

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: 062010-004

Project Number: 2010-03-092

Parent Company: Siemens

Parent Company Address: 4654 W. Farm Road 130, Springfield, MO 65802

Installation Name: Turblex, Inc.

Installation Number: 077-0174

Installation Address: 4654 W. Farm Road 130, Springfield, MO 65802

Location Information: Greene County, S18, T29N, R22W

Application for Authority to Construct was made for:

An air compressor manufacturing installation. 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.

JUN - 7 2010

EFFECTIVE DATE

A handwritten signature in black ink, appearing to read "James K. Kormanick", written over a horizontal line.
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 Department's 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.	2010-03-092

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."

Turblex, Inc.
Greene County, S18, T29N, R22W

1. Emission Limitation
 - A. Turblex, Inc. shall emit less than 40.0 tons of Volatile Organic Compounds (VOCs) in any consecutive 12-month period from the entire installation. For purposes of this condition, the entire installation refers to all VOC emitting operations at the installation as of the date of this permit.
 - B. Turblex, Inc. shall emit less than the respective individual Screening Model Action Level (SMAL) for any Hazardous Air Pollutants (HAPs) in any consecutive 12-month period from the entire installation. Individual SMAL are listed in Attachment AA "Air Pollution Control Program Table of Hazardous Air Pollutants and Screening Model Action Levels". For purposes of this condition, the entire installation refers to all HAP emitting operations at the installation as of the date of this permit.
 - C. Turblex, Inc. shall emit less than 25.0 tons combined of HAPs in any consecutive 12-month period from the entire installation. For purposes of this condition, the entire installation refers to all HAP emitting operations at the installation as of the date of this permit.
 - D. Attachment A, Attachment B, and Attachment C 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, 1.B, and 1.C.
2. Use of Alternative Coating in the Installation
 - A. When considering using an alternative coating in the installation that is different than a material listed in the Application for Authority to Construct, Turblex, Inc. shall calculate the potential emissions of all individual HAP in the alternative material.
 - B. Turblex, Inc. shall seek approval from the Air Pollution Control Program before use of the alternative material if the potential individual HAP

Page No.	4
Permit No.	
Project No.	2010-03-092

SPECIAL CONDITIONS:

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

emissions for the alternative material are equal to or greater than the SMAL for any chemical listed in Attachment AA.

- C. Attachment D or equivalent forms, such as electronic forms, approved by the Air Pollution Control Program shall be used to show compliance with Special Condition 2.A.
3. Control Device Requirement-Filters
- A. Turblex, Inc. shall control emissions from the air abrasive blasting booth (EU-02) and surface coating booth (EU-03) using filters as specified in the permit application.
 - B. The filters shall be operated and maintained in accordance with the manufacturer's specifications. The filters 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 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. Turblex, Inc. shall monitor and record the operating pressure drop across the filters at least once every 24 hours of operation. The operating pressure drop shall be maintained within the design conditions specified by the manufacturer's performance warranty.
 - E. Turblex, Inc. 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
 - 2) Maintenance activities, with inspection schedule, repair actions, and replacements, etc.
4. Operational Requirement
- Turblex, Inc. shall keep the coatings, solvents, and cleaning solutions in sealed containers whenever the materials are not in use. Turblex, Inc. shall provide and maintain suitable, easily read, permanent markings on all coatings, solvents, and cleaning solution containers used with this equipment.

Page No.	5
Permit No.	
Project No.	2010-03-092

SPECIAL CONDITIONS:

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

5. **Record Keeping and Reporting Requirements**
 - A. Turblex, Inc. 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. Turblex, Inc. 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: 2010-03-092
Installation ID Number: 077-0174
Permit Number:

Turblex, Inc.
4654 W. Farm Road 130
Springfield, MO 65802

Complete: April 19, 2010

Parent Company:
Siemens
4654 W. Farm Road 130
Springfield, MO 65802

Greene County, S18, T29N, R22W

REVIEW SUMMARY

- Turblex, Inc. has applied for authority to construct an air compressor manufacturing installation.
- HAPs of concern from this process are manganese (CAS 7439-96-5), toluene (CAS 108-88-3), ethylbenzene (CAS 100-41-4), xylene (all isomers), naphthalene (CAS 91-20-3), cobalt 2-ethylhexanoate (CAS 136-52-7), and various HAPs from the combustion of natural gas.
- 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. As Turblex is not a major source for combined or individual HAPs, Maximum Achievable Control Technology (MACT) Subpart M “National Emission Standards for Hazardous Air Pollutants for Surface Coating of Miscellaneous Metal Parts and Products” does not apply. Also, Turblex does not surface coat autobody components or emit target HAPs from surface coating, therefore MACT Subpart H “National Emission Standards for Hazardous Air Pollutants: Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources” does not apply. MACT Subpart XXXXX “National Emission Standards for Hazardous Air Pollutants Area Source Standards for Nine Metal Fabrication and Finishing Source Categories” does apply as Turblex is an establishment primarily engaged in pumps and pumping equipment manufacturing. Turblex manufactures air compressors and blowers, however an air compressor is a type of pump that moves gas but also reduces the gas’ volume. Turblex operates a dry abrasive blasting source that has the potential to emit a metal fabrication HAP, manganese, from the steel grit blasting media in amounts greater than or equal to 1.0 percent by weight as shown in the grit supplier’s MSDS.

- An exhaust filter for the air abrasive blasting booth (EU-02) and an exhaust filter for the surface coating booth (EU-03) are being used to control the PM₁₀ and particulate HAP emissions.
- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of VOC, combined HAPs, ethylbenzene, and xylene are conditioned below de minimis levels.
- 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 below de minimis levels.
- Emissions testing is not required for the equipment.
- An operating permit is not required for this installation.
- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

Turblex, Incorporated is a new air compressor and blower manufacturing installation, herein referred to as Turblex. Turblex previously existed as FIPS County and Plant 077-0244 within the city of Springfield. The new installation (077-0174) is located in Greene County and is not under the jurisdiction of the Springfield Greene County Health Department. Neither the previous nor the new installation have received construction or operating permits from the Air Pollution Control Program or the Springfield Greene County Health Department. Turblex installs mechanical and electrical components on air compressor housings and surface coats the final product. Turblex received Notice of Violation #13220SW in May of 2010 for constructing and operating a blasting booth and paint booth without a construction permit.

PROJECT DESCRIPTION

Emission sources include welding (EU-01), air abrasive blasting (EU-02), surface coating with support activities (EU-03), and a natural gas fired heater for coating drying (EU-04). Gas Metal Arc Welding (GMAW) commonly referred to as Metal Inert Gas (MIG) welding is performed using three welders. The electrode is Praxair StarCore 6, 0.045 inches in diameter. Assuming the density of steel of 500 pounds per cubic feet as

the density of the electrode, a maximum feed speed of 500 inches per minute, and three welders at the installation, the maximum hourly design rate (MHDR) is 41.42 pounds of electrode consumed per hour. This is a conservative approach that allows for future flexibility in operation. No controls are associated with the welding.

Air abrasive blasting is performed on the exterior of the compressor housings prior to surface coating. The media is Marco Martensite Steel Grit. Known usage and hours of operation from 2009 were used to determine the usage and breakdown rate of the media as 428.57 pounds per hour and 0.29%, respectively. Corrosion being removed from the compressor housings by the media was assumed to be 0.001 inch thick compared to an assumed 0.5 inch thick housing, for a percent weight of 0.2. Using the known blasting rate and assumed housing weight of 500 pounds, the emission rate of particulate matter from the corrosion itself is 0.57 pounds per hour. The air abrasive blasting booth is controlled by a filter, assuming 99.0% control for PM₁₀.

Surface coating includes hand wiping the housings using Superior Solvents and Chemicals SS-0100 Gun Cleaner, priming using a Graco 238591 Series A Conventional Airless Gun spraying Sherwin Williams KEM 400 Primer E61A400, top coating using the same gun spraying Sherwin Williams KEM 400 Enamel F75L430, and cleanup using Superior Solvents and Chemicals SS-0100 Gun Cleaner. Other coatings may be used, but the mentioned coatings are the most widely used. Not all housings are primed, but the conservative assumption is that they are. Hand wiping was assumed to take 15 minutes to complete and require 1 liter of cleaner per unit for an MHDR of 1.06 gallons per hour.

The most conservative assumption for spray coating, that does not take setup and drying time into consideration, and that allows for the most flexibility in future operation is to use the maximum flow rate of the spray gun respective to the types of coatings applied. The manufacturer of the primer, Sherwin Williams, recommends a tip diameter of 0.017 inches. According to the spray gun manufacturer, Graco, this corresponds to approximately 0.3 gallons per minute. The primer MHDR is therefore 18 gallons per hour. The manufacturer of the top coat, Sherwin Williams, recommends a tip diameter of 0.013 inches. According to Graco, this corresponds to approximately 0.18 gallons per minute. The top coat MHDR is therefore 10.8 gallons per hour.

According to Graco, a conventional airless spray gun has a transfer efficiency ranging from 20 to 40 percent, with 30 percent assumed for this project. The coating booth exhaust is controlled by a Supraloft brand filter, assuming 99.0% control efficiency for PM₁₀.

To assist in surface coating drying, the installation is equipped with a 6.075 million British thermal unit per hour (MMBtu/hr) natural gas fired indirect heater. No controls are associated with the heater.

EMISSIONS/CONTROLS EVALUATION

Emissions from welding were calculated using the emission factor for E70S electrode (5.2 pounds of PM₁₀ per 1,000 pounds of electrode consumed) obtained from the Environmental Protection Agency (EPA) document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, Section 12.19 "Electric Arc Welding", January 1995.

The composition of the electrode that Turblex uses is similar to an E70S electrode.

Emissions from the breakdown of blasting media were calculated assuming all of the broken media as PM₁₀. According to the media MSDS, the blasting grit contains manganese at 1.2% weight. Manganese is a HAP and PM₁₀. Controlled manganese emissions from media breakdown are 0.001 tons per year. The remaining 98.8% weight of broken media is simply PM₁₀. Assuming the composition of the corrosion being removed from the compressor housing as 96.0% iron with trace metals, and all of the removed corrosion as PM₁₀, controlled emissions from the corrosion are less than 0.03 tons per year.

Surface coating emissions were calculated conservatively assuming that preparation, priming, top coating, and gun cleaning each occur simultaneously. This approach also allows the most flexibility in future operations. All VOCs were considered emitting. Any HAP that is also a VOC was considered emitted and counted towards the potential to emit for both. Any HAP that is also particulate matter was counted towards the potential to emit for both.

Emissions from the heater were calculated using the emission factors for small boilers obtained from AP-42, Section 1.4 "Natural Gas Combustion", July 1998.

Potential emissions of the application represent the potential of the installation, assuming continuous operation (8,760 hours per year.) The following table provides an emissions summary for this project.

Table 1: Emissions Summary (tons per year)

Pollutant	Regulatory <i>De Minimis</i> Levels	² Existing Actual Emissions (2009 EIQ)	Potential Emissions of the Application	New Installation Conditioned Potential
PM ₁₀	15.0	N/D	1.81	N/A
SO _x	40.0	N/D	1.57E-02	N/A
NO _x	40.0	N/D	2.61	N/A
VOC	40.0	1.79	629.02	<40.0
CO	100.0	N/D	2.19	N/A
Lead	0.6	N/D	1.30E-05	N/A
Combined HAPs	25.0	0.00	391.36	<25.0
Manganese	¹ 0.8	N/D	9.53E-04	N/A
Toluene	¹ 10.0	N/D	5.30	N/A
Ethylbenzene	¹ 10.0	N/D	56.31	<10.0
Xylene	¹ 10.0	N/D	325.19	<10.0
Naphthalene	¹ 10.0	N/D	4.50	N/A
Cobalt 2-Ethylhexanoate	¹ 0.1	N/D	7.18E-03	N/A

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

¹ Screening Model Action Level (SMAL)

² Existing Actual Emissions at former location (FIPS County and Plant ID 077-0244)

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 VOC, combined HAPs, ethylbenzene, and xylene are conditioned below de minimis levels.

APPLICABLE REQUIREMENTS

Turblex, Inc. 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

- *Maximum Achievable Control Technology (MACT) Regulations*, 10 CSR 10-6.075, *National Emission Standards for Hazardous Air Pollutants for Nine Metal Fabrication and Finishing Source Categories*, 40 CFR Part 63, Subpart XXXXXX

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.

David Little
Environmental Engineer

Date

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated March 12, 2010, received March 29, 2010, designating Siemens as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.

