



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: 102011-001

Project Number: 2011-05-026
Installation Number: 183-0247

Parent Company: Gardner Denver Nash, LLC

Parent Company Address: No. 6 and No. 10, Cermak Blvd, St. Peters, MO 63376

Installation Name: Gardner Denver Nash, LLC

Installation Address: No. 6 and No. 10, Cermak Blvd, St. Peters, MO 63376

Location Information: St. Charles County (S24, T47N, R3E)

Application for Authority to Construct was made for:

The installation of a service and repair facility for vacuum pumps, compressor systems and related equipment. The equipment was constructed prior to receipt of a permit from the Missouri Department of Natural Resources. Obtaining a permit is part of a remedial action required by the Air Pollution Control Program. 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.

OCT 04 2011

EFFECTIVE DATE

Kyra L Moore
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."

Gardner Denver Nash, LLC
St. Charles County (S24, T47N, R3E)

1. Control Device Requirement - Coatings Booth and Paint Arrestors
 - A. Gardner Denver Nash shall control emissions from the spray gun using a coatings booth equipped with paint arrestors (EP-01) as specified in the permit application. The coatings booth and the paint arrestors shall be maintained in accordance with the manufacturer's specifications. Replacement filters shall be kept on hand at all times.
 - B. The arrestors shall be operated and maintained in accordance with the manufacturer's specifications. The arrestors 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 Department of Natural Resources' employees may easily observe them.
 - C. Replacement filters for the arrestors shall be kept on hand at all times. The filters shall be made of fibers appropriate for operating conditions expected to occur (i.e. temperature limits, acidic and alkali resistance, and abrasion resistance).
 - D. Gardner Denver Nash shall monitor and record the operating pressure drop across the arrestors at least once every 24 hours when the spray guns are in operation. The operating pressure drop shall be maintained within the design conditions specified by the manufacturer's performance warranty.
 - E. Gardner Denver Nash shall maintain an operating and maintenance log for the arrestors 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.

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SPECIAL CONDITIONS:

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

2. **Operational Requirement**
Gardner Denver Nash shall keep the ink solvents and cleaning solutions in sealed containers whenever the materials are not in use. Gardner Denver Nash shall provide and maintain suitable, easily read, permanent markings on all inks, solvent and cleaning solution containers used with this equipment.
3. **Record Keeping Requirements**
Gardner Denver Nash 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

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

Project Number: 2011-05-026
Installation ID Number: 183-0247
Permit Number:

Gardner Denver Nash
No. 6 and No. 10, Cermak Blvd
St. Peters, MO 63376

Complete: May 10, 2011

Parent Company:
Gardner Denver Nash
No. 6 and No. 10, Cermak Blvd
St. Peters, MO 63376

St. Charles County (S24, T47N, R3E)

REVIEW SUMMARY

- Gardner Denver Nash has applied to permit an installation for servicing and repairing vacuum pumps, compressor systems and related equipment. The equipment was constructed prior to receipt of a permit from the Missouri Department of Natural Resources. Obtaining a permit is part of a remedial action required by the Air Pollution Control Program.
- Hazardous Air Pollutant (HAP) emissions are expected from the proposed equipment but only in negligible amounts.
- 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. Subpart M, *National Emission Standards for Hazardous Air Pollutants for Surface Coating of Miscellaneous Metal Parts and Products*, of the MACT does not apply to this installation because this installation is not a major source for HAPs.
- A coatings booth with paint arrestors is being used to control the particulate matter (PM), particulate matter less than ten microns in diameter (PM₁₀) and particulate matter less than two-and-a-half microns in diameter (PM_{2.5}) emissions from the spray gun.
- 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 below *de minimis* levels.

- This installation is located in St. Charles County, a nonattainment area for the 8-hour ozone standard and the PM_{2.5} standard and an attainment area for all other criteria pollutants.
- This installation is not on the List of Named Installations found in 10 CSR 10-6.020(3)(B), Table 2. However, due to its nonattainment status, the major source level is 100 tons per year for PM_{2.5}, volatile organic compounds (VOC) or nitrogen oxides (NO_x). For other criteria pollutants, the major source level is 250 tons per year. Fugitive emissions are not counted toward major source applicability.
- Ambient air quality modeling was not performed since potential emissions of the application are below *de minimis* levels.
- Emissions testing are not required for the equipment.
- No Operating Permit is required for this installation.
- Approval of this permit is recommended with special conditions.

INSTALLATION AND PROJECT DESCRIPTION

Gardner Denver Nash has applied to permit an existing installation that services and repairs vacuum pumps, compressor system and related equipment. The facility consists of two buildings located at 6 and 10 Cermak Boulevard, St. Peters, Missouri. The building at 6 Cermak Boulevard serves as a service center while the building at 10 Cermak Boulevard serves as a warehouse distribution center. For permitting purposes, both buildings are considered part of the same installation. Pumps and related equipment are shipped to the 6 Cermak facility for disassembly, machining, welding, reassembly, spray coating and testing. The equipment is then shipped back to the customers. Equipment/Processes that emit air pollutants include the following:

- *Surface Coating* – The surface coating operation occurs inside a spray booth. Coatings are applied using a Graco, Inc. Series G98A paint spray gun. Fiberglass paint arrestors are used to control emissions.
- *Coatings Application Equipment Cleaning* – Coatings application equipment (i.e. spray guns) are cleaned using Mirachem 500 cleaner/degreaser with a VOC content of 0.67 pounds per gallon (or 8% of total solvent).
- *Parts Washing Process* – Various parts are washed using Crystal Clean 142 Premium Mineral Spirits, which contains 100% VOC. There are five cold solvent cleaning units.
- *Welding Process* – There are four welding stations at the installation: One metal inert gas (MIG) welder, two tungsten inert gas (TIG) welder and a stick welder. A fume extractor is used to control emissions from the particulate

- emissions generated during the welding process.
- *Fuel Combustion* – A total of eight natural gas fired heaters are used at the installation to provide heat for the shop and offices. The total heat input is 2.51 MMBtu/hr.
 - *Miscellaneous Manufacturing* – These activities include machining and sawing.

EMISSIONS/CONTROLS EVALUATION

Potential emissions of the application were calculated using the following methods

- *Surface Coating* – The maximum hourly design rate of the surface coating operation is 2.0 gallons per hour and this is calculated from using historical usage data and adding a 10 percent (%) safety factor. PM_{2.5}, PM₁₀ and PM emissions from the surface coating operation were calculated using a mass balance approach assuming, conservatively, a 10% transfer efficiency. The transfer efficiency was taken from Table 5-7, *Transfer Efficiencies for Different Spraying Methods and Surface Types*, from Air Pollution Technology Institute document, *Sources and Control of Volatile Organic Air Pollutants*, Third Edition. A capture efficiency of 80% and a control efficiency of 97.5% were assumed for the use of the fiberglass paint arrestors. The 80% capture efficiency was chosen because the facility suggested in its application that 100% capture is not expected and using 80% should yield conservative emissions estimates. The 97.5% device control efficiency was based on the manufacturer's data. VOC emissions were calculated assuming that all of the VOC in the surface coating are emitted. The particle size distribution data used to distinguish between PM_{2.5}, PM₁₀ and PM were taken from a table in the California Emission Inventory Develop and Reporting System (CEIDARS) developed by the California Environmental Protection Agency Air Resources Board (7/08).
- *Coatings Application Equipment Cleaning* – The maximum hourly usage of the cleaner (2.618 gallons per hour) was calculated by dividing the historical cleaner usage by the paint usage to obtain a rate in gallons of cleaner per gallons of coatings used and multiplying this rate by the maximum hourly design rate of the spray gun. This assumes a relationship between the amount of paint used and the amount of cleaners used. The rate used is from 2009, which is the highest rate within the last five years. VOC emissions were calculated from mass balance assuming that 100% are emitted.
- *Parts Washing Process* - The maximum amount of cleaners (1436 gallons per year) was calculated by using the actual usage from 2006 (334 gallons), which is the highest usage within the last five (5) years, and scaling it up to 8,760 hours from a 2,040 hours operating schedule. VOC emissions were calculated from mass balance assuming that 100% are emitted.
- *Welding Process* – The maximum hourly design rate of 1.5 pounds of rod per hour was taken from the design rate of a similar Gardner Denver Nash Facility. Considering that the average usages in 2009 and 2010 are 20 pounds and 30 pounds, respectively, using the 1.5 lbs/hr design rate to

calculate emissions should yield conservative numbers. PM_{2.5}, PM₁₀, PM and HAP emissions were calculated using an equation developed by the San Diego Air Pollution Control District (10/1998), $E_h = U_h \times EF \times FCF \times C_i \times (1 - e)$, where E_h = Maximum hourly emission of pollutant (lbs/hr), U_h = Maximum hourly usage of each welding rod (lbs/hr), EF = Particulate emission factor (0.1 lbs fume/lbs rod consumed), FCF = Fume Correction Factor, C_i = Concentration of pollutant in each welding rod (lbs substance/lb metal) and e = control equipment collection and removal efficiency. A fume extractor is used to control emissions from the welding stations. However, not using the fume extractor will not increase emissions above the *de minimis* levels. Therefore, emissions calculations were performed without taking into account the fume extractor.

- *Fuel Combustion* – PM_{2.5}, PM₁₀, PM, SO_x, NO_x, CO, VOC and HAPs are all expected from the combustion of natural gas. Emissions were calculated using emission factors from Environmental Protection Agency (EPA) document AP-42, *Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources, Fifth Edition, Chapter 1.4, Natural Gas Combustion, (7/98)*.
- *Miscellaneous Manufacturing* – This process includes one radial ram saw and one table saw at each of the two buildings. Each unit is expected to make five to ten cuts per day. According to the company, the saw dust is collected in a 5- gallon shop vacuum and is only emptied twice a year. Therefore, due to its limited use, it was assumed that the emissions from the saws can be considered negligible and that it will not increase the particulate emissions above their *de minimis* levels.

All emissions were calculated assuming continuous operations throughout the year (8760 hours per year). The following table provides an emissions summary for this project. The existing potential emissions and the existing actual emissions were listed as not determined (N/D) because these emissions have never been calculated, although it is an existing facility. The potential emissions of the application show a plant-wide emissions less than the *de minimis* levels. However, these emissions were calculated while taking into account control devices. The Air Pollution Control Program bases permit applicability on uncontrolled emissions. Without the control devices, particulate emissions, including PM_{2.5}, PM₁₀ and PM, would be greater than their respective *de minimis* levels.

Table 2: Emissions Summary (tons per year)

Pollutant	Regulatory <i>De Minimis</i> Levels	Existing Potential Emissions	Existing Actual Emissions (EIQ)	Potential Emissions of the Installation	New Installation Conditioned Potential
PM _{2.5}	10.0	N/D	N/D	6.66	N/A
PM ₁₀	15.0	N/D	N/D	6.91	N/A
PM	25.0	N/D	N/D	7.19	N/A
SO _x	40.0	N/D	N/D	0.006	N/A
NO _x	40.0	N/D	N/D	1.08	N/A
VOC	40.0	N/D	N/D	28.99	N/A

CO	100.0	N/D	N/D	0.91	N/A
HAPs	10.0/25.0	N/D	N/D	0.02	N/A
Lead	0.6	N/D	N/D	5.39 x 10 ⁻⁶	N/A

N/D = Not Determined; 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 all pollutants are below de minimis levels.

APPLICABLE REQUIREMENTS

Gardner Denver Nash 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 EIQ is required by April 1st, if submitting a hardcopy and by May 1st, if submitting online at www.dnr.mo.gov/moeis/main/login, for the previous years' emissions. Payment is due June 1st.
- *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.

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 May 5, 2011, received May 10, 2011, designating 2011-05-026 as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.

Mr. Daniel Hoyt
Environmental Safety and Compliance Manager
Gardner Denver Nash
9 Trefoil Drive
Trumbull, CT 06611

RE: New Source Review Permit - Project Number: 2011-05-026

Dear Mr. Hoyt:

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 Chia-Wei Young, at the Department's 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: cwyl

Enclosures

c: St. Louis Regional Office
PAMS File: 2011-05-026

Permit Number: