

# PERMIT BOOK

STATE OF 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:

122011-005

Project Number: 2011-05-076

Installation Number: 159-0032

Parent Company: Tyson Foods, Inc

Parent Company Address: 2200 Don Tyson Parkway, Springdale, AR 72762

Installation Name: Tyson Foods, Inc - Feed Mill

Installation Address: 22749 Highway T, Sedalia, MO 65301

Location Information: Pettis County, S22, T46N, R22W

Application for Authority to Construct was made for:

The installation of one new hammer mill and a new load out facility. The new hammer mill will be placed in the lower portion of an existing silo while the upper portion of the silo will be converted into additional grinding storage. Two existing pellet coolers are being replaced with two new larger capacity pellet coolers. 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.

DEC - 6 2011

EFFECTIVE DATE

*Mandy H. for Kyrá L. Moore*

DIRECTOR OR DESIGNEE  
DEPARTMENT OF NATURAL RESOURCES

## 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 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 Departments' Air Pollution Control Program of the anticipated date of start up of these air contaminant sources. The information must be made available within 30 days of actual startup. Also, you must notify the Department of Natural Resources Regional office responsible for the area within which you are located within 15 days after the actual start up of these air contaminant sources.

A copy of this permit and permit review shall be kept at the installation address and shall be made available to Department of Natural Resources' 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 sources(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 at (573) 751-4817. If you prefer to write, please address your correspondence to the Missouri Department of Natural Resources, Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102-0176, attention: Construction Permit Unit.

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## 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."*

Tyson Foods, Inc - Feed Mill  
Pettis County, S22, T46N, R22W

1. **Superseding Condition**  
The conditions of this permit supersede all special conditions found in the previously issued construction permit 0198-016 issued by the Air Pollution Control Program.
2. **Control Device Requirement-Baghouse**
  - A. Tyson Foods, Inc - Feed Mill shall control emissions from the equipment listed below using baghouses as specified in the permit application.
    - 1) Dry Ingredients Receiving (EP-2)
    - 2) Hammer Mill #1 (EP-3a)
    - 3) Hammer Mill #2 (EP-3b)
    - 4) Grinding Transfer and Storage (EP-4)
    - 5) Grain Transfer (EP-11)
    - 6) Hammer Mill #3 (EP-13)
    - 7) Pneumatic Receiving (EP-15-17)
  - B. The baghouses shall be operated and maintained in accordance with the manufacturer's specifications. The baghouse shall be equipped with a gauge or meter, which indicates the pressure drop across the control device. These gauges or meters shall be located such that the Department of Natural Resources' employees may easily observe them.
  - C. Replacement filters for the baghouses shall be kept on hand at all times. The bags shall be made of fibers appropriate for operating conditions expected to occur (i.e. temperature limits, acidic and alkali resistance, and abrasion resistance).
  - D. Tyson Foods, Inc - Feed Mill shall monitor and record the operating pressure drop across the baghouses at least once every 24 hours. The operating pressure drop shall be maintained within the design conditions specified by the manufacturer's performance warranty.

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### SPECIAL CONDITIONS:

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

- E. Tyson Foods, Inc - Feed Mill shall maintain an operating and maintenance log for the baghouses 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. Control Device Requirements - Cyclones
  - A. Tyson Foods, Inc - Feed Mill shall control emissions from the following emission units using cyclones as specified in the permit application.
    - 1) Pellet Mill/Cooler #1 (EP-5)
    - 2) Pellet Mill/Cooler #2 (EP-7)
  
  - B. The cyclones shall be operated and maintained in accordance with the manufacturer's specifications.
  
  - C. Tyson Foods, Inc - Feed Mill shall maintain an operating and maintenance log for the cyclones 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.
  
- 4. Record Keeping and Reporting Requirements
  - A. Tyson Foods, Inc - Feed Mill 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 Material Safety Data Sheets (MSDS) for all materials used.
  
  - B. Tyson Foods, Inc - Feed Mill 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.
  
- 5. Performance Testing
  - A. Tyson Foods, Inc - Feed Mill shall perform particulate matter less than ten microns in aerodynamic diameter (PM<sub>10</sub>) stack testing on Pellet Mill/Cooler #1 (EP-5) or Pellet Mill/Cooler #2 (EP-7), while being controlled by its individual high efficiency cyclone, during the production of pellet feed.

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**SPECIAL CONDITIONS:**

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

Each test run shall be administered for a sufficient period of time in order to collect a quality sample train for testing during the pellet mill/cooler production. The stack test shall be run while one of the Pellet Mill/Coolers is in operation at full capacity during the entire batch cycle of the Pellet Mill/Cooler process. Tyson Foods, Inc - Feed Mill shall perform the stack testing according to 10 CSR 10-6.030 Sampling Methods for Air Pollution Sources.

- B. These tests shall be performed within 60 days after achieving the maximum production rate of the installation, but not later than 180 days after initial start-up for commercial operation and shall be conducted in accordance with the Stack Test Procedures outlined in Special Condition 5.A.
- C. A completed Proposed Test Plan Form (enclosed) must be submitted to the Air Pollution Control Program 30 days prior to the proposed test date so that the Air Pollution Control Program may arrange a pretest meeting, if necessary, and assure that the test date is acceptable for an observer to be present. The Proposed Test Plan may serve the purpose of notification and must be approved by the Director prior to conducting the required emission testing.
- D. Two copies of a written report of the performance test results shall be submitted to the Director within 30 days of completion of any required testing. The report must include legible copies of the raw data sheets, analytical instrument laboratory data, and complete sample calculations from the required U.S. EPA Method for at least one sample run.
- E. The test report is to fully account for all operational and emission parameters addressed both in the permit conditions as well as in any other applicable state or federal rules or regulations.
- F. If PM<sub>10</sub> is found to be present during the operation of Mill/Cooler #1 (EP-5) or Pellet Mill/Cooler #2 (EP-7) Tyson Foods must submit a permit amendment to account for the increase in potential PM<sub>10</sub> emissions within 60 days of the Director approved written stack test report being received.

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

Project Number: 2011-05-076  
Installation ID Number: 159-0032  
Permit Number:

Tyson Foods, Inc - Feed Mill  
22749 Highway T  
Sedalia, MO 65301

Complete: June 7, 2011

Parent Company:  
Tyson Foods, Inc  
2200 Don Tyson Parkway  
Springdale, AR 72762

Pettis County, S22, T46N, R22W

REVIEW SUMMARY

- Tyson Foods, Inc - Feed Mill has applied for authority to install one new hammer mill and a new load out facility. The new hammer mill will be placed in the lower portion of an existing silo while the upper portion of the silo will be converted into additional grinding storage. Two existing pellet coolers are being replaced with two new larger capacity pellet coolers.
- Hazardous Air Pollutant (HAP) emissions are expected from the proposed equipment. HAPs of concern from this process are Manganese and Arsenic. The HAP emissions from this facility are below their respective screen modeling action levels.
- None of the New Source Performance Standards (NSPS) apply to the installation.
- Maximum Achievable Control Technology (MACT) 40 CFR Part 63, Subpart DDDDDDD, *National Emission Standards for Hazardous Air Pollutants: Area Source Standards for Prepared Feeds Manufacturing* applies to the equipment at this facility. Tyson Foods, Inc. is expected to be in compliance with the MACT subpart above before the compliance date of January 5, 2012
- Baghouses and high efficiency cyclones are being used to control the PM<sub>10</sub> and PM<sub>2.5</sub> 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 criteria pollutants are below de minimis levels.
- This installation is located in Pettis 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 required for the equipment.
- A Basic Operating Permit application is required for this installation within 30 days of equipment startup.
- Approval of this permit is recommended with special conditions.

### INSTALLATION DESCRIPTION

Tyson Foods, Inc. (Tyson) operates a feed mill in Pettis County (S22, T46N, R22W). The feed mill is located at 22749 Highway T, Sedalia, Missouri 65301. The mill receives grain and other feed ingredients via truck and processes it into poultry feed for local chicken farms. Currently Tyson operates two pellet production lines. Tyson is considered a de minimis source for construction permits and has a basic operating permit.

The following permits have been issued to Tyson Foods, Inc - Feed Mill from the Air Pollution Control Program.

Table 1: Permit History

Permit Number	Description
1291-015	Chicken Feed Mill
1293-002	Under Original Permit the Feed Mill was not Constructed. This was a New Permit for Chicken Feed Mill
0295-003	Increase Grain Dryer Output
0198-016	Addition of 500 HP Boiler

### PROJECT DESCRIPTION

Tyson Foods, Inc. (Tyson) is installing a new 50 ton per hour hammer mill as well as a new 300 ton per year load out facility. The new hammer mill will use a baghouse to control particulate matter emissions. The new load out facility will not have any emission control equipment installed. Tyson is also converting an existing silo into grinding storage and replacing their existing pellet coolers with two larger pellet coolers both rated 60 tons per hour. Both pellet coolers will control particulate matter emissions using a high efficiency cyclone. Tyson has also informed the Air Pollution Control Program that the grain dryer at the feed mill facility is no longer operational and will be removed as part of this project.

## EMISSIONS/CONTROLS EVALUATION

The emission factors used in this analysis were obtained from the Environmental Protection Agency (EPA) document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, Section 9.9.1 "Grain Elevators & Processes" (May, 2003). Guidance for estimating emission factors for particulate matter less than 2.5 microns in aerodynamic diameter ( $PM_{2.5}$ ) and  $PM_{10}$  was obtained from the EPA document entitled, *Emission Factor Documentation for AP-42 Section 9.9.1 Grain Elevators and Grain Processing Plants Final Report* (April, 2003). According to this background document, emission factors may be estimated assuming  $PM_{10}$  is 50 percent of total particulate and  $PM_{2.5}$  is 17 percent of  $PM_{10}$ . Emissions from the haul roads were calculated according to the procedures in AP-42, Section 13.2.1 "Paved Roads" (January, 2011). Potential emissions from the haul roads were calculated using a silt loading of 1.1 grams per square meter which is the silt loading for corn wet milling facilities and was considered the most representative in AP-42. Tyson should be aware that the EPA strongly recommends site-specific silt load testing for calculating potential emissions from haul roads.

After review of Tyson's process and discussion with company representatives it was determined that only seven percent of the grain received by the feed mill is not sent through the pellet coolers. Also according to Tyson approximately 50 percent of the pellet feed consists of the grain received the other 50 percent consists of other dry ingredients, salt and hand added additives. With the pellet coolers rated at 120 tons of pellets produced per hour, the total grain receiving would be bottlenecked at 60 tons of grain received per hour based on a yearly average plus the additional seven percent of grain received that is not processed through the pellet cooler. The total bottlenecked hourly throughput of the grain received used in the potential emissions calculations of this permit was conservatively estimated to be 70 tons per hour. The 70 tons per hour includes the grain received for the pellet feed and the additional seven percent not processed through the pellet coolers. The dry ingredients are received via truck into a separate receiving pit much like the grain. The salt is received by a truck and pneumatically transferred to storage bins. The hand additives are received in 50 pound bags and added to the process manually. Because the mix ratio of grain, dry ingredients, salt and hand additives for the pellet feed is unknown the receiving rates for the dry ingredients and salt were both conservatively estimated to be 60 tons per hour based on a yearly average.

Tyson will have two load out facilities upon completion of this project. They are both rated at 300 tons of feed loaded out per hour. Again these processes are bottlenecked due to the production rate of the pellet coolers. Both load out facilities were conservatively estimated to have 130 tons of feed loaded out per hour based on a yearly average.

Tyson submitted a stack test from a Tyson facility in Arkansas that stated that  $PM_{10}$  were less than the detection limit during the operation of their pellet mill/coolers. The Air Pollution Control Program reviewed the stack test and made the determination to accept the report that no  $PM_{10}$  emissions were emitted from the pellet mill/coolers if Tyson agreed to perform a stack test on the Tyson pellet mill/coolers (EP-5) and (EP-7)

at their Sedalia facility (159-0032).

With the addition of the new hammer mill and new pellet coolers the capacity of the entire plant has been debottlenecked therefore the increase of emissions from each process that has an increased capacity must be looked at. Although the project emissions for the de-bottlenecked units could have been calculated using a potential minus actual approach, the difference would not affect the outcome of the permit. Potential emissions of the application represent the potential of the new equipment and the de-bottlenecked equipment, assuming continuous operation (8,760 hours per year). Table 2 provides an emissions summary for this project.

Table 2: Emissions Summary (tons per year)

Pollutant	Regulatory <i>De Minimis</i> Levels	<sup>a</sup> Existing Potential Emissions	Existing Actual Emissions (2010 EIQ)	<sup>b</sup> Potential Uncontrolled Emissions of the Application	<sup>c</sup> New Installation Controlled Potential
PM <sub>2.5</sub>	10.0	N/D	0.01	22.90	2.41
PM <sub>10</sub>	15.0	97.0	1.86	130.73	12.81
SOx	40.0	0.20	0.00	0.054	0.054
NOx	40.0	27.5	1.92	8.98	8.98
VOC	40.0	0.70	0.11	0.49	0.49
CO	100.0	6.80	1.61	7.55	7.55
HAPs	10.0/25.0	0.00	0.00	0.17	0.17

N/D = Not Determined

<sup>a</sup>The Existing Potential Emission were retrieved from permit number 0198-016.

<sup>b</sup>Potential Uncontrolled Emissions of the Application include all uncontrolled emissions from every emission point at 8760 hours of operation.

<sup>c</sup>New Installation Controlled Potential Emissions take into account the pellet mill/coolers as the bottle neck of the plant. Also it should be noted that these numbers are assuming that there will be no PM<sub>10</sub> detected during the pellet mill/cooler stack test.

Tyson's processes that apply to Missouri State Rule 10 CSR 10-6.400 *Restriction of Emission of Particulate Matter From Industrial Processes* have emission rates that are below the allowable emission rates found in 10 CSR 10-6.400 (3)(A) therefore are in compliance with this rule.

Tyson's 500 HP boiler is below the allowable emission rates found in Missouri State Rule 10 CSR 10-3.060 *Maximum Allowable Emissions of Particulate Matter From Fuel Burning Equipment Used for Indirect Heating* therefore is in compliance.

#### 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 the application are below de minimis levels.

#### APPLICABLE REQUIREMENTS

Tyson Foods, Inc - Feed Mill 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

- *Submission of Emission Data, Emission Fees and Process Information, 10 CSR 10-6.110*
- *Operating Permits, 10 CSR 10-6.065*
- *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*
- *Maximum Achievable Control Technology (MACT) Regulations, 10 CSR 10-6.075, National Emission Standards for Hazardous Air Pollutants: Area Source Standards for Prepared Feeds Manufacturing, 40 CFR Part 63, Subpart DDDDDDD*
- *Maximum Allowable Emissions of Particulate Matter From Fuel Burning Equipment Used for Indirect Heating, 10 CSR 10-3.060*

#### 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*, I recommend this permit be granted with special conditions.

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Gerad Fox  
Environmental Engineer

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Date

## PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated May 27, 2011, received May 27, 2011, designating Tyson Foods, Inc as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.
- Kansas City Regional Office Site Survey, dated June 7, 2011.

Mr. Jason McCauley  
Environmental Manager  
Tyson Foods, Inc - Feed Mill  
22749 Highway T  
Sedalia, MO 65301

RE: New Source Review Permit - Project Number: 2011-05-076

Dear Mr. McCauley:

Enclosed with this letter is your permit to construct. Please study it carefully. Also, note the special conditions, if any, 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.

If you have any questions regarding this permit, please do not hesitate to contact Gerad Fox, at the Department's Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102, or by telephone at (573) 751-4817. Thank you for your attention to this matter.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Kendall B. Hale  
Permit Section Chief

KBH:gfk

Enclosures

c: Kansas City Regional Office  
PAMS File: 2011-05-076

Permit Number: