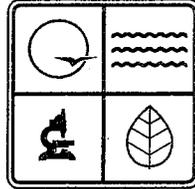


STATE OF MISSOURI

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: **032006-005** Project Number: 2005-12-046

Owner: **Simmons Foods, Incorporated**

Owner's Address: **P.O. Box 430, Siloam Springs, AR 72761**

Installation Name: **Simmon Foods, Incorporated**

Installation Address: **10700 State Highway 43N, Southwest City, MO 64963**

Location Information: **McDonald County, S21, T21N, R23W**

Application for Authority to Construct was made for:

Expansion of the offal processing system. 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 (listed as attachments starting on page 2) are applicable to this permit.

MAR - 6 2006

EFFECTIVE DATE

Steven Fisher
for JLK
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. Specifically, all air contaminant control devices shall be operated and maintained as specified in the application, associated plans and specifications.

You must notify the Air Pollution Control Program of the anticipated date of start up of this (these) air contaminant source(s). The information must be made available not more than 60 days but at least 30 days in advance of this date. 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 this (these) air contaminant source(s).

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 as provided in RSMo 643.075. If you choose to appeal, the Air Pollution Control Program must receive your written declaration within 30 days of receipt of this permit.~~

If you choose not to appeal, this certificate, the project review, 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 Department of Natural Resources has established the Outreach and Assistance Center to help in completing future applications or fielding complaints about the permitting process. You are invited to contact them at 1-800-361-4827 or (573) 526-6627, or in writing addressed to Outreach and Assistance Center, P.O. Box 176, Jefferson City, MO 65102-0176.

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 Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102-0176, attention Construction Permit Unit.

Page No.	2
Permit No.	
Project No.	2005-12-046

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."

Simmon Foods, Incorporated
McDonald County, S21, T21N, R23W

1. Control Requirements –Thermal Oxidizers (EP27 and EP28)

- A. The natural gas / propane gas-fired thermal oxidizers (TOs) must be in use at all times when any of the following equipment are in operation: continuous cookers (EU-23), drainers (EU-24), screw presses (EU-25), and pre-dryer (EU-26). The TOs shall be operated and maintained in accordance with the manufacturer's specifications to ensure a minimum particulate matter less than ten (10) microns (PM₁₀) destruction efficiency of 99 percent (wt. %). This destruction/removal efficiency shall be verified through compliance testing, as detailed in Special Condition Number 2 of this permit.
- B. The operating temperature of the TOs shall be continuously monitored and shall equal or exceed the temperature that is determined during the compliance test specified in Special Condition Number 2. The most recent sixty (60) months of records shall be maintained on-site and shall be made immediately available to Missouri Department of Natural Resources' personnel upon request.
- C. Simmons Foods, Incorporated shall maintain an operating, maintenance and inspection log for the TOs which shall include the following:
 - (1) Incidents of malfunction(s) including the date(s) and duration of the event, the probable cause, any corrective actions taken and the impact on missions due to the malfunction;
 - (2) Any maintenance activities conducted on the unit, such as replacement of equipment, etc.; and
 - (3) A written record of regular inspection schedule, the date and results of all inspections including any actions or maintenance activities that result from that inspection.

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Permit No.	
Project No.	2005-12-046

SPECIAL CONDITIONS:

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

2. Compliance Testing – Thermal Oxidizers (EP-27 and EP-28)

- A. Within sixty (60) days of achieving maximum production, but in no case later than 180 days after initial startup, an emission test shall be conducted to determine the destruction/removal efficiency of PM₁₀ emissions and to develop an emission factor of hydrogen sulfide (H₂S). If the potential emissions of H₂S assuming continuous operation (8,760 hours per year) derived from this emission factor is equal to or higher than ten (10) tons per year, then Simmons Foods, Incorporated shall submit a permit modification within 90 days after stack testing. These tests shall be conducted in accordance with the Stack Test Procedures outlined in Special Conditions Numbers 2(B) through 2(D).
- B. A completed Proposed Test Plan Form (enclosed) must be submitted to the Air Pollution Control Program thirty (30) days prior to the proposed test date so that this 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 must be approved by the Director of the Missouri Air Pollution Control Program prior to conducting the required emission testing.
- C. Two (2) copies of a written report of the performance test results shall be submitted to the Director of the Air Pollution Control Program within sixty (60) 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 EPA Method for at least one (1) sample run.
- D. Performance testing shall be conducted under the condition of maximum process/production rate for both thermal oxidizers within ten percent (10%) of this rated capacity. The process/production rate at which performance testing is conducted shall become the maximum process/production rate at which any of the equipment is permitted to operate, under the authority granted by this permit.

3. Restriction of Odors

- A. If a situation of demonstrated nuisance odors exists in violation of 10 CSR 10-3.090, the Director may require Simmon Foods, Incorporated to submit a corrective action plan within ten (10) days to timely and significantly mitigate the odors. Simmon Foods, Incorporated shall implement any such plan immediately upon its approval by the Director. Failure to either submit or implement such a plan shall be a violation of this permit.

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Permit No.	
Project No.	2005-12-046

SPECIAL CONDITIONS:

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

- B. If a continued situation of demonstrated nuisance odors exists in violation of 10 CSR 10-3.090, the Director may require Simmon Foods, Incorporated to collect air quality monitoring data regarding Hydrogen Sulfide (H₂S) and Volatile Organic Compounds (VOCs) at its property boundary. The monitoring site should be located in the area of highest estimated concentrations. Simmon Foods, Incorporated will file, and receive approval from the Director, a Quality Assurance Project Plan prior to commencing operation. Data collecting shall continue until notice of release from this requirement is received by Simmon Foods, Incorporated. from the Director. The Director shall evaluate the need for continued data collection annually and report the findings of the evaluation to Simmon Foods, Incorporated.

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

Project Number: 2005-12-046
Installation ID Number: 119-0017
Permit Number:

Simmon Foods, Incorporated
10700 State Highway 43N
Southwest City, MO 64963

Complete: January 4, 2006
Reviewed: January 25, 2006

Parent Company:
Simmons Foods, Incorporated
P.O. Box 430
Siloam Springs, AR 72761

McDonald County, S21, T21N, R23W

REVIEW SUMMARY

- Simmon Foods, Incorporated has applied for authority to expand their offal processing system.
- Hazardous Air Pollutant (HAP) emissions are expected from combustion of fuel in the thermal oxidizers, but in insignificant quantities.
- Subpart Dc of the New Source Performance Standards (NSPS), *Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units*, applies to TOs
- None of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) or currently promulgated Maximum Achievable Control Technology (MACT) regulations apply to the proposed equipment.
- Thermal oxidizers are being used to control the odor and particulate matter emissions from the equipment in this permit. The venturi scrubber will treat vapor and particulate emissions from existing equipment in other parts of the plant.
- This review was conducted in accordance with Section (6) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of nitrogen oxides (NO_x) are above de minimis levels.
- This installation is located in McDonald County, an attainment area for all criteria air pollutants.
- This installation is not on the List of Named Installations [10 CSR 10-6.020(3)(B), Table 2].

- Ambient air quality modeling was performed to determine the ambient impact of NO_x.
- Emissions testing is required for the thermal oxidizers (EP27 and EP-28).
- A Part 70 Operating Permit application was required for Permit No. 052005-026 within 1 year of equipment startup. The permit was issued on May 25, 2005. However, due to the close proximity of Permit No. 052005-026 with this project, a Part 70 Operating Permit application for both projects is required within 1 year of startup of equipment from this project.
- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

Simmons Foods, Inc. operates a poultry rendering plant near Southwest City, Missouri. The installation currently operates two (2) distinct lines at this installation: a feather meal line and a poultry meal line.

In the feather meal line, wet feathers and blood are fed to two (2) continuous hydrolyzer process lines. Using elevated temperatures and pressures, keratin, the main component of feathers, is converted into amino acids. The product is then transferred onto a conveyor that transports the material to a scalper screen and into a bin. The bin feeds two (2) 19.05 MMBTU/hr natural gas dryers. The product exiting the dryers has moisture content of seven percent (7%) and is fed into a large cyclone to separate the product sizes. The cyclone, used almost entirely as a process sizing device versus an emission control device, feeds the products to storage bins where they are eventually transferred to a hammermill to create the appropriate size feeds. The finished products are conveyed to storage bins to await shipping via trucks to customers.

The poultry meal line operates along similar lines. Poultry by-products are received from the rendering plant located at the site and from other poultry rendering operations in the region. The meat is crushed and fed to continuous cookers with an animal fat mixture. The resulting product is drained of excess fat that is recycled to the cookers, and then fed to a screw press, removing more of the fat and liquids. The product is transferred to storage bins and then to a series of grinders that produce two (2) grades of meal: feed grade and pet food grade. The feed grade meal is transferred directly to storage bins to await shipping. The pet food grade meal is sent to a pellet cooler and then to a series of screens that separates the meal into different sizes for different applications. The finished products are then transferred to storage bins to await shipping via trucks to customers.

Simmons Foods, Inc. also has a feed production process line. The process line uses blood (21,828 pounds per hour) and dissolved air flotation (DAF) skimmings - a wastewater byproduct (24,000 pounds per hour) generated in the Simmons poultry rendering process to bind fat using a low temperature chemical reaction. The process is capable of producing 65.6 tons of feed product per 24-hour day. Steam for the

PRO*CAL process is supplied by the existing Simmons boilers under the existing permit conditions and limitations.

The installation also operates four (4) 50.4 MMBTU/hr boilers and one (1) 32.5 MMBTU/hr boiler. The boilers can combust natural gas, propane or poultry derived oil as fuel. A thermal oxidizer (EU-12 PC) is also used in conjunction with the production process line.

A renewal application for the installation's Intermediate Operating Permit OP2000-011 was received by the Air Pollution Control Program on November 29, 2004 and is currently under review. However, with the addition of the PRO*CAL process in Permit No. 052005-026, potential and actual emissions of NO_x from the boilers, the thermal oxidizer, and other ammonia emissions exceeded 100 tons per year. A Part 70 Operating Permit Application was required within one year of issuance of Permit No. 052006-026. A Part 70 Operating Permit application was required for Permit No. 052005-026 within 1 year of equipment startup. The permit was issued on May 25, 2005. However, due to the close proximity of Permit No. 052005-026 with this project, a Part 70 Operating Permit application for both projects is required within 1 year of startup of equipment from this project.

The following permits have been issued to Simmon Foods, Incorporated from the Air Pollution Control Program.

Table 1: Previously Issued Construction Permits

Permit Number	Description
0199-020	Modification of feather meal line and addition of blood coagulation system
082001-008	Use of poultry derived fuel as alternative fuel in existing boilers
082001-008A	Amend emission factors used for the combustion of poultry derived fuel
052005-026	Installation of a new feed production process line

PROJECT DESCRIPTION

Simmons Foods, Inc. is preparing to increase the efficiency of their offal processing system at the Simmons Processing plant in Southwest City, Missouri. All equipment downstream of the new equipment is working at or near design capacity. Therefore, there will be no increase in production as a result of the addition of the following new equipment. The equipment to be installed in the protein plant area include the following:

- Two (2) 53,000 pounds per hour continuous cookers (EU-23) that use process steam from the thermal oxidizers,
- Two (2) drainers (EU-24)
- Two (2) 10,000 pounds per hour screw presses (EU-25) for solids exiting the drainers following the cookers,
- A 57,000 pounds per hour pre-dryer (EU-26), to be installed in the feather processing area fired by steam from the thermal oxidizers,
- Two (2) 85 million British Thermal Units per hour (mmBTU/hr) thermal oxidizers (EP-

- 27 and EP-28), and
- A venturi scrubber (CD13).

The new cookers (EU-23) and drainers (EU-24) will feed existing presses in the plant's existing offal processing system. The presses (EU-25) and the venturi scrubber (CD13) will be installed to serve the existing cookers in the existing offal processing system. The new cookers, drainers, and presses will vent to the thermal oxidizers for the purpose of odor and PM₁₀ control. The new pre-dryer (EU-26) to be installed in the feather processing area will also vent to one of the new thermal oxidizers. The packed bed and venturi scrubbers controlling emissions from existing offal processing units will remain in place unchanged.

Ammonia (NH₃) emissions from the waste streams of the two cookers (EU-23), the two drainers (EU-24), and the two presses (EU-25) were determined by Simmons Foods, Inc. to be 2.02 pounds per hour using vendor information and engineering estimates. The pre-dryer (EU-26) serves the feather processing system where no ammonia production is expected. These waste streams are directed to the thermal oxidizers (EP-27 and EP-28). NO_x production is expected from the combustion of NH₃.

The thermal oxidizers will burn natural gas with propane as a back-up fuel.

EMISSIONS/CONTROLS EVALUATION

Emissions from the new process line include PM₁₀, NO_x, and H₂S. PM₁₀ emissions are expected from the pre-dryer and thermal oxidizers. NO_x emissions will result from the combustion of ammonia in the thermal oxidizers. H₂S is also expected, but Simmons Foods has no way of calculating potential emissions. Those streams producing H₂S will be treated in the TOs. An emission factor for H₂S will be determined during emissions testing of the thermal oxidizers.

The PM₁₀ emissions from the pre-dryer were calculated using emission factors obtained from the Environmental Protection Agency (EPA) document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, Section 9.9.7, *Corn Wet Milling* (1/95).

Emissions of combustion products exhausted by the thermal oxidizers were made using standard boiler emission factors obtained from AP-42 Section 1.4, *Natural Gas Combustion* (7/98) and Section 1.5, *Liquefied Petroleum Gas Combustion* (10/96). The 1750° F operating temperature of the thermal oxidizers is much lower than the 2500° F temperature necessary for the efficient combination of nitrogen and oxygen to form NO_x. By using emission factors associated with boilers where temperatures are nearer the NO_x production levels, the estimate of NO_x emitted by the thermal oxidizer is conservative. In this analysis, one hundred percent (100%) of the NH₃ is assumed to be converted to NO₂. The thermal oxidizer is expected to have a 99% destruction efficiency on PM₁₀.

Potential emissions of the application represent the potential of the new equipment,

assuming continuous operation (8760 hours per year). The following table provides an emissions summary for this project.

Table 1: Emissions Summary (tons per year)

Pollutant	Regulatory <i>De Minimis</i> Levels	Existing Potential Emissions (Note 1)	Existing Actual Emissions (2004 EIQ)	Potential Emissions of the Application	New Installation Conditioned Potential
PM ₁₀	15.0	115.26	23.25	6.16	N/A
SO _x	40.0	100.10	0.27	0.44	N/A
NO _x	40.0	187.59	47.67	178.49	N/A
VOC	40.0	100.94	2.64	4.02	N/A
CO	100.0	114.43	40.02	61.32	N/A
HAPs	10.0/25.0	N/D	N/D	1.38	N/A
H ₂ S	10.0	N/D	N/D	N/D	N/A

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

Note 1: The installation operates under an Intermediate Operating Permit that limits all criteria pollutants to less than 100 tons per year. These numbers were added to the Potential Emissions of the Application from Permit 052005-026 to get the Existing Potential Emissions.

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 NO_x are above de minimis levels.

APPLICABLE REQUIREMENTS

Simmon Foods, Incorporated 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
The emission fee is the amount established by the Missouri Air Conservation Commission annually under Missouri Air Law 643.079(1). Submission of an Emissions Inventory Questionnaire (EIQ) is required April 1 for the previous year's emissions.
- *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 10-3.090

SPECIFIC REQUIREMENTS

- *Restriction of Emission of Particulate Matter From Industrial Processes*, 10 CSR 10-6.400
- *New Source Performance Regulations*, 10 CSR 10-6.070 – *New Source Performance Standards (NSPS) for Small Industrial-Commercial-Institutional Steam Generating Unit*, 40 CFR Part 60, Subpart Dc
- *Restriction of Emission of Sulfur Compounds*, 10 CSR 10-6.260
- *Maximum Allowable Emissions of Particulate Matter From Fuel Burning Equipment Used for Indirect Heating*, 10 CSR 10-3.060

AMBIENT AIR QUALITY IMPACT ANALYSIS

Ambient air quality modeling was performed utilizing the Screen 3 model to determine the ambient impact of NO_x from the burning of fuel in the thermal oxidizer, as well as from conversion of ammonia to NO_x in the oxidizer. The stack parameters as provided by the applicant are listed in Table 4.

Table 4: Stack Parameters

Stack No.	Height (ft)	Diameter (ft)	Temperature (F)	Flow Rate (actual cubic feet/min)
2-TO	60.0	5.25	458	65,658
3-TO	60.0	5.25	458	65,658

The NO_x emission rate is 40.75 pounds per hour. For this analysis, it was assumed that the NO_x emissions were split equally between the two thermal oxidizers. The following shows that the modeled impact for the project is well below the allowable National Ambient Air Quality Standard for NO_x.

Pollutant	Modeled Impact	NAAQS (µg/m ³)	Time Period
NO _x	2.21	100.0	Annual

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

Susan Heckenkamp
Environmental Engineer

Date

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated December 22, 2005, received December 27, designating Simmons Foods, Incorporated as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.
- Southwest Regional Office Site Survey, dated January 24, 2006.

Mr. Dan Henson
Project Engineer
Simmon Foods, Incorporated
10700 State Highway 43N
Southwest City, MO 64963

RE: New Source Review Permit - Project Number: 2005-12-046

Dear Mr. Henson:

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 revised 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 me at (573) 751-4817, or you may write to me at the Department of Natural Resources, Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102. Thank you for your attention to this matter.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Kendall B. Hale
New Source Review Unit Chief

KBH:smhl

Enclosures

c: Southwest Regional Office
PAMS File 2005-12-046
Permit Number: