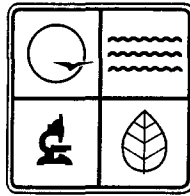


STATE OF MISSOURI  
DEPARTMENT OF NATURAL RESOURCES  
MISSOURI AIR CONSERVATION COMMISSION



**PERMIT BOOK**

**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: **092006-010**

Project Number: **2006-05-054**

Owner: **Sara Lee Foods, U.S.**

Owner's Address: **3500 Lacey Road, Downers Grove, IL 60512**

Installation Name: **Sara Lee Foods, St. Joseph Facility**

Installation Address: **5807 Mitchell Avenue, St. Joseph, MO 64507**

Location Information: **Buchanan County, S18, T57N, R34W**

Application for Authority to Construct was made for:

**Addition of liquid smoke capability to oven CS3. This review was conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required.***

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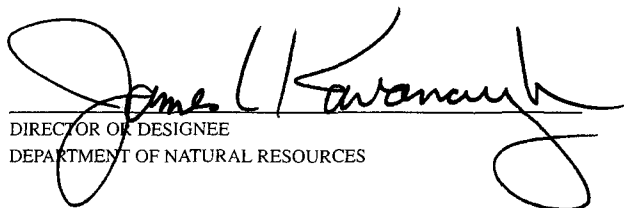
Standard Conditions (on reverse) are applicable to this permit.

Standard Conditions (on reverse) and Special Conditions (listed as attachments starting on page 2) are applicable to this permit.

**SEP 28 2006**

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EFFECTIVE DATE

  
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.	2006-05-054

**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."*

Sara Lee Foods, St. Joseph Facility  
Buchanan County, S18, T57N, R34W

1. **Restriction of Odors**  
If a continued situation of demonstrated nuisance odors exists in violation of 10 CSR 10-2.070, the Director may require through written notice that Sara Lee Foods, St. Joseph Facility submit a corrective action plan within ten days adequate to timely and significantly mitigate the odors. Sara Lee Foods, St. Joseph Facility shall implement any such plan immediately upon its approval by the Director. Failure to either submit or implement such a plan shall be in violation of this permit.

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

Project Number: 2006-05-054  
Installation ID Number: 021-0109  
Permit Number:

Sara Lee Foods, St. Joseph Facility  
5807 Mitchell Avenue  
St. Joseph, MO 64507

Complete: May 18, 2006  
Reviewed: September 18, 2006

Parent Company:  
Sara Lee Foods, U.S.  
3500 Lacey Road  
Downers Grove, IL 60512

Buchanan County, S18, T57N, R34W

REVIEW SUMMARY

- Sara Lee Foods, St. Joseph Facility has applied for authority to add liquid smoke to oven CS3 and to duct natural smoke from two of the four natural smoke generators currently in use at oven CS3 to oven CS2.
- Hazardous Air Pollutant (HAP) emissions are expected from the proposed equipment. HAPs of concern from this process are acetaldehyde, phenol, acrolein, and formaldehyde.
- None of the New Source Performance Standards (NSPS) apply to the proposed equipment.
- 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.
- No air pollution control equipment is being used in association with the new equipment.
- 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 Buchanan 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 phenol.
- Emissions testing is not required for the addition of liquid smoke to oven CS3.
- A revision to you Basic Operating Permit is required for this installation within 30 days of equipment startup.
- Approval of this permit is recommended with special conditions.

### INSTALLATION DESCRIPTION

Sara Lee Foods, St. Joseph Facility (Sara Lee) is an existing installation located in Buchanan County, Missouri that prepares a variety of processed meats. Some of these processed meats are smoked. The installation currently has nine batch smoked meat houses, three liquid continuous smokehouses, one natural continuous smokehouse, four natural gas fired boilers, a thermal oil heater, a water heater, and two emergency generators.

The plant is considered a minor source under construction permits. A review of Sara Lee's basic state operating permit (Project No. 2005-08-027) was completed on August 25, 2005. The following permits have been issued to Sara Lee from the Air Pollution Control Program.

Table 1: Previously Issued Construction Permits

Permit Number	Description
012000-009	New meat processing installation
072001-010	New smokehouses
072001-010A	Amendment to Permit No. 072001-010 for additional smokehouses
092004-010	New 12.1 MMBtu/hr dual-fueled boiler, a 6.0 MMBtu/hr dual-fueled boiler, a 10.0 MMBtu/hr dual-fueled boiler, and a continuous liquid smokehouse.

### PROJECT DESCRIPTION

Sara Lee is proposing to add liquid smoke capability to an existing oven (CS3). Spray equipment will apply liquid smoke to the meat prior to cooking. The maximum amount of liquid smoke concentrate to be used in the oven is equal to 9.56 gallons per hour. The following production changes to the oven will also occur: The production of hot dogs will replace the production of sausage and the conveyor speed will increase to allow 15,000 pounds per hour of finished product.

In addition, two of the four natural smoke generators from CS3 will be ducted over to CS2. The duct modification was originally included in the Authority to Construct application dated May 5, 2006. However, a No Permit Required determination (Project No. 2006-08-059) by the Air Pollution Control Program was made on this modification prior to the issuance of this permit and therefore is not further addressed in this permit.

## EMISSIONS/CONTROLS EVALUATION

Particulate matter less than 10 microns in diameter (PM<sub>10</sub>), volatile organic compounds (VOC), and HAPs are the pollutants of concern as a result of adding liquid smoke to oven CS3. The following HAPs were identified in testing of liquid smoke addition at another plant, Hillshire Farm & Kahn's in Alexandria, Kentucky performed March 1<sup>st</sup> and 2<sup>nd</sup> of 1994: acetaldehyde, phenol, acrolein, and formaldehyde. The emission factors for PM<sub>10</sub>, total VOCs, and phenol were obtained from testing performed on liquid smoke addition to oven CS4 located at the St. Joseph facility. The testing was performed on March 23, 2005 and approved by the Air Pollution Control Program. Since acetaldehyde, acrolein, and formaldehyde were not tested for during the 2005 test, the emission factors for these HAPs were derived from testing performed during the Kentucky test. Emission factors for these HAPs could not be taken directly from the Kentucky test since the application rate of liquid smoke was not recorded during the test. However, steady state operation of the equipment during testing was verified and therefore, since all of these HAPs are also considered VOCs, a ratio of each HAP to total VOCs was calculated. These ratios were then multiplied by the potential emissions of VOCs obtained using the VOC emission factor derived from the 2005 tests to arrive at emission factors for acetaldehyde, acrolein, and formaldehyde. All HAPs, with the exception of phenol, are less than 50% of their respective Screen Modeling Action Level. Therefore, additional testing of these HAPs was considered not required.

Sara Lee operates oven CS3 only 20 hours per day. Four (4) hours per day are required for sanitation requirements. Therefore potential emissions of the application represent the potential emissions due to modifications made to oven CS3, assuming operation of 20 hours per day, 365 days a year. Existing potential emissions are taken from the previous construction permit (Permit No. 092004-010). Existing actual emissions were taken from the applicant's 2005 emission Inventory Questionnaire (EIQ) submittal. The following table provides an emissions summary for this project.

Table 2: Emissions Summary (tons per year)

Pollutant	Regulatory <i>De Minimis</i> Levels	Existing Potential Emissions	Existing Actual Emissions (2005 EIQ)	Potential Emissions of the Application	New Installation Conditioned Potential
PM <sub>10</sub>	15.0	43.03	10.89	4.17	N/A
SO <sub>x</sub>	40.0	0.29	0.10	N/A	N/A
NO <sub>x</sub>	40.0	53.26	12.61	N/A	N/A
VOC	40.0	51.25	19.67	18.75	N/A
CO	100.0	44.38	14.25	N/A	N/A
HAPs	10.0/25.0	5.47	7.75	1.30	N/A
Acetaldehyde	9.0	0.92	0.20	0.04	N/A
Phenol	0.1	2.74	6.58	0.63	N/A
Acrolein	0.04	0.05	0.09	<0.01	N/A
Formaldehyde	2.0	1.29	0.88	0.63	N/A

N/A = Not Applicable

## 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 criteria pollutants are below de minimis levels.

## APPLICABLE REQUIREMENTS

Sara Lee Foods, St. Josph Facility 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

## AMBIENT AIR QUALITY IMPACT ANALYSIS

The phenol potential emission rate from the liquid smoke addition to oven CS3 was calculated to exceed the Screening Modeling Action Level of 0.1 tons per year. A Screen 3 modeling analysis was performed to determine if the Risk Assessment Levels for phenol would be exceeded at or beyond the property line of the Sara Lee Foods facility. The phenol emission rate for the project is 0.17 lb/hr and the nearest property boundary to oven CS3 was determined to be 464 feet. The stack parameters as provided by the applicant are listed in Table 3.

Table 3: Stack Parameters

Stack No.	Height (ft)	Diameter (ft)	Temperature (F)	Flow Rate (Standard cubic feet/min)
CS3	50.0	1.5	80	3,000

The following table lists the air quality impact for phenol.

Table 4: Ambient Air Quality Impact Analysis

Pollutant	Modeled Impact ( $\mu\text{g}/\text{m}^3$ )	Risk Assessment Level ( $\mu\text{g}/\text{m}^3$ )	Time Period
Phenol	2.44	45.0	24-hour
	0.49	9.5	Annual

As indicated in the above table, phenol emissions from the equipment added under this permit are expected to be in compliance with the Risk Assessment Levels for both the 24 hour and annual average time periods.

#### 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.

\_\_\_\_\_  
 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 May 5, 2006, received May 18, 2006, designating Sara Lee Foods, U.S. as the owner and operator of the installation.
- Stack Testing.
- Kansas City Regional Office Site Survey, dated May 31, 2006.



Ms. Peggy Wood  
Environmental & Safety Coordinator  
Sara Lee Foods, St. Joseph Facility  
5807 Mitchell Avenue  
St. Joseph, MO 64507

RE: New Source Review Permit - Project Number: 2006-05-054

Dear Ms. Wood:

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, Missouri 65102.

Sincerely,

**AIR POLLUTION CONTROL PROGRAM**

Kendall B. Hale  
New Source Review Unit Chief

KBH:sml

Enclosures

c: Kansas City Regional Office  
PAMS File 2006-05-054

Permit Number: