

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: **022018 - 002**

Project Number: 2017-11-001
Installation Number: 025-0008

Parent Company: Consumers Oil and Supply Company

Parent Company Address: 100 Railroad Street, Braymer, MO 64624

Installation Name: Consumers Oil and Supply Company

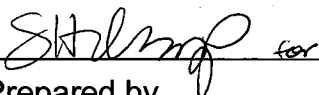
Installation Address: 100 Railroad Street, Braymer, MO 64624

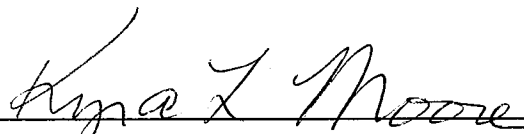
Location Information: Caldwell County, S11, T55N, R26W

Application for Authority to Construct was made for:
New feed mill. This review was conducted in accordance with Section (6), 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
Chad Stephenson
New Source Review Unit


Director or Designee
Department of Natural Resources
FEB 08 2018

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 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."

Consumers Oil and Supply Company
Caldwell County, S11, T55N, R26W

1. Haul Road Watering
 - A. Consumers Oil and Supply Company shall water haul roads and vehicular activity areas whenever conditions exist which would cause visible fugitive emissions to enter the ambient air beyond the property boundary.
 - B. Watering may be suspended when the ground is frozen, during periods of freezing conditions when watering would be inadvisable for traffic safety reasons, or when there will be no traffic on the roads.
2. Control Device Requirements – Cyclone Dust Collector
 - A. Consumers Oil and Supply Company shall control filterable particulate emissions from the grain handling (EP-36) and the roller mill/mixing scales (EP38 and EP-39) using a cyclone dust collector.
 - B. The cyclone shall be operated and maintained in accordance with the manufacturer's specifications. The cyclone shall be equipped with a gauge or meter, which indicates the pressure drop across the control device. This gauge or meter shall be located such that Department of Natural Resources' employees may easily observe it.
 - C. Consumers Oil and Supply Company shall monitor and record the operating pressure drop across the cyclone at least once every 24 hours. The operating pressure drop shall be maintained within the design conditions specified by the manufacturer's performance warranty.
 - D. Consumers Oil and Supply Company shall maintain an operating and maintenance log for the cyclone dust collector which shall include the following:
 - 1) Incidents of malfunctions, with impacts on emissions, duration of events, probable causes, and corrective actions; and
 - 2) Maintenance activities, with inspection schedules, repair actions, and replacements, etc.

SPECIAL CONDITIONS:

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

3. **Record Keeping and Reporting Requirements**
 - A. Consumers Oil and Supply Company 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.

REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE
SECTION (6) REVIEW

Project Number: 2017-11-001
Installation ID Number: 025-0008
Permit Number: 022018-002

Installation Address:

Consumers Oil and Supply Company
100 Railroad Street
Braymer, MO 64624

Parent Company:

Consumers Oil and Supply Company
100 Railroad Street
Braymer, MO 64624

Caldwell County, S11, T55N, R26W

REVIEW SUMMARY

- Consumers Oil and Supply Company has applied for authority to install a new feed mill.
- The application was deemed complete on November 28, 2017.
- HAP emissions are not expected from the proposed equipment.
- None of the New Source Performance Standards (NSPS) apply to the installation. 40 CFR 60 Subpart DD, "Standards of Performance for Grain Elevators" does not apply to this facility since it does not exceed 2.5 million bushels of permanent storage capacity. The facility has 785,000 bushels of permanent storage capacity.
- None of the NESHAPs apply to this installation. None of the currently promulgated MACT regulations apply to the proposed equipment.
 - MACT Subpart DDDDDDD, National Emission Standards for Hazardous Air Pollutant for Area Sources: Prepared Feeds Manufacturing does not apply because the installation does not add any materials containing chromium or manganese to any product manufactured at the facility.
- Undocumented watering is being used to control the PM, PM₁₀, and PM_{2.5} emissions from the equipment in this permit. A cyclone is being used to control the PM, PM₁₀ and PM_{2.5} from the grain handling and roller mill/mixing scales.
- This review was conducted in accordance with Section (6) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of PM₁₀ are conditioned below de minimis levels. A federally enforceable control device requirement is part of this permit.

- This installation is located in Caldwell 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 counted toward major source applicability.
- Ambient air quality modeling was not performed since potential emissions of the application are below de minimis levels and there is no PM NAAQS to model against.
- 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.
- A Basic Operating Permit amendment application is required for the new equipment within 30 days of commencement of operations.
- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

Consumers Oil and Supply Company operates a grain elevator in Braymer, Missouri that receives grain from local farmers for storage and resale. The facility holds a Basic Operating Permit that was last renewed on November 19, 2015 and expires on June 26, 2020. Consumers Oil and Supply Company has an existing feed mill as well as an existing dry fertilizer receiving and shipping operation.

The following New Source Review permits have been issued to Consumers Oil and Supply Company from the Air Pollution Control Program:

Table 1: Permit History

Permit/Project Number	Description
08200-022	New leg & storage
08200-022A	Storage capacity & NSPS
2010-06-069	Basic Operating Permit
2015-04-054	Basic Operating Permit

PROJECT DESCRIPTION

Consumers Oil and Supply Company has applied to construct a feed manufacturing plant including all equipment mentioned in Table 2 below. The facility will be located at 100 Railroad Street in Braymer, Missouri. The facility will receive the grain and ingredient to produce the feed. The facility can receive grain and ingredients at a rate of 135 tons per hour; however the mixing process acts as the facility bottleneck of 12 tons

per hour. Ingredients and grain will be received in six bunkers. The ingredients will be taken by a front end loader from the bunkers to eight storage bins. From the storage bins the material is transferred to a roller mill and mixer. The mixer discharges to a conveyor where it transferred to truck loadout. After construction of the facility, Consumers Oil and Supply Company will be capable of producing 12 tons of feed per hour. There is a cyclone that will be installed on the grain handling and roller mill/mixing scales as a control device

Table 2: Consumers Oil and Supply Company Project Equipment List

Emission Points	Equipment Description	Bottlenecked MHDR
EP-35	Dump Pit	12 tph
EP-36	Grain Handling	12 tph
EP-37	Storage Bins (8)	12 tph
EP-38	Roller Mill	12 tph
EP-39	Mixing Scales	12 tph
EP-40	Shipping Feed Loadout (Truck)	12 tph
EP-41	Haul Roads	12 tph

EMISSIONS/CONTROLS EVALUATION

The emission factors used in this analysis were obtained from the EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, Section 9.9.1 *Grain Elevators and Processes*, May 2003. Grain receiving was assumed to occur through a 50/50 split of straight trucks and hopper trucks. The emission factor for the roller mill accounted for a control efficiency of a cyclone. Haul road and vehicular activity emissions were calculated using AP-42, Section 13.2.2, *Unpaved Roads*, November 2006. Emissions from the haul roads and vehicular activity areas will be controlled (50%) for PM, PM₁₀ and (41%) for PM_{2.5} by using undocumented watering. There are two gravel haul roads approximately 450 feet and 510 feet long that service the area for shipping and receiving. The front end loader travels approximately 30 feet from the bunkers to the storage bins. A silt content of 8.3% was used for the unpaved haul roads.

The following table provides an emissions summary for this project. Existing actual emissions were taken from the installation's 2016 EIQ. Existing potential emissions were taken from previous permit #082000-022. Potential emissions of the application represent the potential of the new equipment, assuming continuous operation (8760 hours per year).

Table 3: Emissions Summary (tpy)

Pollutant	Regulatory <i>De Minimis</i> Levels	Existing Potential Emissions	Existing Actual Emissions (2016 E/Q)	Potential Emissions of the Project
PM	25.0	N/D	N/D	32.57
PM ₁₀	15.0	<15	1.17	12.29
PM _{2.5}	10.0	N/D	0.21	2.01
SOx	40.0	N/D	N/A	N/A
NOx	40.0	N/D	N/A	N/A
VOC	40.0	N/D	1.19	N/A
CO	100.0	N/D	N/A	N/A
GHG (CO ₂ e)	N/A	N/D	N/A	N/A
GHG (mass)	N/A	N/D	N/A	N/A
HAPs	10.0/25.0	N/D	N/A	N/A

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

PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (6) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of PM₁₀ are conditioned below de minimis levels. A federally enforceable control device requirement is part of this permit.

APPLICABLE REQUIREMENTS

Consumers Oil and Supply Company 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

- *Restriction of Emission of Particulate Matter From Industrial Processes*, 10 CSR 10-6.400

STAFF RECOMMENDATION

On the basis of this review conducted in accordance with Section (6), 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 27, 2017, received November 1, 2017, designating Consumers Oil and Supply Company as the owner and operator of the installation.

APPENDIX A

Abbreviations and Acronyms

%	percent	Mgal	1,000 gallons
°F	degrees Fahrenheit	MW	megawatt
acfm	actual cubic feet per minute	MHDR	maximum hourly design rate
BACT	Best Available Control Technology	MMBtu	Million British thermal units
BMPs	Best Management Practices	MMCF	million cubic feet
Btu	British thermal unit	MSDS	Material Safety Data Sheet
CAM	Compliance Assurance Monitoring	NAAQS	National Ambient Air Quality Standards
CAS	Chemical Abstracts Service	NESHAPs	National Emissions Standards for Hazardous Air Pollutants
CEMS	Continuous Emission Monitor System	NO_x	nitrogen oxides
CFR	Code of Federal Regulations	NSPS	New Source Performance Standards
CO	carbon monoxide	NSR	New Source Review
CO₂	carbon dioxide	PM	particulate matter
CO₂e	carbon dioxide equivalent	PM_{2.5}	particulate matter less than 2.5 microns in aerodynamic diameter
COMS	Continuous Opacity Monitoring System	PM₁₀	particulate matter less than 10 microns in aerodynamic diameter
CSR	Code of State Regulations	ppm	parts per million
dscf	dry standard cubic feet	PSD	Prevention of Significant Deterioration
EQ	Emission Inventory Questionnaire	PTE	potential to emit
EP	Emission Point	RACT	Reasonable Available Control Technology
EPA	Environmental Protection Agency	RAL	Risk Assessment Level
EU	Emission Unit	SCC	Source Classification Code
fps	feet per second	scfm	standard cubic feet per minute
ft	feet	SDS	Safety Data Sheet
GACT	Generally Available Control Technology	SIC	Standard Industrial Classification
GHG	Greenhouse Gas	SIP	State Implementation Plan
gpm	gallons per minute	SMAL	Screening Model Action Levels
gr	grains	SO_x	sulfur oxides
GWP	Global Warming Potential	SO₂	sulfur dioxide
HAP	Hazardous Air Pollutant	SSM	Startup, Shutdown & Malfunction
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		
m/s	meters per second		

PTE (tpy)

Pollutant	Existing	Application	Conditioned
PM	N/A	32.57	N/A
PM10	N/A	12.29	N/A
PM2.5	N/A	2.01	N/A
Sox	N/A	N/A	N/A
Nox	N/A	N/A	N/A
VOC	N/A	N/A	N/A
CO	N/A	N/A	N/A
HAP	N/A	N/A	N/A
GHG (mass)	N/A	N/A	N/A
GHG (CO2e)	N/A	N/A	N/A

Emission point	Description	Process				MHDR true (tons)	MHDR annual (tons)	Control Device	Capture Efficiency %	PM Removal Eff %	PM10 Removal Eff %	PM2.5 Removal Eff%	Hours per Year
		Hopper Truck %	Straight Truck %	Rail %	Barge %								
EP 35a	Grain Receiving	100%	0%			135	12	none	0%	0%	0%	0%	8760
EP 35b	Grain Receiving	0%	100%			135	12	none	0%	0%	0%	0%	8760
EP 40	Shipping Feed Loadout		100%	0%		135	12	none	0%	0%	0%	0%	8760
EP 36	Grain Handling	Headhouse & Internal Handling (legs, belts, distributors, scale, etc.) - 30200530				135	12	none	0%	0%	0%	0%	8760
EP 37	Storage Bins	Storage Bin Vents - 30200540				135	12	none	0%	0%	0%	0%	8760
EP 38	Roller Mill	Feed Manufacture - Hammermill - 30200817 (Cyclone)				12	12	none	0%	0%	0%	0%	8760
						12	12	none	0%	0%	0%	0%	8760
EP-41	Haul Roads (see Haul Roads tab)												

mhdr is 12 tph. 6 was used to correct the pte due to worst case 50/50 split on truck type

Emission point	PM Emission Factor (lb/ton)	PM10 Emission Factor (lb/ton)	PM2.5 Emission Factor (lb/ton)	Emission Factor SCC	Available PM lb/hr	Available PM10 lb/hr	Available PM2.5 lb/hr	PM Emissions (tpy)	PM10 Emissions (tpy)	PM2.5 Emissions (tpy)
EP 35a	0.035	0.0078	0.0013	30200552	0.42	0.0936	0.0156	1.84	0.41	0.07
EP 35b	0.18	0.059	0.010	30200551	2.16	0.708	0.12	9.46	3.10	0.53
EP 40	0.0860	0.0290	0.0049	30200560	1.032	0.348	0.0588	4.52	1.52	0.26
EP 36	0.0610	0.0340	0.0058	30200530	0.73200	0.40800	0.06960	3.21	1.79	0.30
EP 37	0.0250	0.0063	0.0011	30200540	0.30000	0.07560	0.01320	1.31	0.33	0.06
EP 38	0.0670	0.0340	0.0058	30200817	0.80400	0.40800	0.06936	3.52	1.79	0.30
EP 39	0.0610	0.0340	0.0058	30200530	0.73200	0.40800	0.06960	3.21	1.79	0.30
EP-41								5.50	1.56	0.18
Totals								32.569	12.292	2.007

Composite PM10
Grain 0.233859656
Production Limit 128282.067

Activity Description	MHDR		Truck Types		We*	Wf*
	(tons/hr)	(trips/hr)	Hopper	Straight front end loader		
hopper receiving	6.0	0.231	100%		14	40
straight receiving	6.0	0.375		100%	8	24
shipping	12.0	0.462	100%		14	40
bunker transfer	12.0	15.000		100%	3	3.8
	0.000				0	0
	0.000				0	0
	0.000				0	0
	0.000				0	0

Truck Type	We (tons)	Wf (tons)
Hopper	14	40
Straight	8	24
front end loader	3	3.8

truck type row must sum to 100% per each activity

1=empty
2=full
3=both

Road Segment ID	1	2	3	4	5	6	7	8	9	10	11	12
D one way (feet)	450	510	30									
D one way (miles)	0.085	0.097	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
hopper receiving	3											
straight receiving	3											
shipping		3										
bunker transfer			3									
0												
0												
0												

hopper receiving	10.286	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
straight receiving	9.905	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
shipping	0.000	27.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
bunker transfer	0.000	0.000	3.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
W Surface	20.19	27.00	3.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

E(PM2.5) (lbs/VMT)	0.14678	0.17071	0.06719	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
E(PM10) (lbs/VMT)	1.26835	1.44670	0.56942	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
E(PM30) (lbs/VMT)	4.46381	5.08748	2.00242	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Ext(PM2.5) (lbs/VMT)	0.18084	0.20610	0.08112	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Ext(PM10) (lbs/VMT)	1.80838	2.06105	0.81122	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Ext(PM30) (lbs/VMT)	6.35836	7.24762	2.85276	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
hopper receiving	0.039336	0	0	0	0	0	0	0	0	0	0	0
straight receiving	0.06362	0	0	0	0	0	0	0	0	0	0	0
shipping	0	0.089161	0	0	0	0	0	0	0	0	0	0
bunker transfer	0	0	0.170455	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
MHDR	0.103256	0.089161	0.170455	0	0	0	0	0	0	0	0	0

PTE PM2.5 (lb/hr)	0.015486	0.015221	0.011453	0	0	0	0	0	0	0	0	0
PTE PM10 (lb/hr)	0.131068	0.128889	0.087059	0	0	0	0	0	0	0	0	0
PTE PM30 (lb/hr)	0.460815	0.453604	0.341321	0	0	0	0	0	0	0	0	0
PTE PM2.5 (lb/hr) w/ rain	0.018673	0.018376	0.013826	0	0	0	0	0	0	0	0	0
PTE PM10 (lb/hr) w/ rain	0.186727	0.183785	0.138277	0	0	0	0	0	0	0	0	0
PTE PM30 (lb/hr) w/ rain	0.656646	0.646231	0.485268	0	0	0	0	0	0	0	0	0
PTE PM2.5 (tons/yr)	0.057741	0.056687	0.050164	0	0	0	0	0	0	0	0	0
PTE PM10 (tons/yr)	0.574078	0.564971	0.425121	0	0	0	0	0	0	0	0	0
PTE PM30 (tons/yr)	2.018909	1.986787	1.484867	0	0	0	0	0	0	0	0	0
PTE PM2.5 (tons/yr) w/ rain	0.081788	0.080489	0.060565	0	0	0	0	0	0	0	0	0
PTE PM10 (tons/yr) w/ rain	0.817862	0.80489	0.605651	0	0	0	0	0	0	0	0	0
PTE PM30 (tons/yr) w/ rain	2.876111	2.830481	2.128645	0	0	0	0	0	0	0	0	0

	PM	PM10	PM2.5
hopper receiving	0.175587	0.049931	0.005892
straight receiving	0.285328	0.081137	0.009574
shipping	0.453604	0.128889	0.015221
bunker transfer	0.341321	0.087059	0.011453
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
Sum PTE (lb/hr)	1.255841	0.357118	0.04214
SUM PTE Grain (tpy)	5.600583	1.564188	0.184572
0	0	0	
0	0	0	
SUM PTE total (tpy)	5.500583	1.564188	0.184572

Haul Road BMP's	Control Efficiency %		
	PM	PM10	PM2.5
Undocumented Watering	60	60	41

Undocumented Watering will be applied to the unpaved haul roads

Haul Road BMP's	Control Efficiency %		
	PM	PM10	PM2.5
No Control	0	0	0
Undocumented Watering	50	50	41
Documented Watering	80	80	74

Haul Road ID No. / Material Hauled Information														
Haul Road ID No.:	1	2	3	4	5	6	7	8	9	10	11	12	0	0
W (tons)	20.19	27.00	3.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
sL (g/m ²):	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
P:	105	105	105	105	105	105	105	105	105	105	105	105	105	105
N:	365	365	365	365	365	365	365	365	365	365	365	365	365	365
Haul Road, Mass Hourly VMT Rate and Emission Factor Calculation														
E(PM _{2.5})(lbs/VMT):	0.0126	0.0170	0.0021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
E(PM ₁₀)(lbs/VMT):	0.0514	0.0692	0.0084	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
E(PM ₃₀)(lbs/VMT):	0.2572	0.3460	0.0418	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Eext(PM _{2.5})(lbs/VMT):	0.0117	0.0158	0.0019	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Eext(PM ₁₀)(lbs/VMT):	0.0477	0.0642	0.0078	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Eext(PM ₃₀)(lbs/VMT):	0.2387	0.3211	0.0388	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

$E = k(sL)^{0.91} * (W)^{1.02}$ where:

E = particulate emission factor (having units matching the units of k)

k = particle size multiplier for particle size range and units of interest

sL = road surface silt loading (grams per square meter) (g/m²)

W = average weight (tons) of the vehicles traveling the road

Table 13.2.1-1 PARTICLE SIZE MULTIPLIERS FOR PAVED ROAD EQUATION

Size range	k (lbs/VMT)
PM2.5	0.00054
PM10	0.0022
PM15	0.0027
PM30	0.011

$E_{ext} = [k(sL)^{0.91} * (W)^{1.02}](1-P/(4N))$ where:

k, sL, W and S are as defined above and

E_{ext} = annual average emission factor in the same units as k

P = number of "wet" days with at least 0.01 inch of precipitation during the averaging period

N = number of days in the averaging period (365 for annual)

The equations retain the quality rating of A (D for PM2.5), if applied within the range of source conditions that were Silt loading:

0.03-400 g/m²

0.04-570 grains/square foot (ft²)

Mean vehicle weight:

1.8-38 megagrams (Mg)

2.0-42 tons

Mean vehicle speed:

1-88 kilometers per hour (kph)

1-55 miles per hour (mph)

The upper 95% confidence levels of equation 1 for PM10 is best described with equations using an exponent of 1.14

$E_{95\%} = k(sL)^{1.14} * (W)^{1.19}$

E_{95%}(PM_{2.5})(lbs/VMT): 0.0215 0.0304 0.0026 0.0000 0.0000 0.0000

E_{95%}(PM₁₀)(lbs/VMT): 0.0876 0.1239 0.0105 0.0000 0.0000 0.0000

Haul Road ID No.:	1	2	3	4	5	6	7	8	9	10	11	12	0	0
W (tons):	20.19	27.00	3.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
s (%):	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3
P (days):	105	105	105	105	105	105	105	105	105	105	105	105	105	105
E(PM2.5) (lbs/VMT):	0.2539	0.2893	0.1139	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
E(PM10) (lbs/VMT):	2.5387	2.8934	1.1388	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
E(PM30) (lbs/VMT):	8.9276	10.1750	4.0048	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Eext(PM2.5) (lbs/VMT):	0.1808	0.2061	0.0811	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Eext(PM10) (lbs/VMT):	1.8084	2.0610	0.8112	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Eext(PM30) (lbs/VMT):	6.3594	7.2479	2.8528	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

E = k (s/12)^a * (W/3)^b where:

E = size-specific emission factor (lb/VMT)

s = surface material silt content (%)

W = mean vehicle weight (tons)

Constants for Equation

Particle Size	Constant		
	k(lb/VMT)	a	b
PM2.5	0.15	0.9	0.45
PM10	1.5	0.9	0.45
PM30	4.9	0.7	0.45

Eext = E[(365-P)/365] where E is defined above and:

Eext = annual size-specific emission factor extrapolated for natural mitigation (lb/VMT)

P = number of days in a year with at least 0.01 inch of precipitation

SCC	LEVEL3	LEVEL4	CONTROL	Pmcon-EF	PM-EF	PM10-EF	PM2.5-EF	UNIT	MEASURE	MATERIAL	ACTION	NOTES	Dupcount	Dupreason
30200527	Feed and Grain Terminal Elevators	Grain Drying - Column Dryer - 30200527	UNCONTROLLED		2.20E-01	5.50E-02	9.40E-03	Lb	Tons	Grain	Processed	Weight of t	0	
30200528	Feed and Grain Terminal Elevators	Grain Drying - Rack Dryer - 30200528	UNCONTROLLED		3.00E+00	7.50E-01	1.30E-01	Lb	Tons	Grain	Processed	Weight of t	0	
30200528	Feed and Grain Terminal Elevators	Grain Drying - Rack Dryer w/ Screen- 30200528	SCREEN		4.70E-01	1.20E-01	2.00E-02	Lb	Tons	Grain	Processed	Weight of t	0	
30200530	Feed and Grain Terminal Elevators	Headhouse & Internal Handling (legs, belts, distributors, scale, etc.) - 30200530	UNCONTROLLED		6.10E-02	3.40E-02	5.80E-03	Lb	Tons	Grain	Processed	Weight of t	0	
30200537	Feed and Grain Terminal Elevators	Grain Cleaning - Internal Vibrating - 30200537	SINGLE CYCLONE		7.50E-02	1.90E-02	3.20E-03	Lb	Tons	Grain	Processed	Weight of t	0	
30200540	Feed and Grain Terminal Elevators	Storage Bin Vents - 30200540	UNCONTROLLED		2.50E-02	6.30E-03	1.10E-03	Lb	Tons	Grain	Processed	Based on ar	0	
30200551	Feed and Grain Terminal Elevators	Unloading (Receiving) from Straight Trucks - 30200551	UNCONTROLLED		1.80E-01	5.90E-02	1.00E-02	Lb	Tons	Grain	Processed	Weight of t	0	
30200552	Feed and Grain Terminal Elevators	Unloading (Receiving) from Hopper Trucks - 30200552	UNCONTROLLED		3.50E-02	7.80E-03	1.30E-03	Lb	Tons	Grain	Processed	Weight of t	0	
30200553	Feed and Grain Terminal Elevators	Unloading (Receiving) from Railcars - 30200553	UNCONTROLLED		3.20E-02	7.80E-03	1.30E-03	Lb	Tons	Grain	Processed	Weight of t	0	
30200555	Feed and Grain Terminal Elevators	Unloading (Receiving) from Ships - 30200555	UNCONTROLLED		1.50E-01	3.80E-02	5.00E-03	Lb	Tons	Grain	Processed	Weight of t	0	
30200556	Feed and Grain Terminal Elevators	Unloading (Receiving) from Barges - Continuous Barge Unloader - 30200556	UNCONTROLLED		2.90E-02	7.30E-03	1.90E-03	Lb	Tons	Grain	Processed	Weight of t	0	
30200557	Feed and Grain Terminal Elevators	Unloading (Receiving) from Barges - Marine Leg - 30200557	UNCONTROLLED		1.50E-01	3.80E-02	5.00E-03	Lb	Tons	Grain	Processed	Weight of t	0	
30200560	Feed and Grain Terminal Elevators	Loading (Shipping) into Trucks (unspecified type) - 30200560	UNCONTROLLED		8.60E-02	2.90E-02	4.90E-03	Lb	Tons	Grain	Processed	Weight of t	0	
30200563	Feed and Grain Terminal Elevators	Loading (Shipping) into Railcars - 30200563	UNCONTROLLED		2.70E-02	2.20E-03	3.70E-04	Lb	Tons	Grain	Processed	Weight of t	0	
30200564	Feed and Grain Terminal Elevators	Loading (Shipping) into Barges - 30200564	UNCONTROLLED		1.60E-02	4.00E-03	5.50E-04	Lb	Tons	Grain	Processed	Weight of t	0	
30200565	Feed and Grain Terminal Elevators	Loading (Shipping) into Ships - 30200565	UNCONTROLLED		4.80E-02	1.20E-02	2.20E-03	Lb	Tons	Grain	Processed	Weight of t	0	
30200708	Grain Millings	Barley Malting: Grain Receiving - 30200708	FABRIC FILTER		1.60E-02	1.60E-02		Lb	Tons	Grain	Processed	Weight of t	0	
30200709	Grain Millings	Barley Malting: Gas-fired Malt Kiln - 30200709	UNCONTROLLED	8.80E-02	1.90E-01	1.70E-01	7.50E-02	Lb	Tons	Grain	Processed	Condensable	0	
30200711	Grain Millings	Durum Milling: Grain Receiving - Straight truck - 30200711	UNCONTROLLED		1.80E-01	5.90E-02		Lb	Tons	Grain	Received	Weight of t	3	Grain receiving - Straight
30200711	Grain Millings	Durum Milling: Grain Receiving - Hopper Truck - 30200711	UNCONTROLLED		3.50E-02	7.80E-03		Lb	Tons	Grain	Received	Weight of t	3	Grain receiving - Hopper
30200711	Grain Millings	Durum Milling: Grain Receiving - Railcar - 30200711	UNCONTROLLED		3.20E-02	7.80E-03		Lb	Tons	Grain	Received	Weight of t	3	Grain receiving - Railcar
30200721	Grain Millings	Rye: Grain Receiving - Straight truck - 30200721	UNCONTROLLED		1.80E-01	5.90E-02		Lb	Tons	Grain	Received	Weight of t	3	Grain receiving - Straight
30200721	Grain Millings	Rye: Grain Receiving - Hopper truck - 30200721	UNCONTROLLED		3.50E-02	7.80E-03		Lb	Tons	Grain	Received	Weight of t	3	Grain receiving - Hopper
30200721	Grain Millings	Rye: Grain Receiving - Railcar - 30200721	UNCONTROLLED		3.20E-02	7.80E-03		Lb	Tons	Grain	Received	Weight of t	3	Grain receiving - Railcar
30200722	Grain Millings	Rye: Precleaning/Handling - 30200722	UNCONTROLLED		6.10E-02	3.40E-02		Lb	Tons	Grain	Processed	Weight of P	0	
30200731	Grain Millings	Wheat: Grain Receiving - Straight truck - 30200731	UNCONTROLLED		1.80E-01	5.90E-02		Lb	Tons	Grain	Received	Weight of t	3	Grain receiving - Straight
30200731	Grain Millings	Wheat: Grain Receiving - 30200731	UNCONTROLLED		3.50E-02	7.80E-03		Lb	Tons	Grain	Received	Weight of t	3	Grain receiving - Hopper
30200731	Grain Millings	Wheat: Grain Receiving - 30200731	UNCONTROLLED		3.20E-02	7.80E-03		Lb	Tons	Grain	Received	Weight of t	3	Grain receiving - Railcar
30200732	Grain Millings	Wheat: Precleaning/Handling - 30200732	UNCONTROLLED		6.10E-02	3.40E-02		Lb	Tons	Grain	Processed	Weight of P	0	
30200733	Grain Millings	Wheat: Cleaning House - 30200733	SINGLE CYCLONE		1.20E-02	6.00E-03		Lb	Tons	Grain	Processed	Weight of t	0	
30200734	Grain Millings	Wheat: Millhouse - 30200734	UNCONTROLLED		7.00E+01	3.50E+01		Lb	Tons	Grain	Processed	Weight of t	0	
30200741	Grain Millings	Dry Corn Milling: Grain Receiving - Straight truck - 30200741	UNCONTROLLED		1.80E-01	5.90E-02		Lb	Tons	Grain	Received	Weight of t	3	Grain receiving - Straight
30200741	Grain Millings	Dry Corn Milling: Grain Receiving - Hopper truck - 30200741	UNCONTROLLED		3.50E-02	7.80E-03		Lb	Tons	Grain	Received	Weight of t	3	Grain receiving - Hopper
30200741	Grain Millings	Dry Corn Milling: Grain Receiving - Railcar - 30200741	UNCONTROLLED		3.20E-02	7.80E-03		Lb	Tons	Grain	Received	Weight of t	3	Grain receiving - Railcar
30200742	Grain Millings	Dry Corn Milling: Grain Drying - 30200742	UNCONTROLLED		2.20E-01	5.50E-02		Lb	Tons	Grain	Processed	Weight of t	2	Column dryer
30200742	Grain Millings	Dry Corn Milling: Grain Drying - 30200742	UNCONTROLLED		3.00E+00	7.50E-01		Lb	Tons	Grain	Processed	Weight of t	2	Rack dryer
30200742	Grain Millings	Dry Corn Milling: Grain Drying - 30200742	SCREEN		4.70E-01	1.20E-01		Lb	Tons	Grain	Processed	Weight of t	0	
30200743	Grain Millings	Dry Corn Milling: Precleaning/Handling - 30200743	UNCONTROLLED		6.10E-02	3.40E-02		Lb	Tons	Grain	Processed	Weight of t	0	
30200744	Grain Millings	Dry Corn Milling: Cleaning House - 30200744	SINGLE CYCLONE		7.50E-02	1.90E-02		Lb	Tons	Grain	Processed	Weight of t	0	
30200760	Grain Millings	Oat: General - Straight truck - 30200760	UNCONTROLLED		1.80E-01	5.90E-02		Lb	Tons	Grain	Received	Weight of t	3	Grain receiving - Straight
30200760	Grain Millings	Oat: General - Hopper truck - 30200760	UNCONTROLLED		3.50E-02	7.80E-03		Lb	Tons	Grain	Received	Weight of t	3	Grain receiving - Hopper
30200760	Grain Millings	Oat: General - Railcar - 30200760	UNCONTROLLED		3.20E-02	7.80E-03		Lb	Tons	Grain	Received	Weight of t	3	Grain receiving - Railcar
30200760	Grain Millings	Oat: General - 30200760	SINGLE CYCLONE		7.50E-02	1.90E-02		Lb	Tons	Grain	Received	Weight of t	0	
30200773	Grain Millings	Rice: Drying - 30200773	UNCONTROLLED		6.30E-02	3.12E-02		Lb	Tons	Grain	Processed	Weight of t	0	
30200775	Grain Millings	Rice: Paddy Cleaning - 30200775	FABRIC FILTER		3.10E-03	3.10E-03		Lb	Tons	Grain	Processed	Weight of t	0	
30200776	Grain Millings	Rice: Mill House - 30200776	FABRIC FILTER		2.70E-01	2.70E-01		Lb	Tons	Grain	Processed	Weight of t	0	
30200777	Grain Millings	Rice: Aspirator - 30200777	FABRIC FILTER		3.00E-03	3.00E-03		Lb	Tons	Grain	Processed	Weight of t	0	
30200778	Grain Millings	Rice: Cleaning/Millhouse - 30200778	FABRIC FILTER		1.70E-02	1.70E-02		Lb	Tons	Grain	Processed	Weight of t	0	
30200802	Feed Manufacture	Feed Manufacture - Receiving - 30200802	UNCONTROLLED		1.70E-02	2.50E-03		Lb	Tons	Grain	Received	Weight of t	0	
30200803	Feed Manufacture	Feed Manufacture - Shipping - 30200803	UNCONTROLLED		3.30E-03	8.00E-04		Lb	Tons	Grain	Processed	Weight of t	0	
30200807	Feed Manufacture	Feed Manufacture - Grain Cleaning - 30200807	SINGLE CYCLONE		7.50E-02	1.90E-02		Lb	Tons	Grain	Processed	Weight of t	0	
30200816	Feed Manufacture	Feed Manufacture - Pellet Cooler - 30200816 (Cyclone)	SINGLE CYCLONE	5.90E-02	3.60E-01	1.80E-01		Lb	Tons	Grain	Processed	Condensable	0	
30200816	Feed Manufacture	Feed Manufacture - Pellet Cooler - 30200816 (HE Cyclone)	CENTRIFUGAL COLLECTOR (CYCLON		1.50E-01	7.50E-02		Lb	Tons	Grain	Processed	Weight of t	0	
30200817	Feed Manufacture	Feed Manufacture - Hammermill - 30200817 (Cyclone)	SINGLE CYCLONE		6.70E-02	3.40E-02	5.78E-03	Lb	Tons	Grain	Processed	Weight of t	0	
30200817	Feed Manufacture	Feed Manufacture - Hammermill - 30200817 (Baghouse)	BAGHOUSE		1.20E-02	1.20E-02	2.04E-03	Lb	Tons	Grain	Processed	Weight of t	0	
30200818	Feed Manufacture	Feed Manufacture - Flaker - 30200818	SINGLE CYCLONE		1.50E-01	7.50E-02	1.28E-02	Lb	Tons	Grain	Processed	Weight of t	0	
30200819	Feed Manufacture	Feed Manufacture - Grain Cracker - 30200819	SINGLE CYCLONE		2.40E-02	1.20E-02	2.04E-03	Lb	Tons	Grain	Processed	Weight of t	0	
30200819	Feed Manufacture	Feed Manufacture - Hammermill - 30200819 (Uncontrolled)	UNCONTROLLED		1.34E+00	6.30E-01	2.89E-02	Lb	Tons	Grain	Processed	Weight of t	0	
30200819	Feed Manufacture	Feed Manufacture - Flaker - 30200819 (Uncontrolled)	UNCONTROLLED		3.00E+00	1.50E+00	6.38E-02	Lb	Tons	Grain	Processed	Weight of t	0	
30200819	Feed Manufacture	Feed Manufacture - Grain Cracker - 30200819 (Uncontrolled)	UNCONTROLLED		4.80E-01	2.40E-01	1.02E-02	Lb	Tons	Grain	Processed	Weight of t	0	

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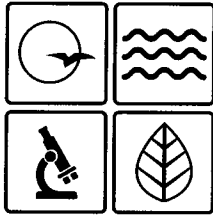
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Commodity	Weight per bushel (lb)
Alfalfa	60
Barley	48
Clover, Alsike	60
Clover, Crimson	60
Clover, Ladino	60
Clover, White	60
Clover, Red	60
Clover Sweet	60
Corn, shelled	56
Corn, ear	70
Cotton	32
Cowpeas	60
Flax	60
Grass, Brome (smooth)	14
Grass, Blue	14
Grass, Fescue (tall)	14
Grass, Orchard	14
Grass, Redtop	14
Grass, Timothy	45
Lespedeza	40-50
Millet	50
Oats	32
Rapeseed	60
Rye	56
Sorghum, forage	50
Sorghum, grain	56
Soybeans	60
Sudan grass	28
Sunflower (oil type)	24-32
Trefoil, Birdsfoot	60
Vetch	60
Wheat	60

Commodity	Weight per bushel
Apples	48 lbs.
Lima Beans (unshelled)	30 lbs.
Pole Beans	28 lbs.
Snap Beans	30 lbs.
Shelled Corn	56 lbs.
Corn (in ear)	70 lbs.
Cowpeas	60 lbs.
Cucumbers	48 lbs.
Eggplant	33 lbs.
English Peas (in hull)	30 lbs.
Muscadines	50 lbs.
Okra	26 lbs.
Mustard Greens	18 lbs.
Onions	57 lbs.
Peaches	50 lbs.
Field Peas	25 lbs.
Sweet Potatoes (green)	55 lbs.
Sweet Potatoes (dry)	50 lbs.
Spinach	20 lbs.
Tomatoes	53 lbs.
Turnips (without tops)	54 lbs.
Turnip Greens (dry)	16 lbs.
Turnip Greens (wet)	18 lbs.



Missouri Department of dnr.mo.gov

NATURAL RESOURCES

Eric R. Greitens, Governor

Carol S. Comer, Director

FEB 08 2018

Mr. Justin Swindler
General Manager
Consumers Oil and Supply Company
P.O. Box 38
Braymer, MO 64624

RE: New Source Review Permit - Project Number: 2017-11-001

Dear Mr. Swindler:

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.

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. Justin Swindler
Page Two

If you have any questions regarding this permit, please do not hesitate to contact Chad Stephenson, 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:csj

Enclosures

c: Kansas City Regional Office
PAMS File: 2017-11-001

Permit Number: **022018-002**