

STATE OF MISSOURI



PERMIT BOOK

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: **032007 - 005** Project Number: 2006-05-007

Parent Company: **Bootheel Agri-Energy LLC**

Parent Company Address: **1214 Linn Street, Sikeston, MO 63801**

Installation Name: **Bootheel Agri-Energy LLC**

Installation Address: **222 McCullah, Sikeston, MO 63801**

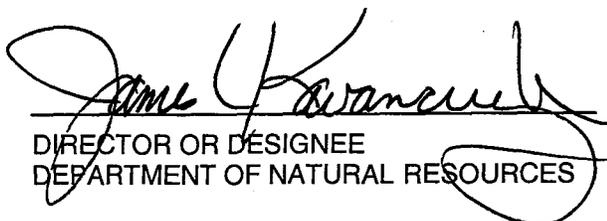
Location Information: **Scott County, S2, T24N, R13E**

Application for Authority to Construct was made for:
Installation of a 123.9 million gallon per year of denatured ethanol plant. This review was conducted in accordance with Section (6), 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.

MAR 21 2007

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 this (these) air contaminant source(s). The information must be made available not more than 60 days but at least 30 days in advance of this date. Also, you must notify the Department of Natural Resources Regional office responsible for the area within which you are located with 15 days after the actual start up of this (these) air contaminant source(s).

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 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 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."

Bootheel Agri-Energy LLC
Scott County, S2, T24N, R13E

1. Emission Limitation

- A. Bootheel Agri-Energy LLC shall emit less than 100 tons of particulate matter less than ten microns in diameter (PM₁₀) from this installation in any consecutive 12-month period.
- 1) Bootheel Agri-Energy LLC shall record the monthly and the sum of the most recent consecutive twelve (12) months PM₁₀ emissions in tons from this installation. These records shall be kept on-site for five (5) years and shall be made immediately available for inspection to Department of Natural Resources' personnel upon request. Attachment A, Monthly PM₁₀ Emission Tracking Record, or an equivalent form shall be used for this purpose. The emission rates shall be verified through performance testing, as detailed in Special Condition 6.
 - 2) Bootheel Agri-Energy LLC shall report to the Air Pollution Control Program's (APCP) Enforcement Section, P.O. Box 176 Jefferson City, Missouri 65102, no later than ten (10) days after the end of the month during which the records required by Special Condition 1.A(1) show that the emission limitation has been exceeded.
- B. Bootheel Agri-Energy LLC shall emit less than 100 tons of Volatile Organic Compounds (VOCs) from this installation in any consecutive 12-month period.
- 1) Bootheel Agri-Energy LLC shall record the monthly and the sum of the most recent consecutive twelve (12) months VOC emissions in tons from this installation. These records shall be kept on-site for five (5) years and shall be made immediately available for inspection to Department of Natural Resources' personnel upon request. Attachment B, Monthly VOC Emission Tracking Record, or an equivalent form shall be used for this purpose. The emission rates shall be verified through performance testing, as detailed in Special Condition 6.

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

- 2) Bootheel Agri-Energy LLC shall report to the Air Pollution Control Program's (APCP) Enforcement Section, P.O. Box 176 Jefferson City, Missouri 65102, no later than ten (10) days after the end of the month during which the records required by Special Condition 1.B(1) show that the emission limitation has been exceeded.
- C. Bootheel Agri-Energy LLC shall emit less than 100 tons of Carbon Monoxide (CO) from this installation in any consecutive 12-month period.
- 1) Bootheel Agri-Energy LLC shall record the monthly and the sum of the most recent consecutive twelve (12) months CO emissions in tons from this installation. These records shall be kept on-site for five (5) years and shall be made immediately available for inspection to Department of Natural Resources' personnel upon request. Attachment C, Monthly CO Emission Tracking Record, or an equivalent form shall be used for this purpose. The emission rates shall be verified through performance testing, as detailed in Special Condition 6.
 - 2) Bootheel Agri-Energy LLC shall report to the Air Pollution Control Program's (APCP) Enforcement Section, P.O. Box 176 Jefferson City, Missouri 65102, no later than ten (10) days after the end of the month during which the records required by Special Condition 1.C(1) show that the emission limitation has been exceeded.
- D. Bootheel Agri-Energy LLC shall emit less than ten (10.0) tons of any individual Hazardous Air Pollutants (HAPs), specifically acetaldehyde, and twenty-five (25.0) tons of combined HAP from this installation in any consecutive twelve (12) month period. The remaining HAPs of concern shall be below their respective Screen Modeling Action Level (SMAL) as indicated in Attachment F.
- 1) Bootheel Agri-Energy LLC shall record the monthly and the sum of the most recent consecutive twelve (12) months HAP emissions in tons from this installation. These records shall be kept on-site for five (5) years and shall be made immediately available for inspection to Department of Natural Resources' personnel upon request. Attachment D, Monthly Individual HAP Emission Tracking Record, Attachment E, Monthly Combined HAP Emission Tracking Record or an equivalent form shall be used for this purpose. The emission rates shall be verified through performance testing, as detailed in Special Condition 6.

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

- 2) Bootheel Agri-Energy LLC shall report to the APCP's Enforcement Section, P.O. Box 176 Jefferson City, Missouri 65102, no later than ten (10) days after the end of the month during which the records required by Special Condition 1.D(1) show that the emission limitation has been exceeded.

- E. Bootheel Agri-Energy LLC shall not discharge PM₁₀ into the atmosphere from the following stacks in excess of the listed amounts:

Control ID	Emission Point	Description	Lbs/hr
C01	EP-1	Grain Receiving, Handling, and Conveyor #1 and #2	1.03
C02	EP-2	Grain Bulk Weigher	0.02
C03	EP-3	Grain Elevator	0.089
C04	EP-4	Grain Storage Silos and Scalper	0.064
C05	EP-5	Hammermill #1	0.155
C06	EP-6	Hammermill #2	0.155
C07	EP-7	Hammermill #3	0.155
C08	EP-8	Hammermill #4	0.155
C09	EP-9	CO2 Scrubber	0.10
C10	EP-10	Gas Vent Scrubber	0.10
C11	EP-11	DDGS Handling and Conveying	0.0388
C12	EP-12	DDGS Loadout Truck/Rail Spout	0.0457
C13	EP-13	DDGS Loadout Truck Spout	0.0776
C14	EP-14	RTO #1	2.57
C15	EP-15	RTO #2	2.57

These emission rates shall be verified through performance testing, as detailed in Special Condition 6.

- F. Bootheel Agri-Energy LLC shall not discharge nitrogen oxides (NO_x) into the atmosphere from the following stacks in excess of the listed amounts:

Control ID	Emission Point	Description	Lbs/hr
C14	EP-14	RTO #1	6.12
C15	EP-15	RTO #2	6.12
N/A	EP-16	Boiler #1	2.30
N/A	EP-17	Boiler #2	2.30
N/A	EP-18	Boiler #3	2.30
N/A	EP-19	Boiler #4	2.30

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

These emission rates shall be verified through performance testing, as detailed in Special Condition 6.

- G. Bootheel Agri-Energy LLC shall not discharge sulfur oxides (SO_x) into the atmosphere from the following stacks in excess of the listed amounts:

Control ID	Emission Point	Description	Lbs/hr
C14	EP-14	RTO #1	5.09
C15	EP-15	RTO #2	5.09

These emission rates shall be verified through performance testing, as detailed in Special Condition 6.

- H. Bootheel Agri-Energy LLC shall not discharge carbon dioxide (CO) into the atmosphere from the following stacks in excess of the listed amounts:

Control ID	Emission Point	Description	Lbs/hr
C14	EP-14	RTO #1	6.54
C15	EP-15	RTO #2	6.54
N/A	EP-16	Boiler #1	2.12
N/A	EP-17	Boiler #2	2.12
N/A	EP-18	Boiler #3	2.12
N/A	EP-19	Boiler #4	2.12

These emission rates shall be verified through performance testing, as detailed in Special Condition 6.

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SPECIAL CONDITIONS:

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

2. Control Equipment - Baghouses

- A. The baghouses listed below must be in use at all times when the associated equipment is in operation:

Control ID No.	Emission Point	Emission Unit controlled
C01	EP-1	Grain Receiving, Handling, and Conveyor #1 and #2
C02	EP-2	Grain Bulk Weigher
C03	EP-3	Grain Elevator
C04	EP-4	Grain Storage Silos and Scalper
C05	EP-5	Hammermill #1
C06	EP-6	Hammermill #2
C07	EP-7	Hammermill #3
C08	EP-8	Hammermill #4
C11	EP-11	DDGS Handling and Conveying
C12	EP-12	DDGS Loadout Truck/Rail Spout
C13	EP-13	DDGS Loadout Truck Spout

- B. The baghouse(s) and any related instrumentation or equipment shall be operated and maintained in accordance with the manufacturer's specifications. The baghouse(s) shall be equipped with a gauge or meter that indicates the pressure drop across each baghouse. This gauge or meter shall be located in such a way it may be easily observed by Department of Natural Resources' employees.
- C. Replacement bags for all baghouse(s) 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. Visible emissions will be used as an indicator of the proper operation of the control device. During proper operation no visible emissions are expected from this emission unit. The existence of visible emissions will indicate a decrease in the efficiency of the control device and corrective actions will be implemented
- 1) Visible emissions from the exhaust shall be monitored on a daily basis when the process is in operation.
 - 2) The duration of the observation shall be for a 2 minute time period.
 - 3) The condition of no visible emissions is considered normal for this emission unit. When visible emissions are noted from the emission unit, it shall be documented and corrective actions taken.

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- E. The observation of visible emissions from this emission unit will be considered an excursion and corrective actions shall be implemented within a reasonable period. An excursion does not necessarily indicate a violation of the applicable requirement. When the level of excursions exceed three percent of the of the total number of observations in a six month period and corrective actions fail to return the emission unit to a no visible emission condition, then the permittee shall conduct source testing within 90 days of the last excursion to demonstrate compliance with 10 CSR 10-6.400. If the test demonstrates noncompliance with the above emission limitation the permittee shall propose a schedule to implement further corrective actions to bring the source into compliance and demonstrate that compliance.

- F. Bootheel Agri-Energy LLC shall monitor and record the operating pressure drop across the baghouse(s) at least once in every twenty-four (24) hour period when the associated equipment is operated. The operating pressure drop shall be maintained within the normal operating range specified by the manufacturer's performance warranty. If the pressure drop reading should fall outside of this normal operating range, then the associated equipment shall be shut down as quickly as is reasonably practical. Corrective actions shall be taken to address the cause of the non-normal pressure drop and the baghouse(s) shall be returned to normal operation before re-starting the equipment.

- G. Bootheel Agri-Energy LLC shall inspect the baghouse(s) at least once every six (6) months and at a minimum, conduct the following activities:
 - 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.

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SPECIAL CONDITIONS:

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

3. Control Equipment – Fermentation and Distillation Wet Scrubbers

A. The scrubbers listed below must be in use at all times when the associated equipment is in operation:

Control ID No.	Emission Point	Emission Unit controlled
C09	EP-9	Slurry Tank, Liquefaction Tank, Two Yeast Tanks, Seven Fermentation Tanks, and Beer Well
C10	EP-10	Distillation, Two 200-Proof Condenser, Four Centrifuges, Evaporators, Whole Stillage Tank, Process Condensate Tank, and Thin Stillage Tank

- B. The scrubbers and any related instrumentation or equipment shall be operated and maintained in accordance with the manufacturer's specifications. The scrubber shall be equipped with a gauge or meter that indicates the pressure drop across the scrubber. The scrubber shall be equipped with a flow meter that indicates the flow through the scrubber. This gauge and meter shall be located in such a way they may be easily observed by Department of Natural Resources' employees.
- C. Bootheel Agri-Energy LLC shall monitor and record the operating pressure drop across each scrubber at least once every twenty-four (24) hours. The operating pressure drop shall be maintained within the design conditions specified by the manufacturer's performance warranty.
- D. Bootheel Agri-Energy LLC shall monitor and record the flow rate through the scrubber at least once every twenty-four (24) hours. The flow rate shall be maintained within the design conditions specified by the manufacturer's performance warranty.
- E. Bootheel Agri-Energy LLC 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.

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

4. Control Equipment - Multicyclone
 - A. The multicyclones (C16 and C17) must be in use at all times when the DDGS Dryers (EP-14 and EP-15) are in operation. The multicyclones shall be operated and maintained in accordance with the manufacturer's specifications.
 - B. The multicyclones shall be equipped with a gauge or meter that indicates the pressure drop across the multicyclones. Bootheel Agri-Energy LLC shall monitor and record the operating pressure drop across the multicyclones at least once every twenty-four (24) hours. The operating pressure drop shall be maintained within the design conditions specified by the manufacturer's performance warranty.
 - C. Bootheel Agri-Energy LLC shall maintain an operating and maintenance log for the multicyclones 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.
5. Control Equipment – Regenerative Thermal Oxidizers (C14 and C15)
 - A. The regenerative thermal oxidizers (RTOs) must be in use at all times when the DDGS Dryers (EP-14 and EP-15), the denatured ethanol truck/rail loadout, and DDGS Coolers are in operation or any time that regulated PM₁₀, volatile organic compounds (VOC) or hazardous air pollutant (HAP) emissions are possible. The RTOs shall be operated and maintained in accordance with the manufacturer's specifications. Emission rates of PM₁₀, VOC, HAPs, CO and NO_x will be tested, as detailed in Special Condition 6, to verify the RTOs are operating as assumed.
 - B. The operating temperature of the RTOs shall be continuously monitored and recorded during operation. The operating temperature of the thermal oxidizer shall be maintained on a rolling 3-hour average within 50 degrees Fahrenheit of the average temperature of the oxidizer recorded during the compliance test specified in Special Condition 6 which demonstrated compliance with the emission limits. The acceptable temperature range may be reestablished by performing a new set of emission tests. The most recent sixty (60) months of records shall be maintained on-site and shall be made

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

immediately available to Missouri Department of Natural Resources' personnel upon request.

- C. Bootheel Agri-Energy LLC shall maintain an operating and maintenance log for the RTOs 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.

- 6. Performance Testing
 - A. Bootheel Agri-Energy LLC shall conduct performance tests to verify the emission rates as follows:
 - 1) The wet scrubbers (C09 and C10), and the regenerative thermal oxidizers (C14 and C15) shall be tested to determine the VOC and aggregate HAP emission rates when all the processes controlled by these devices are in operation. These emission rates shall be used in Attachments B and E for compliance with Special Condition 1.B. and 1.D.
 - 2) The wet scrubbers (C09 and C10), and the regenerative thermal oxidizers (C14 and C15) shall be tested to determine the emission rates of the following HAPs: acetaldehyde, acrolein, formaldehyde and methanol. These emission rates shall be used in Attachment D for compliance with Special Condition 1.D.
 - 3) The regenerative thermal oxidizers (C14 and C15), Boiler #1, Boiler #2, Boiler #3 and Boiler #4 (EP16 through EP-19) shall be tested to determine the CO emission rate when in operation. These emission rates shall be used in Attachment C for compliance with Special Condition 1.C. and shall not exceed the amounts listed in Special Condition 1.H.
 - 4) The stacks associated Special Condition 1.E. shall be tested to determine the PM₁₀ emission rates. These emission rates shall not exceed the amounts listed in Special Condition 1.E. In addition, these emission rates shall be used in Attachment A for compliance with Special Condition 1.A.

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

- 5) The regenerative thermal oxidizers (C14 and C15), Boiler #1, Boiler #2, Boiler #3 and Boiler #4 (EP16 through EP-19) shall be tested to determine the NO_x emission rate when in operation. These emission rates shall not exceed the amounts listed in Special Condition 1.F.
 - 6) The regenerative thermal oxidizers (C14 and C15), Boiler #1, Boiler #2, Boiler #3 and Boiler #4 (EP16 through EP-19) shall be tested to determine the SO_x emission rate when in operation. These emission rates shall not exceed the amounts listed in Special Condition 1.G.
- B. The testing required in Special Condition 6.A(3) through 6.A(6) may be limited to conducting tests on a representative piece(s) of each type of equipment upon approval by the Director. In addition, an alternate method(s) of quantifying the emission rates of criteria air pollutants (e.g. PM₁₀ and NO_x) from these sources may be used in place of the above testing requirement if requested by Bootheel Agri-Energy LLC and approved by the Director.
 - C. These tests shall be performed within sixty (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 Special Condition 7.
 - D. Bootheel Agri-Energy LLC shall conduct performance tests to verify the emission rates as indicated in Special Condition 6.A once every 5 years from the date of the most recent performance tests.
7. Proposed Test Plan
- A. A completed Proposed Test Plan Form 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.
 - B. Two (2) 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 (1) sample run.

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

- C. 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.
 - D. If the performance testing required by Special Condition 6 of this permit indicates that any of the emission limits specified in Special Condition 1 are being exceeded, Bootheel Agri-Energy LLC must propose a plan to the Air Pollution Control Program within thirty (30) days of submitting the performance test results. This plan must demonstrate how Bootheel Agri-Energy LLC will reduce the emission rates below those stated in Special Condition 1. Bootheel Agri-Energy LLC shall implement any such plan immediately upon its approval by the Director.
8. Operating Permit Requirements
Bootheel Agri-Energy LLC shall apply for and receive an Intermediate Operating Permit from the Air Pollution Control Program for this installation.
9. Requirements for Future Emission Alterations
If a situation arises such that Bootheel Agri-Energy LLC wishes to alter Special Condition 1.A., 1.B. and/or 1.C. of this permit in order to allow the existing installation to emit more than 100 tons per year of PM10, VOC and/or CO, Bootheel Agri-Energy LLC will be required to conduct a New Source Review in accordance with 10 CSR 10-6.060(8). Such a review will include a Best Available Control Technology (BACT) analysis utilizing current technologies and any other requirements that the Director deems necessary pursuant to 10 CSR 10-6.060(8).
10. Cooling Tower Operating Requirements
- A. The cooling tower(s) shall be operated and maintained in accordance with the manufacturer's specifications. Manufacturer's specifications shall be kept on site and made readily available to Department of Natural Resources' employees.
 - B. The cooling water circulation rate shall not exceed 30,000 gallons per minute.
 - C. Bootheel Agri-Energy LLC shall keep records of the monthly and 12-month rolling averages of the amount of water circulated.
 - D. The drift loss from the towers shall not exceed 0.005 percent of the water circulation rate. Verification of drift loss shall be by manufacturer's

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

guaranteed drift loss and shall be kept on site and made readily available to Department of Natural Resources' employees upon request.

