

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: **032011-005** Project Number: 2010-09-041

Parent Company: Hansen's Environmental Wood Resources

Parent Company Address: 104 Hansen Court, O'Fallon, MO 63366

Installation Name: Hansen's Environmental Wood Resources

Installation Number: 183-0245

Installation Address: 104 Hansen Court, O'Fallon, MO 63366

Location Information: Saint Charles County, S19, T47N, R3E

Application for Authority to Construct was made for:
Colored mulch processing plant. 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.

MAR 10 2011

EFFECTIVE DATE

A handwritten signature in black ink, appearing to read "James L. Kavanagh".

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.

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Permit No.	
Project No.	2010-09-041

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."

Hansen's Environmental Wood Resources
Saint Charles County, S19, T47N, R3E

1. Emission Limitation
 - A. Hansen's Environmental Wood Resources shall emit less than 40.0 tons of nitrogen oxides (NO_x) combined in any consecutive 12-month period from the wood colored mulch processing engines EU-6A, EU-8A, EU-11A, and EU-16A.
 - 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 Condition 1.A.
2. Record Keeping and Reporting Requirements
 - A. Hansen's Environmental Wood Resources 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 Material Safety Data Sheets (MSDS) for all materials used
 - B. Hansen's Environmental Wood Resources 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: 2010-09-041
Installation ID Number: 183-0245
Permit Number:

Hansen's Environmental Wood Resources
104 Hansen Court
O'Fallon, MO 63366

Complete: November 17, 2010

Parent Company:
Hansen's Environmental Wood Resources
104 Hansen Court
O'Fallon, MO 63366

Saint Charles County, S19, T47N, R3E

REVIEW SUMMARY

- Hansen's Environmental Wood Resources has applied for authority to construct a colored mulch processing plant.
- Hazardous Air Pollutant (HAP) emissions are expected from the proposed equipment. Those HAPs associated with the combustion of diesel fuel.
- None of the New Source Performance Standards (NSPS) apply to the installation.
- None of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) apply to this installation. None of the currently promulgated Maximum Achievable Control Technology (MACT) regulations apply to the proposed equipment.
- No air pollution control equipment is being used in association with the new equipment.
- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, Construction Permits Required. Potential emissions of all criteria pollutants are conditioned by the installation's taking of a NO_x limit to below de minimis levels.
- This installation is located in Saint Charles 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 potential emissions of the application are conditioned to below de minimis levels.
- Emissions testing are not required for the equipment.
- A Basic Operating Permit is required for this installation. The Basic Operating Permit is required because the potential NOx emissions for the installation exceed 40 tons.
- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

The installation is located on a thirty acre tract of land in O'Fallon in Saint Charles County. About seventy percent of the year the business is located on this tract according to the application. The other thirty percent of the time the business is working at various locations around Missouri. This installation grinds wood waste into mulch and colors the mulch. Hansen's Environmental Wood Resources (Hansen's) provides colorful organic mulch to give a top-dressing to landscaping. Hansen's provides a variety of colors of mulch by mixing various dyes into the mulch making process. They are a synthetic de minimis minor source for construction permits because of taking a NOx limit to avoid modeling.

No permits have been issued to Hansen's Environmental Wood Resources from the Air Pollution Control Program.

PROJECT DESCRIPTION

This installation was asked to submit a permit application by the Air Pollution Control Program's Compliance/Enforcement Section. The equipment parameters are listed in Table 2. This site has a hand loaded wood fired heating unit in the maintenance shop area. It is a source of NOx. It was constructed prior to the colored mulch plant and is not restricted by the NOx limit for the engines. It is a hand fired unit and the regulations (10 CSR 5.040) listing it as a prohibited activity are being rewritten. The Air Commission waived any enforcement on this unit until the regulations could be adjusted to allow the activity.

The raw material is scrap wood. The product is several colors of wood mulch. The emissions are from the wood grinding or shredding and combustion emissions from the electrical generation equipment. USA Environmental Protection Agency (EPA) Tier 1-3 emission standards apply to the engines used to power the equipment. These are non road emission standards.

Table 1: Engine Hp rating, Emission Unit and Tier Standard

Emission Unit	Horsepower	Year put into Service	Phase in Years for Applicable Tier Standard	Applicable Tier
Eu6a	620 Hp	2005	2001-2006	Tier 2
Eu8a	65 Hp	2008	2006-2008	Tier 3
Eu11a	625 Hp	2008	2006-2008	Tier 3
Eu16a	60 Hp	2006	2001-2006	Tier 2

Non road engine means an engine that is on a piece of equipment that is portable or transportable meaning designed to be and capable of being carried or moved from one location to another. Indicators of transportability include wheels, skids, carrying handles, dolly trailer or a platform. An engine that is equipment that is portable is not considered to be stationary and is exempt from permitting. However, a seasonal source is a stationary source that remains in a single location on a permanent basis (i.e. at least two years) and that operates at that single location approximately three months or more each year. In this case, these engines will be considered stationary because they are operated during the full annual operating period of the seasonal source. An engine will be considered to reside at a location for 12 consecutive months or more when at a seasonal source. If the engine is located at a seasonal source and operates during the full annual operating period of the seasonal source, it is a stationary source. Where a seasonal source is a stationary source when it remains in a single location on a permanent basis (i.e., at least two years) and that operates at that single location at least three months each year. Hansen's Environmental Wood Resources meets the requirements of a seasonal source.

The haul road is 0.38 miles long as measured from an overhead map view. The PM₁₀ emissions from the tub grinder to the mulch pile are difficult to determine. This product is damp with little emissions then dries and is a ripped or a shredded product lacking a uniform size distribution. These emission calculations represent best guess assumptions in calculation of emissions release of particulate matter.

The annual amount of compost hauled is 25,500 tons as stated in the application. The numbers of hours the equipment is operated before the coloring machine is 647 and after is 295 hours. The equipment before the coloring machine has to operate longer and has a calculated design rate of 40.00 (39.44) tons per hour and 87.00 (86.44) tons per hour after the coloring machine. The mulch piles are at several locations, but in the application they are treated as one mulch pile 1 acre in size.

Table 2: Emission Units

Emission Unit Number	Description
EU#1	Haul Roads 0.38 miles one way
EU#2	Heating Units heating units (natural gas, wood waste hand fired)
EU#3	Parts Washer No emissions chemical free
EU#4	Above Ground Gasoline Tank Storage Estimated at 1000 gallons
EU#5	Above Ground Diesel Tank Storage Estimated at 2000 gallons
EU#6	Tub Grinder with conveyor attached Transfer Point
EU#6a	Power for tub grinder 620 hp 4 cycle diesel engine (2005)
EU#7	Transfer Point Discharge from conveyor into swift conveyor hopper
EU#8	Swift 65 foot Conveyor Unit Not a covered conveyor
EU#8a	Power for Swift Conveyor 65 Hp 4 cycle diesel engine (2008)
EU#9	Swift Conveyor Discharge (onto feed pile for mulch color unit)
EU#11	Mulch Coloring Unit Colorbiotics Sahara X3, includes feed hopper colorant feed, blender
EU#11a	Portable Generator caterpillar XQ-400 4 cycle diesel powered generator powers mulch coloring
EU#13	Wildcat conveyor P3660 (not covered or enclosed) (conveyor directly connected to coloring unit) Also powered by EU11a
EU#15	Conveyor Discharge Discharge onto second conveyor from wildcat conveyor unit
EU#16	Second Conveyor (not covered or enclosed) powered by 16a
EU#16a	Portable Generator Powered by 60Hp 4 cycle diesel engine (2006)
EU#17	Conveyor Discharge Second conveyor discharge on to colored mulch piles
EU#18	Mulch Piles (total of all piles on site less than or equal to 1 acre in size) A) Feed pile for Tub Grinder 1) load in to build pile for tub grinder 2) loader vehicular activity B) Feed pile for Color Unit 1)loader vehicular activity C) Product piles of Colored mulch 1)loader vehicular activity 2) load out D) Wind Erosion for 1 acre of wood chip pile

EMISSIONS/CONTROLS EVALUATION

The emission factors and control efficiencies used in this analysis were obtained from the Environmental Protection Agency (EPA) document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, Section 3.3 10/96, *Gasoline and Diesel Industrial Engines* and Section 3.4 10/96, *Large Stationary Diesel and All Stationary Dual Fuel Engines*. The drop points were calculated from Section 13.2.4 *Aggregate Handling and Storage Piles* 11/06 and the haul road were calculated from Section 13.2.2 *Unpaved Haul Road* 11/06. 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. The parts washer uses a wash solution that emits no criteria or HAP pollutants. It is a chemical free microbial enhancer solution. No control devices were reported in the application.

The California Emission Inventory and Reporting System (CEIDARS) was used to establish emission rate for PM_{2.5} emissions in this permit. The PM_{2.5} emission rates are listed as a fraction of PM₁₀ emissions from the CEIDARS table (see Table2). Engine details or specifications are not disclosed in the table. The PM₁₀ emissions provided from AP-42 were multiplied by the fraction determined in Table 3 to determine PM_{2.5}.

Table 3: CEIDARS PM_{2.5} Multiplier Method.

Numbered Line in CEIDARS Table	Fraction from testing that was PM _{2.5}
112	0.967
115	0.992
116	0.937
132	0.927
Total	3.823
Average Value	0.956

The conveyors are not covered and could be a source of particulate emissions. However, the particulate emissions from the wood grinding or chipping are being conservatively calculated, by calculating only the drop points between equipment.

Table 4: Emissions Summary (tons per year)

Pollutant	Regulatory <i>De Minimis</i> Levels	Existing Potential Emissions	Existing Actual Emissions	Potential Emissions of the Application	New Equipment Conditioned Potential
PM _{2.5}	15.0	N/A	N/A	5.73	N/A
PM ₁₀	15.0	N/A	N/A	7.97	N/A
SO _x	40.0	N/A	N/A	2.06	N/A
NO _x	40.0	N/A	N/A	93.48	<40.0
VOC	40.0	N/A	N/A	4.68	N/A
CO	100.0	N/A	N/A	37.46	N/A
HAPs	10.0/25.0	N/A	N/A	0.08	N/A

N/A = Not Applicable

PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of NO_x are conditioned to below de minimis levels while all criteria pollutants are below de minimis levels.

APPLICABLE REQUIREMENTS

Hansen's Environmental Wood Resources 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 on April 1st for hard copy May 1st if submitted on line and payment is due on June 1st 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 Odors*, 10 CSR 10-3.090

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.

Timothy Paul Hines
Environmental Engineer

Date

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated September 20, 2010, received September 20, 2010, designating Hansen's Environmental Wood Resources as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.
- Saint Louis Regional Office Site Survey, dated October 25, 2010.

Attachment A - NO_x Compliance Worksheet for NO_x Emission Limit

Hansen's Environmental Wood Resources
 St. Charles County, S19, T47N, R3E
 Project Number: 2010-08-038
 Installation ID Number: 183-0245
 Permit Number: _____

This sheet covers the month of _____ in the year _____

Copy as needed.

Column A	Column B	Column C
(a) Monthly Amount of Fuel Combusted	(b) Emission Factor (include units)	(c) Monthly NO _x Emissions (Tons)
(d) Total NO _x Emissions Calculated for this Month in Tons:		
(e) NO _x Emissions Total from the Previous Eleven (11) Months in Tons:		
(f) Current 12-month Total of NO _x Emissions in Tons:		

- (a) Total amount of fuel combusted in each diesel generator.
 - (b) Emission factor for NO_x can be obtained from (1) AP-42, Chapter 3.4 over 600Hp and 3.3 under 600 Hp, (2) manufacturer's performance data or (3) stack test performed by the facility. The AP-42 factor is 0.438 lbs of NO_x per gallon of diesel over 600 Hp and 0.604 per gallon of diesel under 600 Hp. Teir 1-3 emission factors for NO_x can be used at 0.2978 lbs of NO_x per gallon of diesel fuel for all Hp ranges.
 - (c) Column A x Column B x 0.0005.
 - (d) Summation of [Column C] in Tons;
 - (e) NO_x emissions total from the previous eleven (11) months can be obtained by summing (d) in the Attachment A for the last eleven (11) months.
- Calculate the new 12-month NO_x emissions total. **A 12-Month NO_x emissions total of less than 40.0 tons of NO_x indicates compliance.**

Mr. Jeff Schneider
Recycling Manager
Hansen's Environmental Wood Resources
104 Hansen Court
O'Fallon, MO 63366

RE: New Source Review Permit - Project Number: 2010-09-041

Dear Mr. Schneider:

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 amended operating permit is necessary for continued compliance. The reverse side of your permit certificate has important information concerning standard permit conditions and your rights and obligations under the laws and regulations of the State of Missouri.

If you have any questions regarding this permit, please do not hesitate to contact Timothy Paul Hines, 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:thl

Enclosures

c: St. Louis Regional Office
PAMS File: 2010-09-041

Permit Number: