

STATE OF MISSOURI

PERMIT BOOK



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: 11 2015 - 001

Project Number: 2015-05-039
Installation Number: 157-0037

Parent Company: FML Sand, LLC

Parent Company Address: P.O. Box 177, Wedron, Illinois 60557

Installation Name: FML Sand, LLC

Installation Address: PO Box 351, Brewer, Missouri 63775

Location Information: Perry County, S28, T36N, R10E

Application for Authority to Construct was made for:

The installation of a control device with better control efficiency and the addition of more drop points along the 100 ton per hour sand drying operation. 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.

Prepared by
Jordan Hindman
New Source Review Unit

Director or Designee
Department of Natural Resources
NOV 02 2015

Effective Date

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 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.

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."

FML Sand, LLC
Perry County, S28, T36N, R10E

1. Superseding Condition
 - A. The conditions of this permit supersede the following special condition found in the previously issued construction permit 012011-007A issued by the Air Pollution Control Program.
 - 1) Special Condition 3.
 - 2) Special Condition 4.A.1.)
2. Annual Emission Limits
 - A. FML Sand, LLC shall emit less than 15.0 tons of particulate matter less than ten microns in aerodynamic diameter (PM₁₀) in any consecutive 12-month period from the 150 ton per hour (tph) drying plant and the 25 tph washing/crushing plant combined. Equipment and activities from these operations are listed in Table 1 and Table 2.

Table 1: Equipment/Activities of the Rock Crushing/Washing Operation

Emission Point	Description
EP-2	Loading of Fragmented Stone
EP-3	Haul Road
EP-4	Unloading of Fragmented Stone
EP-5	Grizzly Feeder
EP-6	Primary Crusher
EP-6A	Underconveyor
EP-7	Quarry Conveyor QC-1 to Primary Wet Scalping Screen
EP-10	Secondary Crusher
EP-11	Quarry Conveyor QC-3 to Secondary Crusher
EP-12	Quarry Conveyor QC-4 to QC-1
EP-12A	Quarry Conveyor Reject Sand

SPECIAL CONDITIONS:

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

Table 2: Equipment/Activities of the 150 tons per hour drying operation

Emission Point	Description
EP-13	Storage Piles
EP-14	Storage Pile Load Out
EP-43	Hopper
EP-44	Belt Feeder
EP-45	Dryer Feed Conveyor
EP-46	Dryer
EP-47	Conveyor to Elevator D2-2
EP-48	Elevator to Screens
EP-35	Screens (6)
EP-49	Dry Product conveyors (4)
EP-50	Dry Product Elevators (4)
EP-51	200 ton Silos (6)
EP-51A	Truck Loadout from 200 ton silos
EP-52	40 ton Waste Silo
EP-52A	Truck Loadout from Waste Silo

- B. FMLS shall emit less than 15.0 tons of PM₁₀ combined in any consecutive 12-month period from the 100 tph drying plant and the 25 tph washing/crushing plant. Equipment and activities from these operations are listed in Table 1 and Table 3.

Table 3: Equipment/Activities of the 100 tons per hour drying operation

Emission Point	Description
EP-13*	Storage Piles
EP-14*	Storage Pile Load Out
EP-15*	Dryer Feed Conveyor
EP-16*	Fluid Bed Dryer
EP-17**	Dry Feed Conveyor DC-2 (3)
EP-18**	Dry Feed Elevator DE-1
EP-19**	Dry Screen (4 Rotex)
EP-20**	Dry Product Screw Conveyors (4)
EP-21**	Dry Product Elevators (6)
EP-22*	Dry Product Silos (4)
EP-22A*	Truck Loadout from Silos
EP-23*	Product Haul Road
EP-30*	Dry Screens (3)
EP-31*	Dry Product Conveyors (2)
EP-32*	Dry Product Elevators (2)
EP-33**	Dry Product Silos (8)
EP-33A**	Truck Loadout From Silos (8)

*These EPs are controlled by the existing cyclone and impingement scrubber in series (CD-09).

**These EPs are controlled by the new baghouse (CD-16).

SPECIAL CONDITIONS:

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

- C. FMLS shall demonstrate compliance with Special Condition 2.A and 2.B. using Attachment A and Attachment B or other equivalent forms that have been approved by the Air Pollution Control Program, including electronic forms.
3. Control Device Requirement - Baghouse (CD-16)
- A. FML Sand, LLC shall control particulate matter emissions from the following equipment in the 100 ton per hour drying operation using a baghouse (CD-16) as specified in the permit application.
 - 1) EP-17, Dry Feed Conveyors (3)
 - 2) EP-18, Dry Feed Elevator (1)
 - 3) EP-19, Dry Rotex Screens (4)
 - 4) EP-20, Dry Product Screw Conveyors, (4)
 - 5) EP-21, Dry Product Elevators (6)
 - 6) EP-33, Dry Product Loadout Silos (8)
 - 7) EP-33A, Dry Product Loadout Silo Spouts (8)
 - B. The baghouses shall be operated and maintained in accordance with the manufacturer's specifications. The baghouse 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 Department of Natural Resources' employees may easily observe them.
 - C. Replacement filters for the baghouses shall be kept on hand at all times. The bags shall be made of fibers appropriate for operating conditions expected to occur (i.e. temperature limits, acidic and alkali resistance, and abrasion resistance).
 - D. FML Sand, LLC shall monitor and record the operating pressure drop across the baghouses at least once every 24 hours. The operating pressure drop shall be maintained within the design conditions specified by the manufacturer's performance warranty.
 - E. FML Sand, LLC shall maintain a copy of the baghouse manufacturer's performance warranty on site.
 - F. FML Sand, LLC shall maintain an operating and maintenance log for the baghouses 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.

SPECIAL CONDITIONS:

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

4. Record Keeping and Reporting Requirements
 - A. FML Sand, LLC 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. FML Sand, LLC shall report to the Air Pollution Control Program's Compliance/Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than 10 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: 2015-05-039
Installation ID Number: 157-0037
Permit Number:

Installation Address:

FML Sand, LLC
PO Box 351
Brewer, Missouri 63775

Parent Company:

Fairmount Santrol
P.O. Box 177
Wedron, Illinois 60557

Perry County, S28, T36N, R10E

REVIEW SUMMARY

- FML Sand, LLC has applied for authority to construct for the installation of a control device with better control efficiency and the addition of more drop points along the 100 ton per hour sand drying operation.
- The application was deemed complete on June 19, 2015.
- HAP emissions are not expected from the proposed equipment.
- New Source Performance Standards (NSPS) Subpart OOO, *Standards of Performance for Nonmetallic Mineral Processing Plants*, applies to the installation.
- None of the NESHAPs apply to this installation. None of the currently promulgated MACT regulations apply to the proposed equipment.
- A baghouse is being used to control the particulate matter 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 conditioned below de minimis levels.
- This installation is located in Perry 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.
- In order to account for the changes in the 100 tph drying operation, an application for a new Basic Operating Permit or an application to modify the existing operating permit plant shall be submitted within 30 days of equipment start-up.
- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

FML Sand, LLC owns and operates a 100 ton per hour (tph) sand drying plant, a 150 tph sand drying plant, and a 25 tph aggregate washing/crushing plant. The 25 tph washing/crushing plant is shared between the two drying plants. Because each separately assessed and permitted drying plant (in combination with the washing/crushing plant) has the potential to emit more than de minimis levels, both plants must track emissions as stated in the previously issued construction permits (as well as this permit). The following New Source Review (construction) permits have been issued to FML Sand, LLC from the Air Pollution Control Program.

Table 4: Permit History

Permit Number	Description
122006-003	Construction of New Sand Plant
122006-003A	Corrections
032010-003	Add Storage Silos & Equipment
092010-114	Increase Production
012011-007	Add Equipment
012011-007A	Modification for Testing Purposes

PROJECT DESCRIPTION

FML Sand LLC, formerly FTS International Services LLC, is applying for a new construction permit. This permit is meant to cover changes to the current control device set-up, as well as the equipment that is being controlled in this new set-up. This permit only applies to the 100 tph sand drying plant—as this is the only plant undergoing minor changes.

The previous control device, CD-09, was an impingement scrubber responsible for reducing particulate matter emissions from the 100 tons per hour (tph) sand drying plant. For some equipment, the existing impingement scrubber and cyclone series control device setup will still be in use; however, emissions from some of the existing process equipment will be controlled by a new fabric filter system (baghouse) to reduce the particulate matter emissions from all equipment after the sand dryer. The baghouse will be referred to as the new control device (CD-16).

There is an existing 25 tph rock crushing/washing operation that is shared by both drying plants; neither of the sand dryers will be affected by the installation of CD-16. There are several new sand handling and storage drop points associated with the 100 tph sand drying plant that were not included in the previous permit. There will be 1 new dry feed conveyor pick-up point (EP-17), 2 new elevator leg pick-up points (EP-21), 4 new load-out silo pick-up points (EP-33), and 4 new silo pick-up points (EP-33A).

EMISSIONS/CONTROLS EVALUATION

The emission factors and control efficiencies used in this analysis were obtained from the EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, Section 11.19.1, "Sand and Gravel Processing" (Updated Nov. 1995).

The following table provides an emissions summary for this project. Existing potential emissions were taken from permit 012011-007A. Existing actual emissions were taken from the installation's 2014 EIQ. Potential emissions of the application represent the potential of the new equipment and modified equipment, assuming continuous operation (8760 hours per year).

As stated in the project description, the current control device (CD-09) will no longer be used for the capture and control of particulate matter emissions from all of the equipment, as noted in Special Condition 2 of this permit. The new control device is a baghouse (CD-16) and a baghouse efficiency of 99.5% was applied using guidance from the EPA document, AP-42, Appendix B.1. and Appendix B.2.

Table 5: Emissions Summary (tons per year)

Pollutant	Regulatory <i>De Minimis</i> Levels	Existing Potential Emissions	Existing Actual Emissions (2014 EIQ)	Potential Emissions of the Application	New Installation Conditioned Potential
PM	25.0	N/A	N/A	12.53	74.29
PM ₁₀	15.0	61.76	2.23	5.19	66.95
PM _{2.5}	10.0	39.92	1.58	1.60	41.52
SO _x	40.0	0.38	0.006	N/A	0.38
NO _x	40.0	47.58	1.08	N/A	47.58
VOC	40.0	3.66	0.03	N/A	3.66
CO	100.0	27.45	0.18	N/A	27.45
HAPs	10.0/25.0	0.61	0.01	N/A	0.61

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 conditioned below de minimis levels.

APPLICABLE REQUIREMENTS

FML Sand, LLC 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

- *Restriction of Particulate Matter Emissions From Fuel Burning Equipment Used for Indirect Heating*, 10 CSR 10-6.405
- 40 CFR 60, New Source Performance Standards (NSPS) Subpart OOO, *Standards of Performance for Nonmetallic Mineral Processing Plants*, applies to the installation.

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*, it is recommended that this permit be granted with special conditions.

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated May 13, 2015, received May 13, 2015, designating FML Sand, LLC as the owner and operator of the installation.

Attachment B – Annual PM₁₀ Compliance Worksheet

Site Name: FML Sand, LLC

Site Address: 1 mile north of Brewer, north of Route M between I-55 and Highway 66

Site County: Perryville County (S28, T36N, R10E)

This sheet covers the period from _____ to _____ (Copy as needed)
 (Month) (Month)

Month	FTS International Services, LLC Plant ID: 157-0037 Rock Crushing and Washing Operation			FTS International Services, LLC Plant ID: 157-0037 100 tph Drying Operation			² Monthly Total Emissions (lbs)	³ Total Monthly Emissions (tons)	⁴ 12-Month Emissions (tons)
	Monthly Production (tons)	Emission Factor (lbs/ton)	¹ Emissions (lbs)	Month Production (tons)	Emission Factor (lbs/ton)	¹ Emissions (lbs)			
<i>Example</i>	150,000	0.0027	405	40,000	0.0314	1,256	1,661	0.83	7.45
		0.0027			0.0314				
		0.0027			0.0314				
		0.0027			0.0314				
		0.0027			0.0314				
		0.0027			0.0314				
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		0.0027			0.0314				
		0.0027			0.0314				
		0.0027			0.0314				

¹Calculate the emissions (lbs) of each month by multiplying the monthly production (tons) of the 100 tph sand drying plant by the emission factor (lbs/ton).

