

PERMIT BOOK

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: **072011-004** Project Number: 2011-05-034
Installation Number: 077-0253

Parent Company: Deere & Company

Parent Company Address: One John Deere Place, Moline, IL 61265-8098

Installation Name: John Deere Reman

Installation Address: 4500 East Mustard Way, Springfield, MO 65803

Location Information: Greene County, S2, T29N, R21W

Application for Authority to Construct was made for:
The installation of a new Praxaire Model 8830 Arc Spray Weld system. This review was conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.

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

JUL 17 2011

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 these air contaminant sources. The information must be made available within 30 days of actual startup. Also, you must notify the Department of Natural Resources Regional office responsible for the area within which you are located within 15 days after the actual start up of these air contaminant sources.

A copy of this permit and permit review shall be kept at the installation address and shall be made available to Department of Natural Resources' personnel upon request.

You may appeal this permit or any of the listed special conditions to the Administrative Hearing Commission (AHC), P.O. Box 1557, Jefferson City, MO 65102, as provided in RSMo 643.075.6 and 621.250.3. If you choose to appeal, you must file a petition with the AHC within 30 days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed. If it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the AHC.

If you choose not to appeal, this certificate, the project review and your application and associated correspondence constitutes your permit to construct. The permit allows you to construct and operate your air contaminant sources(s), but in no way relieves you of your obligation to comply with all applicable provisions of the Missouri Air Conservation Law, regulations of the Missouri Department of Natural Resources and other applicable federal, state and local laws and ordinances.

The Air Pollution Control Program invites your questions regarding this air pollution permit. Please contact the Construction Permit Unit at (573) 751-4817. If you prefer to write, please address your correspondence to the Missouri Department of Natural Resources, Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102-0176, attention: Construction Permit Unit.

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SPECIAL CONDITIONS:

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

The special conditions listed in this permit were included based on the authority granted the Missouri Air Pollution Control Program by the Missouri Air Conservation Law (specifically 643.075) and by the Missouri Rules listed in Title 10, Division 10 of the Code of State Regulations (specifically 10 CSR 10-6.060). For specific details regarding conditions, see 10 CSR 10-6.060 paragraph (12)(A)10. "Conditions required by permitting authority."

John Deere Reman
Greene County, S2, T29N, R21W

1. Emission Limitation
 - A. John Deere Reman shall emit less than 1.0 tons of nickel compounds in any consecutive 12-month period from the Praxaire Model 8830 Arc Spray Weld system (EP-01)
 - 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. Control Device Requirement – Particulate Filter (90% Capture Efficiency, 99.9% particulate matter less than ten microns in aerodynamic diameter (PM₁₀) Control Efficiency)
 - A. John Deere Reman shall use an enclosure designed and constructed according to American Conference of Governmental Industrial Hygienists (ACGIH) specifications for Metal Spraying.
 - B. John Deere Reman shall demonstrate that the spray weld booth was constructed according to Special Condition 2.A by keeping a record of the following design parameter
 - 1) The minimum recommended face velocity
 - 2) Engineering drawings which demonstrate that the spray weld booth was designed to meet the minimum face velocity.
 - C. John Deere Reman shall control PM₁₀ emissions from the spray weld enclosure (EP-01) using particulate filters as specified in the permit application. The filter(s) shall be operated and maintained in accordance with the manufacturer's specifications.
 - D. John Deere Reman shall maintain an operating and maintenance log for the filters which shall include the following:
 - 1) Incidents of malfunction, with impact on emissions, duration of event, probable cause, and corrective actions; and

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SPECIAL CONDITIONS:

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

- 2) Maintenance activities, with inspection schedule, repair actions, and replacements, etc.
 - E. Replacement particulate filters for the spray weld booth shall be kept on hand at all times. The particulate filters shall be made of fibers appropriate for operating conditions expected to occur (i.e. temperature limits, acidic and alkali resistance, and abrasion resistance).
 - F. John Deere Reman shall demonstrate negative pressure by using visual indicators, such as a flag test or puff or smoke test at the opening of the spray weld booth to ensure that material is being transported to the control device. The opening must indicate the presence of negative pressure for compliance.
 - G. John Deere Reman shall perform the visible emissions check at the opening of the spray weld booth at least once in every 24-hour period, while welding is occurring. John Deere Reman shall keep records of the results of the daily checks either electronically or in a log book.
3. Potential Emissions Calculation Requirement
John Deere Reman shall submit a complete potential emissions analysis of their entire installation to the Air Pollution Control Program' Operating Permit Unit within 120 days of the issuance date of this permit. This analysis will be used to determine the operating permit status for your facility.
4. Record Keeping and Reporting Requirements
 - A. John Deere Reman shall maintain all records required by this permit for not less than five years and shall make them available immediately to any Missouri Department of Natural Resources' personnel upon request. These records shall include Material Safety Data Sheets (MSDS) for all materials used
 - B. John Deere Reman shall report to the Air Pollution Control Program's Compliance/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: 2011-05-034
Installation ID Number: 077-0253
Permit Number:

John Deere Reman
4500 East Mustard Way
Springfield, MO 65803

Complete: May 24, 2011

Parent Company:
Deere & Company
One John Deere Place
Moline, IL 61265-8098

Greene County, S2, T29N, R21W

REVIEW SUMMARY

- John Deere Reman has applied for authority to install a new Praxaire Model 8830 Arc Spray Weld system.
- Hazardous Air Pollutant (HAP) emissions are expected from the proposed equipment. HAPs of concern from this process are nickel compounds, cobalt compounds and chromium compounds.
- None of the New Source Performance Standards (NSPS) apply to the installation.
- 40 CFR Part 63 Maximum Achievable Control Technology (MACT), Subpart WWWW, National Emission Standards for Hazardous Air Pollutants: Area Source Standards for Plating and Polishing Operations does not apply to the proposed equipment due to the fact that John Deere Reman will be using the Praxaire Model 8830 Arc Spray Weld system to repair surfaces which is not covered by this subpart.
- Particulate Filters are being used to control the PM₁₀, PM_{2.5}, Nickel, Cobalt, And Chromium emissions from the equipment in this permit.
- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, Construction Permits Required. Potential emissions of nickel compounds are conditioned below its respective Screen Modeling Action Level (SMAL).
- This installation is located in Greene 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 below de minimis levels.
- Emissions testing is not required for the equipment.
- No Operating Permit is currently required for this installation. John Deere Reman has agreed to calculate the potential emissions of their entire installation in order to determine operating permit applicability
- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

John Deere Reman, located in Springfield, Missouri, provides remanufactured engines and engine components to various John Deere facilities. Currently John Deere Reman has a Permit to Construct (# 0206-254D) from the City of Springfield for an engine test stand and is considered a de minimis source. As per this permit John Deere Reman will be calculating the potential emissions of their entire installation in order to determine operating permit applicability.

John Deere Reman has been issued the following construction permits from the City of Springfield Health Department.

Permit Number:	Description:
0206-254D	Engine Test Stand

PROJECT DESCRIPTION

John Deere Reman is installing a new Praxaire Model 8830 Arc Spray Weld system. This system is used to recover/salvage cast iron engine components. The Praxaire Model 8830 Arc Spray Weld system has a maximum hourly design rate of 20 pounds of spray weld wire per hour. The pollutants of concern from the Praxaire Model 8830 Arc Spray Weld system are particulate mater less than 10 and 2.5 microns in aerodynamic diameter (PM₁₀ and PM_{2.5}) and hazardous air pollutants (HAPs). The HAPs of concern are Nickel, Cobalt and Chromium. All the HAPs emitted from the spray weld system are considered particulate matter and therefore can be controlled using a particulate filter. This spray weld system will be installed within a three sided enclosed booth and the particulate matter emissions will be controlled by a Robo Vent DFM 12000-18 Cartridge Collector. The three sided enclosure was given a capture efficiency of ninety percent. The Robo Vent Cartridge Collector consists of eighteen cartridge filters and has a control efficiency rating of 99.9 percent at an aerodynamic diameter of 0.5 microns.

EMISSIONS/CONTROLS EVALUATION

A mass balance approach was taken to calculate the potential emissions from the new Praxaire Model 8830 Arc Spray system. The composition of each individual spray welding wire was found using their respective Material Safety Data Sheets. During the spray weld process the transfer of the welding material to part that is being repaired is not 100 percent. A transfer efficiency of fifty percent was given to the Praxaire Model 8830 Arc Spray Weld system. The fifty percent overspray is the portion of the welding spray that is being considered emitted into ambient air. The total uncontrolled potential emissions were found to be above de minimis levels for PM₁₀, PM_{2.5}, and HAPs. Potential emissions of the application represent the potential of the new equipment, assuming continuous operation (8,760 hours per year.) The following table provides an emissions summary for this project.

Table 2: Emissions Summary (tons per year)

Pollutant	Regulatory <i>De Minimis</i> / SMAL Levels	Existing Potential Emissions	Existing Actual Emissions	¹ Potential Emissions of the Application	² New Installation Conditioned Potential
PM _{2.5}	10.0	N/D	N/A	43.8	2.11
PM ₁₀	15.0	N/D	N/A	43.8	2.11
Nickel	³ 1.0	N/D	N/A	41.17	<1.00
Cobalt	³ 0.1	N/D	N/A	0.088	0.002
Chromium VI	³ 0.002	N/D	N/A	0.044	0.001
HAPs	25.0	N/D	N/A	41.30	1.003

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

¹ Potential Emissions of the Application represents the uncontrolled emissions from the Praxaire Model 8830 Arc Spray Weld system.

² New Installation Conditioned Potential is based on voluntary Nickel limit in order to avoid dispersion modeling requirements found in 10 CSR 10-6.060 Section (6). Other pollutants proportionately reduced.

³ Screening Model Action Level (SMAL)

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 all pollutants are conditioned below de minimis levels.

APPLICABLE REQUIREMENTS

John Deere Reman 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 a hard copy submittal or May 1 for online submittal 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 10-6.165

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.

Gerad Fox
Environmental Engineer

Date

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated May 10, 2011, received May 24, 2011, designating Deere & Company as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.

Mr. Dan Mai
EHS Manager
John Deere Reman
4500 East Mustard Way
Springfield, MO 65803

RE: New Source Review Permit - Project Number: 2011-05-034

Dear Mr. Mai:

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

If you have any questions regarding this permit, please do not hesitate to contact Gerad Fox, at the Department's Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102, or by telephone at (573) 751-4817. Thank you for your time and attention to this matter.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Kendall B. Hale
New Source Review Unit Chief

KBH:gfk

Enclosures

c: Southwest Regional Office
PAMS File: 2011-05-034

Permit Number: