

STATE OF 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: **122009-004** Project Number: 2009-08-057

Parent Company: Renewable Carbon Energies, LLC

Parent Company Address: 7903 Sumpter Road, Raymondville, MO 65555

Installation Name: Renewable Carbon Energies, LLC

Installation Address: 7903 Sumpter Road, Raymondville, MO 65555

Location Information: Texas County, S1, T30N, R9W

Application for Authority to Construct was made for:
The installation of a natural lump charcoal screening and bagging operation. 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 - 4 2009

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 departments' 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 within 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.

Page No.	3
Permit No.	
Project No.	2009-08-057

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."

Renewable Carbon Energies, LLC
Texas County, S1, T30N, R9W

1. Capture Device Requirements
 - A. Renewable Carbon Energies, LLC shall capture emissions from the hopper and conveyor (EU05 and EU06) with hoods. A hood is a shaped inlet to a pollution control system that does not totally surround emissions from an emissions unit.
 - B. Renewable Carbon Energies, LLC shall capture emissions from the following emission units (EU07-EU15, EU20 and EU21) with a total enclosure. A total enclosure is an enclosure that completely surrounds emissions from an emissions unit.
 - C. Renewable Carbon Energies, LLC shall capture emissions from the following emission units (EU16-EU19) by enclosing them inside a building with baghouse suction at dust collection points which shall function as a total enclosure.
2. Control Device Requirement – Baghouses
 - A. Renewable Carbon Energies, LLC shall control emissions from the screening and bagging operations (EU05-EU21) using baghouses (CD03-CD05) as specified in the permit application. The baghouses shall be operated and maintained in accordance with the manufacturer's specifications. Each baghouse shall be equipped with a gauge or meter, which indicates the pressure drop across the control device. These gauges or meters shall be located such that the DNR employees may easily observe them. 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).
 - B. Renewable Carbon Energies, LLC shall monitor and record the operating pressure drop across the baghouses at least once every 24 hours. The

Page No.	4
Permit No.	
Project No.	2009-08-057

SPECIAL CONDITIONS:

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

operating pressure drop shall be maintained within the design conditions specified by the manufacturer's performance warranty.

- C. Renewable Carbon Energies, 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.

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

Project Number: 2009-08-057
Installation ID Number: 215-0003
Permit Number:

Renewable Carbon Energies, LLC
7903 Sumpter Road
Raymondville, MO 65555

Complete: August 25, 2009

Parent Company:
Renewable Carbon Energies, LLC
7903 Sumpter Road
Raymondville, MO 65555

Texas County, S1, T30N, R9W

REVIEW SUMMARY

- Renewable Carbon Energies, LLC has applied for the authority to construct a screening and bagging operation for the production of natural lump charcoal.
- Hazardous Air Pollutant (HAP) emissions are not expected from the proposed equipment.
- None of the New Source Performance Standards (NSPS) apply to the proposed equipment.
- 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 (CD03-CD06) are being used to control the Particulate Matter less than 10 microns in diameter (PM₁₀) emissions from the equipment in this permit (EU05-EU21).
- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Controlled potential emissions of PM₁₀ are below de minimis levels.
- This installation is located in Texas 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 25, *Charcoal production facilities*.
- Ambient air quality modeling was not performed since potential emissions of the application are below de minimis levels.

- Emissions testing is required for the source; however, testing is not required for the emission units reviewed for this permit. Afterburner #2 which controls emissions for kilns 1-6 (EU01A-EU01F) needs to be tested to demonstrate compliance with 10 CSR 10-6.330 *Restriction of Emissions from Batch-Type Charcoal Kilns*.
- No Operating Permit is required for this installation.
- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

Renewable Carbon Energies, LLC (Renewable Energies) is an existing charcoal production facility located in Raymondville, Missouri in Texas County. This site was formerly owned by Thomason Charcoal and operated by Royal Oak Enterprises, Incorporated (Royal Oak). Royal Oak received permit number 072002-006 for the installation of 3 new charcoal kilns and two sawdust-fired afterburner controls. As a result of that project, the facility's potential emissions were reduced from major source levels to minor source levels, and Royal Oak requested that their Part 70 operating permit be terminated. The sawdust-fired afterburners did not pass performance testing requirements, and on February 15, 2005 Royal Oak shut down all operating kilns at the Raymondville site in compliance with a 1997 Consolidated Consent Agreement and Consent Order between Royal Oak and the Environmental Protection Agency (EPA).

GoldStar Charcoal purchased the facility in 2006 and replaced the sawdust-fired afterburners with propane-fired afterburners. Afterburner #1 (CD01), which controls emissions from kilns 7-12 (EU01G – EU01L), passed the performance test requirements on February 13, 2007. Kilns 1-6 (EU01A-EU01F) have not operated since being shut down in 2005, and therefore afterburner #2 (CD02), which controls emissions from these kilns, was not tested before GoldStar Charcoal ceased operations in 2008.

GoldStar Charcoal also planned to install a natural lump charcoal screening and bagging operation. GoldStar Charcoal was issued a permit applicability determination for this project from the Air Pollution Control Program on August 14, 2006. At that time, controlled potential emissions of criteria pollutants were used to determine permit applicability, and a construction permit was not required for the proposed screening and bagging operation. However, this project was not installed as planned. Renewable Energies purchased the site in 2009 and plans to finish the construction of the screening and bagging operation. Since the original determination for this project, the Air Pollution Control Program has changed its policy and no longer considers controls in determining permit applicability. Therefore, a construction permit is now required for the installation of a screening and bagging operation for natural lump charcoal.

An operating permit has not been issued to this facility since its Part 70 operating permit was terminated in 2005. The following construction permits have been issued to this site from the Air Pollution Control Program.

Table 1: Previously Issued Construction Permits

Permit Number	Description
072002-006	Project number 2002-06-023 was reviewed for the construction of 3 new charcoal kilns and 2 afterburner controls

PROJECT DESCRIPTION

Renewable Energies proposes to install a screening and bagging operation consisting of the emission units listed in Table 2 labeled as new. The maximum hourly design rate (MHDR) of each emission unit along with its corresponding control device are also shown in Table 2. The MHDR of the screening and bagging system corresponds to the MHDR of 1.03 tons per hour for the twelve existing charcoal kilns.

Table 2: Summary of Emission Units

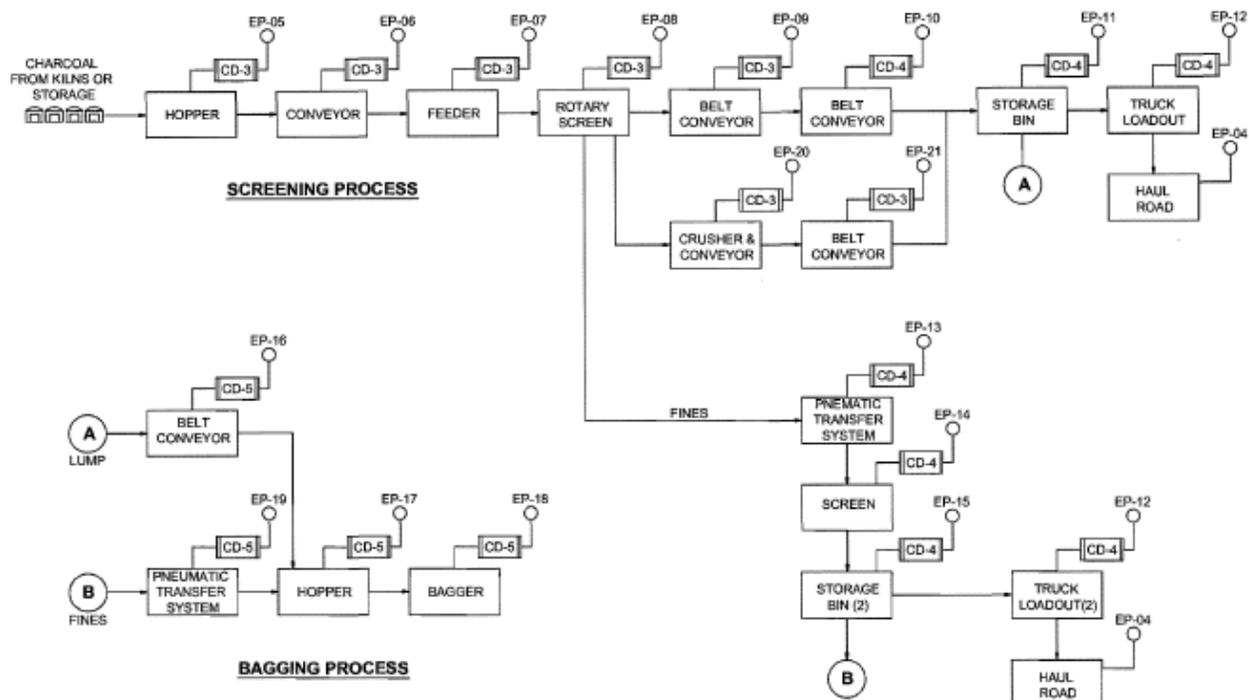
Emission Unit ID	Description	MHDR (tons/hr)	Control Device ID	Control Device	Project
EU01A-EU01F	Kilns 1-6	0.51	CD02	Afterburner	Existing
EU01G-EU01L	Kilns 7-12	0.51	CD01	Afterburner	Existing
EU02	Unload Kilns Load Trucks	1.03	N/A	N/A	Existing
EU03	Storage Pile	1.03	N/A	N/A	Existing
EU03 ^[1]	Storage Pile	0.25	N/A	N/A	Existing
EU04 ^[2]	Haul Road	0.16	N/A	N/A	Existing
EU05	Hopper	1.03	CD03	Baghouse	New
EU06	Conveyor	1.03	CD03	Baghouse	New
EU07	Feeder	1.03	CD03	Baghouse	New
EU08	Screen	1.03	CD03	Baghouse	New
EU09	Conveyor	0.82	CD03	Baghouse	New
EU10	Conveyor	0.82	CD04	Baghouse	New
EU11	Storage Bin	0.82	CD04	Baghouse	New
EU12	Truck Loadout	1.03	CD04	Baghouse	New
EU13	Conveyor	0.21	CD04	Baghouse	New
EU14	Screen	0.21	CD04	Baghouse	New
EU15	Storage Bin (2)	0.21	CD04	Baghouse	New
EU16	Conveyor	0.82	CD05	Baghouse	New
EU17	Hopper	0.82	CD05	Baghouse	New
EU18	Bagger	0.82	CD05	Baghouse	New
EU19	Conveyor	0.21	CD05	Baghouse	New
EU20	Crusher	0.31	CD03	Baghouse	New
EU21	Conveyor	0.31	CD03	Baghouse	New

¹MHDR units are acres.

²MHDR units are vehicle miles traveled (VMT).

The following process flow diagram shows the proposed screening and bagging operations.

Figure 1: Process Flow Diagram for the Screening and Bagging Operations



As of permit issuance, afterburner #2 (CD02) has not yet demonstrated compliance with emission limits. In the interim, Renewable Energies has requested permission to vent emissions from kilns 1-6 (EU01A-EU01F) to Afterburner #1 (CD01) so that maintenance may be performed on kilns 7-12 (EU01G-EU01L). Since Afterburner #1 (CD01) has demonstrated compliance with applicable emission limits and kilns 1-6 (EU01A-EU01F) are identical in size and design to kilns 7-12 (EU01G-EU01L), Afterburner #1 (CD01) may be used to control emissions from either bank of kilns as long as no more than 3 kilns are in the burn phase of operation simultaneously. An added benefit of this proposed interconnection is control equipment redundancy in the event of an afterburner malfunction.

EMISSIONS/CONTROLS EVALUATION

The pollutant of concern for the screening and bagging operations is PM₁₀. Baghouse dust collectors (CD03-CD06) will be used to control the PM₁₀ emissions from each emission unit (EU05 through EU21). Emissions from EU05 and EU06 will be captured with hoods having an expected capture efficiency exceeding 60%. All other emission units (EU07-EU21) are designed with a total enclosure that completely surrounds emissions from the emissions units. Total enclosures are assumed to have 100% capture efficiency. A control efficiency of 99.5% was allowed for the emissions captured and vented to the baghouses (CD03-CD06). Emission factors were obtained from the Factor Information Retrieval (FIRE) Data System V6.24 and the control efficiency was obtained from the Environmental Protection Agency (EPA) document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, Appendix B.2 *Generalized*

Particle Size Distributions (September 1996). Potential emissions of the application represent the potential of the new equipment, assuming continuous operation (8760 hours per year.) The following table provides an emissions summary for this project.

Table 3: Emissions Summary (tons per year)

Pollutant	Regulatory <i>De Minimis</i> Levels	Existing Potential Emissions ^[1]	Existing Actual Emissions (2007 EIQ)	Potential Emissions of the Application	New Installation Conditioned Potential
PM ₁₀	15.0	13.73	0.48	0.69	N/A
SO _x	40.0	N/D	N/D	N/A	N/A
NO _x	40.0	22.50	3.53	N/A	N/A
VOC	40.0	2.08	0.5	N/A	N/A
CO	100.0	15.34	0.5	N/A	N/A
HAPs	10.0/25.0	N/D	N/D	N/A	N/A

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

¹The existing potential emissions were provided by the applicant for this project.

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 PM₁₀ are below de minimis levels.

APPLICABLE REQUIREMENTS

Renewable Carbon Energies, 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 June 1 for the previous year's emissions.
- *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
- *Restriction of Emissions from Batch-Type Charcoal Kilns*, 10 CSR 10-6.330

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.

Kathi Jantz
Environmental Engineer

Date

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated August 24, 2009, received August 25, 2009, designating Renewable Carbon Energies, LLC as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.
- Southeast Regional Office Site Survey, dated August 31, 2009.

Mr. Roger Wilson
Organizer
Renewable Carbon Energies, LLC
7903 Sumpter Road
Raymondville, MO 65555

RE: New Source Review Permit - Project Number: 2009-08-057

Dear Mr. Wilson:

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 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 Kathi Jantz, at the Departments' 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

Kendall B. Hale
New Source Review Unit Chief

KBH:kjl

Enclosures

c: Southeast Regional Office
PAMS File: 2009-08-057

Permit Number: