

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: **032011-010**

Project Number: 2011-02-025
Installation Number: 163-0002

Parent Company: Ashland, Inc.

Parent Company Address: 5200 Blazer Parkway, Dublin, OH 43017

Installation Name: Hercules, Inc.

Installation Address: 11083 Highway D, Louisiana, MO 63353

Location Information: Pike County, T54N, R1W

Application for Authority to Construct was made for:
Installation of a 100 MMBtu/hr natural gas-fired boiler. 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 23 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."

Hercules, Inc.
Pike County, T54N, R1W

1. Generic Boiler Requirements
 - A. Hercules, Inc. may operate a natural gas-fired boiler with a maximum input heat capacity not greater than 100 million British thermal units per hour (MMBtu/hr).
 - 1) Hercules, Inc. shall record the following information each time a boiler is brought on site.
 - a) Manufacturer's name
 - b) Model number
 - c) Serial number
 - d) Actual maximum input heat capacity
 - e) Date of manufacture
 - f) Any other additional information that is necessary to uniquely identify the equipment.
 - g) Dates the boiler is brought on and off site.
 - 2) Hercules, Inc. shall obtain a written manufacturer's guarantee that the boiler shall emit less than 0.09 pounds of nitrogen oxides per MMBtu/hr.
 - B. Hercules, Inc. is authorized to bring boilers on site to temporarily provide electricity and steam when it cannot be purchased from outside sources (e.g. Dyno Nobel).
 - C. This permit will expire unless the following conditions are met.
 - 1) The temporary boiler shall not be absent from the site for a period exceeding 24 consecutive months.
 - 2) The temporary boiler must be maintained in the operating permit.
 - 3) The temporary boiler must be maintained in the EIQ.
2. Control Device Requirement-Low NO_x Burner
 - A. Hercules, Inc. shall control emissions from the boiler (EU-122) using a low NO_x burner as specified in the permit application.

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SPECIAL CONDITIONS:

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

- B. The low NO_x burner shall be operated and maintained in accordance with the manufacturer's specifications.
3. Record Keeping and Reporting Requirements
- A. Hercules, Inc. 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.
 - B. Hercules, Inc. 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: 2011-02-025
Installation ID Number: 163-0002
Permit Number:

Hercules, Inc.
11083 Highway D
Louisiana, MO 63353

Complete: February 16, 2011

Parent Company:
Ashland, Inc.
5200 Blazer Parkway
Dublin, OH 43017

Pike County, T54N, R1W

REVIEW SUMMARY

- Hercules, Inc. has applied for authority to install a 100 MMBtu/hr natural gas-fired boiler.
- Hazardous Air Pollutant (HAP) emissions are expected from the proposed equipment. HAPs are emitted as products of combustion and are below their screen modeling action levels.
- 40 CFR 60 Subpart Dc, "Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units" applies to the equipment.
- 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.
- A low NO_x burner is being used to control the NO_x 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 all pollutants are below de minimis levels.
- This installation is located in Pike County, an attainment area for all criteria pollutants.
- This installation is on the List of Named Installations found in 10 CSR 10-6.020(3)(B), Table 2. The installation is classified as item number 20. Chemical process plants. The installation's major source level is 100 tons per year and fugitive emissions are 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.
- A Part 70 Operating Permit application is required for this installation within 1 year of equipment startup.
- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

Hercules, Inc. operates four chemical manufacturing process units (CMPU) and a coal/oil fired power plant to produce process steam for operations, as well as provide for most of their electricity. The four CMPUs located at the installation produce Formaldehyde, pentaerythritol, Nitroform fertilizer, and synthetic lubricants. The HAPs associated with the CMPUs are methanol, formaldehyde, and acetaldehyde.

The following permits have been issued to Hercules, Inc. from the Air Pollution Control Program.

Table 1: Permit History

Permit Number	Description
1193-018	Gas-fired rotary dryer and ancillary equipment
1194-020	Debottleneck Di-PE dryer
0196-005	Waste heat boiler
1298-003	Replacement of third effect evaporator condenser
0898-023	Addition of Crystallizer
042007-015	Synlube expansion

PROJECT DESCRIPTION

Hercules, Inc. is in the process of shutting down their power house. Once the power house is shut down, Hercules, Inc. will purchase steam from a nearby source. Hercules, Inc. is requesting authority to construct a 100 MMBtu/hr natural gas-fired boiler equipped with a low NO_x burner to provide steam until the steam can be purchased. This permit allows Hercules, Inc. to locate temporary boilers on the site when steam is not available for purchase. The permit will remain valid as long as Hercules, Inc. maintains the unit in the operating permit and their EIQ and a period of 24 consecutive months does not pass without a temporary boiler being brought on site.

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 1.4 "Natural Gas Combustion," July 1998. 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.

Table 2: Emissions Summary (tons per year)

Pollutant	Regulatory <i>De Minimis</i> Levels	*Existing Potential Emissions	Existing Actual Emissions (2009 EIQ)	Potential Emissions of the Application
PM _{2.5}	10.0	N/D	9.63	3.26
PM ₁₀	15.0	156.28	106.83	3.26
SO _x	40.0	7,404.90	4,891.40	0.26
NO _x	40.0	1,358.95	814.83	21.47
VOC	40.0	1,312.43	118.31	2.36
CO	100.0	176.30	48.55	36.07
HAPs	10.0/25.0	N/D	68.89	0.81

N/D = Not determined

*Existing potential emissions taken from permit 041007-015

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

Hercules, 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. 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
- *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

SPECIFIC REQUIREMENTS

- *New Source Performance Regulations, 10 CSR 10-6.070 – New Source Performance Standards (NSPS) for Small Industrial-Commercial-Institutional Steam Generating Units, 40 CFR Part 60, Subpart Dc*
- *Maximum Allowable Emissions of Particulate Matter From Fuel Burning Equipment Used for Indirect Heating, 10 CSR 10-3.060*

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.

Michael Mittermeyer
Environmental Engineer

Date

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated February 16, 2011, received February 16, 2011, designating Hercules, Inc. as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.

Mr. Mike Duffey
EHS & S Manager - MCW
Hercules, Inc.
11083 Highway D
Louisiana, MO 63353

RE: New Source Review Permit - Project Number: 2011-02-025

Dear Mr. Duffey:

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 Michael Mittermeyer, 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:mml

Enclosures

c: Northeast Regional Office
PAMS File: 2011-02-025

Permit Number: