

**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: **06 2 0 1 9 - 0 1 0** Project Number: 2019-04-008  
Installation Number: 021-0019

Parent Company: Purina Animal Nutrition LLC

Parent Company Address: 4001 Lexington Ave., Arden Hills, MN 55126

Installation Name: Purina Animal Nutrition LLC

Installation Address: 4225 S. Highway 169, St. Joseph, MO 64501

Location Information: Buchanan County, S26, T57N, R35W

Application for Authority to Construct was made for:

The installation of a new pellet cooler, dual cyclones, and a fan and an increase in production of this equipment. This review was conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.

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Standard Conditions (on reverse) are applicable to this permit.

Standard Conditions (on reverse) and Special Conditions are applicable to this permit.



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Director or Designee  
Department of Natural Resources

**JUN 17 2019**

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Effective Date

## STANDARD CONDITIONS:

Permission to construct may be revoked if you fail to begin construction or modification within 18 months 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 18 months 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/>

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

Project Number: 2019-04-008  
Installation ID Number: 021-0019  
Permit Number: **062019-010**

Installation Address:

Purina Animal Nutrition LLC  
4225 S. Highway 169  
St. Joseph, MO 64501

Parent Company:

Purina Animal Nutrition LLC  
4001 Lexington Ave.  
Arden Hills, MN 55126

Buchanan County, S26, T57N, R35W

REVIEW SUMMARY

- Purina Animal Nutrition LLC has applied for the authority to install a new pellet cooler, high efficiency dual cyclone, and a fan. The installation of a new pellet cooler, dual cyclones, and a fan (all part of EP10).
- The application was deemed complete on May 4, 2019.
- HAP emissions are expected from the proposed equipment. The only HAP of concern, Manganese, is expected to be less than its respective SMAL.
- None of the New Source Performance Standards (NSPS) apply to the installation.
- None of the Emission Standards for Hazardous Air Pollutants (NESHAP) apply to this installation.
- The Maximum Achievable Control Technology (MACT) standard, 40 CFR Part 63, Subpart DDDDDDD, *National Emission Standards for Area Sources: Prepared Feeds Manufacturing* applies to the proposed equipment, as manganese is processed.
- A dual high efficiency dual cyclone is being used to control the particulates emissions from the equipment in this permit as required by MACT DDDDDDD.
- 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 criteria pollutants are below de minimis levels, but above insignificant levels.
- This installation is located in Buchanan County, an attainment/unclassifiable area for other 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 and SMAL 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.
- No operating permit is required for this installation.
- Approval of this permit is recommended with special conditions.

### INSTALLATION DESCRIPTION

Purina Animal Nutrition LLC owns and operates an animal feed mill in St. Joseph in Buchanan County. This facility manufacturer both pelleted and extruded animal feed. The extrusion feed plant began operations in 1992. The installation is considered a minor source under construction permits and a Basic source under operating permits. However, with the recession of the basic operating permits program, Purina Animal Nutrition LLC will no longer be required to operate under an operating permit.

The process begins with a mixing system which batches ingredients for products that are stored in bins 5, 7, and 8 for the pellet mill belonging to EP10. The mixed meal, or mash, is stored in these bins until ready to be further processed by the pelleting system. When the operator initiates or schedules the production run, the appropriate amounts of steam and/or molasses are applied to help condition the mash before being pelleted. The hot pellets are then ran through a cooler where ambient air is pulled through them to help cool them down and bring them to ambient temperature. That air is then processed through a dual high efficiency cyclone filtering system and emitted to the atmosphere. The filtered particulates (fines) are recycled back into the pellet mill for further processing. The finished and cooled pellets are then stored in downstream bins for packaging and/or bulk loadout.

Equipment currently at the installation are listed below in Table 1.

Table 1: Current Equipment at the Installation

Emission Point	Description	Control Device
EP01	Truck Unloading	Filter
EP02	Rail Unloading	2-Sided Shed
EP03	Storage Bin Vents	Enclosure
EP04	Grinder	Filter
EP07	Mineral Storage Bin Vents	Enclosed
EP08	Micro Room Vent	Filter
EP10	Pelleting #1	HE Cyclone
EP11	Pelleting #2	HE Cyclone
EP14	Bulk Loadout	None
EP15	Packing	None
EP17	Natural Gas Boiler	None
EXP6	Premix Grinder	Filter
EXP2	Ext Bin Storage	Filter
EXP11	350 hp Natural Gas Boiler	None
EXP12	200 hp Nugget Boiler	None
EXP7A	Transfer Leg	None
EXP7B	Transfer Leg	None
EXP1A	Ext Grinding	Filter
EXP1B	Ext Grinding	Filter
EXP4	Existing Cooler	HE Cyclone
EXP21	BLO Storage Bin Vents	Vent Filter
EXP5	Bulk Loadout	None
EXS13	Extruder	HE Cyclone
EXS14	Dryer	HE Cyclone
EXS15	Pneumatic Conveyor	Filter Receiver
EXP17	Pneumatic Conveyor	Filter Receiver
EXP18	Pneumatic Conveyor	Filter Receiver
EXP19	Receiving	None
EXP20	Storage Bins	None
EXP22	Packaging	Baghouse

The following New Source Review permits have been issued to Purina Animal Nutrition LLC from the Air Pollution Control Program.

Table 2: Permit History

Permit Number	Description
0188-003	Relocated grinding operations, installation of new cyclone and scratch feed plant
0188-003B	Removing hours of operation limits
112003-007	Modification of existing permit number 1299-006, Section 5
102000-008	Authority to burn fuel oil in a previously permitted boiler
1299-006	Construction of a new grinder, dryer, cooler, and boiler and increase design rates for storage bins, product loadout, and an existing grinder
1299-005	Installation of 30 gallon solvent based parts cleaner, new bag filter on grinder
1295-006	Installation of new grain cleaning system
0393-009	Installation of a corn grinding unit, dryer, and cooler
0389-007	Replaced boiler with natural gas boiler
1088-006	Installation of 200 hp pellet mill and vertical cooling tower
0188-003	Relocated grinding operations, installation of new cyclone and scratch feed plant
062018-005	Extruder Project

### PROJECT DESCRIPTION

This project will grant the ability to run the pellet system #1 (EP10) at an increased rate, as well as increase the MHDR of the downstream bulk loadout (EP14) and packaging (EP15). Purina Animal Nutrition LLC has requested to keep these new rates confidential as allowed per 10 CSR 10-6.210. Exact rates can be viewed in the confidential calculations for project no. AP2019-06-005. This information can only be obtained with written permission from Purina Animal Nutrition LLC. This permit is a public version and there is no confidential version of the permit. The confidential project number is 2019-06-005.

Purina Animal Nutrition LLC also proposes to modify their current pellet system #1 (EP10) by installing a new pellet cooler, dual high efficiency cyclone, and a fan. The data supplied by Purina Animal Nutrition LLC shows that the new dual high efficiency cyclone will have an effect on the PM emission rates, and thus the emission factors were adjusted accordingly.

### EMISSIONS/CONTROLS EVALUATION

The emission factors used in the analysis of the existing equipment were obtained from the EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, Section 9.9.1 *Grain Elevators & Processes*, Table 9.9.1-1 (May 2003). The emission factors used for determining the emissions of the new equipment for EP10 were obtained from AP-42, Appendix B.2, *Generalized Particle Size Distributions*, Table B.2-3 (September 1996). The emission factors for the Manganese and PM high efficiency dual cyclone emissions calculations were obtained from WebFIRE under SCC 3-02-008-16.

Below, Table 3 provides an emissions summary for this project. Existing potential emissions were taken from the previous permit CP 062018-005. Existing actual emissions were taken from the installation's 2018 EIQ. Potential emissions of the application represent the potential of the modified equipment, assuming continuous operation (8760 hours per year).

Table 3: Emissions Summary (tpy)

Pollutant	Regulatory De Minimis Levels	Existing Potential Emissions <sup>1</sup>	Existing Actual Emissions (2018 EIQ)	Potential Emissions of the Project	New Installation Potential
PM	25.0	58.64	N/D	19.85	78.49
PM <sub>10</sub>	15.0	20.33	3.54	9.90	30.23
PM <sub>2.5</sub>	10.0	11.08	2.54	9.86	20.94
SO <sub>x</sub>	40.0	0.13	0.01	0.00	0.13
NO <sub>x</sub>	40.0	22.05	2.02	0.00	22.05
VOC	40.0	1.22	0.11	0.00	1.22
CO	100.0	18.52	1.69	0.00	18.52
GHG (CO <sub>2</sub> e)	N/A	26615.94	N/A	0.00	26615.94
GHG (mass)	N/A	26459.7	N/A	0.00	26459.7
HAPs	10.0/25.0	0.42	0.00	2.4 x 10 <sup>-3</sup>	0.42
Manganese	0.80	8.4 x 10 <sup>-5</sup>	0.00	2.4 x 10 <sup>-3</sup>	2.4 x 10 <sup>-3</sup>

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

### 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

Purina Animal Nutrition 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.

### GENERAL REQUIREMENTS

- *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

<sup>1</sup> As stated in Permit No. 062018-005 by adding Existing Potential Emissions with Potential Emissions of that project

- 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
- No NSPS (*New Source Performance Regulations*, 10 CSR 10-6.070) apply to the installation
- *MACT Regulations*, 10 CSR 10-6.075
  - *National Emission Standards for Hazardous Air Pollutants for Area Sources: Prepared Feeds Manufacturing*, 40 CFR Part 63, Subpart DDDDDDD
- No NESHAPs (*Emission Standards for Hazardous Air Pollutants*, 10 CSR 10-6.080) apply to the installation

**STAFF RECOMMENDATION**

On the basis of this review conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*, it is recommended that this permit be granted with special conditions.

**PERMIT DOCUMENTS**

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated April 3rd, 2019, received April 3rd, 2019, designating Purina Animal Nutrition LLC as the owner and operator of the installation.

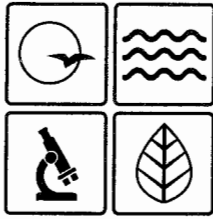


## APPENDIX A

### Abbreviations and Acronyms

<b>%</b> .....percent	<b>Mgal</b> .....1,000 gallons
<b>°F</b> .....degrees Fahrenheit	<b>MW</b> .....megawatt
<b>acfm</b> .....actual cubic feet per minute	<b>MHDR</b> .....maximum hourly design rate
<b>BACT</b> .....Best Available Control Technology	<b>MMBtu</b> ....Million British thermal units
<b>BMPs</b> .....Best Management Practices	<b>MMCF</b> .....million cubic feet
<b>Btu</b> .....British thermal unit	<b>MSDS</b> .....Material Safety Data Sheet
<b>CAM</b> .....Compliance Assurance Monitoring	<b>NAAQS</b> ....National Ambient Air Quality Standards
<b>CAS</b> .....Chemical Abstracts Service	<b>NESHAPs</b> National Emissions Standards for Hazardous Air Pollutants
<b>CEMS</b> .....Continuous Emission Monitor System	<b>NO<sub>x</sub></b> .....nitrogen oxides
<b>CFR</b> .....Code of Federal Regulations	<b>NSPS</b> .....New Source Performance Standards
<b>CO</b> .....carbon monoxide	<b>NSR</b> .....New Source Review
<b>CO<sub>2</sub></b> .....carbon dioxide	<b>PM</b> .....particulate matter
<b>CO<sub>2e</sub></b> .....carbon dioxide equivalent	<b>PM<sub>2.5</sub></b> .....particulate matter less than 2.5 microns in aerodynamic diameter
<b>COMS</b> .....Continuous Opacity Monitoring System	<b>PM<sub>10</sub></b> .....particulate matter less than 10 microns in aerodynamic diameter
<b>CSR</b> .....Code of State Regulations	<b>ppm</b> .....parts per million
<b>dscf</b> .....dry standard cubic feet	<b>PSD</b> .....Prevention of Significant Deterioration
<b>EIQ</b> .....Emission Inventory Questionnaire	<b>PTE</b> .....potential to emit
<b>EP</b> .....Emission Point	<b>RACT</b> .....Reasonable Available Control Technology
<b>EPA</b> .....Environmental Protection Agency	<b>RAL</b> .....Risk Assessment Level
<b>EU</b> .....Emission Unit	<b>SCC</b> .....Source Classification Code
<b>fps</b> .....feet per second	<b>scfm</b> .....standard cubic feet per minute
<b>ft</b> .....feet	<b>SDS</b> .....Safety Data Sheet
<b>GACT</b> .....Generally Available Control Technology	<b>SIC</b> .....Standard Industrial Classification
<b>GHG</b> .....Greenhouse Gas	<b>SIP</b> .....State Implementation Plan
<b>gpm</b> .....gallons per minute	<b>SMAL</b> .....Screening Model Action Levels
<b>gr</b> .....grains	<b>SO<sub>x</sub></b> .....sulfur oxides
<b>GWP</b> .....Global Warming Potential	<b>SO<sub>2</sub></b> .....sulfur dioxide
<b>HAP</b> .....Hazardous Air Pollutant	<b>SSM</b> .....Startup, Shutdown & Malfunction
<b>hr</b> .....hour	<b>tph</b> .....tons per hour
<b>hp</b> .....horsepower	<b>tpy</b> .....tons per year
<b>lb</b> .....pound	<b>VMT</b> .....vehicle miles traveled
<b>lbs/hr</b> .....pounds per hour	<b>VOC</b> .....Volatile Organic Compound
<b>MACT</b> .....Maximum Achievable Control Technology	
<b>µg/m<sup>3</sup></b> .....micrograms per cubic meter	
<b>m/s</b> .....meters per second	





Missouri Department of

dnr.mo.gov

# NATURAL RESOURCES

Michael L. Parson, Governor

Carol S. Comer, Director

**JUN 17 2019**

Mr. Nick Hoppman  
Area Plant Manager  
Purina Animal Nutrition LLC  
4225 S. Highway 169  
St. Joseph, MO 64501

RE: New Source Review Permit - Project Number: 2019-04-008

Dear Mr. Hoppman:

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 and your new source review permit application 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 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 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.oh.mo.gov/ahc](http://www.oh.mo.gov/ahc).



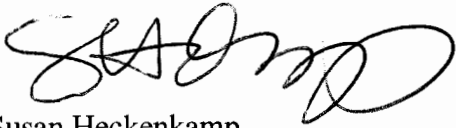
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Mr. Nick Hoppman  
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If you have any questions regarding this permit, please do not hesitate to contact Dakota Fox at the Department of Natural Resources' Air Pollution Control Program, P.O. Box 176, 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:dfd

Enclosures

c: Kansas City Regional Office  
PAMS File: 2019-04-008

Permit Number: **06 2 0 1 9 - 0 1 0**