

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: 082010-008      Project Number: 2009-10-057

Parent Company:              City of Sedalia

Parent Company Address: 200 S. Osage Avenue, Sedalia, MO 65301

Installation Name:              City of Sedalia

Installation Address:              27882 Highway U, Sedalia, MO 65301 and 28<sup>th</sup> Street and  
New York Ave, Sedalia, MO 65301

Location Information:              S15, T45N, R21W and S11, T45N, R21W

Application for Authority to Construct was made for:

The installation of a yard waste grinding facility and a composting facility. The grinding facility was constructed prior to receipt of permit from the Air Pollution Control Program and this permit is part of a remedial enforcement action required by the Air Pollution Control Program. The composting facility has not been built. 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.

AUG 23 2010

\_\_\_\_\_  
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 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 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.	2009-10-057

**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."*

City of Sedalia

Pettis County (S15, T45N, R21W and S11, T45N, R21W)

**1. Emission Limitation**

A. The City of Sedalia shall emit less than 15.0 tons of particulate matter less than ten (10) microns in diameter (PM<sub>10</sub>) in any consecutive 12-month period from the entire installation, which includes both the grinding and composting facility. The emission points for the installation are given below:

- 1) For the Grinding Facility
  - a.) Raw Material Storage Piles
  - b.) Tub Grinder
  - c.) Diesel Engine for the Tub Grinder
  - d.) Product Storage Piles
- 2) For the Composting Facility
  - a.) Raw Material Hauling
  - b.) Wood Chip/Biosolids Storage Piles
  - c.) Mixer
  - d.) Processing/Curing/Finishing Storage Piles
  - e.) Screen
  - f.) Product Hauling

B. Attachment A or equivalent forms, such as electronic forms, approved by the Air Pollution Control Program shall be used to demonstrate compliance with Special Conditions 1.A.

**2. Control Device Requirements – Biofilter**

The City of Sedalia shall control odor and VOC emissions from the composting/curing/finishing storage piles at the composting facility using a biofilter as specified in the permit application.

**3. Nuisance Odor and Corrective Action**

If a continuing situation of demonstrated nuisance odor exists in violation of 10 CSR 10-2.070, *Restriction of Emission of Odors*, the Director may require the City of Sedalia to submit a corrective action plan within thirty (30) days adequate to timely and significantly mitigate the odors. The City of Sedalia shall implement any such plan immediately upon its approval by the Director. Failure to either

Page No.	4
Permit No.	
Project No.	2009-10-057

**SPECIAL CONDITIONS:**

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

submit or implement such a plan shall be a violation of this permit.

**4. Record Keeping and Reporting Requirements**

- A. The City of Sedalia 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.
  
- B. City of Sedalia shall report to the Air Pollution Control Program's Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than ten days after the end of the month during which any record required by this permit show an exceedance of a limitation imposed by this permit.

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

Project Number: 2009-10-057  
Installation ID Number: 159-0066  
Permit Number:

City of Sedalia  
27882 Highway U  
Sedalia, MO 65301

Complete: October 21, 2009

28<sup>th</sup> Street and New York Avenue  
Sedalia, MO 65301

Parent Company:  
City of Sedalia  
200 S. Osage Avenue  
Sedalia, MO 65301  
Pettis County (S15, T45N, R21W and S11, T45N, R21W)

REVIEW SUMMARY

- The City of Sedalia has applied for authority to construct a yard waste grinding facility and a composting facility.
- Hazardous Air Pollutant (HAP) emissions are expected from the combustion of diesel fuel and the operation of the composting facility but only in negligible amounts.
- Subpart III, *Standards of Performance for Stationary Compression Ignition Internal Combustion Engines*, of the New Source Performance Standards (NSPS) applies to the diesel engine of the grinder.
- Subpart ZZZZ, *National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*, of the Maximum Achievable Control Technology (MACT) applies to the diesel engine of the grinder.
- None of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) applies to this installation.
- A woodchip biofilter will be used to control VOC emissions from the compost and curing piles from the composting facility.
- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, Construction Permits Required. Potential emissions of PM<sub>10</sub> are conditioned below *de minimis* levels. The potential emissions of all other pollutants are below their respective *de minimis* levels.
- This installation is located in Pettis County, an attainment area for all criteria pollutants.
- This installation is not on the List of Named Installations found in 10 CSR 10-6.020(3)(B), Table 2. The installation's major source level is 250 tons per year and fugitive emissions are not counted toward major source applicability.

- Ambient air quality modeling was not performed since the potential emissions of the application are conditioned below de minimis levels.
- Emissions testing are not required for the equipment as a condition of this permit.
- No operating permit is required for this installation.
- Approval of this permit is recommended with special conditions.

#### INSTALLATION/PROJECT DESCRIPTION

The City of Sedalia has applied for authority to construct a yard waste grinding facility and a composting facility. The two facilities are located at different locations in the city, a few miles apart. The grinding facility receives yard wastes from the public and grinds the wastes before transporting them to the composting facility. The yard waste grinding facility was built prior to receipt of permit from the Air Pollution Control Program and this permit is a remedial enforcement action required by the Air Pollution Control Program. The compost facility has not been built yet. The grinding facility has a maximum hourly design rate of fourteen (14) tons per hour and is powered by a 0.012 Mgal/hr diesel engine. The composting facility has a maximum hourly design rate of 12.50 tons per hour and all equipment will be located inside a building. The composting facility will be powered through electrical line power and no diesel engine will be used. No control devices will be used to control emissions at the grinding facility. A biofilter will be installed at the composting facility to control odor from the composting/curing/finishing storage piles, but this device is expected to also control VOC emissions.

Even though the facilities are located at different sites, they are considered part of the same installation. The code of federal regulations defines a stationary source as all of the emission units that meet all three (3) of these criteria: In the same industrial grouping, on contiguous or adjacent property and under common control. Since the two facilities are owned by the same entity, the City of Sedalia, the facilities are under common control. In determining whether the two (2) facilities have the same SIC codes, the deciding factor is whether one facility should be considered a support facility for the other. Guidance from the Environmental Protection Agency (EPA) suggests that the SIC code should be determined by the primary economic activity and that if one facility can be considered a support facility for another, then both facilities should be considered to have the same SIC code. Since the grinding facility transports all of its final product to the compost facility and the City of Sedalia has always planned on establishing two (2) facilities for the composting of yard waste, the primary activity is the composting of yard waste and the grinder is a support facility for the composting plant.

The definition of "adjacent" leaves considerable gray area for interpretation. "Adjacent" may mean close to, nearby, next to, or adjoining. In a letter issued by the EPA on August 8, 1997, it was determined that "Distance between the operations is not nearly as important in determining if the operations are part of the same source as the possible support that one operation provides for another." Therefore, the fact that the grinding facility is a few miles away from the compost facility does not preclude them from being considered the same installation. The support relationship that exists between them suggests that these plants can be considered "adjacent." The EPA has determined, in some cases, that plants as far as 20 miles apart can be considered "adjacent." This installation is a minor source for construction permits. No operating permit is required because the conditioned potential emissions of PM<sub>10</sub> and the unconditioned potential emissions of

all other pollutants are below their respective *de minimis* levels. Even though the diesel engine is subject to subpart IIII of the NSPS and subpart ZZZZ of the MACT, this facility is not required to obtain an operating permit because these subparts have a condition that exempts a facility from obtaining an operating permit if the only reason that a facility would be required to obtain an operating permit is because it is subject to these subparts.

Maintaining compliance with Missouri State Rules 10 CSR 10-3.090, *Restriction of Emission of Odors* is a concern for composting facilities. Therefore, the standard wording for the nuisance odor condition was included as a special condition of this permit.

### EMISSIONS/CONTROLS EVALUATION

Emissions for the project were calculated using emission factors (EF) found in various sources. Table 2 lists the emission units and the sources of the emission factors.

**Table 1: Sources of Emission Factors**

Emission Unit	Pollutant	<sup>1</sup> EF Source	Comments
Haul Roads and Vehicular Activities (Both Facilities)	PM <sub>10</sub>	AP-42, Section 13.2.2, <i>Unpaved Roads</i> , (11/06)	No control devices/measures used.
Storage Pile Load-In and Load-Out (Both Facilities)	PM <sub>10</sub>	AP-42, Section 13.2.4, <i>Aggregate Handling and Storage Piles</i> , (11/06)	Used a moisture content of 5.0 % in the predictive equation which is considered conservative for yard waste.
Wind Erosion of Storage Piles (Both Facilities)	PM <sub>10</sub>	EPA document <i>Air/Superfund National Technical Guidance Study Series, Volume III – Estimation of Air Emissions from Cleanup Activities at Superfund Sites</i> , Interim Final Report (1/89)	According to AP-42, Chapter 13.2.5, <i>Industrial Wind Erosion</i> (11/6), 50% of total suspended particulates (TSP) are PM <sub>10</sub> . Since the equation calculates TSP, it was multiplied by 0.5 to obtain PM <sub>10</sub> emissions. A 3.7% control was given for enclosing the storage pile in a building,
Tub Grinder (Grinding Facility Only)	PM <sub>10</sub>	Factor Information Retrieval System (FIRE), scc 3-07-008-01, Factor for Log Debarking.	No control devices are used.
Diesel Engine (Grinding Facility Only)	PM <sub>10</sub> , NO <sub>x</sub> , SO <sub>x</sub> , CO, VOC and HAPs	AP-42, Section 3.3, <i>Gasoline and Diesel Industrial Engines</i>	N/A
Mixer (Composting Facility)	PM <sub>10</sub>	Factor Information Retrieval System (FIRE), scc 3-07-008-01, Factor for Log Debarking.	A 3.7% control efficiency was used because the equipment will be located in a building.
Screen (Composting Facility)	PM <sub>10</sub>	Factor Information Retrieval System (FIRE), scc 3-07-008-01, Factor for Log Debarking.	A 3.7% control efficiency was used because the equipment will be located in a building.
Composting Piles	VOC	Report Titled “Organic Material Composting and Drying Focusing on Greenwaste Compost, Air Emissions Data Review” from the San Joaquin Valley Air Pollution Control District	Emission factor is based on testing at the Modesto Compost Facility in the San Joaquin Valley, CA. The report consists of data from various composting facilities but the Modest Compost Facility is deemed to be the most similar to the City of Sedalia composting facility
Composting Piles	HAPs	EPA Landfill gas Emissions Model (LandGem) Program	No HAP emission factor can be found for composting piles. Decided to use the EPA program for landfills to estimate emissions

