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: 062019-010 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.

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

[Signature]
Director or Designee
Department of Natural Resources
JUN 17 2019
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

<table>
<thead>
<tr>
<th>Emission Point</th>
<th>Description</th>
<th>Control Device</th>
</tr>
</thead>
<tbody>
<tr>
<td>EP01</td>
<td>Truck Unloading</td>
<td>Filter</td>
</tr>
<tr>
<td>EP02</td>
<td>Rail Unloading</td>
<td>2-Sided Shed</td>
</tr>
<tr>
<td>EP03</td>
<td>Storage Bin Vents</td>
<td>Enclosure</td>
</tr>
<tr>
<td>EP04</td>
<td>Grinder</td>
<td>Filter</td>
</tr>
<tr>
<td>EP07</td>
<td>Mineral Storage Bin Vents</td>
<td>Enclosed</td>
</tr>
<tr>
<td>EP08</td>
<td>Micro Room Vent</td>
<td>Filter</td>
</tr>
<tr>
<td>EP10</td>
<td>Pelleting #1</td>
<td>HE Cyclone</td>
</tr>
<tr>
<td>EP11</td>
<td>Pelleting #2</td>
<td>HE Cyclone</td>
</tr>
<tr>
<td>EP14</td>
<td>Bulk Loadout</td>
<td>None</td>
</tr>
<tr>
<td>EP15</td>
<td>Packing</td>
<td>None</td>
</tr>
<tr>
<td>EP17</td>
<td>Natural Gas Boiler</td>
<td>None</td>
</tr>
<tr>
<td>EXP6</td>
<td>Premix Grinder</td>
<td>Filter</td>
</tr>
<tr>
<td>EXP2</td>
<td>Ext Bin Storage</td>
<td>Filter</td>
</tr>
<tr>
<td>EXP11</td>
<td>350 hp Natural Gas Boiler</td>
<td>None</td>
</tr>
<tr>
<td>EXP12</td>
<td>200 hp Nugget Boiler</td>
<td>None</td>
</tr>
<tr>
<td>EXP7A</td>
<td>Transfer Leg</td>
<td>None</td>
</tr>
<tr>
<td>EXP7B</td>
<td>Transfer Leg</td>
<td>None</td>
</tr>
<tr>
<td>EXP1A</td>
<td>Ext Grinding</td>
<td>Filter</td>
</tr>
<tr>
<td>EXP1B</td>
<td>Ext Grinding</td>
<td>Filter</td>
</tr>
<tr>
<td>EXP4</td>
<td>Existing Cooler</td>
<td>HE Cyclone</td>
</tr>
<tr>
<td>EXP21</td>
<td>BLO Storage Bin Vents</td>
<td>Vent Filter</td>
</tr>
<tr>
<td>EXP5</td>
<td>Bulk Loadout</td>
<td>None</td>
</tr>
<tr>
<td>EXS13</td>
<td>Extruder</td>
<td>HE Cyclone</td>
</tr>
<tr>
<td>EXS14</td>
<td>Dryer</td>
<td>HE Cyclone</td>
</tr>
<tr>
<td>EXS15</td>
<td>Pneumatic Conveyor</td>
<td>Filter Receiver</td>
</tr>
<tr>
<td>EXP17</td>
<td>Pneumatic Conveyor</td>
<td>Filter Receiver</td>
</tr>
<tr>
<td>EXP18</td>
<td>Pneumatic Conveyor</td>
<td>Filter Receiver</td>
</tr>
<tr>
<td>EXP19</td>
<td>Receiving</td>
<td>None</td>
</tr>
<tr>
<td>EXP20</td>
<td>Storage Bins</td>
<td>None</td>
</tr>
<tr>
<td>EXP22</td>
<td>Packaging</td>
<td>Baghouse</td>
</tr>
</tbody>
</table>
The following New Source Review permits have been issued to Purina Animal Nutrition LLC from the Air Pollution Control Program.

Table 2: Permit History

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

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)

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Regulatory De Minimis Levels</th>
<th>Existing Potential Emissions¹</th>
<th>Existing Actual Emissions (2018 EIQ)</th>
<th>Potential Emissions of the Project¹</th>
<th>New Installation Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM</td>
<td>25.0</td>
<td>58.64</td>
<td>N/D</td>
<td>19.85</td>
<td>78.49</td>
</tr>
<tr>
<td>PM₁₀</td>
<td>15.0</td>
<td>20.33</td>
<td>3.54</td>
<td>9.90</td>
<td>30.23</td>
</tr>
<tr>
<td>PM₂.⁵</td>
<td>10.0</td>
<td>11.08</td>
<td>2.54</td>
<td>9.86</td>
<td>20.94</td>
</tr>
<tr>
<td>SOₓ</td>
<td>40.0</td>
<td>0.13</td>
<td>0.01</td>
<td>0.00</td>
<td>0.13</td>
</tr>
<tr>
<td>NOₓ</td>
<td>40.0</td>
<td>22.05</td>
<td>2.02</td>
<td>0.00</td>
<td>22.05</td>
</tr>
<tr>
<td>VOC</td>
<td>40.0</td>
<td>1.22</td>
<td>0.11</td>
<td>0.00</td>
<td>1.22</td>
</tr>
<tr>
<td>CO</td>
<td>100.0</td>
<td>18.52</td>
<td>1.69</td>
<td>0.00</td>
<td>18.52</td>
</tr>
<tr>
<td>GHG (CO₂e)</td>
<td>N/A</td>
<td>26615.94</td>
<td>N/A</td>
<td>0.00</td>
<td>26615.94</td>
</tr>
<tr>
<td>GHG (mass)</td>
<td>N/A</td>
<td>26459.7</td>
<td>N/A</td>
<td>0.00</td>
<td>26459.7</td>
</tr>
<tr>
<td>HAPs</td>
<td>10.0/25.0</td>
<td>0.42</td>
<td>0.00</td>
<td>2.4 x 10⁻³</td>
<td>0.42</td>
</tr>
<tr>
<td>Manganese</td>
<td>0.80</td>
<td>8.4 x 10⁻⁵</td>
<td>0.00</td>
<td>2.4 x 10⁻³</td>
<td>2.4 x 10⁻³</td>
</tr>
</tbody>
</table>

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.

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**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.

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**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*

¹ 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

% ........... 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
CO₂ .......... carbon dioxide
CO₂e .......... 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
µg/m³ .......... 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
NOₓ .......... nitrogen oxides
NSPS .......... New Source Performance Standards
NSR .......... New Source Review
PM .......... particulate matter
PM₁₀ .......... particulate matter less than 10 microns in aerodynamic diameter
PM₂.₅ .......... particulate matter less than 2.5 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
SOₓ .......... sulfur oxides
SO₂ .......... sulfur dioxide
SSM .......... Startup, Shutdown & Malfunction
tph .......... tons per hour
tpy .......... tons per year
VMT .......... vehicle miles traveled
VOC .......... Volatile Organic Compound
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.oa.mo.gov/ahc.
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

[Signature]

Susan Heckenkamp
New Source Review Unit Chief

SH:dfd

Enclosures

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

Permit Number: 062019-010