Missouri Department of NATURAL RESOURCES
dnr.mo.gov
Michael L. Parson, Governor
Carol S. Comer, Director

MAR 0 4 2019

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

RE: New Source Review Permit - Project Number: 2018-10-046

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 amended intermediate 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.

If you have any questions regarding this permit, please do not hesitate to contact Kathy Kolb, 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:kkj

Enclosures

c: Northeast Regional Office
PAMS File: 2018-10-046

Permit Number: 032019-001

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: 032019-001

Project Number: 2018-10-046
Installation Number: 019-0069

Parent Company: Quaker Manufacturing LLC

Parent Company Address: 555 W. Monroe, Suite 13-03, Chicago, IL 60661-4714

Installation Name: Quaker Manufacturing LLC

Installation Address: 4501 Route B, Columbia, MO 65202

Location Information: Boone County, S28, T49N, R12W

Application for Authority to Construct was made for:
The installation of 32 rice cake machines (RCM), packaging equipment and an oven. 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.

Director or Designee
Department of Natural Resources

MAR 04 2019

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 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's 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 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 to 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. Capture Device Requirement – Hood
   A. Quaker Manufacturing LLC shall capture emissions from 32 Rice Cake Machines (RCMs) Line 6, referred to Line 6, using hood(s).

   B. Quaker Manufacturing LLC shall minimize cross drafts by locating the 32 RCMs on Line 6 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 most current version of the industrial ventilation manual entitled, "Industrial Ventilation – A Manual of Recommended Practice, American Conference of Governmental Industrial Hygienist".

   D. Quaker Manufacturing LLC shall demonstrate that each hood was constructed in accordance to Special Condition C. by keeping record of the following design parameters for each hood:
      1) The cross-sectional area of the hood inlet
      2) The distance from the hood inlet to each of the 32 RCMs on Line 6
      3) The minimum recommended volumetric airflow
      4) The minimum recommended hood face velocity

   E. Within 90 days of the start of the operation, Quaker Manufacturing LLC shall verify the proper operation of each hood by:
      1) Recording the actual face velocity and the actual volumetric airflow of each capture hood
      2) Performing a visual smoke puff test at each hood on Line 6

2. Control Device Requirement – Filters
   A. Quaker Manufacturing LLC shall control emissions from the RCM Mini Line 6 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.

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

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.

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.

3. 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: 2018-10-046
Installation ID Number: 019-0069
Permit Number: 032019-001

Installation Address:
Quaker Manufacturing LLC
4501 Route B
Columbia, MO 65202

Parent Company:
Quaker Manufacturing LLC
555 W. Monroe, Suite 13-03
Chicago, IL 60661-4714

Boone County, S28, T49N, R12W

REVIEW SUMMARY

- Quaker Manufacturing LLC has applied for authority to install 32 rice cake machines (RCM), referred to as (Line 6) packaging equipment and a natural gas-fired oven.
- The application was deemed complete on November 2, 2018
- HAP emissions are expected from the combustion of natural gas from Line 6 oven.
- None of the 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.
- Filters are being used to control the PM, PM_{10} and $PM_{2.5}$ 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 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 potential emissions of the application are below de minimis levels.

- Emissions testing is not required for the equipment as a part of this permit. Testing may be required as part of other state, federal or applicable rules.

- An amendment to Intermediate Operating Permit OP2018-074 is required for this installation within 90 days of equipment startup.

- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

The Quaker plant is a rice cake production plant consisting of raw grain receiving operations, rice cake machines, (RCMs), natural gas-fried ovens, flavor application operations and packaging systems. The facility has five existing production lines and is adding a sixth line with the current expansion project. The cake production generates particulate emissions which are captured using vent hoods containing filters. The foods are routed, post filter control, to a common stack. A flavor addition area has blenders where cakes are coated with wet or dry flavorings. VOC emissions are generated from the coated cakes as they are dried in the ovens.

The facility operates in accordance with an Intermediate Operating Permit No. OP2018-074 that expires on August 20, 2023. The plant has taken a voluntary limit for VOC of less than 100 tons per 12-month consecutive time period. The VOC emissions are tracked by conducting a mass balance on the usage of all flavorings for the entire installation. Therefore, the increase from Line 6 will need to be included in an amendment to OP2018-074 for Quaker to continue to operate within this installation wide VOC emission limit of less than 100 tons per 12-months as stated in OP2018-074.

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

Table 1: 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
022017-012	New cake drying oven for Line 5 and increase production

PROJECT DESCRIPTION

Quaker is increasing production by adding new equipment referred to as Line 6 that includes 32 RCMs each containing two "heads" for producing rice cakes (64 heads total). Flavoring application equipment, packaging equipment and a drying oven will be installed as well. The new equipment will be housed in a new addition to the existing building. The new production line will make large cakes using similar equipment to that

being used in the existing large cake lines. The process flow and emission exhaust will be identical to the existing lines. There will be an increase in the amount of grain received to accommodate the increased production as well. A new super sack unloading station will be installed in the existing unloading room. There will be an increase in traffic and haul road emissions have been calculated and provided by the applicant as part of this project. The natural gas drying oven will have a MHDR of 3.0 mmBTU/hr.

EMISSIONS/CONTROLS EVALUATION

The controlled emission factors used to calculate the potential emissions increase from grain transfer, rice cake forming, and ovens were obtained from PM_{10} emission testing performed at the installation on March 17-18, 2010. The factors were used to calculate the potential emissions of Line 6. The Line's 6 construction and operation will be similar to the existing tested lines; therefore no new testing is required. The hood capture of 75% and control efficiency of 20% of the filter were calculated for this project as the construction and operation of the Line 6 and control devices will be similar to the existing tested lines. PM and PM_{10} emissions were assumed to be the same as $PM_{2.5}$.

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 the various flavorings was calculated based on a maximum VOC content of 81% Since VOC content varies by a sizeable margin between flavorings, Quaker will continue to evaluate VOC emissions from each flavoring according to their individual weight percentage of VOC content.

Emissions from haul roads were calculated using the predictive equation from AP-42 Section 13.2.1 "Paved Roads," January 2011.

The following table provides an emissions summary for this project. Existing potential emissions were taken from Operating Permit #OP2018-074. Existing actual emissions were taken from the installation's 2017 EIQ. Potential emissions of the application represent the potential of the new equipment, assuming continuous operation (8760 hours per year).

The existing installation's PTE was obtained from OP2018-074. The installation has a 100 ton per year VOC limit as stated in OP2018-074. There has been individual de minimis $PM_{2.5}$ limits in Permits 022017-014 and 022014-007.

Table 2: Emissions Summary (tpy)

Pollutant	Regulatory *De Minimis* Levels[a]	Existing Potential Emissions	Existing Actual Emissions (2017 EIQ)	Potential Emissions of the Project
PM	25.0	N/D	N/D	3.49
PM_{10}	15.0	21.51	13.77	2.94
$PM_{2.5}$	10.0	Minor	13.77	2.77
SOx	40.0	0.14	7.2E-3	0.01
NOx	40.0	22.78	1.19	1.28
VOC	40.0	<100.0[b]	55.79	22.02
CO	100.0	19.14	1.0	1.08
GHG (CO_2e)	N/A	N/D	N/D	N/D
GHG (mass)	N/A	N/D	N/D	N/D
HAPs	10.0/25.0	0.43	2.25E-2	0.024

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

[a] Existing $PM_{2.5}$ potential emission for the installation has not been specifically determined. However, the potential emissions are determined to be minor due to limits on several individual projects in Permit Nos. 022014-007 and 0220017-014.

[b] Voluntary VOC 100 tons per year limit as stated in OP2018-074.

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

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
  - OP2018-074 needs to be amended within 90 days from start-up of Line 6.

- *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

- *Restriction of Emission Particulate Matter Emissions From Industrial Sources*, 10 CSR 10-6.400
  - The project emissions sources emit particulate matter. Therefore, this regulation is applicable. An evaluation of the allowable emission limits is provided in the following Table 3.

Table 3 Comparison of Maximum PM to Allowable PM Emission Rate

Emission Sources	Maximum PM Emission Rate (lb/hr)	PM Allowable Emission Rate (lb/hr)	Exempt from 6.400
Line 6 Production- Hoods	0.04181	1.90	Yes-6.400(1)(B)12.
Line 6 Production - Room	0.1830	1.90	Yes-6.400(1)(B)12.
Line 6 Grain Receiving	0.01	2,217	Yes-6.400(1)(B)12.
Line 6 Dry Flavoring	0.06	1.87	Yes-6.400(1)(B)12.

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 October 25, 2018, received October 26, 2018, designating Quaker Manufacturing LLC as the owner and operator of the installation.

APPENDIX A

Abbreviations and Acronyms

% ..... percent
°F ..... degrees Fahrenheit
acfm ..... actual cubic feet per minute
BACT ..... Best Available Control Technology
BMPs ..... Best Management Practices
Btu ..... British thermal unit
CAM ..... Compliance Assurance Monitoring
CAS ..... Chemical Abstracts Service
CEMS ..... Continuous Emission Monitor System
CFR ..... Code of Federal Regulations
CO ..... carbon monoxide
CO_2 ..... carbon dioxide
CO_2e ..... carbon dioxide equivalent
COMS ..... Continuous Opacity Monitoring System
CSR ..... Code of State Regulations
dscf ..... dry standard cubic feet
EIQ ..... Emission Inventory Questionnaire
EP ..... Emission Point
EPA ..... Environmental Protection Agency
EU ..... Emission Unit
fps ..... feet per second
ft ..... feet
GACT ..... Generally Available Control Technology
GHG ..... Greenhouse Gas
gpm ..... gallons per minute
gr ..... grains
GWP ..... Global Warming Potential
HAP ..... Hazardous Air Pollutant
hr ..... hour
hp ..... horsepower
lb ..... pound
lbs/hr ..... pounds per hour
MACT ..... Maximum Achievable Control Technology
$\mu g/m^3$ ..... micrograms per cubic meter
m/s ..... meters per second
Mgal ..... 1,000 gallons
MW ..... megawatt
MHDR ..... maximum hourly design rate
MMBtu ..... Million British thermal units
MMCF ..... million cubic feet
MSDS ..... Material Safety Data Sheet
NAAQS ..... National Ambient Air Quality Standards
NESHAPs National Emissions Standards for Hazardous Air Pollutants
NO_x ..... nitrogen oxides
NSPS ..... New Source Performance Standards
NSR ..... New Source Review
PM ..... particulate matter
$PM_{2.5}$ ..... particulate matter less than 2.5 microns in aerodynamic diameter
PM_{10} ..... particulate matter less than 10 microns in aerodynamic diameter
ppm ..... parts per million
PSD ..... Prevention of Significant Deterioration
PTE ..... potential to emit
RACT ..... Reasonable Available Control Technology
RAL ..... Risk Assessment Level
SCC ..... Source Classification Code
scfm ..... standard cubic feet per minute
SDS ..... Safety Data Sheet
SIC ..... Standard Industrial Classification
SIP ..... State Implementation Plan
SMAL ..... Screening Model Action Levels
SO_x ..... sulfur oxides
SO_2 ..... sulfur dioxide
SSM ..... Startup, Shutdown & Malfunction
tph ..... tons per hour
tpy ..... tons per year
VMT ..... vehicle miles traveled
VOC ..... Volatile Organic Compound