- E. The total dissolved solids (TDS) concentration in the circulated cooling water shall not exceed a TDS concentration of 2,500 parts per million (ppm). A TDS sample shall be collected and the results recorded monthly to verify the TDS concentration.
 - F. The requirement for TDS sample collection may be eliminated or the frequency may be reduced upon written approval by the Air Pollution Control Program if TDS sampling results demonstrate compliance for 24 consecutive months.
11. Emergency Equipment Requirements
- A. The operating hours of the emergency generator shall not exceed 100 hours in any consecutive 12-month period. To facilitate the record keeping for this condition, the emergency generator shall be equipped with a non-resetable running time meter.
 - B. The operating hours of the emergency fire pump shall not exceed 250 hours in any consecutive 12-month period. To facilitate the record keeping for this condition, the emergency generator shall be equipped with a non-resetable running time meter.
 - C. Attachment F or an equivalent form shall be used to record the hours of operation. Bootheel Agri-Energy LLC shall maintain all records required by this permit for not less than five (5) years and shall make them available immediately to any Missouri Department of Natural Resources' personnel upon request. These records shall include the operating hours for that month and the total hours of operation for the previous 12-month period.
 - D. Bootheel Agri-Energy LLC shall report to the Air Pollution Control Program's (APCP) Enforcement Section, P.O. Box 176, Jefferson City, Missouri 65102, no later than ten (10) days after the end of the month during which the records from Special Condition 11.C indicate that the source exceeds the Special Condition 11.A or 11.B.
12. Pavement of Haul Roads
- A. Bootheel Agri-Energy LLC shall pave the specified haul roads (FS01) with materials such as asphalt, concrete, and/or other material(s) after receiving approval from the Program. The pavement will be applied in accordance with industry standards for such pavement so as to achieve

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

“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. Bootheel Agri-Energy LLC shall periodically water, wash and/or otherwise clean all of the paved portions of the haul road as necessary to achieve control of fugitive emissions from these areas while the plant is operating.
13. Haul Road Use Restrictions
- A. Truck traffic on all haul roads at the installation shall be limited during the Harvest Season (defined as June through November) to the following:
 - 1) Grain Receiving Trucks – 300 trucks per day
 - 2) DDGS Loadout Trucks – 25 trucks per day
 - 3) Ethanol Loadout Trucks – 15 trucks per day
 - 4) Denaturant Delivery Trucks – 5 trucks per day
 - B. Truck traffic on all haul roads at the installation shall be limited during the Non-Harvest Season (defined as December through May) to the following:
 - 1) Grain Receiving Trucks – 100 trucks per day
 - 2) DDGS Loadout Trucks – 25 trucks per day
 - 3) Ethanol Loadout Trucks – 15 trucks per day
 - 4) Denaturant Delivery Trucks – 5 trucks per day
 - C. Truck traffic on all haul roads at the installation shall be limited on an annual basis to the following:
 - 1) Grain Receiving Trucks – 50,149 trucks per year
 - 2) DDGS Loadout Trucks – 15,065 trucks per year
 - 3) Ethanol Loadout Trucks – 15,750 trucks per year
 - 4) Denaturant Delivery Trucks – 750 trucks per year
 - D. Truck traffic on all haul roads at the installation shall be allowed between 7 a.m. to 7 p.m. exclusively.
 - E. Bootheel Agri-Energy LLC shall record the daily and the sum of the most recent consecutive 365 day truck traffic for each type of truck on any haul roads at the installation. These records shall be kept on-site for five (5) years and shall be made immediately available for inspection to Department of Natural Resources’ personnel upon request. Attachment G, Daily Truck Traffic Tracking Record, and Attachment H, Annual Truck

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

Traffic Tracking Record or equivalent forms shall be used for this purpose.

- F. Bootheel Agri-Energy LLC shall report to the APCP's Enforcement Section, P.O. Box 176 Jefferson City, Missouri 65102, no later than ten (10) days after the end of the month during which the records required by Special Condition 13.E show that the truck traffic limitations have been exceeded.

REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE
SECTION (6) REVIEW

Project Number: 2006-05-007
Installation ID Number: 201-0119
Permit Number:

Bootheel Agri-Energy LLC
222 McCullah
Sikeston, MO 63801

Complete: January 5, 2007
Reviewed: March 8, 2007

Parent Company:
Bootheel Agri-Energy LLC
1214 Linn Street
Sikeston, MO 63801

Scott County, S2, T24N, R13E

REVIEW SUMMARY

- Bootheel Agri-Energy LLC has applied for authority to install a dry mill ethanol plant with a production capacity of 123.9 million gallons of denatured ethanol.
- Hazardous Air Pollutant (HAP) emissions are expected from the proposed equipment. The HAPs expected are acetaldehyde, acrolein, formaldehyde and methanol. The main HAP of concern is acetaldehyde.
- New Source Performance Standards (NSPS) apply to this installation. Specifically, 40 CFR Part 60 Subpart Kb, *Standards of Performance for Volatile Organic Liquid Storage Vessels*, applies to the storage tanks (TK1-TK5); Subpart Dc, *Standards of Performance for Small Industrial-Commercial-Institutional-Steam Generating Units* applies to the boilers (EP16 through EP19); Subpart VV, *Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry (SOCMI)* applies to this installation.
- Subpart III, *Standards of Performance for VOC Emissions from SOCMI Air Oxidation Unit Processes*, Subpart NNN, *Standards of Performance for Volatile Organic Compound Emissions from SOCMI Distillation Operations*, and Subpart RRR, *Standards of Performance for Volatile Organic Compound Emissions from SOCMI Reactor Processes*, do **not** apply to this installation. Subpart XX, *Standards of Performance for Bulk Gasoline Terminals*, does **not** apply since the fuel ethanol (alcohol/petroleum distillate blend) manufactured by the installation does not satisfy the Subpart XX definition of gasoline.
- None of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) or currently promulgated Maximum Achievable Control Technology (MACT) regulations apply to the proposed equipment.
- Baghouses, wet scrubbers, cyclones, and a thermal oxidizer will be used to control

PM₁₀, VOC, NO_x, CO, and HAP emissions from the equipment in this permit.

- This review was conducted in accordance with Section (6) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of criteria air pollutants and HAPs are conditioned to minor source levels.
- This installation is located in Scott County, an attainment area for all criteria air pollutants.
- This installation is on the List of Named Installations [10 CSR 10-6.020(3)(B), Table 2], Number 20, *Chemical Process Plants*.
- Ambient air quality modeling was performed to determine the ambient impact of PM₁₀, SO_x, CO and NO_x.
- Emissions testing is required for the source.
- An Intermediate Operating Permit is required for this installation within 30 days of equipment startup.
- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

Bootheel Agri-Energy LLC is proposing to construct a new ethanol plant in Sikeston, Missouri. This is a new installation. Therefore, no permits have been issued to Bootheel Agri-Energy LLC from the Air Pollution Control Program. This installation will require an intermediate operating permit.

This installation has a Standard Industrial Classification (SIC) code designation 2869 that refers to *Industrial Organic Chemicals, Not Elsewhere Classified*. Subsequently, Bootheel Agri-Energy LLC is a named installation in 10 CSR 10-6.020(3)(B), Table 2, *Chemical Process Plant*. Therefore, the major source threshold for this installation is 100 tons per year for each criteria pollutant. Upon issuance of this permit, Bootheel Agri-Energy LLC will be a minor source under construction permits and an Intermediate source under operating permits.

In past decisions, the U.S. Environmental Protection Agency (EPA) has concluded that fuel grade ethanol production plants are members of the Synthetic Organic Chemical Manufacturing Industry (SOCMI). Several of the New Source Performance Standards (NSPS) apply to SOCMI installations, including Subpart III, *Standards of Performance for VOC Emissions from SOCMI Air Oxidation Unit Processes*, Subpart NNN, *Standards of Performance for VOC Emissions from SOCMI Distillation Operations*, Subpart RRR, *Standards of Performance for VOC Emissions from SOCMI Reactor Processes*, and Subpart VV, *Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemical Manufacturing Industry*. Subpart III does not apply to this installation, as there are no air oxidation units involved in these processes. After reviewing the

background information documentation for the NSPS, it appears that EPA chose not to consider bio-processes in the development of Subparts NNN or RRR; therefore, these subparts are not applicable. However, since ethanol production plants are classified as SOCOMI facilities, Subpart VV, dealing with equipment leaks, does apply to this installation.

PROJECT DESCRIPTION

Bootheel Agri-Energy LLC has applied for authority to install a 123.9 million gallon per year (MMgal/yr) denatured ethanol plant in Sikeston, Missouri. Grain (corn) will be received and stored on site in two storage silos, each with a capacity of 493,000 bushels, prior to milling. All grain receiving and handling equipment will be enclosed and vented to a baghouse with negative pressure. The grain is then grounded with one of four hammermills. Emissions from each hammermill will be controlled by a baghouse with negative pressure. The milled corn 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 seven fermentation tanks. Emissions from the fermentation process (e.g. carbon dioxide) flow to a scrubber, which captures the entrained ethanol and releases the remaining emissions to the atmosphere.

After approximately 48 hours of fermentation, the resultant mixture (beer) will contain 11%-15% ethanol by weight. The beer will be distilled in a three-column distillation process. The resultant products are approximately 190 proof ethanol and whole stillage. Using molecular sieves, most of the remaining water will be removed from the ethanol to produce 200 proof ethanol. This is then combined with five percent (5%) natural gasoline by weight and sold as denatured ethanol. Emissions from the distillation process are vented to a second scrubber before being released into the atmosphere.

The whole stillage will be centrifuged to yield thin stillage and solid fractions. Emissions from the centrifuge are vented to the same scrubber as the distillation processes. The thin stillage is further evaporated to produce a syrup that contains thirty percent dry matter. This syrup will be combined with the centrifuged wet solids and dried in one of two dryers. The dried spent grain will then be conveyed by a cooling conveyor to be stored in an enclosed storage building. This process generates a total of 376,620 tpy of Distiller Dried Grain and Solubles, DDGS, which is loaded into trucks and railcars for distribution. All DDGS handling and loadout processes are vented to baghouses under negative pressure.

Two 90 MMBTU per hour natural gas fired dryers will be used to dry the DDGS. The air and water vapor from this process will go through cyclones to remove any remaining DDG before being vented to one of two Regenerative Thermal Oxidizers (RTOs). Each RTO will have a burner capacity of 18 MMBTU per hour and will be tested to verify emissions of PM₁₀, NO_x, VOC and HAPs. Process steam will be produced by four (4) 92.05 MMBTU/hr natural gas-fired boilers. Emergency equipment at the plant will include a 23.24 MMBTU/hr emergency generator and a fire pump.

The 200 proof ethanol is stored in one of two 715,000-gallon floating roof tanks (TK01

and TK02). The 200 proof ethanol is mixed with a denaturant, gasoline, using inline blending. The denaturant is stored in a 250,000-gallon floating roof storage tank (TK03). The denatured ethanol is stored in one of two 1,500,000-gallon denatured alcohol storage tanks (TK-04 and TK-05). The denatured ethanol is loaded into trucks or railcars for delivery to customers through the loadout system. Emissions from the loadout system will be vented to the RTO.

EMISSIONS/CONTROLS EVALUATION

The pollutants of concern for the purpose of this review are PM₁₀, VOCs, CO, HAPs, SO_x and NO_x. These emissions are discussed according to the processes that emit them: Grain Handling and Storage, Fermentation and Distillation, DDGS Drying and Storage, Tanks and Loadout, and Haul Roads.

Grain Handling and Storage

PM₁₀ is primarily emitted from the grain handling, storage, milling and drying processes. The emission factors for estimating PM₁₀ emissions from these processes were obtained from the EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, Section 9.9.1 *Grain Elevators and Processes (5/98)*. Baghouses are used to control PM₁₀ emissions from grain handling and milling operations with a control efficiency of 99% (EP-1 through EP-8). However, the applicant has provided estimates of emissions from these operations that exceed AP-42 estimations using manufacturer's guarantees. Therefore, these operations will be tested to verify emissions.

Fermentation and Distillation

VOCs and HAPs are primarily emitted from the fermentation (EP-9, CO₂ Scrubber) and distillation (EP-10, Vent Gas Scrubber) processes, which are controlled by packed bed scrubbers. Potential emissions of PM₁₀, VOC and HAPs emitted from these processes were estimated by the applicant. Under normal operation, emissions from the scrubbers will be vented to the atmosphere. Therefore, emissions from these processes will be quantified and included when determining compliance with the PM₁₀, VOC and HAPs limits in this permit.

Fugitive leaks will be controlled in accordance with *New Source Performance Standards (NSPS) for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry*, 40 CFR Part 60, Subpart VV.

DDGS Drying and Storage

VOCs, HAPs, CO and PM₁₀ are emitted from DDGS drying. Multicyclones are used to control emissions of PM₁₀ for the DDGS drying with an expected control efficiency of 90%. VOC and HAP emissions from the DDGS dryer are controlled using a regenerative thermal oxidizer (EP-14 RTO #1 and EP-15 RTO #2).

PM₁₀, VOCs, NO_x, sulfur oxides (SO_x) and carbon monoxide (CO) are emitted from the combustion of natural gas for the DDGS dryers. The emission factors used to determine combustion emissions from the two DDGS Dryers (90 MMBtu/hr, each), the

RTOs (18 MMBtu/hr, each) and the four boilers (92.05 MMBtu/hr, each) were obtained from AP-42, Section 1.4, *Natural Gas Combustion* (3/98). However, due to the variability in emissions from ethanol production, potential emissions of VOCs, HAPs, CO, NO_x, and PM₁₀ emitted from the DDGS dryer were estimated by the applicant using manufacturer's guarantees.

The DDGS is pneumatically transferred to an enclosed storage building and loaded out onto railcars and trucks. Emissions from the handling and loading out of DDGS are controlled by baghouses using negative pressure.

Tanks and Loadout

VOCs are emitted from storage tanks and truck/rail loadout. Fugitive leaks will be controlled in accordance with *New Source Performance Standards (NSPS) for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry*, 40 CFR Part 60, Subpart VV. Storage tank emissions were calculated using TANKS 4.0.

Loadout emissions were determined using submerged loading and AP-42, Section 5.2, *Transportation and Marketing of Petroleum Liquids*. It was assumed that dedicated ethanol tanks were not used for truck loadout. Therefore, loading loss emissions were calculated using gasoline as the displaced vapor. For rail loadout emissions, dedicated ethanol tanks were used to determine loading loss.

Haul Roads

Unpaved haul road emissions were obtained from AP-42, Section 13.2.2, *Unpaved Roads* (9/98). A control efficiency of 95% is given to the haul roads for paving and undocumented watering. In addition, seasonal truck traffic restrictions are set forth in this permit as required to meet air quality modeling standards. Daily and annual truck traffic records are required for compliance with the Non-Harvest and Harvest Season traffic patterns and annual limits.

Testing by other ethanol installations has demonstrated that VOC, CO, and HAPs are emitted from these processes in larger quantities than previously expected. Since Bootheel Agri-Energy LLC is a named source, the major source level for this installation is 100 tons per year of any criteria air pollutant, 10 tons per year for each individual HAP and 25 tons per year for aggregate HAPs. Therefore, a 100-ton per year limitation was set forth on the emissions of VOC and CO, each and a 10/25-ton per year limit was given for HAPs. The HAPs of concern from these processes are acetaldehyde, acrolein, formaldehyde and methanol. However, acetaldehyde is the HAP with the greatest emission rate.

Performance tests required by this permit will verify the emission rate of the aforementioned HAPs and determine compliance with the emission limitation given in Special Condition 1(D). If these limitations are exceeded, the applicant will be required to curtail production or install control equipment to meet these limitations.

This is a new installation. Therefore, no existing potential or actual emissions were

determined. The installation conditioned potential emissions were based upon findings from other ethanol plants. Special conditions for emissions of VOC, HAPs and CO are required for review under Section (6) of Missouri State Rule 10 CSR 10-6.060 rather than for major source review under Section (8) or Section (9). These limitations were requested by the applicant. The following table provides an emissions summary for this project.

Table 1: Emissions Summary (tons per year)

Pollutant	Regulatory <i>De Minimis</i> Levels	Existing Potential Emissions	Existing Actual Emissions (EIQ)	Potential Emissions of the Application**	New Installation Conditioned Potential
PM ₁₀	15.0	N/A	N/A	50.09	<100
SO _x	40.0	N/A	N/A	45.65	N/A
NO _x	40.0	N/A	N/A	97.13	N/A
VOC	40.0	N/A	N/A	98.66	<100
CO	100.0	N/A	N/A	95.52	<100
HAPs	10.0/25.0	N/A	N/A	16.61	<10/<25

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

** Findings from other ethanol plants have indicated that VOC, CO, and HAP emissions are greater than previously expected. Therefore, the emissions of equipment in this application are limited to below major source levels.

PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (6) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of criteria air pollutants and HAPs are conditioned to minor source levels.

APPLICABLE REQUIREMENTS

Bootheel Agri-Energy 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.

GENERAL REQUIREMENTS

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

The emission fee is the amount established by the Missouri Air Conservation Commission annually under Missouri Air Law 643.079(1). Submission of an Emissions Inventory Questionnaire (EIQ) is required April 1 for the previous year's emissions.

- *Operating Permits*, 10 CSR 10-6.065
- *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 10-3.090

SPECIFIC REQUIREMENTS

- *Restriction of Emission of Particulate Matter From Industrial Processes*, 10 CSR 10-6.400
- *New Source Performance Regulations*, 10 CSR 10-6.070 – *New Source Performance Standards (NSPS) for Small Industrial-Commercial-Institutional Steam Generating Units*, 40 CFR Part 60, Subpart Dc
- *New Source Performance Regulations*, 10 CSR 10-6.070 – *New Source Performance Standards (NSPS) for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry*, 40 CFR Part 60, Subpart VV
- *New Source Performance Regulations*, 10 CSR 10-6.070 – *New Source Performance Standards (NSPS) for Volatile Organic Liquid Storage Vessels for Which Construction, Reconstruction or Modification Commenced After July 23, 1984*, 40 CFR Part 60, Subpart Kb
- *Maximum Allowable Emissions of Particulate Matter From Fuel Burning Equipment Used for Indirect Heating*, 10 CSR 10-3.060

AMBIENT AIR QUALITY IMPACT ANALYSIS

A refined modeling study for PM₁₀, SO₂, NO_x and CO was submitted for review as required in 10 CRS 6.060 (6) General Requirements for Construction or Emissions Increases Greater Than *De Minimis* Levels. For more details on the modeling analysis, please refer to the memo from Dawn Froning with the subject title of *Bootheel Agri-Energy, LLC Ambient Air Quality Impact Analysis (AAQIA)-December 6, 2006 Submittal*.

First, a preliminary model analysis was completed by the applicant to determine if a full impact model analysis was necessary. This analysis included only the proposed source to determine if a significant modeled impact would take place. For models that predict the high first high to be below the thresholds outlined in 10 CSR 10-6.060 (11)(D) Table

4, no further analysis is necessary. Table 2 compares the significant air quality standard for each pollutant and time period to the installation's predicted impact. Based on the significant impact of the installation, no further analysis of CO was conducted.

Table 2: Comparison of modeled impacts and significant impact thresholds

Pollutant	Time Period	Significant Impact Threshold ($\mu\text{g}/\text{m}^3$)	Modeled Impact ($\mu\text{g}/\text{m}^3$)	Full Analysis Required
PM ₁₀	24-hour	5	24.24	Yes
	Annual	1.0	4.26	
SO _x	3-hour	25	19.13	Yes
	24-hour	5	8.87	
	Annual	1.0	1.48	
NO _x	Annual	1.0	3.47	Yes
CO	1-hour	2000	81.39	No
	8-hour	500	47.26	

The significance levels for NO_x, SO₂, and PM₁₀ were exceeded, thereby triggering a full impact analysis including an evaluation of compliance with the National Ambient Air Quality Standard (NAAQS) for each pollutant. Table 3 compares the NAAQS to the installation's modeled impacts. If no exceedances were modeled, no further analysis was conducted. For modeled exceedances, each violating receptor was evaluated to determine if a significant impact occurred at the violating receptor. Compliance with the standard was demonstrated if there was not a significant impact on the violating receptor. Based on the modeled impact of the installation, NO_x, SO₂, and PM₁₀ are in compliance with the NAAQS.

Table 3: Comparison of modeled impacts and NAAQS

Pollutant	Time Period	NAAQS ($\mu\text{g}/\text{m}^3$)	Modeled Impact ($\mu\text{g}/\text{m}^3$)	Modeled Exceedance?	Significant Impact on Violating Receptor?
PM ₁₀	24-hour	150	1125.59	Yes	No
	Annual	50	103.57	Yes	
SO _x	3-hour	1300	738.92	No	N/A
	24-hour	365	292.95	No	
	Annual	80	51.31	No	
NO _x	Annual	100	15.23	No	N/A

In addition to demonstrating compliance with the NAAQS for these pollutants, Bootheel Agri-Energy, LLC must demonstrate that they will not deteriorate the air quality beyond the limits outlined in 10 CSR 10-6-060 (11)(A) Table 1. Table 4 compares the increment standards to the installation's modeled impacts. Similar to a NAAQS compliance demonstration, if no exceedances were modeled, no further analysis was conducted. For modeled exceedances, each violating receptor was evaluated to determine if a significant impact occurred at the violating receptor. Based on the modeled impact of the installation, NO_x, SO₂, and PM₁₀ are in compliance with the increment standard.

Table 4: Comparison of modeled impacts and increment standards

Pollutant	Time Period	Increment ($\mu\text{g}/\text{m}^3$)	Modeled Impact ($\mu\text{g}/\text{m}^3$)	Modeled Exceedance?	Significant Impact on Violating Receptor?
PM ₁₀	24-hour	30	453.2	Yes	No

	Annual	17	57.22	Yes	
SO _x	3-hour	512	205.23	No	N/A
	24-hour	91	53.92	No	
	Annual	20	10.00	No	
NO _x	Annual	25	7.57	No	N/A

The modeling analysis was based on site specific information such as emission rates and daily truck traffic patterns. In order to ensure the integrity of the modeled impacts, special conditions on site specific information have been set forth.

STAFF RECOMMENDATION

On the basis of this review conducted in accordance with Section (6), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*, I recommend this permit be granted with special conditions.

Emily E. Wilbur
Environmental Engineer

Date

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated May 1, 2006, received May 2, 2006, designating Bootheel Agri-Energy LLC as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.
- Manufacturer's Data
- Memo from Dawn Froning, subject title: *Bootheel Agri-Energy, LLC Ambient Air Quality Impact Analysis (AAQIA)-December 6, 2006 Submittal*
- Kansas City Regional Office Site Survey.

Attachment A – Monthly PM₁₀ Emission Tracking Record

Bootheel Agri-Energy LLC
 Scott County, S2, T24N, R13E
 Project Number: 2006-05-007
 Installation ID Number: 201-0119
 Permit Number: _____

This sheet covers the period from _____ to _____.
 (month, year) (month, year)

Copy this sheet as needed

Column A	Column B	Column C	Column D	Column E
Emission Point(s)	Description	Amount Processed	PM ₁₀ Emission Factor	(a) PM ₁₀ Emissions (tons)
(b) Total PM ₁₀ Emissions Calculated for this Month in Tons:				
(c) 12-Month PM ₁₀ Emissions Total From Previous Month's Attachment A, in Tons:				
(d) Monthly PM ₁₀ Emissions Total (b) from Previous year's Attachment A, In Tons:				
(e) Current 12-month Total of PM ₁₀ Emissions in Tons : [(b) + (c) - (d)]				

- (a) [Column E] = [Column C] x [Column D] x 0.0005. Emission factor obtained from performance tests required by this permit
- (b) Summation of [Column E] in Tons;
- (c) 12-Month PM₁₀ emissions total (e) from last month's Attachment A, in Tons;
- (d) Monthly PM₁₀ emissions total (b) from previous year's Attachment A, in Tons;
- (e) Calculate the new 12-month PM₁₀ emissions total.

A 12-Month PM₁₀ emissions total (e) of less than 100.0 tons indicates compliance.

Attachment B - Monthly VOC Emission Tracking Record

Bootheel Agri-Energy LLC
 Scott County, S2, T24N, R13E
 Project Number: 2006-05-007
 Installation ID Number: 201-0119
 Permit Number: _____

This sheet covers the period from _____ to _____.
 (month, year) (month, year)

Copy this sheet as needed

Column A	Column B	Column C	Column D	Column E
Emission Point(s)	Description	Amount Processed	VOC Emission Factor	(a) VOC Emissions (tons)
(b) Total VOC Emissions Calculated for this Month in Tons:				
(c) 12-Month VOC Emissions Total From Previous Month's Attachment B, in Tons:				
(d) Monthly VOC Emissions Total (b) from Previous year's Attachment B, In Tons:				
(e) Current 12-month Total of VOC Emissions in Tons : [(b) + (c) - (d)]				

- (a) [Column E] = [Column C] x [Column D] x 0.0005. Emission factor obtained from performance tests required by this permit
- (b) Summation of [Column E] in Tons;
- (c) 12-Month VOC emissions total (e) from last month's Attachment B, in Tons;
- (d) Monthly VOC emissions total (b) from previous year's Attachment B, in Tons;
- (f) Calculate the new 12-month VOC emissions total.

A 12-Month VOC emissions total (e) of less than 100.0 tons indicates compliance.

Attachment C: Monthly CO Emission Tracking Record

Bootheel Agri-Energy LLC
 Scott County, S2, T24N, R13E
 Project Number: 2006-05-007
 Installation ID Number: 201-0119
 Permit Number: _____

This sheet covers the period from _____ to _____.
(month, year) (month, year)

Copy this sheet as needed

Column A	Column B	Column C	Column D	Column E
Emission Point(s)	Description	Amount Processed	CO Emission Factor	(a) CO Emissions (tons)
(b) Total CO Emissions Calculated for this Month in Tons:				
(c) 12-Month CO Emissions Total From Previous Month's Attachment C, in Tons:				
(d) Monthly CO Emissions Total (b) from Previous year's Attachment C, In Tons:				
(e) Current 12-month Total of CO Emissions in Tons : [(b) + (c) - (d)]				

- (a) [Column E] = [Column C] x [Column D] x 0.0005. Emission factor obtained from performance tests required by this permit.
- (b) Summation of [Column E] in Tons;
- (c) 12-Month CO emissions total (e) from last month's Attachment C, in Tons;
- (d) Monthly CO emissions total (b) from previous year's Attachment C, in Tons;
- (g) Calculate the new 12-month CO emissions total.

A 12-Month CO emissions total (e) of less than 100.0 tons indicates compliance.

Attachment D: Monthly Individual HAP Emission Tracking Record

Bootheel Agri-Energy LLC
 Scott County, S2, T24N, R13E
 Project Number: 2006-05-007
 Installation ID Number: 201-0119
 Permit Number: _____

HAP Name: _____ CAS No.: _____

This sheet covers the period from _____ to _____.
(month, year) (month, year)

Copy this sheet as needed

Column A	Column B	Column C	Column D	Column E
Emission Point(s)	Description	Amount Processed	Individual HAP Emission Factor	(a) Individual HAP Emissions (tons)
(b) Total Individual HAP Emissions Calculated for this Month in Tons:				
(c) 12-Month Individual HAP Emissions Total From Previous Month's Attachment D, in Tons:				
(d) Monthly Individual HAP Emissions Total (b) from Previous year's Attachment D, In Tons:				
(e) Current 12-month Total of Individual HAP Emissions in Tons : [(b) + (c) - (d)]				

- (a) [Column E] = [Column C] x [Column D] x 0.0005. Emission factor obtained from performance tests required by this permit.
- (b) Summation of [Column E] in Tons;
- (c) 12-Month Individual HAP emissions total (e) from last month's Attachment D, in Tons;
- (d) Monthly Individual HAP emissions total (b) from previous year's Attachment D, in Tons;
- (h) Calculate the new 12-month Individual HAP emissions total.

A 12-Month Individual HAP emissions total (e) of less than 10.0 tons indicates compliance.

Attachment E: Monthly Combined HAP Emission Tracking Record

Bootheel Agri-Energy LLC
 Scott County, S2, T24N, R13E
 Project Number: 2006-05-007
 Installation ID Number: 201-0119
 Permit Number: _____

This sheet covers the period from _____ to _____.
 (month, year) (month, year)

Copy this sheet as needed

Column A	Column B	Column C	Column D	Column E
Emission Point(s)	Description	Amount Processed	HAP Emission Factor	(a) HAP Emissions (tons)
(b) Total HAP Emissions Calculated for this Month in Tons:				
(c) 12-Month HAP Emissions Total From Previous Month's Attachment E, in Tons:				
(d) Monthly HAP Emissions Total (b) from Previous year's Attachment E, In Tons:				
(e) Current 12-month Total of HAP Emissions in Tons : [(b) + (c) - (d)]				

- (a) $[\text{Column E}] = [\text{Column C}] \times [\text{Column D}] \times 0.0005$. Emission factor obtained from performance tests required by this permit.
 - (b) Summation of [Column E] in Tons;
 - (c) 12-Month HAP emissions total (e) from last month's Attachment E, in Tons;
 - (d) Monthly HAP emissions total (b) from previous year's Attachment E, in Tons;
 - (i) Calculate the new 12-month HAP emissions total.
- A 12-Month HAP emissions total (e) of less than 25.0 tons indicates compliance.**

Mr. Bill Holmes
Chairman of Environmental Compliance
Bootheel Agri-Energy LLC
769 State Hwy CC
Oran, MO 63771

RE: New Source Review Permit - Project Number: 2006-05-007

Dear Mr. Holmes:

Enclosed with this letter is your permit to construct. Please study it carefully. 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 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.

If you have any questions regarding this permit, please do not hesitate to contact me at (573) 751-4817, or you may write to me at the Department of Natural Resources' Air Pollution Control Program, P.O. Box 176, Jefferson City, Missouri 65102.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Kendall B. Hale
New Source Review Unit Chief

KBH:ewl

Enclosures

c: Kansas City Regional Office
PAMS File 2006-05-007

Permit Number: