) years. Said records shall be readily available to the Secretary of the Division of Air Quality or his/her duly authorized representative for expeditious inspection and review. Any records submitted to the agency pursuant to a requirement of this permit or upon request by the Secretary shall be certified by a responsible official. Where appropriate, the permittee may maintain records electronically (on a computer, on computer floppy disks, CDs, DVDs, or magnetic tape disks), on microfilm, or on microfiche.

3.4.2. **Odors.** For the purposes of 45CSR4, the permittee shall maintain a record of all odor complaints received, any investigation performed in response to such a complaint, and any responsive action(s) taken.
[45CSR§4. *State Enforceable Only.*]

3.5. Reporting Requirements

3.5.1. **Responsible official.** Any application form, report, or compliance certification required by this permit to be submitted to the DAQ and/or USEPA shall contain a certification by the responsible official that states that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

3.5.2. **Confidential information.** A permittee may request confidential treatment for the submission of reporting required by this permit pursuant to the limitations and procedures of W.Va. Code § 22-5-10 and 45CSR31.

3.5.3. **Correspondence.** All notices, requests, demands, submissions and other communications required or permitted to be made to the Secretary of DEP and/or USEPA shall be made in writing and shall be deemed to have been duly given when delivered by hand, or mailed first class or by private carrier with postage prepaid to the address(es), or submitted in electronic format by email as set forth below or to such other person or address as the Secretary of the Department of Environmental Protection may designate:

DAQ:
Director
WVDEP
Division of Air Quality
601 57th Street
Charleston, WV 25304-2345

US EPA:
Section Chief
U.S. Environmental Protection Agency, Region III
Enforcement and Compliance Assurance
Division Air Section (3ED21)
1650 Arch Street
Philadelphia, PA 19103-2029

DAQ Compliance and Enforcement[1]:
DEPAirQualityReports@wv.gov

[1]For all self-monitoring reports (MACT, GACT, NSPS, etc.), stack tests and protocols, Notice of Compliance Status Reports, Initial Notifications, etc.

3.5.4. Operating Fee

3.5.4.1. In accordance with 45CSR30 – Operating Permit Program, the permittee shall submit a certified emissions statement and pay fees on an annual basis in accordance with the submittal requirements of the Division of Air Quality. A receipt for the appropriate fee shall be

maintained on the premises for which the receipt has been issued and shall be made immediately available for inspection by the Secretary or his/her duly authorized representative.

3.5.4.2. In accordance with 45CSR30 – Operating Permit Program, newly permitted facilities will be sent a Certified Emissions Statement (CES) Invoice, covering the date of initial startup through the following June 30. Said invoice and the appropriate fee shall be submitted to this office no later than 30 days prior to the date of initial startup.

3.5.5. **Emission inventory.** At such time(s) as the Secretary may designate, the permittee herein shall prepare and submit an emission inventory for the previous year, addressing the emissions from the facility and/or process(es) authorized herein, in accordance with the emission inventory submittal requirements of the Division of Air Quality. After the initial submittal, the Secretary may, based upon the type and quantity of the pollutants emitted, establish a frequency other than on an annual basis.

4.0. Specific Requirements for the BFB Boiler (121-H-2001)

4.1. Limitations and Standards

4.1.1. This permit allows the permittee to construct one bubbling fluidize bed boiler to generate steam for the main purpose of generating electricity. The following conditions and requirements are specific to the boiler:

a. Emissions generated from the boiler shall not exceed the following emission standards:

Table 4.1.1.a. Emission Limits for 121-H-2001

Pollutant	Emission Standard	Basis	Compliance Method [b]	Averaging Time
NO_X	0.30 lb/MMBtu Or 2.1 lb/kWh	NSPS Db	CEMS	30-operating day rolling avg.
	0.022 lb/MMBtu[a]	Permit Limit		30-operating day rolling avg.
CO	10.20 lb/hr	Permit Limit	Testing & Control Device Monitoring	3-hr block avg.
VOC	1.89 lb/hr	Permit Limit	Initial stack test, Subsequent when required	Avg. Three -1hr runs
	4.43 lb/hr[b]			
$PM_{10}/PM_{2.5}$	15.54 lb/hr[c]	Permit Limit	Initial stack test	Avg. of three 2-hr runs
PM	0.030 lb/MMBtu	NSPS Db[g]	Testing & Control Device Monitoring, Subsequent when required	Avg. of three 2-hr runs
	0.050 lb/MMBtu	Rule 2		
SO_2	11.58 lb/hr	Permit Limit	Testing, Operating Parameters & Fuel Analysis	Avg of three 1-hr runs
	140 ng/J or 0.32lb SO_2/MMBtu[d]	NSPS Db	Fuel Sampling & Analysis	N/A
HCl	1.18 lb/hr	Permit Limit	Testing & Control Device Monitoring	Avg of three 1-hr runs
H_2SO_4	6.35 lb/hr	Permit Limit	Testing & Control Device Monitoring	Avg of three 1-hr runs

Total Organic HAPs	1.91 lb/hr 3.97 lb/hr[b]	Permit Limit	Testing & Control Device Monitoring	Avg of three 1-hr runs
Total HAPs	3.36 lb/hr 5.42 lb/hr[b]	N/A	Control Device Monitoring	Avg of three 1-hr runs

a. The permitted NO_x Limit applies at all times, including start-up and shut-down events.
b. The limit only applies when the exhaust is directed to the carbon capture unit (CCU) and exhausted through Emission Point 122-T-1001.
c. These limits include the filterable portion of the respective PM pollutants and condensable fraction of PM.
d. The SO_2 NSPS limits are potential based standard without add-on control device(s).

b. At all times and regardless of which emission point is that the boiler exhaust is released to the atmosphere through, the boiler shall not exhibit visible greater than ten (10) percent opacity based on a six-minute average.
[45 CSR §2-3.1. and 40CFR60.43b(f)]

c. Ozone season of oxides of nitrogen (NO_x) emissions from the boiler shall not exceed 38.0 tons per ozone season, which begins on May 1 of a calendar year and ends on September 30 of the same year. The permittee shall determine the monthly NO_x emission rates shall be in terms of tons per month as outline in 45CSR§40-6-3.d. of each month of the ozone season. Such a determination shall be carried out no later than the 15th of every preceding month.
[45CSR§§40-2.18. and 5.1.]

d. Annual oxides of nitrogen (NO_x) emissions from the boiler shall not exceed 90.42 tons per year. This limit shall include NO_x emissions occurred during startup and shutdown events as well as normal operations. Compliance with this limit shall be determined by a rolling 12-month total of NO_x emissions. These monthly emission rates shall be in terms of tons per month. Such a determination shall be carried out no later than the 15th of every preceding month.

e. Annual carbon monoxide (CO) emissions from the boiler shall not exceed 45.65 tons per year. This limit shall include CO emissions occurred during startup and shutdown events as well as normal operations. Compliance with this limit shall be determined by a rolling 12-month total of CO emissions. These monthly emission rates shall be in terms of tons per month. Such a determination shall be carried out no later than the 15th of every preceding month.

f. Annual volatile organic compound (VOC) emissions from the boiler shall not exceed 19.38 tons per year. Compliance with this limit shall be determined by a rolling 12-month total of VOC emissions. These monthly VOC emission rates shall be in terms of tons per month using the best available emission data and actual operations data for the respective period. Such a determination shall be carried out no later than the 15th of every preceding month.

g. Annual particulate matter less than ten microns (PM_{10}) emissions from the boiler shall not exceed 67.83 tons per year. Compliance with this limit shall be determined by a rolling 12-month total of PM_{10} emission rate. These monthly PM_{10} emissions shall be in terms of tons per month using actual operational data. Such a determination shall be carried out no later than the 15th of every preceding month.

h. Annual sulfur dioxide emissions from the boiler shall not exceed 50.78 tons per year. Compliance with this limit shall be determined by a rolling 12-month total of sulfur dioxide emission rates. Such a determination shall be carried out no later than the 15th of every preceding

month. Such determinations shall utilize the fuel monitoring as required in Conditions 4.2.1. and 4.2.3.

i. Annual HAP emissions from the boiler regardless of which emission point the emission are released from shall not exceed 23.34 tons per year. No single HAP shall be emitted to the atmosphere at a rate greater than 10 tons per year. Compliance with this limit shall be determined by a rolling 12-month total of HAP emission rates. Such a determination shall be carried out no later than the 15th of every preceding month. Such determinations shall utilize the operating data from fuel monitoring, control device parameter monitoring, and unit operation as required in Conditions 4.2.1. and 4.2.3.

j. The permittee shall fire/operate the boiler with a maximum heat input that does not exceed 944 million (MM) Btu/hr on a daily average basis. The permittee shall only utilize clean cellulosic biomass as defined in 40CFR§241.2 or a combination of clean cellulosic biomass and natural gas with the input of natural gas physical limited to no greater than 180 MMBtu/hr at any given time to include startup operations. The annual heat input for the biomass boiler shall not exceed 8,269,440 MMBtu per any 12 consecutive month period.

   i. The clean cellulosic biomass consumed by the boiler must not contain a sulfur content greater than 0.01% by weight on a wet basis.

k. The permittee shall minimize the duration of each startup event in a manner that the duration of no individual startup extends up to or beyond 10 hours. The startup event begins when the first instance fuel is input in the unit for combustion and ends once the SCR and/or oxidation catalyst reaches the minimum operating temperature.

l. The permittee shall minimize the boiler's startup and shutdown periods following the manufacturer's recommended procedures, if available. If the manufacturer's recommended procedures are not available, the permittee shall follow recommended procedures for a unit of similar design for which manufacturer's recommended procedures are available. You must submit a signed statement in the Notification of Compliance Status report that indicates that you conducted startups and shutdowns according to the manufacturer's recommended procedures or procedures specified for a boiler of similar design if manufacturer's recommended procedures are not available.
[40CFR§63.11223(g)]

m. The permittee shall conduct boiler tune-ups biannually (once every 25 months from the previous successful tune-up) on the biomass boiler. The initial boiler tune-up shall be conducted no later than 25 months after the initial startup of the biomass boiler. These tune-ups shall be conducted in accordance with the following requirements.
[45CSR§§63.11223(a), and (b)]

   i. As applicable, inspect the burner, and clean or replace any components of the burner as necessary (you may delay the burner inspection until the next scheduled unit shutdown, not to exceed 36 months from the previous inspection). Units that produce electricity for sale may delay the burner inspection until the first outage, not to exceed 36 months from the previous inspection.
   [45CSR§§63.11223(b)(1)]

   ii. Inspect the flame pattern, as applicable, and adjust the burner as necessary to optimize the flame pattern. The adjustment should be consistent with the manufacturer's specifications, if available.
   [45CSR§§63.11223(b)(2)]

iii. Inspect the system controlling the air-to-fuel ratio, as applicable, and ensure that it is correctly calibrated and functioning properly (you may delay the inspection until the next scheduled unit shutdown, not to exceed 36 months from the previous inspection). Units that produce electricity for sale may delay the inspection until the first outage, not to exceed 36 months from the previous inspection.
[45CSR§§63.11223(b)(3)]

iv. Optimize total emissions of CO. This optimization should be consistent with the manufacturer's specifications, if available, and with any nitrogen oxide requirement to which the unit is subject.
[45CSR§§63.11223(b)(4)]

v. Measure the concentrations in the effluent stream of CO in parts per million, by volume, and oxygen in volume percent, before and after the adjustments are made (measurements may be either on a dry or wet basis, as long as it is the same basis before and after the adjustments are made). Measurements may be taken using a portable CO analyzer. These measurements must be made upstream of the oxidization catalyst.
[45CSR§§63.11223(b)(5)]

m. Steam generated by the Biomass Boiler shall not be used to generate electricity for sale.

n. The permittee shall operate the control devices in Conditions 4.1.2. through 4.1.6. at all time when the Biomass Boiler is in operation expect as stated in these conditions.

4.1.2. *Fabric Filter Control Device:* The permittee shall install and operate the following device in accordance with the following.

a. The permittee shall install, operate, and maintain a fabric filter bag house to control filterable PM emissions from the Biomass Boiler. The permittee shall maintain and operate this control device in a manner that the Bag Leak Detector system does not sound more than five (5) percent of the operating time during each six (6) month period.
[40CFR§63.11211(b)(4)]

b. Prior to commencing the installation of the bag leak detector system and before commissioning of the Biomass Boiler, the permittee shall develop a site-specific monitoring plan for the Bag Leak Detector System for the Director to approved. This plan shall describe the following items.

i. Installation of the bag leak detection system;
[40CFR§60.48Da(o)(4)(ii)(A), 40CFR§60.48b(j)(5)]

ii. Initial and periodic adjustment of the bag leak detection system, including how the alarm set-point will be established;
[40CFR§60.48Da(o)(4)(ii)(B), 40CFR§60.48b(j)(5)]

iii. Operation of the bag leak detection system, including quality assurance procedures;
[40CFR§60.48Da(o)(4)(ii)(C), 40CFR§60.48b(j)(5)]

iv. How the bag leak detection system will be maintained, including a routine maintenance schedule and spare parts inventory list;
[40CFR§60.48Da(o)(4)(ii)(D), 40CFR§60.48b(j)(5)]

v. How the bag leak detection system output will be recorded and stored; and
[40CFR§60.48Da(o)(4)(ii)(E), 40CFR§60.48b(j)(5)]

vi. Corrective action procedures as specified in paragraph (o)(4)(iii) of this section. In approving the site-specific monitoring plan, the permitting authority may allow owners and operators more than 3 hours to alleviate a specific condition that causes an alarm if the owner or operator identifies in the monitoring plan this specific condition as one that could lead to an alarm, adequately explains why it is not feasible to alleviate this

condition within 3 hours of the time the alarm occurs, and demonstrates that the requested time will ensure alleviation of this condition as expeditiously as practicable. **[40CFR§60.48Da(o)(4)(ii)(F), 40CFR§60.48b(j)(5)]**

4.1.3. *SCR Control Device:* The permittee shall install and operate the following device in accordance with the following.

a. The permittee shall install, operate, and maintain an SCR system to control NO_X emissions. The SCR system consists of an ammonia (NH_3) injection grid, catalyst, ammonia storage, monitoring and control system, electrical, piping, and other ancillary equipment. The SCR system shall be designed, constructed, and operated to achieve either NO_x concentration of no greater than 18.07 ppm corrected to zero (0) precent oxygen or a mass rate of 20.13 pound per hour with a concentration of ammonia (ammonia slip) of no greater than 3.65 ppm corrected to 0% oxygen on a 3-hour averaging period basis from the outlet of the SCR. As part of this SCR system, the permittee shall install an ammonia injection grid system such that injection of ammonia can be adjusted to account for the actual exhaust flow characteristics and a permanent sampling grid that covers the cross-sectional area of the SCR at the outlet of the SCR. The permittee shall conduct an ammonia injection grid tuning at least once per year to the parameters outline in this subparagraph. The permittee shall commence operating the SCR system once the inlet exhaust temperature to the SCR reaches 200°F in a 15-minute block average during startup operations. During shutdown operations and the inlet exhaust temperature to the SCR falls below 200°F, the permittee shall cease operation of the SCR system. During normal operations of the Biomass Boiler, the permittee shall operate the SCR system.

4.1.4. Requirements of the Oxidization Catalyst Control Device: The permittee shall install and operate the following device in accordance with the following requirements.

a. The permittee shall install, operate, and maintain an oxidation control device to control CO and VOC emissions from the biomass boiler. This oxidation control device shall consist of either an individual oxidation catalyst or a dual catalyst with the SCR and oxidation catalyst integrated into a single catalyst and monitoring system. The oxidation catalyst must design, installed, and maintained to reduce the CO and VOC emissions in the exhaust from the biomass boiler with a minimum reduction efficiency of no less than 60% and with a concentration of CO no greater than 15.0 ppm corrected to zero (0) oxygen at full load conditions of the biomass boiler.

b. The permittee shall operate the catalyst with a bed temperature greater than 500°F or at or above a temperature established through testing as required in Condition 4.3.3. Compliance with this operating limitation shall be based on 3-hour averages on a rolling basis. The bed temperature readings recorded during start-up and shutdown events as defined in Condition 4.1.3 shall not be used in determining the three-hour rolling average.

c. The differential pressure (pressure drop) across the catalyst shall be no greater than 2 inches of water column or as otherwise specified by the catalyst manufacturer.

d. The oxygen content of the inlet exhaust to the control device shall be no less than four (4.0) percent oxygen or above the minimum established operating limit through testing as required in Condition 4.3.3. Compliance with this operating limitation shall be based on 3-hour averages on a rolling basis.

e. The permittee shall conduct a visual inspection of the control device once every 12 months during a planned schedule outage.

f. The permittee shall wash or replace the catalyst in accordance with the manufacturer's guidance/recommendation intervals or develop and implement a means to determine when the

catalyst is no longer capable of achieving the CO outlet concentration of 15 ppm at zero precent oxygen at full load conditions of the biomass boiler.

4.1.5. Requirements of the Dry Sorbent Injection Scrubber.

a. The injection point for the dry sorbent shall be upstream of the fabric filter bag house to allow sufficient time for the sorbent to react with the acid gases and precipitate in the fabric filter baghouse with an exhaust temperature that will not exceed 500 ^{o}F at any time with the daily average temperature across operating modes that does not exceed 400^{o}F.

b. During normal operations, the permittee shall inject dry sorbent into the biomass boiler's exhaust above the control device manufacturer's minimum recommended rate until an operating limit is established through performance testing as required in Condition 4.3.3. that demonstrates compliance with the HCl and H_2SO_4 mass based permitted limits as stated in Table 4.1.1.a. of this permit.

c. The permittee shall use sodium bicarbonate ($NaHCO_3$) as the sorbent at all times unless the Director approves a testing plan to demonstrate a different sorbent is or is more effective in removing the acid gases (e.g., HCl and H_2SO_4) as most recently demonstrated.

d. The permittee shall commence injection of the dry sorbent into the exhaust during startup events once the clean cellulous biomass fuel has been fed into the biomass boiler and the exhaust temperature at the injection point is above 250^{o}F.

e. During shutdown operations, the permittee shall continue to inject the dry sorbent into the exhaust during shutdown until the temperature inside the fabric filter baghouse is below 250^{o}F.

4.1.6. *Requirements of the Wet Scrubber:* The permittee shall install and operate the following device in accordance with the following.

a. The permittee shall initially operate the wet scrubber with a circulation rate of no less than 16.85 gpm of solution until the permittee can establish the minimum scrubber solution circulation rate through performance testing as required in Condition 4.3.3

b. The daily average pH of the scrubbing solution shall be maintained to no less than 12.2 or the minimum pH operating limit established through performance testing as required in Condition 4.3.3. at all times during operation. pH shall be measured using a calibrated pH meter in accordance with EPA Method 150.1.

c. The permittee shall operate and maintain the wet scrubber at or above the established minimum pressure drop across the wet scrubber. Until the minimum pressure drop across can be established, the permittee shall operate and maintain the pressure drop across the wet scrubber within the manufacturer's recommended operating range.

4.1.7. *Requirements for the Carbon Capture Unit:* The permittee shall install and operate the Carbon Capture Unit in accordance with the following.

a. The permittee shall not operate the carbon capture unit with a lean amine circulation rate above the established maximum circulation rate of lean amine with an established maximum concentration of amine.

b. The maximum amine solvent loss rate from the unit through emission point 122-T-1001 shall not exceed 0.48 pound per hour.

c. The permittee shall replace the amine solution as soon as possible to mean no later than restarting the boiler after a planned or unplanned outage once there are indications of the amine in the solution being degraded either through sample analysis or indications of loss of CO_2 capture efficiency that can be linked to the amine being degraded.

4.1.8. *Requirements for the Other Support Units for the Carbon Capture System:* The permittee shall install and operate the CO_2 compressors, and CO_2 dehydration unit in accordance with the following.

a. The combined release of sulfur dioxide (SO_2) from the compressor blowdowns, dehydration unit flash tank vent (if equip), regenerator still vent and emission point 121-H-2001 shall not exceed the SO_2 limit in Table 4.1.1.a. on a 3-hour average basis.

b. The source of the heat duty required by the reboiler for the carbon capture and the CO_2 dehydration units shall be provide from steam generated by the Biomass Boiler or electricity.

c. The driver of the CO_2 compressors shall be electric motors.

d. The piping process, which includes connectors, compressors, pumps, values, shall be free of leaks and defects. Any detected leaking equipment shall be repaired in 15 days of detection of the leak or defect with the first attempt at a repair within 5 days of detection.

e. Any open ended line shall be either blind flange or double block with a bleeder valve at all times when not in use.

4.1.9. **Operation and Maintenance of Air Pollution Control Equipment.** The permittee shall, to the extent practicable, install, maintain, and operate all pollution control equipment listed in Section 1.0 and associated monitoring equipment in a manner consistent with safety and good air pollution control practices for minimizing emissions, or comply with any more stringent limits set forth in this permit or as set forth by any State rule, Federal regulation, or alternative control plan approved by the Secretary.
[45CSR§13-5.10.]

4.2. Monitoring Requirements

4.2.1. Continuous Emission Monitors (CEMS): The permittee shall install, calibrate, operate, and maintain CEMS to measure and record the emissions of NO_X, in terms of the applicable limitations in this permit, the diluent gas (O_2 or CO_2), gaseous (natural gas) fuel flow, and exhaust flow. The monitoring system shall be installed and functions within the required performance specifications prior to the initial compliance demonstration. The location of the NO_x and diluent monitor shall be at location to measure all NOx emissions generated from the Biomass Boiler regardless of which emission point is released to the atmosphere or the permittee shall install and certify a CEMs for each emission point.

a. The CEMs shall be subject to the provision of performance specification for continuous monitoring systems under appendix B of 40CFR60 and the quality assurance procedures of appendix F of 40CFR60.
[40CFR§60.13]

b. Except for system breakdowns, repairs, calibration checks, and zero and span adjustments required under paragraph (d) of this condition, all continuous monitoring systems shall be in continuous operation and shall complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period. The annual and required RATA tests required for the NO_X monitor shall be performed using EPA Method 20 or 7E in

Appendix A of 40 CFR 60. The relative accuracy test audit (RATA) of the CEMS shall be performed on a lb/MMBtu basis. The NO_x monitor and diluent monitor shall be in a suitable location that meets PS 2. The monitor
[40CFR§§60.13(e), (e)(2), and §60.48b(b)(1)]

c. Diluent Monitor: The oxygen (O_2) or carbon dioxide (CO_2) content of the flue gas shall be monitored at the location where NO_X is monitored to correct the measured emissions rates. If a CO_2 monitor is installed, the O_2 content of the flue gas shall be calculated using F-factors that are appropriate for the fuel fired.

d. The permittee shall install, calibrate, maintain, and operate a fuel flow meter (or meters) to continuously measure the amount of natural gas induced into the boiler. Such fuel flow meters shall be at least calibrated once per every 12 months or as recommended by the instrument manufacturer, which is more frequent, in accordance with the manufacturer's written procedure.
[40CFR60.13(b)]

e. The permittee shall install, calibrate, maintain, and operate a gaseous fuel flow meter (or meters) to continuously measure the amount of natural gas induced into the boiler. Such fuel flow meters shall be at least calibrated once per every 12 months or as recommended by the instrument manufacturer, which is more frequent, in accordance with the manufacturer's written procedure.
[40CFR60.13(b)]

f. The permittee shall install, calibrate, maintain, and operate a watt meter (or meters) to continuously measure the gross electrical output of the generator in megawatt-hours. These measurements must be performed using 0.2 class electricity metering instrumentation and calibration procedures as specified under ANSI Standards No. C12.20 (incorporated by reference, see §60.17); and

g. Each steam flow meter, and each pressure or temperature measurement device shall be installed, calibrated, maintained, and operated according to the manufacturer's instructions.
[40CFR60.13(b)]

h. Performance evaluations and certification tests of the NO_x and dilutant monitor(s); gaseous fuel, exhaust, and steam flow meters; and wattage meters shall be conducted in accordance with applicability requirements. Two copies of the performance evaluations report shall be submitted to the Administrator and Director within 60 days of completion of the evaluation in accordance with Conditions 3.5.3. and 4.5.2.
[40 CFR §60.4(b)(2)]

i. The permittee shall develop and keep on-site a quality assurance (QA) plan for all the continuous monitoring equipment described in this condition.
[40 CFR §60.13(a)]

j. The CEMS required under this condition shall be operated and data recorded during all periods of operation of the affected facility except for CEMS breakdowns and repairs. Data is recorded during calibration checks, and zero and span adjustments.
[40CFR§60.48b(c)]

k. The 1-hour average NO_X emission rates measured by the continuous NO_X monitor required by this condition and required under 40CFR§60.13(h) shall be expressed in ng/J or lb/MMBtu heat input and shall be used to calculate the average emission rates under 40CFR§60.44b. The 1-hour averages shall be calculated using the data points required under 40CFR§60.13(h)(2). **[40CFR§60.48b(d)]**

l. The permittee of a CEMS installed in accordance with the provisions of 40CFR60, shall check the zero (or low level value between 0 and 20 percent of span value) and span (50 to 100 percent of span value) calibration drifts at least once each operating day in accordance with a written procedure. The zero and span must, at a minimum, be adjusted whenever either the 24-hour zero drift or the 24-hour span drift exceeds two times the limit of the applicable performance specification in appendix B of 40CFR60. The system must allow the amount of the excess zero and span drift to be recorded and quantified whenever specified. **[40CFR60.13(d)(1)]**

m. When NO_X emission data are not obtained because of CEMS breakdowns, repairs, calibration checks and zero and span adjustments, emission data will be obtained by using standby monitoring systems, Method 7 of appendix A of 40CFR60, Method 7A of appendix A of 40CFR60, or other approved reference methods to provide emission data for a minimum of 75 percent of the operating hours in each steam generating unit operating day, in at least 22 out of 30 successive steam generating unit operating days. **[40CFR60.48b(f)]**

n. Records of the measurements, readings, repairs, calibration checks, zero and span adjustment shall be maintained in accordance with Condition 3.4.1.

4.2.1.1. After completion of the initial performance test for NO_x as requirement in Condition 4.3.1. or is required to be completed as required in Condition 4.3.1.,whichever date comes first, the permittee shall determine compliance with the NO_X standards under 40CFR§60.44b on a continuous basis through the use of a 30-day rolling average emission rate. A new 30-day rolling average emission rate is calculated each steam generating unit operating day as the average of all of the hourly NO_X emission data for the preceding 30 steam generating unit operating days. **[40CFR§60.46b(e)(3)]**

4.2.2. To demonstrate compliance based on fuel analysis in 40CFR§60.42b shall develop and submit a site-specific fuel analysis plan to the Administrator and Director for review and approval no later than 60 days before the date that the permittee intend to demonstrate compliance. Each fuel analysis plan shall include a minimum initial requirement of weekly testing, and each analysis report shall contain, at a minimum, the following information: **[40CFR§60.49b(r)]**

a. The potential sulfur emissions rate of the representative fuel mixture in ng/J heat input; **[40CFR§60.49b(r)(2)(i)]**

b. The method used to determine the potential sulfur emissions rate of each constituent of the fuel mixture. For natural gas a fuel receipt or tariff sheet is acceptable; **[40CFR§60.49b(r)(2)(ii)]**

c. The ratio of different fuels in the mixture; **[40CFR§60.49b(r)(2)(iii)]**

d. Sulfur content of the clean cellulous biomass by weight basis on a wet basis. **[45CSR10.8.2.3c.]**

e. How the actual dry F factor of combustion less water of each representative sample of clean biomass cellulosic fuel in accordance with EPA Method 19 in terms of scf/MMBtu will be determine;

f. The process to determine if the Method 19 default dry F factor of combustion is representative of the actual dry F factor of the clean cellulosic biomass fuel sample.

g. Identify all methods used in conducting the analysts and any pretreatment of the sample.

Such records shall be maintained in accordance with Condition 3.4.1. of this permit.

4.2.3. The permittee shall monitor visible emissions from the biomass boiler at either emission point 121-PKG-3001 or emission point 122-T-1001 as outline in this condition if the maximum 6-minute opacity was less than 10 percent during the most recent Method 9 of appendix A-4 of this part performance test or conduction visible emission test as outline in Condition 4.3.6.
[40CFR§§60.48b(a), (a)(2), 45CSR2-8.2.1.]

The permittee shall monitor visible emissions from the emission point that was utilized most of the operating time during the previous reporting period. Such observation shall be conducted in with U.S. EPA Method 9 of appendix A-4 of 40CFR60 and the following subparagraphs of this condition.

a. The permittee shall conduct 10 minute observations (during normal operation) each operating day the affected facility fires fuel for which an opacity standard is applicable using Method 22 of appendix A-7 of this part and demonstrate that the sum of the occurrences of any visible emissions is not in excess of 5 percent of the observation period (*i.e.*, 30 seconds per 10 minute period). If the sum of the occurrence of any visible emissions is greater than 30 seconds during the initial 10-minute observation, immediately conduct a 30-minute observation. If the sum of the occurrence of visible emissions is greater than 5 percent of the observation period (*i.e.*, 90 seconds per 30 minute period), the permittee shall either document and adjust the operation of the facility and demonstrate within 24 hours that the sum of the occurrence of visible emissions is equal to or less than 5 percent during a 30 minute observation (*i.e.*, 90 seconds) or conduct a new Method 9 of appendix A-4 of 40CFR60 performance test using the procedures in Condition 4.3.. within 45 calendar days according to the requirements in 40CFR§60.46b(d)(7).
[40CFR§60.48b(a)(2)(i) and 45CSR§2-8.2.1.]

b. If no visible emissions are observed for 10 operating days during which an opacity standard is applicable, observations can be reduced to once every 7 operating days during which an opacity standard is applicable. If any visible emissions are observed, daily observations shall be resumed.
[40CFR§60.48b(a)(2)(ii) and 45CSR§2-8.2.1.]

Records of such monitoring shall be maintained in accordance with Condition 3.4.1. of the following information:

(i) Dates and time intervals of all visible emissions observation periods;
[40CFR§60.49b(f)(2)(i) and 45CSR§2-8.3.1.]

(ii) Name and affiliation for each visible emission observer participating in the observation;
[40CFR§60.49b(f)(2)(ii) and 45CSR§2-8.3.1.]

(iii) Copies of all visible emission observer opacity field data sheets; and
[40CFR§60.49b(f)(2)(iii) and 45CSR§2-8.3.1.]

(iv) Documentation of any adjustments made and the time the adjustments were completed to the affected facility operation by the permittee to demonstrate compliance with the applicable monitoring requirements.
[40CFR§60.49b(f)(2)(iv) and 45CSR§2-8.3.1.]

4.2.4. The permittee shall install, maintain, calibrate, and continuously operate a bag leak detection system that monitors the fabric filter bag house in accordance with the following requirements:
[40CFR§60.48b(j)(5) and §63.11224(f)]

a. The permittee must install and operate a bag leak detection system for each exhaust stack of the fabric filter control device.
[40CFR§60.48Da(o)(4)(i)(G), §60.48b(j)(5) and §63.11224(f)(1)]

b. Each bag leak detection system must be installed, operated, calibrated, and maintained in a manner consistent with the manufacturer's written specifications and recommendations and in accordance with EPA-454/R-98-015 (incorporated by reference, see 40CFR§ 63.14).

c. The bag leak detection system must be certified by the manufacturer to be capable of detecting particulate matter emissions at concentrations of 1 milligrams per actual cubic meter (0.00044 grains per actual cubic foot) or less.
[40CFR60.48Da(o)(4)(i)(B), 60.48b(j)(5) and 40CFR63.11224(f)(3)]

d. The bag leak detection system sensor must provide output of relative particulate matter loadings.
[40CFR§60.48Da(o)(4)(i)(B), §60.48b(j)(5) and 40CFR§63.11224(f)(4)]

e. The bag leak detection system must be equipped with a device to continuously record the output signal from the sensor. The permittee must continuously record the output from the bag leak detection system using electronic or other means (e.g., using a strip chart recorder or a data logger.)
[40CFR§60.48Da(o)(4)(i)(B), §60.48b(j)(5) and 40CFR§63.11224(f)(5)]

f. The bag leak detection system must be equipped with an audible or visual alarm system that will activate automatically when an increase in relative particulate matter emissions over a preset level that was established according to is detected. The alarm must be located where it is easily heard or seen by plant operating personnel.
[40CFR§60.48Da(o)(4)(i)(C), §60.48b(j)(5) and 40CFR§63.11224(f)(6)]

g. In the initial adjustment of the bag leak detection system, the permittee must establish, at a minimum, the baseline output by adjusting the sensitivity (range) and the averaging period of the device, the alarm set points, and the alarm delay time.
[40CFR§60.48Da(o)(4)(i)(D), §60.48b(j)(5)]

h. Following initial adjustment, the permittee must not adjust the averaging period, alarm set point, or alarm delay time without approval from the Director except as provided in paragraph g of this condition.
[40CFR§60.48Da(o)(4)(i)(E), §60.48b(j)(5)]

i. Where multiple bag leak detectors are required, the system's instrumentation and alarm may be shared among detectors.
[40CFR§60.48Da(o)(4)(i)(H), §60.48b(j)(5) and 40CFR§63.11224(f)(8)]

j. The permittee shall initiate corrective action within 1 hour of a bag leak detection system alarm. The permittee shall keep records of the date, time, and duration of each alarm, the time corrective action was initiated and completed, and a brief description of the cause of the alarm and the corrective action taken. The permittee shall also record the percentage of the operating time during each 6-month period that the alarm sounds. In calculating this operating time percentage, if inspection of the fabric filter demonstrates that no corrective action is required, no alarm time is counted. If corrective action is required, each alarm is counted as a minimum

of 1 hour. If the permittee takes longer than 1 hour to initiate corrective action, the alarm time is counted as the actual amount of time taken to initiate corrective action.
[40CFR§60.48Da(o)(4)(iii), §60.48b(j)(5), 40CFR§63.11222(a)(4), and 45CSR§2-8.2.1., 45CSR§§2A-7.2.c.3.A. through 7.2.c.3.D.]

k. For every instance that bag leak detection system alarm, the permittee shall conduct a Method 9 observation for at least 6-minutes of the respective emission point in service within 48-hours of respective alarm event for the purpose of verifying compliance with standard in Condition 4.1.1.b. Records of the observation(s) shall be recorded to contain the following information and maintained in accordance with Condition 3.4.1.
[45CSR2-8.2.]

i. Dates and time intervals of all visible emissions observation periods;

ii. Name and affiliation for each visible emission observer participating in the performance test;

iii. Copies of all visible emission observer opacity field data sheets; and

iv. Documentation of any adjustments made and the time the adjustments were completed to the operation of the Biomass Boiler and/or any associated control device(s) by the permittee to demonstrate compliance with the applicable monitoring requirements.

4.2.5. The permittee shall continuously monitor the flow rate of ammonia injected into the SCR on an hourly basis using a flow meter and determine a 3-hour rolling average. Records of readings, instrument calibrations, and instrument maintained in accordance with Condition 3.4.1.

4.2.6. *Oxidization Catalyst Monitoring:* The permittee shall monitor the following parameters of the oxidization catalyst control device according to the stated frequency.

a. Inlet and outlet oxygen content on a continuous basis.

b. Catalyst bed temperature on a continuous basis

c. Differential pressure (pressure drop) across the control device on a continuous basis.

d. Sample the catalyst based on catalyst manufacturer's recommended intervals and determine the activity of the catalyst for CO and VOCs.

Continuous monitoring in this condition shall mean a reading taken in least four equal intervals of each operating hour, these readings shall be used to develop an hourly average and 3-hour average. The permittee shall determine if any 3-hour average parameter is outside of the established operating limit. The permittee shall maintain records of all hourly averages, a 3-hour average, and all occurrences a 3-hour average was outside of the established operating limit in accordance with Condition 3.4.1. parameter record all instances when the temperature was outside of the acceptable range as stated in Condition 4.1.4. Such records shall be maintained in accordance with Condition 3.4.1.

4.2.7. *DSI Monitoring:* The permittee shall install, maintain, calibrate, and continuously operate instruments measuring the identified parameter(s) in Conditions 4.1.5. These instruments shall at the minimum take four (4) readings in an hour in equal time intervals (once every 15 minutes), these readings shall be average used to create an hourly value and every 3 consecutive hourly values shall be used to create a 3-hour average. The permittee shall identify every 3-hour average that exceeds either the interim limit or once the operating limit has been established as required in Condition 4.3.3. Records of the readings, hourly values, 3-hour averages, periods of exceedances, maintained

preformed on the instrument(s), and calibrates shall be maintained in accordance with Condition 3.4.1.

4.2.8. *Wet Scrubber Monitoring:* The permittee shall install, maintain, calibrate, and continuously operate instruments measuring the identified parameter(s) in Conditions 4.1.6. These instruments shall at the minimum take four (4) readings in an hour in equal time intervals (once every 15 minutes), these readings shall be average used to create an hourly value and every 3 consecutive hourly values shall be used to create a 3-hour average. The permittee shall identify every 3-hour average that exceeds either the interim limit or once the operating limit has been established as required in Condition 4.3.3. Records of the readings, hourly values, 3-hour averages, periods of exceedances, maintained preformed on the instrument(s), and calibrates shall be maintained in accordance with Condition 3.4.1.

4.2.9. *Carbon Capture Unit Monitoring:* The permittee shall install, maintain, calibrate, and continuously operate instruments measuring the identified parameter(s) in Conditions 4.1.7. These instruments shall at the minimum take four (4) readings in an hour in equal time intervals (once every 15 minutes), these readings shall be average used to create an hourly value and every 3 consecutive hourly values shall be used to create a 3-hour average. The permittee shall identify every 3-hour average that exceeds either the interim limit or once the operating limit has been established as required in Condition 4.3.3.

The permittee shall sample and analyze the lean amine for nitrosamine, nitramines, acetaldehyde, formaldehyde in the lean amine once every week that the carbon capture unit operated.

Records of the readings, hourly values, 3-hour averages, periods of exceedances, maintained preformed on the instrument(s), and calibrates shall be maintained in accordance with Condition 3.4.1.

4.2.10. The permittee shall keep records of the amount fresh of amine fed into the carbon capture unit and amount of spent amine drain out of the carbon capture unit for each operating month by type of amine (e.g., MDEA, MEA, etc.). Such records shall be maintained in accordance with Condition 3.4.1.

4.2.11. *Monitoring Other Support Units for the Carbon Capture Unit:* The permittee shall install, maintain, calibrate, and continuously operate instruments measuring the identified parameter(s) in Conditions 4.1.8. These instruments shall at the minimum take four (4) readings in an hour in equal time intervals (once every 15 minutes), these readings shall be average used to create an hourly value and every 3 consecutive hourly values shall be used to create a 3-hour average. The permittee shall identify every 3-hour average that exceeds either the interim limit or once the operating limit has been established as required in Condition 4.3.7. Records of the readings, hourly values, 3-hour averages, periods of exceedances, maintained preformed on the instrument(s), and calibrates shall be maintained in accordance with Condition 3.4.1.

4.2.12. When 60 days after the initial startup of the carbon capture unit and once every 12 months thereafter, the permittee shall develop and execute a process simulation of the Carbon Capture Unit with CO_2 compressors and dehydration units to predict the SO_2 and VOC emissions release to the atmosphere from these emission sources. The initial simulation shall be used to establish the operating parameter(s) of the Carbon Capture Unit at maximum design parameters or operating condition. The annual simulation shall be executed using the average of the monitored parameters (e.g., average CO_2 capture rate, temperature and pressures of key process steams, amine concentrations, etc.).

4.2.13. The permittee shall install, maintain, calibrate, and operate instruments measuring the identified parameters in Conditions 4.1.3. through 4.1.7. These instruments shall at the minimum take four (4) readings in an hour in equal time intervals (once every 15 minutes), these readings shall be average used to create an hourly value and every 3 consecutive hourly values shall be used to create a 3-hour average. The permittee shall identify every 3-hour average that exceeds either the interim limit or

once the operating limit has been established as required in Condition 4.3.3. Records of the readings, hourly values, 3-hour averages, periods of exceedances, maintained preformed on the instrument(s), and calibrates shall be maintained in accordance with Condition 3.4.1.

4.2.14. The permittee shall install, maintain, calibrate, and continuously operate an instrument that indicates whether the exhaust flow is being directed to the carbon capture unit and released through 121-PKG-3001 to the atmosphere or bypassed carbon capture unit and released through Emission Point 122-T-1001. Such an instrument shall be calibrated at least once per year in accordance with the manufacturer's written procedures.

4.3. Testing Requirements

4.3.1. The initial performance test for Biomass Boiler with the Subpart Db standards listed in Table 4.1.1.a. of this permit shall be conducted within 60 days of the unit achieving the maximum production rate at which the affected unit will be operated, but not later than 180 days after the initial startup of the emission unit (Biomass Boiler) in accordance with the following requirements.
[40 CFR §60.8(a), §60.(b)(5), §60., §60.(a)]

Paragraph a. applies to NO_x; paragraphs b. through g. applies to PM and paragraph h. applies to opacity.

a. Conduct the performance test as required under 40CFR§60.8 using the continuous system for monitoring NO_X under 40CFR§60.48(b). NO_X from the Biomass Boiler are monitored for 30 successive steam generating unit operating days and the 30-day average emission rate is used to determine compliance with the NO_X emission standards under 40CFR§60.44b. The 30-day average emission rate is calculated as the average of all hourly emissions data recorded by the monitoring system during the 30-day test period.
[40 CFR§60.46b(e)]

b. Method 3A or 3B of appendix A-2 of this part is used for gas analysis when applying Method 5 of appendix A-3 of this part or Method 17 of appendix A-6 of this part.
[40CFR§60.46b(d)(1)]

c. Method 5, 5B, or 17 of appendix A of 40CFR60 shall be used to measure the concentration of PM as follows:
[40CFR§60.46b(d)(2)]

i. Method 17 of appendix A-6 of this part may be used at facilities with or without wet scrubber systems provided the stack gas temperature does not exceed a temperature of 160 °C (320 °F). The procedures of sections 8.1 and 11.1 of Method 5B of appendix A-3 of this part may be used in Method 17 of appendix A-6 of 40CFR60 only if it is used after a wet FGD system. Do not use Method 17 of appendix A-6 of this part after wet FGD systems if the effluent is saturated or laden with water droplets.
[40CFR§60.46b(d)(2)(i)]

ii. Method 5B of appendix A of 40CFR60 is to be used only after wet FGD systems.
[40CFR§60.46b(d)(2)(iii)]

d. Method 1 of appendix A of 40CFR60 is used to select the sampling site and the number of traverse sampling points. The sampling time for each run is at least 120 minutes and the minimum sampling volume is 1.7 dscm (60 dscf) except that smaller sampling times or volumes may be approved by the Administrator when necessitated by process variables or other factors.
[40 CFR§60.46b(d)(3)]

e. For Method 5 of appendix A of 40CFR60, the temperature of the sample gas in the probe and filter holder is monitored and is maintained at 160±14 °C (320±25 °F).
[40 CFR§60.46b(d)(4)]

f. For determination of PM emissions, the oxygen (O_2) or CO_2 sample is obtained simultaneously with each run of Method 5B, or 17 of appendix A of 40CFR60 by traversing the duct at the same sampling location.
[40 CFR§60.46b(d)(5)]

g. For each run using Method 5B, or 17 of appendix A of 40CFR60, the emission rate expressed in ng/J heat input is determined using:
[40 CFR§60.46b(d)(6)]

i. The O_2 or CO_2 measurements and PM measurements obtained under this section;
[40 CFR§60.46b(d)(6)(i)]

ii. The dry basis F factor; and
[40 CFR§60.46b(d)(6)(ii)]

iii. The dry basis emission rate calculation procedure contained in Method 19 of appendix A of 40CFR60.
[40 CFR§60.46b(d)(6)(iii)]

h. Method 9 of appendix A of 40CFR60 is used for determining the opacity of stack emissions.
[40 CFR§60.46b(d)(7)]

i. All emissions testing shall be conducted in accordance with Condition 3.4.1.

4.3.2. For the purposes of demonstrating compliance with the PM_{10}, and $PM_{2.5}$ limits in Condition 4.1.1.a., the permittee shall conduct an initial performance test within 180 days after initial start-up of the biomass boiler. Such testing shall be conducted in accordance with Condition 3.3.1. and U.S. EPA Test Method 201 or 201A to be used to measure the "front half" and Method 202 to be used to measure the "back-half" of the particulate matter. This testing shall consist of three runs of two hours for each run. Records of such testing shall be maintained in accordance with Condition 3.4.1.

Such tests shall be conducted with the unit operating at no less than 90% of the unit's maximum design heat input. The permittee shall conduct visible emission observations during each test run using EPA Method 9 to demonstrate compliance with Condition 4.1.1.b.

4.3.3. For the purpose to demonstrate compliance with the CO, SO_2, HCl, H_2SO_4, VOCs, and Total Organic HAPs limits and established operating limits as required in Conditions 4.1.3., 4.1.4., 4.1.5. 4.1.6., and 4.1.7., the permittee shall conduct an initial performance test within 180 days of the initial startup of the Biomass Boiler and after completion of the NO_x CEM performance demonstration. Such testing shall be conducted in accordance with Condition 3.3.1. and testing methods approved by the Director.

The permittee shall develop a testing plan (protocol) to establish operating limits as outlined in Conditions 4.1.3. 4.1.4., 4.1.5., 4.1.6. and 4.1.7. in accordance with the following.

a. The plan must outline how the testing will be conducted and method(s) used.

b. Identify the Parameters to be monitored and frequency that the readings will be recorded.

c. Identify sample prob location(s).

d. Explain how the raw data (readings) of monitored parameters will be handled and used to determine the established operating limit.

e. While conducting the testing, the interim or established operating limits in Conditions 4.1.3., 4.1.4., 4.1.5., 4.1.6., 4.1.7. shall not be in effect. The permittee shall not exceed any mass base limit for any of these pollutants during any 3-hour average at the respective operating load.

f. The permittee shall include the NO_x CEM data for each test run in the final report.

g. The testing shall demonstrate compliance upstream and downstream of the carbon capture unit with respect to the mass emission rate limits in Table 4.1.1.a. When testing downstream of the carbon capture unit, the carbon capture unit shall be at the highest removal rate for CO_2.

The permittee shall conduct testing of the biomass boiler at no less than 90% of maximum permitted heat input with the least amount possible heat input from natural gas firing. The heat input due to natural gas firing shall be lowest level possible of future operation or lowest level from previous 24 month of actual operation excluding startup operations. The permit shall be conducted using U.S. EPA Methods 320, 3A for O_2, and 25A for total VOCs. When using Method 320, the permittee shall measure the following pollutants.

Table 4.3.3. Method 320 Pollutants

Criteria Pollutants	Hazardous Air Pollutants[1]	Other Pollutants
Carbon Monoxide (CO)	1,1,1-Trichloroethane – VOC	Carbon Dioxide (CO_2)
Sulfur Dioxide (SO_2)	1,2-Dichoroethane – VOC	Methane (CH_4)[2]
	1,2-Dichoropropane – VOC	Ethane (C_2H_6)[2]
	Acetaldehyde – VOC	Sulfuric Acid (H_2SO_4)
	Acrolein – VOC	
	Benzene – VOC	
	Carbon Tetrachloride – VOC	
	Chlorobenzene – VOC	
	Chloroform - VOC	
	Chloromethane - VOC	
	Dichloromethane - VOC	
	Ethylbenzene - VOC	
	Formaldehyde – VOC	
	Hydrogen Chloride (HCl)	
	Naphthalene- VOC	

Table 4.3.3. Method 320 Pollutants

Criteria Pollutants	Hazardous Air Pollutants[1]	Other Pollutants
	Phenol – VOC	
	Nitrosamine - VOC	
	Propanal (propionaldehyde)- VOC	
	Styrene - VOC	
	Tetrachloroethene – VOC	
	Toluene – VOC	
	Trichloroethene - VOC	
	n-Xylene – VOC	
	p-Xylene – VOC	
	o-Xylene – VOC	

1. HAPs shall be reported individually and summed together as total HAPs.
2. For Total VOCs, the measure rate of methane and ethane shall be deduced from the total measure rate from Method 25A to determine the VOC rate.

Records of such testing shall be maintained in accordance with Condition 3.4.1. A copy of the current established operating limits shall be maintained on site with the date the limit was established.

4.3.4. Once every 5 years (61 months) from the data that operating limits were established or five years (61 months) from the most recent verification demonstration, the permittee shall verify the compliance with the mass emission limits Table 4.1.1.a. for the pollutants identify in Condition 4.3.3. and corresponding established operating limits. Such testing shall be conducted as outlined in Condition 4.3.3. expect that only Biomass Boiler only needs to be operating at the load that yielded the highest emission hourly emission rate from the test that was used to develop the current operating limits. Records of such testing shall be maintained in accordance with Condition 3.4.1.

4.3.5. If after any period composed of 30 boiler operating days during which the alarm rate of the Bag Leak Detector for the Biomass Boiler exceeds 5 percent of the process operating time (excluding control device or process startup, shutdown, and malfunction), then the permittee shall conduct a new PM performance test according to Condition 4.3.1. This new performance test must be conducted within 60 calendar days of the date that the alarm rate was first determined to exceed 5 percent limit unless a waiver is granted by the Director.
[40CFR§60Da(o)(4)(v) and §60.48b(j)(5)]

4.3.6. The permittee shall conduct subsequent PM performance tests to demonstrate compliance with the PM limits in Table 4.1.1.a. in account with the frequent cycle outline in 45CSR§2A-6. Such subsequent PM test shall be conducted as prescribed in Condition 4.1.1. and in accordance with Condition 3.3.1. Records of such testing shall be maintained in accordance with Condition 3.4.1.
[45CSR§2-8.2.1. and 45CSR§2A-5.2.a.]

4.3.7. If the permittee elects not to conduct visible emission monitoring as outlined in Condition 4.2.3., then the permittee shall conduct subsequent visible emission tests to demonstrate compliance with standard in Condition 4.1.1.b. in accordance with the following:

a. If no visible emissions are observed, a subsequent Method 9 of appendix A-4 of this part performance test must be completed within 12 calendar months from the date that the most recent performance test was conducted or within 45 days of the next day that fuel with an opacity standard is combusted, whichever is later;
[40CFR§60.48b(a)(1)(i)]

b. If visible emissions are observed but the maximum 6-minute average opacity is less than or equal to 5 percent, a subsequent Method 9 of appendix A-4 of this part performance test must be completed within 6 calendar months from the date that the most recent performance test was conducted or within 45 days of the next day that fuel with an opacity standard is combusted, whichever is later; or
[40CFR§60.48b(a)(1)(ii)]

c. If the maximum 6-minute average opacity is greater than 5 percent but less than or equal to 10 percent, a subsequent Method 9 of appendix A-4 of this part performance test must be completed within 3 calendar months from the date that the most recent performance test was conducted or within 45 days of the next day that fuel with an opacity standard is combusted, whichever is later.
[40CFR§60.48b(a)(1)(iii)]

d. Records of such Method 9 of appendix A-4 of 40CFR60 tests shall include the following information and be maintained in accordance with Condition 4.3.1.
[40CFR§60.49b(f)(1)]

i. Dates and time intervals of all opacity observation periods;
[40CFR§60.49b(f)(1)(i)]

ii. Name, affiliation, and copy of current visible emission reading certification for each visible emission observer participating in the performance test; and
[40CFR§60.49b(f)(1)(ii)]

iii. Copies of all visible emission observer opacity field data sheets;
[40CFR§60.49b(f)(1)(iii)]

4.3.8. The permittee shall develop and execute a process simulator to predict SO_2 emissions losses from the support equipment of the Carbon Capture Unit (e.g., separator drains, flash tank vent, dehydration still vent, etc.) to demonstrate compliance with Condition 4.1.8.a., identify parameter to monitor, and establish operating limits/range as necessary. The permittee shall conduct this predictive modeling within 6 months after conducting the initial compliance demonstration as required in Condition 4.3.3. Records of such predictive modeling shall be maintained in accordance with Condition 3.4.1. The permittee shall submit a report, model used with justification of the selected model, identify all given imputed into the model, results of the predictive analysis, and established operating parameter limits.

4.3.9. The permittee shall conduct a performance demonstration to demonstrate compliance with the CO and VOC reduction efficiency requirement of Condition 4.1.4.a. within 180 days after initial startup of the biomass boiler and within 60 days after startup of biomass boiler when the oxidation catalyst was replaced. Such testing shall determine the mass rate of CO and VOCs at the inlet and outlet of the oxidation catalyst on a simultaneous basis. The testing shall be conducted using appropriate test methods and in accordance with Condition 3.3.1. Records of such testing shall be maintained in accordance with Condition 3.4.1.

4.4. Recordkeeping Requirements

4.4.1. **Record of Monitoring.** The permittee shall keep records of monitoring information that include the following:

a. The date, place as defined in this permit, and time of sampling or measurements;

b. The date(s) analyses were performed;

c. The company or entity that performed the analyses;

d. The analytical techniques or methods used;

e. The results of the analyses; and

f. The operating conditions existing at the time of sampling or measurement.

4.4.2. **Record of Maintenance of Air Pollution Control Equipment.** For all pollution control equipment listed in Section 1.0, the permittee shall maintain accurate records of all required pollution control equipment inspection and/or preventative maintenance procedures.

4.4.3. **Record of Malfunctions of Air Pollution Control Equipment.** For all air pollution control equipment listed in Section 1.0, the permittee shall maintain records of the occurrence and duration of any malfunction or operational shutdown of the air pollution control equipment during which excess emissions occur. For each such case, the following information shall be recorded:

a. The equipment involved.

b. Steps taken to minimize emissions during the event.

c. The duration of the event.

d. The estimated increase in emissions during the event.

For each such case associated with an equipment malfunction, the additional information shall also be recorded:

e. The cause of the malfunction.

f. Steps taken to correct the malfunction.

g. Any changes or modifications to equipment or procedures that would help prevent future recurrences of the malfunction.

4.4.4. The reporting period throughout this permit shall be defined as January 1 through June 30 and July 1 through December 31 except when defined in an individual condition or the Ozone Season. The Ozone Season begins on May 1 of a calendar year and ends on September 30 of the same year. **[40CFR§60.49b(w)]**

4.4.4. The permittee shall record and maintain the following information in accordance with Condition 3.41.:

a. Calendar date;
[40CFR§60.49b(g)(1)]

b. The average hourly NO_X emission rates (expressed as NO_2) (ng/J or lb/MMBtu heat input) measured or predicted;
[40CFR§60.49b(g)(2)]

c. The 30-day average NO_X emission rates (ng/J or lb/MMBtu heat input) calculated at the end of each steam generating unit operating day from the measured or predicted hourly nitrogen oxide emission rates for the preceding 30 steam generating unit operating days;
[40CFR§60.49b(g)(3)]

d. Identification of the steam generating unit operating days when the calculated 30-day average NO_X emission rates are in excess of the NO_X emissions standards under 40CFR§60.44b, with the reasons for such excess emissions as well as a description of corrective actions taken;
[40CFR§60.49b(g)(4)]

e. Identification of the steam generating unit operating days for which pollutant data have not been obtained, including reasons for not obtaining sufficient data and a description of corrective actions taken;
[40CFR§60.49b(g)(5)]

f. Identification of the times when emission data have been excluded from the calculation of average emission rates and the reasons for excluding data;
[40CFR§60.49b(g)(6)]

g. Identification of "F" factor used for calculations, method of determination, and type of fuel combusted;
[40CFR§60.49b(g)(7)]

h. Identification of the times when the pollutant concentration exceeded full span of the CEMS;
[40CFR§60.49b(g)(8)]

i. Description of any modifications to the CEMS that could affect the ability of the CEMS to comply with Performance Specification 2 or 3; and
[40CFR§60.49b(g)(9)]

j. Results of daily CEMS drift tests and quarterly accuracy assessments as required under appendix F, Procedure 1 of this part.
[40CFR§60.49b(g)(10)]

4.4.5. The permittee shall maintain records of the type and amount of all fuels burned in the biomass boiler during each operating day. The amount of fuel burned shall be in terms of MMBtus by type of fuel per operating day. The permittee shall calculate the annual capacity factor individually for clean cellulosic biomass, and natural gas for the reporting period.
[40CFR§60.49b(d)(1), 40CFR§63.11222(a)(1), 45CSR§2-8.3.2., and 45CSR§10-8.2.3.c.]

These fuel records shall include the following addition information for the purpose of demonstrating that the solid fuel meets the definition of "clean biomass cellulous" in 40 CFR 241.2.

a. Name of each supplier that delivered fuel during each calendar month.

b. Location(s) of each supplier and amount of fuel ship from each location during the respective calendar month.

c. Source(s) of the fuel (wood).

d. Denote whether the source(s) is from construction and/or demolition activities.

i. Description of the means was used to separate out the containments.

ii. Statement of the supplier certifying that the fuel meets the definition of "clean cellulosic biomass" as defined in 40 CFR 241.2.

e. Denote whether the source(s) is from disaster cleanup activities.

i. Description of the means used to separate out the containments.

All records required by this condition shall be maintained in accordance with Condition 3.4.1.

4.4.6. The permittee shall maintain the following records in accordance with Condition 3.4.1. of the boiler tune-ups performed on the biomass boiler.

a. Date/time the tune-up was performed.
[40CFR§63.11225(c)(2)(i)]

b. Name of individual overseeing/supervising the tune-up.
[40CFR§63.11225(c)(2)(i)]

c. The concentrations of CO in the effluent stream in parts per million, by volume, and oxygen in volume percent, measured at high fire or typical operating load, before and after the tune-up of the boiler.
[40CFR§63.11223(b)(6)(i)]

d. A description of any corrective actions taken as a part of the tune-up of the boiler.
[40CFR§63.11223(b)(6)(ii)]

e. The type and amount of fuel was used over the 12 months prior to the tune-up of the boiler, but only if the unit was physically and legally capable of using more than one type of fuel during that period. Units sharing a fuel meter may estimate the fuel use by each unit.
[40CFR§63.11223(b) (6)(iii)]

4.4.7. At the end of each Ozone Season, the permittee shall determine the total NO_x mass emission for the respective Ozone Season, in tons, by summing the amount of the total monthly NO_x mass emissions calculated in Condition 4.1.1.d.

4.4.8. The permittee shall determine the monthly emission rate of each pollutant list in Condition 4.1.1. with an annual emission limit and the 12 consecutive monthly total (12-month rolling total) by the 15th of the following month. Such records shall be maintained in accordance with Condition 3.4.1.

4.5. Notification Requirements

4.5.1. The permittee shall prepare and submit an excess emission report on a semi-annual basis to the Director and Administrator for NOx emissions from the Biomass Boiler as required by Subpart Db of 40 CFR 60. The initial compliance period is from initial startup up of the unit to either December 31 or June 30 whichever date comes first. Subsequent reporting periods shall be every six months thereafter (e.g., January 1 to June 30, July 1 to December 31). Reports must be submitted no later than the 30th day following the end of the reporting period. Each report must contain the following

information that occurred within the respective reporting period. Each submission shall be conducted in accordance with Condition 3.5.3.
[40 CFR §60.7(c), §§60.49b(g) and (i)]

Excess Emissions of sulfur dioxide emissions shall mean the total sulfur content of the fuel being combusted in by the Biomass Boiler exceeds the limit specified in 40 CFR §60.44b(k)(2) ((See Table 4.1.1.a of Condition 4.1.1.a. SO_2 limit for Subpart Db).
[40 CFR §60.49b(j)]

Excess Emissions of NO_x means a specified averaging period over which the NO_x emissions are higher than the applicable emission limit in 40 CFR 60.44b (See Table 4.1.1.a. of Condition 4.1.1.a. NOx limit for Subpart Db).
[40 CFR §60.49b(g)]

Such reports shall contain the information required in Condition 4.4.4. during the respective reporting period.
[40 CFR §60.7(c), §60.49b(i)]

The magnitude of excess emissions computed in accordance with 40 CFR §60.13(h), any conversion factor(s) used, and the date and time of commencement and completion of each period of excess emissions. The process operating time during the reporting period.
[40 CFR §60.7(c)(1)]

Specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of the affected facility. The nature and cause of any malfunction (if known), the corrective action taken, or preventative measures adopted.
[40 CFR §60.7(c)(2)]

The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks and the nature of the system repairs or adjustments.
[40 CFR §60.7(c)(3)]

When no excess emissions have occurred or the continuous monitoring system(s) have not been inoperative, repaired, or adjusted, such information shall be stated in the report.
[40 CFR §60.7(c)(4)]

The summary report form shall contain the information and be in the format shown in Attachment A of the permit unless otherwise specified by the Administrator. One summary report form shall be submitted for each pollutant monitored at each affected facility.
[40 CFR §60.7(d)]

If the total duration of excess emissions for the reporting period is less than 1 percent of the total operating time for the reporting period and CMS downtime for the reporting period is less than 5 percent of the total operating time for the reporting period, only the summary report form shall be submitted, and the excess emission report described in 40 CFR §60.7(c) need not be submitted unless requested by the Administrator.
[40 CFR §60.7(d)(1)]

If the total duration of excess emissions for the reporting period is 1 percent or greater of the total operating time for the reporting period or the total CMS downtime for the reporting period is 5 percent or greater of the total operating time for the reporting period, the summary report form and the excess emission report described in 40 CFR §60.7(c) shall both be submitted.
[40 CFR §60.7(d)(2)

4.5.2. The permittee shall submit to the Director and Administrator the performance test data from the initial performance test as required in Condition 4.3.1. and the performance evaluation of the CEMS

using the applicable performance specifications in appendix B of 40CFR60 as required in Condition 4.2.1. Such submissions shall be made in accordance with Condition 3.5.3. and within 60 days of completion of the respective test or evaluation.
[40CFR§§60.13(c), (c)(2) and §60.49b(b)]

4.5.3. The permittee shall report any exceedances of the requirements in Section 4.1. to the Director within 10 days of the exceedance in accordance with Condition 3.5.3.

5.0. Specific Requirements for Biomass Fuel Handling Equipment

5.1. Limitations and Standards

5.1.1 The permittee shall minizine fugitive PM emissions from the fuel handling equipment using fugitive particulate meet control system in accordance with the following requirements. **[45CSR§2-5.1.]**

a. The two biomass receiving hoppers, which are identified as 121-LS-1001 and 121-LS-1002, (truck unloading hoppers) shall be operated in slight negative pressure to entrain fugitive PM generated during the unloading process with the captured effluent routed to control device 121-PKG-1001. This control device shall be installed and maintained with a removal efficiency that reduced the discharge of PM down to 0.01 grains per cubic feet of exhaust flow. The emissions from Emission Point 121-LS-1001 shall not exceed the following limits.

i. PM emission shall not exceed 1.08 pounds per hour on a 3-hour average.

ii. PM_{10} emission shall not exceed 1.08 pounds per hour on a 3-hour average basis.

iii. No visible emissions shall be exhibited for the emission point from each receiving hopper.

b. The equipment used to handle and convey the biomass fuel at the facility shall be installed, operated, and maintained in accordance with the following requirements.

i. The maximum hourly transfer rate of biomass fuel shall not exceed 106.07 tons per hour.

ii. The annual transfer rate of biomass fuel at the facility shall not exceed 929,147 tons during any 12-month consecutive period.

iii. All conveyors used to transport biomass fuel shall be either equipped with covers or located within an enclosed structure when the conveyor is in service.

c. Storage area or structures at the facility used to store biomass fuel shall be installed, operated, and maintained in accordance with the following requirements.

i. The open stockpile, which is identified as CHIP-2, shall not contain more than 71,265.6 klbs (1000 lbs) or 35,632.8 tons of biomass at any given time.

ii. The permittee shall apply water or dust suppressant on the open stockpile as necessary to minimize visible emissions from being exhibited from the open stockpile (CHIP-2).

iii. The open stockpile shall be constructed on a solid surface.

iv. Each of the Biomass Fuel Metering Bins (Bins A and B) shall be partially enclosed.

5.1.2. All haul roads on plant control grounds shall be paved and maintained in a manner that minimize the release of fugitive emissions from haul roads at the facility.

5.1.3. **Operation and Maintenance of Air Pollution Control Equipment.** The permittee shall, to the extent practicable, install, maintain, and operate all pollution control equipment listed in Section 1.0 and associated monitoring equipment in a manner consistent with safety and good air pollution control practices for minimizing emissions, or comply with any more stringent limits set forth in

this permit or as set forth by any State rule, Federal regulation, or alternative control plan approved by the Secretary.
[45CSR§13-5.10.]

5.2. Monitoring Requirements

5.2.1. The permittee shall conduct visible emission observations using EPA Method 22 with an observation duration of no less than 120 seconds of the following emission points once per month.

Table 5.2.1. –Fuel Handling Emission Points

Description of Source	Emission Point ID No.
Fuel Receiving Hopper 121-LS-1001	121-PKG-1001
Fuel Receiving Hopper 121-LS-1002	

Should any visible emissions be observed during this check, the permittee shall evaluate the operation of the observed source and make all necessary repairs to restore the operation to no visible emissions as soon as practicable, but within five (days) of the visual emission check. Records of such visible emission checks or observations shall be maintained in accordance with Condition 3.4.1. of this permit.

5.2.2. The permittee shall conduct a visual inspection of the equipment and associated control devices associated with the fuel handling equipment at the facility once per month. The visual inspection shall identify area of material spillage and the source(s) causing the material spillage; leakage/fugitive dust; and/or defective equipment or control device(s). Any detective control device or equipment shall be repaired within 10 days of the initial inspection. Results of such inspection and any repairs as result of the inspection shall be maintained in accordance with Condition 3.4.1.

5.2.3. The permittee shall track and record the amount of fuel delivered to the facility on a monthly basis. Such records shall be maintained in accordance with Condition 3.4.1.

5.2.4. The permittee shall conduct inspection of the haul roads at the facility for excessive silt (dust) and roadway defects on a weekly basis and implement either street sweeping/washing or other fugitive dust control measures to minimize fugitive dust from haul roads. Records of such weekly inspections, repairs, and implementing any control measures shall be maintained in accordance with Condition 3.4.1.

5.3. Reporting Requirements

5.3.1. The permittee shall report any exceedances of the requirements in Section 5.1. and Condition 5.2.1. to the Director within 10 days of the exceedance in accordance with Condition 3.5.3.

6.0. Specific Requirements for Sand, Ash, and Other Material Handling Equipment

6.1. Limitations and Standards

6.1.1 The permittee shall minizine fugitive PM emissions from the sand handling and processing (reclaiming) equipment using fugitive particulate matter control devices or measures in accordance with the following requirements.
[45CSR2-5.1.]

a. The drag chain conveyors, bucket elevators, screw conveyors associated with the transporting either a mixture of ash and sand or sand at the facility shall be covered at all times when the ash handling system is in operation.
[45CSR2-5.1.2]

b. The vibrating screeners (121-CV-5001 A & B) shall be partial enclosed at all times.

c. The bottom ash storage bins (121-S-6001 A & B) and sand receiving hopper (121-S-1004) shall be designed/configured, maintained, and operated in manor that prohibits the discharge any fugitive emissions to the atmosphere at all times when the ash handling system is in operation.
[45CSR2-5.1.1]

d. The transfer conveyors (121-CV-5003 A &) shall be partially enclosed with a cover at all times when the conveyor is in operation.
[45CSR2-5.1.2]

e. The facility shall not receive more than 1,752 tons of sand per year on a 12-month rolling total basis.

6.1.2. The permittee shall minizine fugitive PM emissions from the ash handling equipment using fugitive particulate matter control devices or measures in accordance with the following requirements.
[45CSR2-5.1.]

a. The drag chain conveyors, bucket elevators, conveyors associated with the transporting ash at the facility shall be covered at all times when the ash handling system is in operation.
[45CSR2-5.1.2]

b. Surge bins for the pulse jet fabric filter baghouse (121-S-4002 A & B) and economizer hopper ash surge bins (121-S-4003 A & B) shall be designed/configured, maintained, and operated in a manor not to discharge any fugitive PM emissions at all times when the ash handling system is in operation.
[45CSR2-5.1.1]

c. Each fly ash storage silos (121-S-4001 A & B) shall be controlled with pulse jet fabric filter control device at all times when ash is being routed to or storge in the silo. The emissions from each silo shall not exceed the following limitations.
[45CSR2-5.1.1]

i. PM emission shall not exceed 0.02 pounds per hour on a 3-hour average.

ii. PM_{10} emission shall not exceed 0.01 pounds per hour on a 3-hour average basis.

iii. No visible emissions shall be exhibited for the emission point from each silo.

d. Ash processed through the pugmills (121-MX-4001 A & B) and the fly ash truck loading station (121-TL-0001) with moisture content of no less than 10% by weight.

6.1.3. The permittee shall minizine fugitive PM emissions from the handling equipment for the adsorbent used for the dry sorbent inject system using fugitive particulate matter control device or measures in accordance with the following requirements.
[45CSR2-5.1.]

a. The permittee shall install and maintain a closed vent system that routes the vent for the sodium bicarbonate storage silo (121-S-9901) to the biomass boiler.

b. Each vent for the sodium bicarbonate hoppers (121-S-9902 A & B) shall be controlled with a pules jet fabric filter control device. Emissions from these hoppers shall not exceed the following limits.

i. No visible emissions shall be exhibited for the emission point from each hopper vent.

6.1.4. **Operation and Maintenance of Air Pollution Control Equipment.** The permittee shall, to the extent practicable, install, maintain, and operate all pollution control equipment listed in Section 1.0 and associated monitoring equipment in a manner consistent with safety and good air pollution control practices for minimizing emissions, or comply with any more stringent limits set forth in this permit or as set forth by any State rule, Federal regulation, or alternative control plan approved by the Secretary.
[45CSR§13-5.10.]

6.2. Monitoring Requirements

6.2.1. The permittee shall conduct visible emission observations using EPA Method 22 with an observation duration of no less than 120 seconds of the following emission points once per month.

Table 6.2.1. – Ash and Sodium Bicarbonate Emission Points

Description of Source	Emission Point ID No.
Fly Ash Storage Silo A	121-S-4001 A
Fly Ash Storage Silo B	121-S-4001 B
Sodium Bicarbonate Vent Hopper A	121-F-9902 A
Sodium Bicarbonate Vent Hopper B	121-F-9902 B

Should any visible emissions be observed during this check, the permittee shall evaluate the operation of the observed source and make all necessary repairs to restore the operation to no visible emissions as soon as practicable, but within five (days) of the visual emission check. Records of such visible emission checks or observations shall be maintained in accordance with Condition 3.4.1. of this permit.

6.2.2. The permittee shall conduct a visual inspection of the equipment and associated control devices associated with the sand, ash, and sorbent handling and processing equipment at the facility once per month. The visual inspection shall identify area of material spillage and the source(s) causing the material spillage; leakage/fugitive dust; and/or defective equipment or control device(s). Any detective control device or equipment shall be repaired within 10 days of the initial inspection. Results of such inspection and any repairs as result of the inspection shall be maintained in accordance with Condition 3.4.1.

6.2.3. The permittee shall track and record the amount of sand and sodium bicarbonate delivered to the facility and the amount of ash loaded into the trucks on a monthly basis. Such records shall be maintained in accordance with Condition 3.4.1.

6.2.4. The permittee shall either sample and measure the moisture of ash loaded into trucks once per operating month. Such records shall be maintained in accordance with Condition 3.4.1.

6.3. Reporting Requirements

6.3.1 The permittee shall report any exceedances of the requirements in Section 6.1. and Condition 6.2.1. to the Director within 10 days of the exceedance in accordance with Condition 3.5.3.

7.0. Specific Requirements for the Mechanical Draft Cooling Tower (129-CT-9301)

7.1. Limitations and Standards

7.1.1 The conditions and requirements in the following subdivisions are specific to the mechanical draft cooling tower (ID #ST-1):

a. Emissions of PM, PM-10, and $PM_{2.5}$ shall be controlled with a 0.001% drift eliminator or equivalent control technology.

i. PM emissions discharged to the atmosphere from the Cooling Tower shall not exceed 2.02 pound per hour and 3.01 TPY.

ii. PM_{10} emissions discharged to the atmosphere from the Cooling Tower (EP #WCT-1) shall not exceed 1.48 pound per hour and 2.52 TPY.

i. $PM_{2.5}$ emissions discharge to the atmosphere from the Cooling Tower (EP #WCT-1) shall not exceed 0.67 lb/hr and 1.26 TPY.

b. The make-up water for the Cooling Tower shall not contain an average concentration of Total Dissolve Solids (TDS) of greater than 340 ppm by weight on a 365-day average basis with no individual daily reading greater than 1,000 ppm by weight.

7.2. Monitoring Requirements

7.2.1. For determining compliance with this emission limit in Condition 7.1.1., the permittee shall monitor cooling water circulation flow rate continuously and the concentration of total dissolved solids contained in the make-up water for the cooling tower or specific conductivity of the make-up water daily. If the permittee uses a correlation curve or ratio between total dissolve solids concentration and specific conductivity, the Director or his/her representative may request the permittee to verify the correlation at any reasonable time with just cause. The permittee shall determine the PM, PM_{10}, and $PM_{2.5}$ emissions from the cooling towers using a method that accurately predicts these specific pollutants from mechanical draft cooling towers. Such determination shall be conducted by no later than the 15th day of the following month. Records of such monitoring and determinations shall be maintained in accordance with Condition 3.4.1. of this permit.

7.3. Recordkeeping Requirements

7.3.1. The permittee shall maintain records and/or supporting information from the actual manufacture of the cooling tower to indicate the percentage of drift from the Cooling Tower. Such records and/or information shall be maintained readily available for the life of the Cooling Tower.

7.4. Reporting Requirements

7.4.1. The permittee shall report any exceedances of the requirements in Section 8.1. to the Director within 10 days of the exceedance in accordance with Condition 3.5.3.

8.0. Specific Requirements for the RICE for the NG Startup Generator and Fire Water Pump (EG-1 & FWP-1)

8.1. Limitations and Standards

8.1.1. The following conditions and requirements are specific to the internal combustion engine (non-emergency engine) for the NG Startup Generator #1 (ID 129-PKG-0001):

a. Emissions shall not exceed the following:

i. NO_x emissions from the engine shall not exceed 1.0 grams of NO_x per horsepower hour or 82 ppmvd at 15% O_2.
[40 CFR §60.4233(e), Table 1 - 1 to Subpart JJJJ of Part 60—NO_X, CO, and VOC Emission Standards for Stationary Non-Emergency SI Engines ≥100 HP (Except Gasoline and Rich Burn LPG), Stationary SI Landfill/Digester Gas Engines, and Stationary Emergency Engines >25 HP]

ii. CO emissions from the engine shall not exceed 2.0 grams of CO per horsepower hour or 270 ppmvd at 15% O_2.
[40CFR§60.4233(e) Table 1 - 1 to Subpart JJJJ of Part 60—NO_X, CO, and VOC Emission Standards for Stationary Non-Emergency SI Engines ≥100 HP (Except Gasoline and Rich Burn LPG), Stationary SI Landfill/Digester Gas Engines, and Stationary Emergency Engines >25 HP]

iii. VOC emissions from the engine shall not exceed 0.7 grams of VOCs per horsepower hour or 60 ppmvd at 15% O_2. Formaldehyde emissions shall not be included as part of this standard.
[40CFR§60.4233(e) Table 1 - 1 to Subpart JJJJ of Part 60—NO_X, CO, and VOC Emission Standards for Stationary Non-Emergency SI Engines ≥100 HP (Except Gasoline and Rich Burn LPG), Stationary SI Landfill/Digester Gas Engines, and Stationary Emergency Engines >25 HP]

b. The permittee shall satisfy compliance with the emission standards in item a of this condition by purchasing an engine certified to comply with the non-emergency engine emission standards of Subpart JJJJ of 40CFR60, as application for the same model year and maximum engine power. The model year of the engine shall be 2024 or later. The mass rate of the certified emissions from the manufacturer of the purchased engine shall not exceed the rates listed in Table 5.1.1.c. The engine must be installed and configured according to the manufacturer's specifications.
[40CFR§§60.4243(a) and (a)(1)].

c. Mass Hourly emissions from the engine shall not exceed the following rates on a 3-hour average basis.

Table 5.1.1.c. Mass Emissions Limits for 129-PKG-0001

Pollutant	Hourly Rate (lb/hr)
Oxides of Nitrogen (NO_x)	6.61
Carbon Monoxide (CO)	13.23
Volatile Organic Compounds (VOCs)	5.67
$PM/PM_{10}/PM_{2.5}$	0.20
Total Hazardous Air Pollutants (HAPs)	1.43
Formaldehyde (HAP)	1.04

d. This engine shall not have a nameplate power greater than the 3,000 bhp.

e. The engine shall be fueled with natural gas that meets the definition in 40 CFR 60.4248 that contains sulfur loading of no greater than 10 ppmv of total sulfur or 0.44 grains of total sulfur per 100 scf.

f. This engine shall not be operated more than 100 hours per year on a 12-month rolling total.

g. This engine shall be equipped prior to initial startup of the engine and maintained for the life of the engine with a non-resettable hour meter. Should an hour meter need to be repaired/replaced, the permittee shall notify the Director in accordance with Condition 3.5.3. of this permit within 15 calendar days of the repair/replacement. Such notice shall include the actual reading prior to the repair/replacement, scope of work performed, individual supervising the repair, and date/time the work was completed.

h. The permittee shall keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine and associated control device (if equipped) in a manner consistent with good air pollution control practice for minimizing emissions.
[40CFR§60.4243(a)(1)]

8.1.2. The following conditions and requirements are specific to the internal combustion engine for the fire water pump (ID 129-P-9402):

a. Emissions shall not exceed the following:

i. NO_x + Non-Methane Hydrocarbons (NMHC) emissions from the engine shall not exceed 4.0 grams of NO_x per kilowatt-hour (g/kW-hr).
[40 CFR §60.4205(c) and §60.4202(d); Table 4 to Subpart IIII of Part 60 - Emission Standards for Stationary Fire Pump Engines]

ii. CO emissions from the engine shall not exceed 3.5 g/kW-hr.
[40 CFR §60.4205(c) and §60.4202(d); Table 4 to Subpart IIII of Part 60 - Emission Standards for Stationary Fire Pump Engines]

iii. PM/PM10 emissions from the engine shall not exceed 0.20 g/kW-hr.
[40 CFR §60.4205(c) and §60.4202(d); Table 4 to Subpart IIII of Part 60 - Emission Standards for Stationary Fire Pump Engines]

b. The permittee shall satisfy compliance with the emission standards in subparagraph a. of this condition by purchasing an engine certified to 40 CFR part 89 or 40 CFR 94, as application for the same model year and maximum engine power. The model year of the engine shall be 2025 or later. The mass rate of the certified emissions from the manufacturer of the engine purchased shall not exceed the rates listed in Table 5.1.2.g. The engine must be installed and configured according to the manufacturer's specifications.
[40 CFR 60.4211(b)(1)]

c. There is no time limit on the use of this engine in emergency situations. This engine can operate for non-emergency purposes, which include maintenance and readiness testing, and other non-emergency use for no more than 50 hours per year on a calendar year basis.
[40 CFR §§60.4211(f), (f)(1), & (f)(2)(i)]

d. This engine is permitted to consume diesel fuel that meets the following standards.

1. Sulfur standard. Maximum sulfur content of 15 ppm.

[40 CFR 60.4207(b), 40 CFR 1090.305(b), 40 CFR 14-8.3]

2. Cetane index or aromatic content. Diesel fuel must meet one of the following standards:
[40 CFR 60.4207(b), 40 CFR 1090.305(c), 40 CFR 14-8.3]

a. Minimum cetane index of 40; or
[40 CFR §60.4207(b), 40 CFR §1090.305(c)(1), 40 CFR §14-8.3]

b. Maximum aromatic content of 35 volume percent.
[40 CFR §60.4207(b), 40 CFR §1090.305(c)(2), 40 CFR §14-8.3]

e. This engine shall be equipped prior to initial startup of the engine and maintained for the life of the engine with a non-resettable hour meter. Should an hour meter need to be repaired/replaced, the permittee shall notify the Director in accordance with Condition 3.5.3. of this permit within 15 calendar days of the repair/replacement. Such notice shall include the actual reading prior to the repair/replacement, scope of work performed, individual supervising the repair, and date/time the work was completed.
[40CFR§60.4237(a)]

f. The permittee shall keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine and associated control device (if equipped) in a manner consistent with good air pollution control practice for minimizing emissions.
[40CFR§60.4211(a)(1)]

g. The mass hourly emissions from the engine shall not exceed the following rates on a 3-hour average basis.

Table 5.1.2.g. Mass Emissions Limits for 129-P-9402

Pollutant	Hourly Rate (lb/hr)
Oxides of Nitrogen (NO_x)	3.07
Carbon Monoxide (CO)	3.33
Sulfur Dioxide (SO_2)	0.01
Volatile Organic Compounds (VOCs)	0.11
$PM/PM_{10}/PM_{2.5}$	0.20
Total Hazardous Air Pollutants (HAPs)	0.02

d. This engine shall not have a nameplate power greater than 614 bhp.

8.2. Monitoring Requirements

8.2.1. The permittee shall keep records of the hours of operation for each engine (129-PKG-001 & 129-P-9402) for each calendar month. The records must document the hours of operating the NG Startup Generator; and the hours of emergency and non-emergency operations for the Firewater Pump Engine (129-P-9402), including what classified the operation as an emergency and non-emergency operation. At the end of each calendar year, the permittee totals the hours operation for the NG Startup Generator, and the emergency and non-emergency operations for the Firewater Pump Engine. Such records shall be maintained in accordance with Condition 3.4.1. and must be in a manner to demonstrate compliance with the operating limits of Conditions 8.1.1.f. and 8.1.2.c.
[40CFR§60.4214(b)]

8.3. Recordkeeping Requirements

8.3.1. The permittee shall maintain records of any maintenance performed on the engines or associate add-on control device(s) (if applicable) for the NG Startup Generator and Firewater Pump Engine. Such records shall be maintained in accordance with Condition 3.4.1.
[40CFR§§60.4245(a), (a)(2) and §§60.4214(a)(2)(ii)]

8.3.2. The permittee shall maintain documentation from the engine manufacturer that the engines for the NG Startup Generator and Firewater Pump Engine are certified to meet the emission standards and information as required in 40 CFR parts 1048, 1054, and 1060, as applicable for the life of the respective engine.
[40CFR§60.4245(a)(3) and §60.4214(a)(2)(iii)]

8.3.3. The permittee shall maintain records of the amount and type of fuel consumed by each engine respectively on a monthly. Such records of diesel fuel deliveries shall include documentation indicated the sulfur and cetane index or aromatic content in the delivered fuel. Such records shall be maintained in accordance with Condition 3.4.1.

8.3.4. The permittee shall either obtain tariff sheet from the facility's natural gas supplier that specify the maximum total sulfur content natural gas or obtain/determine the total sulfur content of the natural gas consumed by 129-PKG-0001 once per calendar year. Such records shall be maintained in accordance with Condition 3.4.1.

8.4. Reporting Requirements

8.4.1. The permittee shall submit an initial notification in accordance with Condition 2.18. The notification must include the information in subparagraphs (i) through (iii) of this condition for each engine. This notification shall be according to Condition 3.5.3. to the Director.

i. Engine information including make, model, engine family, serial number, model year, maximum engine power, and engine displacement.

ii. Emission control equipment (if applicable); and

ii. Fuel used.

8.4.2. The permittee shall report any exceedances of the requirements in Section 8.1. to the Director within 10 days of the exceedance in accordance with Condition 3.5.3.

9.0. Specific Requirements for the Storage Vessels (122-TK-9901, 122-TK-9902, 129-P-9402, 129-TK-9402, and 122-PKG-2001) and Wastewater Treatment Plant (127-PKG-001).

9.1. Limitations and Standards

9.1.1. Emission from the collection of liquid storage vessels, which shall include emission units 122-TK-9901, 122-TK-9902, 129-P-9402, 129-TK-9402, and 122-PKG-2001, at the facility shall not exceed the following emission limits

a. Emission of VOCs shall not exceed 0.02 tons per year on a 12-month rolling total basis.

9.1.2. The following requirements are specific to the lean amine vessel identified as 122-TK-9901.

a. The permittee shall not storage a volatile organic liquid with a maximum true vapor pressure equal to greater than 0.5 psia (3.4 kPa) in the vessel.

b. These vessels shall not be heated to a temperature above 50^{O}F on a monthly average basis.

c. The liquid stored in these vessels shall not have a VOC concentration greater than 47% by weight.

d. The annual throughput of lean amine through this vessel shall not exceed 322,166 gallons per year or 1.07 turnovers per year.

9.1.3. The following requirements are specific to the spent amine loadout station identified as VOC-Amine-Load.

a. VOC Emissions from the loadout station shall not exceed 0.01 lb per hour.

b. When not engage in loadout operations, each valve or line shall be equipped with a cap, blind flange, plug or a second valve.

9.1.4. The permittee shall keep portable containers that storage volatile organic liquids covered or sealed at all times except when dispensing liquids from the container.

9.1.5. Each open-ended valve or line shall be equipped with a cap, blind flange, plug or a second valve, except as provided in Condition 4.1.1.f. or open-ended valve or lines of an emergency shutdown system which are designed to open automatically in the event of process upset.

9.1.6. The permittee shall repair any leaking or defective component (valve, pump, connector) in VOC service within 15 days of detection with the first attempt within the first 5 days of detection. VOC service shall mean in component that is in contact with either gas or liquid that contain 10% or more on a mass basis of components that are classified as VOCs as defined in 40CFR§51.100(s)

9.1.7. The following requirements are specific to the wastewater treatment plant identified as 127-PKG-001:

a. HCl emissions from the collection of process units and fugitive sources associated with the wastewater treatment plant shall not exceed 0.57 tons per year on a 12-month rolling total basis.

b. Sulfuric acid mist (H_2SO_4) emissions from the collection of process units and fugitive sources associated with the wastewater treatment plant shall not exceed 2.79 tons per year on a 12-month rolling total basis.

c. The wastewater treatment plant shall not process/treat more than 930,240 gallons per day.

9.2. Monitoring Requirements

9.2.1. The permittee shall continuously monitor the liquid temperature in lean amine vessel (122-TK-9901) at all times; determine and record the daily average temperature; and determine any day(s) that the daily average temperature is greater than 50^0F. The determination of daily average temperature and any daily average temperature above 50°F shall be conducted no later than the 15th day of the following month. Such records included date, time, duration, and root cause of the exceedance. These records shall be maintained in accordance with Condition 3.4.1.

9.2.2. Once every six months, the permittee shall conduct a leak survey of all process piping in VOC service as defined in Condition 9.1.6. to identify all leaking or defective components. Records of such surveys conducted, identification of leaking or defective components, and dates of repairs shall be maintained in accordance with Condition 3.4.1.

9.2.3. The permittee shall sample the incoming wastewater to the wastewater treatment plant daily to determine either the pH or conductivity of the effluent and determine the monthly average ph using the daily reading. If the average monthly pH readings are lower than 5, the permittee shall determine actual emissions of HCl and H_2SO_4 emissions from the wastewater treatment plant or other acceptable means by the Director to ensure compliance with limits in Condition 9.1.9. are meet. These records shall be maintained in accordance with Condition 3.4.1.

9.3. Recordkeeping Requirements

9.3.1. **Record of Monitoring.** The permittee shall keep records of monitoring information that include the following:

a. The date, place as defined in this permit, and time of sampling or measurements;

b. The date(s) analyses were performed;

c. The company or entity that performed the analyses;

d. The analytical techniques or methods used;

e. The results of the analyses; and

f. The operating conditions existing at the time of sampling or measurement.

9.3.2. **Record of Maintenance of Air Pollution Control Equipment.** For all pollution control equipment listed in Section 1.0, the permittee shall maintain accurate records of all required pollution control equipment inspection and/or preventative maintenance procedures.

9.3.3. **Record of Malfunctions of Air Pollution Control Equipment.** For all air pollution control equipment listed in Section 1.0, the permittee shall maintain records of the occurrence and duration of any malfunction or operational shutdown of the air pollution control equipment during which excess emissions occur. For each such case, the following information shall be recorded:

a. The equipment involved.

b. Steps taken to minimize emissions during the event.

c. The duration of the event.

d. The estimated increase in emissions during the event.

For each such case associated with an equipment malfunction, the additional information shall also be recorded:

e. The cause of the malfunction.

f. Steps taken to correct the malfunction.

g. Any changes or modifications to equipment or procedures that would help prevent future recurrences of the malfunction.

9.3.4. By no later than the 15th of the following month, the permittee shall record or determine of following information for each month: the amount of volatile organic liquids (VOL) received at the facility on a volumetric basis, the VOC concentration of the liquid received, which vessel the VOL is stored in, and any other record need to determine the actual VOC emissions from each storage vessel. These records shall be maintained in accordance with Condition 3.4.1.

9.3.5. The permittee shall record the total number of gallons of spent/degraded amine loadout through the VOC – Amine Load (loadout station). These records shall be maintained in accordance with Condition 3.4.1.

9.3.6. The permittee shall keep readily accessible records for the life of each vessel showing the dimension and capacity of 122-TK-9901.
[40CFR§§60.116b(b) 60.110c(f) and 60.115c(b)]

9.3.7. Prior to the initial filling or filling of a new VOL of the 122-TK-9901, the permittee shall determine the maximum true vapor pressure at the stored temperature for each VOL stored in this vessel using one of the following methods:
[40CFR§§60.110c(f), 113c(d), and 113c(d)(1)]

a. As obtained from standard reference texts.
[40CFR§113c(d)(1)(i)]

b. ASTM D6377-20 (incorporated by reference; see 40CFR§60.17). Perform the method using a vapor-to-liquid ratio of 4:1, which is expressed in the method as VPCR.
[40CFR§113c(d)(1)(ii)]

c. ASTM D6378-22 (incorporated by reference; see 40CFR§60.17). Perform the method using a vapor-to-liquid ratio of 4:1.
[40CFR§113c(d)(1)(iii)]

d. As measured by an appropriate method as approved by the Administrator.
[40CFR§113c(d)(1)(iv)]

Such records shall be maintained in accordance with Condition 3.4.1.

9.4. Reporting Requirements

9.4.1. The permittee shall report any exceedances of the requirements in Section 9.1. to the Director within 10 days of the exceedance in accordance with Condition 3.5.3.

Appendix A – Summary Report - Gaseous and Opacity Excess Emission and Monitoring System Performance

Pollutant (Circle One—SO2/NOX/TRS/H2S/CO/Opacity)

Reporting period dates: From _____ to _____

Company:

Emission Limitation
Address:

Monitor Manufacturer and Model No.
Date of Latest CMS Certification or Audit
Process Unit(s) Description:
Total source operating time in reporting period[1]

Emission data summary[1]		CMS performance summary[1]	
1. Duration of excess emissions in reporting period due to:		1. CMS downtime in reporting period due to:	
a. Startup/shutdown		a. Monitor equipment malfunctions	
b. Control equipment problems		b. Non-Monitor equipment malfunctions	
c. Process problems		c. Quality assurance calibration	
d. Other known causes		d. Other known causes	
e. Unknown causes		e. Unknown causes	
2. Total duration of excess emission		2. Total CMS Downtime	
3. Total duration of excess emissions × (100) [Total source operating time]	%[2]	3. [Total CMS Downtime] × (100) [Total source operating time]	%[2]

[1]For gases, record all times in hours.
[2]For the reporting period: If the total duration of excess emissions 1 percent or greater of the total operating time or the total CMS downtime is 5 percent or greater of the total operating time, both the summary report form and the excess emission report described in 40 CFR 60.7(c) shall be submitted.
On a separate page, describe any changes since last quarter in CMS, process or controls. I certify that the information contained in this report is true, accurate, and complete.

_____
Name

_____
Signature

_____
Title

_____
Date

CERTIFICATION OF DATA ACCURACY

I, the undersigned, hereby certify that, based on information and belief formed after reasonable inquiry, all information contained in the attached _____, representing the period beginning _____ and ending _____, and any supporting documents appended hereto, is true, accurate, and complete.

Signature[1] _____ _____
(please use blue ink) Responsible Official or Authorized Representative Date

Name & Title _____ _____
(please print or type) Name Title

Telephone No. _____ Fax No. _____

[1] This form shall be signed by a "Responsible Official." "Responsible Official" means one of the following:

a. For a corporation: The president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit and either:

(i) the facilities employ more than 250 persons or have a gross annual sales or expenditures exceeding $25 million (in second quarter 1980 dollars), or

(ii) the delegation of authority to such representative is approved in advance by the Director;

b. For a partnership or sole proprietorship: a general partner or the proprietor, respectively;

c. For a municipality, State, Federal, or other public entity: either a principal executive officer or ranking elected official. For the purposes of this part, a principal executive officer of a Federal agency includes the chief executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., a Regional Administrator of U.S. EPA); or

d. The designated representative delegated with such authority and approved in advance by the Director.

Final Determination R13-3708

Division of Air Quality
601 57th Street, SE
Charleston, WV 25304
(304) 926-0475

Harold D. Ward, Cabinet Secretary
dep.wv.gov

Final Determination

Application No.:	R13-3708
Facility ID No.	053-00134
Name of Applicant:	MGC CNP 1, LLC
Name of Facility:	BEECS
Location of Facility:	Point Pleasant, Mason County
Latitude/Longitude:	38.92450 / -82.10822
Application Type:	Construction
Complete Date:	June 23, 2025
Public Notice Date:	August 19, 2025
Public Meeting Date:	October 7, 2025 (In-person)
Engineer:	Edward Andrews

BACKGROUND INFORMATION

On August 19, 2025, the West Virginia Department of Environmental Protection - Division of Air Quality (DAQ) provided notice of an open comment period for Permit Number R13-3708 for the construction and operation of an bio-mass fired power generation facility proposed to be located at 5801 Ohio River Road, Point Pleasant in Mason County, WV. At that time, the Draft Permit and Engineering Evaluation/ Fact Sheet (EE/FS) were made available for the public for review. The permit application had previously been made available for public review and remained so during the public comment period. The permit application was received on February

24, 2025. The permit applicant published a Class I legal advertisement notice of application on March 13, 2025 in *The River Cities Tribune*.

As required by 45 CSR 13, the DAQ's legal advertisement was published in *The River Cities Tribune* on August 19, 2025, which began a 30-day public comment period that was scheduled to end at 5:00 P.M. on September 18, 2025. A notification regarding this 30-day public comment period was also made available on DEP's website. As a result of this public notice, the DAQ received 36 emails which requested the DAQ to conduct a public meeting regarding this permitting action. The DAQ reviewed the requests for the public meeting and made the decision to hold an in-person public meeting at 6:00 p.m. on Tuesday, October 7, 2025 at the Mason Court House in Point Pleasant to provide information on the proposed facility and to allow the public the opportunity to make oral comments on the record.

DAQ staff members provided a presentation and answered questions before taking comments from the public about MGS CNP 1 LLC's BECCS (Draft Permit R13-3708). Nine individuals make oral comments on the record.

Due to the public meeting being scheduled after the end of the original 30-day public comment period, the comment period was extended and ended at 5:00 P.M. on Wednesday, October 8, 2025.

During the public comment periods, the DAQ accepted comments on the preliminary determination to issue permit R13-3708 to MGS CNP 1, LLC. Pursuant to §45-13-8.8, a "Response to Public Comments" document has been prepared which provides a response to all formal written comments submitted to the DAQ and oral comments/questions provided at the public meeting. All relevant documents will be placed on the DAQ Application Enhancer (AE) website and will be available directly under "Popular Searches" at the following location:

https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx

On August 19, 2025, the West Virginia Department of Environmental Protection - Division of Air Quality (DAQ) issued a notice of an open comment period for Permit Number R13-3708 concerning the construction and operation of a proposed bio-mass fired power generation facility to be located at 5801 Ohio River Road, Point Pleasant, in Mason County, WV. At that time, the Draft Permit and the Engineering Evaluation/Fact Sheet (EE/FS) were made available for public review. The permit application had been previously available for public review and remained so throughout the public comment period. The permit application was received on February 24, 2025. The permit applicant published a Class I legal advertisement notice of application on March 13, 2025, in *The River Cities Tribune*.

In accordance with 45 CSR 13, the DAQ's legal advertisement was published in *The River Cities Tribune* on August 19, 2025, initiating a 30-day public comment period scheduled to conclude at 5:00 P.M. on September 18, 2025. A notification regarding this 30-day public comment period was also posted on the DEP's website. Subsequent to this public notice, the DAQ received thirty-six (36) emails formally requesting the DAQ to conduct a public meeting regarding this permitting action. The DAQ reviewed these requests and made the decision to convene an

in-person public meeting at 6:00 p.m. on Tuesday, October 7, 2025, at the Mason County Court House in Point Pleasant, to provide information on the proposed facility and afford the public an opportunity to submit oral comments for the official record.

DAQ staff members delivered a presentation and addressed inquiries before soliciting comments from the public concerning MGS CNP 1 LLC's BECCS (Draft Permit R13-3708). Nine individuals presented oral comments for the record.

Due to the scheduling of the public meeting beyond the expiration of the original 30-day public comment period, the comment period was extended and concluded at 5:00 P.M. on Wednesday, October 8, 2025.

Throughout the public comment periods, the DAQ accepted comments regarding the preliminary determination to issue permit R13-3708 to MGS CNP 1, LLC. Pursuant to §45-13-8.8, a "Response to Public Comments" document has been prepared, which addresses all formal written comments submitted to the DAQ and all oral comments/questions presented at the public meeting. All relevant documents will be posted on the DAQ Application Enhancer (AE) website and will be directly accessible under "Popular Searches" at the following location:

https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx

SUMMARY OF COMMENTS RECEIVED

From the date of MGS CNP 1, LLC's notice of application (March 13, 2025) until the conclusion of the public comment period (October 8, 2025), the DAQ received approximately 100 comments, which emails, one hand deliver comment, as well as oral comments presented at the October 7, 2025 public meeting from various individuals and several organizations concerning the proposed facility. This number is inclusive of multiple or duplicate comments made by the same individuals or organizations given as both submitted written comments and orally at the public meeting.

Most public comments were against the issuance of the permit or request for either a public meeting or additional time to review the application. The supportive comments referenced the potential positive economic impacts of the proposed facility while many of the non-technical comments that were explicitly non-supportive expressed concern over the potential environmental or other detrimental impacts of the facility without providing a technical or regulatory basis for a reconsideration of the DAQ's preliminary determination. Specific technical and regulatory questions/comments were also submitted. Additional comments were given and questions asked during the public meeting.

The Response to Comment document was organized into 2 sections, a general response section and a specific response section. The General Response to Comments section defines issues over which the DAQ has authority and by contrast, identifies those issues that are beyond the purview of the DAQ. The general response also describes the statutory basis for the issuance/denial of a permit, DAQ Compliance/Enforcement Procedures, details of the current status of the ambient air quality in Mason County and how that is determined. The Specific Response to Comments

section lists each relevant comment that was not addressed in the General Response to Comments section and that falls within the purview of the DAQ, and provides a response (if a response is required).

After conducting a thorough review of the comments, it was determined that no information was presented that showed the draft permit (or the permitting process) was inconsistent with a reasonable reading of the intent of 45 CSR 13 or §22-5-1, et. seq. However, to address specific concerns and to strengthen the efficacy of the permit, several additions/revisions to the draft permit and EE/FS were made (see below for a detailed list of these changes). It is noted that changes to a draft permit during the public notice period are common and a normal part of the permitting process.

It should be noted that the EPA was providing notice of this application and that the DAQ did not receive any correspondence from the EPA regarding this action. From the date of MGS CNP 1, LLC's notice of application (March 13, 2025) through the conclusion of the public comment period (October 8, 2025), the DAQ received approximately 100 comments concerning the proposed facility. These submissions encompassed emails, one hand-delivered comment, and oral comments presented at the October 7, 2025 public meeting from various individuals and several organizations. This total includes multiple or duplicate comments submitted by the same individuals or organizations, presented as both written correspondence and oral testimony during the public meeting.

The majority of public comments opposed the issuance of the permit or requested either a public meeting or additional time for application review. Supportive comments frequently cited the potential positive economic impacts of the proposed facility, while many of the non-technical, non-supportive comments expressed concerns regarding the potential environmental or other detrimental impacts of the facility without offering a technical or regulatory basis for the reconsideration of the DAQ's preliminary determination. Specific technical and regulatory questions and comments were also submitted, and additional commentary and questions were provided during the public meeting.

The Response to Comment document was structured into two primary sections: a general response section and a specific response section. The General Response to Comments section delineates the issues falling under the DAQ's authority and, conversely, identifies those matters beyond the DAQ's purview. Furthermore, the general response details the statutory basis for permit issuance or denial, DAQ Compliance/Enforcement Procedures, the current ambient air quality status in Mason County, and the methodology for its determination. The Specific Response to Comments section enumerates each relevant comment not addressed in the General Response to Comments section and within the DAQ's jurisdiction, providing a requisite response.

Following a comprehensive review of the comments, it was determined that no information presented demonstrated the draft permit (or the permitting process) to be inconsistent with a reasonable interpretation of the intent of 45 CSR 13 or §22-5-1, *et seq*. Nevertheless, to address specific concerns and enhance the permit's efficacy, several additions and revisions were incorporated into the draft permit and the Evaluation and Fact Sheet (EE/FS) (refer below for a detailed list of these changes). It is important to note that modifications to a draft permit during the public notice period are a common and standard component of the permitting process.

It should be observed that the EPA was notified of this application; however, the DAQ received no correspondence from the EPA concerning this action.

CHANGES TO DRAFT PERMIT

As a result of comments received by the public during the public notice period and verbal comments changes to the draft permit were made to address appropriate concerns where applicable. The substantive changes are given in tabular form below.

Additions/Revisions to Draft Permit R13-3708:

Permit Requirement	Substantive Revision/ Addition Description
3.4.1.	Omitted Sentence "Where appropriate, the permittee may maintain records electronically." - This sentence is redundant.
3.4.3.	Carryover from another permit which is not applicable for this application.
4.1.1.f. & 4.1.1.i.	The annual limits for VOCs and total increased by 1.05 tpy and 0.85 tpy respectively.
4.1.1.j.	Added a sulfur content limit of the clean cellulosic biomass.
4.1.4.	Added the requirement for the Oxidation Catalyst to achieve no less than 60% reduction for CO and VOC emissions.
4.1.7.	Added additional requirement to replace the amine solution once the amine has been determined to be degrading.
4.1.7.c.	Omitting the Operational Limit for the Carbon Capture Unit.
4.2.1.e.	Replaced the term "exhaust" with "gaseous fuel".
4.2.1.i.	Add the Citation of 60.13(a) to the end of the condition.
4.2.2.	Add that the sulfur content be reported out as part of the fuel monitoring plan.
4.3.3.	Added "nitrosamine" to be measured in Table 3.3.3. & replace the language of "no less than three different operating loads" with "of no less than 90% of maximum permitted heat input:.

4.3.7.	Omitted item d. Conflicted with the 10% opacity requirement from Rule 2.
4.3.9.	Added an additional requirement to demonstrate the catalyst is achieving 60% reduction efficiency for CO and VOCs.
4.4.6.e.	Added additional items to be recorded for the biomass fuel delivered to the facility.
7.1.1.b.	Added "greater than" in front of "ppm".
7.2.1.	Replaced "8.1.1." with "7.1.1.".

Given the attention from the public regarding lack of detailed information and claiming the fuel analysis as CBI, the writer recommends establishing a sulfur limit on the biomass fuel of no greater than 0.01% by weight on a wet basis in Condition 4.1.1.j. Condition 4.2.2., which addresses the monitoring of the fuel, will include reporting out the sulfur content of the biomass fuel as part of the fuel monitoring plan. The DAQ has the authority to require the sulfur content of the fuel to be determined under 45CSR§10-8.2.3.c.

The annual total HAP limit set in Condition 4.1.1.j. needs to be increased by 0.85 tpy given that the operational limit for the carbon capture unit is being omitted. The revised total HAP limit in Condition 4.1.1.j will become 24.19 tpy for the biomass boiler. Also, the annual VOC limit for the biomass boiler will be increased by 1.05 tpy to a total limit of 19.38 tpy due to the removal of the operating limit for the carbon capture unit.

The impact of removing the operating limit on the carbon capture unit in terms of a single HAP would increase the annual rate of acetaldehyde to 8.94 tpy and formaldehyde to 2.62 tpy. These rates are still below the single HAP major source threshold level of at or greater than 10 tpy of any single HAP from a facility. Therefore, the facility is an "area source of HAPs".

FINAL DETERMINATION

It is the determination of the writer, after consideration of all comments received, the available information continues to indicate that MGS CNP 1, LLC's proposed facility, in accordance with the plans and specifications filed in Permit Application R13-3708 (and any revisions thereto), as enforced under final Permit Number R13-3708, will meet all applicable state and federal air quality rules and regulations.

Edward Andrews, P.E.
Engineer

Response to Comments R13-3708

west virginia department of environmental protection

Division of Air Quality
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Charleston, WV 25304
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Harold D. Ward, Cabinet Secretary
dep.wv.gov

Response to Public Comments

MGS CNP 1, LLC

BECCS

Permit Application: R13-3708

Facility ID No. 053-00134

Date: November 20, 2025

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BACKGROUND INFORMATION

On February 24, 2025, MGS CNP 1, LLC (MGS CNP 1) submitted a 45 CSR 13 construction permit application to the West Virginia Department of Environmental Protection - Division of Air Quality (DAQ), which is identified as R13-3708. At that time, the permit application was made available on DAQ's website and DEP's Application Enhancer (AE) website for review. On March 13 2025, pursuant to §45-13-8.3, MGS CNP 1 provided notice to the public of the permit application to construct and operate a biomass fired boiler designed to generate electricity for the facility (e.g., produce electricity not for sale). The proposed BECCS facility will be located at 5801 Ohio River Road, which is north of Point Pleasant in Mason County, West Virginia. The permit application was placed on DAQ's website and DEP's AE website for review.

From the date MGS CNP 1 submitted the permit application for the BECCS facility until the release of the Engineering Evaluation (EE/FS) and draft permit, the DAQ received zero comments concerning the proposed facility. On August 19, 2025, pursuant to §45-13-8, the DAQ provided notice to the public of an open comment period for Permit Application Number R13-3708 in *The River Cities Tribune*. At that time, the EE/FS and draft permit were made available on DAQ's website and DEP's AE website for public review.

This notification was also made available on DEP's website. As a result of these public notices, the DAQ received requests to conduct a public meeting regarding this permitting action. The DAQ reviewed the requests for the public meeting and made the decision to hold an in-person public meeting to provide information on the proposed facility and receive oral comments from the public regarding the permit application and draft permit.

A notice announcing the public meeting to be held October 7 at 6:00 PM was published in *The River Cities Tribune* on September 23, 2025. The public that submitted comments/requests during the DAQ's initial public comment period were provided a notice regarding this meeting as well. This notification was also made available on DEP's website.

The purpose of the public meeting was to provide information on the proposed permitting actions and to accept official public comments. The DAQ also extended the public comment period until 5:00 PM on October 8, 2025. Citizens were encouraged to contact agency staff at any time during this period with questions, concerns, or to submit comments.

At 6:00 P.M., on October 7, 2025, the DAQ and the Public Information Office of the WVDEP conducted a public meeting at the Mason County Courthouse in Point Pleasant, WV. During this public meeting, DAQ staff members provided a presentation and answered questions before taking comments from the public about MGS CNP 1's BECCS facility (Draft Permit R13-3708).

The public meeting included DAQ staff engaging directly with the public for approximately two hours.

OVERVIEW OF COMMENTS RECEIVED

From the date MGS CNP 1 submitted the application (February 24, 2025) until the conclusion of the public comment period which was extended until October 8, 2025, the DAQ received 119 written comments and multiple oral comments provided at the October 7, 2025 in-person meeting from various individuals and organizations concerning the proposed facility. This number is inclusive of multiple or duplicate comments made by the same individuals or organizations given as both submitted written comments and orally at the public meeting. A list of persons who submitted written comments is included as Appendix A to this document. The actual comments received are on the DAQ's website. The sign-in sheet for the October 7, 2025 in-person public meeting is included as Appendix B.

Organizations that submitted comments in response to this permitting action include West Virginia Rivers Coalition, WV Citizen Action Group, and WV Chapter of the Sierra Club. As over 40 written comments were received, this list may not be inclusive of all organizations, however, all comments are available on the DAQ's website.

Most public comments were against the issuance of the permit. The submitted comments that were in support of permit issuance referenced the potential positive economic impacts of the proposed facilities while many of the non-technical comments that were explicitly non-supportive expressed concern over the potential environmental or other detrimental impacts of the facilities without providing a technical or regulatory basis for a reconsideration of the DAQ's preliminary determination. Specific technical and regulatory questions/comments were also submitted. Additional comments were given and questions asked during the public meeting. Pursuant to §45-13-8.8., all submitted comments received during the public comment period have been reviewed and are appropriately addressed in this document. It is also noted that additional comments were received at the conclusion of the public comment period.

ORGANIZATION OF COMMENT RESPONSE

The DAQ's response to the submitted comments includes both a general and specific response section. The General Response to Comments section defines issues over which the DAQ has authority and by contrast, identifies those issues that are beyond the purview of the DAQ. The general response also describes the statutory basis for the issuance/denial of a permit, DAQ Compliance/Enforcement Procedures, details of the current status of the ambient air quality in Mason County and how that is determined, and general responses to common questions that were received. The Specific Response to Comment section lists each relevant comment that was not addressed in the General Response to Comment section, and that falls within the purview of the DAQ and provides a response to it (if it requires a response).

Due to the size and number of comments, this document ***does not*** reproduce all comments here. For a complete understanding of all submitted comments, please see the original documents available on the DAQ's website. Both the written comments and, as noted above, documents provided at the public meetings are available on the DEP AE website. The DAQ responses, however, are directed to the entire comments and not just to what is summarized in this document. Comments that are not directly identified and responded to were determined to be

covered by a similar comment, not relevant to the MGS CNP 1 applications, or an air quality-related issue.

GENERAL RESPONSE TO COMMENTS

Statutory Authority of the DAQ

The statutory authority of the DAQ is given under the Air Pollution Control Act (APCA) - West Virginia Code §22-5-1, *et. seq.* - which states, under §22-5-1 ("Declaration of policy and purpose"), that:

> It is hereby declared the public policy of this state and the purpose of this article to achieve and maintain such levels of air quality **as will** [underlining and emphasis added] protect human health and safety, and to the greatest degree practicable, prevent injury to plant and animal life and property, foster the comfort and convenience of the people, promote the economic and social development of this state and facilitate the enjoyment of the natural attractions of this state.

Therefore, while the code states that the intent of the rule includes the criteria outlined in the latter part of the above sentence, it is clear by the underlined and bolded section of the above sentence that the scope of the delegated authority does not extend beyond the impact of air quality on these criteria. Based on the language under §22-5-1, et. seq., the DAQ, in making determinations on issuance or denial of permits under WV Legislative Rule 45 CSR 13 (45 CSR 13), does not take into consideration substantive non-air quality issues such as job creation, economic viability of proposed product, strategic energy issues, non-air quality environmental impacts, noise pollution, light pollution, tourism, road traffic, nuisance issues, water issues, personal property values, etc. Beyond the DAQ's position that the code does not grant us the authority to take into consideration such issues, it is also self-evident that these issues are beyond the expertise of the DAQ and that most are regulated by other bodies with the mandates and expertise to do so.

Statutory Basis for Permit Denial

Pursuant to §22-5-4 ("Powers and duties of director; and legal services; rules"), the DAQ is authorized:

> To promulgate legislative rules . . . providing for . . . [p]rocedures and requirements for permit applications, transfers and modifications and the review thereof;

This authorization is effected under WV Legislative Rule 45 CSR 13 - "Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Administrative Updates, Temporary Permits, General Permits, and Procedures for Evaluation." Pursuant to §45-13-5.7, the DAQ shall issue a permit unless:

> a determination is made that the proposed construction, modification, registration or relocation will violate applicable emission standards, will interfere with attainment or maintenance of an applicable ambient air quality standard, cause or contribute to a

violation of an applicable air quality increment, or be inconsistent with the intent and purpose of this rule or W. Va. Code §22-5-1 et seq., in which case an order denying such construction, modification, relocation and operation shall be issued. The Secretary shall, to the extent possible, give priority to the issuance of any such permit so as to avoid undue delay and hardship.

It is clear under 45 CSR 13 that denial of a permit must be based on one of the above explicitly stated criteria or, as noted, is inconsistent with the intent of 45 CSR 13 or §22-5-1, *et. seq.* As is stated above, it is the DAQ's position that the intent of both the APCA and 45 CSR 13 is to limit the authority of the DAQ to air quality issues as outlined in the APCA and in West Virginia's State Implementation Plan (SIP).

The air quality issues evaluated relating to MGS CNP 1' proposed permit applications are outlined in the respective DAQ's EE/FS made public on September 18, 2025. The issues covered under those documents represent the extent of the substantive air quality issues over which the DAQ has authority to evaluate under 45 CSR 13 and the APCA as relating to Permit Applications R13-3708.

DAQ Compliance/Enforcement (C/E) Procedures

It is important to note that the DAQ permitting process is but one part of a system that works to meet the intent of the APCA in WV. The DAQ maintains a C/E Section, an Air Monitoring Section, a Planning Section, *etc.* to accomplish this. Most pertinent to the permitting process, the C/E Section regularly inspects permitted sources to determine the compliance status of the facility including compliance with all testing, monitoring, recordkeeping, and reporting requirements. These inspections are scheduled by the C/E section taking into consideration such issues as the size and compliance history of the source, resource management and inspector workloads, and program applicability.

When inspecting a facility, the inspectors will, in addition to visually inspecting the facility, generally review all required certified recordkeeping to determine compliance with required monitoring. When violations are discovered, the C/E Section has the authority to issue a Notice of Violation (NOV) and a Cease and Desist Order (C&D) to compel facilities to stop operating the equipment/process responsible for the violation. Finally, a negotiated Consent Order may be entered into between the DAQ and the violator that establishes a finding of facts, a path back into compliance for the violator, and often includes a monetary penalty as determined on a case-by-case basis.

Additionally, the C/E Section investigates citizen complaints directed against a facility, reviews monitoring reports submitted to the DAQ (again with the authority to issue violations based on the submitted reports), reviews performance test protocols submitted to the DAQ, and will often observe performance tests at the facility site. All records and documents submitted to the DAQ for compliance purposes must be certified as accurate (and subject to criminal penalties if knowingly inaccurate) by a properly designated "responsible official". All of these documents (including C/E documents such as NOVs, C&Ds, and COs) when in final form, and minus any

confidential information, are available to the public via a FOIA request (for older documents) or (for new facilities) are available on the DEP AE website.

Ambient Air Quality of Mason County

The quality of the air of a defined local area, in this case for Mason County, is determined by its status with respect to the National Ambient Air Quality Standards (NAAQS). The Clean Air Act (CAA), which was last amended in 1990, requires the Environmental Protection Agency (EPA) to set NAAQS for pollutants considered harmful to public health and the environment. The CAA establishes two types of national air quality standards. Primary standards establish limits to protect public health, including the health of sensitive populations such as asthmatics, children, and the elderly. Secondary standards establish limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation and buildings. The EPA Office of Air Quality Planning and Standards (OAQPS) has set NAAQS for six principal pollutants, which are called criteria pollutants: Carbon Monoxide (CO), Lead (Pb), Oxides of Nitrogen (NOx), Ozone, Particulate Matter (PM_{10} and $PM_{2.5}$), and Sulfur Dioxide (SO_2). The standards are listed at:

https://www.epa.gov/criteria-air-pollutants/naaqs-table

Counties that are known to be violating these standards, for specific pollutants, designated by the EPA as in "non-attainment" with the NAAQS. Counties that are not known to be violating these standards are, for specific pollutants, designated by the EPA as in "attainment/unclassifiable" with respect to the NAAQS. It is important to note while some counties have no on-site air monitoring, EPA will still designate these areas as in "attainment/unclassifiable" based on a variety of submitted data. These areas are still properly called "attainment areas". MGS CNP 1's facility is proposed to be located in Mason County, WV, which has not been designated as "non-attainment" or as "unclassifiable" and is, therefore, designated as an attainment area.

Numerous factors are involved in selecting air monitoring site locations. The ambient air monitoring the DAQ conducts is designed to help assess compliance with federal NAAQS, thereby, protecting air quality throughout the state. Currently, the DAQ operates 14 ambient air monitoring stations located throughout the state, under an air monitoring network plan approved by the EPA. The EPA reviews the monitoring plan to ensure the agency meets the obligations of the air monitoring program. The air monitoring sites are typically located to assess air quality levels based on population exposure, and industry emissions to determine compliance with the NAAQS and background levels. Monitoring equipment and analysis methods must meet Federal Reference Method (FRM) or Federal Equivalent Method (FEM) standards, as well as undergo extensive quality assurance measures, to generate legally defensible data. For sites with both $PM_{2.5}$ FRM and FEM monitors EPA may use both data sets for NAAQS determination. It should be noted that regardless of air monitoring site placement, air quality statutes, rules and regulations are implemented across the state.

The federal NAAQS are established for pollutants considered harmful to public health and the environment. The CAA identifies two types of NAAQS. Primary standards provide public health

protection, including protecting the health of "sensitive" populations such as asthmatics, children, and the elderly. Secondary standards provide public welfare protection, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings. Therefore, meeting NAAQS for ambient air quality means that these health and welfare thresholds are being met.

Locating a monitor in more rural areas is a challenge due to logistics in lack of power supply, lack of property to place a monitor, and lack of adequate resources to operate and maintain the equipment.

The DAQ's statewide air program requires that facilities obtain permits with emission limits on air pollutants that meet state and federal emissions standards. Permitted emission limits are established so that no single facility is allowed to cause or contribute to a violation of NAAQS. This approach also establishes a framework in which aggregate emissions from multiple facilities do not exceed NAAQS. Even in the unfortunate circumstance of a violation of an emission limit at a facility, a NAAQS violation typically does not occur. The DAQ's permits incorporate ongoing parametric monitoring of process conditions to determine if the permitted emissions limits are being met. Compliance determinations with emission limits are made by reviewing records of facilities to determine if production limits are within the permitted range; review of records of control equipment operation; and opacity observations during inspection of the facility. Control equipment is also reviewed during inspections to determine if it is operational and in good operating condition.

Confidential Business Information (CBI)

MGS CNP 1 provided supplementary information to support their permit application which included confidential business information (CBI) submitted under 45 CSR 31, entitled "Confidential Information". Therefore, both a CBI and redacted version of the analysis of the wood chips were submitted. MGS CNP 1 provided this CBI under the requirements of 45 CSR 31, which is the Division of Air Quality (DAQ) regulation that establishes the requirements for claiming information submitted to the DAQ as confidential and the procedures for determinations of confidentiality in accordance with the provisions of W. Va. Code §22-5-10.

The reason for the CBI submittal according to MGS CNP 1 is that the biomass analysis contained information that is between the applicant and vendor provider concerning non sulfur chemical properties of the biomass analysis. Release of this information could cause substantial harm to MGS CNP 1 vender's competitive position in the market. The submission of information any portion of which is claimed to be confidential, a complete set of the information, including the document justifying the claim of confidentiality shall be submitted simultaneously on uncolored paper with the information claimed to be confidential blacked out, and with the words "redacted copy – claim of confidentiality" marked clearly on each such page, so that such a set of information is suitable for public disclosure and provides notice to the public that a claim of confidentiality has been made. DAQ allows for electronic submittals (via email) of redacted permit applications. However, all CBI applications must be submitted via mail or hand delivered.

During the Notice of Application period, the DAQ received one public comment concerning the proposed project, which specifically requested the release of information that has been redacted.

As stated in 45 CSR 31, Section 4, during the course of the DAQ's review of whether the information claimed to be confidential is in accordance with this rule, the DAQ shall consider the following:

- The claim of confidentiality has not expired by its terms, nor been waived or withdrawn;
- The person asserting the claim of confidentiality has satisfactorily shown that it has taken reasonable measures to protect the confidentiality of the information, and that it intends to continue to take such measures;
- The information claimed confidential is not, and has not been, reasonably obtainable without the person's consent by other persons (other than governmental bodies) by use of legitimate means (other than discovery based on a showing of special need in a judicial or quasi-judicial proceeding);
- No statute specifically requires disclosure of the information; and
- Either the person has satisfactorily shown that disclosure of the information is likely to cause substantial harm to the business's competitive position or the information is voluntarily submitted information, and its disclosure would likely to impair the State's ability to obtain necessary information in the future.

Additionally, 45 CSR 31, Section 6, states that no person shall claim as confidential, information concerning the types and amounts of pollutants discharged. "Types and amounts of air pollutants discharged" is defined in 45 CSR 31 Section 2.4. Furthermore, 45 CSR 31B entitled "Confidential Business Information and Emission Data" is an interpretive rule that provides guidance and clarification concerning the term "types and amounts of air pollutants discharged" defined under 45CSR§31-2.4, the DAQ's legislative rule entitled "Confidential Information," and thus what information may not be claimed confidential in accordance with 45CSR§31-6.

The EE/FS and draft permits contained only the information that was provided in the redacted public available information of the permit application. Furthermore, the information is more than adequate to make the appropriate permitting determinations and can be used to determine compliance with all applicable rules and regulations. This includes all necessary monitoring, recordkeeping, reporting, and testing that will be required as part of the proposed draft permit.

The information that claimed CBI does not appear to have been used to estimate the emissions.

Facility Purpose

Commenters inquired as to the purpose of the facility. MGS CNP 1 submitted the air permit application for an off-grid power generation facility with a carbon capture unit to provide electric power to undisclosed operations. The proposed facility will be located off of State Route 62 near Point Pleasant in Mason County.

The air quality issues evaluated relating to MGS CNP 1's proposed construction are outlined in the DAQ's EE/FS made public on August 19, 2025.

Facility Emissions

Commenters inquired about the emissions associated with the facilities. The sources of air emissions, facility-wide emission totals, and rationale for emission estimates can be found in the EE/FS in the ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER section.

One comment questioned or noted the lack of additional detail in estimating the HCl emissions. The DAQ respectively disagrees that the application lacks detail. The applicant only took credit for the use of the dry sorbent injection system (DSI) using sodium bicarbonate as the absorbent. MSG CNP 1's vendor determined that the control efficiency for this DSI would be 97.2% for HCl, which is within a reasonable expectation range for using DSI with sodium bicarbonate.

The used AP-42 emission factors - organic HAPs and HCl from wood residual combustion - didn't include control or just particulate matter controls. Therefore, the particulate matter control discussed in this chapter would not be expected to provide any significance level of control for any of the organic HAPs and HCl. Thus, the applicant should have applied a reasonable reduction factor for the use of the DSI. What the applicant didn't do when estimated HAPs (e.g., HCl) was apply an additional control factor/efficiency for the use of the wet scrubber or the carbon capture unit. Applying an additional reduced factor to the emission rate for an additional control device without exact data can be difficult.

One needs to understand that installing a carbon capture unit is a significant capital expense. The operating temperature of the carbon capture unit will be ideal for acid gases to condense into a liquid form and/or be absorbed with the amine, which will lead to corrosion issues if the acid gases are not removed from the exhaust prior to being routed to the carbon capture unit. Thus, the applicant has proposed additional controls to reduce the potential of acid gases being seen by the carbon capture unit.

Regarding the HAP metals, the applicant did not apply an additional control or removal efficiency for the HAP metals. AP-42 noted for the trace elements, which includes metal HAPs, the data used to develop the emission factors was based on testing of sources with and without particulate matter controls.

Relying on a vendor's guarantees or adjusting the vendor's estimated emission rate is solely at the discretion of the applicant. A vendor's guarantee is simply a contractual promise that the equipment will meet a specific performance standard for the purchaser (applicant). If an applicant does not want to use the equipment vendor's guarantee or recommendation(s) in determining the emissions from the proposed emission unit, that is the applicant's choice.

The DAQ role is to evaluate the proposed emission rates, and the methods used to determine those rates, from the proposed emission unit(s) to ensure the applicant accounted for all

emissions so that the agency can determine which program(s) the proposed emission unit(s) need to be permitted under and whether compliance with the applicable emission standards will be reasonably achieved.

It is important to note the DAQ believes the permit requires adequate demonstrations to ensure the emission unit is a minor source as proposed. The DAQ believes there are sufficient mechanisms in the permit requiring performance testing to demonstrate compliance with the specific emission limitations based on the applicant's emission estimates. Testing is required within 180 days of initial startup and subsequent testing is required at least once every five years thereafter, which is adequate to demonstrate the facility is a minor source of emissions under the respective air programs.

Ammonia (NH_3) & Sulfuric Acid Emissions

Commenters expressed concern regarding ammonia emissions at the facility. One commenter alleged the AEP's James M. Gavin Power Plant located in Ohio was releasing excess amounts of ammonia which led to numerous lawsuits against the AEP and led AEP to settle these lawsuits by buying the town of Cheshire, OH.

The commenter was referring to a 2006 AEP settlement of a lawsuit regarding reporting of sulfuric acid emissions from the Gavin Plant plant. As part of the settlement to resolve lawsuits against the Gavin Plant, AEP agreed to maintain H_2SO_4 emissions with the SCRs in operation at or less than 14 ppm. MGS CNP 1 proposed a concentration of H_2SO_4 emission of just 2 ppm.

The SCR air pollution control device for the biomass boiler requires the introduction of an aqueous ammonia (<20%) solution upstream of the SCR. In regards to ammonia, it is important to note the following:

- Ammonia has no NAAQS that has been established for the compound;
- Ammonia is not defined as a Hazardous Air Pollutant (HAP);
- There are no emission thresholds of ammonia that would define a facility as a major source under either New Source Review (NSR) or Title V regulations; and
- Ammonia is not defined as a regulated pollutant under WV Legislative Rule 45 CSR 13 (§45-13-2.20).

Based on the above, the DAQ does not require potential ammonia emissions to be quantified and included in the facility's PTE and does not require ammonia emissions mitigation requirements. However, the DAQ will, using the authority under WV Legislative Rule 45 CSR 4 - "To Prevent and Control the Discharge of Air Pollutants Into the Open Air Which Causes or Contributes to and Objectionable Odor or Odors", respond to complaints involving objectionable odors from ammonia if confirmed while the facility is operating, and may require mitigation at that time to reduce the odor potential of the ammonia source. An objectionable odor must be determined by the DAQ in the course of an inspection or investigation of an actual odor, and is impossible to prove quantitatively, pursuant to 45 CSR 4, that an objectionable odor will be present before a facility is in operation. In addition, concerns (acute irritation, explosion risk, etc.) over the effects

of ammonia handling and storage within the plant boundary are beyond the authority of the DAQ to regulate (see Statutory Authority of the DAQ above).

Condition 4.1.3. of the permit established specific requirements for the SCR that will be used control to NO_x that pertain to ammonia:

- An ammonia slip concentration of no greater than 3.65 ppm at zero percent oxygen.
- Requires installation of an ammonia injection grid.
    - This grid system must be able to adjust/regulate the amount of ammonia being injected to account for actual exhaust flow characteristics.
- Installation of a permanent sampling grid at the outlet of the SCR.
- Requires annual tuning of the SCR to the NO_x and ammonia limits set by the permit.

Pollutant Harm - Health Conditions

Commenters expressed concern about the potential negative health effects from the proposed facility, including regulated and hazardous air pollutants.

It is the public policy of this state, and the purpose of Article 5 (Air Pollution Control Act) of the West Virginia Code, to achieve and maintain such levels of air quality as will protect human health and safety, and to the greatest degree practicable, prevent injury to plant and animal life and property, foster the comfort and convenience of the people, promote the economic and social development of this state and facilitate the enjoyment of the natural attractions of this state.

The proposed facility meets all applicable rules and regulations as outlined in each respective EE/FS REGULATORY DISCUSSION section. These rules and regulations contain emission standards established by the DAQ and the EPA that EPA has determined to be protective of human health, including sensitive populations. Pursuant to §45-13-5.7, the DAQ shall issue a permit unless a determination is made that the proposed construction, modification, registration or relocation will violate applicable emission standards, will interfere with attainment or maintenance of an applicable ambient air quality standard, cause or contribute to a violation of an applicable air quality increment, or be inconsistent with the intent and purpose of this rule or W. Va. Code §22-5-1 et seq., in which case an order denying such construction, modification, relocation and operation shall be issued. Therefore, all air permit applications must be reviewed to determine if all applicable standards are met. [Note Mason County is in attainment]

There were additional comments concerning the ambient air monitoring and the ability for the public to see the results of this monitoring. The DAQ's 2025 Ambient Air Monitoring Annual Network Plan and SO_2 Data Requirement Rule Annual Report can be viewed at:

https://dep.wv.gov/daq/air-monitoring/Documents/FINAL%20WVDEP%20DAQ%202025%20Ambient%20Air%20Monitoring%20Network%20Plan%206-25-2025.pdf

The DAQ is required to report results of the ambient air monitoring network to the EPA. The EPA has several options to view the reported from the DAQ and other states (e.g., Ohio EPA), which can be found at:

https://www.epa.gov/outdoor-air-quality-data

Pollutant Effect on Animals

Commenters expressed concern regarding the effects of this facility on animal life present in the area. The CAA requires the EPA to establish NAAQS for criteria pollutants considered to be harmful to public health and the environment. Criteria pollutants are those pollutants that are common and found all over the United States. The EPA uses these criteria pollutants as indicators of air quality. The agency establishes two distinct kinds of standards for acceptable concentrations of specific pollutants in the ambient (outdoor) air. Primary standards establish limits to protect public health, including the health of sensitive populations, such as children, the elderly and those with asthma. Secondary standards set limits to protect public welfare, including protection against decreased visibility and damage to *animals*, crops, vegetation and buildings. Such standards have been established for six principal pollutants:

- ground-level ozone (O_3)
- particulate matter (PM_{10} and $PM_{2.5}$)
- sulfur dioxide (SO_2)
- carbon monoxide (CO)
- nitrogen dioxide (NO_2)
- lead (Pb)

Furthermore, West Virginia Code §22-5-1, et. seq. - which states, under §22-5-1 ("Declaration of policy and purpose"), that:

> It is hereby declared the public policy of this state and the purpose of this article to achieve and maintain such levels of air quality as will protect human health and safety, and to the greatest degree practicable, prevent injury to plant and animal life and property, foster the comfort and convenience of the people, promote the economic and social development of this state and facilitate the enjoyment of the natural attractions of this state.

Pursuant to §45-13-5.7, the DAQ shall issue a permit unless:

> a determination is made that the proposed construction, modification, registration or relocation will violate applicable emission standards, will interfere with attainment or maintenance of an applicable ambient air quality standard, cause or contribute to a violation of an applicable air quality increment, or be inconsistent with the intent and purpose of this rule or W. Va. Code §22-5-1 et seq., in which case an order denying such construction, modification, relocation and operation shall be issued. The Secretary shall,

to the extent possible, give priority to the issuance of any such permit so as to avoid undue delay and hardship.

The facility meets all applicable regulatory requirements and emission standards. These standards are explained in detail in the respective EE/FS REGULATORY DISCUSSION section of those documents. Mason County is in attainment status.

Legal Advertisements

Commenters expressed concern about local residents not subscribing to a certain newspaper and what the DAQ's conditions were for posting legal advertisements. As required in §45-13-8.3, at the time an application is made, the applicant shall place a Class I legal advertisement in a newspaper of general circulation in the area where the source is or will be located. This same requirement exists in §45-13-8.4 when the DAQ provides notice of the open comment period on the draft permit documents. *The River Cities Tribune* is located in Mason County, is designated by the West Virginia Secretary of State's Office as a qualified newspaper to accept Class I legal advertisements, and in general circulation in the area where the source is proposed to be located. Therefore, MGS CNP 1 and DAQ met all public notice requirements surrounding these Class I legal advertisements.

Additionally, all DAQ permit applications are listed on DAQ's website at the time of receipt and available for review through AE. The DEP also lists all public notices for all agencies on the DEP website at the following web address:

https://apps.dep.wv.gov/listserv/?window=archive&listID=1

This web address also allows interested parties to sign up to be on the WVDEP mailing list for permitting actions in selected counties.

The DAQ and WVDEP have met and/or exceeded the requirements of 45 CSR 13 for making the general public aware of these permitting actions.

Furthermore, even though not required by 45 CSR 13, when the DAQ held the in-person public meeting to provide information, answer questions, and accept oral comments for the record for this permitting action on October 7, 2025 at the Mason County Court House in Point Pleasant, the DAQ published legal advertisements in *The River Cities Tribune* on September 23, 2025, notifying the public of the meeting. This notification was also made available on DEP's website.

Safety Concerns

Commenters expressed concerns regarding the safety of the facility, and potential malfunctions. Specifically, the commenters mention the CO_2 pipeline leak that occurred in Satartia, Mississippi on February 22, 2020. The DAQ does not permit malfunctions. 45CSR13 does not even contain the word malfunction. Other DAQ rules define malfunction as "a sudden and unavoidable

breakdown of process or control equipment." A source that exceeds a permitted limit due to a malfunction would be in violation of a permitted limit.

The DAQ does not have delegation of 40 CFR 68 - CHEMICAL ACCIDENT PREVENTION PROVISIONS, which remains under EPA's jurisdiction.

For the CO_2 capture unit/pipeline/underground injection, the proposed emission unit (biomass boiler) is not subject to either a permitting program (PSD) or federal regulation (NSPS Subpart TTTTa) requiring control of carbon dioxide emissions and therefore any release of CO_2 emissions due normal operations or malfunction could not be linked as an exceedance or violation of any condition in the permit.

Also, the DAQ does not regulate or permit emissions from pipelines except for surface facilities and/or equipment located on the surface.

Pipeline safety is under the jurisdiction of the Pipeline and Hazardous Materials Safety Administration (PHMSA) of the United States Department of Transportation.

The DAQ cannot take into consideration the location of the facility with regards to the locations of public education institutions or residences in terms of potential risk when making a final decision on any permit application. The Clean Air Act is just one of several environmental protection programs promulgated by Congress. The West Virginia Legislature directed the DAQ to accept the role of adopting specific parts of the Clean Air Act that pertain to stationary sources. There are several other programs that address potential risk due to the operation of a facility in terms of potential hazards on near-by or surrounding communities (e.g., Emergency Planning and Community Right-to-Know Act (EPCRA), Toxics Release Inventory (TRI)). The legislature required the West Virginia Emergency Management to form the State Emergency Response Commission (SERC) which serves as the key player of state-level emergency response coordination. SERC is charged with overseeing and coordinating responses to emergencies, this commission ensures seamless collaboration among various agencies and departments. As part of SERC, key members of the DAQ and DEP are of this commission.

Commenters expressed concerns regarding the underground injection well (e.g., has a geologic and seismic risk study been conducted for Mason County to address the potential for induced earthquakes or aquifer contamination?). The WVDEP - Division of Water and Waste Management's Underground Injection Control (UIC) program has jurisdiction over the UIC program. On February 26, 2025, EPA transferred primacy of the Class VI Wells under the UIC program to the WVDEP.

Commenters expressed concern regarding Water/Wastewater/Underground Injection Issues (e.g., What monitoring requirements will be in place to detect contamination of local drinking water wells and waterways?) The WVDEP Division of Water and Waste Management (DWWM) has jurisdiction over these issues. Contact information for DWWM is provided below:

West Virginia Department of Environmental Protection

Division of Water and Waste Management
601 57th Street SE
Charleston, WV 25304
(304) 926-0495
https://dep.wv.gov/WWE/Pages/default.aspx

Regulatory Requirements

Comments were received regarding the regulatory requirements of the facility and how compliance would be determined. An in-depth discussion of all potential regulatory requirements that were reviewed as part of the permit application review process is included in the EE/FS under the REGULATORY APPLICABILITY section and DAQ Compliance/Enforcement (C/E) Procedures in this document.

Commenters suggested the DAQ did not properly determine the proper/correct source category under the major source permitting rules (PSD and Title V) and federal regulations (Subpart Da). These categories are based on the capacity that the unit can utilize from a fossil fuel supply source. The categories in question are:

- PSD: to be subject to the 100 tpy major source threshold level, a source must be a:
    - Fossil Fuel-fired Steam Electric Plant of More than 250 Million Btu/hr Heat Input, **or**
    - Fossil Fuel Boiler (or combinations thereof) Totaling More than 250 Million Btu/hour Heat Input.
- Title V: to be subject to the requirement to count fugitive emissions in determining Title V applicability a source must be a:
    - Fossil fuel-fired steam electric plant of more than 250 million British thermal units per hour heat input, **or**
    - Fossil-fuel boiler (or combination thereof) totaling more than 150 million British thermal units per hour heat input.
- 40 CFR 60, Subpart Da: To be subject to the subpart the unit must this criteria:
    - Each electric utility steam generating unit that is capable of combusting more than 250 million British thermal units per hour (MMBtu/hr) heat input of fossil fuel (either alone or in combination with any other fuel); and…

The key term in all these categories is either “fossil fuel-fired” or “fossil fuel”. To trigger one or several of these categories a unit must have the capacity/capability to utilize a fossil fuel above the stated threshold.

MGS CNP 1 proposed one boiler with the overall heat input of 944 MMBtu/hr but with a capacity to utilize only 180 MMBtu/hr from a fossil-fuel supply source (natural gas). The rest of the unit's utilization will be from a non-fossil fuel source (wood chips). Thus, the unit (facility) only satisfies one of these listed categories, which is the Title V - Fossil-fuel boilers (or combination thereof) totaling more than 150 million British thermal units per hour heat input. Therefore, fugitive emissions associated with the biomass boiler (i.e., the facility-wide) must be included for Title V applicability purposes.

A comment suggested that the phase "either alone or in combination with any other fuel" should not be limited to only fossil-fuel. The DAQ agrees that other fuels may be pulled in when evaluating applicability. Subpart Da defined an "electric utility steam generating unit" as one that provided more than one third of its potential electric output capacity and more than 25 MW net-electric output to any utility power distribution system. MGS CNP 1 does not plan to connect the BECCS facility to the local electricity grid system. In fact, the sole purpose of the NG Generator is to provide electricity for startup operations of the facility. Thus, the biomass boiler is not an "electric utility steam generating unit" and therefore, is not an affected source under Subpart Da.

The applicant included fugitive emissions in the application, which includes haul roads and equipment leaks. The following table is a summary of the facility's total emissions. None of the annual rates of the individual criteria pollutants listed below are at or above 100 tpy.

Criteria Pollutants (tpy)						
NO_x	CO	SO_2	VOC	PM	PM_{10}	$PM_{2.5}$
90.90	46.48	50.79	55.78	59.09	83.95	75.65

The commenters' contention the DAQ was not using the correct PSD and Title V categories is inaccurate. The annual emissions from the facility will be below both major source threshold levels (100 tpy or 250 tpy) under PSD. The emissions included fugitive emission so that the determination that the facility is a non-major under Title V is correct as well.

Several commenters suggested the facility should be viewed as a "major source" of HAPs, which would make the facility a major source under the Title V Program and make the biomass boiler subject to the Boiler MACT (Subpart DDDDD of 40CFR63). The permit limits the operation of the carbon capture unit to 7,937 hours per year, as proposed by the applicant, which brought the facility-wide total of HAPs to 24.01 tons per year. If this operating limit was removed, which was suggested by another commenter, allowing the applicant to operate the carbon capture unit with no restriction on hours of operation would increase the HAP potential from the unit by 0.85 tons per year which would bring the facility-wide total HAPs up to 24.86 tons per year, which is not greater than 25 tons per year. The DAQ views the proposed source as an "area source" of HAPs with or without the limitation on hours of operation. Given that the limitation does not

impact the facility's status as a "minor source of HAPs", the DAQ had elected to remove this operating limitation on the carbon capture unit from the permit.

Stack Heights

The public asked several questions regarding the height of the stack at the facility and whether there are any specific requirements for them. The applicant listed the stack parameters for all emission points at the facility in Attachment J of the application. The following table is a summary of the stack height and stack diameter for the biomass boiler, cooling tower, and engines.

Source/Stack	Stack Height above Ground Level (feet)	Stack Inner Diameter (feet)
Biomass Boiler - Bypass (w/o CC)	199	11.5
Biomass Boiler - Main (w/CC)	145	6
Cooling Tower	51	33
NG Startup Generator Engine	30	2.5
Firewater Pump Engine	12	1

There is no specific regulation or rule that limits actual stack heights or establishes minimum heights. 45CSR20 establishes "good engineering practice" (GEP) for stack heights and prohibits dispersion techniques above GEP. This state rule prohibits a facility that constructed a stack above GEP from using the actual stack height in a demonstration that requires dispersion modeling to be performed. Essentially that rule prohibits source(s) from constructing a stack in excess of GEP and using the actual stack height in a modeling demonstration to show predicted compliance with ambient air quality standards or that the source does not contribute or cause a predicted exceedance of an ambient air quality standard.

Fuel Source

Several commenters noted that the application did not disclose the source/supplier of the fuel for the biomass boiler. The DAQ focused on properties of the fuel that impact emissions. Typically, these fuel properties are the sulfur content, ash content, moisture content, and calorific value. Sulfur content is nearly directly related to the potential to emit sulfur dioxide. MGS CNP 1 elected to claim the the proposed biomass fuel (wood chips) would meet the sulfur dioxide potential in 40CFR§60.42b(k)(2), which only applies to units that the fuel(s) combusting have a sulfur content that would result in potential (before controls) SO_2 emission rate of 0.32 lb/MMBtu or less.

The DAQ requested additional information to support that the wood chips had a potential to emit 0.32 lb of SO_2/MMBtu or less. MGS CNP 1 provided a confidential version and redacted version of an ultimate analysis of the proposed wood chips, which noted that the wood has a sulfur content of 0.01% by weight on a wet basis. The information that MGS CNP 1 claimed as confidential business information (CBI) did not include the sulfur content of the wood chips. Thus, the sulfur content of 0.01% by weight was made available to the public and not protected under the CBI request.

Because the claim excluded the sulfur content of the wood chip, the claimed confidential information was not used or not needed in reviewing this application. Further, the emission data used to develop and determine the emissions from the biomass unit were provided to the public, as part of the application. The CBI has no impact on the DAQ's ability (or the public's ability) to effectively determine the applicable provisions of Subpart Db that would apply to the unit given that the sulfur content was excluded from the information protected in the CBI claim.

The source of fuel is not truly important unless the material (fuel) has been discarded (sent off for disposal). EPA has already defined that "clean cellulosic biomass" is:

> "Those residuals that are akin to traditional cellulosic biomass, including, but not limited to: Agricultural and forest-derived biomass (e.g., green wood, forest thinnings, clean and unadulterated bark, sawdust, trim, tree harvesting residuals from logging and sawmill materials, hogged fuel, wood pellets, untreated wood pallets); urban wood (e.g., tree trimmings, stumps, and related forest-derived biomass from urban settings); corn stover and other biomass crops used specifically for the production of cellulosic biofuels (e.g., energy cane, other fast growing grasses, byproducts of ethanol natural fermentation processes); bagasse and other crop residues (e.g., peanut shells, vines, orchard trees, hulls, seeds, spent grains, cotton byproducts, corn and peanut production residues, rice milling and grain elevator operation residues); wood collected from forest fire clearance activities, trees and clean wood found in disaster debris, clean biomass from land clearing operations, and clean construction and demolition wood."

Further, EPA has determined that "clean cellulosic biomass" is a fuel if the material is not discarded.

In the application, the applicant did not disclose the source, or location that wood chips originated from, the species of wood(s), or supplier of the wood chips. The DAQ has to take the information in these applications at face value unless there is other reasonably available information that contradicts the information in the application. Given the applicant only provides limited information concerning the wood chips, the DAQ does have the authority to establish reasonable conditions to ensure compliance with the applicable regulations promulgated under the Clean Air Act. This is commonly referred to as "gap filling".

Which the DAQ did by requiring the fuel for the biomass boiler to meet the definition of "clean cellulosic biomass" as defined in 40 CFR 241.2. 40 CFR 241.2. defines clean cellulosic biomass" as:

> "means those residuals that are akin to traditional cellulosic biomass, including, but not limited to: Agricultural and forest-derived biomass (e.g., green wood, forest thinnings, clean and unadulterated bark, sawdust, trim, tree harvesting residuals from logging and sawmill materials, hogged fuel, wood pellets, untreated wood pallets); urban wood (e.g., tree trimmings, stumps, and related forest-derived biomass from urban settings); corn stover and other biomass crops used specifically for the production of cellulosic biofuels (e.g., energy cane, other fast growing grasses, byproducts of ethanol natural fermentation processes); bagasse and other crop residues (e.g., peanut shells, vines, orchard trees, hulls, seeds, spent grains, cotton byproducts, corn and peanut production residues, rice milling and grain elevator operation residues); wood collected from forest fire clearance activities, trees and clean wood found in disaster debris, clean biomass from land clearing operations, and clean construction and demolition wood. These fuels are not secondary materials or solid wastes unless discarded. Clean biomass is biomass that does not contain contaminants at concentrations not normally associated with virgin biomass materials."

The DAQ requires the wood chips to meet this definition to ensure that not just any kind of wood chips will be used as fuel given that the source of the fuel is undisclosed in the application and to ensure that the biomass boiler would not unknowingly be combusting unauthorized fuels such as solid waste.

Several commenters questioned how this was going to be demonstrated. The permit requires the permittee to develop a fuel analysis plan to ensure the sulfur content of the wood chips and records of the amount of wood chips consumed in terms of energy. As a result of the public comments, the DAQ determined additional information would be needed to ensure the wood chips are meeting the above definition. Therefore, a provision has been added to the permit requiring the following information concerning the wood chips for each supplier of wood chips.

- Name of supplier;
- Location of supplier;
- Supplier source of the wood;
    - Is the source of the wood from construction and demolition site(s)?
        - If yes, describe how contaminants were separated from the clean biomass;
    - Is the source of the wood from a disaster?
        - If yes, describe how contaminants were separated from the clean biomass;
    - Certified statement from the supplier certifying the delivered wood chips are "clean cellulosic biomass" per 40 CFR 241.2.

- Copies of all analyses conducted on the wood chips to include analysis conducted by the supplier and permittee.
- Date and amount of wood chips received.

Lack of Equipment Details

The DAQ often receives permit applications that don't include exact specific information on proposed emission units and/or control devices. These applications are reviewed to see if there is sufficient information to:

- Determine the potential emissions.
- Determine if the proposed emission units on an individual basis is subject to any applicable emission standards.

The application that MGS CNP 1 submitted fits in this category. The reviewing engineer must rely on the basic capacity proposed into the application to verify the potential emissions from an emission source and determine what the applicable rule and/or regulation if any (e.g., maximum heat input of a boiler, power output of engine).

Numerous individual commenters specifically note that the turbines were not identified and could not understand how the emissions could have been determined without the manufacturer and model note disclosed. For the record, MGS CNP 1 only proposed a single steam turbine, which is significantly different from a combustion turbine.

One commenter was concerned regarding the use of control efficiency for the oxidation catalyst for individual organic hazardous air pollutants (HAPs) due to a lack of detail regarding the control device. The permit requires performance testing for carbon monoxide, 23 organic HAP compounds, and 2 other non-VOC compounds (methane and ethane), which the applicant noted in the application would be controlled by the oxidation catalyst. A demonstration of compliance with the limits in the permit will ensure the claim of the performance (reduction in emissions) for these proposed control devices are met.

The permit establishes a minimum reduction efficiency of 60% for CO and VOCs. Therefore, the permit requires initial performance testing upstream of the oxidation catalyst to ensure the claim of reduction is being met.

Cumulative Impact-Assessement

The DAQ received several requests to conduct cumulative impact-assessment with other industrial sources in the area. Under the minor source permitting program, cumulative impact-assessments are not required. Under the major source permitting program (PSD), thresholds are established for a demonstration that the emissions from the project are not significant or a demonstration that emissions from the project and near-by major sources with a representative background concentration are less than the National Ambient Air Quality Standard (NAAQS). In these major source permitting demonstrations, the background

concentration is added to the modeled or predicted impact to account for other sources of air pollution which includes non-major or minor sources.

The MGS CNP 1 proposed project does not trigger the PSD thresholds . The comments did not include any additional information to justify such a requirement.

Carbon Capture

Several of the comments asked a variety of questions regarding the carbon capture unit. The DAQ authority is limited to the impacts the carbon capture unit has with regards to the regulated pollutants and other activities required to operate the unit and whether those activities required additional emission unit(s) for the overall operation of the carbon capture unit (e.g., source of the heat energy amine & glycol regeneration, type of driver used to power the compress the capture CO_2, etc.).

One comment asked whether the captured CO_2 will be injected underground? The application only indicates that the captured CO_2 will be transported off-site through a pipeline at 1,850 psig and 100^o F.

Another comment asked what is the removal rate of CO_2 from the exhaust? The application notes that the capture efficiency of the carbon capture unit to be greater than 95%.

Several comments noted AEP's pilot CO_2 capture project at the Mountaineer Power Station had several issues and questioned whether the technology to capture CO_2 is fully developed. It should be noted that AEP used Alstom Chilled Ammonia Process which uses a chemical solvent (ammonia) but is vastly different from an amine unit. MGS CNP 1 proposed to capture the CO_2 using an amine unit with a mixture of MEA and MDEA.

For the carbon capture unit proposed, the DAQ does not see a connection to increased pollutant emission rates if the amine unit does not work as MGS CNP 1 expects to do so.

Another comment raises the concern about whether the project will deliver the climate benefits it claims. The DAQ did not take into account the benefit of reducing CO_2 emissions since CO_2 is not a regulated pollutant.

Monitoring

Several comments insisted the permit should require more stringent monitoring for the criteria pollutants. The permit includes all of the monitoring requirements established by applicable state rules and federal regulations. A continuous emission monitoring system (CEMs) is required for NO_x. For PM, the federal regulation allows for the monitoring of the fabric filter control device (baghouse) through the use of bag leak detector system (BLDS) which is operated on a continuous basis. The federal regulation requires the permittee to develop a monitoring plan to determine the sulfur content of the fuel to determine the SO_2 potential (before controls).

The permittee has proposed a robust configuration of add-on controls, which limits the potential emissions from the biomass boiler to below major source threshold levels. The DAQ cannot simply require CEMs for each pollutant without cause or justification. These comments offer no additional justification other than lack of specific information in the application on the equipment vendor and/or model of the emission unit.

Since the proposed emissions are relying on these add-on controls, the permit required a variety of operating parameters to be monitored and the permittee is required to establish operating limits for these operating parameters through performance testing. Once every five years, the permittee is required to conduct subsequent performance tests to verify compliance and verify or re-establish the operating limit for these operating parameters.

Some of the comments raised were issues regarding toxic pollutants, which the DAQ assumed to be HAPs, and that the permit lacked monitoring of them. There are 188 pollutants which the Clean Air Act classifies as "Hazardous Air Pollutants" (HAPs). The DAQ can not simply require a source test for all HAPs, which would be deemed unreasonable. The permit requires initial and subsequent testing for 24 individual HAPs. Also, there were concerns that the organic HAPs were being underestimated. The permit establishes both an hourly total HAP limit as well as an hourly total organic HAP limit. The primary control device for the organic HAP and the emission estimate of these organic HAPs was based on 60% reduction of CO and VOCs across the oxidation catalyst. As a result of these comments, the DAQ included an additional requirement for an initial demonstration of the 60% reduction of CO and VOCs across the oxidation catalyst through performance testing.

The carbon capture unit is a source of HAP emissions due to potential degradation of the amines. To address these additional concerns of HAP emissions from the carbon capture unit, the permit will require weekly sampling and analysis of the lean amine for these components and replace the amine as soon as possible (See Conditions 4.1.7.c., 4.2.9 and 4.2.10.).

General Response Summary

- In response to all comments that referenced substantive non-air quality issues, the APCA and 45 CSR 13 do not grant the DAQ authority to take into consideration such issues in determining whether to issue or deny the permit;
- The requirements of 45 CSR 13 require the DAQ to, when denying a permit, explicitly state the reason pursuant to the allowable conditions under §45-13-5.7.;
- An issued permit is the beginning of the involvement of the DAQ with a source. After issuance, a facility will be subject to inspections to determine compliance with the requirements as outlined in the applicable permit;
- With respect to the quality of the ambient air in Mason County, the EPA has designated the county as in attainment/unclassifiable with all the NAAQS which are established by EPA and designed to protect the public health and welfare;
- The DAQ has determined that the proposed MGS CNP 1 facility are properly defined as a minor stationary source;

- The CBI submitted by MGS CNP 1 was reviewed by the WVDEP and it was determined that the information that was claimed CBI by MGS CNP 1 satisfied the necessary requirements to be deemed CBI and will be maintained as such;
- The original 30-day public comment period that ended on September 18, 2025 was extended until 5:00 P.M. on October 8, 2025; and
- The DAQ found that additional requests to extend beyond the October 8, 2025 deadline unjustified and elected not to extend the comment period beyond the October 8, 2025 closing date.

SPECIFIC RESPONSE TO COMMENTS

The following section provides responses to the specific comments that were not considered to be answered under the General Response to Comments Section. Any comment not found here was determined to be addressed in the General Response to Comments section or was found to be not related to the application in the jurisdiction of the DAQ.

General Comments

Comment 1:

Delay or better yet deny the Air Quality Permit secondary to lack of formal disclosure of the wood-chips/wood that will be burned. The EPA recommends to avoid burning particle board, coated, painted, pressure-treated, and moldy wood. Inappropriate wood materials that are burned can release toxic fumes and substances like dioxins and fine particulate matter into the air. These fine particles can enter the lungs, causing bronchitis, pneumonia, asthma, and other serious respiratory and heart issues. Due to the fact that the company did not disclose in their permit the type of wood products that will be burned, this should warrant the delay/denial of the permit due to the potential air quality concerns that could be created if appropriate wood items are not utilized.

Response

The applicant did not state what species of wood, source of the wood, or any other specifics regards the wood chips to be used as solid fuel in the biomass boiler. To ensure that waste wood or treated wood is not being used as fuel, the DAQ required the solid fuel (wood chips) to meet the definition of "clean cellulose biomass" from 40CFR241.2 which means:

"those residuals that are akin to traditional cellulosic biomass, including, but not limited to: Agricultural and forest-derived biomass (e.g., green wood, forest thinnings, clean and unadulterated bark, sawdust, trim, tree harvesting residuals from logging and sawmill materials, hogged fuel, wood pellets, untreated wood pallets); urban wood (e.g., tree trimmings, stumps, and related forest-derived biomass from urban settings); corn stover and other biomass crops used specifically for the production of cellulosic biofuels (e.g., energy cane, other fast growing grasses, byproducts of ethanol natural fermentation processes); bagasse and other crop residues (e.g., peanut shells, vines, orchard trees, hulls, seeds, spent grains, cotton byproducts, corn and peanut production residues, rice milling and grain elevator operation residues); wood collected from forest fire clearance activities, trees and clean wood found in disaster debris, clean biomass from land clearing operations, and clean construction and demolition wood. These fuels are not

secondary materials or solid wastes unless discarded. Clean biomass is biomass that does not contain contaminants at concentrations not normally associated with virgin biomass materials."

The definition clearly prohibits the specific materials that the comment noted as inappropriate wood materials. No change to permit is required.

Comment 2
The plant would create more traffic to transport materials to said plant (via train, truck, boat), further impacting air quality in the area.

Response
45CSR13 only requires sources to determine the fugitive particulate matter from vehicle traffic on plant controlled road ways. The DAQ does not have the authority to take into consideration the impact on the local traffic patterns. Further, the DAQ only has the authority to regulate stationary sources cars, trucks, trains, and boats are classified as "mobile sources" and are not under the jurisdiction of the DAQ.

Comment 3
Under section 4.10.4, is the refuse burning portion of the process covered anywhere in the prevention and control of particulate matter air pollution from manufacturing process and associated operations?

Response

The DAQ is not sure exactly what the particular state rule the comment is referring to. Refuse burning is not covered by Rule 7 - CONTROL OF PARTICULATE MATTER AIR POLLUTION FROM MANUFACTURING PROCESSES AND ASSOCIATED OPERATIONS. Burning of refuse could either be subject to Rules 18 or 6, which will depend on the classification, makeup, and/or origin of the refuse.

Comment 4
Per 4.10.6, 45CSR11: Director, please request a stand by plan to develop outlining procedures to be taken in the event of emergency episodes.

Response
The permit already requires the permitted facility to develop a standby plan in accordance with the objectives in the rule.

COMMENTS REGARDING APPLICABILITY

Comment 1
Any new source of air emissions constructed in West Virginia is required to get pre-construction air permits, where the exact type of permit depends on whether the source's expected emissions exceed certain air pollution thresholds. See generally 45 CSR §§ 13 and 14. Specifically, a biomass fired boiler for the purpose of generating electricity not for sale that plans to construct a

new source in an area that meets all national ambient air quality standards (such as Mason County, West Virginia) is required by the federally approved West Virginia state implementation plan ("SIP") to get a PSD permit prior to construction and initial operation if it is a "major stationary source" of air emissions, which is defined as "any stationary source which emits, or has the potential to emit, two hundred fifty (250) tons per year or more of any regulated NSR pollutant." 45 CSR § 14 – 2.43.b; see also 42 U.S.C § 7479(1). A PSD major source must control emissions through application of the best available control technology ("BACT"), which is an emission limit "based on the maximum degree of reduction for each regulated NSR pollutant which would be emitted from any proposed major stationary source or major modification which the [WVDEP] Secretary, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant." 45 CSR §§ 14 – 8.2 and 2.12; see also 42 U.S.C §§ 7475(a)(4) and 7479(3). In addition to BACT limits, PSD permits for major stationary sources must also meet other requirements, such as conducting air quality analysis of the facility's emissions on regional air quality and continued monitoring for such impacts. 45 CSR § 14 – 7.2(d)-(e) and 11; see also 42 U.S.C § 7475(a)(3) and (7).

West Virginia law defines sources that are not PSD "major stationary sources" but can emit, or have the potential to emit, more than 10 but less than 250 tons per year ("TPY") of specific regulated pollutants to be a "stationary source" of air pollution. 45 CSR § 13 – 2.24. Such sources are not subject to PSD permitting requirements but are instead required to obtain a permit to construct, modify, relocate, and operate from WVDEP ("pre-construction permit"). 45 CSR § 13 – 5.1. Such permits are commonly referred to as a "minor source" permit.18 West Virginia law does not dictate any specific terms that must be included in a minor source permit, but instead states that WVDEP "may impose any reasonable condition," such as "source-specific emission limitations, limits on the hours of operation or production rates, or other constraints to minimize air pollutant discharges," installation of air pollutant monitoring devices, periodic emissions reporting, and enforcement conditions. 45 CSR § 13 – 5.10.Accordingly, determining whether a source such as MGS CNP 1 is subject to a major or minor source pre-construction permit depends on its "potential to emit," or PTE, which the West Virginia SIP defines as:

> [T]he maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed shall be treated as part of its design only if the limitation or the effect it would have on emissions is federally enforceable or is enforceable by the Secretary in any permit and/or consent order issued by the United States Environmental Protection Agency or by the Secretary.

see also 42 U.S.C § 7479(1). A PSD major source must control emissions through application of the best available control technology ("BACT"), which is an emission limit "based on the maximum degree of reduction for each regulated NSR pollutant which would be emitted from any proposed major stationary source or major modification which the [WVDEP] Secretary, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant." 45 CSR §§ 14 – 8.2 and 2.12; see also 42 U.S.C §§ 7475(a)(4) and 7479(3). In addition to BACT limits, PSD permits for major stationary sources must also meet other requirements, such as conducting air quality analysis of the facility's emissions on regional air quality and continued monitoring for such impacts. 45 CSR § 14 – 7.2(d)-(e) and 11; see also 42 U.S.C § 7475(a)(3) and (7).

45 CSR § 14 – 2.58. This definition mirrors the federal definition of potential to emit, which requires that such physical or operational changes be "federally enforceable" when assessing their impact on determining whether a source is subject to the major source permitting requirements under the Clean Air Act. 40 CFR §§ 52.21 (b)(4). WVDEP uses a very similar definition in the minor source program, defining PTE to be "the maximum design capacity of a stationary source or emissions unit to emit a pollutant under its physical and operational design," where any physical or operation limits to reduce PTE, "including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted," are only treated as part of the design if the limit or its emission effect "is enforceable by the Secretary and U. S. EPA in any permit or consent order." 45 CSR § 13 – 2.19.

In addition to PSD permitting requirements, sources of air emissions in West Virginia must also apply for a Title V operating permit if the pollution emissions exceed the major source thresholds of 100 tpy of criteria pollutants, 10 tpy of any individual HAP, or 25 tpy of combined HAPs. 45 CSR §§ 30 – 2.26, 3.1.

Where a facility relies on such physical or operation limits to reduce its PTE below major source permitting threshold under either the PSD or Title V permitting program, the resulting permit is usually referred to as a synthetic minor permit. As EPA has clearly stated, in order for a synthetic minor permit to avoid major source requirements for PSD pollutants – such as particulate matter ("PM") , volatile organic compounds ("VOCs"), or oxides of nitrogen ("NOx") – or HAPs emissions, the minor source permit must include sufficient terms and conditions such that the source cannot lawfully exceed the limit.14 An emission limit can only be relied upon to restrict a source's PTE if it is legally and practicably enforceable, which means the permit must specify "how emissions will be measured or determined for purposes of demonstrating compliance with the limit."15 The terms must also make it possible for regulators (i.e., WVDEP and EPA) and the public to determine a facility's compliance with those terms and bring legal action for any noncompliance.16 If a synthetic minor source permit does not have adequate permit limitations, the facility would be considered a major source and subject to the more stringent requirements of the major-source permitting programs.17

For HAPs, a source is major source subject to the federal emission rules and Title V permitting requirements if its potential to emit is greater than or equal to10 tpy of any single HAP or greater than or equal to 25 tpy of combined HAPs. 42 U.S.C. §§ 7412(a)(1), 7661(2); 40 C.F.R. §§ 63.2, 70.2. This determination must include fugitives and associated units. See 40 C.F.R. § 63.2 (definitions of fugitive emissions, major source, and potential to emit). Where the record is ambiguous or relies on assumptions not embedded in enforceable permit limits and monitoring, WVDEP must either deny or re-notice with corrected terms.

Response

The DAQ disagrees with the commenter. The source (MGS CNP 1) proposed controls and control measures for the proposed sources at the facility (BECCS) that limit the potential emissions to below the major source threshold levels for criteria pollutants, and therefore, MGS CNP 1 requested a permit through our minor source permitting program (45 CSR 13), which the EPA recognized as federally enforceable (See Federal Register Citation #: 83 FR 50266), to make the proposed controls federally enforceable.

The source is not a synthetic minor as alleged by the commenter. The use of controls does not make a source a synthetic minor source unless the applicant elects to limit operations to remain below the major source threshold levels. Synthetic minor sources are sources that have requested a specific limit, usually an operating limit (e.g., hours of operation) or other clearly measurable parameter that can be linked to emissions.

The major source permitting programs works in two ways. First, new major sources or major modifications of existing major sources are required to install controls that have been evaluated based on a top down evaluation approach, which is referred to as the Best Available Control Technology (BACT). This does mean that these sources are actually accepting lower limits or limits directly representative of the control devices. Rather, limits that are comparable to other BACT determinations on a case-by-case basis.

Second, the major source permitting programs work indirectly by encouraging sources to propose controls or operate control devices to a level of control that would not otherwise be required with emission limits through the recognized permitting program that is federally enforceable. Taking the approach outlined in the comment, there is no reason for the State of West Virginia or any other state/local air agency to develop a federally enforceable permitting program.

The permit establishes short-term and/or long-term emission limits for the criteria pollutants and hazardous air pollutants. The permit establishes credible means to demonstrate compliance with these limits through monitoring and performance testing requirements. Further, the permit establishes interim operating parameter limits for the proposed controls until the permittee can establish actual operating parameters based through performance testing. The source is required to verify or re-establish new parameters through performance testing once every five (5) years.

Comment 2
This is a Major Source of HAPs and the Major Source Boiler Rules (40 CFR 63, Subpart DDDDD) and Title V Permitting Requirements Apply.

Organic HAPs Were Improperly Scaled to a VOC Factor

The Applicant adjusted the organic HAPs emission factors by multiplying the ratio of vendor guaranteed VOC emission factors to the AP-42 VOC emission factor. DAQ questioned why HAPs were reduced by 88% when a VOC removal efficiency of 60% was applied for VOC emissions. The Applicant pointed to vendor guarantees for this reduction, but the vendor guarantees are not provided in the record. The applicant states they don't have these guarantees because a vendor has not been selected, but that these numbers are based on minimum guarantees provided by vendors. These claims cannot be substantiated by either WVDEP or the public without the vendor guarantees and should be rejected as a result.

Even slight modifications to the HAPs assumptions push this facility into major source territory because these reductions drastically reduce both formaldehyde and HCl—the two most prevalent HAPs here. In addition to the missing vendor guarantees, the Applicant also appear to be incorrectly applying general VOC-based emission factors to speciated organics. AP-42 Table 1.6-3 lists emission factors for general organic VOCs but also separate, specific emission factors for HCl and Formaldehyde emissions, and the footnote in AP-42 Table 1.6-3 for VOCs states that the factor for VOCs is the sum of all factors in the table except HCl, Formaldehyde, and some others. As a result, it is inappropriate to use the scaled-VOC Factor when determining the PTE of Formaldehyde and HCl.

Because the Applicant does not supply adequate support for its emissions factors, and because use of appropriate estimates would place this facility well into major source category for HAPs, the Major Source Boiler Rule applies. This will require additional MACT technologies, testing, monitoring, recordkeeping, and reporting that must all be federally enforceable and in line with the Major Source Boiler Rule, as well as making this project a Title V major source.

Response
The applicant adjusted the organic HAP factors from AP-42 by applying a ratio of the biomass boiler vendor's guaranteed VOC emission factor of 0.002 lb/MMBtu to the AP-42 VOC emission factor of 0.017 lb/MMBtu.

$$\frac{VOC_{Vendor}}{VOC_{AP-42}} - 1 \rightarrow \frac{0.002\ \frac{lb}{MMBtu}}{0.017\ \frac{lb}{MMBtu}} - 1 = 0.882$$

The applicant used the controlled VOC rate provided by the vendor which accounted for the combustion efficiency of the biomass boiler and the oxidation catalyst. It should be noted that the AP-42 listed the VOC factor as a "D" Emission Factor Rating. "D" and/or "E" rating suggest less reliable data from a small number of sources or a less representative sample.

Less than 14% of the identified organic HAPs in Table 1.6-3 has an "A" Emission Factor Rating and 20% of these identified organic HAPs are listed at a "B" rating. 36% of the organic HAPs

are listed with a “C” rating with the rest of the organic HAP emission factors rated with a “D” rating.

It is the responsibility of the permittee to evaluate the quality of the emission data when estimating the potential emissions. Applicants are encouraged to use the best available information to estimate the emissions from their proposed sources. One needs to take a deeper look when using AP-42 Emission Factors to estimate potential emissions from emission units. For the speciated organic emission factors in AP-42, AP-42 didn’t take into account the design of the combustion unit (boiler) and noted the factors for boilers with or without particulate matter controls.

The DAQ believes no further justification of the applicant's use of their adjustment factor for the organic HAP emissions for the combustion related emission from the biomass boiler is warranted.

In addressing the concern that the permit does not contain sufficient means in demonstrating that the source is an area source of HAPs, first the permit will be updated to require a minimum destruction efficiency for the oxidation catalyst regarding CO and VOC emissions (See Condition 4.1.4.a. of the final permit). Second, the permit will require additional testing to prove that the oxidation catalyst is achieving the stated level of control as listed in the application (See Condition 4.3.8. of the final permit).

Also, nitrosamine, which is a HAP, was added to the list of individual HAPs to be tested by the permit (See Table 4.3.3. of Condition 4.3.3. of the final permit). This HAP (nitrosamine) should have been included based on the criteria list in the EE/FS of any HAP having the potential to emit a rate greater than 0.01 tons per year.

The source of the HAPs when the carbon capture units are operating are due to the degradation of the amines. The permit already required testing before and after the carbon capture unit for these HAPs. The testing requirement in Condition 4.3.3.g. will be adjusted to require the permittee, to conduct testing upstream and downstream of the carbon capture unit, to be conducted with the capture unit operating at the highest removal rate for CO_2.

The Condition 4.3.3. required testing of the biomass boiler operating at three different loads. The condition will be rephased with a requirement to conduct testing with the boiler operating at no less than 90% of full load conditions with utilization from natural gas at the lowest level that is representative of future operation or lowest level from the previous 24 months of actual operation.

The permit will require the permittee to monitor the amines used in the carbon capture unit for actual signs of degradation in an effort to minimize the formation and release of HAPs (See Conditions 4.1.7.c. and 4.2.9.)

In summary, the facility is an “area source” of HAPs, and therefore, the facility is subject to Subpart JJJJJJ of Part 63 (Boiler GACT). The emission limits in the permit are more stringent

than the emission standard in the Boiler MACT (e.g., CO at 130 ppm corrected to 3% O_2, HCl at 0.02 lb/MMBtu), the applicable standard if the unit was located at a "major source" of HAPs. The proposed concentration of CO after the oxidation catalyst would only be 10% of the allowable CO concentration from the Boiler MACT. The proposed HCl rate after the DSI w/baghouse is just over 6% of the allowable HCl rate established under the MACT.

The filterable PM limit is the only pollutant regulated under the Boiler MACT that might result in a decrease in emissions. The only differences are that the source would have to test for mercury and would not be required to conduct testing for any of the organic HAP pollutants.

Comment 3
This is a PSD and Title V Major Source of PM and NOx Emissions.

The PSD Major Source Threshold for Criteria Pollutants for this Facility should be 100 tpy. The Applicant asserts that this facility should be subject to the 250 tpy threshold for criteria pollutants instead of the 100 tpy threshold. This is incorrect as explained below. The Applicant, and the Permit Writer, both base this reasoning on the fact that the facility will not be burning at least 250 MMBtu/hr of fossil fuel. But this does not tell the full story. The Applicant correctly states the language in 45CSR14 — 2.43(a) but ignores what "(or combination thereof)" means. Application at p. 16. Combination thereof does not refer to a combination of fossil fuels. Rather, it refers to a boiler, or boilers, that reach a heat input of at 250 MMbtu/hr utilizing fossil-fuels. Additionally, the "or combination thereof" distinction is not made for fossil-fuel fired steam electric plants, which indicates that this was an intentional choice about how boilers that utilize multiple fuel sources should be regulated. Here, the sole boiler reaches a heat input greater than 250 MMBtu/hr while utilizing fossil-fuels and woody biomass. As a result, the 100 tpy threshold should apply for criteria pollutants.

Response
45 CSR 14 list the two categories in question as:

- Fossil Fuel-fired Steam Electric Plants of More than 250 Million Btu/hr Heat Input.
- Fossil Fuel Boilers (or combinations thereof) Totaling More than 250 Million Btu/hour Heat Input.

It is clear that the first category would not apply. The unit only has the capacity of 180 MMBtu/hr heat input from natural gas. The DAQ can see how the commenter may be confused as to the applicability of the second category. This category includes any combination of fossil-fuels (coal, gas, and oil) being fired in a boiler with a total heat input of the combined fossil-fuels greater than 250 MMBtu/hr. Regardless, the facility's potential to emit is less than 100 tpy with fugitive sources included and therefore is not major whichever threshold is evaluated for major source applicability under 45 CSR 14.

Comment 4
The PM and NOx Emission Estimates Are Not Supported in the Record.

The Applicant estimates that uncontrolled PM emissions from this project would exceed 3,400 tpy and NOx emissions would exceed 880 tpy, with most emissions arising from operation of the biomass boiler. The Applicant then reduced these PM and NOx emissions to less than 90 tpy each after using emissions factors for application of various controls based on vendor guarantees and an "adjusted AP-42 emission factor for condensable PM" based on "test data collected from operating units."19 While the application includes a spreadsheet that purports to provide the test data (Application, Table N-1), the application does not include the specific vendor guarantees or any information regarding the names, locations, fuels, and other potentially pertinent information for these other operating units. Without this information, neither WVDEP nor the public can verify the accuracy of these factors and whether it is reasonable to rely on them in calculating the NOx and PM PTE for this facility. This lack of information is especially problematic for the estimation of condensable PM, since the emission factor of 0.008 lb/MMBtu used in the application and relied upon by WVDEP is less than half the AP-42 emission factor of 0.017 lb/MMBtu. If even a small adjustment were made to these PM and NOx emission factors, the project would be both a PSD and Title V major source. WVDEP cannot issue this minor source permit unless and until the Applicant can provide all relevant information needed to confirm that the emissions of NOx and PM are below the Title V and PSD major source thresholds.

Response
45 CSR 13 or 45 CSR 14 does not specifically require sources to determine the potential emissions of their emission units using AP-42. These rules simply require sources to determine their potential emissions. The fact that the Table 1.6-2 of AP-42 does not list any data for fluidized bed combustors under the NO_x Emission Factor means the source needs to seek the emission data from other sources of data.

The applicant specifically noted in the application the fairly high moisture content in their fuel (average moisture content of 45%). Thus, the DAQ would not consider using NO_x emission factors for dry wood-fired boilers from AP-42. The same NO_x emission factor is listed for the Bark/bark and wet wood/wet wood-fired boilers as well as industrial wood/bark-fired boilers of 0.22 lb/MMBtu. At minimum, reduction efficiency of 90% is easily achievable for SCR. Using this information, a wood-fired unit with a heat input of 944 MMBtu/hr would have a potential NOx rate of 90.96 tpy without any limitation on heat input or operating schedule, which is comparable to what the applicant proposed of 90.42 tpy.

The supporting information provided by the commenter noted that the applicant was looking for information in terms of their controls with regard to condensable particulate matter emissions. The applicant identified a set of data, which was included with the application, and used the median or 50% percentile of this data to determine the condensable fraction (portion) of PM_{10} and $PM_{2.5.}$

The proposed control devices DSI w/fabric filter, caustic soda (wet) scrubber, and carbon capture unit is not representative of any of the listed controls in Table 1.6-1 of AP-42. This does not mean the use of the proposed control devices is inappropriate, but that it was not evaluated by the EPA when developing the latest version of Chapter 1.6 of AP-42. The applicant provided

sufficient information to quantify the associated emissions from the proposed emission units taken when the control devices are into consideration .

Comment 5
NSPS for the Boiler

The Applicant correctly identifies that the facility must comply with all applicable provisions of 40 CFR 60 Subpart A.

> i. NSPS Subpart Da – Standards of Performance for Fossil-Fuel-Fired Steam Generators.

The applicability of Subpart Da for electric utility steam generating units built after September 18, 1978, states:

(a) Except as specified in paragraph (e) of this section, the affected facility to which this subpart applies is each electric utility steam generating unit:

> (1) That is capable of combusting more than 73 megawatts (MW) (250 million British thermal units per hour (MMBtu/hr)) heat input of fossil fuel (either alone or in combination with **any other fuel**) ....”

40 CFR 60.40Da(a). The Engineering Evaluation states that this provision does not apply because “the unit will only have the capacity to combust 180MMBtu/hr of natural gas (fossil fuel) which is less than the trigger level of 250MMBtu/hr.” This contradicts a plain reading of Subpart Da because the regulation is applicable if the heat input is met when fossil fuel is used “either alone or in combination with **any other fuel**.” Id. Here, natural gas is being utilized, and it is being used in combination with biomass, such that the trigger level is well above 250 MMBtu/hr, with an average heat input from natural gas and biomass at 414.3 MMBtu/hr. Application, Table N-1. As a result, the reasoning provided for excluding this regulation fails.

Response
The DAQ may have misinterpreted/overlooked the phrase “either alone or in combination with any other fuel” in this application. The comment’s point is moot when one looks at the definition of “ electric utility steam generating unit” as defined in Subpart Da as:

> *Electric utility steam-generating unit* means any steam electric generating unit that is constructed for the purpose of supplying more than one-third of its potential electric output capacity and more than 25 MW net-electrical output to any utility power distribution system for sale. Also, any steam supplied to a steam distribution system for the purpose of providing steam to a steam-electric generator that would produce

electrical energy for sale is considered in determining the electrical energy output capacity of the affected facility.

The unit will not be supplying any portion of the potential electrical output for sale. The draft permit prohibits this (See Condition 4.1.1.m.). Affected sources under Subpart Da must be an "electric utility steam-generating unit" with more than 250 MMBtu/hr heat input from fossil fuels (either alone or in combination with any other fuel).

Comment 6
The Applicant Correctly Determined that Subpart OOO of 40CFR60 Applies.

The Permit Writer stated that "[t]he applicant noted that the facility was an affected facility subject to subpart OOO. The writer disagrees ... because the applicant did not disclose any sodium bicarbonate process equipment (crusher/grinding mill) in the application. Equipment used to handle or store sodium bicarbonate does not constitute 'processing' under this subpart." Engineering Evaluation at 22. This is incorrect. The application explicitly states that that the sodium bicarbonate will be fed into grinding mills located in the building. Application at 12-13. Any crushers, grinding mills, screening operations, bucket elevators, belt conveyors, bagging operations, storage bins, and enclosed truck or railcar systems are subject to Subpart OOO as a result. These requirements include standards for particulate matter, monitoring requirements, testing, and record keeping and reporting requirements. Those must be included in the permit as enforceable permit limits and conditions.

Response
The applicant did not propose any grinding mills in the equipment list (Attachment I of the Application) nor did the application account for any emission from such grinding mills. Thus, the permit does not include such grinding equipment. Therefore, the facility is not subject to Subpart OOO and no part of Subpart OOO is included in the permit. If the applicant elects to install such processing equipment then the applicant will need to seek a modification to reflect the use of processing equipment in the permit.

Comment 7
The Source of, and Information Related to, the Biomass is Unlawfully Held as Confidential Business Information.

The Clean Air Act is clear that emissions data is not subject to Confidential Business Information claims. Section 114(c) of the Clean Air Act, 42 USC 7414(c), authorizes full disclosure to the public of any information that a broad definition of emissions data. This law is codified by 40 CFR 2.301 *et seq.*, and it makes clear that information necessary to determine the identity, amount, frequency, concentration, or other characteristics related to air quality cannot be

redacted. 40 CFR 2.301(a)(2)(i). Yet, WVDEP granted the Applicant's request to redact information about the feedstock (woody biomass) that will necessarily affect emissions data. Without that information, the public cannot accurately assess the Application or determine whether the Draft Permit complies with state and federal laws.

This is especially clear when considering the AP-42 Emissions Factors for PM From Wood Residue Combustion.[20] That table makes clear that the emissions factors differ significantly based on the fuel type (wet wood, dry wood, bark, and combinations thereof) and the controls applied. Without being able to evaluate the feedstock, the public cannot determine whether the appropriate emissions factors are applied. Thus, the public cannot determine whether the facility complies with state and federal laws.

Additionally, the permit includes a term that the source must utilize only "clean cellulosic biomass," as defined in 40 CFR 241.2. Draft Permit Condition 4.1.1.1(j). We support this condition, but the public has no way to ensure that the Applicant complies with the condition without information about the source of the woody biomass.

Further still, it is hard to imagine how the Applicant could show, in any meaningful way, that disclosure of information about the woody biomass would cause substantial harm to the business's competitive position. And we know that the information was not voluntarily submitted because WVDEP acknowledged its necessity to determine whether exemptions under NSPS Subpart Db were appropriate.

For at least these reasons, the claimed CBI for the woody biomass needs to be released to the public.

Response

The Division of Air Quality (DAQ) disagrees with the assertion in this comment that the information claimed as Confidential Business Information (CBI) constitutes "emissions data" that must be publicly disclosed under the Clean Air Act (CAA).

The information claimed as confidential by MGS CNP 1 pertains to the specific composition of the wood chips beyond basic parameters, which did not include the sulfur content.

The DAQ maintains that the information required for the public to accurately assess emissions was fully disclosed in the permit application. This public information included:

- Heat input of the unit (944 MMBtu/hr)
- Heat value of the wood (4,450 Btu/lb)
- Ash content (5.27% by wt.)
- Control efficiency of the add-on controls
- Emission factors used in calculations

The only information redacted from that specific page was the breakdown of the other components except for sulfur content, which was presented as 0.01% by weight. This final sulfur content value itself was *not* claimed as CBI and was therefore available for public review in the redacted documents.

Since the critical parameter(s) necessary for determining emissions to sulfur dioxide (SO_2) was disclosed, the underlying data used to derive it does not, in this specific instance, fall under the broad definition of "emissions data" as defined by 40CFR2.301(a)(2)(i), which requires information "necessary to determine the identity, amount, frequency, concentration, or other characteristics... of any emission".

The DAQ agrees with the comment that the source, fuel supplier, and processing/sorting of the fuel are essential for determining whether the material constitutes "fuel" or "solid waste" under 40 CFR 241.2, which is critical for compliance with the "clean cellulosic biomass" condition.

To address the public's ability to ensure compliance with the "clean cellulosic biomass" condition (Draft Permit Condition 4.1.1.1.j.), the permit has been drafted to require rigorous monitoring of these attributes. This ensures that ongoing compliance is verifiable through the mandated monitoring and reporting requirements of the final permit

Comment 8
Draft Permit Condition 4.1.1(j) Should be Amended to Reflect the Actual Process.

Draft Permit Condition 4.1.1(j) states:

> The permittee shall fire/operate the boiler with a maximum heat input that does not exceed 944 million (MM) Btu/hr on a daily average basis. The permittee shall only utilize clean cellulosic biomass as defined in 40CFR§241.2 or a combination of clean cellulosic biomass and natural gas with the input of natural gas physical limited to no greater than 180 MMBtu/hr at any given time to include startup operations. The annual heat input for the biomass boiler shall not exceed 8,269,440 MMBtu per any 12 consecutive month period.

Draft Permit at 18. But, the Applicant is clear that it will only utilize natural gas during startup, and that it will not utilize natural gas as a secondary fuel source for generation. Application at 3. Draft Permit Condition 4.1.1(j) currently gives them permission to utilize natural gas "at any given time to include startup operations." This should be amended to reflect the design of the boiler, and the Applicant's stated process. If the original language is used, the PTE calculations need to be re-done to reflect the use of natural gas during standard operation. The suggested language is:

> The permittee shall fire/operate the boiler with a maximum heat input that does not exceed 944 million MMBtu/hr on a daily average basis. The permittee shall utilize only clean cellulosic biomass as defined in 40CFR§241.2 during normal operating procedures. During startup operations, the permittee shall fire/operate the boiler with a combination of clean cellulosic biomass that does not exceed 944 MMBtu/hr and natural gas with the input of natural gas physically limited to no greater than 180 MMBtu/hr. The annual heat input for the biomass boiler shall not exceed 8,269,440 MMBtu per any 12 consecutive month period.

Response
The applicant plans on operating the natural gas burners on an as-needed basis. Also, the applicant was not interested in taking the 10% capacity factor for natural gas utilization to avoid the NO_x standard under Subpart Db. The applicant is anticipating the need to provide supplement heat energy to the unit to maintain the bed temperature of the unit.

Comment 9

The Applicant Correctly Identifies that the Accidental Release Program (40 CFR 68) Should Apply Here—This, too, Requires Title V Compliance.

The Applicant plainly acknowledges that it will be utilizing Ammonia (20% Conc. Or greater). Application at 23; Application, Table N-11, Fixed Roof Tank Emissions. As the Downstream Report notes, neither the Draft Permit nor the Engineering Evaluation mention the ammonia storage tank. Attachment A at 6. This is relevant for a few reasons.

First, Ammonia is a pre-cursor to PM2.5. So, any emissions, fugitive or otherwise, from the ammonia storage tank need to be included in the permit, along with appropriate and enforceable controls and practices, monitoring, recordkeeping, and reporting requirements. Second, any other emissions from the ammonia storage tank need to be accounted for and handled the same ways.

Importantly, though, the Applicant also acknowledges that an amount of Ammonia (20% Conc. Or Greater) may be utilized in amounts greater than or equal to 20,000 lbs. The Accidental Release Program (Sec. 112(r) of the CAA and 40 CFR 68), created in part due to Union Carbide's disaster in Bhopal, India and related concerns to its Institute, WV plant, is designed to prevent accidental releases of certain substances beyond the facility's fence line. Congress required the creation of an enumerated list of regulated substances at set quantities that, in the case of an accident, are known to cause or may reasonably death, injury, or serious adverse effects to human health or the environment. 42 USC §§ 7412(r)(3)-(5). That list was codified at 40 CFR 68.130. Ammonia (conc. 20% or greater) with a threshold quantity of 20,000 lbs. is on that list. *See* Table 1 to 40 CFR 68.130.

Because the Applicant self-identifies that this regulation may apply, the source should be required to submit a Risk Management Plan (RMP) by the appropriate dates as specified in 40 CFR 68.10 and 40 CFR 68.150. Commenter acknowledges that this process does not typically occur within NSR/PSD permitting, but because the Draft Permit and the permit record indicate that Title V (where this process does usually happen), now is the time to bring it up. If this program is applicable, a Title V permit is required, and that permit must contain a statement listing 40 CFR 68 as an applicable requirement along with conditions requiring a submitted compliance schedule and compliance certification attesting to compliance with the Accidental Release Program. 40 CFR 68.215.

Response

Ammonia is not VOC and is not a direct form of PM. Ammonia is not defined as a "regulated air pollutant" under 45CSR13, therefore, the emissions from storage of ammonia in a pure form or in solution do not need to be quantified in a Rule 13 permit.

The DAQ does not have delegation of 40 CFR 68 - CHEMICAL ACCIDENT PREVENTION PROVISIONS, which remains under EPA's jurisdiction.

Comment 10

Visible Emission Monitoring Must Be Revised.

Condition 4.2.3(a) sets forth visible emission monitoring requirements for the biomass boilers. In general, it relies on use of Method 22 to monitor compliance with the Draft Permit's opacity limits. However, if that testing reveals visible emissions in excess of 5% opacity, it allows the permittee to "conduct a new Method 9 of appendix A-4 of 40CFR60 performance test using the procedures in Condition 4.3.. within 45 calendar days according to the requirements in 40CFR§60.46d(d)(7)." This condition is insufficient and unclear. It is not clear why the permittee has 45 days to conduct Method 9 follow-up testing, which could allow visible emissions to exceed relevant limits for more than 6 weeks, instead of requiring Method 9 testing within 48 hours as contained in the bag leak detection monitoring under condition 4.2.3(k). In addition, the condition mistakenly references "40CFR§60.46d(d)(7)" – there is no such section in the federal rules and 40CFR§60.46(d)(7) does not contain Method 9 requirements. Accordingly, this condition must be revised to ensure adequate monitoring of visible emissions from the facility.

Response

The applicant elected to use a "bag leak detector system" (BLDS) to monitor the fabric filter bag house. Subpart Db allows the use of a "bag leak detector system" to monitor fabric filter control devices (baghouse) in lieu of using "continuous opacity monitoring systems" (COMs) (See 40CFR60.48b(j) & (j)(5)). This exclusion only relieves the applicant from using COMs, and therefore, the source is required to conduct visible emission monitoring as outlined in 40CFR60.48b(a)(1) or (a)(2). Which of the two options that the permittee must follow are based on the results of either the initial or most recent Method 9 test.

State Rule 2 is more stringent than the standard in Subpart Db. Therefore, the permit assumes the facility will be compliant with both standards and only monitoring options that would allow the source to demonstrate compliance with both standards are 40CFR60.48b(a)(2) and (a)(3). The option under 40CFR60.48b(a)(3) was not incorporated into the permit because the option

required the use of a digital opacity camera which required the Administrator to approve such use for compliance purposes under Subpart Db.

The option under 60.48b(a)(1) was not incorporated because it established frequencies that might be viewed as acceptable for results that were greater than the 10% opacity standard under State Rule 2.

Looking at the comment with respect to timing, the DAQ notes that Subpart Db makes a clear distinction between testing and monitoring. A Method 9 test consists of three one hour test runs with these Method 22 observations either 10 minutes or 30 minutes in duration. The subpart requires the source to either adjust operation back to where visible emissions are less than 5% of the time during a 30-minute observation period or the source must conduct re-test using the procedure in 40CFR60.46b(d)(7) to reestablish which monitoring that the source would qualify for under Subpart Db.

The timing to conduct this re-test is set by regulation and cannot be altered by the DAQ given it is established by regulation. This regulation allows sources an opportunity within 24 hours to restore operation back to below 5% during a 30 minute observation. 5% of 30 minute observation is 1.5 minutes or 90 seconds. Remember that a Method 22 observation is only determining if visible emissions are present or not.

The intent is to give the source an opportunity to correct the issue that caused the visible emissions and verify the issue has been resolved in a timely manner (within 24 hours) or conduct a new Method 9 test within 45 days which requires an observer that has been certified within the past six months. The unit must be operating at conditions that are representative of normal operating conditions during the test.

Triggering the retest requirement does not relieve the permittee from the monitoring requirement completely once the permittee had elected to utilize it. If the permittee had triggered the retesting provision, the monitoring requirement still requires the permittee to continue to conduct daily Method 22 observations.

The DAQ views monitoring and performance testing differently than the commenter. Monitoring either indicates that the source should be in compliance or there is an issue that needs further investigation and performance testing is a means to demonstrate compliance with a standard or permitted emission limit. Method 22 is listed as a test method but it is really a method to determine if visible emissions are present or not (yes or no check). And it can be performed by an individual other than a certified Method 9 observer.

Comments Regarding Draft Permit

Comment 1
Section 1, page 7. The Table indicates a design capacity for the cooling towers of 80,762 gpm, which works out to over 116 million gallons per day. The application also cites a reference that reports a much smaller volume of PM10 than is estimated in AP-42. That paper based the conclusion on their estimate that water with high TDS would produce particulates larger than M10. However, if the makeup water has an average TDS of 340 ppm, (rather than the average of 1700 ppm assumed), the proportion of PM10 may be much higher than estimated by the applicant. **We recommend that the AP-42 estimates be used until monitoring data or manufacturer's guarantees would justify a lower emissions rate.**

Response
The applicant based the particulate matter emissions from the cooling towers on a recirculation rate of 80,762 gpm, which equates to over 4.8 million gallons in one hour. The applicant used estimation techniques outlined in the technical paper "Calculating Realistic PM_{10} Emissions from Cooling Towers". This technical paper clearly noted that AP-42 rated the quality of "E" (the lowest level of confidence acceptable). The conclusion of this paper notes that emission factors and methodology given in AP-42 Chapter 13.4 Wet Cooling Towers, do not account for the droplet size distribution of the drift exiting the cooling towers.

Also, 45CSR13 does not specifically require sources to use AP-42 to estimate or determine the potential emissions from sources. The rule only requires the permittee to determine the potential emissions from a proposed source.

The applicant used a drift factor of 0.001%, which has been seen used in other applications. This drift is based on the manufacturer's cooling tower design. The draft permit required the drift factor of 0.001% for the cooling tower (Condition 7.1.1.a.) and recording indicating the drift factor for the cooling tower.

Comment 2
Section 3.4.1. The last two sentences repeat each other. **We recommend that the final permit omit the shorter sentence.**

Response
The DAQ agrees to your recommendation and will omit the shorter sentence from the permit.

Comment 3
Section 3.4.3. It is not clear why an "industrial fence" is required, or how it protects against air pollution. The citation of the "March 14, 2021, submittal of the Prevention of Significant Deterioration Air Quality Dispersion Modeling Report." is unclear and needs a more complete citation, as we were unable to find this document to verify what it requires. We recommend that this section be clarified.

Response
This requirement will be removed from the permit.

Comment 4
Section 3.5.2. It is unclear why reporting required by this permit would be confidential. The public has a right to know when they are being polluted. **We recommend that this section be removed.**

Response
If the source (permittee) makes any submission to the DAQ, the permittee must first determine if any piece of information is confidential before submitting it. Once submitted to the DAQ, the DAQ cannot redact such information after it has been submitted even if the information is truly confidential business information (CBI). This puts the burden on the permittee to ensure check whether the information is or is not confidential.

45 CSR 13 or 45 CSR 31 gives the DAQ the authority to deny any permittee the right to file a claim of CBI. 45 CSR 31 does note that the claim cannot protect information that pertains to air emissions - types and amounts of air pollutants discharged. If the confidential information is justified as CBI in accordance with 45 CSR 31 and does not contain information concerning the types and amount of air pollutants, then the permittee could file a claim of CBI with their submission. The suggestion regarding removing Condition 3.5.2. was not done.

Comment 5
Section 4.1.1, Table 4.1.1.a. The NOx limit of 0.022 lb/MMBTu is more than 4 times the rate approved in the permit for Fundamental Data's Ridgeline facility. It is 16 times the rate permitted for the Adams Fork facilities. The application claims the maximum controlled emissions would be almost 3 % lower, 0.021398 lb. NOx/ MMBTu. That limit is made considerably more lax by using a 30-day rolling average, thus the facility might exceed the limit frequently, perhaps half the time it is operating, and still average below the limit set. **We recommend that the permit should not be less stringent than the emissions rate claimed in the application.**

Response
The Ridgeline facility and the BECCS facility are not the same type of facility as the MGS CNP 1 facility.

The DAQ developed the proposed NOx rate of 0.022 lb/MMBtu based on annual NOx emissions of 90.42 tons per year, in terms of lbs, and divided it by the maximum heat input (944 MMBtu/hr) multiplied by the maximum operating schedule possible in a year (8,760 hours per year). This yields a value of 0.0218 lb/MMBtu (limit), which includes NOx emissions that would occur during startup events. The valve of 0.0218 was rounded to the nearest thousandant (0.022 lb/MMBtu). The permit does not establish an alternative limit for start-up events. The DAQ set the averaging period for this limitation based on the applicable NOx emission standard for this emission unit from NSPS Subpart Db, which is a 30-day rolling average.

Rounding the value of 0.0218 up to 0.022 would result in a 0.19 pound per hour increase which equates to less than one percent increase (0.9%). This minor hourly increase could potentially be significant on an annual basis. Condition 4.1.1.d. sets an annual limit of 90.42 tons per year on a 12-month rolling basis. The increase due to rounding up would be limited to just a 30-day period before the annual limit would become the restrictive limit.

No changes to the permit is required based on this comment.

Comment 6
Section 4.1.1.h. This section indicates that compliance with SO_2 limits shall be based on "fuel monitoring as required in Conditions 4.2.1. and 4.2.3.". However, section 4.2.1. specifies the conditions for the NOx CEMS and section 4.2.3. refers to visible emissions from the stacks. The requirement for fuel monitoring or analysis appears in section 4.2.2. Furthermore, section 4.1.6 specifies conditions for the wet scrubber, including flow rate, pH, and pressure drop. Section 4.2.8 specifies the monitoring requirements to comply with section 4.1.6 (operation of the wet scrubber). While fuel analyses may verify the total Potential To Emit, and monitoring of scrubber operating conditions may be helpful, such analyses do not assess the actual amount of SO2 emitted after treatment with the wet scrubber. While Section 4.2.11., "*Monitoring Other Support Units for the Carbon Capture Unit* ", specifies installation of instruments to measure parameters identified in 4.1.8. and Section 4.1.8.a specifies monitoring SO2 (including emission point 121-H-2001) on a 3-hour average basis, these are not defined explicitly, nor are they as effective as CEMS. Section 4.3.7 specifies the use of a "process simulator" to demonstrate compliance for support equipment, but again, actual monitoring data are preferred. **Rather than fuel monitoring, etc., we recommend that an approved CEMS for SO2 discharged from the stack be required. Table 4.1.1.a. should be modified accordingly.**

Response
The fuel monitor of the sulfur content is a requirement from the NSPS Subpart Db to prove that the fuel is a low sulfur fuel. The NSPS recognizes that there might be sources utilizing low sulfur fuels and, therefore excludes sources from SO_2 standard of Subpart Db and the SO_2 CEMS requirement to monitor their SO_2 emissions.

The draft permit relied on monitoring of the DSI and wet scrubber control devices to ensure compliance with the permit SO_2 limits. This approach is partially incomplete. The permit only limited fuel to the sulfur limitation of Subpart Db which is 0.32 lb of SO_2 per MMBtu, which is in Table 4.1.1.a of Condition 4.1.1., while the proposed SO_2 emissions were based on initial sulfur content of 0.01% by weight of the fuel.

Without the use of CEMS as suggested by the comment, the permit needs to establish a sulfur content limit. Therefore, Condition 4.1.1.j.i. will limit the sulfur content of the clean cellulosic biomass to 0.01% sulfur by weight. The requirement for a fuel monitoring plan in Condition 4.2.2. is sufficient in terms of monitoring the sulfur content of the fuel.

The SO_2 mass emission rate for the biomass boiler is permitted a little above 50% (half) of the Title V major source threshold level. The comment did not provide any justification for requiring

that SO_2 emissions be monitored using a CEMS. The permit requires testing to be conducted upstream and downstream of the carbon capture unit.

The amines (MEA and MDEA) will absorb some of the residual SO_2 in the exhaust in the carbon capture unit. The applicant assumed that the residual SO_2 would be emitted to the atmosphere from the main stack. The DAQ believes that a good portion if not all of SO_2 emissions is going to be exiting the carbon capture unit through the regeneration column with the captured CO_2. The purpose of the requirement in Condition 4.3.8. is to require the permittee to perform a "process simulation" to account for the SO_2 emissions being released through other emission egress of the carbon capture unit (amine unit) and other support units (CO_2 dehydrator, CO_2 compressors, knock out vessels, etc.).

Comment 7
Section 4.1.2. specifies conditions to operate the Filter Fabric baghouse. However, the application indicates that the manufacturer and model is "TBD". The same is found for the engines used for fire control, etc. This makes it very difficult for the public to verify whether the permit limits are appropriate. It is not clear how WV-DAQ can assume 99 % control with the baghouse, as stated in the Engineering Evaluation, when the equipment used is not specified. **We recommend that the manufacturer and model be specified before a permit is issued.**

Response
The control device data sheet for the baghouse (Control Device ID: H2001-1C) lists a control efficiency of 99.9% for the fabric filter control device. If the selected and installed equipment does not meet this level of control, then the DAQ has grounds to take action against the permittee for not installing equipment meeting the specifications set forth in the application. This enforcement authority applies regardless of whether the manufacturer and model number was stated in the application with the control device.

Comment 8
Section 4.1.3.a. It is not clear how the ammonia slip is monitored to assure compliance with the limit of 3.65 ppm. Although section 4.2.5. requires monitoring of the ammonia flow rate in, there does not appear to be a requirement to monitor ammonia coming out. **We recommend that this requirement be added to the permit, and language to that effect included in section 4.3.3. and Table 4.3.3.**

Response
Ammonia is not a regulated pollutant under 45 CSR 13. The permit establishes specific limitations on the operation of the SCR control device in Condition 4.1.3.a., which includes an ammonia slip of no greater than 3.65 ppm on a 3-hour average basis. Also, the condition requires a sampling grid system across the entire cross-sectional area at the outlet of the SCR to better detect leakage (ammonia slip) around the catalyst beds. Further, the condition requires annual tuning of the SCR to meet the NO_x and ammonia rates set forth in this condition. Requiring the ammonia testing in terms of standard testing as recommended by the commenter could not be performed immediately at the outlet of the SCR. Such testing would be measuring an un-regulated air pollutant.

Comment 9
Section 4.1.7. c. It is not clear why operation of the Carbon Capture Unit should be limited "to 7,937 hours per year on a 12-month rolling total". Although that limit seems likely for operational reasons, and such a limit would reduce VOC emissions slightly, that also needlessly limits the amount of carbon dioxide captured. **We recommend that a more appropriate limit would be to restrict the VOC emissions proportionally.**

Response
The DAQ would agree with the commenter that the limitation would impact availability of operating the Carbon Capture Unit. The amine(s) used in the Carbon Capture Unit will degrade into several HAPs, which are nitrosamines, acetaldehyde and formaldehyde. Removing the limitation on operating hours of the Carbon Capture Unit would potentially increase the release of HAPs by 0.85 tons per year from the unit and increase the facility-wide potential of HAP up to 24.86 tons per year. The VOCs emission would increase by 1.05 tons per year. Given that the impact of removing this would not cause the facility's status to change (e.g., minor source of HAPs), the DAQ will adopt the comment's suggestion and remove the operating limitation for the carbon capture unit from the final permit.

Comment 10
Section 4.2.1. e. indicates that the exhaust flow meter should measure "the amount of natural gas induced into the boiler". This appears to be a repetition of the line in the previous section, as it is not clear why an exhaust meter would measure gas input? **We recommend that the purpose of the exhaust flow meter be corrected.**

Response
There is a typographical error in Condition 4.2.1.e. The term "exhaust" in the first sentence of Condition 4.2.1.e. will be corrected and replaced with "gaseous fuel". The permit has a maximum heat input limit on natural gas that can be input in the unit in addition to the over heat input limit for the unit.

Comment 11
Section 4.4.6.e. specifies records of the type and amount of fuel used. This information was not provided in the application and it is thus very difficult to verify whether the permit allows emissions greater than the lowest practicable level. The emissions calculations assume the fuel is "clean" wood chips, but no information is provided to assure that the wood is clean. The applicant in their letter of May 6, 2025 claimed that "the biomass analysis is proprietary information…". **Characteristics of the wood fuel (such as source, sulfur content, etc.) should not be considered Confidential Business Information and must be available for review by the public, as this is essential to verify both the emissions limits and the net carbon reduction achieved**.

Response
The permit as proposed required a fuel monitoring plan be developed for the Administrator's and Director's to review and approve, which at a minimum must determine the following:

- Sulfur dioxide potential from the fuel.
    - Requires the sulfur content in the fuel to be determined, which includes wood chips and natural gas.
- Dry F Factor for the fuel.
    - Requires an ultimate analysis of fuel to be conducted to calculate the F factor for the fuel.

As result of this and other comments, the following information will be added in Condition 4.4.6. of the permit to require the applicant to maintain records to determine if the wood chips meet the "clean biomass cellulose" as defined in 40 CFR 241.2.

a. Name of each supplier that delivered fuel during each calendar month.

b. Location(s) of each supplier and amount of fuel ship from each location during the respective calendar month.

c. Source(s) of the fuel (wood).

d. Denote whether the source(s) is from construction and/or demolition activities.

    i. Description of the means was used to separate out the containments.

    ii. Statement of the supplier certifying that the fuel meets the definition of "clean cellulosic biomass" as defined in 40 CFR 241.2.

e. Denote whether the source(s) is from disaster cleanup activities.

    i. Description of the means used to separate out the containments.

Comment 12
Section 7.1.1.b. Grammatical suggestion. **Insert the words "greater than" in front of "340 ppm".**

Response
Condition 7.1.1.b. will be corrected as suggested.

Comment 13
Should the first line reference Condition 7.1.1, rather than 8.1.1.?

Response
Condition 7.2.1. will be corrected as suggested.

Comment 14
Draft Permit Condition 4.1.1(j) Should be Amended to Reflect the Actual Process.

Draft Permit Condition 4.1.1(j) states:

> The permittee shall fire/operate the boiler with a maximum heat input that does not exceed 944 million (MM) Btu/hr on a daily average basis. The permittee shall only utilize clean cellulosic biomass as defined in 40CFR§241.2 or a combination of clean cellulosic biomass and natural gas with the input of natural gas physical limited to no greater than 180 MMBtu/hr at any given time to include startup operations. The annual heat input for the biomass boiler shall not exceed 8,269,440 MMBtu per any 12 consecutive month period.

Draft Permit at 18. But, the Applicant is clear that it will only utilize natural gas during startup, and that it will not utilize natural gas as a secondary fuel source for generation. Application at 3. Draft Permit Condition 4.1.1(j) currently gives them permission to utilize natural gas "at any given time to include startup operations." This should be amended to reflect the design of the boiler, and the Applicant's stated process. If the original language is used, the PTE calculations need to be re-done to reflect the use of natural gas during standard operation. The suggested language is:

> The permittee shall fire/operate the boiler with a maximum heat input that does not exceed 944 million MMBtu/hr on a daily average basis. The permittee shall utilize only clean cellulosic biomass as defined in 40CFR§241.2 during normal operating procedures. During startup operations, the permittee shall fire/operate the boiler with a combination of clean cellulosic biomass that does not exceed 944 MMBtu/hr and natural gas with the input of natural gas physically limited to no greater than 180 MMBtu/hr. The annual heat input for the biomass boiler shall not exceed 8,269,440 MMBtu per any 12 consecutive month period.

Response

The applicant plans on operating the natural gas burners on as needed basis. Also, the applicant was not interested in taking the 10% capacity factor for natural gas utilization to avoid the NO_x standard under Subpart Db. The applicant is anticipating the need to provide supplement heat energy to the unit to maintain the bed temperature of the unit during normal operations.

Comment 15

Visible Emission Monitoring Must Be Revised.

Condition 4.2.3(a) sets forth visible emission monitoring requirements for the biomass boilers. In general, it relies on use of Method 22 to monitor compliance with the Draft Permit's opacity limits. However, if that testing reveals visible emissions in excess of 5% opacity, it allows the permittee to "conduct a new Method 9 of appendix A-4 of 40CFR60 performance test using the procedures in Condition 4.3.. within 45 calendar days according to the requirements in 40CFR§60.46d(d)(7)." This condition is insufficient and unclear. It is not clear why the permittee has 45 days to conduct Method 9 follow-up testing, which could allow visible emissions to exceed relevant limits for more than 6 weeks, instead of requiring Method 9 testing within 48 hours as contained in the bag leak detection monitoring under condition 4.2.3(k). In addition, the condition mistakenly references "40CFR§60.46d(d)(7)" – there is no such section in the federal rules and 40CFR§60.46(d)(7) does not contain Method 9 requirements. Accordingly, this condition must be revised to ensure adequate monitoring of visible emissions from the facility.

Response
The applicant elected to use a “bag leak detector system” (BLDS) to monitor the fabric filter bag house. Subpart Db allows the use of a “bag leak detector system” to monitor fabric filter control devices (baghouse) in lieu of using "continuous opacity monitoring systems” (COMs) (See 40CFR60.48b(j) & (j)(5)). This exclusion only relieves the applicant from using COMs, and therefore, the source is required to conduct visible emission monitoring as outlined in 40CFR60.48b(a)(1) or (a)(2). Which of the two options that the permittee must follow are based on the results of either the initial or most recent Method 9 test.

State Rule 2 is more stringent than the standard in Subpart Db. Therefore, the permit assumes the facility will be compliant with both standards and the only monitoring options that would allow the source to demonstrate compliance with both standards are 40CFR60.48b(a)(2) and (a)(3). The option under 40CFR60.48b(a)(3) was not incorporated into the permit because the option required the use of a digital opacity camera which required the Administrator to approve such use for compliance purposes under Subpart Db.

The option under 60.48b(a)(1) was not incorporated because it established frequencies that might be viewed as acceptable for results that were greater than the 10% opacity standard under State Rule 2.

Looking at the comment with respect to timing, the DAQ must point out to the commenter that the Subpart Db makes a clear distinction between testing and monitoring. The subpart wants the source to either adjust operation back to where visible emissions are less than 5% of the time during a 30-minute observation period or the source must conduct re-test using the procedure in 40CFR60.46b(d)(7).

The timing to conduct this re-test is set by regulation and cannot be altered by the DAQ given it is established by regulation. This regulation allows sources an opportunity within 24 hours to restore operation to below 5% during a 30 minute observation. 5% of 30 minute observation is 1.5 minutes or 90 seconds. A Method 22 observation the observer is only determining if visible emissions are present or not.

The intent is to give the source an opportunity to correct the issue that caused the visible emissions and verify the issue has been resolved in a timely manner (within 24 hours) or conduct a new Method 9 test within 45 days which requires an observer that has been certified within the past six months.

Oral Questions/Comments Received at the Public Meeting

Oral Questions

During the question/answer portion of the public meeting on October 7, 2025, many questions were asked. DAQ staff engaged directly with the public answering questions. Those questions believed not to be fully responded to in the General Response to Comments section or at the public meeting are included in the Specific Response to Comments section.

Oral Comments

There were oral comments presented at the public meeting. All of the comments were generally in opposition of the proposed facility, or were similar to the written comments submitted via e-mail by the party in questions (that were addressed above either in the General or Specific Response to Comments Sections). Those comments believed not to be fully responded to in the General Response to Comments section are included in the Specific Response to Comments section.

A audio of the oral comments made at the in-person public meeting can be found at the following web link:

https://drive.google.com/file/d/1Iy4vMIulcqHDYchjzWmFpuoJKtvv-o-q/view

RESPONSE TO COMMENTS CONCLUSION

As given in this document, and pursuant to §45-13-8.8, all relevant comments received during the public comment period have been reviewed and appropriately addressed in this document. A full listing of all persons that submitted a written comment is included as Appendix A and the actual comments received are available on the DAQ's website. Appendix B includes the sign-in sheet for the October 7, 2025 in-person public meeting. See the "Final Determination" for discussion of the final determination regarding Permit Application R13-3708. These documents will be made available on the DEP AE website, the DAQ Permitting website, and emailed/mailed to all commenters who provided a legible email or name/mailing address.

Appendix A Commenter List

Commenter's Name	Commenter's Email Address
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Appendix B Public Meeting Sign-in Sheet

west virginia department of environmental protection

WVDEP - Air Quality In-Person Public Meeting for MGS CNP 1, LLC's Proposed Air Quality Permit R13-3708
Tuesday, October 7, 2025, at 6:00 PM: Mason County Courthouse, 200 Sixth Street, Point Pleasant, WV 25550

PRE-REGISTRATION SIGN-IN SHEET

The Department of Environmental Protection requests the information below so that agency staff can provide responses and information to you.
The information you voluntarily provide on this sheet becomes part of the public record related to this topic and may be released if requested under the Freedom of Information Act.

Last Name, First Name	Group or Organization	Signature	Question (Y/N)	Comment (Y/N)
Bush, Jason			No	No
Bush, Sabrina			No	No
Darst, Mary			No	No
Darst, Paul			No	No
Eshenaur, Maria			No	No
Flowers, Teresa			No	No
Frame, Marsha			Yes	Yes
Frame, Randy			No	No
Jeffers, Josh			Yes	Yes
King, Morgan	West Virginia Citizen Action		Yes	Yes

west virginia department of environmental protection

WVDEP - Air Quality In-Person Public Meeting for MGS CNP 1, LLC's Proposed Air Quality Permit R13-3708
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Last Name, First Name	Group or Organization	Signature	Question (Y/N)	Comment (Y/N)
Lieving, Elizabeth		Elizabeth Lieving	No	No
Matheny, Carl		Carl Matheny	Yes	Yes
Matheny, Elaine		Elaine Matheny	Yes	Yes
Mullins, Howard		Howard Mullins	Yes	Yes
Pyle, James		James E Pyle	No	No
Turnbull, Greta			Yes	No

west virginia department of environmental protection

WVDEP - Air Quality In-Person Public Meeting for MGS CNP 1, LLC's Proposed Air Quality Permit R13-3708
Tuesday, October 7, 2025, at 6:00 PM: Mason County Courthouse, 200 Sixth Street, Point Pleasant, WV 25550

SIGN-IN SHEET

The Department of Environmental Protection requests the information below so that agency staff can provide responses and information to you.
The information you voluntarily provide on this sheet becomes part of the public record related to this topic and may be released if requested under the Freedom of Information Act.

Name (First and Last)	Group or Organization	Email Address: PLEASE PRINT NEATLY	Comment (Y/N)
RhondaCross		rhocro@yahoo.com	
Charlise Robinson		crobinson@wvrivers.org	
Virginia Huffman		gshuffman1@gmail.com	no
Shawn Huffman		11	no
Gary Mitchell			NO
Zachary Adkins	Valley Fire & Rescue	ZAdkins@ValleyVFD.com	NO
Alex Cole		alexcole989@gmail	No
Candice Grigsby		523grigsby@gmail.com	yes
David Grigsby		523grigsby@gmail.com	yes
JASON STEPHENS		JASON.STEPHENS5@YAHOO.COM	NO

WVDEP - Air Quality In-Person Public Meeting for MGS CNP 1, LLC's Proposed Air Quality Permit R13-3708
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Name (First and Last)	Group or Organization	Email Address: PLEASE PRINT NEATLY	Comment (Y/N)
PAUL NICHOLS			N
Lani Wean	Moms clean air force	lwean@momscleanairforce.org	N
Elizabeth Knapp		Elizabethknapp11@yahoo.com	N
Bealah KNAPP		11	
James Knapp		Elizabeth knapp 11@yahoo.com	N
Eric S. Tarr	WV State Senate	Eric.Tarr@WVSenate.gov	✓
Amy Mullins	Resident in Area	aburdette75@yahoo.com	N
Sarah Stephens	Area resident	sarahestephens@yahoo.com	N
JIM BUTLER	HOUSE OF DELEGATES	WV TANGO 2@FRONTIER.COM	N
Evan Wilson		jameswilson293@gmail.com	N

west virginia department of environmental protection

WVDEP - Air Quality In-Person Public Meeting for MGS CNP 1, LLC's Proposed Air Quality Permit R13-3708
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Name (First and Last)	Group or Organization	Email Address: PLEASE PRINT NEATLY	Comment (Y/N)
Jonathan Pinson	WV House	JonathanPinson@gahoo.com	N

Public Comments & Emails Responding to Public Comments

From: "Andrews, Edward S" To: Lani Wean Date: Thu Nov 20 2025 13:30:10 GMT-0500 (Eastern Standard Time)Subject: Final Notification for MGS CNP 1, LLC; Permit Numbers R13-3708
You are receiving this letter because you provided comments during the public comment period for the following permitting actions:

Company Name: MSG CNP 1, LLC
Facility Name: BECCS
Permit Application: R13-3708
Plant ID No.: 053-00134

After consideration of all comments received, both written and orally at the public meetings held on October 7, 2025, the DAQ has made a final determination that the available information continues to indicate that MGC CNP 1, LLC's proposed BECCS facility, in accordance with the plans and specifications filed in Permit Applications R13-3708 (and any revisions thereto), as enforced under Permit Number R13-3708, will meet all applicable state and federal air quality rules and regulations. Therefore, on November 20, 2025, the DAQ, pursuant to Subsection 5.7 of 45CSR13, issued Permit Number R13-3708 to MGS CNP 1, LLC for the construction and operation of a separate off-grid power generation facility located in Mason County, WV.

The final documents associated with this permitting action will also soon be available at the following link under "Popular Searches" and "MGS CNP 1, LLC; BECCS Plant":

<https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx>.

Any person whose interest may be affected, including, but not necessarily limited to, the applicant and any person who participated in the public comment process, by a permit issued, modified or denied by the Secretary may appeal such action of the Secretary to the Air Quality Board pursuant to article one [§§22B-1-1 et seq.], Chapter 22B of the Code of West Virginia. West Virginia Code §§22-5-14.

Thank-you

--
Edward Andrews, P.E.
Engineer
WVDEP/Division of Air Quality
304-414-1244
601 57th Street, SE
Charleston, WV 25304

Attachments:053-00134_Final_Det_13-3708_final.pdf053-00134_PERM_R13-3708_final.pdf053-00134_RTC_R13-3708-final.pdf

From: "Andrews, Edward S" To: lwean@monscleanairforce.orgDate: Thu Nov 20 2025 13:26:23 GMT-0500 (Eastern Standard Time)Subject: Final Notification for MGS CNP 1, LLC; Permit Numbers R13-3708
You are receiving this letter because you provided comments during the public comment period for the following permitting actions:

Company Name: MSG CNP 1, LLC
Facility Name: BECCS
Permit Application: R13-3708
Plant ID No.: 053-00134

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Thank-you
--
Edward Andrews, P.E.
Engineer
WVDEP/Division of Air Quality
304-414-1244
601 57th Street, SE
Charleston, WV 25304

From: Mail Delivery Subsystem To: edward.s.andrews@wv.govDate: Thu Nov 20 2025 13:26:47 GMT-0500 (Eastern Standard Time)Subject: Delivery Status Notification (Failure)

Address not found

Your message wasn't delivered to **lwean@monscleanairforce.org** because the domain monscleanairforce.org couldn't be found. Check for typos or unnecessary spaces and try again.

LEARN MORE

The response was:

```
DNS Error: DNS type 'mx' lookup of monscleanairforce.org responded with code NXDOMAIN
Domain name not found: monscleanairforce.org For more information, go to
https://support.google.com/mail/?p=BadRcptDomain
```

Attachments:053-00134_Final_Det_13-3708_final.pdf053-00134_PERM_R13-3708_final.pdf053-00134_RTC_R13-3708-final.pdficon.png

From: "Andrews, Edward S" To: Randy and Marsha Frame Date: Thu Nov 20 2025 13:19:59 GMT-0500 (Eastern Standard Time)Subject: Final Notification for MGS CNP 1, LLC; Permit Numbers R13-3708
You are receiving this letter because you provided comments during the public comment period for the following permitting actions:

Company Name: MSG CNP 1, LLC
Facility Name: BECCS
Permit Application: R13-3708
Plant ID No.: 053-00134

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Thank-you
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Edward Andrews, P.E.
Engineer
WVDEP/Division of Air Quality
304-926-0499 Ext 41244
601 57th Street, SE
Charleston, WV 25304

Attachments:053-00134_PERM_R13-3708_final.pdf053-00134_Final_Det_13-3708_final.pdf053-00134_RTC_R13-3708-final.pdf

From: "Andrews, Edward S" To: Tasha Date: Thu Nov 20 2025 12:34:27 GMT-0500 (Eastern Standard Time)Subject: Final Notification for MGS CNP 1, LLC; Permit Numbers R13-3708

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Facility Name: BECCS
Permit Application: R13-3708
Plant ID No.: 053-00134

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Thank-you
--
Edward Andrews, P.E.
Engineer
WVDEP/Division of Air Quality
304-926-0499 Ext 41244
601 57th Street, SE
Charleston, WV 25304

--
Unsubscribe

Attachments:053-00134_Final_Det_13-3708_final.pdf053-00134_RTC_R13-3708-final.pdf053-00134_PERM_R13-3708_final.pdf

From: "Andrews, Edward S" To: aburdette75@yahoo.comDate: Thu Nov 20 2025 12:34:27 GMT-0500 (Eastern Standard Time)Subject: Final Notification for MGS CNP 1, LLC; Permit Numbers R13-3708

You are receiving this letter because you provided comments during the public comment period for the following permitting actions:

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Thank-you
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Edward Andrews, P.E.
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Unsubscribe

Attachments:053-00134_Final_Det_13-3708_final.pdf053-00134_RTC_R13-3708-final.pdf053-00134_PERM_R13-3708_final.pdf

From: "Andrews, Edward S" To: undisclosed-recipients:;Date: Thu Nov 20 2025 12:34:27 GMT-0500 (Eastern Standard Time)Subject: Final Notification for MGS CNP 1, LLC; Permit Numbers R13-3708

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Thank-you
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Engineer
WVDEP/Division of Air Quality
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Unsubscribe

Attachments:053-00134_Final_Det_13-3708_final.pdf053-00134_RTC_R13-3708-final.pdf053-00134_PERM_R13-3708_final.pdf

From: "Andrews, Edward S" To: alexcole989@gmail.comDate: Thu Nov 20 2025 12:34:27 GMT-0500 (Eastern Standard Time)Subject: Final Notification for MGS CNP 1, LLC; Permit Numbers R13-3708

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Charleston, WV 25304

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Unsubscribe

Attachments:053-00134_Final_Det_13-3708_final.pdf053-00134_RTC_R13-3708-final.pdf053-00134_PERM_R13-3708_final.pdf

From: "Andrews, Edward S" To: 822grigsby@gmail.comDate: Thu Nov 20 2025 12:34:27 GMT-0500 (Eastern Standard Time)Subject: Final Notification for MGS CNP 1, LLC; Permit Numbers R13-3708

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Thank-you
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Edward Andrews, P.E.
Engineer
WVDEP/Division of Air Quality
304-926-0499 Ext 41244
601 57th Street, SE
Charleston, WV 25304

--
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From: Mail Delivery Subsystem To: edward.s.andrews@wv.govDate: Thu Nov 20 2025 12:35:02 GMT-0500 (Eastern Standard Time)Subject: Delivery Status Notification (Failure)

Address not found

Your message wasn't delivered to **822grigsby@gmail.com** because the address couldn't be found, or is unable to receive mail.

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The response was:

```
550 5.1.1 The email account that you tried to reach does not exist. Please try double-
checking the recipient's email address for typos or unnecessary spaces. For more
information, go to https://support.google.com/mail/?p=NoSuchUser 5614622812f47-
450fffd2110sor368823b6e.17 - gsmtp
```

Attachments:053-00134_Final_Det_13-3708_final.pdf053-00134_RTC_R13-3708-final.pdf053-00134_PERM_R13-3708_final.pdficon.pngUntitled

From: "Andrews, Edward S" To: Amy Date: Thu Nov 20 2025 12:34:27 GMT-0500 (Eastern Standard Time)Subject: Final Notification for MGS CNP 1, LLC; Permit Numbers R13-3708

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Thank-you
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Engineer
WVDEP/Division of Air Quality
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Charleston, WV 25304

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Unsubscribe

Attachments:053-00134_Final_Det_13-3708_final.pdf053-00134_RTC_R13-3708-final.pdf053-00134_PERM_R13-3708_final.pdf

From: "Andrews, Edward S" To: Andrew Date: Thu Nov 20 2025 12:34:27 GMT-0500 (Eastern Standard Time)Subject: Final Notification for MGS CNP 1, LLC; Permit Numbers R13-3708

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Thank-you
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Engineer
WVDEP/Division of Air Quality
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Unsubscribe

Attachments:053-00134_Final_Det_13-3708_final.pdf053-00134_RTC_R13-3708-final.pdf053-00134_PERM_R13-3708_final.pdf

From: "Andrews, Edward S" To: Ben Date: Thu Nov 20 2025 12:34:27 GMT-0500 (Eastern Standard Time)Subject: Final Notification for MGS CNP 1, LLC; Permit Numbers R13-3708

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Thank-you
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Edward Andrews, P.E.
Engineer
WVDEP/Division of Air Quality
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601 57th Street, SE
Charleston, WV 25304

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Unsubscribe

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From: "Andrews, Edward S" To: Charlise Date: Thu Nov 20 2025 12:34:27 GMT-0500 (Eastern Standard Time)Subject: Final Notification for MGS CNP 1, LLC; Permit Numbers R13-3708

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Thank-you
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Edward Andrews, P.E.
Engineer
WVDEP/Division of Air Quality
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601 57th Street, SE
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Attachments:053-00134_Final_Det_13-3708_final.pdf053-00134_RTC_R13-3708-final.pdf053-00134_PERM_R13-3708_final.pdf

From: "Andrews, Edward S" To: Blair <523grigsby@gmail.com>Date: Thu Nov 20 2025 12:34:27 GMT-0500 (Eastern Standard Time)Subject: Final Notification for MGS CNP 1, LLC; Permit Numbers R13-3708

You are receiving this letter because you provided comments during the public comment period for the following permitting actions:

Company Name: MSG CNP 1, LLC
Facility Name: BECCS
Permit Application: R13-3708
Plant ID No.: 053-00134

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From: "Andrews, Edward S" To: Courtney Date: Thu Nov 20 2025 12:34:27 GMT-0500 (Eastern Standard Time)Subject: Final Notification for MGS CNP 1, LLC; Permit Numbers R13-3708

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From: "Andrews, Edward S" To: Candice Date: Thu Nov 20 2025 12:34:27 GMT-0500 (Eastern Standard Time)Subject: Final Notification for MGS CNP 1, LLC; Permit Numbers R13-3708

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From: "Andrews, Edward S" To: dennis.o.stottlemyer@wv.govDate: Thu Nov 20 2025 12:34:27 GMT-0500 (Eastern Standard Time)Subject: Final Notification for MGS CNP 1, LLC; Permit Numbers R13-3708

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From: "Andrews, Edward S" To: Dallas Date: Thu Nov 20 2025 12:34:27 GMT-0500 (Eastern Standard Time)Subject: Final Notification for MGS CNP 1, LLC; Permit Numbers R13-3708

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From: "Andrews, Edward S" To: chattingenesis@gmail.comDate: Thu Nov 20 2025 12:34:27 GMT-0500 (Eastern Standard Time)Subject: Final Notification for MGS CNP 1, LLC; Permit Numbers R13-3708

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From: "Andrews, Edward S" To: Dennis O Date: Thu Nov 20 2025 12:34:27 GMT-0500 (Eastern Standard Time)Subject: Final Notification for MGS CNP 1, LLC; Permit Numbers R13-3708

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From: "Andrews, Edward S" To: Diana Date: Thu Nov 20 2025 12:34:27 GMT-0500 (Eastern Standard Time)Subject: Final Notification for MGS CNP 1, LLC; Permit Numbers R13-3708

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From: "Andrews, Edward S" To: gshuffman@gmail.comDate: Thu Nov 20 2025 12:34:27 GMT-0500 (Eastern Standard Time)Subject: Final Notification for MGS CNP 1, LLC; Permit Numbers R13-3708

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From: "Andrews, Edward S" To: Elaine Date: Thu Nov 20 2025 12:34:27 GMT-0500 (Eastern Standard Time)Subject: Final Notification for MGS CNP 1, LLC; Permit Numbers R13-3708

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From: "Andrews, Edward S" To: jkotcon@gmail.comDate: Thu Nov 20 2025 12:34:27 GMT-0500 (Eastern Standard Time)Subject: Final Notification for MGS CNP 1, LLC; Permit Numbers R13-3708

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From: "Andrews, Edward S" To: wvtango2@frontier.comDate: Thu Nov 20 2025 12:34:27 GMT-0500 (Eastern Standard Time)Subject: Final Notification for MGS CNP 1, LLC; Permit Numbers R13-3708

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From: "Andrews, Edward S" To: Howie Date: Thu Nov 20 2025 12:34:27 GMT-0500 (Eastern Standard Time)Subject: Final Notification for MGS CNP 1, LLC; Permit Numbers R13-3708

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Thank-you
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Edward Andrews, P.E.
Engineer
WVDEP/Division of Air Quality
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From: "Andrews, Edward S" To: James Date: Thu Nov 20 2025 12:34:27 GMT-0500 (Eastern Standard Time)Subject: Final Notification for MGS CNP 1, LLC; Permit Numbers R13-3708

You are receiving this letter because you provided comments during the public comment period for the following permitting actions:

Company Name: MSG CNP 1, LLC
Facility Name: BECCS
Permit Application: R13-3708
Plant ID No.: 053-00134

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From: "Andrews, Edward S" To: "Jay & Stephanie" Date: Thu Nov 20 2025 12:34:27 GMT-0500 (Eastern Standard Time)Subject: Final Notification for MGS CNP 1, LLC; Permit Numbers R13-3708

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From: "Andrews, Edward S" To: sdsheline@hotmail.comDate: Thu Nov 20 2025 12:34:27 GMT-0500 (Eastern Standard Time)Subject: Final Notification for MGS CNP 1, LLC; Permit Numbers R13-3708

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From: "Andrews, Edward S" To: Jim Date: Thu Nov 20 2025 12:34:27 GMT-0500 (Eastern Standard Time)Subject: Final Notification for MGS CNP 1, LLC; Permit Numbers R13-3708

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From: "Kessler, Joseph R" To: "Andrews, Edward S" Date: Thu Nov 20 2025 12:51:23 GMT-0500 (Eastern Standard Time)Subject: Re: Final Notification for MGS CNP 1, LLC; Permit Numbers R13-3708
Perfect.

On Thu, Nov 20, 2025 at 12:35 PM Andrews, Edward S <edward.s.andrews@wv.gov> wrote:

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Permit Application: R13-3708
Plant ID No.: 053-00134

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From: "Andrews, Edward S" To: Keith Date: Thu Nov 20 2025 12:34:27 GMT-0500 (Eastern Standard Time)Subject: Final Notification for MGS CNP 1, LLC; Permit Numbers R13-3708

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Engineer
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Charleston, WV 25304

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From: Mail Delivery Subsystem To: edward.s.andrews@wv.govDate: Thu Nov 20 2025 12:35:50 GMT-0500 (Eastern Standard Time)Subject: Delivery Status Notification (Failure)

Address not found

Your message wasn't delivered to **lwean@monscleanairforce.org** because the domain monscleanairforce.org couldn't be found. Check for typos or unnecessary spaces and try again.

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The response was:

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DNS Error: DNS type 'mx' lookup of monscleanairforce.org responded with code NXDOMAIN
Domain name not found: monscleanairforce.org For more information, go to
https://support.google.com/mail/?p=BadRcptDomain
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From: "Andrews, Edward S" To: kabiggs@suddenlink.netDate: Thu Nov 20 2025 12:34:27 GMT-0500 (Eastern Standard Time)Subject: Final Notification for MGS CNP 1, LLC; Permit Numbers R13-3708

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Plant ID No.: 053-00134

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From: "Andrews, Edward S" To: Kristine Date: Thu Nov 20 2025 12:34:27 GMT-0500 (Eastern Standard Time)Subject: Final Notification for MGS CNP 1, LLC; Permit Numbers R13-3708

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From: "Andrews, Edward S" To: Joseph Date: Thu Nov 20 2025 12:34:27 GMT-0500 (Eastern Standard Time)Subject: Final Notification for MGS CNP 1, LLC; Permit Numbers R13-3708

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From: "Andrews, Edward S" To: hopw_2@hotmail.comDate: Thu Nov 20 2025 12:34:27 GMT-0500 (Eastern Standard Time)Subject: Final Notification for MGS CNP 1, LLC; Permit Numbers R13-3708

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From: "Andrews, Edward S" To: Miriam Date: Thu Nov 20 2025 12:34:27 GMT-0500 (Eastern Standard Time)Subject: Final Notification for MGS CNP 1, LLC; Permit Numbers R13-3708

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From: "Andrews, Edward S" To: Marketta Date: Thu Nov 20 2025 12:34:27 GMT-0500 (Eastern Standard Time)Subject: Final Notification for MGS CNP 1, LLC; Permit Numbers R13-3708

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From: "Andrews, Edward S" To: Pamela Date: Thu Nov 20 2025 12:34:27 GMT-0500 (Eastern Standard Time)Subject: Final Notification for MGS CNP 1, LLC; Permit Numbers R13-3708

You are receiving this letter because you provided comments during the public comment period for the following permitting actions:

Company Name: MSG CNP 1, LLC
Facility Name: BECCS
Permit Application: R13-3708
Plant ID No.: 053-00134

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Thank-you
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Engineer
WVDEP/Division of Air Quality
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601 57th Street, SE
Charleston, WV 25304

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From: Mail Delivery Subsystem To: edward.s.andrews@wv.govDate: Thu Nov 20 2025 12:36:05 GMT-0500 (Eastern Standard Time)Subject: Delivery Status Notification (Failure)

Address not found

Your message wasn't delivered to **mframe427@everyactioncustom.com** because the address couldn't be found, or is unable to receive mail.

The response from the remote server was:

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550 5.0.1 Recipient rejected
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From: "Andrews, Edward S" To: Michael Date: Thu Nov 20 2025 12:34:27 GMT-0500 (Eastern Standard Time)Subject: Final Notification for MGS CNP 1, LLC; Permit Numbers R13-3708

You are receiving this letter because you provided comments during the public comment period for the following permitting actions:

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Permit Application: R13-3708
Plant ID No.: 053-00134

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From: "Andrews, Edward S" To: Michaela Date: Thu Nov 20 2025 12:34:27 GMT-0500 (Eastern Standard Time)Subject: Final Notification for MGS CNP 1, LLC; Permit Numbers R13-3708

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From: "Andrews, Edward S" To: Paul Date: Thu Nov 20 2025 12:34:27 GMT-0500 (Eastern Standard Time)Subject: Final Notification for MGS CNP 1, LLC; Permit Numbers R13-3708

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From: "Andrews, Edward S" To: Ronald Date: Thu Nov 20 2025 12:34:27 GMT-0500 (Eastern Standard Time)Subject: Final Notification for MGS CNP 1, LLC; Permit Numbers R13-3708

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From: "Andrews, Edward S" To: Randy and Marsha Date: Thu Nov 20 2025 12:34:27 GMT-0500 (Eastern Standard Time)Subject: Final Notification for MGS CNP 1, LLC; Permit Numbers R13-3708

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From: "Andrews, Edward S" To: Randy Date: Thu Nov 20 2025 12:34:27 GMT-0500 (Eastern Standard Time)Subject: Final Notification for MGS CNP 1, LLC; Permit Numbers R13-3708

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From: "Andrews, Edward S" To: Ryan and Jessica Date: Thu Nov 20 2025 12:34:27 GMT-0500 (Eastern Standard Time)Subject: Final Notification for MGS CNP 1, LLC; Permit Numbers R13-3708

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From: "Andrews, Edward S" To: rjbailey512@yahoo.comDate: Thu Nov 20 2025 12:34:27 GMT-0500 (Eastern Standard Time)Subject: Final Notification for MGS CNP 1, LLC; Permit Numbers R13-3708

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From: "Andrews, Edward S" To: Sabrina Date: Thu Nov 20 2025 12:34:27 GMT-0500 (Eastern Standard Time)Subject: Final Notification for MGS CNP 1, LLC; Permit Numbers R13-3708

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From: "Andrews, Edward S" To: stephanie.r.mink@wv.govDate: Thu Nov 20 2025 12:34:27 GMT-0500 (Eastern Standard Time)Subject: Final Notification for MGS CNP 1, LLC; Permit Numbers R13-3708

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From: "Andrews, Edward S" To: Stephanie Date: Thu Nov 20 2025 12:34:27 GMT-0500 (Eastern Standard Time)Subject: Final Notification for MGS CNP 1, LLC; Permit Numbers R13-3708

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From: "Andrews, Edward S" To: Seth Date: Thu Nov 20 2025 12:34:27 GMT-0500 (Eastern Standard Time)Subject: Final Notification for MGS CNP 1, LLC; Permit Numbers R13-3708

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Edward Andrews, P.E.
Engineer
WVDEP/Division of Air Quality
304-926-0499 Ext 41244
601 57th Street, SE
Charleston, WV 25304

--
Unsubscribe

Attachments:053-00134_Final_Det_13-3708_final.pdf053-00134_RTC_R13-3708-final.pdf053-00134_PERM_R13-3708_final.pdf

From: Precision Embroidery To: "Andrews, Edward S" Date: Thu Oct 09 2025 11:37:31 GMT-0400 (Eastern Daylight Time)Subject: Re: Handout and Presentation from Oct 7 Public Meeting Re: MGS CNP 1, LLC Air Quality Permit ApplicationThank you Edward.

Your information and insight remains useful and very informative.

Thanks for sharing,

Ben Templeton

> On Oct 8, 2025, at 7:54 AM, Andrews, Edward S <edward.s.andrews@wv.gov> wrote:
>
> Dear Ben Templeton,
>
> Attached to this email are copies of the handout and presentation from last night's public meeting regarding the MGS CNP 1, LLC air quality permit application (R13-3708).
>
> These documents will also be posted on our website at: [https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx] (https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx), under "Popular Searches" and "MGS CNP1, LLC; BECCS Plant."
>
> Should you have any questions, please do not hesitate to let me know.
>
> Sincerely,
> Edward Andrews
> --
> Edward Andrews, P.E.
> Engineer
> WVDEP/Division of Air Quality
> 304-414-1244
> 601 57th Street, SE
> Charleston, WV 25304
>
> --
> Unsubscribe

Attachments:MGS CNP 1 - PM Presentation.pdfMGS CNP1 Public Meeting Handout.pdf

From: Charlise Robinson To: "Edward.s.andrews@wv.gov" Date: Wed Oct 08 2025 17:34:04 GMT-0400 (Eastern Daylight Time)Subject: MGS CNP1-BECCS Commets
Public Comment for the record:
The HAPs proposed emissions of 24.01 ton per years are bordering the limit of consideration as a major source. The carbon capture recovery percentage seems questionable. The monitoring requirements are appreciated. Hopefully that information is easily accessible to the community upon requested by email like stated at the public meeting if this permit is approved.

Thank you,
Charlise Robinson
Ohio River Coordinator
West Virginia Rivers Coalition
(304)488-0429 office
WVRivers.org | Sign up for E-new

Book time to meet with me

Attachments:Outlook-sp0s0gzt.png

From: Andrew Earley To: "edward.s.andrews@wv.gov" Date: Wed Oct 08 2025 16:57:00 GMT-0400 (Eastern Daylight Time)Subject: MGS CNP1 - BECCS Comments
Mr. Andrews,

Please see attached comments related to the MGS CNP1 BECCS facility submitted on behalf of WV Citizen Action Group.

Best,

Andrew Earley
WV Staff Attorney
Fair Shake Environmental Legal Services
232 Capitol Street, Ste. 14
Charleston, WV 25301
aearley@fairshake-els.org
www.fairshake-els.org
304-712-9352

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From: Andrew Earley To: "edward.s.andrews@wv.gov" Date: Wed Nov 12 2025 12:19:12 GMT-0500 (Eastern Standard Time)Subject: Re: MGS CNP1 - BECCS Comments
Hi Ed,

I hope you are well and trust that this was received. I imagine you are completely slammed right now (based on all the things I've seen your name on). Do you have anticipations for when a final determination and response to comments might be ready regarding his facility?

Best,

Andrew Earley
WV Staff Attorney
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Charleston, WV 25301
aearley@fairshake-els.org
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From: Andrew Earley <aearley@fairshake-els.org>
Date: Wednesday, October 8, 2025 at 4:57 PM
To: edward.s.andrews@wv.gov <edward.s.andrews@wv.gov>
Cc: DEPairqualitypermitting@wv.gov <DEPairqualitypermitting@wv.gov>, Crowder, Laura M <laura.m.crowder@wv.gov>
Subject: MGS CNP1 - BECCS Comments

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From: "Andrews, Edward S" To: Andrew Earley Date: Wed Nov 12 2025 13:40:30 GMT-0500 (Eastern Standard Time)Subject: Re: MGS CNP1 - BECCS Comments
Andrew,

I am hoping to have it prepared and approved by the end of this week or early next week.

Ed

On Wed, Nov 12, 2025 at 12:19 PM Andrew Earley <aearley@fairshake-els.org> wrote:

> Hi Ed,
>
> I hope you are well and trust that this was received. I imagine you are completely slammed right now (based on all the things I've seen your name on). Do you have anticipations for when a final determination and response to comments might be ready regarding his facility?
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> Best,
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> Andrew Earley
> WV Staff Attorney
> Fair Shake Environmental Legal Services
> 232 Capitol Street, Ste. 14
> Charleston, WV 25301
> aearley@fairshake-els.org
> www.fairshake-els.org
> 304-712-9352
>
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From: Andrew Earley <aearley@fairshake-els.org>
Date: Wednesday, October 8, 2025 at 4:57 PM
To: edward.s.andrews@wv.gov <edward.s.andrews@wv.gov>
Cc: DEPairqualitypermitting@wv.gov <DEPairqualitypermitting@wv.gov>, Crowder, Laura M <laura.m.crowder@wv.gov>
Subject: MGS CNP1 - BECCS Comments

Mr. Andrews,

Please see attached comments related to the MGS CNP1 BECCS facility submitted on behalf of WV Citizen Action Group.

Best,

Andrew Earley
WV Staff Attorney
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From: Andrew Earley To: "Andrews, Edward S" Date: Wed Nov 12 2025 15:07:07 GMT-0500 (Eastern Standard Time)Subject: Re: MGS CNP1 - BECCS Comments
Thanks very much.

-Andrew

From: Andrews, Edward S <edward.s.andrews@wv.gov>
Date: Wednesday, November 12, 2025 at 1:40 PM
To: Andrew Earley <aearley@fairshake-els.org>
Subject: Re: MGS CNP1 - BECCS Comments

Andrew,

I am hoping to have it prepared and approved by the end of this week or early next week.

Ed

On Wed, Nov 12, 2025 at 12:19 PM Andrew Earley <aearley@fairshake-els.org> wrote:

> Hi Ed,
>
> I hope you are well and trust that this was received. I imagine you are completely slammed right now (based on all the things I've seen your name on). Do you have anticipations for when a final determination and response to comments might be ready regarding his facility?

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304-712-9352

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From: Andrew Earley <aearley@fairshake-els.org>
Date: Wednesday, October 8, 2025 at 4:57 PM
To: edward.s.andrews@wv.gov <edward.s.andrews@wv.gov>
Cc: DEPairqualitypermitting@wv.gov <DEPairqualitypermitting@wv.gov>, Crowder, Laura M <laura.m.crowder@wv.gov>
Subject: MGS CNP1 - BECCS Comments

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Please see attached comments related to the MGS CNP1 BECCS facility submitted on behalf of WV Citizen Action Group.

Best,

Andrew Earley
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Attachments:WVCAG Comment on MGSCNP1 BECCS Facility.pdf

October 8, 2025
Edward Andrews, P.E.
WV Department of Environmental Protection
Division of Air Quality
601 57th Street, SE
Charleston, WV 25304

Submitted via email to: Edward.s.andrews@wv.gov; DEPAirQualityPermitting@wv.gov; and Laura.m.Crowder@wv.gov

Re: *Comment in Opposition to the Draft Construction Permit R13-3708 for the MGS CNP 1 Project (West Virginia Division of Air Quality)*

Mr. Andrews and Division of Air Quality:

On February 24, 2025, MGS CNP 1, LLC ("Applicant") applied to the WV Department of Environmental Protection ("WVDEP") for a construction permit for the installation and operation of a biomass boiler for purpose to generate electricity with a carbon capture unit to be located near 5801 Ohio River Road, Point Pleasant, Mason County, WV. WVDEP provided public notice for an open comment period regarding a Draft Construction Permit for this facility on or around August 21, 2025. The deadline for public comment was originally September 18, 2025, but was extended to October 8, 2025, following requests and input from the public. These comments are submitted on behalf of WV Citizen Action Group (WV CAG).

Since 1974, West Virginia Citizen Action Group has advocated for better public policy, rights of individuals, a clean environment, and a stronger democratic process. The philosophy of WV CAG is that full-time citizen participation in the decision-making processes of our state is absolutely essential. WV CAG staff and members work to increase the voice of the average citizen in public affairs through research, education, lobbying, organizing and coalition building – speaking out on behalf of the consumer, speaking out in defense of a cleaner environment, and speaking out in favor of a government that is honest, open, and accountable to the needs of all its citizens. WV CAG works to empower individuals by providing them with resources to be effective advocates on issues that affect their lives, such as a healthy environment and government accountability and transparency. WV CAG submits these comments on behalf based on these principles and on behalf of its members. WV CAG's interest includes (1) ensuring that WVDEP issues permits consistent with the Clean Air Act (CAA), applicable federal regulations, and West Virginia law; (2) securing practically enforceable permit limits and monitoring sufficient to assure continuous compliance; and (3) safeguarding public health from harmful pollutants.

WV CAG appreciates the opportunity to comment and requests that the agency provide a responsiveness summary addressing each material comment and disclose the technical basis for any lack of changes.

WV CAG reviewed the permit record and relied on a report conducted by Downstream Strategies ("Downstream Report") to prepare these comments.[1] The permit record includes, and these comments rely on, the following documents:

- The R13 Air Permit Application submitted by Applicant ("Application")[2]
- The IPR file[3], Supplement to IPR 1[4], Supplement to IPR 2[5], and Supplement to IPR 3[6];
- Public Notice of the Open Comment Period ("Public Notice")[7];
- Notice of Public Meeting and Extension to the Comment Period ("Public Meeting Notice")[8]
- the Site Map[9];
- the Engineering Evaluation/Fact Sheet ("Engineering Evaluation")[10]; and
- the Draft Construction Permit R13-3708 to MGS CNP 1, LLC ("Draft Permit").[11]

WVDEP should not finalize the Draft Construction Permit R13-3708 as proposed. Based on the application, the Engineering Evaluation/Fact Sheet, and the draft permit record, the information is insufficient to support WVDEP's conclusion

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[1] *See* Attachment A, Technical Review of MGS CNP1's Draft Construction Permit for a Bioenergy with Carbon Capture and Storage Plant in Point Pleasant, West Virginia (October 8, 2025).

[2] *See* Division of Air Quality Permit Application Submittal (Feb. 24, 2025) ("Application"), *available at* https://dep.wv.gov/daq/permitting/Documents/MGS-CNP-BECCS/053-00134_APPL_13-3708.pdf.

[3] *Available at* https://dep.wv.gov/daq/permitting/Documents/MGS-CNP-BECCS/053-00134_IPR_13-3708.pdf.

[4] *Available at* https://dep.wv.gov/daq/permitting/Documents/MGS-CNP-BECCS/Supplement%202%20-%206-18-25%20Incomplete%20Notice%20Cover%20Leter%20V0.02.pdf.

[5] *Available at* https://dep.wv.gov/daq/permitting/Documents/MGS-CNP-BECCS/Supplement%202%20-%206-18-25%20Incomplete%20Notice%20Cover%20Leter%20V0.02.pdf.

[6] *Available at* https://dep.wv.gov/daq/permitting/Documents/MGS-CNP-BECCS/Supplement%203%20%20Incomplete%20Notice%20Response%20v0.01.pdf.

[7] Air Quality Permit Notice ("Public Notice"), *available at* https://dep.wv.gov/daq/permitting/Documents/MGS-CNP-BECCS/053_00134_Notice_13-3708.pdf.

[8] Notice of Public Meeting and Extension to the Comment Period ("Public Meeting Notice"), *available at* https://dep.wv.gov/daq/permitting/Documents/MGS-CNP-BECCS/Fidelis%20PM%20Notice.pdf.

[9] BECCS Site MAP from 13-3708 ("Site Map"), *available at* https://dep.wv.gov/daq/permitting/Documents/MGS-CNP-BECCS/BECCS%20Site%20Map%20from%2013-3708.pdf.

[10] Engineering Evaluation / Fact Sheet ("Engineering Evaluation"), *available at* https://dep.wv.gov/daq/permitting/Documents/MGS-CNP-BECCS/053-00134_EVAL_13-3708.pdf.

[11] Draft Construction Permit R13-3708 to MGS CNP 1, LLC ("Draft Permit"), *available at* https://dep.wv.gov/daq/permitting/Documents/MGS-CNP-BECCS/053-00134_PERM_R13-3708-Draft.pdf.

that the project's particulate matter (PM), oxides of nitrogen (NOx), and hazardous air pollutants (HAP) emissions "are below the major source threshold level in the Title V Operating Permit and Prevention of Significant Deterioration [(PSD)] Permitting Programs."[12] As explained below, the permit record contains core defects that create a material risk that the project's PM, NOx, and combined HAP emissions exceed the relevant emission thresholds, making the project a source major of these emissions and thus subject to PSD, Boiler MACT Subpart DDDDD, and Title V operating permit requirements.

WV CAG therefore requests that WVDEP either:

(1) Treat the project as major source of PM, NOx, and HAPs emissions, apply the requirements of Boiler MACT (DDDDD) and PSD and Title V permitting, and correct other provisions of the permit as needed; or

(2) Re-notice a lawful synthetic-minor permit under 45CSR13 and 45CSR30 with enforceable facility-wide PM, NOx, and HAP caps, supported PM and NOx emission factors, species-level HAP accounting (no VOC proxy), and binding limits for PM, NOx, and HCl control—plus robust monitoring, recordkeeping, and reporting (MR&R).

In the alternative, WVDEP should withdraw the draft permit and require the Application to submit a complete, corrected application.[13]

I. Legal Framework

Any new source of air emissions constructed in West Virginia is required to get pre-construction air permits, where the exact type of permit depends on whether the source's expected emissions exceed certain air pollution thresholds. *See generally* 45 CSR §§ 13 and 14. Specifically, a biomass fired boiler for the purpose of generating electricity not for sale that plans to construct a new source in an area that meets all national ambient air quality standards (such as Mason County, West Virginia) is required by the federally approved West Virginia state implementation plan ("SIP") to get a PSD permit prior to construction and initial operation if it is a "major stationary source" of air emissions, which is defined as "any stationary source which emits, or has the potential to emit, two hundred fifty (250) tons per year or more of any regulated NSR pollutant." 45 CSR § 14 – 2.43.b;

[12] Engineering Evaluation / Fact Sheet ("Engineering Evaluation"), *available at* https://dep.wv.gov/daq/permitting/Documents/MGS-CNP-BECCS/053-00134_EVAL_13-3708.pdf, at 1-2.

[13] In addition to these arguments regarding the current Draft Construction Permit, Commenter also notes that that this project is one of multiple facilities planned at this location. Other facilities that are not addressed in the Draft Permit include a facility that produces hydrogen from natural gas, a hydrogen power plant, data centers, carbon dioxide pipelines, and a carbon dioxide injection well. WVDEP must also consider whether all of the emissions from these various projects are part of one installation that must be permitted as one stationary source under the PSD and Title V permitting programs. *See* 45 CSR §§ 14 – 2.79, 30 – 2.41.

see also 42 U.S.C § 7479(1). A PSD major source must control emissions through application of the best available control technology ("BACT"), which is an emission limit "based on the maximum degree of reduction for each regulated NSR pollutant which would be emitted from any proposed major stationary source or major modification which the [WVDEP] Secretary, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant." 45 CSR §§ 14 – 8.2 and 2.12; *see also* 42 U.S.C §§ 7475(a)(4) and 7479(3). In addition to BACT limits, PSD permits for major stationary sources must also meet other requirements, such as conducting air quality analysis of the facility's emissions on regional air quality and continued monitoring for such impacts. 45 CSR § 14 – 7.2(d)-(e) and 11; *see also* 42 U.S.C § 7475(a)(3) and (7).

West Virginia law defines sources that are not PSD "major stationary sources" but can emit, or have the potential to emit, more than 10 but less than 250 tons per year ("TPY") of specific regulated pollutants to be a "stationary source" of air pollution. 45 CSR § 13 – 2.24. Such sources are not subject to PSD permitting requirements but are instead required to obtain a permit to construct, modify, relocate, and operate from WVDEP ("pre-construction permit"). 45 CSR § 13 – 5.1. Such permits are commonly referred to as a "minor source" permit.[18] West Virginia law does not dictate any specific terms that must be included in a minor source permit, but instead states that WVDEP "may impose any reasonable condition," such as "source-specific emission limitations, limits on the hours of operation or production rates, or other constraints to minimize air pollutant discharges," installation of air pollutant monitoring devices, periodic emissions reporting, and enforcement conditions. 45 CSR § 13 – 5.10.

Accordingly, determining whether a source such as MGS CNP 1 is subject to a major or minor source pre-construction permit depends on its "potential to emit," or PTE, which the West Virginia SIP defines as:

> [T]he maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed shall be treated as part of its design only if the limitation or the effect it would have on emissions is federally enforceable or is enforceable by the Secretary in any permit and/or consent order issued by the United States Environmental Protection Agency or by the Secretary.

45 CSR § 14 – 2.58. This definition mirrors the federal definition of potential to emit, which requires that such physical or operational changes be "federally enforceable" when assessing their impact on determining whether a source is subject to the major source permitting requirements under the Clean Air Act. 40 CFR §§ 52.21 (b)(4). WVDEP uses a very similar definition in the minor source program, defining PTE to be "the maximum design capacity of a stationary source or emissions unit to emit a pollutant under its physical and operational design," where any physical or operation limits to reduce PTE, "including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted," are only treated as part of the design if the limit or its emission effect "is enforceable by the Secretary and U. S. EPA in any permit or consent order." 45 CSR § 13 – 2.19.

In addition to PSD permitting requirements, sources of air emissions in West Virginia must also apply for a Title V operating permit if the pollution emissions exceed the major source thresholds of 100 tpy of criteria pollutants, 10 tpy of any individual HAP, or 25 tpy of combined HAPs. 45 CSR §§ 30 – 2.26, 3.1.

Where a facility relies on such physical or operation limits to reduce its PTE below major source permitting threshold under either the PSD or Title V permitting program, the resulting permit is usually referred to as a synthetic minor permit. As EPA has clearly stated, in order for a synthetic minor permit to avoid major source requirements for PSD pollutants – such as particulate matter ("PM") , volatile organic compounds ("VOCs"), or oxides of nitrogen ("NOx") – or HAPs emissions, the minor source permit must include sufficient terms and conditions such that the source cannot lawfully exceed the limit.[14] An emission limit can only be relied upon to restrict a source's PTE if it is legally and practicably enforceable, which means the permit must specify "how emissions will be measured or determined for purposes of demonstrating compliance with the limit."[15] The terms must also make it possible for regulators (i.e., WVDEP and EPA) and the public to determine a facility's compliance with those terms and bring legal action for any noncompliance.[16] If a synthetic minor source permit does not have adequate permit limitations, the facility would be considered a major source and subject to the more stringent requirements of the major-source permitting programs.[17]

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[14] *In the Matter of Yuhuang Chemical, Inc., Order on Petition No. VI-2015-03 (Aug. 31, 2016; "Yuhuang I Order"), at 13, available at https://www.epa.gov/sites/default/files/2016-09/documents/yuhuang_response2015_0.pdf. See also EPA Office of Inspector General Report, EPA Should Conduct More Oversight of Synthetic Minor-Source Permitting to Assure Permits Adhere to EPA Guidance (7/8/21) ("EPA 2021 OIG Report"), available at https://www.epa.gov/system/files/documents/2021-07/_epaoig_20210708-21-p-0175.pdf.*

[15] *Yuhang I Order* at 14.

[16] *See id.* and EPA 2021 OIG Report at 4.

[17] EPA 2021 OIG Report at 3.

For HAPs, a source is *major* source subject to the federal emission rules and Title V permitting requirements if its potential to emit is greater than or equal to10 tpy of any single HAP or greater than or equal to 25 tpy of combined HAPs. 42 U.S.C. §§ 7412(a)(1), 7661(2); 40 C.F.R. §§ 63.2, 70.2. This determination must include fugitives and associated units. See 40 C.F.R. § 63.2 (definitions of *fugitive emissions*, *major source,* and *potential to emit*). Where the record is ambiguous or relies on assumptions not embedded in enforceable permit limits and monitoring, WVDEP must either deny or re-notice with corrected terms.

II. Substantive Deficiencies in the Permit

A. This is a Major Source of HAPs and the Major Source Boiler Rules (40 CFR 63, Subpart DDDDD) and Title V Permitting Requirements Apply.

a. Organic HAPs Were Improperly Scaled to a VOC Factor

The Applicant adjusted the organic HAPs emission factors by multiplying the ratio of vendor guaranteed VOC emission factors to the AP-42 VOC emission factor. DAQ questioned why HAPs were reduced by 88% when a VOC removal efficiency of 60% was applied for VOC emissions. The Applicant pointed to vendor guarantees for this reduction, but the vendor guarantees are not provided in the record. The applicant states they don't have these guarantees because a vendor has not been selected, but that these numbers are based on minimum guarantees provided by vendors. These claims cannot be substantiated by either WVDEP or the public without the vendor guarantees and should be rejected as a result.

Even slight modifications to the HAPs assumptions push this facility into major source territory because these reductions drastically reduce both formaldehyde and HCl—the two most prevalent HAPs here. In addition to the missing vendor guarantees, the Applicant also appear to be incorrectly applying general VOC-based emission factors to speciated organics. AP-42 Table 1.6-3 lists emission factors for general organic VOCs but also separate, specific emission factors for HCl and Formaldehyde emissions, and the footnote in AP-42 Table 1.6-3 for VOCs states that the factor for VOCs is the sum of all factors in the table *except* HCl, Formaldehyde, and some others. As a result, it is inappropriate to use the scaled-VOC Factor when determining the PTE of Formaldehyde and HCl.

Because the Applicant does not supply adequate support for its emissions factors, and because use of appropriate estimates would place this facility well into major source category for HAPs, the Major Source Boiler Rule applies. This will require additional MACT technologies, testing, monitoring, recordkeeping, and reporting that must all be federally enforceable and in line with the Major Source Boiler Rule, as well as making this project a Title V major source..

B. This is a PSD and Title V Major Source of PM and NOx Emissions.

a. **The PSD Major Source Threshold for Criteria Pollutants for this Facility should be 100 tpy.**

The Applicant asserts that this facility should be subject to the 250tpy threshold for criteria pollutants instead of the 100tpy threshold. This is incorrect as explained below. The Applicant, and the Permit Writer, both base this reasoning on the fact that the facility will not be burning at least 250MMBtu/hr of a fossil fuel. But this does not tell the full story. The Applicant correctly states the language in 45CSR14 — 2.43(a) but ignores what "(or combination thereof)" means. Application at p. 16. Combination thereof does not refer to a combination of fossil fuels. Rather, it refers to a boiler, or boilers, that reach a heat input of at 250MMbtu/hr utilizing fossil-fuels. Additionally, the "or combination thereof" distinction is not made for fossil-fuel fired steam electric plants, which indicates that this was an intentional choice about how boilers that utilize multiple fuel sources should be regulated. Here, the sole boiler reaches a heat input great than 250MMBtu/hr while utilizing fossil-fuels and woody biomass. As a result, the 100tpy threshold should apply for criteria pollutants.

b. **The PM and NOx Emission Estimates Are Not Supported in the Record.**

The Applicant estimates that uncontrolled PM emissions from this project would exceed 3,400 tpy and NOx emissions would exceed 880 tpy, with most emissions arising from operation of the biomass boiler.[18] The Applicant then reduced these PM and NOx emissions to less than 90 tpy each after using emissions factors for application of various controls based on vendor guarantees and an "adjusted AP-42 emission factor for condensable PM" based on "test data collected from operating units."[19] While the application includes a spreadsheet that purports to provide the test data (Application, Table N-1), the application does not include the specific vendor guarantees or any information regarding the names, locations, fuels, and other potentially pertinent information for these other operating units. Without this information, neither WVDEP nor the public can verify the accuracy of these factors and whether it is reasonable to rely on them in calculating the NOx and PM PTE for this facility. This lack of information is especially problematic for the estimation of condensable PM, since the emission factor of 0.008 lb/MMBtu used in the application and relied upon by WVDEP is less than half the AP-42 emission factor of 0.017 lb/MMBtu. If even a small adjustment were made to these PM and NOx emission factors, the project would be both a PSD and Title V major source. WVDEP cannot issue this minor source permit unless and until the Applicant can

[18] Application at PDF pg. 196-198.
[19] Application at PDF page 275, n.1.

provide all relevant information needed to confirm that the emissions of NOx and PM are below the Title V and PSD major source thresholds.

c. NSPS for the Boiler

The Applicant correctly identifies that the facility must comply with all applicable provisions of 40 CFR 60 Subpart A.

i. NSPS Subpart Da – Standards of Performance for Fossil-Fuel-Fired Steam Generators.

The applicability of Subpart Da for electric utility steam generating units built after September 18, 1978, states:

(a) Except as specified in paragraph (e) of this section, the affected facility to which this subpart applies is each electric utility steam generating unit:

> (1) That is capable of combusting more than 73 megawatts (MW) (250 million British thermal units per hour (MMBtu/hr)) heat input of fossil fuel (either alone or in combination with **any other fuel**) …."

40 CFR 60.40Da(a). The Engineering Evaluation states that this provision does not apply because "the unit will only have the capacity to combust 180MMBtu/hr of natural gas (fossil fuel) which is less than the trigger level of 250MMBtu/hr." This contradicts a plain reading of Subpart Da because the regulation is applicable if the heat input is met when fossil fuel is used "either alone or in combination with **any other fuel**." Id. Here, natural gas is being utilized, and it is being used in combination with biomass, such that the trigger level is well above 250MMBtu/hr, with an average heat input from natural gas and biomass at 414.3MMBtu/hr. Application, Table N-1. As a result, the reasoning provided for excluding this regulation fails.

d. The Applicant Correctly Determined that Subpart OOO of 40CFR60 Applies.

The Permit Writer stated that "[t]he applicant noted that the facility was an affected facility subject to subpart OOO. The writer disagrees … because the applicant did not disclose any sodium bicarbonate process equipment (crusher/grinding mill) in the application. Equipment used to handle or store sodium bicarbonate does not constitute 'processing' under this subpart." Engineering Evaluation at 22. This is incorrect. The application explicitly states that that the sodium bicarbonate will be fed into grinding mills located in the building. Application at 12-13. Any crushers, grinding mills, screening operations, bucket elevators, belt conveyors, bagging operations, storage bins, and enclosed truck or railcar systems are subject to Subpart OOO as a result. These requirements include standards for particulate matter, monitoring requirements, testing, and record keeping and

reporting requirements. Those must be included in the permit as enforceable permit limits and conditions.

C. The Source of, and Information Related to, the Biomass is Unlawfully Held as Confidential Business Information.

The Clean Air Act is clear that emissions data is not subject to Confidential Business Information claims. Section 114(c) of the Clean Air Act, 42 USC 7414(c), authorizes full disclosure to the public of any information that a broad definition of emissions data. This law is codified by 40 CFR 2.301 *et seq.*, and it makes clear that information necessary to determine the identity, amount, frequency, concentration, or other characteristics related to air quality cannot be redacted. 40 CFR 2.301(a)(2)(i). Yet, WVDEP granted the Applicant's request to redact information about the feedstock (woody biomass) that will necessarily affect emissions data. Without that information, the public cannot accurately assess the Application or determine whether the Draft Permit complies with state and federal laws.

This is especially clear when considering the AP-42 Emissions Factors for PM From Wood Residue Combustion.[20] That table makes clear that the emissions factors differ significantly based on the fuel type (wet wood, dry wood, bark, and combinations thereof) and the controls applied. Without being able to evaluate the feedstock, the public cannot determine whether the appropriate emissions factors are applied. Thus, the public cannot determine whether the facility complies with state and federal laws.

Additionally, the permit includes a term that the source must utilize only "clean cellulosic biomass," as defined in 40 CFR 241.2. Draft Permit Condition 4.1.1.1(j). We support this condition, but the public has no way to ensure that the Applicant complies with the condition without information about the source of the woody biomass.

Further still, it is hard to imagine how the Applicant could show, in any meaningful way, that disclosure of information about the woody biomass would cause substantial harm to the business's competitive position. And we know that the information was not voluntarily submitted because WVDEP acknowledged its necessity to determine whether exemptions under NSPS Subpart Db were appropriate.

For at least these reasons, the claimed CBI for the woody biomass needs to be released to the public.

D. Draft Permit Condition 4.1.1(j) Should be Amended to Reflect the Actual Process.

[20] AP-42, Table 1.6-1.

Draft Permit Condition 4.1.1(j) states:

> The permittee shall fire/operate the boiler with a maximum heat input that does not exceed 944 million (MM) Btu/hr on a daily average basis. The permittee shall only utilize clean cellulosic biomass as defined in 40CFR§241.2 or a combination of clean cellulosic biomass and natural gas with the input of natural gas physical limited to no greater than 180 MMBtu/hr at any given time to include startup operations. The annual heat input for the biomass boiler shall not exceed 8,269,440 MMBtu per any 12 consecutive month period.

Draft Permit at 18. But, the Applicant is clear that it will only utilize natural gas during startup, and that it will not utilize natural gas as a secondary fuel source for generation. Application at 3. Draft Permit Condition 4.1.1(j) currently gives them permission to utilize natural gas "at any given time to include startup operations." This should be amended to reflect the design of the boiler, and the Applicant's stated process. If the original language is used, the PTE calculations need to be re-done to reflect the use of natural gas during standard operation. The suggested language is:

> The permittee shall fire/operate the boiler with a maximum heat input that does not exceed 944 million MMBtu/hr on a daily average basis. The permittee shall utilize only clean cellulosic biomass as defined in 40CFR§241.2 during normal operating procedures. During startup operations, the permittee shall fire/operate the boiler with a combination of clean cellulosic biomass that does not exceed 944 MMBtu/hr and natural gas with the input of natural gas physically limited to no greater than 180 MMBtu/hr. The annual heat input for the biomass boiler shall not exceed 8,269,440 MMBtu per any 12 consecutive month period.

E. The Applicant Correctly Identifies that the Accidental Release Program (40 CFR 68) Should Apply Here—This, too, Requires Title V Compliance.

The Applicant plainly acknowledges that it will be utilizing Ammonia (20% Conc. Or greater). Application at 23; Application, Table N-11, Fixed Roof Tank Emissions. As the Downstream Report notes, neither the Draft Permit nor the Engineering Evaluation mention the ammonia storage tank. Attachment A at 6. This is relevant for a few reasons.

First, Ammonia is a pre-cursor to PM2.5. So, any emissions, fugitive or otherwise, from the ammonia storage tank need to be included in the permit, along

with appropriate and enforceable controls and practices, monitoring, recordkeeping, and reporting requirements. Second, any other emissions from the ammonia storage tank need to be accounted for and handled the same ways.

Importantly, though, the Applicant also acknowledges that an amount of Ammonia (20% Conc. Or Greater) may be utilized in amounts greater than or equal to 20,000 lbs. The Accidental Release Program (Sec. 112(r) of the CAA and 40 CFR 68), created in part due to Union Carbide's disaster in Bhopal, India and related concerns to its Institute, WV plant, is designed to prevent accidental releases of certain substances beyond the facility's fence line. Congress required the creation of an enumerated list of regulated substances at set quantities that, in the case of an accident, are known to cause or may reasonably death, injury, or serious adverse effects to human health or the environment. 42 USC §§ 7412(r)(3)-(5). That list was codified at 40 CFR 68.130. Ammonia (conc. 20% or greater) with a threshold quantity of 20,000 lbs. is on that list. *See* Table 1 to 40 CFR 68.130.

Because the Applicant self-identifies that this regulation may apply, the source should be required to submit a Risk Management Plan (RMP) by the appropriate dates as specified in 40 CFR 68.10 and 40 CFR 68.150. Commenter acknowledges that this process does not typically occur within NSR/PSD permitting, but because the Draft Permit and the permit record indicate that Title V (where this process does usually happen), now is the time to bring it up. If this program is applicable, a Title V permit is required, and that permit must contain a statement listing 40 CFR 68 as an applicable requirement along with conditions requiring a submitted compliance schedule and compliance certification attesting to compliance with the Accidental Release Program. 40 CFR 68.215.

F. Visible Emission Monitoring Must Be Revised.

Condition 4.2.3(a) sets forth visible emission monitoring requirements for the biomass boilers. In general, it relies on use of Method 22 to monitor compliance with the Draft Permit's opacity limits. However, if that testing reveals visible emissions in excess of 5% opacity, it allows the permittee to "conduct a new Method 9 of appendix A-4 of 40CFR60 performance test using the procedures in Condition 4.3.. within 45 calendar days according to the requirements in 40CFR§60.46d(d)(7)." This condition is insufficient and unclear. It is not clear why the permittee has 45 days to conduct Method 9 follow-up testing, which could allow visible emissions to exceed relevant limits for more than 6 weeks, instead of requiring Method 9 testing within 48 hours as contained in the bag leak detection monitoring under condition 4.2.3(k). In addition, the condition mistakenly references "40CFR§60.46d(d)(7)" – there is no such section in the federal rules and 40CFR§60.46(d)(7) does not contain Method 9 requirements. Accordingly, this condition must be revised to ensure adequate monitoring of visible emissions from the facility.

III. Conclusion

WC CAG reiterates its appreciation to the agency for considering these comments. For at least the reasons above, the Draft Permit should not be issued as proposed. The facility is a major source of criteria pollutants and HAPs, requiring a PSD Permit and a Title V Permit. Because of this, the Draft Permit needs to be re-done to include appropriate and enforceable emissions limits, technological controls, record-keeping, monitoring, and reporting requirements so that the facility complies with state and federal laws. Please feel free to contact me with any questions.

Respectfully Submitted,

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On Behalf Of
West Virginia Citizen Action Group

ATTACHMENT A

Technical Review of MGS CNP1's Draft Construction Permit for a Bioenergy with Carbon Capture and Storage Plant in Point Pleasant, West Virginia

Meghan Betcher

October 8, 2025

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Downstream Strategies

Ideas that sustain.

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ABBREVIATIONS

BECCS	bioenergy with carbon capture and storage
EF	emission factor
HAP	hazardous air pollutant
HCl	hydrogen chloride
hr	hour
lb	pound
MMBtu	million British thermal units
NOx	nitrogen oxides
PM	particulate matter
SCR	selective catalytic reduction
tpy	ton per year
VOC	volatile organic compound
WVDEP	West Virginia Department of Environmental Protection

1. INTRODUCTION

In August 2025, the West Virginia Department of Environmental Protection (WVDEP) issued Draft Construction Permit R13-3708 ("Permit") to MGS CNP1, LLC for a bioenergy with carbon capture and storage (BECCS) plant in Point Pleasant, West Virginia. This plant will burn woodchips during normal operation and natural gas during its startup process, generating electricity for onsite use.

This power plant is one of multiple facilities planned for the campus. Other facilities that are not included with this Permit include a facility that produces hydrogen from natural gas, a hydrogen power plant, data centers, carbon dioxide pipelines, and a carbon dioxide injection well.

For this report, the following documents were reviewed: the Permit,[1] the Engineering Evaluation/Fact Sheet ("Engineering Evaluation"),[2] and the Application,[3] including attachments to the Application.

The sections that follow identify several assumptions made by the applicant, and adopted by WVDEP, that should be scrutinized more carefully to ensure that the permit limits are accurate and that the facility is truly a minor source.

2. HAZARDOUS AIR POLLUTANTS

Hazardous air pollutants (HAPs) are toxic and are known or suspected to cause cancer or other serious health effects, such as reproductive effects or birth defects, or adverse environmental effects. HAPs are listed in Section 112(b) of the Clean Air Act. The threshold for determining a major or minor source for HAPs is 10 tons per year (tpy) for any single HAP or 25 tpy for total HAPs (40 CFR 63).

The applicant determined that the total annual HAPs emissions at the facility will be 24.0 tpy—very close to the threshold for designating the facility as a major source. As such, it is important that the Application include a very clear methodology and references to justify the emissions factors (EFs) used in these calculations. Without providing vendor's guarantees for the specific technologies to be deployed—or other sources for the EFs—it is not possible to substantiate the applicant's claims that HAP emissions will be below the thresholds. Examples are provided in the following sections.

The calculations for total HAPs emissions include separate calculations for:

- lead,
- hydrogen chloride (HCl),
- mercury,
- total organic HAPs, and
- total metallic HAPs (Application, Table N-1).

[1] West Virginia Department of Environmental Protection. Division of Air Quality. Draft Permit, number R13-3708, issued to MGS CNP1, LLC for BECCS Plant/Point Pleasant, Plant ID No. 053-00134. Released August 2025.
[2] West Virginia Department of Environmental Protection. Division of Air Quality. Engineering Evaluation/Fact Sheet for Application No.: R13-3708. Completed June 23, 2025.
[3] West Virginia Department of Environmental Protection. Division of Air Quality. Permit Application. Submitted by MGS CNP 1, LLC; BECCS Plant. Received February 24, 2025.

2.1 Boiler emission factors

Some calculations were completed using EFs from AP-42,[4] while others used EFs based on vendor's guarantees. Also, as explained below in Section 2.3, the EFs for organic HAPs were further reduced using a ratio of vendor-guaranteed volatile organic carbon (VOC) EFs to the AP-42 VOC EFs.

Using vendor-guaranteed EFs results in lower annual emission estimates in comparison to annual emissions calculated using AP-42 values. The applicant does not provide sufficient evidence that the plant will achieve the reductions used to calculate emissions estimates in the Application, nor does the applicant provide documentation of the vendor-guaranteed EFs.

Emissions calculated based on these EFs were then carried forward by WVDEP into the Permit. Although some of the AP-42 EFs are for emissions without controls, and the applicant plans to utilize devices to capture pollutants in emissions, the applicant does not provide concrete data to support the vendor-guaranteed EFs applied in the Application. Further, the applicant chose to use the AP-42 EFs for certain pollutants.

Because the annual emissions for total HAPs at the facility are estimated to be very close to the threshold between minor and major sources, the applicant must be very transparent in the calculations used to determine the EFs utilized, and WVDEP must ensure that the EFs are properly substantiated.

2.2 Hydrogen chloride

HCl emissions were not calculated using the EF of 0.019 lb/MMBtu in AP-42 (AP-42, Table 1-6.3). Instead, an EF of 0.00125 lb/MMBtu was applied, which resulted in a 93 percent reduction in total annual emissions. Using the AP-42 EF instead of the vendor's guarantee would result in total annual emissions of HCl of 78.56 tpy.[5] This value is much greater than the threshold of 10 tpy for a single HAP and the 5.65 tpy annual HCl emissions calculated by the applicant.

The Application does not explain why the lower EF was used. The "Notes" column in Table N-1 mentions Dry In-Duct Sorbent Injection and, unlike many other pollutants, does not state that the lower EF is based on a vendor's guarantee. Elsewhere, the Application describes Dry In-duct Sorbent Injection as the method planned to control HCl and states that the controls planned are "sufficient to maintain HCl and other acid gases to minor source levels." (Application, p. 4) However, the information provided in the Application is not sufficient to justify the EF that was used, and therefore the information is also not sufficient to justify that HCl emissions are below the threshold of 10 tpy for a single HAP.

2.3 Total organic HAPs

The total annual emissions for total organic HAPs calculated by the applicant is 8.34 tpy, including 0.02 tpy from startup operations. Table N-1 of the Application includes a table detailing HAP Emissions from Boiler Combustion. The table includes 69 HAPs, the EF for each from Table 1.6-3 of AP-42, the "Project HAP EF" used to calculate the total emissions for each pollutant, and the annual emissions calculated for each pollutant.

---

[4] United States Environmental Protection Agency. AP-42: Compilation of Air Emissions Factors from Stationary Sources.
[5] Calculated according to the equations documented in Table N-1 of the Application. Max emissions (lb/hr) = EF (lb/MMBtu) * Boiler Max Heat Input (MMBtu/hr) and Max Emissions (tpy) = [Max Emissions (lb/hr) * Annual Operating Hours (hr/yr)] / 2,000 lb/ton where EF = 0.0019 lb/MMBtu, Boiler Max Heat Input = 944 MMBtu/hr, and Annual Operating Hours = 8,760 hr/year.

Footnote 3 to this table indicates that "Project HAP EFs are proportionally adjusted to match the project volatile organic carbon (VOC) EFs." This is explained on page 12 of the Application as follows: "The organic HAPs emission factors are adjusted by multiplying the ratio of vendor guaranteed VOC emission factors to the AP-42 VOC emission factor." Based on data provided in the N-1 Table of HAP Emissions from Boiler Combustion, the VOC ratio applied to reduce AP-42 EFs to produce the Project HAP EFs represents a reduction of 88 percent of organic HAPs emissions.

No documentation of the vendor's guarantee for VOC is included in the Application PDF file provided for review. Without documentation of the vendor's guarantee, it is not possible for WVDEP or the public to substantiate the EFs.

Most HAPs are also VOC compounds; however, two pollutants included in the table used to calculate organic HAPs emissions—tetrachloroethene and 1,1,1-Trichloroethane—are not VOCs and are documented as such in the table. However, the same ratio applied to VOC was applied to these HAPs.

Applying the vendor's guarantee for VOC rather than the AP-42 values for HAPs results in a significantly smaller estimate of annual HAPs emissions, as illustrated in Table 1. If the applicant had used the AP-42 values, the annual emissions for organic HAPs under normal operating conditions would have been 70.70 tpy, rather than 8.37 tpy as was calculated using the vendor's guarantee. This one category of HAPs at the boiler would far exceed the annual emissions threshold of 25 tpy for total HAPs across the facility.

Table 1: Organic HAPs emission factors and corresponding annual emissions

Emission factor (lb/MMBtu)	Emission factor source	Normal operations annual emissions (tpy)
0.00203	88 percent reduction from vendor's guarantee	8.37
0.0171	AP-42	70.70

Note: Annual emissions using the AP-42 EF calculated according to the equations documented in Table N-1 of the Application. Max emissions (lb/hr) = EF (lb/MMBtu) * Boiler Max Heat Input (MMBtu/hr) and Max Emissions (tpy) = Max Emissions (lb/hr) * Annual Operating Hours (hr/yr) / 2,000 lb/ton, where EF = 0 .0171 lb/MMBtu, Boiler Max Heat Input = 944 MMBtu/hr, and Annual Operating Hours = 8,760 hr/year. The AP-42 EF is the sum of EFs for almost 70 pollutants, as documented in Table 1.6-3 of AP-42.

3. VOLATILE ORGANIC COMPOUNDS

The facility's potential VOC emissions total 55.78 tpy. About two-thirds of these emissions are from fugitive sources. The biomass boiler is responsible for about one-third, with a small amount emitted from engines. (Engineering Evaluation, Table 8)

3.1 Boiler emission factor

For the boiler, a VOC EF of 0.002 pounds per million British thermal units (lb/MMBtu) is used for normal operations. A footnote to Table N-1 explains that this EF is lower than the vendor's guarantee: "The vendor guaranteed VOC EF is 0.005 lb/MMBtu in the flue gas before the SCR/CO catalyst. Due to the presence of the CO catalyst, a VOC removal efficiency of 60% is applied to reduce the VOC emissions." (Application, Table N-1, Bubbling Fluidized Bed Boiler) Not mentioned in the Application is the VOC EF in AP-42 of 0.017 lb/MMBtu (AP-42, Table 1.6-3).

No documentation of the vendor's guarantee for VOC (or for any other pollutants) is included in the Application PDF file provided for review. Without documentation of the vendor's guarantee, it is not possible for WVDEP or the public to substantiate the EFs.

As illustrated in Table 2, the choice of EFs has an important impact on the annual emissions from the boiler. The lowest of the three EFs, which was used by the applicant, results in annual emission during normal operations of 8.22 tpy. Using the vendor's guarantee—as opposed to the EF that was reduced by 60 percent—potential VOC emissions would increase from 8.22 to 20.55 tpy. Using the AP-42 EF, potential VOC emissions would increase even further, to 69.87 tpy.

Table 2: VOC emission factors and corresponding annual emissions

Emission factor (lb/MMBtu)	Source	Normal operations annual emissions (tpy)
0.002	60 percent reduction from vendor's guarantee	8.22
0.005	Vendor's guarantee	20.55
0.017	AP-42	69.87

Note: Annual emissions for the 0.002 lb/MMBtu EF from Application, Table N-1Annual emissions for the other EFs based on ratios of the other EFs to 0.002 lb/MMBtu.

3.2 Fugitive emissions

Because they are the largest source of VOCs, it is important to control fugitive emissions. Fugitive emissions are primarily from leaks from 13 pumps, 497 valves, 43 safety relief valves, and 1,693 flanges related to the amine tank piping system (Application, Leak Source Data Sheet). The permit does not include an annual limit for this equipment. Instead, it includes three permit conditions:

- "When not engage[d] in loadout operations, each valve or line shall be equipped with a cap, blind flange, plug or a second valve." (Permit, Section 9.1.3.b, referring specifically to the spent amine loadout station)
- "Each open-ended valve or line shall be equipped with a cap, blind flange, plug or a second valve, except as provided in Condition 4.1.1.f. or open-ended valve or lines of an emergency shutdown system which are designed to open automatically in the event of process upset." (Permit, Section 9.1.5)
- "The permittee shall repair any leaking or defective component (valve, pump, connector) in VOC service within 15 days of detection with the first attempt within the first 5 days of detection. VOC service shall mean in component that is in contact with either gas or liquid that contain[s] 10% or more on a mass basis of components that are classified as VOCs as defined in 40CFR§51.100(s)." (Permit, Section 9.1.6)

Because the permit does not include an annual limit for this equipment, it is imperative that any leaking or defective components be identified and repaired as quickly as possible

3.3 Table 3 of the Engineering Evaluation

In the Engineering Evaluation, Table 3 includes incorrect annual emission calculations for VOCs:

- The annual startup emissions of 0.73 tpy appear to be mistakenly copied from the 0.73 lb/hr figure from Table 2. Instead, assuming the 0.73 lb/hr figure from Table 2

is correct, the annual emissions should be 0.02 tpy (calculated as 0.73 lb/hr * 55 hr / 2,000 lb/ton).

- The annual emissions for normal operations without carbon capture of 8.24 tpy appear to be incorrect. Instead, assuming the 1.89 lb/hr figure from Table 2 is correct, the annual emissions should be 0.73 tpy (calculated as 1.89 lb/hr * 768 hr / 2,000 lb/ton).
- The annual emissions of 19.04 tpy in the final column, labeled "Normal Ops w/Carbon Capture," also appear to be incorrect. According to the footnote, this value should include startup emissions. If that is the case, then, assuming the 4.43 lb/hr figure from Table 2 is correct, it should include the annual emissions from normal operations with carbon capture of 17.58 tpy (calculated as 4.43 lb/hr * 7,937 hr / 2,000 lb/ton) plus 0.02 tpy from startup, for a total of 17.60 tpy.

Also, based on reviewing Table 3 for other pollutants, it appears that the table headings are incorrect:

- The second column of numbers with the heading "Normal Ops w/o Carbon Capture (tpy)" appears to include normal operations both with and without carbon capture.
- The third column of numbers with the heading "Normal Ops w/Carbon Capture" appears to be a total column that includes startup as well as normal operations with and without carbon capture.

Finally, for total organic HAPs, the figure of 8.32 tpy in Table 3 does not correspond to normal operations without carbon capture as the column heading indicates or to the sum of normal operations with and without carbon capture as was entered for many of the other pollutants. It is not clear how the 8.32 tpy figure was derived. The 8.32 tpy figure was carried through to the total HAPs calculations; thus, the 14.66 tpy entered for normal operations without carbon capture is also incorrect.

4. PARTICULATE MATTER

The facility's potential particulate matter (PM), PM10, and PM2.5 emissions total 59.09, 83.95, and 75.65 tpy, respectively. Most of these emissions are from the biomass boiler. Material handling is also a significant source of particulates. (Engineering Evaluation, Table 8)

4.1 Boiler emission factor

For the boiler, the VOC EF is the sum of EFs for filterable PM and condensable PM. The EF of 0.008 lb/MMBtu for condensable PM is based neither on AP-42 nor a vendor's guarantee. Instead, it is based on an average of "test data from operating units." A printout of a spreadsheet with these test data is included in the Application. (Application, Table N-1) The 0.008 lb/MMBtu EF is the average of the green-highlighted values for stoker boilers using wet scrubbers.

Names, locations, fuels, and other potentially pertinent information for these operating units are not provided in the Application. This information should be made available to WVDEP and the public to provide some level of due diligence to verify whether the selected units are appropriate bases for calculating an EF for condensable PM.

This is important because the EF calculated from these units, 0.008 lb/MMBtu, is less than half the AP-42 EF of 0.017 lb/MMBtu.

5. AMMONIA

Ammonia will be shipped to the facility in trucks to control nitrogen oxides (NOx) emissions using selective catalytic reduction (SCR). Some ammonia will "slip" through the process without reacting and be emitted in the boiler's exhaust. (Engineering Evaluation)

Neither the Permit nor the Engineering Evaluation mention the ammonia storage tank. In one location, the Engineering Evaluation mentions four tanks: the amine makeup tank, the lean amine tank, and two de minimus tanks: a diesel tank and a biodegraded amine tank (Engineering Evaluation, p. 3). In another location, it mentions a fifth tank, which will store ultra-low sulfur distillate fuel oil and which is also labeled as de minimus (Engineering Evaluation, p. 8).

The Application, however, makes reference to "Ammonia Storage" in a Block Flow Diagram (Application, Attachment F), and certain details of the ammonia storage tank are provided elsewhere (Application, Table N-11, Fixed Roof Tanks Emissions).

The Application also discusses ammonia in regard to the chemical accident prevention provisions of federal regulations at 40 CFR 68. The applicant appears to acknowledge that the amount of ammonia used will exceed the federal threshold of 20,000 pounds (Application, p. 23).

The Permit does not appear to incorporate the provisions 40 CFR 68 regarding the prevention of chemical accidents.

From: pjdarst@suddenlink.netTo: Edward.s.andrews@wv.govDate: Wed Oct 08 2025 14:52:36 GMT-0400 (Eastern Daylight Time)Subject: MGS CNP1-BECCS

Please do not approve this permit. The air quality in this area is not the greatest. Adding more pollution to the air will ruin our nice, quiet little neighborhood.

Thank you.

Paul and Mary Darst

Gunthrie Street

Point Pleasant, WV

From: Kristine Erner To: "edward.s.andrews@wv.gov" Date: Wed Oct 08 2025 11:30:39 GMT-0400 (Eastern Daylight Time)Subject: MGSBCNP1-BECCS

Th

Please consider Delaying or denying the Air Quality Permit submitted secondary to lack of formal disclosure of the wood that will be burned. The EPA recommends to avoid burning particle board, coated, painted, pressure-treated, and moldy wood. Inappropriate wood materials that are burned can release toxic fumes and substances like dioxins and fine particulate matter into the air. These fine particles can enter the lungs, causing bronchitis, pneumonia, asthma, and other serious respiratory and heart issues. Due to the fact that the company did not disclose in their permit the type of wood products that will be burned, this should warrant the delay/denial of the permit due to the potential air quality concerns that could be created if appropriate wood items are not utilized.

Thank you for your attention.

From: "Andrews, Edward S" To: Tasha Date: Wed Oct 08 2025 07:53:53 GMT-0400 (Eastern Daylight Time)Subject: Handout and Presentation from Oct 7 Public Meeting Re: MGS CNP 1, LLC Air Quality Permit Application
Dear Tasha Meek,

Attached to this email are copies of the handout and presentation from last night's public meeting regarding the MGS CNP 1, LLC air quality permit application (R13-3708).

These documents will also be posted on our website at: [https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx] (https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx), under "Popular Searches" and "MGS CNP1, LLC; BECCS Plant."

Should you have any questions, please do not hesitate to let me know.

Sincerely,
Edward Andrews
--
Edward Andrews, P.E.
Engineer
WVDEP/Division of Air Quality
304-414-1244
601 57th Street, SE
Charleston, WV 25304

--
Unsubscribe

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From: "Andrews, Edward S" To: Ben Date: Wed Oct 08 2025 07:53:53 GMT-0400 (Eastern Daylight Time)Subject: Handout and Presentation from Oct 7 Public Meeting Re: MGS CNP 1, LLC Air Quality Permit Application
Dear Ben Templeton,

Attached to this email are copies of the handout and presentation from last night's public meeting regarding the MGS CNP 1, LLC air quality permit application (R13-3708).

These documents will also be posted on our website at: [https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx] (https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx), under "Popular Searches" and "MGS CNP1, LLC; BECCS Plant."

Should you have any questions, please do not hesitate to let me know.

Sincerely,
Edward Andrews
--
Edward Andrews, P.E.
Engineer
WVDEP/Division of Air Quality
304-414-1244
601 57th Street, SE
Charleston, WV 25304

--
Unsubscribe

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From: "Andrews, Edward S" To: undisclosed-recipients:;Date: Wed Oct 08 2025 07:53:53 GMT-0400 (Eastern Daylight Time)Subject: Handout and Presentation from Oct 7 Public Meeting Re: MGS CNP 1, LLC Air Quality Permit Application
Dear @firstname @lastname,

Attached to this email are copies of the handout and presentation from last night's public meeting regarding the MGS CNP 1, LLC air quality permit application (R13-3708).

These documents will also be posted on our website at: [https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx] (https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx), under "Popular Searches" and "MGS CNP1, LLC; BECCS Plant."

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Sincerely,
Edward Andrews
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Edward Andrews, P.E.
Engineer
WVDEP/Division of Air Quality
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601 57th Street, SE
Charleston, WV 25304

--
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From: "Andrews, Edward S" To: Amy Date: Wed Oct 08 2025 07:53:53 GMT-0400 (Eastern Daylight Time)Subject: Handout and Presentation from Oct 7 Public Meeting Re: MGS CNP 1, LLC Air Quality Permit Application
Dear Amy Mullins,

Attached to this email are copies of the handout and presentation from last night's public meeting regarding the MGS CNP 1, LLC air quality permit application (R13-3708).

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Sincerely,
Edward Andrews
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Edward Andrews, P.E.
Engineer
WVDEP/Division of Air Quality
304-414-1244
601 57th Street, SE
Charleston, WV 25304

--
Unsubscribe

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From: "Andrews, Edward S" To: Blair Date: Wed Oct 08 2025 07:53:53 GMT-0400 (Eastern Daylight Time)Subject: Handout and Presentation from Oct 7 Public Meeting Re: MGS CNP 1, LLC Air Quality Permit Application
Dear Blair Bumgarner,

Attached to this email are copies of the handout and presentation from last night's public meeting regarding the MGS CNP 1, LLC air quality permit application (R13-3708).

These documents will also be posted on our website at: [https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx] (https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx), under "Popular Searches" and "MGS CNP1, LLC; BECCS Plant."

Should you have any questions, please do not hesitate to let me know.

Sincerely,
Edward Andrews
--
Edward Andrews, P.E.
Engineer
WVDEP/Division of Air Quality
304-414-1244
601 57th Street, SE
Charleston, WV 25304

--
Unsubscribe

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From: "Andrews, Edward S" To: Courtney Date: Wed Oct 08 2025 07:53:53 GMT-0400 (Eastern Daylight Time)Subject: Handout and Presentation from Oct 7 Public Meeting Re: MGS CNP 1, LLC Air Quality Permit Application
Dear Courtney Lowry,

Attached to this email are copies of the handout and presentation from last night's public meeting regarding the MGS CNP 1, LLC air quality permit application (R13-3708).

These documents will also be posted on our website at: [https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx] (https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx), under "Popular Searches" and "MGS CNP1, LLC; BECCS Plant."

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Sincerely,
Edward Andrews
--
Edward Andrews, P.E.
Engineer
WVDEP/Division of Air Quality
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601 57th Street, SE
Charleston, WV 25304

--
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From: "Andrews, Edward S" To: Elaine Date: Wed Oct 08 2025 07:53:53 GMT-0400 (Eastern Daylight Time)Subject: Handout and Presentation from Oct 7 Public Meeting Re: MGS CNP 1, LLC Air Quality Permit Application
Dear Elaine Matheny,

Attached to this email are copies of the handout and presentation from last night's public meeting regarding the MGS CNP 1, LLC air quality permit application (R13-3708).

These documents will also be posted on our website at: [https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx] (https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx), under "Popular Searches" and "MGS CNP1, LLC; BECCS Plant."

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Sincerely,
Edward Andrews
--
Edward Andrews, P.E.
Engineer
WVDEP/Division of Air Quality
304-414-1244
601 57th Street, SE
Charleston, WV 25304

--
Unsubscribe

From: Elaine Matheny To: "Andrews, Edward S" Date: Wed Oct 08 2025 18:20:34 GMT-0400 (Eastern Daylight Time)Subject: Re: Handout and Presentation from Oct 7 Public Meeting Re: MGS CNP 1, LLC Air Quality Permit Application
Thank you!

On Wed, Oct 8, 2025 at 7:54 AM Andrews, Edward S <edward.s.andrews@wv.gov> wrote:

> Dear Elaine Matheny,
>
> Attached to this email are copies of the handout and presentation from last night's public meeting regarding the MGS CNP 1, LLC air quality permit application (R13-3708).
>
> These documents will also be posted on our website at: [https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx] (https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx), under "Popular Searches" and "MGS CNP1, LLC; BECCS Plant."
>
> Should you have any questions, please do not hesitate to let me know.
>
> Sincerely,
> Edward Andrews
> --
> Edward Andrews, P.E.
> Engineer
> WVDEP/Division of Air Quality
> 304-414-1244
> 601 57th Street, SE
> Charleston, WV 25304

--
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From: "Andrews, Edward S" To: Diana Date: Wed Oct 08 2025 07:53:53 GMT-0400 (Eastern Daylight Time)Subject: Handout and Presentation from Oct 7 Public Meeting Re: MGS CNP 1, LLC Air Quality Permit Application
Dear Diana Taylor,

Attached to this email are copies of the handout and presentation from last night's public meeting regarding the MGS CNP 1, LLC air quality permit application (R13-3708).

These documents will also be posted on our website at: [https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx] (https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx), under "Popular Searches" and "MGS CNP1, LLC; BECCS Plant."

Should you have any questions, please do not hesitate to let me know.

Sincerely,
Edward Andrews
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Edward Andrews, P.E.
Engineer
WVDEP/Division of Air Quality
304-414-1244
601 57th Street, SE
Charleston, WV 25304

--
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From: "Andrews, Edward S" To: Dallas Date: Wed Oct 08 2025 07:53:53 GMT-0400 (Eastern Daylight Time)Subject: Handout and Presentation from Oct 7 Public Meeting Re: MGS CNP 1, LLC Air Quality Permit Application
Dear Dallas Campbell,

Attached to this email are copies of the handout and presentation from last night's public meeting regarding the MGS CNP 1, LLC air quality permit application (R13-3708).

These documents will also be posted on our website at: [https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx] (https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx), under "Popular Searches" and "MGS CNP1, LLC; BECCS Plant."

Should you have any questions, please do not hesitate to let me know.

Sincerely,
Edward Andrews
--
Edward Andrews, P.E.
Engineer
WVDEP/Division of Air Quality
304-414-1244
601 57th Street, SE
Charleston, WV 25304

--
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From: "Andrews, Edward S" To: Genesis Date: Wed Oct 08 2025 07:53:53 GMT-0400 (Eastern Daylight Time)Subject: Handout and Presentation from Oct 7 Public Meeting Re: MGS CNP 1, LLC Air Quality Permit Application
Dear Genesis Chattin,

Attached to this email are copies of the handout and presentation from last night's public meeting regarding the MGS CNP 1, LLC air quality permit application (R13-3708).

These documents will also be posted on our website at: [https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx] (https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx), under "Popular Searches" and "MGS CNP1, LLC; BECCS Plant."

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Sincerely,
Edward Andrews
--
Edward Andrews, P.E.
Engineer
WVDEP/Division of Air Quality
304-414-1244
601 57th Street, SE
Charleston, WV 25304

--
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From: Genesis Chattin To: "Andrews, Edward S" Date: Thu Oct 09 2025 13:12:17 GMT-0400 (Eastern Daylight Time)Subject: Re: Handout and Presentation from Oct 7 Public Meeting Re: MGS CNP 1, LLC Air Quality Permit Application
Thank you for the information.

Best regards,

Genesis Chattin

On Wed, Oct 8, 2025 at 7:54 AM Andrews, Edward S <edward.s.andrews@wv.gov> wrote:

> Dear Genesis Chattin,
>
> Attached to this email are copies of the handout and presentation from last night's public meeting regarding the MGS CNP 1, LLC air quality permit application (R13-3708).
>
> These documents will also be posted on our website at: [https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx] (https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx), under "Popular Searches" and "MGS CNP1, LLC; BECCS Plant."
>
> Should you have any questions, please do not hesitate to let me know.
>
> Sincerely,
> Edward Andrews
> --
> Edward Andrews, P.E.
> Engineer

WVDEP/Division of Air Quality
304-414-1244
601 57th Street, SE
Charleston, WV 25304

--
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From: "Andrews, Edward S" To: Howie Date: Wed Oct 08 2025 07:53:53 GMT-0400 (Eastern Daylight Time)Subject: Handout and Presentation from Oct 7 Public Meeting Re: MGS CNP 1, LLC Air Quality Permit Application
Dear Howie Mullins,

Attached to this email are copies of the handout and presentation from last night's public meeting regarding the MGS CNP 1, LLC air quality permit application (R13-3708).

These documents will also be posted on our website at: [https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx] (https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx), under "Popular Searches" and "MGS CNP1, LLC; BECCS Plant."

Should you have any questions, please do not hesitate to let me know.

Sincerely,
Edward Andrews
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Edward Andrews, P.E.
Engineer
WVDEP/Division of Air Quality
304-414-1244
601 57th Street, SE
Charleston, WV 25304

--
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From: "Andrews, Edward S" To: James Date: Wed Oct 08 2025 07:53:53 GMT-0400 (Eastern Daylight Time)Subject: Handout and Presentation from Oct 7 Public Meeting Re: MGS CNP 1, LLC Air Quality Permit Application
Dear James Kotcon,

Attached to this email are copies of the handout and presentation from last night's public meeting regarding the MGS CNP 1, LLC air quality permit application (R13-3708).

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Should you have any questions, please do not hesitate to let me know.

Sincerely,
Edward Andrews
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Edward Andrews, P.E.
Engineer
WVDEP/Division of Air Quality
304-414-1244
601 57th Street, SE
Charleston, WV 25304

--
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From: "Andrews, Edward S" To: "Jay & Stephanie" Date: Wed Oct 08 2025 07:53:53 GMT-0400 (Eastern Daylight Time)Subject: Handout and Presentation from Oct 7 Public Meeting Re: MGS CNP 1, LLC Air Quality Permit Application
Dear Jay & Stephanie Sheline,

Attached to this email are copies of the handout and presentation from last night's public meeting regarding the MGS CNP 1, LLC air quality permit application (R13-3708).

These documents will also be posted on our website at: [https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx] (https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx), under "Popular Searches" and "MGS CNP1, LLC; BECCS Plant."

Should you have any questions, please do not hesitate to let me know.

Sincerely,
Edward Andrews
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Edward Andrews, P.E.
Engineer
WVDEP/Division of Air Quality
304-414-1244
601 57th Street, SE
Charleston, WV 25304

--
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From: "Andrews, Edward S" To: Jim Date: Wed Oct 08 2025 07:53:53 GMT-0400 (Eastern Daylight Time)Subject: Handout and Presentation from Oct 7 Public Meeting Re: MGS CNP 1, LLC Air Quality Permit Application
Dear Jim Butler,

Attached to this email are copies of the handout and presentation from last night's public meeting regarding the MGS CNP 1, LLC air quality permit application (R13-3708).

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Should you have any questions, please do not hesitate to let me know.

Sincerely,
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Edward Andrews, P.E.
Engineer
WVDEP/Division of Air Quality
304-414-1244
601 57th Street, SE
Charleston, WV 25304

--
Unsubscribe

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From: "Andrews, Edward S" To: Jim Date: Wed Oct 08 2025 07:53:53 GMT-0400 (Eastern Daylight Time)Subject: Handout and Presentation from Oct 7 Public Meeting Re: MGS CNP 1, LLC Air Quality Permit Application
Dear Jim Pyle,

Attached to this email are copies of the handout and presentation from last night's public meeting regarding the MGS CNP 1, LLC air quality permit application (R13-3708).

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Sincerely,
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601 57th Street, SE
Charleston, WV 25304

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From: "Andrews, Edward S" To: Keith Date: Wed Oct 08 2025 07:53:53 GMT-0400 (Eastern Daylight Time)Subject: Handout and Presentation from Oct 7 Public Meeting Re: MGS CNP 1, LLC Air Quality Permit Application
Dear Keith Biggs,

Attached to this email are copies of the handout and presentation from last night's public meeting regarding the MGS CNP 1, LLC air quality permit application (R13-3708).

These documents will also be posted on our website at: [https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx] (https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx), under "Popular Searches" and "MGS CNP1, LLC; BECCS Plant."

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Charleston, WV 25304

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Unsubscribe

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From: "Andrews, Edward S" To: Marketta Date: Wed Oct 08 2025 07:53:53 GMT-0400 (Eastern Daylight Time)Subject: Handout and Presentation from Oct 7 Public Meeting Re: MGS CNP 1, LLC Air Quality Permit Application
Dear Marketta Crum,

Attached to this email are copies of the handout and presentation from last night's public meeting regarding the MGS CNP 1, LLC air quality permit application (R13-3708).

These documents will also be posted on our website at: [https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx] (https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx), under "Popular Searches" and "MGS CNP1, LLC; BECCS Plant."

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Sincerely,
Edward Andrews
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Edward Andrews, P.E.
Engineer
WVDEP/Division of Air Quality
304-414-1244
601 57th Street, SE
Charleston, WV 25304

--
Unsubscribe

From: Mail Delivery Subsystem To: edward.s.andrews@wv.govDate: Wed Oct 08 2025 07:54:53 GMT-0400 (Eastern Daylight Time)Subject: Delivery Status Notification (Failure)

Address not found

Your message wasn't delivered to **mzcastlelady@yagoo.com** because the domain yagoo.com couldn't be found. Check for typos or unnecessary spaces and try again.

The response was:

```
DNS Error: DNS type 'mx' lookup of yagoo.com responded with code NOERROR DNS type 'mx' lookup of yagoo.com had no relevant answers. DNS type 'aaaa' lookup of yagoo.com responded with code NOERROR DNS type 'aaaa' lookup of yagoo.com had no relevant answers. DNS type 'a' lookup of yagoo.com responded with code NOERROR DNS type 'a' lookup of yagoo.com had no relevant answers.
```

From: "Andrews, Edward S" To: Joseph R Kessler Date: Wed Oct 08 2025 08:28:39 GMT-0400 (Eastern Daylight Time)Subject: Fwd: Delivery Status Notification (Failure)
Joe,

Here is another example of Google not working for us. The following is a return to sender notification. I had fixed Ms. Crum's email not once, not twice, and now for the third time in my address book. I originally thought I was just forgetting to click save at the top. No, the user has to click "save" once the email address is corrected and then go back in edit mode and click the "x" by the email address. Because, Google just does not update the corrected email, insteads it goes aheads and adds the correct email address as a secondary email address and retains the wrong one.

Little extra steps like the one I had described clearly show that the Google Suite is not a productive platform. There are countless other issues with the google suite that I experience everyday. Using the mail merge feature in gmail, one cannot just open "contacts" and export a file that is mail merge ready. The user must open the exported file into a google sheet file then the user can use it in mail merge.

I am not sure why other agencies are complaining or not. To process fairly complex applications and achieve the 90 days mandate, I need to be using nearly every time saving feature posible.

Google is the opposite of time saving or user friendly.

Ed

---------- Forwarded message ---------
From: **Mail Delivery Subsystem** <mailer-daemon@googlemail.com>
Date: Wed, Oct 8, 2025 at 7:54 AM
Subject: Delivery Status Notification (Failure)
To: <edward.s.andrews@wv.gov>

Address not found

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```

From: "Andrews, Edward S" To: Marketta Crum Date: Wed Oct 08 2025 09:02:30 GMT-0400 (Eastern Daylight Time)Subject: Fwd: Handout and Presentation from Oct 7 Public Meeting Re:

MGS CNP 1, LLC Air Quality Permit Application

Dear Marketta Crum,

Attached to this email are copies of the handout and presentation from last night's public meeting regarding the MGS CNP 1, LLC air quality permit application (R13-3708).

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Sincerely,
Edward Andrews
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Edward Andrews, P.E.
Engineer
WVDEP/Division of Air Quality
304-414-1244
601 57th Street, SE
Charleston, WV 25304

--
Unsubscribe

From: "Kessler, Joseph R" To: "Andrews, Edward S" Date: Wed Oct 08 2025 12:37:12 GMT-0400 (Eastern Daylight Time)Subject: Re: Delivery Status Notification (Failure)
I agree, my pet peeve is to not be able to select multiple e-mails and print to PDF in one click is ridiculous. We've heard rumors maybe we'll formally go back to Microsoft, but nothing definite ever.

On Wed, Oct 8, 2025 at 8:28 AM Andrews, Edward S <edward.s.andrews@wv.gov> wrote:

> Joe,
>
> Here is another example of Google not working for us. The following is a return to sender notification. I had fixed Ms. Crum's email not once, not twice, and now for the third time in my address book. I originally thought I was just forgetting to click save at the top. No, the user has to click "save" once the email address is corrected and then go back in edit mode and click the "x" by the email address. Because, Google just does not update the corrected email, insteads it goes aheads and adds the correct email address as a secondary email address and retains the wrong one.
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> I am not sure why other agencies are complaining or not. To process fairly complex applications and achieve the 90 days mandate, I need to be using nearly every time saving feature posible.
>
> Google is the opposite of time saving or user friendly.

Ed

---------- Forwarded message ---------
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lookup of yagoo.com had no relevant answers.
```

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From: "Andrews, Edward S" To: Michael Date: Wed Oct 08 2025 07:53:53 GMT-0400 (Eastern Daylight Time)Subject: Handout and Presentation from Oct 7 Public Meeting Re: MGS CNP 1, LLC Air Quality Permit Application
Dear Michael Wooten,

Attached to this email are copies of the handout and presentation from last night's public meeting regarding the MGS CNP 1, LLC air quality permit application (R13-3708).

These documents will also be posted on our website at: [https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx] (https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx), under "Popular Searches" and "MGS CNP1, LLC; BECCS Plant."

Should you have any questions, please do not hesitate to let me know.

Sincerely,
Edward Andrews
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Edward Andrews, P.E.
Engineer
WVDEP/Division of Air Quality
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Charleston, WV 25304

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From: "Andrews, Edward S" To: Paul Date: Wed Oct 08 2025 07:53:53 GMT-0400 (Eastern Daylight Time)Subject: Handout and Presentation from Oct 7 Public Meeting Re: MGS CNP 1, LLC Air Quality Permit Application
Dear Paul Darst,

Attached to this email are copies of the handout and presentation from last night's public meeting regarding the MGS CNP 1, LLC air quality permit application (R13-3708).

These documents will also be posted on our website at: [https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx] (https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx), under "Popular Searches" and "MGS CNP1, LLC; BECCS Plant."

Should you have any questions, please do not hesitate to let me know.

Sincerely,
Edward Andrews
--
Edward Andrews, P.E.
Engineer
WVDEP/Division of Air Quality
304-414-1244
601 57th Street, SE
Charleston, WV 25304

--
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From: "Andrews, Edward S" To: Michaela Date: Wed Oct 08 2025 07:53:53 GMT-0400 (Eastern Daylight Time)Subject: Handout and Presentation from Oct 7 Public Meeting Re: MGS CNP 1, LLC Air Quality Permit Application
Dear Michaela Salser,

Attached to this email are copies of the handout and presentation from last night's public meeting regarding the MGS CNP 1, LLC air quality permit application (R13-3708).

These documents will also be posted on our website at: [https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx] (https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx), under "Popular Searches" and "MGS CNP1, LLC; BECCS Plant."

Should you have any questions, please do not hesitate to let me know.

Sincerely,
Edward Andrews
--
Edward Andrews, P.E.
Engineer
WVDEP/Division of Air Quality
304-414-1244
601 57th Street, SE
Charleston, WV 25304

--
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From: "Andrews, Edward S" To: Miriam Date: Wed Oct 08 2025 07:53:53 GMT-0400 (Eastern Daylight Time)Subject: Handout and Presentation from Oct 7 Public Meeting Re: MGS CNP 1, LLC Air Quality Permit Application
Dear Miriam Greer,

Attached to this email are copies of the handout and presentation from last night's public meeting regarding the MGS CNP 1, LLC air quality permit application (R13-3708).

These documents will also be posted on our website at: [https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx] (https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx), under "Popular Searches" and "MGS CNP1, LLC; BECCS Plant."

Should you have any questions, please do not hesitate to let me know.

Sincerely,
Edward Andrews
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Edward Andrews, P.E.
Engineer
WVDEP/Division of Air Quality
304-414-1244
601 57th Street, SE
Charleston, WV 25304

--
Unsubscribe

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From: "Andrews, Edward S" To: Pamela Date: Wed Oct 08 2025 07:53:53 GMT-0400 (Eastern Daylight Time)Subject: Handout and Presentation from Oct 7 Public Meeting Re: MGS CNP 1, LLC Air Quality Permit Application
Dear Pamela Pickens,

Attached to this email are copies of the handout and presentation from last night's public meeting regarding the MGS CNP 1, LLC air quality permit application (R13-3708).

These documents will also be posted on our website at: [https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx] (https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx), under "Popular Searches" and "MGS CNP1, LLC; BECCS Plant."

Should you have any questions, please do not hesitate to let me know.

Sincerely,
Edward Andrews
--
Edward Andrews, P.E.
Engineer
WVDEP/Division of Air Quality
304-414-1244
601 57th Street, SE
Charleston, WV 25304

--
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From: "Andrews, Edward S" To: Randy and Marsha Date: Wed Oct 08 2025 07:53:53 GMT-0400 (Eastern Daylight Time)Subject: Handout and Presentation from Oct 7 Public Meeting Re: MGS CNP 1, LLC Air Quality Permit Application
Dear Randy and Marsha Frame,

Attached to this email are copies of the handout and presentation from last night's public meeting regarding the MGS CNP 1, LLC air quality permit application (R13-3708).

These documents will also be posted on our website at: [https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx] (https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx), under "Popular Searches" and "MGS CNP1, LLC; BECCS Plant."

Should you have any questions, please do not hesitate to let me know.

Sincerely,
Edward Andrews
--
Edward Andrews, P.E.
Engineer
WVDEP/Division of Air Quality
304-414-1244
601 57th Street, SE
Charleston, WV 25304

--
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From: "Andrews, Edward S" To: Ronald Date: Wed Oct 08 2025 07:53:53 GMT-0400 (Eastern Daylight Time)Subject: Handout and Presentation from Oct 7 Public Meeting Re: MGS CNP 1, LLC Air Quality Permit Application
Dear Ronald Greathouse,

Attached to this email are copies of the handout and presentation from last night's public meeting regarding the MGS CNP 1, LLC air quality permit application (R13-3708).

These documents will also be posted on our website at: [https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx] (https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx), under "Popular Searches" and "MGS CNP1, LLC; BECCS Plant."

Should you have any questions, please do not hesitate to let me know.

Sincerely,
Edward Andrews
--
Edward Andrews, P.E.
Engineer
WVDEP/Division of Air Quality
304-414-1244
601 57th Street, SE
Charleston, WV 25304

--
Unsubscribe

Attachments:MGS CNP 1 - PM Presentation.pdfMGS CNP1 Public Meeting Handout.pdf

From: "Andrews, Edward S" To: Randy Date: Wed Oct 08 2025 07:53:53 GMT-0400 (Eastern Daylight Time)Subject: Handout and Presentation from Oct 7 Public Meeting Re: MGS CNP 1, LLC Air Quality Permit Application
Dear Randy Frame,

Attached to this email are copies of the handout and presentation from last night's public meeting regarding the MGS CNP 1, LLC air quality permit application (R13-3708).

These documents will also be posted on our website at: [https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx] (https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx), under "Popular Searches" and "MGS CNP1, LLC; BECCS Plant."

Should you have any questions, please do not hesitate to let me know.

Sincerely,
Edward Andrews
--
Edward Andrews, P.E.
Engineer
WVDEP/Division of Air Quality
304-414-1244
601 57th Street, SE
Charleston, WV 25304

--
Unsubscribe

Attachments:MGS CNP 1 - PM Presentation.pdfMGS CNP1 Public Meeting Handout.pdf

From: "Andrews, Edward S" To: Ryan and Jessica Date: Wed Oct 08 2025 07:53:53 GMT-0400 (Eastern Daylight Time)Subject: Handout and Presentation from Oct 7 Public Meeting Re: MGS CNP 1, LLC Air Quality Permit Application
Dear Ryan and Jessica Bailey,

Attached to this email are copies of the handout and presentation from last night's public meeting regarding the MGS CNP 1, LLC air quality permit application (R13-3708).

These documents will also be posted on our website at: [https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx] (https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx), under "Popular Searches" and "MGS CNP1, LLC; BECCS Plant."

Should you have any questions, please do not hesitate to let me know.

Sincerely,
Edward Andrews
--
Edward Andrews, P.E.
Engineer
WVDEP/Division of Air Quality
304-414-1244
601 57th Street, SE
Charleston, WV 25304

--
Unsubscribe

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From: "Andrews, Edward S" To: Sabrina Date: Wed Oct 08 2025 07:53:53 GMT-0400 (Eastern Daylight Time)Subject: Handout and Presentation from Oct 7 Public Meeting Re: MGS CNP 1, LLC Air Quality Permit Application
Dear Sabrina Bush,

Attached to this email are copies of the handout and presentation from last night's public meeting regarding the MGS CNP 1, LLC air quality permit application (R13-3708).

These documents will also be posted on our website at: [https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx] (https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx), under "Popular Searches" and "MGS CNP1, LLC; BECCS Plant."

Should you have any questions, please do not hesitate to let me know.

Sincerely,
Edward Andrews
--
Edward Andrews, P.E.
Engineer
WVDEP/Division of Air Quality
304-414-1244
601 57th Street, SE
Charleston, WV 25304

--
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Attachments:MGS CNP 1 - PM Presentation.pdfMGS CNP1 Public Meeting Handout.pdf

From: "Andrews, Edward S" To: Seth Date: Wed Oct 08 2025 07:53:53 GMT-0400 (Eastern Daylight Time)Subject: Handout and Presentation from Oct 7 Public Meeting Re: MGS CNP 1, LLC Air Quality Permit Application
Dear Seth Fishbaugh,

Attached to this email are copies of the handout and presentation from last night's public meeting regarding the MGS CNP 1, LLC air quality permit application (R13-3708).

These documents will also be posted on our website at: [https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx] (https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx), under "Popular Searches" and "MGS CNP1, LLC; BECCS Plant."

Should you have any questions, please do not hesitate to let me know.

Sincerely,
Edward Andrews
--
Edward Andrews, P.E.
Engineer
WVDEP/Division of Air Quality
304-414-1244
601 57th Street, SE
Charleston, WV 25304

--
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From: "Andrews, Edward S" To: Theresa Date: Wed Oct 08 2025 07:53:53 GMT-0400 (Eastern Daylight Time)Subject: Handout and Presentation from Oct 7 Public Meeting Re: MGS CNP 1, LLC Air Quality Permit Application
Dear Theresa Bekeshka,

Attached to this email are copies of the handout and presentation from last night's public meeting regarding the MGS CNP 1, LLC air quality permit application (R13-3708).

These documents will also be posted on our website at: [https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx] (https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx), under "Popular Searches" and "MGS CNP1, LLC; BECCS Plant."

Should you have any questions, please do not hesitate to let me know.

Sincerely,
Edward Andrews
--
Edward Andrews, P.E.
Engineer
WVDEP/Division of Air Quality
304-414-1244
601 57th Street, SE
Charleston, WV 25304

--
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From: "Andrews, Edward S" To: Stephanie Date: Wed Oct 08 2025 07:53:53 GMT-0400 (Eastern Daylight Time)Subject: Handout and Presentation from Oct 7 Public Meeting Re: MGS CNP 1, LLC Air Quality Permit Application
Dear Stephanie Morrow,

Attached to this email are copies of the handout and presentation from last night's public meeting regarding the MGS CNP 1, LLC air quality permit application (R13-3708).

These documents will also be posted on our website at: [https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx] (https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx), under "Popular Searches" and "MGS CNP1, LLC; BECCS Plant."

Should you have any questions, please do not hesitate to let me know.

Sincerely,
Edward Andrews
--
Edward Andrews, P.E.
Engineer
WVDEP/Division of Air Quality
304-414-1244
601 57th Street, SE
Charleston, WV 25304

--
Unsubscribe

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From: "Andrews, Edward S" To: undisclosed-recipients:;Date: Wed Oct 08 2025 07:50:15 GMT-0400 (Eastern Daylight Time)Subject: [Test message] Handout and Presentation from Last Nights Public Meeting Re: MGS CNP 1, LLC Air Quality Permit Application
Dear @firstname @lastname,

Attached to this email are copies of the handout and presentation from last night's public meeting regarding the MGS CNP 1, LLC air quality permit application (R13-3708).

These documents will also be posted on our website at: [https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx] (https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx), under "Popular Searches" and "MGS CNP1, LLC; BECCS Plant."

Should you have any questions, please do not hesitate to let me know.

Sincerely,
Edward Andrews
--
Edward Andrews, P.E.
Engineer
WVDEP/Division of Air Quality
304-414-1244
601 57th Street, SE
Charleston, WV 25304

--
Unsubscribe

Attachments:MGS CNP 1 - PM Presentation.pdfMGS CNP1 Public Meeting Handout.pdf

From: "Andrews, Edward S" To: "Mink, Stephanie R" Date: Wed Oct 08 2025 07:27:16 GMT-0400 (Eastern Daylight Time)Subject: MGS CNP 1 - Presentation and Handout
Stephanie,

Please post the attached presentation and handout on the website this morning.

More to follow.

Thanks
Ed

--
Edward Andrews, P.E.
Engineer
WVDEP/Division of Air Quality
304-414-1244
601 57th Street, SE
Charleston, WV 25304

Attachments:MGS Handout Version 5.pdfMGS CNP 1 - PM Presentation.pdf

From: Amy Mullins To: "edward.s.andrews@wv.gov" Date: Tue Oct 07 2025 22:06:59 GMT-0400 (Eastern Daylight Time)Subject: MGS-CNP1 - BECCS - Mason County WV
Mr. Andrews,

I am writing to share my concerns about the proposed construction permit for the MGS CNP1, LLC biomass plant and carbon capture project in Point Pleasant, Mason County.

The draft permit states that the facility will release a significant amount of pollutants into the air, including fine particles (PM2.5), nitrogen oxides (NOx), sulfur dioxide (SO2), and hazardous air pollutants such as acetaldehyde and hydrogen chloride. These emissions are known to harm human health, especially for children, the elderly, and people with asthma and other respiratory conditions.

My concerns are made even greater because this new plant would be located right next to the existing coal-fired power plant. That facility already releases significant pollution.

The plant would create more traffic to transport materials to said plant (via train, truck, boat), further impacting air quality in the area.

Lastly, I respectfully ask the WVDEP to:

1. Delay or better yet deny the Air Quality Permit secondary to **lack of formal disclosure of the wood-chips/wood that will be burned**. The EPA recommends to avoid burning particle board, coated, painted, pressure-treated, and moldy wood. Inappropriate wood materials that are burned can release toxic fumes and substances like dioxins and fine particulate matter into the air. These fine particles can enter the lungs, causing bronchitis, pneumonia, asthma, and other serious respiratory and heart issues. Due to the fact that the company did not disclose in their permit the type of wood products that will be burned, this should warrant the delay/denial of the permit due to the potential air quality concerns that could be created if appropriate wood items are not utilized.

Thank you for considering my comments. Please include them in the official record for Permit R13-3708.

Sincerely,

Amy Mullins
aburdette75@yahoo.com
431 Grandview Avenue
Point Pleasant, WV 25550
304-674-1105

Received
October 7, 2025
WV DEP/Division of Air Quality

Regarding Air Quality Permit R13-3708 for the Biomass Facility of MGSCNP1, LLC

Thank you for holding this public meeting to address this air quality permit and allowing the community to voice their concerns. My comments concern air permit R13-3708 for MGSCNP 1, LLC.

The air permit mentions the cluster of residential homes approximately 1300ft away from the facility. That is our housing development and we are the closest home to the Biomass plant and therefore, along with our neighbors, will bear the most significant cost of the project. We are long term residents in this home as are most of our neighbors. We have lived there forty-one years.

Our air quality has always been compromised by the coal fired power plants that are within eyesight across the river. Most of us bought these homes not knowing or understanding what that meant to our health and day to day lives. However, those plants existed before our development, and we accepted that risk even if it wasn't fully understood. This facility and it's emissions will be a huge burden adding to that risk.

We are concerned with the unproven and ineffective abilities of carbon capture on this scale. Where it has been implemented, the amount of carbon capture falls far short of the 95% projection. The plant will also emit numerous hazardous materials, including but not limited to, sulfuric acid, sulfur dioxide, carbon monoxide and several tons of particulate matter. According to the permit, we also know the conservative estimate of the number of vehicles per day added to the extra train and boat emissions that will ensue. Those things add a great deal of air pollution and particulate matter to the air not covered by the permit.

We have further concerns about the monitoring of emissions. Is that responsibility left to the company? We want to know if the corporate word is taken as accurate, if the state will be doing some type of intermittent monitoring or continuous monitoring because of the proximity to the population. We do know that being classified as a minor source polluter that Federal EPA standards will not apply because primacy has been granted to the state. What confidence can we have in monitoring emissions? One hundred tons of wood products per hour can produce by some studies 50% more CO2 than coal per unit of energy produced. We are concerned by the volume of fly ash produced, it's capture and disposal. The risk of a pipeline carrying the captured CO2 rupturing exists. Shifts in soil, excessive rain, etc can contribute to that chance. A recent one in Mississippi had a large

"kill" radius that even suffocated the engines on the rescue vehicles.

Our High School and Vocational School are sited approximately 2.5 miles downwind of this facility. Children are bussed into school from all over the county. All of them will be exposed to the increased risk of asthma development and exacerbation of existing asthma, along with exposure to known carcinogens while at school, playing and practicing sports and outdoor events. Our youngest children begin and play their soccer careers covering the front lawn of that school. Tournaments, practices, and games attended by family and friends sitting in the grass. It is the largest auditorium available in the county and has been the host for countywide meetings, funerals, and events. The cumulative effect of these emissions added to the existing ones seem untenable. In a one-mile radius of this plant, we have the Mason County Fairgrounds, The State Farm Museum, our animal shelter and one of our larger county churches. The housing development at the fairgrounds, along with our housing development, the Jordan's Landing apartment building and the entire Camp Conley housing division when added together is greater than a quarter of the entire population of Point Pleasant.

We are asking for the permit to be denied situated this close to this much population. If not denied, we are asking for modifications to the permit further restricting emissions. This plant is not a minor source of impact on each and every one of these lives. Most of us are native West Virginians who were born, lived, and worked here all our lives. When you know better, you do better. We deserve at least that from our public officials.

Thank you,

Randy and Marsha Frame

337 University Lane

Point Pleasant, WV

From: James Kotcon To: "Andrews, Edward S" Date: Tue Oct 07 2025 16:09:12 GMT-0400 (Eastern Daylight Time)Subject: Sierra Club comments on R13-3708
See attached comments.

Jim Kotcon
304-594-3322
Attachments:SC Comments on Fidelis Draft Air permit-10-7-25.doc

Sierra Club
West Virginia Chapter
P.O. Box 4142
Morgantown, WV 26504

Oct. 7, 2025

Edward Andrews, P.E.
WV Department of Environmental Protection
Division of Air Quality
601 57th Street, SE
Charleston, WV 25304

Via Email to: edward.s.andrews@wv.gov

RE: Comments on draft permit R13-3708, MGS CNP1 (Fidelis)

Dear Mr. Andrews:

On behalf of the approximately 2,000 members of the West Virginia Chapter of Sierra Club, please accept the following comments regarding the draft permit.

The proposed facility would burn wood chips and capture the carbon dioxide for sequestration. The Sierra Club's position on Biomass Energy with Carbon Capture and Sequestration (BECCS) is guarded. Before we can support such a facility, there must be assurances that the facility does not exacerbate poor air quality, results in hazardous waste in or near vulnerable communities, and has fully disclosed a full life cycle assessment of the carbon implications to assure that it has a positive climate benefit. The application and permit fail to achieve these goals and therefore must be modified or denied.

As with bioenergy more generally, the carbon implications differ by feedstock source and site, and an accurate accounting of the full lifecycle carbon implications—including the carbon dynamics involved in the production of the feedstock—is necessary to determine the climate impacts. As such, BECCS projects must not use feedstocks derived from sources that involve the conversion of intact ecosystems or forest degradation. They must account for the full life cycle emissions of their products and must demonstrate that a project has net negative carbon emissions, accounting for impacts to in-forest carbon stores and future sequestration, including impacts to sequestration and storage capacity due to nutrient removal and logging-caused soil damage. BECCS projects must demonstrate that biomass feedstocks characterized as waste or residues—and where the energy costs of production are therefore assumed to be low or zero—would have been generated in the absence of the biomass project and would have otherwise been burned or disposed in a landfill.

Because the application does not disclose the source of the wood chips to be used nor quantify the net carbon emissions from forest conversion, and because the draft permit does not require such disclosure, the permit should be revied or denied. Furthermore, the location for

carbon sequestration is not identified, nor has a location for ash disposal been proposed. Finally, the project's impacts on the local community raise a significant concern about environmental justice impacts on a community that has already born disproportionate impacts from use and abuse of fossil fuels.

We recognize that climate change issues are sufficiently urgent that, as part of an effort to reduce atmospheric carbon dioxide, some compromises may be warranted. But these issues simply cannot be ignored completely. We also recognize that WV-DEP has, in the past, declined to consider broader issues when issuing an air pollution permit, but we urge that this position be reconsidered in light of both the potential benefits and potential impacts of BECCS projects.

Specific Comments on the Draft Permit:

1) Section 1, page 7. The Table indicates a design capacity for the cooling towers of 80,762 gpm, which works out to over 116 million gallons per day. The application also cites a reference that reports a much smaller volume of PM10 than is estimated in AP-42. That paper based the conclusion on their estimate that water with high TDS would produce particulates larger than M10. However, if the makeup water has an average TDS of 340 ppm, (rather than the average of 1700 ppm assumed), the proportion of PM10 may be much higher than estimated by the applicant. **We recommend that the AP-42 estimates be used until monitoring data or manufacturer's guarantees would justify a lower emissions rate.**

2) Section 3.4.1. The last two sentences repeat each other. **We recommend that the final permit omit the shorter sentence.**

3) Section 3.4.3. It is not clear why an "industrial fence" is required, or how it protects against air pollution. The citation of the "March 14, 2021, submittal of the Prevention of Significant Deterioration Air Quality Dispersion Modeling Report." is unclear and needs a more complete citation, as we were unable to find this document to verify what it requires. **We recommend that this section be clarified.**

4) Section 3.5.2. It is unclear why reporting required by this permit would be confidential. The public has a right to know when they are being polluted. **We recommend that this section be removed.**

5) Section 4.1.1, Table 4.1.1.a. The NOx limit of 0.022 lb/MMBTu is more than 4 times the rate approved in the permit for Fundamental Dat's Ridgeline facility. It is 16 times the rate permitted for the Adams Fork facilities. The application claims the maximum controlled emissions would be almost 3 % lower, 0.021398 lb. NOx/ MMBTu. That limit is made considerably more lax by using a 30-day rolling average, thus the facility might exceed the limit frequently, perhaps half the time it is operating, and still average below the limit set. **We recommend that the permit should not be less stringent than the emissions rate claimed in the application.**

6) Section 4.1.1.h. This section indicates that compliance with SO2 limits shall be based on "fuel monitoring as required in Conditions 4.2.1. and 4.2.3.". However, section 4.2.1. specifies the conditions for the NOx CEMS and section 4.2.3. refers to visible emissions from the stacks. The requirement for fuel monitoring or analysis appears in section 4.2.2. Furthermore, section

4.1.6 specifies conditions for the wet scrubber, including flow rate, pH, and pressure drop. Section 4.2.8 specifies the monitoring requirements to comply with section 4.1.6 (operation of the wet scrubber). While fuel analyses may verify the total Potential To Emit, and monitoring of scrubber operating conditions may be helpful, such analyses do not assess the actual amount of SO2 emitted after treatment with the wet scrubber. While Section 4.2.11., "*Monitoring Other Support Units for the Carbon Capture Unit* ", specifies installation of instruments to measure parameters identified in 4.1.8. and Section 4.1.8.a specifies monitoring SO2 (including emission point 121-H-2001) on a 3-hour average basis, these are not defined explicitly, nor are they as effective as CEMS. Section 4.3.7 specifies the use of a "process simulator" to demonstrate compliance for support equipment, but again, actual monitoring data are preferred. **Rather than fuel monitoring, etc., we recommend that an approved CEMS for SO2 discharged from the stack be required. Table 4.1.1.a. should be modified accordingly.**

7) Section 4.1.2. specifies conditions to operate the Filter Fabric baghouse. However, the application indicates that the manufacturer and model is "TBD". The same is found for the engines used for fire control, etc. This makes it very difficult for the public to verify whether the permit limits are appropriate. It is not clear how WV-DAQ can assume 99 % control with the baghouse, as stated in the Engineering Evaluation, when the equipment used is not specified. **We recommend that the manufacturer and model be specified before a permit is issued.**

8) Section 4.1.3.a. It is not clear how the ammonia slip is monitored to assure compliance with the limit of 3.65 ppm. Although section 4.2.5. requires monitoring of the ammonia flow rate in, there does not appear to be a requirement to monitor ammonia coming out. **We recommend that this requirement be added to the permit, and language to that effect included in section 4.3.3. and Table 4.3.3.**

9) Section 4.1.7. c. It is not clear why operation of the Carbon Capture Unit should be limited "to 7,937 hours per year on a 12-month rolling total". Although that limit seems likely for operational reasons, and such a limit would reduce VOC emissions slightly, that also needlessly limits the amount of carbon dioxide captured. **We recommend that a more appropriate limit would be to restrict the VOC emissions proportionally.**

10) Section 4.2.1. e. indicates that the exhaust flow meter should measure "the amount of natural gas induced into the boiler". This appears to be a repetition of the line in the previous section, as it is not clear why an exhaust meter would measure gas input? **We recommend that the purpose of the exhaust flow meter be corrected.**

11) Section 4.4.6.e. specifies records of the type and amount of fuel used. This information was not provided in the application and it is thus very difficult to verify whether the permit allows emissions greater than the lowest practicable level. The emissions calculations assume the fuel is "clean" wood chips, but no information is provided to assure that the wood is clean. The applicant in their letter of May 6, 2025 claimed that "the biomass analysis is proprietary information…". **Characteristics of the wood fuel (such as source, sulfur content, etc.) should not be considered Confidential Business Information and must be available for review by the public, as this is essential to verify both the emissions limits and the net carbon reduction achieved**.

12) Section 7.1.1.b. Grammatical suggestion. **Insert the words "greater than" in front of "340 ppm".**

13) Section 7.2.1. **Should the first line reference Condition 7.1.1, rather than 8.1.1.?**

Thank you for the opportunity to comment. Please contact me if we can provide further input to clarify our concerns or to discuss how to address them.

Sincerely,

James Kotcon, Chair
West Virginia Chapter of Sierra Club
jkotcon@gmail.com
304-594-3322 (cell)

Cc:
Laura Crowder, Director, WV-DAQ, Laura.M.Crowder@wv.gov
MaryCate Opila, US-EPA Region 3 Air Permitting Branch Chief, Opila.MaryCate@epa.gov
Gwen Supplee, US-EPA Region 3 Title V permitting, Supplee.Gwendolyn@epa.gov
J. Adam Whapham, US-EPA Region 3 NSR permitting, Whapham.Joseph@epa.gov
Dori Jaffe, Managing Attorney, Sierra Club, dori.jaffe@sierraclub.org

From: Elaine Matheny To: edward.s.andrews@wv.govDate: Tue Oct 07 2025 13:41:15 GMT-0400 (Eastern Daylight Time)Subject: MGS CNP1 - BECCS Comments
Please find attached a letter concerning the permit #R13-3708 in Mason County WV.
From: "Andrews, Edward S" To: Laura M Crowder , Joseph R Kessler Date: Tue Oct 07 2025 14:12:33 GMT-0400 (Eastern Daylight Time)Subject: Fwd: MGS CNP1 - BECCS Comments
The lady who requested the extension provided the following comments in a separate email.

Again, I am having a hard time seeing her rationale for an extension.

Ed
Ed

---------- Forwarded message ---------
From: **Elaine Matheny** <ecmatheny@gmail.com>
Date: Tue, Oct 7, 2025 at 1:41 PM
Subject: MGS CNP1 - BECCS Comments
To: <edward.s.andrews@wv.gov>

Please find attached a letter concerning the permit #R13-3708 in Mason County WV.
Attachments:R13-3708 comment 10-7-25.docxR13-3708 comment 10-7-25.docx

Date: Oct 7, 2025

Subject: Comment on MGS CNP1 - BECCS Comments #R13-3708

From: Carl and Elaine Matheny, 11948 Longdale Rd, Letart, WV 25253, 304-593-5708

To: Edward Andrews, WVDEP

I do not believe the permit as written protects the safety and health of area residents adequately. My wife and extended family members live within 3 miles of the proposed construction. My understanding is this process is untried and unproven thus alarming, notification capability, safety measures, system testing and checkout should be extreme, in an attempt to promote safety. Double wall piping, containments, structures, frequent performance testing and continuous monitoring of air quality should be employed. Automatic shut down and depressurization along with sensing, relaying, alarming and control should be in place.

This organization is requesting to conduct operations within approximately 1300 feet of residences and 2 miles from two public schools with more than a thousand students. Carbon monoxide, ammonia, and methane among other chemicals are proposed to be used or generated in plant processes. These chemicals pose severe risk if emitted from the installation. In a ten mile an hour direct wind, residents living 1300 feet away from an emergency episode have approximately 90 seconds to receive a notification and , if possible, take appropriate action.

This permit uses vendor guaranteed emission factors. The equipment vendors are unidentified and thus their credibility and integrity are questionable. They should be identified with their work history and Moody's rating. Further, this project seems to be a part of a larger program of installation. I believe the entire project should be evaluated and treated as one program or installation.

Under section 4.10.4, is the refuse burning portion of the process covered anywhere in the prevention and control of particulate matter air pollution from manufacturing process and associated operations?

Per 4.10.6, 45CSR11: Director, please request a stand by plan be developed outlining procedures to be taken in the event of emergency episodes.

Thank you for your attention to these comments.

Carl and Elaine Matheny

From: Elaine Matheny To: edward.s.andrews@wv.govDate: Tue Oct 07 2025 13:19:22 GMT-0400 (Eastern Daylight Time)Subject: MGS CNP1 - BECCS Comments
See attached letter requesting an extension for the comment period. Thank you.
From: "Andrews, Edward S" To: Laura M Crowder , Joseph R Kessler Date: Tue Oct 07 2025 13:38:21 GMT-0400 (Eastern Daylight Time)Subject: Fwd: MGS CNP1 - BECCS Comments
Request for extension. Please see the forwarded email for the request.

I did not see any justification for the request. I would recommend not granting an extension based on this single request.

Ed

---------- Forwarded message ---------
From: **Elaine Matheny** <ecmatheny@gmail.com>
Date: Tue, Oct 7, 2025 at 1:19 PM
Subject: MGS CNP1 - BECCS Comments
To: <edward.s.andrews@wv.gov>

See attached letter requesting an extension for the comment period. Thank you.
Attachments:request for extension 10-7-25.docxrequest for extension 10-7-25.docx

Date: Oct 7, 2025

Subject: Extend the public comment period for permit # R13-307, MGS CNP1 - BECCS

From: Carl and Elaine Matheny

To: Edward Andrews, WV DEP Edward.s.andrews@WV.gov

Please extend the public comment period for the permit #R13-307, for at least 30 days. The massive amount of information on this proposed project merits time for lay people to try and grasp what is being proposed. My wife and I, our daughter and son-in-law, and two grandsons live approximately 3 miles due east of this proposed project.

Thank you for considering this request.

Carl D. Matheny
Elaine C Matheny

11948 Longdale Rd
Letart, WV 25253
304-593-5708

From: To: Date: Mon Oct 06 2025 18:24:58 GMT-0400 (Eastern Daylight Time)Subject: MGS CNP 1 - BECCS Comments
Mr. Andrews,

I have attached a more detailed letter with questions and concerns. If I am limited to a single question, I would like to know more details related to how often the air quality will be measured and how the proposed plant will take into consideration the close proximity of nearby air pollution being produced by the current power plant? I do not feel that this has been explained properly in the permit request.

Thank you,

Howard

Howie Mullins, RN | Director of Nursing Operations
AssuredCare
2 Courtyard Ln, Barboursville, WV 25504
O: (304) 908-5586 | **C:** (304) 982-1363
Website: AssuredCareLTC.com

CONFIDENTIALITY NOTICE:
This email, including any attachments, may contain confidential, proprietary, and/or legally privileged information intended only for the use of the individual or entity named above. If you are not the intended recipient, you are hereby notified that any review, dissemination, distribution, or duplication of this communication is strictly prohibited. If you have received this email in error, please notify the sender immediately by reply email and delete the original message.

AssuredCare complies with all applicable HIPAA regulations. If this email contains protected health information (PHI), please handle it in accordance with those requirements.

Attachments:image001.jpgHMullins Letter-Air Quality.pdf

Howard Mullins
431 Grandview Ave.
Point Pleasant, WV, 25550
Howie@assuredcareltc.com
304-982-1363

September 17, 2025

Edward Andrews, P.E.
West Virginia Department of Environmental Protection
Division of Air Quality
601 57th Street, SE
Charleston, WV 25304

Re: Public Comment on Draft Permit R13-3708 – MGS CNP1, LLC BECCS Plant (Point Pleasant, Mason County, WV)

Dear Mr. Andrews:

I appreciate the opportunity to submit comments regarding Draft Permit R13-3708 for the proposed MGS CNP1, LLC biomass power plant with carbon capture (BECCS) in Point Pleasant, Mason County, WV.

After reviewing the Draft Permit, Engineering Evaluation, and supporting materials, I have serious concerns about air quality impacts, community health risks, cumulative emissions, and the broader implications for Mason County residents.

Air Quality and Health Concerns

1. **Substantial Emissions**
   The Draft Permit authorizes large annual emissions, including: 75.65 tons of $PM_{2.5}$, 90.90 tons of NOx, 50.79 tons of SO_2, 27.87 tons of sulfuric acid mist, and 24.01 tons of HAPs (notably acetaldehyde and hydrogen chloride). Though technically below major source thresholds, these levels are near-major and raise concerns about cumulative community impacts.

2. **Health Risks from $PM_{2.5}$ and SO_2**
   EPA's National Ambient Air Quality Standards set strict limits for $PM_{2.5}$ and SO_2 because even short-term exposure is linked to asthma, heart attacks, and premature death. The Ohio River Valley is prone to inversions that trap pollutants, creating heightened risks of exceedances and local health burdens.

3. **Hazardous Air Pollutants**
   The proposed 24.01 tpy of HAPs, subject to NESHAP and WVDEP Rule 45CSR27, present toxic exposure risks. Local children, seniors, and residents with respiratory issues face disproportionate harm from acetaldehyde and hydrogen chloride emissions.

4. **Fugitive Emissions & Traffic**
   Over 200 trucks daily will bring biomass fuel and remove ash, raising fugitive dust, diesel emissions, and traffic safety concerns under WVDEP Rule 45CSR17. Handling of amines and sodium bicarbonate also introduces risks under EPA's Chemical Accident Prevention Provisions (40 CFR Part 68).

Technology and Feasibility Concerns

BECCS has not been proven at commercial scale in the U.S. Carbon capture projects have consistently failed to achieve the industry's 95% capture target. This raises serious questions about whether the project will deliver the climate benefits it claims, while still leaving Mason County with pollution and industrial risk

What You Should Know

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Cumulative Impacts & Community Risk

This BECCS plant is planned adjacent to an existing coal-fired power plant and linked to Fidelis' hydrogen and CO_2 storage projects. Together, these facilities create overlapping risks, including CO_2 pipeline ruptures and wellhead blowouts, as seen in Satartia, MS

What You Should Know

. Regulators in WV have little experience with carbon storage wells, raising doubt about their ability to protect residents from accidents.

Economic and Social Impacts

Despite claims of job growth, research shows data centers, hydrogen, and BECCS facilities create few long-term jobs compared to cleaner investments in healthcare, education, and tourism. Mason County already benefits economically from the Mothman Festival and outdoor recreation, which risk being undermined by new polluting industries

What You Should Know

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Requested Actions

I respectfully request that WVDEP:

1. Conduct a **cumulative impact assessment** including emissions from the BECCS plant, hydrogen facility, and existing coal plant.
2. Require **enhanced ambient monitoring** of $PM_{2.5}$, SO_2, NOx, VOCs, and HAPs in the Point Pleasant airshed.
3. Perform a **community health risk assessment** under 45CSR13 and the Clean Air Act.
4. Strengthen fugitive emissions and ammonia slip controls with enforceable conditions.
5. Evaluate **alternative approaches to economic development** that do not expose Mason County residents to high health and safety risks.

Conclusion

This project, as currently permitted, poses significant risks to air quality, public health, and the economic future of Mason County, while offering uncertain climate benefits. For these reasons, I urge WVDEP to require a more rigorous cumulative analysis, stronger health protections, and a reexamination of whether this permit should be approved.

Thank you for your consideration of these comments. Please include them in the official record for Permit Application R13-3708.

Sincerely,

Howard Mullins
430 Grandview Avenue

Point Pleasant, WV 25550

From: Alan Asbury To: "Edward.s.andrews@WV.gov" Date: Fri Sep 19 2025 10:44:24 GMT-0400 (Eastern Daylight Time)Subject: Data not an acceptable resource for public
So, tell me how the creation and or processing of data will help the community become more prosperous??
Can you eat it?
Can it coach a little league team?
Will it contribute to the goodwill of the community?
Will it harm the community?
Will they suck the clean headwaters of the mountain streams and drain our water tables leaving wells as useless as the gas tainted frack fluid?
Will it fill the air with harmful particulates that cause medical emergencies for locals?
WILL THE MONEY FROM ERECTING AND OPERATING the data center leave the state and reduce property values for long time homeowners?

Data mining is the next give away from WV since the extraction of Coal and Gas. The money leaves the State and we are left with the refuse.

NO TO DATA CENTERS.

signed,
Outdoor Family
From: "Andrews, Edward S" To: Alan Asbury Date: Fri Sep 19 2025 16:52:38 GMT-0400 (Eastern Daylight Time)Subject: Re: Data not an acceptable resource for public
Dear Alan Asbury,

This email is to inform you that the Division of Air Quality (DAQ) will be holding a public meeting on October 7, 2025, and extending the comment period to October 8, 2025.

Please see the notice below for more details:

"AIR QUALITY PERMIT NOTICE

Notice of Public Meeting and Extension to the Comment Period

On February 24, 2025, MGS CNP 1, LLC applied to the WV Department of Environmental Protection (WVDEP), Division of Air Quality (DAQ) for a construction permit for the installation and operation of a biomass boiler for the purpose of generating electricity with a carbon capture unit to be located near 5801 Ohio River Road, Point Pleasant, Mason County, WV, at latitude 38.92450 and longitude -82.10822. On August 19, 2025, the DAQ notified the public that a preliminary evaluation has determined that all State and Federal air quality requirements will be met by the proposed facility and made available a draft permit and engineering evaluation. The DAQ is now providing notice to the public of a public meeting and an extension to the comment period for permit application R13-3708.

The DAQ will hold an in-person public meeting to provide information, answer questions, and accept oral comments for the record for this permitting action. The meeting will be held at the Mason County Courthouse, 200 Sixth Street, Point Pleasant, WV 25550, on Tuesday, October 7, 2025, at 6:00 p.m. Doors will open at 5:30 p.m. to register Attendees.

If you plan to attend the in-person public meeting, to save time and ensure all participants in attendance are registered, please fill out the pre-registration form at https://forms.gle/e7gmt8WxugthGEfbA by 5:00 p.m. on Monday, October 6, 2025. While pre-registration is not required, it is encouraged to save time and ensure all participants in attendance are registered. To register to ask questions and/or provide oral comments, please indicate “yes” that you want to ask a question and/or provide oral comments for the record when you register. A confirmation email will be sent with your responses when you register. If you do

not have internet access and want to register via telephone, please contact Nicole Ernest at (304) 926-0499 x41256. Oral comments are limited to five (5) minutes.

The purpose of the DAQ's permitting process is to determine if the proposed facilities will meet all state and federal requirements. The purpose of the public review process is to provide information and accept public comments on air quality issues relevant to this determination. Only written comments received at the addresses noted below within the specified time frame, or comments presented orally at the public meeting, will be considered prior to final action on the permits. All such comments will become part of the public record.

The public comment period has been extended to 5:00 p.m. on Wednesday, October 8, 2025. Written comments may be submitted by:

Email: Edward.s.andrews@WV.gov with "MGS CNP1 - BECCS Comments" as the subject line, or

Mail: WVDEP - Air Quality, Attention: Edward Andrews, 601 57th Street SE, Charleston, WV 25304.

Instructions for downloading additional information, including copies of the draft permits, applications, and all other supporting materials relevant to the permit decisions, are available at: [https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx] (https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx)."

Best regards,
Edward Andrews, P.E.
Engineer
WVDEP/Division of Air Quality
edward.s.andrews@wv.gov
304-414-1244
601 57th Street, SE
Charleston, WV 25304

On Fri, Sep 19, 2025 at 10:44 AM Alan Asbury <outdrfamly2020@gmail.com> wrote:

> So, tell me how the creation and or processing of data will help the community become more prosperous??
> Can you eat it?
> Can it coach a little league team?
> Will it contribute to the goodwill of the community?
> Will it harm the community?
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>
> NO TO DATA CENTERS.
>
> signed,
> Outdoor Family

From: Keith Biggs To: edward.s.andrews@wv.govDate: Thu Sep 18 2025 05:55:47 GMT-0400 (Eastern Daylight Time)Subject: Requesting a public comment extension and public meeting on MGS CNP 1Dear Division of Air Quality Edward Andrews, I'm writing to you to ask that the Department of Environmental Protection extend the public comment period and host an in-person public meeting on the construction permit for a BECCS facility by Mountaineer Gigasystem in Mason County. There are various public and environmental health concerns around this proposal, and the public deserves a chance to hear from you and be heard. With critical information like the manufacturer of turbines, model of turbines, and pollution controls listed as to be determined, it is essential that the community have time to understand the implications of this proposal. I urge you to carefully consider the impact of rushing a permit without community input and grant the extension and the in-person meeting in Point Pleasant. Thank you for your consideration. Sincerely, Keith Biggs 1080 Fairground Rd Point Pleasant, WV 25550-3415 kabiggs@suddenlink.net

From: "Campbell, Dallas L., VBALOUV" To: "edward.s.andrews@wv.gov" Date: Wed Sep 17 2025 15:21:10 GMT-0400 (Eastern Daylight Time)Subject: FIDELIS AND BIOFACILTY MAP
Good afternoon Mr. Andrews,

Could you please send a map of where the Fidelis Data-Center, Biomass boiler etc. will be located near Point Pleasant WV.

Thank you sir,

Dallas Lee Campbell II
VA Field Examiner
Louisville Fiduciary Hub
U.S. Department of Veterans Affairs
Office: 888-407-0144
Cell: 304-544-9822

From: "Andrews, Edward S" To: "Campbell, Dallas L., VBALOUV" Date: Wed Sep 17 2025 15:59:27 GMT-0400 (Eastern Daylight Time)Subject: Re: FIDELIS AND BIOFACILTY MAP
Lee,

Here is a copy of the notice for the public meeting to be held on Oct 7 and extening the comment period to Oct 8. Also, I attached the maps from the two applications as well. I will try to come up with a complete map of both facilities with the old armory as reference point.

Ed

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Engineer
WVDEP/Division of Air Quality
edward.s.andrews@wv.gov
304-414-1244
601 57th Street, SE
Charleston, WV 25304

On Wed, Sep 17, 2025 at 3:21 PM Campbell, Dallas L., VBALOUV <Dallas.Campbell@va.gov> wrote:

> Good afternoon Mr. Andrews,
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U.S. Department of Veterans Affairs
Office: 888-407-0144
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From: "Campbell, Dallas L., VBALOUV" To: "edward.s.andrews@wv.gov" Date: Wed Sep 17 2025 16:01:52 GMT-0400 (Eastern Daylight Time)Subject: RE: [EXTERNAL] Re: FIDELIS AND BIOFACILTY MAP
Thank you

From: Andrews, Edward S <edward.s.andrews@wv.gov>
Sent: Wednesday, September 17, 2025 3:59 PM
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> U.S. Department of Veterans Affairs
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> Cell: 304-544-9822

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Hello Mr. Andrews,

I am sorry I was unable to make the meeting tonight. I got held up and couldn't get back in time.

Thank you sir,

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Sent: Wednesday, September 17, 2025 3:59 PM
To: Campbell, Dallas L., VBALOUV <Dallas.Campbell@va.gov>
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> Good afternoon Mr. Andrews,
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> Could you please send a map of where the Fidelis Data-Center, Biomass boiler etc. will be located near Point Pleasant WV.
>
> Thank you sir,
>
> **Dallas Lee Campbell II**
> **VA Field Examiner**
> Louisville Fiduciary Hub
> U.S. Department of Veterans Affairs
> Office: 888-407-0144
> Cell: 304-544-9822

From: "Andrews, Edward S" To: "Campbell, Dallas L., VBALOUV" Date: Wed Oct 08 2025 07:29:33 GMT-0400 (Eastern Daylight Time)Subject: Re: [EXTERNAL] Re: FIDELIS AND BIOFACILTY MAP
Lee,

I will be sending out a copy of the handout and the presentation from last night's meeting in a mass email in the near future.

Thanks
Ed

On Tue, Oct 7, 2025 at 7:34 PM Campbell, Dallas L., VBALOUV <Dallas.Campbell@va.gov> wrote:

Hello Mr. Andrews,

I am sorry I was unable to make the meeting tonight. I got held up and couldn't get back in time.

Thank you sir,

From: Andrews, Edward S <edward.s.andrews@wv.gov>
Sent: Wednesday, September 17, 2025 3:59 PM
To: Campbell, Dallas L., VBALOUV <Dallas.Campbell@va.gov>
Subject: [EXTERNAL] Re: FIDELIS AND BIOFACILTY MAP

Lee,

Here is a copy of the notice for the public meeting to be held on Oct 7 and extening the comment period to Oct 8. Also, I attached the maps from the two applications as well. I will try to come up with a complete map of both facilities with the old armory as reference point.

Ed

This email is to inform you that the Division of Air Quality (DAQ) will be holding a public meeting on October 7, 2025, and extending the comment period to October 8, 2025.

Please see the notice below for more details:

"AIR QUALITY PERMIT NOTICE

Notice of Public Meeting and Extension to the Comment Period

On February 24, 2025, MGS CNP 1, LLC applied to the WV Department of Environmental Protection (WVDEP), Division of Air Quality (DAQ) for a construction permit for the installation and operation of a biomass boiler for the purpose of generating electricity with a carbon capture unit to be located near 5801 Ohio River Road, Point Pleasant, Mason County, WV, at latitude 38.92450 and longitude -82.10822. On August 19, 2025, the DAQ notified the public that a preliminary evaluation has determined that all State and Federal air quality requirements will be met by the proposed facility and made available a draft permit and engineering evaluation. The DAQ is now providing notice to the public of a public meeting and an extension to the comment period for permit application R13-3708.

The DAQ will hold an in-person public meeting to provide information, answer questions, and accept oral comments for the record for this permitting action. The meeting will be held at the Mason County Courthouse, 200 Sixth Street, Point Pleasant, WV 25550, on Tuesday, October 7, 2025, at 6:00 p.m. Doors will open at 5:30 p.m. to register Attendees.

If you plan to attend the in-person public meeting, to save time and ensure all participants in attendance are registered, please fill out the pre-registration form at https://forms.gle/e7gmt8WxugthGEfbA by 5:00 p.m. on Monday, October 6, 2025. While pre-registration is not required, it is encouraged to save time and ensure all participants in attendance are registered. To register to ask questions and/or provide oral comments, please indicate "yes" that you want to ask a question and/or provide oral comments for the record when you register. A confirmation email will be sent with your responses when you register. If you do not have internet access and want to register via telephone, please contact Nicole Ernest at (304) 926-0499 x41256. Oral comments are limited to five (5) minutes.

The purpose of the DAQ's permitting process is to determine if the proposed facilities will meet all state and federal requirements. The purpose of the public review process is to provide information and accept public comments on air quality issues relevant to this

determination. Only written comments received at the addresses noted below within the specified time frame, or comments presented orally at the public meeting, will be considered prior to final action on the permits. All such comments will become part of the public record.

The public comment period has been extended to 5:00 p.m. on Wednesday, October 8, 2025. Written comments may be submitted by:

Email: Edward.s.andrews@WV.gov with "MGS CNP1 - BECCS Comments" as the subject line, or

Mail: WVDEP - Air Quality, Attention: Edward Andrews, 601 57th Street SE, Charleston, WV 25304.

Instructions for downloading additional information, including copies of the draft permits, applications, and all other supporting materials relevant to the permit decisions, are available at: [https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx] (https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx)."

Best regards,
Edward Andrews, P.E.
Engineer
WVDEP/Division of Air Quality
edward.s.andrews@wv.gov
304-414-1244
601 57th Street, SE
Charleston, WV 25304

On Wed, Sep 17, 2025 at 3:21 PM Campbell, Dallas L., VBALOUV <Dallas.Campbell@va.gov> wrote:

> Good afternoon Mr. Andrews,
>
> Could you please send a map of where the Fidelis Data-Center, Biomass boiler etc. will be located near Point Pleasant WV.
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> Thank you sir,
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> **Dallas Lee Campbell II**
> **VA Field Examiner**
> Louisville Fiduciary Hub
> U.S. Department of Veterans Affairs
> Office: 888-407-0144
> Cell: 304-544-9822

Attachments:smime.p7sMap-H2_Plant_Permit App 13-3724.pdfMap-Biomass Boiler_from 13-3708.pdfsmime.p7ssmime.p7s

From: "Sheline, Stephanie" To: "edward.s.andrews@wv.gov" Date: Wed Sep 17 2025 14:48:47 GMT-0400 (Eastern Daylight Time)Subject: Fidelis New Energy
Dear Sir,
I am a homeowner of the one the homes in Meadowland Estates and we are requesting an extension of any permits given or approved to Fidelis. We need more time to see what is all involved in this plant. My husband is in a hospital bed and we welcome a buy out , however we are not in support of a plant of that danger and emissions that close to our home wherein our grandchildren play. I could not leave with my self if I thought they where hurt over waste falling in my year on our home or vehicles because of this facility. Plea we humbly ask you for a time extension on ANY permists that may be in the works for Fidelis.

Thank you,
Stephanie and Jay Sheline
706 University Lane (Post Office Box 250)
Point Pleasant, WV 25550
304-812-0252

From: Paul Darst To: edward.s.andrews@wv.govDate: Wed Sep 17 2025 14:10:31 GMT-0400 (Eastern Daylight Time)Subject: Requesting a public comment extension and public meeting on MGS CNP 1Dear Division of Air Quality Edward Andrews, I'm writing to you to ask that the Department of Environmental Protection extend the public comment period and host an in-person public meeting on the construction permit for a BECCS facility by Mountaineer Gigasystem in Mason County. There are various public and environmental health concerns around this proposal, and the public deserves a chance to hear from you and be heard. With critical information like the manufacturer of turbines, model of turbines, and pollution controls listed as to be determined, it is essential that the community have time to understand the implications of this proposal. I urge you to carefully consider the impact of rushing a permit without community input and grant the extension and the in-person meeting in Point Pleasant. Thank you for your consideration. Sincerely, Mr Paul Darst 43 Gunthrie St Point Pleasant, WV 25550-9131 pjdarst@suddenlink.net

From: Michael Wooten To: edward.s.andrews@wv.govDate: Wed Sep 17 2025 14:09:50 GMT-0400 (Eastern Daylight Time)Subject: Requesting a public comment extension and public meeting on MGS CNP 1Dear Division of Air Quality Edward Andrews, I'm writing to you to ask that the Department of Environmental Protection extend the public comment period and host an in-person public meeting on the construction permit for a BECCS facility by Mountaineer Gigasystem in Mason County. There are various public and environmental health concerns around this proposal, and the public deserves a chance to hear from you and be heard. With critical information like the manufacturer of turbines, model of turbines, and pollution controls listed as to be determined, it is essential that the community have time to understand the implications of this proposal. I urge you to carefully consider the impact of rushing a permit without community input and grant the extension and the in-person meeting in Point Pleasant. Thank you for your consideration. Sincerely, Michael Wooten 230 Milton Dr Point Pleasant, WV 25550-3291 hopw_2@hotmail.com From: Michael Wooten To: edward.s.andrews@wv.govDate: Wed Sep 17 2025 14:11:52 GMT-0400 (Eastern Daylight Time)Subject: Requesting a public comment extension and public meeting on MGS CNP 1Dear Division of Air Quality Edward Andrews, I'm writing to you to ask that the Department of Environmental Protection extend the public comment period and host an in-person public meeting on the construction permit for a BECCS facility by Mountaineer Gigasystem in Mason County. There are various public and environmental health concerns around this proposal, and the public deserves a chance to hear from you and be heard. With critical information like the manufacturer of turbines, model of turbines, and pollution controls listed as to be determined, it is essential that the community have time to understand the implications of this proposal. I urge you to carefully consider the impact of rushing a permit without community input and grant the extension and the in-person meeting in Point Pleasant. Thank you for your consideration. Sincerely, Michael Wooten 230 Milton Dr Point Pleasant, WV 25550-3291 hopw_2@hotmail.com

From: Jim Butler To: edward.s.andrews@wv.govDate: Wed Sep 17 2025 12:13:20 GMT-0400 (Eastern Daylight Time)Subject: Requesting a public comment extension and public meeting on MGS CNP 1Dear Division of Air Quality Edward Andrews, I'm writing to you to ask that the Department of Environmental Protection extend the public comment period and host an in-person public meeting on the construction permit for a BECCS facility by Mountaineer Gigasystem in Mason County. There are various public and environmental health concerns around this proposal, and the public deserves a chance to hear from you and be heard. With critical information like the manufacturer of turbines, model of turbines, and pollution controls listed as to be determined, it is essential that the community have time to understand the implications of this proposal. I urge you to carefully consider the impact of rushing a permit without community input and grant the extension and the in-person meeting in Point Pleasant. Thank you for your consideration. Sincerely, Jim Butler 280 2 Mile Rd Gallipolis Ferry, WV 25515-1701 wvtango2@frontier.com

From: Diana Taylor To: edward.s.andrews@wv.govDate: Wed Sep 17 2025 09:26:33 GMT-0400 (Eastern Daylight Time)Subject: Requesting a public comment extension and public meeting on MGS CNP 1Dear Division of Air Quality Edward Andrews, I'm writing to you to ask that the Department of Environmental Protection extend the public comment period and host an in-person public meeting on the construction permit for a BECCS facility by Mountaineer Gigasystem in Mason County. There are various public and environmental health concerns around this proposal, and the public deserves a chance to hear from you and be heard. With critical information like the manufacturer of turbines, model of turbines, and pollution controls listed as to be determined, it is essential that the community have time to understand the implications of this proposal. I urge you to carefully consider the impact of rushing a permit without community input and grant the extension and the in-person meeting in Point Pleasant. Thank you for your consideration. Sincerely, Diana Taylor 365 University Ln Point Pleasant, WV 25550-3341 dstaylor40@hotmail.com

From: Blair Bumgarner To: edward.s.andrews@wv.govDate: Wed Sep 17 2025 09:22:48 GMT-0400 (Eastern Daylight Time)Subject: Request for extension of permit process
Dear Mr. Andrews,

I'm writing you to ask that the WV Department of Environmental Protection extend the public comment period and host an in-person public meeting on the construction permit for a BECCS facility by Mountaineer Giga-system in Mason County. There are various public and environmental health concerns around this proposal, and the public deserves a chance to hear from you and be heard.

With critical information like the manufacturer of turbines, model of turbines, and pollution controls listed as to be determined, it is essential that the community have time to understand the implications of this proposal. I urge you to carefully consider the impact of rushing a permit without community input and grant the extension and the in-person meeting in Point Pleasant. I am very concerned about the potential air quality effect of this permit.

Thank you for your consideration.
Blair Bumgarner

From: Sabrina Bush To: edward.s.andrews@wv.govDate: Wed Sep 17 2025 06:34:03 GMT-0400 (Eastern Daylight Time)Subject: Requesting a public comment extension and public meeting on MGS CNP 1Dear Division of Air Quality Edward Andrews, I'm writing to you to ask that the Department of Environmental Protection extend the public comment period and host an in-person public meeting on the construction permit for a BECCS facility by Mountaineer Gigasystem in Mason County. There are various public and environmental health concerns around this proposal, and the public deserves a chance to hear from you and be heard. With critical information like the manufacturer of turbines, model of turbines, and pollution controls listed as to be determined, it is essential that the community have time to understand the implications of this proposal. I urge you to carefully consider the impact of rushing a permit without community input and grant the extension and the in-person meeting in Point Pleasant. Thank you for your consideration. Sincerely, Sabrina Bush 10797 Huntington Rd Gallipolis Ferry, WV 25515-7225 sabrinabush0409@gmail.com

From: "Pamela S. Pickens" To: edward.s.andrews@wv.govDate: Wed Sep 17 2025 06:19:05 GMT-0400 (Eastern Daylight Time)Subject: Requesting a public comment extension and public meeting on MGS CNP 1Dear Division of Air Quality Edward Andrews, I'm writing to you to ask that the Department of Environmental Protection extend the public comment period and host an in-person public meeting on the construction permit for a BECCS facility by Mountaineer Gigasystem in Mason County. There are various public and environmental health concerns around this proposal, and the public deserves a chance to hear from you and be heard. With critical information like the manufacturer of turbines, model of turbines, and pollution controls listed as to be determined, it is essential that the community have time to understand the implications of this proposal. I urge you to carefully consider the impact of rushing a permit without community input and grant the extension and the in-person meeting in Point Pleasant. Thank you for your consideration. Sincerely, Mrs Pamela S. Pickens 598 Milton Dr Point Pleasant, WV 25550-3295 npickens59@gmail.com

From: Marketta Crum To: edward.s.andrews@wv.govDate: Tue Sep 16 2025 21:34:58 GMT-0400 (Eastern Daylight Time)Subject: Requesting a public comment extension and public meeting on MGS CNP 1Dear Division of Air Quality Edward Andrews, I'm writing to you to ask that the Department of Environmental Protection extend the public comment period and host an in-person public meeting on the construction permit for a BECCS facility by Mountaineer Gigasystem in Mason County. There are various public and environmental health concerns around this proposal, and the public deserves a chance to hear from you and be heard. With critical information like the manufacturer of turbines, model of turbines, and pollution controls listed as to be determined, it is essential that the community have time to understand the implications of this proposal. I urge you to carefully consider the impact of rushing a permit without community input and grant the extension and the in-person meeting in Point Pleasant. Thank you for your consideration. Sincerely, Mrs Marketta Crum 294 Hill Dr Henderson, WV 25106-8591 mzcastlelady@yagoo.com

From: James Pyle To: edward.s.andrews@wv.govDate: Tue Sep 16 2025 21:27:48 GMT-0400 (Eastern Daylight Time)Subject: Requesting a public comment extension and public meeting on MGS CNP 1Dear Division of Air Quality Edward Andrews, I'm writing to you to ask that the Department of Environmental Protection extend the public comment period and host an in-person public meeting on the construction permit for a BECCS facility by Mountaineer Gigasystem in Mason County. There are various public and environmental health concerns around this proposal, and the public deserves a chance to hear from you and be heard. With critical information like the manufacturer of turbines, model of turbines, and pollution controls listed as to be determined, it is essential that the community have time to understand the implications of this proposal. I urge you to carefully consider the impact of rushing a permit without community input and grant the extension and the in-person meeting in Point Pleasant. Thank you for your consideration. Sincerely, James Pyle 41 Hawthorne Ln Point Pleasant, WV 25550-9649 goodguy5668@gmail.com

From: Elaine Matheny To: edward.s.andrews@wv.govDate: Tue Sep 16 2025 21:13:51 GMT-0400 (Eastern Daylight Time)Subject: Requesting a public comment extension and public meeting on MGS CNP 1Dear Division of Air Quality Edward Andrews, I'm writing to you to ask that the Department of Environmental Protection extend the public comment period and host an in-person public meeting on the construction permit for a BECCS facility by Mountaineer Giga-system in Mason County. There are various public and environmental health concerns around this proposal, and the public deserves a chance to hear from you and be heard. With critical information like the manufacturer of turbines, model of turbines, and pollution controls listed as to be determined, it is essential that the community have time to understand the implications of this proposal. I urge you to carefully consider the impact of rushing a permit without community input and grant the extension and the in-person meeting in Point Pleasant. Thank you for your consideration. Sincerely, Elaine Matheny 11948 Longdale Rd Letart, WV 25253-9759 ecmatheny@gmail.com

From: Elaine Matheny To: "edward.s.andrews@wv.gov" Date: Tue Sep 16 2025 21:08:07 GMT-0400 (Eastern Daylight Time)Subject: Request for an in person meeting with DEP
Dear Mr. Andrews,

I'm writing to request that the WV Department of Environmental Protection extend the public comment period and host an in-person public meeting on the construction permit for a BECCS facility by Mountaineer Giga-system in Mason County. There are various public and environmental health concerns around this proposal, and the public deserves a chance to hear from you and be heard.

With critical information like the manufacturer of turbines, model of turbines, and pollution controls listed as to be determined, it is essential that the community have time to understand the implications of this proposal. I urge you to carefully consider the impact of rushing a permit without community input and grant the extension and the in-person meeting in Point Pleasant. I am very concerned about the potential air quality effect of this permit. Thank you for your consideration. Carl D Matheny

--
11948 Longdale Rd
Letart, WV 25253
304-593-5708

From: Elaine Matheny To: "edward.s.andrews@wv.gov" Date: Tue Sep 16 2025 21:05:48 GMT-0400 (Eastern Daylight Time)Subject: Request for extension of permit process
Dear Mr. Andrews,

I'm writing you to ask that the WV Department of Environmental Protection extend the public comment period and host an in-person public meeting on the construction permit for a BECCS facility by Mountaineer Giga-system in Mason County. There are various public and environmental health concerns around this proposal, and the public deserves a chance to hear from you and be heard.

With critical information like the manufacturer of turbines, model of turbines, and pollution controls listed as to be determined, it is essential that the community have time to understand the implications of this proposal. I urge you to carefully consider the impact of rushing a permit without community input and grant the extension and the in-person meeting in Point Pleasant. I am very concerned about the potential air quality effect of this permit. Thank you for your consideration. Elaine C Matheny

--
Elaine C. Matheny
11948 Longdale Rd
Letart, WV 25253
304-593-1518

From: Andy Xiao To: edward.s.andrews@wv.govDate: Tue Sep 16 2025 20:42:37 GMT-0400 (Eastern Daylight Time)Subject: Requesting a public comment extension and public meeting on MGS CNP 1Dear Division of Air Quality Edward Andrews, I'm writing to you to ask that the Department of Environmental Protection extend the public comment period and host an in-person public meeting on the construction permit for a BECCS facility by Mountaineer Gigasystem in Mason County. There are various public and environmental health concerns around this proposal, and the public deserves a chance to hear from you and be heard. With critical information like the manufacturer of turbines, model of turbines, and pollution controls listed as to be determined, it is essential that the community have time to understand the implications of this proposal. I urge you to carefully consider the impact of rushing a permit without community input and grant the extension and the in-person meeting in Point Pleasant. Thank you for your consideration. Sincerely, Andy Xiao Point Pleasant, WV 25550 anlukasxiao888@gmail.com

From: Ryan and Jessica Bailey To: Date: Tue Sep 16 2025 15:11:02 GMT-0400 (Eastern Daylight Time)Subject: Mason County Air quality permit
Mr. Andrews,

I have read the notice of open comment concerning the air quality permit for the incoming MGS CNP 1, LLC. I wanted to reach out to you about the permit and raise my concerns about the air quality in Mason county. I would love to have a meeting where you can give more information on the pollutants that will be released into the air and the safety of my family and community.

Thanks,
Jessica Bailey

Sent from Yahoo Mail for iPhone

From: Amy Mullins To: "edward.s.andrews@wv.gov" Date: Sun Sep 14 2025 12:57:20 GMT-0400 (Eastern Daylight Time)Subject: Concerns regarding the Carbon Capture Plant Point Pleasant WV
Dear Mr. Andrews,

I am writing to you in regards to the Notice of Open Comment Period (attached) regarding the Carbon Capture Plant that is slated to be built in Point Pleasant, WV. I am writing as I live within 500 yards of the back side of the proposed plant site and I am concerned about the negative impacts (potential harmful emissions, sulfuric acid rain, earthquakes, light and noise pollution, etc...) that this plant could have on my home, my family, and my community. Therefore, I am requesting a public meeting to discuss these concerns.

Sincerely,

Amy M. Mullins
Phone: 304-674-1105
Email: aburdette75@yahoo.com

Attachments:IMG_3224.jpg

Air Quality Permit Notice - Notice Of Open Comment Period - Mason County - Mgs Cnp 1, LLC

8/21/2025, 9:06:32 AM

AIR QUALITY PERMIT NOTICE

Notice of Open Comment Period

On February 24, 2025, MGS CNP 1, LLC applied to the WV Department of Environmental Protection, Division of Air Quality (DAQ) for a construction permit for the installation and operation of a biomass boiler for purpose to generate electricity with a carbon capture unit to be located near 5801 Ohio River Road, Point Pleasant, Mason County, WV, at latitude 38.92450 and longitude -82.10822. A preliminary evaluation has determined that all State and Federal air quality requirements will be met by the proposed construction. The DAQ is providing notice to the public of an open comment period for permit application R13-3708.

The following potential emissions, which includes fugitives, will be authorized by this permit action: Particulate Matter less than 2.5 microns, 75.65 tons per year (TPY); Particulate Matter less than 10 microns, 83.95 tons per year (TPY); and Particulate Matter, 59.09 TPY; Oxides of Nitrogen, 90.90 TPY; Carbon Monoxide, 46.48 TPY; Sulfur Dioxide, 50.79 TPY; Volatile Organic Compounds, 55.78 TPY; Sulfuric Acid Mist, 27.87 and Total Hazardous Air Pollutants, 24.01 TPY of which 8.15 tons of Acetaldehyde and 6.22 tons of Hydrogen Chloride.

Written comments or requests for a public meeting must be received by the DAQ before 5:00 p.m. on Thursday, September 18, 2025. A public meeting may be held if the Director of the DAQ determines that significant public interest has been expressed, in writing, or when the Director deems it appropriate.

According to information given in the permit application, start-up of the facility was estimated by the applicant to be January 1, 2029. The purpose of the DAQ's permitting process is to make a preliminary determination if the proposed construction will meet all state and federal air quality requirements. The purpose of the public review process is to accept public comments on air quality issues relevant to this determination. Only written comments received at the address noted below within the specified time frame, or comments presented orally at a scheduled public meeting, will be considered prior to final action on the permit. All such comments will become part of the public record.

Edward Andrews, P.E.
WV Department of Environmental Protection
Division of Air Quality
601 57th Street, SE
Charleston, WV 25304
Telephone: 304/926-0499, ext. 41244
Email: edward.s.andrews@wv.gov

Additional information, including copies of the draft permit, application and all other supporting materials relevant to the permit decision may be obtained by contacting the engineer listed above. The draft permit and engineering evaluation can be downloaded at:

https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx

From: "Andrews, Edward S" To: Ronald Greathouse Date: Fri Sep 12 2025 15:55:44 GMT-0400 (Eastern Daylight Time)Subject: Fidelis New Energy Applications with the Division of Air Quality
Dear Commenter,

The West Virginia Department of Environmental Protection - Division of Air Quality (DAQ) had received your timely email requesting a public meeting. The DAQ has received two permit applications under two separate organizations which are wholly owned subsidiaries of Fidelis New Energy, LLC. Your email implies that you are requesting a public meeting regarding MGS CNP 1's proposed construction of their BECCS facility that has been assigned Permit Application Number R13-3708, which consists of a biomass boiler to generate electricity.

In your email you either made refered to the H2 Plant or made remarks to equipment that is only listed in MGS H2 1, LLC application for the construction of their MGS H2 Plant. This permit application was received on August 7, 2025, and has been assigned Permit Application Number R13-3724. Currently, Application R13-3724 is not complete. Hence, the DAQ has not commenced reviewing this application at this time.

The DAQ is currently evaluating several other requests for a public meeting regarding permit application for the BECCS facility (Biomass Boiler). If you are specifically requesting a public meeting regarding the BECCS facility, please respond to this email respectively by no later than 5:00 pm of Thursday September 18, 2025.

Please note if the DAQ elects to hold a public meeting for the BECCS facility, the purpose of such meeting will be to allow the public to make comments on the record regarding the construction of the BECCS facility and the agency will only be obligated to respond to comments related to air quality concerns from the proposed BECCS facility.

Information, which includes the application, draft permit and evaluation, on BECCS facility can be found on our website https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx
under "Popular Searches" and "MGS CNP1, LLC; BECCS".

Should you have any questions, please contact me.

--
Edward Andrews, P.E.
Engineer
WVDEP/Division of Air Quality
304-414-1244
601 57th Street, SE
Charleston, WV 25304

--
Unsubscribe

From: Ronald Greathouse To: Edward S Andrews Date: Tue Sep 16 2025 21:52:17 GMT-0400 (Eastern Daylight Time)Subject: Re: Fidelis New Energy Applications with the Division of Air QualityI received your email relating to the Biomass Air Permit and Yes I am requesting a public meeting on the air permit.

Thank you
Ron & Frieda Greathouse

Sent from my iPhone

On Sep 12, 2025, at 3:56 PM, Andrews, Edward S <edward.s.andrews@wv.gov> wrote:

Dear Commenter,

The West Virginia Department of Environmental Protection - Division of Air Quality (DAQ) had received your timely email requesting a public meeting. The DAQ has received two permit applications under two separate organizations which are wholly owned subsidiaries of Fidelis New Energy, LLC. Your email implies that you are requesting a public meeting regarding MGS CNP 1's proposed construction of their BECCS facility that has been assigned Permit Application Number R13-3708, which consists of a biomass boiler to generate electricity.

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Information, which includes the application, draft permit and evaluation, on BECCS facility can be found on our website https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx
under "Popular Searches" and "MGS CNP1, LLC; BECCS".

Should you have any questions, please contact me.

--
Edward Andrews, P.E.
Engineer
WVDEP/Division of Air Quality
304-414-1244
601 57th Street, SE
Charleston, WV 25304

--
Unsubscribe

From: "Andrews, Edward S" To: David Grigsby <523grigsby@gmail.com>Date: Fri Sep 12 2025 15:55:44 GMT-0400 (Eastern Daylight Time)Subject: Fidelis New Energy Applications with the Division of Air Quality
Dear Commenter,

The West Virginia Department of Environmental Protection - Division of Air Quality (DAQ) had received your timely email requesting a public meeting. The DAQ has received two permit applications under two separate organizations which are wholly owned subsidiaries of Fidelis New Energy, LLC. Your email implies that you are requesting a public meeting regarding MGS CNP 1's proposed construction of their BECCS facility that has been assigned Permit Application Number R13-3708, which consists of a biomass boiler to generate electricity.

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Please note if the DAQ elects to hold a public meeting for the BECCS facility, the purpose of such meeting will be to allow the public to make comments on the record regarding the construction of the BECCS facility and the agency will only be obligated to respond to comments related to air quality concerns from the proposed BECCS facility.

Information, which includes the application, draft permit and evaluation, on BECCS facility can be found on our website https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx
under "Popular Searches" and "MGS CNP1, LLC; BECCS".

Should you have any questions, please contact me.

--
Edward Andrews, P.E.
Engineer
WVDEP/Division of Air Quality
304-414-1244
601 57th Street, SE
Charleston, WV 25304

--
Unsubscribe

From: david grigsby <523grigsby@gmail.com>To: "Andrews, Edward S" Date: Sat Sep 13 2025 10:15:25 GMT-0400 (Eastern Daylight Time)Subject: Re: Fidelis New Energy Applications with the Division of Air Quality
Mr Andrews,
We are writing to express our concerns regarding the proposed biomass and carbon capture facility in Mason County, WV. I know that we have previously spoken about this matter. This correspondence is to clarify the specific issues we would like to have addressed.

First and foremost, we have several questions regarding the health issues that a project like this may cause. Through our research, we have discovered that there are several negative effects on the overall health of individuals living in the surrounding communities. Air pollution, groundwater contamination, CO2 migration, and leakage are just a few of the issues that have been proven to result from a project of this nature. Exposure to CO2 gas is proven to cause confusion, unconsciousness, and even suffocation. For example, in Satarina MS, a CO2 pipeline rupture caused hundreds to evacuate and the hospitalization of fifty people. There are also several unknown long-term health effects, as this is such a new technology.

Safety is also a huge concern. Carbon capture and storage has been shown to increase seismic activity. Earthquakes have been recorded in areas where plants such as this are located. Explosions are also a huge concern when carbon capture pipes fail. Many times, catastrophic releases occur without warning. Any one of these situations could be extremely detrimental to the community. The fact that there are several homes in the immediate area surrounding this plant is a recipe for disaster.

According to the WV DEP website, their primary focus is to "enforce state and federal environmental laws in West Virginia to help protect our air, water, and land." Nowhere in the mission or charter of the DEP does it state it will ensure economic growth or enforce the agenda of a sitting governor or any elected officials' "vision" for the state. We understand that new jobs are good for our communities and the future of our state; however, we do not want to sacrifice the health of our communities for new jobs. The fact that many of the decisions that affect the public are being made in private is unacceptable. It is our hope that there will be open, honest discourse between those making decisions and those of us who are directly impacted by their decisions. God has blessed us with a beautiful state filled with wonderful people. We pray that we can be good stewards of both.

Mr. Andrews, we would like to personally thank you for all of your help and attention to this matter so far. We greatly appreciate your honesty and forthrightness. We look forward to continuing to address these concerns together.

Regards,
David and Candice Grigsby

On Fri, Sep 12, 2025 at 3:56 PM Andrews, Edward S <edward.s.andrews@wv.gov> wrote:

> Dear Commenter,
>
> The West Virginia Department of Environmental Protection - Division of Air Quality (DAQ) had received your timely email requesting a public meeting. The DAQ has received two permit applications under two separate organizations which are wholly owned subsidiaries of Fidelis New Energy, LLC. Your email implies that you are requesting a public meeting regarding MGS CNP 1's proposed construction of their BECCS facility that has been assigned Permit Application Number R13-3708, which consists of a biomass boiler to generate electricity.
>
> In your email you either made refered to the H2 Plant or made remarks to equipment that is only listed in MGS H2 1, LLC application for the construction of their MGS H2 Plant. This permit application was received on August 7, 2025, and has been assigned Permit Application Number R13-3724. Currently, Application R13-3724 is not complete. Hence, the DAQ has not commenced reviewing this application at this time.
>
> The DAQ is currently evaluating several other requests for a public meeting regarding permit application for the BECCS facility (Biomass Boiler). If you are specifically requesting a public meeting regarding the BECCS facility, please respond to this email respectively by no later than 5:00 pm of Thursday September 18, 2025.
>
> Please note if the DAQ elects to hold a public meeting for the BECCS facility, the purpose of such meeting will be to allow the public to make comments on the record regarding the construction of the BECCS facility and the agency will only be obligated to respond to comments related to air quality concerns from the proposed BECCS facility.

Information, which includes the application, draft permit and evaluation, on BECCS facility can be found on our website https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx
under "Popular Searches" and "MGS CNP1, LLC; BECCS".

Should you have any questions, please contact me.

--
Edward Andrews, P.E.
Engineer
WVDEP/Division of Air Quality
304-414-1244
601 57th Street, SE
Charleston, WV 25304

--
Unsubscribe

From: "Andrews, Edward S" To: Randy and Marsha Frame Date: Fri Sep 12 2025 15:55:44 GMT-0400 (Eastern Daylight Time)Subject: Fidelis New Energy Applications with the Division of Air Quality
Dear Commenter,

The West Virginia Department of Environmental Protection - Division of Air Quality (DAQ) had received your timely email requesting a public meeting. The DAQ has received two permit applications under two separate organizations which are wholly owned subsidiaries of Fidelis New Energy, LLC. Your email implies that you are requesting a public meeting regarding MGS CNP 1's proposed construction of their BECCS facility that has been assigned Permit Application Number R13-3708, which consists of a biomass boiler to generate electricity.

In your email you either made refered to the H2 Plant or made remarks to equipment that is only listed in MGS H2 1, LLC application for the construction of their MGS H2 Plant. This permit application was received on August 7, 2025, and has been assigned Permit Application Number R13-3724. Currently, Application R13-3724 is not complete. Hence, the DAQ has not commenced reviewing this application at this time.

The DAQ is currently evaluating several other requests for a public meeting regarding permit application for the BECCS facility (Biomass Boiler). If you are specifically requesting a public meeting regarding the BECCS facility, please respond to this email respectively by no later than 5:00 pm of Thursday September 18, 2025.

Please note if the DAQ elects to hold a public meeting for the BECCS facility, the purpose of such meeting will be to allow the public to make comments on the record regarding the construction of the BECCS facility and the agency will only be obligated to respond to comments related to air quality concerns from the proposed BECCS facility.

Information, which includes the application, draft permit and evaluation, on BECCS facility can be found on our website https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx
under "Popular Searches" and "MGS CNP1, LLC; BECCS".

Should you have any questions, please contact me.

--
Edward Andrews, P.E.
Engineer
WVDEP/Division of Air Quality
304-414-1244
601 57th Street, SE
Charleston, WV 25304

--
Unsubscribe

From: Mail Delivery Subsystem To: edward.s.andrews@wv.govDate: Fri Sep 12 2025 15:56:12 GMT-0400 (Eastern Daylight Time)Subject: Delivery Status Notification (Failure)

Address not found

Your message wasn't delivered to **mframe427@everyactioncustom.com** because the address couldn't be found, or is unable to receive mail.

The response from the remote server was:

```
550 5.0.1 Recipient rejected
```

From: "Andrews, Edward S" To: Randy and Marsha Frame Date: Fri Sep 12 2025 16:05:54 GMT-0400 (Eastern Daylight Time)Subject: Fwd: Fidelis New Energy Applications with the Division of Air Quality

---------- Forwarded message ---------
From: **Andrews, Edward S** <edward.s.andrews@wv.gov>
Date: Fri, Sep 12, 2025 at 3:55 PM
Subject: Fidelis New Energy Applications with the Division of Air Quality
To: Randy and Marsha Frame <mframe427@everyactioncustom.com>

Dear Commenter,

The West Virginia Department of Environmental Protection - Division of Air Quality (DAQ) had received your timely email requesting a public meeting. The DAQ has received two permit applications under two separate organizations which are wholly owned subsidiaries of Fidelis New Energy, LLC. Your email implies that you are requesting a public meeting regarding MGS CNP 1's proposed construction of their BECCS facility that has been assigned Permit Application Number R13-3708, which consists of a biomass boiler to generate electricity.

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Information, which includes the application, draft permit and evaluation, on BECCS facility can be found on our website https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx
under "Popular Searches" and "MGS CNP1, LLC; BECCS".

Should you have any questions, please contact me.

--
Edward Andrews, P.E.
Engineer
WVDEP/Division of Air Quality
304-414-1244
601 57th Street, SE
Charleston, WV 25304

--
Unsubscribe
From: Marsha Frame To: "Andrews, Edward S" Date: Sat Sep 13 2025 11:48:29 GMT-0400 (Eastern Daylight Time)Subject: Re: Fidelis New Energy Applications with the Division of Air Quality
Mr. Andrews,
I am well aware of the permit applications submitted. I am specifically requesting a public meeting concerning permit R13-3708 regarding the stated emissions from the Biomass facility. That is the only pertinent permit submitted that we can request a public meeting for more information.
Thank you, Marsha Frame

On Fri, Sep 12, 2025, 4:06 PM Andrews, Edward S <edward.s.andrews@wv.gov> wrote:

> ---------- Forwarded message ---------
> From: **Andrews, Edward S** <edward.s.andrews@wv.gov>
> Date: Fri, Sep 12, 2025 at 3:55 PM
> Subject: Fidelis New Energy Applications with the Division of Air Quality
> To: Randy and Marsha Frame <mframe427@everyactioncustom.com>
>
> Dear Commenter,
>
> The West Virginia Department of Environmental Protection - Division of Air Quality (DAQ) had received your timely email requesting a public meeting. The DAQ has received two permit applications under two separate organizations which are wholly owned subsidiaries of Fidelis New Energy, LLC. Your email implies that you are requesting a public meeting regarding MGS CNP 1's proposed construction of their BECCS facility that has been assigned Permit Application Number R13-3708, which consists of a biomass boiler to generate electricity.
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> In your email you either made refered to the H2 Plant or made remarks to equipment that is only listed in MGS H2 1, LLC application for the construction of their MGS H2 Plant. This permit application was received on August 7, 2025, and has been assigned Permit Application Number R13-3724. Currently, Application R13-3724 is not complete. Hence, the DAQ has not commenced reviewing this application at this time.
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> The DAQ is currently evaluating several other requests for a public meeting regarding permit application for the BECCS facility (Biomass Boiler). If you are specifically requesting a public meeting regarding the BECCS facility, please respond to this email respectively by no later than 5:00 pm of Thursday September 18, 2025.
>
> Please note if the DAQ elects to hold a public meeting for the BECCS facility, the purpose of such meeting will be to allow the public to make comments on the record regarding the construction of the BECCS facility and the agency will only be obligated to respond to comments related to air quality concerns from the proposed BECCS facility.

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under "Popular Searches" and "MGS CNP1, LLC; BECCS".

Should you have any questions, please contact me.

--
Edward Andrews, P.E.
Engineer
WVDEP/Division of Air Quality
304-414-1244
601 57th Street, SE
Charleston, WV 25304

--
Unsubscribe
Attachments:icon.pngUntitled

From: STEPHANIE SHELINE To: edward.s.andrews@wv.govDate: Wed Sep 10 2025 09:19:24 GMT-0400 (Eastern Daylight Time)Subject: Requesting a public comment extension and public meeting on MGS CNP 1Dear Division of Air Quality Edward Andrews, I'm writing to you to ask that the Department of Environmental Protection extend the public comment period and host an in-person public meeting on the construction permit for a BECCS facility by Mountaineer Gigasystem in Mason County. There are various public and environmental health concerns around this proposal, and the public deserves a chance to hear from you and be heard. With critical information like the manufacturer of turbines, model of turbines, and pollution controls listed as to be determined, it is essential that the community have time to understand the implications of this proposal. I urge you to carefully consider the impact of rushing a permit without community input and grant the extension and the in-person meeting in Point Pleasant. Thank you for your consideration. stephanie sheline Sincerely, Mrs. STEPHANIE SHELINE 705 University Ln Point Pleasant, WV 25550 sdsheline@hotmail.com From: JAY SHELINE To: edward.s.andrews@wv.govDate: Wed Sep 10 2025 09:21:49 GMT-0400 (Eastern Daylight Time)Subject: Requesting a public comment extension and public meeting on MGS CNP 1Dear Division of Air Quality Edward Andrews, I'm writing to you to ask that the Department of Environmental Protection extend the public comment period and host an in-person public meeting on the construction permit for a BECCS facility by Mountaineer Gigasystem in Mason County. There are various public and environmental health concerns around this proposal, and the public deserves a chance to hear from you and be heard. With critical information like the manufacturer of turbines, model of turbines, and pollution controls listed as to be determined, it is essential that the community have time to understand the implications of this proposal. I urge you to carefully consider the impact of rushing a permit without community input and grant the extension and the in-person meeting in Point Pleasant. Thank you for your consideration. Jay Sheline Sincerely, JAY SHELINE 705 University Ln Point Pleasant, WV 25550 sdsheline@hotmail.com

From: Jim Pyle To: "edward.s.andrews@wv.gov" Date: Mon Sep 08 2025 21:58:54 GMT-0400 (Eastern Daylight Time)Subject: Fidelis plant Pt. Pleasant WVMr. Andrews,

I'm writing you concerning my fears about the Fidelis BECCS plant to be built outside PT. Pleasant. It just so happens the sub division I live in is directly beside the plant site. I understand a little about the EPA and air pollution concerns as I was employed by AEP for 46 years. It's beyond me that anyone can think a facility of this magnitude will not affect the air quality of the area, there are already 7 coal fired power plant units within a stones throw of or homes. I also am a bit familiar with carbon capture, AEP allowed a pilot carbon capture unit to be operated at their Mountaineer plant in New Haven WV in 2009. It was declared a success but according to the operations personnel that operated the unit it didn't really work as hoped. It was dismantled after it caught on fire twice.

My fears are that it will be next to impossible to live in this area if the plant is allowed to be built and operated. There are a lot of children here and older people with less than perfect health. I personally would seriously consider trying to sell my home, if anyone would even buy it. I would definitely move out of state. I don't think our civic leaders and governor have our best interests in mind.

Thank you for your time;

James Pyle

Yahoo Mail: Search, Organize, Conquer

From: Miriam Greer To: edward.s.andrews@wv.govDate: Mon Sep 08 2025 16:48:24 GMT-0400 (Eastern Daylight Time)Subject: Mason County WV concerns

Mr. Edwards,
I am requesting a public hearing considering the permits for the Biomass facility proposed to be located near Point Pleasant, WV, Mason Co.

From: Miriam Greer To: edward.s.andrews@wv.govDate: Mon Sep 08 2025 16:43:30 GMT-0400 (Eastern Daylight Time)Subject:
Mr. Edwards,
I am requesting a public hearing considering the permits for the Biomass facility proposed to be located near Point Pleasant, WV, Mason Co.

From: michele H To: "edward.s.andrews@wv.gov" Date: Mon Sep 08 2025 13:02:12 GMT-0400 (Eastern Daylight Time)Subject: > Subject: Comment on Biomass Plant Permit #R13-3708

Dear Mr. Andrews,
As a resident near Point Pleasant, I am very concerned about the proposed biomass plant because its air and water pollution will affect families on both sides of the Ohio River. I urge DEP to require stronger protections, continuous monitoring, and a public hearing before any permit is approved.

Sincerely,
Michele Halfhill
Cheshire, OH

Clean air and water are worth speaking up for! 🌱💧

From: Genesis Chattin To: "edward.s.andrews@wv.gov" Date: Sun Sep 07 2025 18:31:10 GMT-0400 (Eastern Daylight Time)Subject: DEP Public Hearing RequestHello Edward,

I hope this email finds you well.
My name is Genesis Chattin and I am a resident of Point Pleasant WV, and I would like to officially request a public hearing regarding a recent biomass power plant permit application. Myself along with other local residents would like a formal hearing to address potential concerns and discuss possible regulatory challenges as well as longstanding effects to the community.

All my best,

Genesis Chattin

From: Courtney Lowry To: "edward.s.andrews@wv.gov" Date: Sun Sep 07 2025 17:33:52 GMT-0400 (Eastern Daylight Time)Subject: Fidelis Biomass Plant Mason County, WV
Good evening,

I'm writing this email to express my concerns with the Fidelis biomass plant planned for Mason County, WV and to request that a public hearing be held. I live in the region and am concerned about the health and environmental impacts this project could cause. Residents in this area are already dealing with the odor coming from the ICL plant in Gallipolis Ferry, we don't need another poison added. Carbon capture is not a proven remedy with many safety concerns (Satartia, Mississippi for example). The public deserves a public hearing on this to address these potential impacts and what regulations are going to be put into place to ensure the safety of the community.

I look forward to these concerns being publicly addressed. Thank you for your attention to this matter.

Thank you,

From: Randy Frame To: "edward.s.andrews@wv.gov" Date: Sat Sep 06 2025 15:11:02 GMT-0400 (Eastern Daylight Time)Subject: Biomass Facility near Point Pleasant WV
Mr Edward's,
I am requesting a public hearing on the permitting of the Biomass facility that will be located near Point Pleasant in Mason Co. I feel the public deserves more information.
Thank you, Randy Frame

From: Theresa Bekeshka To: edward.s.andrews@wv.govDate: Fri Sep 05 2025 11:48:24 GMT-0400 (Eastern Daylight Time)Subject: Requesting a public comment extension and public meeting on MGS CNP 1Dear Division of Air Quality Edward Andrews, I'm writing to you to ask that the Department of Environmental Protection extend the public comment period and host an in-person public meeting on the construction permit for a BECCS facility by Mountaineer Gigasystem in Mason County. There are various public and environmental health concerns around this proposal, and the public deserves a chance to hear from you and be heard. With critical information like the manufacturer of turbines, model of turbines, and pollution controls listed as to be determined, it is essential that the community have time to understand the implications of this proposal. I urge you to carefully consider the impact of rushing a permit without community input and grant the extension and the in-person meeting in Point Pleasant. Thank you for your consideration. Sincerely, Theresa Bekeshka 242 Hawthorne Ln Point Pleasant, WV 25550-3346 teller678@suddenlink.net From: "Andrews, Edward S" To: Joseph R Kessler , Laura M Crowder Date: Fri Sep 05 2025 15:38:46 GMT-0400 (Eastern Daylight Time)Subject: Fwd: Requesting a public comment extension and public meeting on MGS CNP 1 Here is another request.

Ed

---------- Forwarded message ---------
From: **Theresa Bekeshka** <teller678@everyactioncustom.com>
Date: Fri, Sep 5, 2025 at 11:48 AM
Subject: Requesting a public comment extension and public meeting on MGS CNP 1
To: <edward.s.andrews@wv.gov>

Dear Division of Air Quality Edward Andrews,

I'm writing to you to ask that the Department of Environmental Protection extend the public comment period and host an in-person public meeting on the construction permit for a BECCS facility by Mountaineer Gigasystem in Mason County. There are various public and environmental health concerns around this proposal, and the public deserves a chance to hear from you and be heard.

With critical information like the manufacturer of turbines, model of turbines, and pollution controls listed as to be determined, it is essential that the community have time to understand the implications of this proposal. I urge you to carefully consider the impact of rushing a permit without community input and grant the extension and the in-person meeting in Point Pleasant. Thank you for your consideration.

Sincerely,
Theresa Bekeshka
242 Hawthorne Ln Point Pleasant, WV 25550-3346
teller678@suddenlink.net

From: Randy and Marsha Frame To: edward.s.andrews@wv.govDate: Thu Sep 04 2025 14:28:48 GMT-0400 (Eastern Daylight Time)Subject: Requesting a public comment extension and public meeting on MGS CNP 1Dear Division of Air Quality Edward Andrews, I'm writing to you to ask that the Department of Environmental Protection extend the public comment period and host an in-person public meeting on the construction permit for a BECCS facility by Mountaineer Gigasystem in Mason County. There are various public and environmental health concerns around this proposal, and the public deserves a chance to hear from you and be heard. With critical information like the manufacturer of turbines, model of turbines, and pollution controls listed as to be determined, it is essential that the community have time to understand the implications of this proposal. I urge you to carefully consider the impact of rushing a permit without community input and grant the extension and the in-person meeting in Point Pleasant. Thank you for your consideration. We are located in the housing development a few feet away from this facility and deserve a more in depth explanation. Sincerely, Randy and Marsha Frame 337 University Ln Point Pleasant, WV 25550-3341 mframe427@gmail.com From: "Andrews, Edward S" To: Joseph R Kessler , Laura M Crowder Date: Thu Sep 04 2025 19:06:31 GMT-0400 (Eastern Daylight Time)Subject: Fwd: Requesting a public comment extension and public meeting on MGS CNP 1
Here is another request that came in today.

Ed

---------- Forwarded message ---------
From: **Randy and Marsha Frame** <mframe427@everyactioncustom.com>
Date: Thu, Sep 4, 2025 at 2:28 PM
Subject: Requesting a public comment extension and public meeting on MGS CNP 1
To: <edward.s.andrews@wv.gov>

Dear Division of Air Quality Edward Andrews,

I'm writing to you to ask that the Department of Environmental Protection extend the public comment period and host an in-person public meeting on the construction permit for a BECCS facility by Mountaineer Gigasystem in Mason County. There are various public and environmental health concerns around this proposal, and the public deserves a chance to hear from you and be heard.

With critical information like the manufacturer of turbines, model of turbines, and pollution controls listed as to be determined, it is essential that the community have time to understand the implications of this proposal. I urge you to carefully consider the impact of rushing a permit without community input and grant the extension and the in-person meeting in Point Pleasant. Thank you for your consideration. We are located in the housing development a few feet away from this facility and deserve a more in depth explanation.

Sincerely,
Randy and Marsha Frame
337 University Ln Point Pleasant, WV 25550-3341
mframe427@gmail.com

From: Ronald Greathouse To: edward.s.andrews@wv.govDate: Tue Sep 02 2025 11:24:38 GMT-0400 (Eastern Daylight Time)Subject: Hydrogen plant Data Centers and Biomass- fire boilerMr. Andrews: We live in the subdivision on University Lane adjacent to the industrial facilities that are going to be built in Mason County WV. We are extremely concerned about all the dangers that these facilities entail that will negatively affect our neighborhood. As talking with our neighbors we have many many questions and concerns. We strongly feel that the proper thing to do is to have a face to face meeting with our neighborhood and community to discuss these matters. Thank you Ron and Frieda Greathouse Sent from my iPhone From: "Andrews, Edward S" To: Joseph R Kessler , Laura M Crowder Date: Wed Sep 03 2025 07:05:15 GMT-0400 (Eastern Daylight Time)Subject: Fwd: Hydrogen plant Data Centers and Biomass- fire boiler
Here is another request that came in.

I think there is one more.

Ed

---------- Forwarded message ---------
From: **Ronald Greathouse** <rongreathouse76@yahoo.com>
Date: Tue, Sep 2, 2025 at 11:26 AM
Subject: Hydrogen plant Data Centers and Biomass- fire boiler
To: <edward.s.andrews@wv.gov>

Mr. Andrews:

We live in the subdivision on University Lane adjacent to the industrial facilities that are going to be built in Mason County WV.

We are extremely concerned about all the dangers that these facilities entail that will negatively affect our neighborhood.

As talking with our neighbors we have many many questions and concerns. We strongly feel that the proper thing to do is to have a face to face meeting with our neighborhood and community to discuss these matters.

Thank you
Ron and Frieda Greathouse

Sent from my iPhone

From: Seth Fishbaugh To: edward.s.andrews@wv.govDate: Fri Aug 29 2025 15:01:33 GMT-0400 (Eastern Daylight Time)Subject: MGS CNP1 Plant
Hi Edward,

I'm a resident near this project, and would like to express interest in a public meeting. Not all of these comments are air quality related, but I would like to present them to you here. Thank you for your attention to these, and for your work with the DEP.

I have concerns about substantially increased wear to Rt 62 from construction and continued traffic. This road is already in rough shape between the site and Mason, WV, and hauling in nearly 2 billion pounds of wood alone is no small task.

Regarding air quality, I am concerned with the effects of adding another power-generating plant in addition to the Kyger Creek plant and Gavin plant just across the river from the proposed site. Has a study been done regarding the increased pollutant load generated by this plant **and** the planned hydrogen plant, and potential compounding effects on top of other nearby plants. While they may be different projects and comparably small to the pollutants generated by the other plants, this is not a bubble in which only one plant will contribute to the area. Of particular concern is the nearby McClintic Wildlife Management Area, which provides recreation and habitat for a wide variety of species.

I only saw that the planned capacity for the total site is to eventually be 1,000 MW, but what will the biomass plant's capacity be? Also, I may have missed this in the engineering document, but I did not see an expected CO2 output. Is this due to the carbon sequestration? If so, how much sequestration is needed to offset the CO2 output of this plant.

Additionally, what is the expected benefit to the surrounding community? Will these added jobs be local, or will folks be brought in, or some mixture therein? While adding jobs is important, I am concerned with local infrastructure (schools, roads, water, waste, storm) and what effects additional strain this project may have on them.

What is the process for a public meeting on this project, and what topics will that meeting be able to cover?
This is just a summary of my thoughts, I may reach out to you with further questions/concerns.

Best Regards,
Seth Fishbaugh, E.I.

From: "Andrews, Edward S" To: Seth Fishbaugh Date: Fri Aug 29 2025 16:42:55 GMT-0400 (Eastern Daylight Time)Subject: Re: MGS CNP1 Plant
Seth,

This is a partial response to your inquiry given that I will be out of the office all of next week.

First, you or any other concerned citizen can send in a request for a public meeting to my attention using my email address or through US Mail to the DEP of my attention.

Second, this meeting would for now only pertain to the biomass boiler (Permit Application 13-3708). The hydrogen plant is a different application and that application is currently not complete.

I will follow up later with the rest of your concerns/comments when I return on September 11, 2025.

Thanks

Ed

--
Edward Andrews, P.E.
Engineer
WVDEP/Division of Air Quality
304-926-0499 Ext 41244
601 57th Street, SE
Charleston, WV 20304

On Fri, Aug 29, 2025 at 3:01 PM Seth Fishbaugh <sethafishbaugh@gmail.com> wrote:

> Hi Edward,
>
> I'm a resident near this project, and would like to express interest in a public meeting. Not all of these comments are air quality related, but I would like to present them to you here. Thank you for your attention to these, and for your work with the DEP.
>
> I have concerns about substantially increased wear to Rt 62 from construction and continued traffic. This road is already in rough shape between the site and Mason, WV, and hauling in nearly 2 billion pounds of wood alone is no small task.
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> Additionally, what is the expected benefit to the surrounding community? Will these added jobs be local, or will folks be brought in, or some mixture therein? While adding jobs is important, I am concerned with local infrastructure (schools, roads, water, waste, storm) and what effects additional strain this project may have on them.
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> What is the process for a public meeting on this project, and what topics will that meeting be able to cover?
> This is just a summary of my thoughts, I may reach out to you with further questions/concerns.
>
> Best Regards,
> Seth Fishbaugh, E.I.

From: "Andrews, Edward S" To: Joseph R Kessler , Laura M Crowder Date: Wed Sep 03 2025 07:10:18 GMT-0400 (Eastern Daylight Time)Subject: Fwd: MGS CNP1 Plant
I send a partial response on sending in a request for a meeting.

Also, I talked to a gentleman late on Friday about questions pertaining to this one and the hydrogen plant. For some reason, there is a roomer that a request for a meeting must be submitted by the 8th of September up there.

Ed

---------- Forwarded message ---------
From: **Seth Fishbaugh** <sethafishbaugh@gmail.com>
Date: Fri, Aug 29, 2025 at 3:01 PM
Subject: MGS CNP1 Plant
To: <edward.s.andrews@wv.gov>

Hi Edward,

I'm a resident near this project, and would like to express interest in a public meeting. Not all of these comments are air quality related, but I would like to present them to you here. Thank you for your attention to these, and for your work with the DEP.

I have concerns about substantially increased wear to Rt 62 from construction and continued traffic. This road is already in rough shape between the site and Mason, WV, and hauling in nearly 2 billion pounds of wood alone is no small task.

Regarding air quality, I am concerned with the effects of adding another power-generating plant in addition to the Kyger Creek plant and Gavin plant just across the river from the proposed site. Has a study been done regarding the increased pollutant load generated by this plant **and** the planned hydrogen plant, and potential compounding effects on top of other nearby plants. While they may be different projects and comparably small to the pollutants generated by the other plants, this is not a bubble in which only one plant will contribute to the area. Of particular concern is the nearby McClintic Wildlife Management Area, which provides recreation and habitat for a wide variety of species.

I only saw that the planned capacity for the total site is to eventually be 1,000 MW, but what will the biomass plant's capacity be? Also, I may have missed this in the engineering document, but I did not see an expected CO2 output. Is this due to the carbon sequestration? If so, how much sequestration is needed to offset the CO2 output of this plant.

Additionally, what is the expected benefit to the surrounding community? Will these added jobs be local, or will folks be brought in, or some mixture therein? While adding jobs is important, I am concerned with local infrastructure (schools, roads, water, waste, storm) and what effects additional strain this project may have on them.

What is the process for a public meeting on this project, and what topics will that meeting be able to cover?
This is just a summary of my thoughts, I may reach out to you with further questions/concerns.

Best Regards,
Seth Fishbaugh, E.I.

From: Ben Templeton To: "edward.s.andrews@wv.gov" Date: Fri Aug 29 2025 13:30:57 GMT-0400 (Eastern Daylight Time)Subject: Ben Templeton
PDF inquiry

Thank you so much!

Ben
From: "Andrews, Edward S" To: Ben Templeton Date: Fri Aug 29 2025 13:52:22 GMT-0400 (Eastern Daylight Time)Subject: Re: Ben Templeton
Ben,

Here is the evaluation, draft permit, and notice for the Biomass Boiler that will be across the road from the hydrogen plant.

Should you have any questions, please let me know.

Ed

On Fri, Aug 29, 2025 at 1:30 PM Ben Templeton <sales@precisionemb.com> wrote:

> PDF inquiry
>
> Thank you so much!
>
> Ben

Attachments:053-00134_EVAL_13-3708.pdf053-00134-PERMIT_13-3708_DRAFT.pdf053_00134_Notice_13-3708_.pdf

From: Tasha Meek To: "edward.s.andrews@wv.gov" Date: Thu Aug 28 2025 12:39:07 GMT-0400 (Eastern Daylight Time)Subject: Public Comment on Draft Permit for MGS CNP 1, LLC Biomass Plant – Strong Concerns

Dear Mr. Andrews,

I am writing as a concerned resident of Mason County regarding the draft permit for MGS CNP 1, LLC (Proposed Biomass Power Plant at 5801 Ohio River Road, Point Pleasant). My home is within close proximity to the proposed facility, and I have serious concerns for the health and safety of my family and community.

Air Quality & Health Impacts

The draft permit allows significant annual emissions, including:

- 75 tons of PM2.5 (fine particulate matter linked to asthma, heart disease, and premature death)
- 99 tons of Nitrogen Oxides (NOx) (contributes to smog and acid rain)
- 50+ tons of VOCs (some carcinogenic, including benzene)
- 27 tons of Sulfuric Acid Mist (corrosive, lung irritant, acid rain contributor)
- 24 tons of Hazardous Air Pollutants including formaldehyde, acetaldehyde, methanol, and hydrochloric acid

Given these volumes, what air dispersion modeling has been conducted to ensure that nearby residents, schools, and sensitive populations are protected? Please provide all modeling results and assumptions for public review.

Water Supply & Utility Costs

Even without direct wastewater discharge, pollutants like sulfuric acid mist, particulates, and VOCs will deposit into soil and waterways, including local streams and potentially the Ohio River. This creates risks for both surface and groundwater supplies.

- What monitoring requirements will be in place to detect contamination of local drinking water wells and waterways?
- Who will bear the cost of any increased water treatment? Will residents see higher utility bills as a result?

Carbon Capture & Seismic Risks

The permit mentions a carbon capture unit. Please clarify:

- Will captured CO_2 be injected underground?
- If so, has a geologic and seismic risk study been conducted for Mason County to address the potential for induced earthquakes or aquifer contamination? Please provide documentation.

Monitoring, Enforcement & Accountability

- Will this facility be required to install continuous emissions monitoring systems (CEMS) for all pollutants of concern, and will the data be made public in real time?
- How will DEP enforce violations if emissions exceed permitted levels?
- What protections are in place for residents if air or water contamination is detected after the plant begins operation?

Request for Public Hearing

Given the scale of the proposed emissions, the proximity to residential areas, and the lack of public awareness, I formally request that DEP hold a public hearing in Mason County before this permit is approved.

In closing, I urge the DEP to place the health and safety of our community above corporate convenience. These emissions will impact our families' lungs, our water supplies, and potentially our utility costs for years to come. Mason County residents deserve full transparency, enforceable safeguards, and a clear explanation of the risks before this permit can be considered.

Please confirm receipt of this email and include my comments in the official public record.

Sincerely,

Tasha Meek

2314 Mount Vernon Ave

Point Pleasant, WV, 25550

(304)593-5349

From: "Andrews, Edward S" To: Joseph R Kessler Date: Thu Aug 28 2025 13:07:38 GMT-0400 (Eastern Daylight Time)Subject: Fwd: Public Comment on Draft Permit for MGS CNP 1, LLC

Biomass Plant – Strong Concerns
Dilerbative,

This lady requested a public hearing.

Let me know what the Director wants to do? Plus, I have one additional comment email plus I just finished talking to another concerned citizen inquiring how to request a hearing/meeting.

Ed

---------- Forwarded message ---------
From: **Tasha Meek** <tashameek1120@gmail.com>
Date: Thu, Aug 28, 2025 at 12:39 PM
Subject: Public Comment on Draft Permit for MGS CNP 1, LLC Biomass Plant – Strong Concerns
To: edward.s.andrews@wv.gov <edward.s.andrews@wv.gov>

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Tasha Meek

2314 Mount Vernon Ave

Point Pleasant, WV, 25550

(304)593-5349
From: "Kessler, Joseph R" To: "Andrews, Edward S" Date: Thu Aug 28 2025 13:31:40 GMT-0400 (Eastern Daylight Time)Subject: Re: Public Comment on Draft Permit for MGS CNP 1, LLC Biomass Plant – Strong Concerns
With the Mike Tony article, the machine will probably start, so lets see what comes in by Monday.

On Thu, Aug 28, 2025 at 1:07 PM Andrews, Edward S <edward.s.andrews@wv.gov> wrote:

> Dilerbative,
>
> This lady requested a public hearing.
>
> Let me know what the Director wants to do? Plus, I have one additional comment email plus I just finished talking to another concerned citizen inquiring how to request a hearing/meeting.
>
> Ed
>
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> Date: Thu, Aug 28, 2025 at 12:39 PM
> Subject: Public Comment on Draft Permit for MGS CNP 1, LLC Biomass Plant – Strong Concerns
> To: edward.s.andrews@wv.gov <edward.s.andrews@wv.gov>
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Sincerely,

Tasha Meek

2314 Mount Vernon Ave

Point Pleasant, WV, 25550

(304)593-5349

From: Michaela Salser To: "edward.s.andrews@wv.gov" Date: Thu Aug 28 2025 10:11:43 GMT-0400 (Eastern Daylight Time)Subject: Air pollution mason county wv

Michaela Salser
2014 Jefferson blvd
Point Pleasant Wv 25550
salsermichaela@gmail.com
8/28/25

Edward Andrews, P.E.
WV Department of Environmental Protection
Division of Air Quality
601 57th Street, SE
Charleston, WV 25304

Re: Public Comment on Air Quality Permit Application R13-3708 (MGS CNP 1, LLC – Biomass Boiler with Carbon Capture, Mason County, WV)

Dear Mr. Andrews,

I am writing to provide public comment on the air quality permit application R13-3708 submitted by MGS CNP 1, LLC for the proposed biomass boiler with carbon capture to be located at 5801 Ohio River Road, Point Pleasant, Mason County, WV.

While I understand the intent of this project, I have serious concerns about the potential air emissions and their impacts on public health, air quality, and the environment in our community.

According to the draft permit, the facility will be authorized to emit significant quantities of pollutants each year, including but not limited to:

75.65 TPY of PM2.5 and 83.95 TPY of PM10 – fine particles that can penetrate deeply into the lungs and bloodstream, causing asthma attacks, lung disease, and cardiovascular problems.

90.90 TPY of Oxides of Nitrogen (NOx) and 50.79 TPY of Sulfur Dioxide (SO_2) – pollutants that contribute to smog, acid rain, and respiratory illness.

46.48 TPY of Carbon Monoxide (CO) – which reduces oxygen delivery in the body and poses risks to sensitive groups.

55.78 TPY of Volatile Organic Compounds (VOCs) – some of which may be carcinogenic and contribute to ozone formation.

27.87 TPY of Sulfuric Acid Mist and 24.01 TPY of Hazardous Air Pollutants (HAPs), including 8.15 tons of Acetaldehyde (a probable human carcinogen) and 6.22 tons of Hydrogen Chloride, both of which are highly concerning for public health.

These emissions will directly impact the air quality in Mason County and surrounding areas. Children, elderly residents, and individuals with respiratory conditions such as asthma are particularly vulnerable. The Ohio River Valley's geography can also trap pollution, worsening local air quality.

I respectfully request that the Division of Air Quality:

1. Require the applicant to implement the strongest possible pollution control technologies to minimize emissions, not just meet minimum regulatory requirements.

2. Provide a detailed plan for ongoing air monitoring and public reporting so the community can track emissions and health impacts.

3. Conduct a cumulative impact assessment to account for other industrial sources of pollution in the area and their combined effects on public health.

4. Consider the long-term public health costs of approving such emissions compared to the economic benefits of the project.

I urge the DEP to prioritize the health and well-being of Mason County residents when making its final determination on this permit.

Thank you for your time and for considering these concerns as part of the public record.

Sincerely,
Michaela Salser