

STATE OF MISSOURI



DEPARTMENT OF NATURAL RESOURCES

PERMIT BOOK

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: 122014-009

Project Number: 2014-06-041  
Installation Number: 021-0118

Parent Company: Ag Processing Inc.

Parent Company Address: P.O. Box 2047, Omaha, NE 68103

Installation Name: Ag Processing Inc.

Installation Address: 900 Lower Lake Road, St. Joseph, MO 64502

Location Information: Buchanan County, S30, T57N, R35W

Application for Authority to Construct was made for:  
Increase production of a biodiesel plant from 250 million pounds per year to 292 million pounds per year due to the ability to increase the batch size and decrease batch times.  
This review was conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.

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

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

DEC 24 2014

EFFECTIVE DATE

\_\_\_\_\_  
DIRECTOR OR DESIGNEE  
DEPARTMENT OF NATURAL RESOURCES

## 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 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 Department's Air Pollution Control Program of the anticipated date of start up of these air contaminant sources. The information must be made available within 30 days of actual startup. Also, you must notify the Department of Natural Resources' regional office responsible for the area within which you are located within 15 days after the actual start up of these air contaminant sources.

A copy of this permit and permit review shall be kept at the installation address and shall be made available to Department of Natural Resources' 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 sources(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 at (573) 751-4817. If you prefer to write, please address your correspondence to the Missouri Department of Natural Resources, Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102-0176, attention: Construction Permit Unit.

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**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 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 (12)(A)10. "Conditions required by permitting authority."*

Ag Processing Inc.  
Buchanan County, S30, T57N, R35W

1. **Superseding Condition**  
The conditions of this permit supersede all special conditions found in the previously issued construction permit 102006-002 issued by the Air Pollution Control Program.
2. **Control Equipment – Condenser/Scrubber System**
  - A. The condenser/scrubber system shall be in use at all times when the equipment listed in Table 1 is in operation and shall be operated and maintained in accordance with the manufacturer’s specifications.

Table 1: Equipment Controlled by Condenser/Scrubber System (EP-100)

Emission Unit	Description
EU-01	Fatty Acid Stripping
EU-02	Glycerin Stripping
EU-03	Methyl Ester Drying
EU-04	Methanol and Water Rectification

- B. Ag Processing Inc. shall monitor and record the operating pressure of the scrubber using a continuous internal pressure monitor.
- C. Ag Processing Inc. shall monitor and record the operating pressure drop across each scrubber at least once every twenty four (24) hours. The scrubber shall be equipped with a gauge or meter that indicates the pressure drop across the scrubber. The operating pressure drop shall be maintained within the design conditions specified by the manufacturer's performance warranty.
- D. Ag Processing Inc. shall monitor and record the flow rate through the scrubber at least once every twenty four (24) hours. The scrubber shall be equipped with a flow meter that indicates the flow through the scrubber.

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### SPECIAL CONDITIONS:

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

The flow rate shall be maintained within the design conditions specified by the manufacturer's performance warranty.

- E. Ag Processing Inc. shall maintain an operating and maintenance log for the scrubber 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.
  - 3) A written record of regular inspection schedule, the date and results of all inspections including any actions or maintenance activities that result from that inspection.
- 3. Pavement of Haul Roads
  - A. Ag Processing Inc. shall pave all haul roads (EP106) with materials such as asphalt, concrete, and/or other material(s) after receiving approval from the Air Pollution Control Program. The pavement will be applied in accordance with industry standards for such pavement so as to achieve "Control of Fugitive Emissions" while the plant is operating.
  - B. Maintenance and/or repair of the surfaces will be conducted as necessary to ensure that the physical integrity of the pavement is adequate to achieve control of fugitive emissions from these areas while the plant is operating.
  - C. Ag Processing Inc. shall periodically water, wash and/or otherwise clean all of the paved portions of the haul roads as necessary to achieve control of fugitive emissions from these areas while the plant is operating.
- 4. Record Keeping and Reporting Requirements
  - A. Ag Processing Inc. 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.
- 5. Performance Testing
  - A. Ag Processing Inc. shall perform a methanol stack test by performing EPA test method 308, or other preapproved test method, on the condenser/scrubber system while the plant is fully operational. This test shall be conducted within 10% of the maximum batch rate during process conditions that generate maximum emission rates. The results from the

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#### SPECIAL CONDITIONS:

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

stack tests shall be used to calculate actual methanol and VOC emissions as well as emission factors for methanol and VOC with units of pounds of pollutant per pound of biodiesel produced.

- B. These tests shall be performed within 90 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 Special Condition 5.A
- 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 and must be approved by the Director prior to conducting the required emission testing.
- D. Two copies of a written report of the performance test results shall be submitted to the Director within 30 days of completion of any required testing. The report must include legible copies of the raw data sheets, analytical instrument laboratory data, and complete sample calculations from the required U.S. EPA Method for at least one sample run.
- 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. This should include, but is not limited to the condenser temperature, batch size, and which point during the batch process the test is executed.
- F. If the stack test report indicates an increased potential to emit for any pollutant, Ag Processing Inc. shall choose one of the appropriate actions listed below:
  - 1) Send the Construction Permit Unit of the Air Pollution Control Program a letter explaining why the increased potential to emit does not affect permit type.
  - 2) Send the Construction Permit Unit an Application for Authority to Construct stating that the stack test required by this permit indicates a potential emission increase that requires a different construction permit type.

REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE  
SECTION (5) REVIEW

Project Number: 2014-06-041  
Installation ID Number: 021-0118  
Permit Number:

Ag Processing Inc.  
900 Lower Lake Road  
St. Joseph, MO 64502

Complete: July 24, 2014

Parent Company:  
Ag Processing Inc.  
P.O. Box 2047  
Omaha, NE 68103

Buchanan County, S30, T57N, R35W

REVIEW SUMMARY

- Ag Processing Inc. has applied for authority to increase production of a biodiesel plant from 250 million pounds per year to 292 million pounds per year due to the ability to increase the batch size and decrease batch times.
- HAP emissions are expected from the proposed equipment. The HAP of concern from this process is methanol.
- 40 CFR 60 Subpart Kb, "Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels)" applies to the equipment.
- 40 CFR 60 Subpart VVa, "Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry" applies to the equipment.
- 40 CFR 60 Subpart NNN, "Standards of Performance for Volatile Organic Compound (VOC) Emissions from the Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations" does not apply to the equipment because the distillation is a batch process.
- 40 CFR 60 Subpart RRR, "Standards of Performance for Volatile Organic Compound Emissions From Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes" does not apply to the equipment because a batch process is utilized.
- 40 CFR 63 Subpart FFFF, "National Emission Standards for Hazardous Air Pollutants: Miscellaneous Organic Chemical Manufacturing" applies to this equipment.
- A condenser/scrubber system is being used to control the VOC and HAP emissions

from the equipment listed in Table 1.

- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. The controlled potential emissions of all pollutants are below de minimis levels.
- This installation is located in Buchanan County, an attainment area for all criteria pollutants.
- This installation is on the List of Named Installations found in 10 CSR 10-6.020(3)(B), Table 2. The installation is classified as item number 20. Chemical process plants. The installation's major source level is 100 tons per year and fugitive emissions are counted toward major source applicability.
- Ambient air quality modeling was not performed since potential emissions of the application are below de minimis levels.
- Emissions testing is required for the equipment.
- A Part 70 Operating Permit application is required within 1 year after the receipt of this permit.
- Approval of this permit is recommended with special conditions.

### INSTALLATION DESCRIPTION

This plant is located at 900 Lower Lake Road in St. Joseph, Missouri. Due to the proximity to the existing Ag Processing Inc. extraction/refining plant, the issue of separate installation was considered for permitting purposes. During the review of permit number 102006-002, the biodiesel plant was determined to be a separate installation from the extraction/refining plant. Ag Processing Inc. biodiesel is a de minimis source for construction permitting purposes. Therefore, Ag Processing Inc. biodiesel plant is not required to obtain an operating permit at this time.

The following New Source Review permits have been issued to Ag Processing Inc. from the Air Pollution Control Program.

Table 2: Permit History

Permit Number	Description
102006-002	Construction of biodiesel plant

### PROJECT DESCRIPTION

Ag Processing Inc. has proposed to increase the maximum annual production rate from 250 million pounds of biodiesel to 292 million pounds of biodiesel. No equipment changes are necessary to increase biodiesel production to 292 million pounds per year. After review of the stoichiometric methyl ester reaction profile and an engineering

review of the existing equipment, Ag Processing Inc. determined that the existing equipment is capable of producing larger batch sizes and shorter reaction times. The amount of biodiesel per batch and the maximum number of batches have been deemed confidential. A confidential file has been created for this information under project number 2014-06-085.

Biodiesel is produced from the base-catalyzed transesterification of vegetable oil with methanol. The by-product is glycerine. The primary vegetable oil feedstock will be refined soybean oil from the Ag Processing extraction/refining facility. However, the plant will be designed to accept vegetable oil from alternative sources when the Ag Processing extraction/refining facility is unable to provide the oil.

As the methyl esters are separated from the glycerine by-products, the excess methanol will be recovered and recycled back into the process. Emissions from all of the processing equipment will be vented to a single emission point and controlled by a condenser and scrubber as required by 40 CFR Part 63, Subpart FFFF.

Biodiesel and crude glycerine will be loaded onto tank trucks and rail cars for transport off-site. However, potential emissions were determined assuming all materials being transported on or off-site (i.e. biodiesel, refined oil, and glycerin) will be shipped by truck. All haul roads will be paved.

All steam for the biodiesel plant will be provided by an off-site source. Therefore, no boiler is required. In addition, there will not be a cooling tower associated with the wastewater treatment of the plant.

## EMISSIONS/CONTROLS EVALUATION

The emission factors and control efficiencies used in this analysis were obtained from the following sections of EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition:

- Section 5.1 *Petroleum Refining*, January 1995
- Section 13.2.1 *Paved Roads*, January 2011

Fugitive methanol emissions from the valves, pumps, and connectors at this installation were estimated using information from Table 2-5 from an EPA document titled, *Protocol for Equipment Leak Emission Estimates*, November 1995.

Fugitive emission from the storage tanks were estimated using the EPA Tanks 4.0.9d program.

Potential emissions from all of the other emission units are based on stack test data from a 2008 stack test that was conducted at this installation. Actual emissions will be estimated using data from the stack test required by this permit.

The following table provides an emissions summary for this project. Existing potential

emissions were taken from permit number 102006-002. Existing actual emissions were taken from the installation's 2013 EIQ. Potential emissions of the application represent the potential of the all of the equipment at this installation, assuming continuous operation (8760 hours per year).

Table 3: Emissions Summary (tons per year)

Pollutant	Regulatory <i>De Minimis</i> Levels	Existing Potential Emissions	Existing Actual Emissions (2013 EIQ)	Potential Emissions of the Installation
PM	25.0	N/D	N/D	1.76
PM <sub>10</sub>	15.0	0.57	0.41	0.35
PM <sub>2.5</sub>	10.0	N/D	0.06	0.09
SOx	40.0	0.0	0.0	N/A
NOx	40.0	0.0	0.0	N/A
VOC	40.0	32.62	4.02	5.10
CO	100.0	N/D	0.0	N/A
GHG (CO <sub>2</sub> e)	100,000	N/D	N/D	N/A
GHG (mass)	100.0 / 250.0	N/D	N/D	N/A
<sup>1</sup> HAPs	10.0/25.0	25.65	0.0	4.84

N/A = Not Applicable; N/D = Not Determined

<sup>1</sup>All HAPs from this process are methanol

### PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. The controlled potential emissions of all pollutants are below de minimis levels.

### APPLICABLE REQUIREMENTS

Ag Processing Inc. 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.

#### GENERAL REQUIREMENTS

- *Submission of Emission Data, Emission Fees and Process Information*, 10 CSR 10-6.110
- *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

## SPECIFIC REQUIREMENTS

- *New Source Performance Regulations, 10 CSR 10-6.070*
  - *Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels), 40 CFR Part 60, Subpart Kb*
  - *Standards of Performance for Equipment Leaks of VOC in the SOCMI, 40 CFR Part 60, Subpart VVa*
- *MACT Regulations, 10 CSR 10-6.075*
  - *National Emission Standards for Hazardous Air Pollutants: Miscellaneous Organic Chemical Manufacturing, 40 CFR Part 63, Subpart FFFF*
- *Restriction of Particulate Matter Emissions From Fuel Burning Equipment Used for Indirect Heating, 10 CSR 10-6.405*

## 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*, I recommend this permit be granted with special conditions.

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J Luebbert  
New Source Review Unit

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Date

## PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated July 13, 2014, received July 24, 2014, designating Ag Processing Inc. as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.

## APPENDIX A

### Abbreviations and Acronyms

<b>%</b> .....percent	<b>m/s</b> ..... meters per second
<b>°F</b> .....degrees Fahrenheit	<b>Mgal</b> ..... 1,000 gallons
<b>acfm</b> .....actual cubic feet per minute	<b>MW</b> ..... megawatt
<b>BACT</b> ..... Best Available Control Technology	<b>MHDR</b> ..... maximum hourly design rate
<b>BMPs</b> ..... Best Management Practices	<b>MMBtu</b> .... Million British thermal units
<b>Btu</b> ..... British thermal unit	<b>MMCF</b> ..... million cubic feet
<b>CAM</b> ..... Compliance Assurance Monitoring	<b>MSDS</b> ..... Material Safety Data Sheet
<b>CAS</b> ..... Chemical Abstracts Service	<b>NAAQS</b> ... National Ambient Air Quality Standards
<b>CEMS</b> ..... Continuous Emission Monitor System	<b>NESHAPs</b> National Emissions Standards for Hazardous Air Pollutants
<b>CFR</b> ..... Code of Federal Regulations	<b>NO<sub>x</sub></b> ..... nitrogen oxides
<b>CO</b> .....carbon monoxide	<b>NSPS</b> ..... New Source Performance Standards
<b>CO<sub>2</sub></b> .....carbon dioxide	<b>NSR</b> ..... New Source Review
<b>CO<sub>2e</sub></b> .....carbon dioxide equivalent	<b>PM</b> ..... particulate matter
<b>COMS</b> ..... Continuous Opacity Monitoring System	<b>PM<sub>2.5</sub></b> ..... particulate matter less than 2.5 microns in aerodynamic diameter
<b>CSR</b> ..... Code of State Regulations	<b>PM<sub>10</sub></b> ..... particulate matter less than 10 microns in aerodynamic diameter
<b>dscf</b> .....dry standard cubic feet	<b>ppm</b> ..... parts per million
<b>EQ</b> ..... Emission Inventory Questionnaire	<b>PSD</b> ..... Prevention of Significant Deterioration
<b>EP</b> ..... Emission Point	<b>PTE</b> ..... potential to emit
<b>EPA</b> ..... Environmental Protection Agency	<b>RACT</b> ..... Reasonable Available Control Technology
<b>EU</b> ..... Emission Unit	<b>RAL</b> ..... Risk Assessment Level
<b>fps</b> .....feet per second	<b>SCC</b> ..... Source Classification Code
<b>ft</b> ..... feet	<b>scfm</b> ..... standard cubic feet per minute
<b>GACT</b> ..... Generally Available Control Technology	<b>SDS</b> ..... Safety Data Sheet
<b>GHG</b> ..... Greenhouse Gas	<b>SIC</b> ..... Standard Industrial Classification
<b>gpm</b> ..... gallons per minute	<b>SIP</b> ..... State Implementation Plan
<b>gr</b> ..... grains	<b>SMAL</b> ..... Screening Model Action Levels
<b>GWP</b> ..... Global Warming Potential	<b>SO<sub>x</sub></b> ..... sulfur oxides
<b>HAP</b> ..... Hazardous Air Pollutant	<b>SO<sub>2</sub></b> ..... sulfur dioxide
<b>hr</b> ..... hour	<b>tph</b> ..... tons per hour
<b>hp</b> ..... horsepower	<b>tpy</b> ..... tons per year
<b>lb</b> ..... pound	<b>VMT</b> ..... vehicle miles traveled
<b>lbs/hr</b> ..... pounds per hour	<b>VOC</b> ..... Volatile Organic Compound
<b>MACT</b> ..... Maximum Achievable Control Technology	
<b>µg/m<sup>3</sup></b> .....micrograms per cubic meter	

Mr. Kelly Jorgensen  
Director of Environmental Compliance  
Ag Processing Inc.  
P.O. Box 2047  
Omaha, NE 68103

RE: New Source Review Permit - Project Number: 2014-06-041

Dear Mr. Jorgensen:

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 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 and your new source review permit application 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.

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, by registered mail it will be deemed filed on the date it is mailed; if it is sent by any method other than registered mail it will be deemed filed on the date it is received by the administrative hearing commission, Administrative Hearing Commission, P.O. Box 1557, Jefferson City, MO 65102,.

If you have any questions regarding this permit, contact the Department of Natural Resources' Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102 or at (573) 751-4817.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Susan Heckenkamp  
New Source Review Unit Chief

SH:jl

Enclosures

c: Kansas City Regional Office  
PAMS File: 2014-06-041

Permit Number: