

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:

02 2017 - 012

Project Number: 2016-11-041

Installation Number: 019-0069

Parent Company:

Quaker Manufacturing, LLC

Parent Company Address: 555 W. Monroe, Suite 13-03, Chicago, IL 60661

Installation Name:

Quaker Manufacturing, LLC

Installation Address:

4501 N Route B, Columbia, MO 65202

Location Information:

Boone County, S28, T49N, R12W

Application for Authority to Construct was made for:

The installation of a new cake drying oven for Line 5 and increase in cake production capacity. 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.

Hans Robinson

Prepared by
Hans Robinson
New Source Review Unit

Kyra L Moore

Director or Designee
Department of Natural Resources

FEB 28 2017

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 Enforcement and Compliance Section of 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 Enforcement and Compliance Section of the Department's Air Pollution Control Program of the anticipated date of startup 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's regional office responsible for the area within which you are located within 15 days after the actual startup of this (these) air contaminant source(s).

A copy of the permit application and this permit and permit review shall be kept at the installation address and shall be made available to Department's 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 using the contact information below.

Contact Information:
Missouri Department of Natural Resources
Air Pollution Control Program
P.O. Box 176
Jefferson City, MO 65102-0176
(573) 751-4817

The regional office information can be found at the following website:
<http://dnr.mo.gov/regions/>

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."

Quaker Manufacturing, LLC
Boone County, S28, T49N, R12W

1. **Superseding Condition**

- A. The conditions of this permit supersede the following special conditions found in the previously issued construction permit 022014-007 issued by the Air Pollution Control Program. This includes:
- 1) Special Condition 2: VOC Emissions Limitation
 - 2) Special Condition 3: PM_{2.5} Emission Limitation
 - 3) Special Condition 4: Capture Device Requirement – Hood
 - 4) Special Condition 5: Filters (EP-6A through EP-6D and EP-6I)
 - 5) Special Condition 8: Record Keeping and Reporting Requirements

2. **VOC Emission Limitations**

- A. Quaker Manufacturing, LLC shall emit less than 250.0 tons of VOCs in any consecutive 12-month period from the entire installation as defined in Table 1.

Table 1: Installation VOC Emission Points

Emission Point	Description
EP-01	Fulton boiler natural gas combustion
EP-02A, EP-02B	Line 1 and 2 mini cake liquid flavoring
	Line 1 and 2 mini cake natural gas combustion
EP-02C, EP-02D	Line 3, 4, and 5 large cake liquid flavoring
	Line 3, 4, and 5 large cake natural gas combustion
EP-03	Water heaters natural gas combustion
EP-04	Make up air natural gas combustion
EP-05	Space heater natural gas combustion
EP-07	Parts washer
EP-08	Dehumidifier natural gas combustion
EP-09	HVAC natural gas combustion

- 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 2.A.

3. **PM_{2.5} Emission Limitation**

- A. Quaker Manufacturing, LLC shall emit less than 24.58 tons of PM_{2.5} in any consecutive 12-month period from the project as defined in Table 2.

SPECIAL CONDITIONS:

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

Table 2: Project PM_{2.5} Emission Points

Emission Point	Description
EP-2A, EP-2B	Mini line ovens
EP-2C, EP-2D, EP-2E	Large line ovens
EP-6A, 6B, 6C, 6D	Mini cake line hoods
EP-6E, 6F, 6G, 6H	Large cake line hoods
EP-10A, 10B, 10C	RCM Room exhaust
EP-11	Grain receiving
EP-12	Paved haul roads
EP-13	Dry flavoring handling

- B. Attachment B or equivalent forms, such as electronic forms, approved by the Air Pollution Control Program shall be used to demonstrate compliance with Special Condition 3.A.

- 4. Capture Device Requirement – Hood
 - A. Quaker Manufacturing, LLC shall capture emissions from large and mini Rice Cake Machine (RCM) lines using hood(s).

 - B. Quaker Manufacturing, LLC shall minimize cross drafts by locating the emissions source and the hood(s) inside a building with four sides and a roof.

 - C. Quaker Manufacturing, LLC shall design and construct each hood according to the specifications of the existing RCM Mini Line 1 and 2 hoods. Design records shall be kept on site.

- 5. Control Device Requirement – Filters
 - A. Quaker Manufacturing, LLC shall control emissions from the RCM Mini Line hoods using filters of at least two plies.

 - B. 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. Quaker Manufacturing, LLC shall develop a written standard operating procedure to monitor pressure drop and filter condition. The pressure drop across the filters shall be recorded at least once daily. Normal operation and replacement parameters shall be indicated. The standard operating procedure shall be kept on site.

 - D. Quaker Manufacturing, LLC shall operate the filters according to the standard operating procedure. The operating pressure drop shall be maintained within the specifications of the standard operating procedure.

022017-012

SPECIAL CONDITIONS:

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

- E. 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).
 - F. Quaker Manufacturing, LLC 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.
6. Record Keeping and Reporting Requirements
- A. Quaker Manufacturing, 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. These records shall include MSDS for all materials used.
 - B. Quaker Manufacturing, LLC 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 shows an exceedance of a limitation imposed by this permit.

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

Project Number: 2016-11-041
Installation ID Number: 019-0069
Permit Number: 022017-012

Installation Address:

Quaker Manufacturing, LLC
4501 N Route B
Columbia, MO 65202

Parent Company:

Quaker Manufacturing, LLC
555 W. Monroe, Suite 13-03
Chicago, IL 60661

Boone County, S28, T49N, R12W

REVIEW SUMMARY

- Quaker Manufacturing, LLC has applied for authority to convert Line 5 from a mini cake line to a large cake line, to install a new cake drying oven for Line 5, to add flavoring capability to Line 5 that will emit VOC, and to expand all lines to accommodate additional rice cake machines (RCMs).
- The application was deemed complete on December 6, 2016.
- HAP emissions are expected from the project emission units.
- None of the New Source Performance Standards (NSPS) apply to the installation.
- None of the NESHAPs apply to this installation. None of the currently promulgated MACT regulations apply to the proposed equipment.
- Exhaust filters and hoods are being used to control PM, PM₁₀, and PM_{2.5} emissions from the RCM Mini Lines.
- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of PM_{2.5} from the project are conditioned to a de minimis increase above baseline actuals. Potential emissions of VOC from the installation are conditioned below the NSR major source level.
- This installation is located in Boone 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 the potential emissions increases of the application are below de minimis levels.

- Emission testing is not required for the equipment as a part of this permit.
- Submittal of an application to amend the intermediate operating permit is required for this installation within 90 days of equipment startup.
- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

Quaker Manufacturing, LLC processes raw corn and rice cereal grain into cakes using rice cake machines (RCM). The rice cakes are then coated with flavoring, baked, cooled, and packaged before being shipped. The installation is a minor VOC, PM₁₀ and PM_{2.5} source under construction permits and an intermediate VOC source under operating permits.

The following New Source Review permits have been issued to Quaker Manufacturing, LLC from the Air Pollution Control Program.

Table 3: Permit History

Permit Number	Description
1294-002	Rice cake production installation
0596-005	Natural gas fired ovens, remove throughput limit
0596-005A	VOC emissions from flavorings
092010-110	Production increase by adding RCM heads; incorporate PM ₁₀ stack test
022014-007	Addition of RCM mini Line 5 and modification of four existing RCM mini lines

PROJECT DESCRIPTION

Quaker Manufacturing, LLC will begin by reorganizing the physical locations of the popping lines. The main popping room will house lines 1 through 5 where the Rice Cooking Machines (RCMs) are located. Lines 1 and 2 will make small rice cakes while lines 3, 4, and 5 will manufacture large rice cakes. Line 5 is currently located in the L5 Popping Room and will be relocated to the main popping room. Existing popping lines only accommodate 32 to 64 RCMs and are being upgraded to accommodate 40 to 80 RCMs. RCM particulate emissions will be controlled by hoods and filters. All lines except for Line 2 and Line 5 are divided into East and West designations (ie. Line 1 will have 40 RCMs on the East side (1E) and 40 RCMs on the West side (1W) for a total of 80 RCMs in line 1). Line 2 and Line 5 will compose of only 40 RCMs each. Although Line 1 was previously permitted to contain an East side of 32 RCMs, Line 1E was previously dismantled and removed. During the renovation Line 2W will be moved to the position of Line 1E and will contain 40 RCMs (rather than 32 RCMs, see Table 4 for details).

Line 5 currently exists as a mini cake line and will be upgraded to a large cake line and relocated to the main popping room. After rice cakes leave the RCMs they are sprayed with flavoring agents that have the potential to emit VOC as the solvent components evaporate. Currently, all cake lines except Line 5 undergo spraying. Thus, flavoring capability will be added to Line 5 during the upgrade. After spraying, cakes are dried in ovens which utilize natural gas as a heating source. A cake drying oven with a natural gas capacity of 0.003 mmscf/hr (3 MMBtu/hr) will also be installed for Line 5.

In summary, the following upgrades will occur:

- Reorganize the physical locations of the popping lines
- Convert Line 5 from mini cake line to a large cake line
- Install a new cake drying oven for Line 5
- Add VOC flavoring capability to Line 5
- Expand all lines from 32 to 64 RCMs each to accommodate a total of 40 to 80 RCMs each

Table 4: Proposed Cake Production

Emission Point	Description	Proposed RCM	Proposed Production (cakes/RCM/cycle)	Cycle Time (sec)	Proposed MHDR (lb cake/hr) ¹
6A	RCM Mini Line 1 East Hood	40	16	5.3	1294
6B	RCM Mini Line 1 West Hood	40	16	5.3	1294
6C	RCM Mini Line 2 East Hood	40	16	5.3	1294
6D	RCM Large Line 3 East Hood	40	2	7.5	846
6E	RCM Large Line 3 West Hood	40	2	7.5	846
6F	RCM Large Line 4 East Hood	40	2	7.5	846
6G	RCM Large Line 4 West Hood	40	2	7.5	846
6H	RCM Large Line 5 Hood	40	2	7.5	846
Total		320			8112

¹Large cakes weight 10g per cake, mini cakes weigh 1.35g per cake.

EMISSIONS/CONTROLS EVALUATION

The controlled emission factors used to calculate the potential emissions increase from grain transfer, popping, rice cake forming, and ovens were obtained from PM₁₀ emission testing performed at the installation on March 17-18, 2010. The factors were used to calculate the increase at the modified lines and the potential emissions of the upgraded lines. The upgraded line's construction and operation will be similar to the existing tested lines; therefore no new testing is required. The hood and filter capture and control efficiency were not calculated for this project as the construction and operation of the new/modified lines and control devices will be similar to the existing tested lines. PM and PM₁₀ emissions were assumed to be the same as PM_{2.5}. Thus, Special Condition 3.A specifically limits PM_{2.5} because PM_{2.5} has the most restrictive *de minimis* applicability.

The emission factors used to calculate the grain receiving emissions were obtained from the EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, Section 9.9.1, *Grain Elevators & Processes*, May 2003. Grain is received in one ton super sacks, and the hopper bottom truck emission factors were used. There are no add-on emission control devices.

The emission factors for Natural Gas Combustion used in this analysis were obtained from the EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, Section 1.4, *Natural Gas Combustion*, July 1998.

The increase in potential VOC emissions from liquid flavoring for all cake lines were calculated using mass balance. There are no VOC control devices. The VOC content of each flavoring was calculated based upon the respective maximum weight range of each ingredient list on the MSDS. The manufacturer-provided VOC content was not used as it was not consistent with the VOC

definition. VOC content varies among flavoring usage, with Butter Toffee (2206137400) having the highest VOC content (93%) and Chocolate flavoring (2205958200) having the lowest VOC content (49%). Since VOC content varies by a sizeable margin between flavorings, Attachment A and Special Conditions 2.A and 2.B will require that VOC emissions from each flavoring be evaluated as their individual weight percentage of VOC content.

Since this project is a modification of existing emissions units, the emissions increase of PM₁₀, PM_{2.5}, VOC, etc. are determined by calculating the difference between the projected actual emissions and the baseline actual emissions. Baseline actual emissions of VOC, PM, PM₁₀, and PM_{2.5} were calculated as the average of actual emissions from 2013 to 2014 which were the years chosen by the applicant. Projected Emission Increases were calculated by subtracting the baseline actuals from the projected actual emissions of the application. The baseline actuals for PM_{2.5} are 14.58 tpy and limited to a *de minimis* increase of 10 tpy from the installation upgrade. Therefore a new limit of 24.58 tpy of PM_{2.5} was calculated as the sum of the previous two figures.

Table 5: Emissions Summary (tpy)

Pollutant	Regulatory <i>De Minimis</i> Levels	Existing Potential Emissions ¹	Existing Actual Emissions (Average of 2013 and 2014 EI@S)	Project Emissions Increase (See Table 6)	Conditioned Potential Emissions of the Project	New Installation Conditioned Potential
PM	25.0	N/D	14.58	6.16	N/A	N/A
PM10	15.0	N/D	14.58	6.16	N/A	N/A
PM2.5	10.0	<19.81	14.58	6.16	<24.58	N/A
SOx	40.0	0.22	0.00	0.01	N/A	N/A
NOx	40.0	36.38	1.12	1.31	N/A	N/A
VOC ²	40.0	<250	41.77	19.58	N/A	<250.0
CO	40.0	30.57	0.95	1.10	N/A	N/A
HAPs	10.0/25.0	0.65	0.02	0.02	N/A	N/A

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

¹Existing Potential Emissions were taken from the calculated potential emissions and limits from the previous Construction Permit No. 022014-007.

²The installation VOC emissions are limited to less than 100.0 tons in operating permit OP2011-012 to avoid being a major source for operating permit applicability. The limit will need to be restated in an operating permit in order to remain an intermediate VOC source.

Table 6: Past Actual and Projected Actual Emissions Summary (tpy)

Pollutant	Facility Actual Emissions (2013)	Facility Actual Emissions (2014)	Baseline Facility Actual Emissions 2013-2014 average	Projected Facility Actual Emissions	Projected Actual Emissions Increase (Projected Actuals Minus Baseline Actuals)
PM	N/D	N/D	N/D	N/D	N/D
PM10	15.13	13.91	14.52	20.73	6.21
PM2.5	15.13	13.91	14.52	20.73	6.21
SOx	0.00	0.00	0.00	0.01	0.01
NOx	1.32	0.91	1.12	2.43	1.32
VOC	46.09	37.44	41.77	61.33	19.57
CO	1.11	0.77	0.94	2.04	1.10
HAPs	0.02	0.01	0.02	0.04	0.03

N/D = Not Determined

¹Since the net emissions increase for PM_{2.5} and VOC are below *de minimis*, the proposed upgrades are being permitted as a *de minimis* emissions increase.

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 PM_{2.5} from the project are conditioned to a *de minimis* increase above baseline actuals. Potential emissions of VOC from the installation are conditioned below the NSR major source level.

APPLICABLE REQUIREMENTS

Quaker Manufacturing, 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

- *Operating Permits*, 10 CSR 10-6.065
- *Start-Up, Shutdown, and Malfunction Conditions*, 10 CSR 10-6.050
- *Submission of Emission Data, Emission Fees and Process Information*, 10 CSR 10-6.110
 - Per 10 CSR 10-6.110(4)(B)2.B(II) and (4)(B)2.C(II) a full EIQ is required for the first full calendar year the equipment (or modifications) approved by this permit are in operation.

- *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

- None of the New Source Performance Standards (NSPS) apply to the installation.
- None of the NESHAPs apply to this installation. None of the currently promulgated MACT regulations apply to the proposed equipment.

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 November 18, 2016, received November 18, 2016, designating Quaker Manufacturing, LLC as the owner and operator of the installation

Attachment B – Project PM_{2.5} Compliance Worksheet

Quaker Manufacturing, LLC

Boone County

Project: 2016-11-041

Facility ID: 019-0069

Permit: **022017-012**

This sheet covers the period of _____ to _____. Copy this sheet as needed.
 (month, year) (month, year)

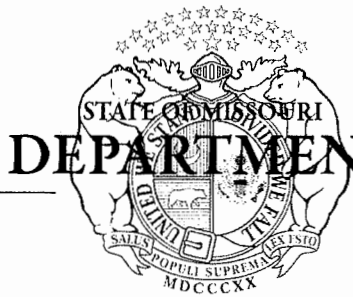
A	B	C	D	E	F	G	H	I	J	K	L	M
Current Month, Year	Grain Received (tons)	Grain Receiving Emission Factor (lb/ton)	Mini Cakes Produced (tons)	Mini Line Hood, Room Exhaust, Oven, and Haul Road Composite Emission Factor (lb/ton)	Large Cakes Produced (tons)	Large Line Hood, Room Exhaust, Oven, and Haul Road Composite Emission Factor (lb/ton)	Dry Flavoring Received (tons)	Dry Flavoring Emission Factor (lb/ton)	PM _{2.5} Emissions (tons)	Previous Month's 12-Month PM _{2.5} Emissions (K) (tons)	Previous Year's PM _{2.5} Emissions from this Month (H) (tons)	12-Month PM _{2.5} Emissions (tons)
Example	160.81	0.0013	200.37	1.7197		1.8701	5.94	0.1825	0.17	2.18	0.14	2.21
Example	185.45	0.0013	211.89	1.7197		1.8701	6.52	0.1825	0.18	2.21	0.19	2.20
		0.0013		1.7197		1.8701		0.1825				
		0.0013		1.7197		1.8701		0.1825				
		0.0013		1.7197		1.8701		0.1825				
		0.0013		1.7197		1.8701		0.1825				
		0.0013		1.7197		1.8701		0.1825				
		0.0013		1.7197		1.8701		0.1825				
		0.0013		1.7197		1.8701		0.1825				
		0.0013		1.7197		1.8701		0.1825				
		0.0013		1.7197		1.8701		0.1825				
		0.0013		1.7197		1.8701		0.1825				
		0.0013		1.7197		1.8701		0.1825				
		0.0013		1.7197		1.8701		0.1825				
		0.0013		1.7197		1.8701		0.1825				

- A. Record the current month and year.
- B. Record the amount grain received this month.
- C. Grain receiving emission factor from AP-42, Section 9.9.1, *Grain Elevators and Processes*, hopper bottom receiving.
- D. Record the amount of mini cakes produced this month.
- E. Composite emission factor, summation of 1.1343 (Mini Line Hood Exhaust), 0.5302 (RCM Room Ventilation), 0.0543 (Mini Line Oven), and 0.0009 (Haul Road) lb/ton of cakes respectively.
- F. Record the amount of large cakes produced this month
- G. Composite emission factor, summation of 1.32 (Large Line Hood Exhaust), 0.5302 (RCM Room Ventilation), 0.019 (Large Line Oven), and 0.0009 (Haul Road) lb/ton of cakes respectively.
- H. Record the amount of dry flavoring received this month.
- I. Dry flavoring emission factor from AP-42, Section 11.12, *Concrete Batching*, uncontrolled cement transfer.
- J. Calculate the PM_{2.5} emissions. $J = ([B \times C] + [D \times E] + [F \times G] + [H \times I]) / 2,000$
- K. Record the 12-month PM_{2.5} emissions from the previous month.
- L. Record this month's PM_{2.5} emissions from the same month last year.
- M. Calculate the 12-month PM_{2.5} emissions. $M = J + K - L$. A value less than 24.58 tons indicates 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
EIQ	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		



Eric R. Greitens, Governor • Carol S. Comer, Acting Director

DEPARTMENT OF NATURAL RESOURCES

dnr.mo.gov

FEB 28 2017

Mr. Ray Patterson
HSE Manager
Quaker Manufacturing, LLC
4501 N Route B
Columbia, MO 65202

RE: New Source Review Permit - Project Number: 2016-11-041

Dear Mr. Patterson:

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 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.

This permit may include requirements with which you may not be familiar. If you would like the department to meet with you to discuss how to understand and satisfy the requirements contained in this permit, an appointment referred to as a Compliance Assistance Visit (CAV) can be set up with you. To request a CAV, please contact your local regional office or fill out an online request. The regional office contact information can be found at the following website: <http://dnr.mo.gov/regions/>. The online CAV request can be found at <http://dnr.mo.gov/cav/compliance.htm>.

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, United States Post Office Building, 131 West High Street, Third Floor, P.O. Box 1557, Jefferson City, Missouri 65102, phone: 573-751-2422, fax: 573-751-5018, website: www.oa.mo.gov/ahc.



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Mr. Ray Patterson
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If you have any questions regarding this permit, please do not hesitate to contact Hans Robinson at the Department of Natural Resources' 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



Susan Heckenkamp
New Source Review Unit Chief

SH:hrj

Enclosures

c: Northeast Regional Office
PAMS File: 2016-11-041

Permit Number:

022017-012