²Calculate the total emissions (lbs) of each month by adding the emissions (lbs) from each operation

³Calculate the total emissions (tons) of each month by dividing the total emissions (lbs) of each month by 2,000.

⁴Calculate the 12-Month Emissions by adding this month's emissions (tons) with the emissions (tons) of the previous eleven (11) months. A total of less than **10.0 tons** per year is necessary for compliance.

APPENDIX A

Abbreviations and Acronyms

%	percent	m/s	meters per second
°F	degrees Fahrenheit	Mgal	1,000 gallons
acfm	actual cubic feet per minute	MW	megawatt
BACT	Best Available Control Technology	MHDR	maximum hourly design rate
BMPs	Best Management Practices	MMBtu	Million British thermal units
Btu	British thermal unit	MMCF	million cubic feet
CAM	Compliance Assurance Monitoring	MSDS	Material Safety Data Sheet
CAS	Chemical Abstracts Service	NAAQS ...	National Ambient Air Quality Standards
CEMS	Continuous Emission Monitor System	NESHAPs	National Emissions Standards for Hazardous Air Pollutants
CFR	Code of Federal Regulations	NO_x	nitrogen oxides
CO	carbon monoxide	NSPS	New Source Performance Standards
CO₂	carbon dioxide	NSR	New Source Review
CO_{2e}	carbon dioxide equivalent	PM	particulate matter
COMS	Continuous Opacity Monitoring System	PM_{2.5}	particulate matter less than 2.5 microns in aerodynamic diameter
CSR	Code of State Regulations	PM₁₀	particulate matter less than 10 microns in aerodynamic diameter
dscf	dry standard cubic feet	ppm	parts per million
EQ	Emission Inventory Questionnaire	PSD	Prevention of Significant Deterioration
EP	Emission Point	PTE	potential to emit
EPA	Environmental Protection Agency	RACT	Reasonable Available Control Technology
EU	Emission Unit	RAL	Risk Assessment Level
fps	feet per second	SCC	Source Classification Code
ft	feet	scfm	standard cubic feet per minute
GACT	Generally Available Control Technology	SDS	Safety Data Sheet
GHG	Greenhouse Gas	SIC	Standard Industrial Classification
gpm	gallons per minute	SIP	State Implementation Plan
gr	grains	SMAL	Screening Model Action Levels
GWP	Global Warming Potential	SO_x	sulfur oxides
HAP	Hazardous Air Pollutant	SO₂	sulfur dioxide
hr	hour	tph	tons per hour
hp	horsepower	tpy	tons per year
lb	pound	VMT	vehicle miles traveled
lbs/hr	pounds per hour	VOC	Volatile Organic Compound
MACT	Maximum Achievable Control Technology		
µg/m³	micrograms per cubic meter		

Mr. David Olchawa
Central Region Environmental Manager
FML Sand, LLC
P.O. Box 177
Wedron, Illinois 60557

RE: New Source Review Permit - Project Number: 2015-05-039

Dear Mr. Olchawa:

Enclosed with this letter is your permit to construct. Please study it carefully and refer to Appendix A for a list of common abbreviations and acronyms used in the permit. Also, note the special conditions 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 were adversely affected by this permit decision, you may be entitled to pursue an appeal before the administrative hearing commission pursuant to Sections 621.250 and 643.075.6 RSMo. To appeal, you must file a petition with the administrative hearing commission within thirty 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 administrative hearing commission, whose contact information is: Administrative Hearing Commission, Truman State Office Building, Room 640, 301 W. High Street, P.O. Box 1557, Jefferson City, Missouri 65102, phone: 573-751-2422, fax: 573-751-5018, website: www.oa.mo.gov/ahc. If you have any questions regarding this permit, please do not hesitate to contact Jordan Hindman, at the Department of Natural Resources' Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102 or at (573) 751-4817.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Susan Heckenkamp
New Source Review Unit Chief

SH:jhl

Enclosures

c: Southeast Regional Office
PAMS File: 2015-05-039
Permit Number: