MISSOURI DEPARTMENT OF NATURAL RESOURCES

## MISSOURI AIR CONSERVATION COMMISSION

# PERMIT TO CONSTRUCT

Under the authority of RSMo 643 and the Federal Clean Air Act the applicant is authorized to construct the air contaminant source(s) described below, in accordance with the laws, rules and conditions as set forth herein.

Permit Number: 062020-011 Project Number: 2019-09-028
Installation Number: 121-0028

Parent Company: POET Biorefining, LLC

Parent Company Address: 4615 N. Lewis Ave., Sioux Falls, SD 57104

Installation Name: POET Biorefining-Macon, LLC

Installation Address: 30211 Major Avenue, Macon, MO 63552

Location Information: Macon County, S17, T57N, R13W

Application for Authority to Construct was made for:
Installation of a DDGS pelleting system. This review was conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.

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☐ Standard Conditions (on reverse) are applicable to this permit.

☒ Standard Conditions (on reverse) and Special Conditions are applicable to this permit.

Kendall B. Hale

Director or Designee
Department of Natural Resources

June 11, 2020
Effective Date

STANDARD CONDITIONS:

Permission to construct may be revoked if you fail to begin construction or modification within two years from the effective date of this permit. Permittee should notify the Enforcement and Compliance Section of the Air Pollution Control Program if construction or modification is not started within two years after the effective date of this permit, or if construction or modification is suspended for one year or more.

You will be in violation of 10 CSR 10-6.060 if you fail to adhere to the specifications and conditions listed in your application, this permit and the project review. In the event that there is a discrepancy between the permit application and this permit, the conditions of this permit shall take precedence. Specifically, all air contaminant control devices shall be operated and maintained as specified in the application, associated plans and specifications.

You must notify the Enforcement and Compliance Section of the Department's Air Pollution Control Program of the anticipated date of start up of this (these) air contaminant source(s). The information must be made available within 30 days of actual startup. Also, you must notify the Department's regional office responsible for the area within which you are located within 15 days after the actual start up of this (these) air contaminant source(s).

A copy of the permit application and this permit and permit review shall be kept at the installation address and shall be made available to Department's personnel upon request.

You may appeal this permit or any of the listed special conditions to the Administrative Hearing Commission (AHC), P.O. Box 1557, Jefferson City, MO 65102, as provided in RSMo 643.075.6 and 621.250.3. If you choose to appeal, you must file a petition with the AHC within 30 days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed. If it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the AHC.

If you choose not to appeal, this certificate, the project review and your application and associated correspondence constitutes your permit to construct. The permit allows you to construct and operate your air contaminant source(s), but in no way relieves you of your obligation to comply with all applicable provisions of the Missouri Air Conservation Law, regulations of the Missouri Department of Natural Resources and other applicable federal, state and local laws and ordinances.

The Air Pollution Control Program invites your questions regarding this air pollution permit. Please contact the Construction Permit Unit using the contact information below.

Contact Information:
Missouri Department of Natural Resources
Air Pollution Control Program
P.O. Box 176
Jefferson City, MO 65102-0176
(573) 751-4817

The regional office information can be found at the following website:
http://dnr.mo.gov/regions/

SPECIAL CONDITIONS:
The permittee is authorized to construct and operate subject to the following special conditions:

*The special conditions listed in this permit were included based on the authority granted to the Missouri Air Pollution Control Program by the Missouri Air Conservation Law (specifically 643.075) and by the Missouri Rules listed in Title 10, Division 10 of the Code of State Regulations (specifically 10 CSR 10-6.060). For specific details regarding conditions, see 10 CSR 10-6.060 paragraph (3)(E). "Conditions required by permitting authority."*

POET Biorefining-Macon, LLC
Macon County, S17, T57N, R13W

1. Control Device Requirement-Baghouse
   A. POET Biorefining-Macon, LLC shall control emissions from the emission sources listed below using baghouses. The baghouses must be in use at all times when the associated equipment is in operation.

Table 1: Baghouses

| Control ID # | EP#/Stack ID | Equipment Controlled |
|---|---|---|
| C023 | EP-39/ SV-39 | All DDGS handling operations except Flat Storage and payloader truck loading operations |
| C024 | EP-40/ SV-40 | DDGS Pellet Cooler #1 |
| C025 | EP-41/ SV-41 | DDGS Pellet Cooler #2 |
| C026 | EP-42/SV-42 | DDGS Pellet Bagging Operations |

   B. The baghouses shall be operated and maintained in accordance with the manufacturer's performance warranty. The baghouses shall be equipped with a gauge or meter, which indicates the pressure drop across each baghouse. Each gauge or meter shall be located in such a way that it may be easily observed by Missouri Department of Natural Resources' employees.

   C. Replacement filters for the baghouses shall be kept on hand at all times. The bags shall be made of fibers appropriate for operating conditions expected to occur (i.e. temperature limits, acidic and alkali resistance, and abrasion resistance).

   D. POET Biorefining-Macon, LLC shall monitor and record the operating pressure drop across the baghouses at least once every 24 hours. The operating pressure drop shall be maintained within the design conditions specified by the manufacturer's performance warranty.

   E. POET Biorefining-Macon, LLC shall maintain a copy of the baghouse manufacturer's performance warranty on site.

SPECIAL CONDITIONS:
The permittee is authorized to construct and operate subject to the following special conditions:

F. POET Biorefining-Macon, LLC shall maintain an operating and maintenance log for the baghouses which shall include the following:
   1) Incidents of malfunction, with impact on emissions, duration of event, probable cause, and corrective actions; and
   2) Maintenance activities, with inspection schedule, repair actions, and replacements, etc.

2. Performance Testing

A. POET Biorefining-Macon, LLC shall conduct performance testing on the Baghouses listed in Table 1 to verify emission rates of 0.003 gr/dscf filterable particulate matter and 0.0023 gr/dscf condensable particulate matter The testing shall use EPA Method 5 and Method 202, or other methods approved by the Air Pollution Control Program.
   1) The proposed processes and baghouse design parameters for Baghouses C024 and C025 are identical. The permittee may petition the Air Pollution Control Program to conduct testing on either Baghouse C024 or Baghouse C025 to quantify emissions from both baghouses. The petition shall be submitted as part of the Proposed Test Plan. The petition shall include process flow diagrams to confirm the as-built processes and baghouse design parameters are identical.

B. These tests shall be performed within 60 days after achieving the maximum production rate of the installation, but not later than 180 days after initial start-up for commercial operation and shall be conducted in accordance with the Stack Test Procedures outlined in this Special Condition.

C. A completed Proposed Test Plan Form (enclosed) must be submitted to the Air Pollution Control Program 30 days prior to the proposed test date so that the Air Pollution Control Program may arrange a pretest meeting, if necessary, and assure that the test date is acceptable for an observer to be present. The Proposed Test Plan may serve the purpose of notification of intent to test and must be approved by the Director prior to conducting the required emission testing.

D. <u>One electronic copy</u> of a written report of the performance test results shall be submitted to <u>StackTesting@dnr.mo.gov</u> within 60 days of completion of any required testing. The report must include legible copies of the raw data sheets, analytical instrument laboratory data, and <u>complete sample calculations</u> from the required U.S. EPA Method for at least one sample run.

SPECIAL CONDITIONS:
The permittee is authorized to construct and operate subject to the following special conditions:

E. The test report is to fully account for all operational and emission parameters addressed both in the permit conditions as well as in any other applicable state or federal rules or regulations. These parameters shall include, but are not limited to, a detailed listing of the equipment operating at the time of testing, DDGS throughput rates, pellet throughput rates, baghouse air flow rates and pressure drops.

F. If testing indicates emission rates greater than 0.003 gr/dscf filterable particulates or 0.0023 gr/dscf condensable particulates, then POET Biorefining-Macon, LLC shall submit an amendment for this project.

3. Record Keeping and Reporting Requirements

A. POET Biorefining-Macon, LLC shall maintain all records required by this permit for not less than five years and shall make them available immediately to any Missouri Department of Natural Resources' personnel upon request. These records shall include SDS for all materials used.

B. POET Biorefining-Macon, LLC shall report to the Air Pollution Control Program's Compliance/Enforcement Section, by mail at P.O. Box 176, Jefferson City, MO 65102 or by email at AirComplianceReporting@dnr.mo.gov, no later than 10 days after the end of the month during which any record required by this permit shows an exceedance of a limitation imposed by this permit.

REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE
SECTION (5) REVIEW
Project Number: 2019-09-028
Installation ID Number: 121-0028
Permit Number: 062020-011

Installation Address:
POET Biorefining-Macon, LLC
30211 Major Avenue
Macon, MO 63552

Parent Company:
POET Biorefining, LLC
4615 N. Lewis Ave.
Sioux Falls, SD 57104

Macon County, S17, T57N, R13W

## REVIEW SUMMARY

- POET Biorefining-Macon, LLC has applied for authority to add a DDGS pelleting system.
- The application was deemed complete on July 8, 2019.
- HAP emissions are expected from the proposed equipment. HAP emission levels are below each HAPs respective SMAL.
- None of the New Source Performance Standards (NSPS) apply to the project.
- None of the currently promulgated National Emission Standards for Hazardous Air Pollutants (NESHAPs) apply to the project.
- None of the Maximum Achievable Control Technology (MACT) standards apply to the project.
- Baghouses are being used to control filterable particulate emissions from this project.
- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Conditioned emissions increases of the project are below de minimis levels.
- This installation is located in Macon County, an attainment/unclassifiable area for all criteria pollutants.
- This installation is not on the List of Named Installations found in 10 CSR 10-6.020(3)(B), Table 2. Previously issued permits state the installation is on the List, as at the time those permits were issued, this installation met the definition of chemical process plant. On April 17, 2020 EPA approved updates to the Missouri State Implementation Plan to exclude ethanol plants from the definition of chemical process plant if the plant is located in an attainment/unclassifiable area.

- Ambient air quality modeling was not performed since conditioned potential emissions of the application are below de minimis levels and the SMALs.

- Emissions testing is required for the equipment as a part of this permit. Testing may also be required as part of other state, federal or applicable rules.

- An Intermediate Operating Permit modification application is required for this installation within 90 days after of commencement of operations.

- Approval of this permit is recommended with special conditions.

## INSTALLATION DESCRIPTION

POET Biorefining – Macon operates an ethanol production plant in Macon, Missouri. Up to 19 million bushels of grain are processed to produce 200 proof ethanol. The grain is received and stored on site prior to cleaning and milling. The grain handling equipment is enclosed and vented to a baghouse with negative pressure. Once the grain is cleaned, it is then ground with hammermills. Emissions from each of the four hammermills and grain cleaners are controlled by a baghouse with negative pressure. The milled grain is then blended with water and enzymes to form a mash slurry for the fermentation process. Yeast and more enzymes are added to this mash in the 11 fermentation tanks. Emissions from the fermentation process are controlled by a scrubber and an RTO. When the RTO is bypassed, emissions from the scrubber are vented to the atmosphere.

After batch fermentation, the resultant ethanol mixture (beer) is distilled in a series of distillation columns. The resultant products are approximately 190 proof ethanol and whole stillage. Using molecular sieves, most of the remaining water is removed from the ethanol to produce 200 proof ethanol. This is then combined with natural gasoline (denaturant) and shipped as denatured ethanol. Emissions from the distillation process are controlled by a scrubber and an RTO. During RTO bypass, emissions from the scrubber are vented to the atmosphere.

The whole stillage is centrifuged to yield thin stillage and solid fractions (wetcake). Emissions from the centrifuge are vented to the RTO. The thin stillage is further evaporated in a series of evaporators to produce a syrup. This syrup is combined with the centrifuged wetcake and dried and cooled in a series of ring driers to produce DDGS.

Two ring dryers are used to dry the DDGS. The air and water vapor from this process go through cyclones to collect additional DDGS product which has an added benefit of reducing the DDGS dust load before being vented to the RTO. The DDGS is stored and then loaded onto trucks for distribution. The DDGS load out system is controlled by a baghouse to minimize emissions. Process steam is produced by two natural gas-fired boilers.

A 67,000-gallon storage tank available for 190 proof ethanol. Denaturant (gasoline) is stored in two storage tanks, one 49,000 gallons and the other 18,000 gallons. Anhydrous ethanol (200 proof) is

stored in three storage tanks, two 180,000 gallon tanks and one 1,000,000 gallons. Emissions from truck loadout are controlled by a flare. Emissions from rail loadout are uncontrolled.

The following New Source Review permits have been issued to POET Biorefining – Macon from the Air Pollution Control Program:

Table 2: Permit History

| Permit Number | Description |
|---|---|
| 0399-011 | Installation of a 15,000,000 gallons per year anhydrous ethanol manufacturing plant. This permit was superseded by permit 032003-008C. |
| 0399-011A | Amend 0399-011 to add another beer well. This amendment was superseded by permit 032003-008C. |
| 052002-001 | Increase anhydrous ethanol production to 50,000,000 gallons per year. This amendment was superseded by permit 032003-008C. |
| 032003-008 | Increase anhydrous ethanol production to 50,000,000 gallons per year (replaces 052002-001) |
| 032003-008A | Replace grain receiving pit, conveyors, storage bins, and flare |
| 102007-014 | Installation of four hammermills |
| 032003-008B | Replace RTO |
| 032003-008C | Reevaluate $PM_{10}$ emission limitations and modeling |
| 102012-011 | Install a hammermill and three fermentation tanks |
| 052016-005 | Reduce the scrubber liquid flow rate during $CO_2$ plant operation. |
| 042017-011 | Increase anhydrous ethanol production, add scrubber bypass provisions, and install new grain loadout equipment. |
| 042017-011A | Amend 042017-011 to increase the particulate emission rate from EP-06 RTO |
| 012020-012 | Installation of second fermentation scrubber |

## PROJECT DESCRIPTION

This project is for the construction of a new DDGS pellet milling process. After this project, the installation will have the capability to route DDGS to the existing handling and loadout units or route the DDGS to the new pelleting and new loadout systems. The pelleting system consists of two identical, parallel pelleting lines consisting of Surge Bin, Pellet Mill, and Pellet Cooler; with each line having a dedicated baghouse (EP-40 or EP-41). Loadout operations include Flat Pellet Storage (FS009), Bagging operations (EP-42) and Pellet Loadout (EP-39 and FS010). All material handling processes are aspirated to a dedicated baghouse (EP-39), except flat storage and payloader truck loading operations. A table summarizing the emission sources of this project follows:

Table 3: Project Emission Units

| EP # | Description | Control Device | Control ID# |
|---|---|---|---|
| EP-39 | All DDGS handling operations except Flat Storage and payloader truck loading operations | Baghouse | C023 |
| EP-40 | DDGS Pellet Cooler #1 | Baghouse | C024 |
| EP-41 | DDGS Pellet Cooler #2 | Baghouse | C025 |
| EP-42 | DDGS Pellet Bagging Operations | Baghouse | C026 |
| FS009 | DDGS pellet flat storage fugitive emissions | Building | None |
| FS0010 | DDGS pellet loadout fugitive emissions | Building | None |

The process begins with product exiting the existing DDGS Storage Silo #1 (EP-28) onto a conveyor that will transfer the DDGS into one of two Surge Bins. Each Surge Bin empties to an individual conveyor to feed each Pellet Mill. Milling will achieve a maximum temperature of 120°F. After milling, the product is gravity fed to individual Pellet Coolers. Both Pellet Coolers feed a single conveyor that transfers the DDGS pellets to a bucket elevator. The bucket elevator transfers the product to a screener, and also transfers the off spec product to a conveyor which carries the off spec product to storage pile located in the Off Spec Flat Storage area.

The Screener separates the pellets from the fines material. The fines material is returned via conveyor to the Surge Bins to be recycled into the process. The pellets transfer onto a conveyor and proceed to one of four conveyors to free fall into different areas of the Flat Pellet Storage Pile. From the Flat Pellet Storage Pile, a payloader transfers the pellets either directly into trucks or onto a bucket elevator. The bucket elevator deposits pellets onto a conveyor which transfers the pellets to the truck loading system or to another conveyor to carry the pellets to the bagging operation.

## EMISSIONS/CONTROLS EVALUATION

All equipment associated with this project are limited on an annual basis by the throughput limitation of 200,000 tons per consecutive 12 month period established in Construction Permit 042017-011, Special Condition 3.

According to performance testing conducted February 2019 at POET's Mitchell, South Dakota and October 2019 at Laddonia, Missouri facilities, DDGS is also a source of VOC and HAP emissions. This permit includes VOC and HAP emissions for all sources in this permit, using the following emission factors. The Mitchell test occurred at a baghouse outlet, while the Laddonia test was a chemical analysis of a grab sample of DDGS. Acrolein emissions are expected as an off-gassing process, therefore potential emissions of acrolein are only calculated for EP-39 for this project, based on the hourly and yearly maximum throughput values. Emission factors from the Mitchell test are applied to each emission source in this project.

Table 4: VOC and HAP emission factors from DDGS Sources

| Pollutant | Emission Factor (lb/ton) | Source |
|---|---|---|
| VOC | $1.84x10^{-2}$ | 2/2019 Mitchell test |
| Acetaldehyde | $4.26x10^{-3}$ | 2/2019 Mitchell test |
| Acrolein | $6.0x10^{-5}$ | 10/2019 Laddonia test |
| Methanol | $3.21x10^{-3}$ | 2/2019 Mitchell test |
| Formaldehyde | $4.13x10^{-5}$ | 2/2019 Mitchell test |

Material Handling (EP-39)

Material handling operations are aspirated to a dedicated baghouse, C023 (EP-39) with 100% capture of generated emissions. The maximum hourly design rate of the material handling equipment is 40 tons per hour. Controlled emissions are estimating using the baghouse exhaust flow rate of 17,000 dscfm and a grain loading of 0.003 gr/dscf for filterable particulate and 0.0023 gr/dscf for condensable particulates, with PM, $PM_{10}$, and $PM_{2.5}$ emissions assumed equal. The grain loading emission rates are sourced from performance testing conducted December 2019 at POET's Mitchell, South Dakota facility. These rates are being verified with further testing as outlined in the special conditions.

Pellet Cooler Line #1 (EP-40) and Line #2 (EP-41)

Emissions from Pellet Cooler #1 are aspirated to baghouse C024 (EP40). Emissions from Pellet Cooler #2 are aspirated to baghouse C025 (EP41). Both lines are identical. The maximum hourly design rate of each line is 20 tons per hour. However, the combined coolers are bottlenecked by 200,000 tpy limit from Permit No. 042019-011.

Controlled particulate emissions are estimated using an exhaust flow rate of 11,700 dscfm and a grain loading of 0.003 gr/dscf for filterable particulate and 0.0023 gr/dscf for condensable particulates, with PM, $PM_{10}$, and $PM_{2.5}$ emissions assumed equal. The grain loading emission rates are sourced from performance testing conducted February 2019 at POET's Mitchell, South Dakota facility. VOC and HAP emissions are estimated using the emission factors in Table 4 above, except acrolein.

Bagging Operations (EP-42)

Emissions from the Bagging Operations are aspirated to baghouse C026 (EP42). The maximum hourly design rate of the bagging operation is 40 tons per hour. Controlled emissions are estimated using the baghouse exhaust flow rate of 3,000 dscfm and a grain loading of 0.003 gr/dscf for filterable particulate and 0.0023 gr/dscf for condensable particulates, with PM, $PM_{10}$, and $PM_{2.5}$ emissions assumed equal. The grain loading emission rates are sourced from performance testing conducted February 2019 at POET's Mitchell, South Dakota facility.

Flat Pellet Storage (FS009)

DDGS pellets will be stored inside a building. The maximum hourly design rate of the storage operation is 40 tons per hour, with an installation wide throughput limitation of 200,000 tons per consecutive 12 month period established in Construction Permit 042017-011, Special Condition 3. Particulate emissions are estimated using emission factors for SCC 30200803 from AP-42, Section 9.9.1-2 "Grain Elevators and Processes" (April 2003) for PM and $PM_{10}$. $PM_{2.5}$ emissions are based on particle size distributions from AP-42, Appendix B-2 "General Particle Size Distributions"

(September 1990). Emissions are estimated using an 82.88% capture efficiency for PM, 51% for $PM_{10}$, and 19.12% for $PM_{2.5}$ for the building. These values are based on settling velocity calculations from similar buildings and processes at POET-Laddonia.

Pellet Loadout (EP-39 and FS010)

DDGS Pellet Loadout operations will be located inside a shed. Two loading methods are available. A series of conveyors and bucket elevator will transport material from the flat pellet storage to the loading station where it drops into a truck. These material handling units are aspirated to a dedicated baghouse (EP-39). Emission calculations for those units are detailed above. A second loading option is a payloader picking up pellets from the pile and dumping them into a truck. The emissions from the second operation are accounted for under emission point FS010. The maximum hourly design rate of the FS010 operations is 40 tons per hour. Particulate emissions are estimated using emission factors for SCC 30200803 from AP-42, Section 9.9.1-2 "Grain Elevators and Processes" (April 2003) for PM and $PM_{10}$. $PM_{2.5}$ emissions are based on particle size distributions from AP-42, Appendix B-2 "General Particle Size Distributions" (September 1990). Capture efficiencies of an 82.88% capture efficiency for PM, 51% for $PM_{10}$, and 19.12% for $PM_{2.5}$ were given for the building.

The following table provides an emissions summary for this project. Existing potential emissions were taken from Construction Permit 042017-011A and Construction Permit 042017-011. Existing actual emissions were taken from the installation's 2018 EIQ. Emission increases of the project represent the uncontrolled emissions. New installation condition potential emissions represent the potential emissions after application of the controls required in this permit.

Table 5: Emissions Summary (tpy)

| Pollutant | Regulatory *De Minimis* Levels/SMAL | Existing Potential Emissions | Existing Actual Emissions (2018 EIQ) | Conditioned Increases of the Project | New Installation Conditioned Potential |
|---|---|---|---|---|---|
| PM | 25.0 | 67.30 | NR[1] | 10.25 | 77.55 |
| $PM_{10}$ | 15.0 | 43.97 | 19.87 | 9.91 | 53.88 |
| $PM_{2.5}$ | 10.0 | 24.60 | 15.60 | 9.91 | 34.51 |
| SOx | 40.0 | 0.82 | 0.11 | NA | 0.82 |
| NOx | 40.0 | <92.74 | 49.08 | NA | <92.74 |
| VOC | 40.0 | 81.36 | 47.23 | 27.53 | 108.89 |
| CO | 100.0 | 100.19 | 14.00 | NA | 100.19 |
| HAPs | 25.0 | 8.25 | ND[2] | 11.42 | 19.67 |
| Acetaldehyde | 10.0 / 9.0 | 2.97 | ND | 6.54 | 9.51 |
| Formaldehyde | 10.0 / 2.0 | 1.14 | ND | 0.062 | 1.20 |
| Acrolein | 10.0 0.04 | 0.56 | ND | 0.006 | 0.566 |
| Methanol | 10.0 / 10.0 | 0.48 | ND | 4.82 | 5.3 |

[1] Not reported
[2] Not determined

## PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Conditioned emissions increases of the project are below de minimis levels.

## APPLICABLE REQUIREMENTS

POET Biorefining-Macon, LLC shall comply with the following applicable requirements. The Missouri Air Conservation Laws and Regulations should be consulted for specific record keeping, monitoring, and reporting requirements. Compliance with these emission standards, based on information submitted in the application, has been verified at the time this application was approved. For a complete list of applicable requirements for your installation, please consult your operating permit.

### GENERAL REQUIREMENTS

- *Operating Permits*, 10 CSR 10-6.065
- *Start-Up, Shutdown, and Malfunction Conditions,* 10 CSR 10-6.050
- *Submission of Emission Data, Emission Fees and Process Information,* 10 CSR 10-6.110
    - Per 10 CSR 10-6.110(4)(B)2.B(II) and (4)(B)2.C(II) a full EIQ is required for the first full calendar year the equipment (or modifications) approved by this permit are in operation.
- *Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin*, 10 CSR 10-6.170
- *Restriction of Emission of Visible Air Contaminants*, 10 CSR 10-6.220
- *Restriction of Emission of Odors*, 10 CSR 10-6.165

## STAFF RECOMMENDATION

On the basis of this review conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*, it is recommended that this permit be granted with special conditions.

### PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated June 26, 2019, received July 8, 2019, designating POET Biorefining Macon LLC as the owner and operator of the installation.

# APPENDIX A

## Abbreviations and Acronyms

**%**.....percent
**ºF**.....degrees Fahrenheit
**acfm**.....actual cubic feet per minute
**BACT**.....Best Available Control Technology
**BMPs**.....Best Management Practices
**Btu**.....British thermal unit
**CAM**.....Compliance Assurance Monitoring
**CAS**.....Chemical Abstracts Service
**CEMS**.....Continuous Emission Monitor System
**CFR**.....Code of Federal Regulations
**CO**.....carbon monoxide
**$CO_2$**.....carbon dioxide
**$CO_2e$**.....carbon dioxide equivalent
**COMS**.....Continuous Opacity Monitoring System
**CSR**.....Code of State Regulations
**dscf**.....dry standard cubic feet
**EIQ**.....Emission Inventory Questionnaire
**EP**.....Emission Point
**EPA**.....Environmental Protection Agency
**EU**.....Emission Unit
**fps**.....feet per second
**ft**.....feet
**GACT**.....Generally Available Control Technology
**GHG**.....Greenhouse Gas
**gpm**.....gallons per minute
**gr**.....grains
**GWP**.....Global Warming Potential
**HAP**.....Hazardous Air Pollutant
**hr**.....hour
**hp**.....horsepower
**lb**.....pound
**lbs/hr**.....pounds per hour
**MACT**.....Maximum Achievable Control Technology
**$\mu g/m^3$**.....micrograms per cubic meter
**m/s**.....meters per second
**Mgal**.....1,000 gallons
**MW**.....megawatt
**MHDR**.....maximum hourly design rate
**MMBtu**....Million British thermal units
**MMCF**.....million cubic feet
**MSDS**.....Material Safety Data Sheet
**NAAQS**....National Ambient Air Quality Standards
**NESHAPs** National Emissions Standards for Hazardous Air Pollutants
**$NO_x$**.....nitrogen oxides
**NSPS**.....New Source Performance Standards
**NSR**.....New Source Review
**PM**.....particulate matter
**$PM_{2.5}$**.....particulate matter less than 2.5 microns in aerodynamic diameter
**$PM_{10}$**.....particulate matter less than 10 microns in aerodynamic diameter
**ppm**.....parts per million
**PSD**.....Prevention of Significant Deterioration
**PTE**.....potential to emit
**RACT**.....Reasonable Available Control Technology
**RAL**.....Risk Assessment Level
**SCC**.....Source Classification Code
**scfm**.....standard cubic feet per minute
**SDS**.....Safety Data Sheet
**SIC**.....Standard Industrial Classification
**SIP**.....State Implementation Plan
**SMAL**.....Screening Model Action Levels
**$SO_x$**.....sulfur oxides
**$SO_2$**.....sulfur dioxide
**SSM**.....Startup, Shutdown & Malfunction
**tph**.....tons per hour
**tpy**.....tons per year
**VMT**.....vehicle miles traveled
**VOC**.....Volatile Organic Compound

Missouri Department of NATURAL RESOURCES
dnr.mo.gov
Michael L. Parson, Governor
Carol S. Comer, Director

June 11, 2020

Mike Primrose
EH&S Specialist I
POET Biorefining-Macon, LLC
30211 Major Avenue
Macon, MO 63552

RE: New Source Review Permit - Project Number: 2019-09-028

Dear Mike Primrose:

Enclosed with this letter is your permit to construct. Please study it carefully and refer to Appendix A for a list of common abbreviations and acronyms used in the permit. Also, note the special conditions, if any, on the accompanying pages. The document entitled, "Review of Application for Authority to Construct," is part of the permit and should be kept with this permit in your files. Operation in accordance with these conditions, your new source review permit application and with your amended operating permit is necessary for continued compliance. The reverse side of your permit certificate has important information concerning standard permit conditions and your rights and obligations under the laws and regulations of the State of Missouri.

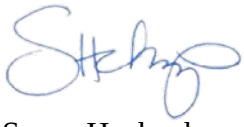
This permit may include requirements with which you may not be familiar. If you would like the department to meet with you to discuss how to understand and satisfy the requirements contained in this permit, an appointment referred to as a Compliance Assistance Visit (CAV) can be set up with you. To request a CAV, please contact your local regional office or fill out an online request. The regional office contact information can be found at the following website: http://dnr.mo.gov/regions/. The online CAV request can be found at http://dnr.mo.gov/cav/compliance.htm.

If you were adversely affected by this permit decision, you may be entitled to pursue an appeal before the administrative hearing commission pursuant to Sections 621.250 and 643.075.6 RSMo. To appeal, you must file a petition with the administrative hearing commission within thirty days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed; if it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the administrative hearing commission, whose contact information is: Administrative Hearing Commission, United States Post Office Building, 131 West High Street, Third Floor, P.O. Box 1557, Jefferson City, Missouri 65102, phone: 573-751-2422, fax: 573-751-5018, website: www.oa.mo.gov/ahc.

If you have any questions regarding this permit, please do not hesitate to contact Nicole Weidenbenner, at the Department of Natural Resources' Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102 or at (573) 751-4817. Thank you for your attention to this matter.

Sincerely,

AIR POLLUTION CONTROL PROGRAM



Susan Heckenkamp
New Source Review Unit Chief

SH:nwa

Enclosures

c: Northeast Regional Office
PAMS File: 2019-09-028

Permit Number: 062020-011