N/A – Not Applicable Note 1: AP-42 is the Environmental Protection Agency (EPA) document, *Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Areas Sources*, Fifth Edition.

The composting process generates nonmethane organic compounds (NMOC), hazardous air pollutants (HAPs), hydrogen sulfides (H<sub>2</sub>S) and volatile organic compounds (VOCs). VOCs react with other chemicals in the air to produce ground level ozone, a “criteria” pollutants subject to the Federal Clean Air Act. PM<sub>10</sub> are also generated from various equipment at both the grinding and composting facility. In Missouri, these air contaminants have regulatory *de minimis* levels and when the levels are exceeded, a permit is required. A number of greenhouse gases (methane and carbon dioxide (CO<sub>2</sub>)) are emitted as well, but are not currently regulated in Missouri and do not have a *de minimis* level.

There are no PM<sub>10</sub> emission factors available for wood chip grinding, mixing and screening. Therefore, the emission factor for log debarking was used for all three processes, which should give a conservative estimation of emissions. Emissions from the hauling of raw material into the grinding facility were not taken into account because they were considered negligible. The grinding facility does not have dedicated trucks for raw material transport. Instead, the public drops off their yard waste in personal vehicles.

Potential emissions of the application represent the potential of the new equipment, assuming continuous operation (8760 hours per year.) Table 2 provides an emissions summary for this project. The facility accepted a 15.0 tons per year limit for PM<sub>10</sub> so increment modeling would not be required. Emission factors that should be used to track PM<sub>10</sub> emissions are given in Attachment A.

Conditioned potential emissions of SO<sub>x</sub>, NO<sub>x</sub> and CO are the same as the unconditioned potential emissions of the application because only the grinding facility emits these pollutants. The grinding facility has the potential to emit only 12.64 tons per year of PM<sub>10</sub> and the installation can chose to operate the grinding facility at its maximum capacity during the year without violating the 15.0 tons per year PM<sub>10</sub> limit. When the grinding facility operates at its maximum capacity, it will emit all of the SO<sub>x</sub>, NO<sub>x</sub> and CO.

Both the grinding facility and the composting facility emit VOC and HAPs. The conditioned potential emissions for these pollutants are calculated by limiting the PM<sub>10</sub> emissions from the composting facility to less than 15.0 tons per year. This should give the maximum conditioned potential emissions since the composting facility has the higher VOC and HAP emissions. Only the composting facility emits H<sub>2</sub>S and its conditioned potential emissions are calculated by also limiting the PM<sub>10</sub> emissions from the composting facility to less than 15.0 tons per year.

**Table 2: Emissions Summary (tons per year)**

Pollutant	Regulatory De Minimis Levels	Existing Potential Emissions	Existing Actual Emissions	Potential Emissions of the Application	New Installation Conditioned Potential
PM <sub>10</sub> 15.0		N/A	N/A	72.72	<15.0
SO <sub>x</sub> 40.0		N/A	N/A 2.09		2.09
NO <sub>x</sub> 40.0 N/A			N/A 31.76		31.76
VOC 40.0		N/A	N/A 84.715		20.50
CO	100.0 N/A		N/A	6.84	6.84
H <sub>2</sub> S 10.0		N/A	N/A	0.093	0.023
HAPs 10.0/25.0		N/A N/A		2.04	0.50

N/A = Not Applicable, N/D = Not Determined  
Note 1: Hydrogen Sulfide

## PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Conditioned potential emissions of PM<sub>10</sub> and unconditioned potential emissions of all other pollutants are below their respective *de minimis* levels.

## APPLICABLE REQUIREMENTS

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

### GENERAL REQUIREMENTS

- *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

- *New Source Performance Regulations*, 10 CSR 10-6.070 – *New Source Performance Standards (NSPS) for Stationary Compression Ignition Internal Combustion Engines*, 40 CFR Part 60, Subpart IIII
- *Maximum Achievable Control Technology (MACT) Regulations*, 10 CSR 10-6.075, *National Emission Standards for Hazardous Air Pollutants For Stationary Reciprocating Internal Combustion Engines*, 40 CFR Part 63, Subpart ZZZZ

## 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.

---

Chia-Wei Young  
Environmental Engineer

---

Date

## PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated October 14, 2009, received October 26, 2009, designating City of Sedalia as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.

