



Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

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July 3, 2012

Mr. Manuel Silva
Vice President of Operations
Bernardino's Bakery, Inc.
105 Exchange Street
Chicopee, MA 01020

RE: CHICOPEE
Transmittal No.: X241766
Application No.: 1-P-12-012
Class: *SM-25*
FMF No.: 133659
AIR QUALITY PLAN APPROVAL

Dear Mr. Silva:

The Massachusetts Department of Environmental Protection ("MassDEP"), Bureau of Waste Prevention, has reviewed your Limited Plan Application ("Application") listed above. This Application concerns the proposed operation of one tunnel oven, one rotary type oven, and one rack type oven at your commercial bakery facility located at 105 Exchange Street in Chicopee, Massachusetts ("Facility").

This Application was submitted in accordance with 310 CMR 7.02 Plan Approval and Emission Limitations as contained in 310 CMR 7.00 "Air Pollution Control," regulations adopted by MassDEP pursuant to the authority granted by Massachusetts General Laws, Chapter 111, Section 142 A-J, Chapter 21C, Section 4 and 6, and Chapter 21E, Section 6. MassDEP's review of your Application has been limited to air pollution control regulation compliance and does not relieve you of the obligation to comply with any other regulatory requirements.

MassDEP has determined that the Application is administratively and technically complete and that the Application is in conformance with the Air Pollution Control regulations and current air pollution control engineering practice, and hereby grants this **Plan Approval** for said Application, as submitted, subject to the conditions listed below.

Please review the entire Plan Approval, as it stipulates the conditions with which the Facility owner/operator ("Permittee") must comply in order for the Facility to be operated in compliance with this Plan Approval.

1. DESCRIPTION OF FACILITY AND APPLICATION

Bernardino's Bakery, located at 105 Exchange Street, in Chicopee, Massachusetts ("the Facility") houses one tunnel oven, one rotary type oven and one rack type oven that bake yeast-leavened bread in the forms of loaves or rolls. The tunnel oven is manufactured by Food Machinery Engineering of Toronto, Canada. It has a manufacturer's rated heat input of 2.1 million British thermal units per hour (MMBtu/hr). The rotary type oven has a heat input capacity of 0.30 MMBtu/hr and is manufactured by the Reed Oven Company Model S7-29-92. The rack oven is a Model 620U double rack gas oven manufactured by Revent Incorporated. It has a rated heat input of 0.338 MMBtu/hr. In addition, the Facility houses several small space and hot water heaters.

The primary air emissions from the bakery operations are volatile organic compounds ("VOC") which are emitted by the bread baking process. The primary VOC emitted is ethanol. In yeast-leavened breads, yeast metabolizes sugars in an anaerobic fermentation, producing carbon dioxide ("CO₂") that is largely responsible for the bread rising. Besides the CO₂, equimolar amounts of ethanol and small amounts of other VOC are produced. The oven is the predominant emissions source since ethanol is emitted when the dough is exposed to high temperatures in the process, with yeast concentration, total fermentation time, and amount of product produced being the critical factors in determining VOC emissions. VOC emissions are proportional to the amount of bread baked.

Nitrogen Oxides ("NO_x") potential emissions from the combined heat input capacity of the three ovens is less than 2 tons per year based on 100 pounds of NO_x emitted per million cubic feet of natural gas from uncontrolled sources¹. This Plan Approval limits the Facility to below major source thresholds, therefore the Facility will be categorized as a minor source of air pollution with potential VOC and NO_x emissions each of less than ten (10) tons per year.

2. EMISSION UNIT (EU) IDENTIFICATION

Each Emission Unit (EU) identified in Table 1 is subject to and regulated by this Plan Approval:

Table 1			
EU#	Description	Design Capacity	Fuel
EU-1	Tunnel Oven	2.1 MMBtu/hr	Natural Gas
EU-2	Reed Rotary Oven	0.30 MMBtu/hr	
EU-3	Revent Double Rack Oven	0.338 MMBtu/hr	

Table 1 Key:

EU# = Emission Unit Number

MMBtu/hr = million British thermal units per hour

¹ Emission Factor calculated in accordance with United States Environmental Protection Agency document AP-42, Table 1-4.1 "Natural Gas Combustion," dated February 1997.

3. APPLICABLE REQUIREMENTS

A. OPERATIONAL, PRODUCTION and EMISSION LIMITS

The Permittee is subject to, and shall not exceed the Operational, Production, and Emission Limits as contained in Table 2 below:

Table 2			
EU#	Operational / Production Limit	Air Contaminant	Emission Limit
EU-1	1. 750 lbs of baked product per hour	VOC	1.46 Lbs/Hr
	2. 468 tons of baked product per month		0.91 TPM
	3. 1,872 tons of baked product per consecutive twelve month period		3.65 TPY
EU-2	4. 150 lbs of baked product per hour	VOC	0.30 Lb/Hr
	5. 94 tons of baked product per month		0.2 TPM
	6. 375 tons of baked product per consecutive twelve month period		0.73 TPY
EU-3	7. 100 lbs of baked product per hour	VOC	0.20 Lb/Hr
	8. 63 tons of baked product per month		0.125 TPM
	9. 250 tons of baked product per consecutive twelve month period		0.50 TPY
Facility-wide	10. 624 tons of baked product per month	VOC	1.215 TPM
	11. 2,496 tons of baked product per consecutive twelve month period		4.86 TPY
	12. 2,496 tons of baked product per consecutive twelve month period	Total HAP	≤ 1.0 TPY
	13. CO ₂ from the Facility, including the combustion of natural gas and from the process of yeast fermentation of sugar.	CO ₂	203 TPM CO ₂
			810 TPY CO ₂
14. Visible emissions from this Facility shall not exceed 10 percent opacity	Opacity	≤ 10%	

Table 2 Key:

- EU# = Emission Unit Number
- VOC = Volatile Organic Compounds
- HAPs (total) = total Hazardous Air Pollutants.
- CO₂ = Carbon Dioxide
- Lb/Hr = pounds per hour
- TPM = tons per month
- TPY = tons per consecutive 12-month period
- % = percent

B. COMPLIANCE DEMONSTRATION

The Permittee is subject to, and shall comply with, the monitoring, testing, record keeping, and reporting requirements as contained in Tables 3, 4, and 5 below:

Table 3	
EU#	Monitoring and Testing Requirements
Facility-Wide	<p>1. Monitor the following on a daily basis:</p> <ul style="list-style-type: none"> a. The name and type of each product baked; b. The baker's percent of yeast used to the nearest tenth of a percent, for each product baked; c. The fermentation time (total yeast action time) in hours to the nearest tenth of an hour, for each product baked; d. The amount of product baked in tons, for each product baked; e. The corresponding VOC emission factor based on the following formula: $EF = 0.95Y + 0.195T - 0.51S - 0.86ST + 1.90$ Where: EF = VOC emission factor in pounds of VOC per ton of product baked Y = initial baker's percent of yeast T = total yeast action time in hours S = final (spike) baker's percent of yeast ST = spiking time in hours $CO_{2\text{bread}} = \text{VOC (unless based on actual emissions test data)}$ Where: $CO_{2\text{bread}}$ = emissions of CO₂ from bread baking in pounds per day VOC = VOC emissions in pounds per day
	<p>2. Monitor the natural gas usage of all combustion equipment at the facility on a monthly basis. Natural gas consumption billing records are acceptable. The corresponding monthly emission rate of CO₂ emitted from the combustion equipment shall be based on the following formula (unless based on actual emissions testing data):</p> $CO_{2\text{ovens}} = NG_{\text{usage}} \times (60 \text{ tons } CO_2/\text{MMscf})$ Where: $CO_{2\text{ovens}}$ = emissions of CO ₂ in tons from combusting natural gas per month including ovens, heaters, and air make-up units. NG_{usage} = monthly natural gas used in the combustion equipment at the facility in million standard cubic feet $MMscf$ = million standard cubic feet
	<p>3. For each product baked, monitor the actual monthly production in tons of baked product, actual monthly VOC emissions in tons, HAP emissions in tons, and actual monthly CO₂ emissions in tons.</p>
	<p>4. For each product baked, monitor the actual consecutive twelve month time period production in tons of baked product, actual consecutive twelve month time period VOC emissions in tons, HAP emissions in tons, and actual consecutive twelve month time period CO₂ emissions in tons.</p>

Table 3	
EU#	Monitoring and Testing Requirements
Facility-Wide	5. Monitor facility operations such that the total facility-wide monthly and twelve month time period emissions of VOC and CO ₂ do not exceed the emissions limits established in Section 3.A. of this Approval.
	6. Monitor facility operations such that the total facility-wide monthly and twelve month rolling tons of total product produced do not exceed the production restrictions established in Section 3.A. of this Approval, provided that VOC emissions do not exceed the VOC emission limits contained in Table 2, paragraph 1, above.
	7. Monitor all operations to ensure sufficient information is available to comply with 310 CMR 7.12 Source Registration.
	8. If and when MassDEP requires it, the Permittee shall conduct emission testing in accordance with USEPA Reference Test Methods and regulation 310 CMR 7.13.

Table 3 Key:

- EU# = Emission Unit Number
- VOC = Volatile Organic Compounds
- CO₂ = Carbon Dioxide
- CMR = Code of Massachusetts Regulations

Table 4	
EU#	Record Keeping Requirements
Facility-Wide	<p>1. Maintain the following records, on a daily basis:</p> <ul style="list-style-type: none"> a. The name and type of each product baked; b. The baker's percent of yeast used to the nearest tenth of a percent, for each product baked; c. The fermentation time (total yeast action time) in hours to the nearest tenth of an hour, for each product baked; d. The amount of product baked in tons, for each product baked; e. The corresponding daily emission rate for each product baked, based on the specified emission factors and formulas specified in Table 3 above.

Table 4

EU#	Record Keeping Requirements
Facility-wide	<p>2. Record the natural gas usage of all combustion equipment at the facility on a monthly basis. Natural gas consumption billing records are acceptable. The corresponding monthly emission rate of CO₂ emitted from the combustion equipment shall be based on the following formula:</p> $CO_{2\text{ovens}} = NG_{\text{usage}} \times (60 \text{ tons } CO_2/\text{MMscf})$ <p>Where: CO_{2ovens} = emissions of CO₂ in tons from combusting natural gas per month including ovens, heaters, and air make-up units. NG_{usage} = monthly natural gas used in the combustion equipment at the facility in million standard cubic feet. MMscf = million standard cubic feet.</p> <p>3. For each product baked, maintain a record of the actual monthly production in tons of baked product per month, actual monthly VOC emissions in tons, HAP emissions in tons, and actual monthly CO₂ emissions in tons.</p> <p>4. For each product baked, maintain a record of the actual consecutive twelve month time period production in tons of baked product, actual consecutive twelve month time period VOC emissions in tons, HAP emissions in tons, and actual consecutive twelve month time period CO₂ emissions in tons.</p> <p>5. Maintain facility records such that accurate reports regarding Greenhouse Gas emissions (i.e. CO₂) can be submitted in accordance with applicable requirements contained in 310 CMR 7.71.</p> <p>6. Maintain adequate records on-site to demonstrate compliance with all operational, production, and emission limits contained in Table 2 above. Records shall also include the actual emissions of air contaminant(s) emitted for each calendar month and for each consecutive twelve month period (current month plus prior eleven months). These records shall be compiled no later than the 15th day following each month. An electronic version of the MassDEP approved record keeping form, in Microsoft Excel format, can be downloaded at http://www.mass.gov/dep/air/approvals/aqforms.htm#report.</p> <p>7. Maintain records of monitoring and testing as required by Table 3.</p> <p>8. Maintain a copy of this Plan Approval, underlying Application and the most up-to-date SOMP for the EU(s) approved herein on-site.</p> <p>9. Maintain a record of routine maintenance activities performed on the approved EU(s), PCD(s) and monitoring equipment. The records shall include, at a minimum, the type or a description of the maintenance performed and the date and time the work was completed.</p> <p>10. Maintain a record of all malfunctions affecting air contaminant emission rates on the approved EU(s) and monitoring equipment. At a minimum, the records shall include: date and time the malfunction occurred; description of the malfunction; corrective actions taken; the date and time corrective actions were initiated and completed; and the date and time emission rates and monitoring equipment returned to compliant operation.</p> <p>11. Maintain records to ensure sufficient information is available to comply with 310 CMR 7.12 Source Registration.</p>

Table 4	
EU#	Record Keeping Requirements
Facility-Wide	12. Maintain records required by this Plan Approval on-site for a minimum of five (5) years.
	13. Make records required by this Plan Approval available to MassDEP and USEPA personnel upon request.

Table 4 Key:

EU# = Emission Unit Number
 VOC = Volatile Organic Compounds
 CO₂ = Carbon Dioxide
 PCD = Pollution Control Device
 SOMP = Standard Operating and Maintenance Procedure
 CMR = Code of Massachusetts Regulations
 USEPA = United States Environmental Protection Agency

Table 5	
EU#	Reporting Requirements
Facility-wide	1. The Permittee shall submit to MassDEP all information required by this Plan Approval over the signature of a "Responsible Official" as defined in 310 CMR 7.00 and shall include the Certification statement as provided in 310 CMR 7.01(2)(c).
	2. The Permittee shall notify the Western Regional Office of MassDEP, BWP Permit Chief by telephone [413-755-2115], email, Marc.Simpson@state.ma.us or fax [413-785-1149], as soon as possible, but no later than one (1) business day after discovery of an exceedance(s) of Table 2 requirements. A written report shall be submitted to the Permit Chief at MassDEP within three (3) business days thereafter and shall include: identification of exceedance(s), duration of exceedance(s), reason for the exceedance(s), corrective actions taken, and action plan to prevent future exceedance(s).
	3. Provide a copy to MassDEP of any record required to be maintained by this Plan Approval within 30-days from MassDEP's request.
	4. Submit to MassDEP for approval a stack emission pretest protocol, at least 30 days prior to emission testing, for emission testing as defined in Table 3 Monitoring and Testing Requirements.
	5. Submit to MassDEP a final stack emission test results report, within 45 days after emission testing, for emission testing as defined in Table 3 Monitoring and Testing Requirements.

Table 5 Key:

EU# = Emission Unit Number
 CMR = Code of Massachusetts Regulations
 BWP = Bureau of Waste Prevention

4. SPECIAL TERMS AND CONDITIONS

The Permittee is subject to, and shall comply with, the following special terms and conditions:

- A. The Permittee shall comply with the Special Terms and Conditions as contained in Table 6 below:

Table 6	
EU#	Special Terms and Conditions
Facility-Wide	1. Any prior Plan Approvals issued under 310 CMR 7.02 shall remain in effect unless specifically changed or superseded by this Plan Approval. The Facility shall not exceed the emission limits and shall comply with approved conditions specified in the prior Plan Approval(s) unless specifically altered by this Plan Approval.

Table 6 Key:

EU# = Emission Unit Number

CMR = Code of Massachusetts Regulations

- B. The Permittee shall install and use an exhaust stack, as required in Table 7, on the Food Machinery Engineering Tunnel Oven (EU-1), that is consistent with good air pollution control engineering practice and that discharges so as to not cause or contribute to a condition of air pollution. Each exhaust stack shall be configured to discharge the gases vertically and shall not be equipped with any part or device that restricts the vertical exhaust flow of the emitted gases, including but not limited to rain protection devices known as "shanty caps" and "egg beaters." The Permittee shall install and utilize exhaust stacks with the following parameters, as contained in Table 7 below, for the Emission Units that are regulated by this Plan Approval:

Table 7				
EU#	Stack Height Above Ground (feet)	Stack Inside Exit Dimensions (feet)	Stack Gas Exit Velocity Range (feet per second)	Stack Gas Exit Temperature Range (°F)
EU-1	35 feet above ground and/or 10 feet above roof top	0.8-2.0	10-40	100-350

Table 7 Key:

EU# = Emission Unit Number

°F = Degree Fahrenheit

5. GENERAL CONDITIONS

The Permittee is subject to, and shall comply with, the following general conditions:

- A. Pursuant to 310 CMR 7.01, 7.02, 7.09 and 7.10, should any nuisance condition(s), including but not limited to smoke, dust, odor or noise, occur as the result of the operation of the Facility, then the Permittee shall immediately take appropriate steps including shutdown, if necessary, to abate said nuisance condition(s).
- B. If asbestos remediation/removal will occur as a result of the approved construction, reconstruction, or alteration of this Facility, the Permittee shall ensure that all removal/remediation of asbestos shall be done in accordance with 310 CMR 7.15 in its entirety and 310 CMR 4.00.
- C. If construction or demolition of an industrial, commercial or institutional building will occur as a result of the approved construction, reconstruction, or alteration of this Facility, the Permittee shall ensure that said construction or demolition shall be done in accordance with 310 CMR 7.09(2) and 310 CMR 4.00.
- D. Pursuant to 310 CMR 7.01(2)(b) and 7.02(7)(b), the Permittee shall allow MassDEP and / or USEPA personnel access to the Facility, buildings, and all pertinent records for the purpose of making inspections and surveys, collecting samples, obtaining data, and reviewing records.
- E. This Plan Approval does not negate the responsibility of the Permittee to comply with any other applicable Federal, State, or local regulations now or in the future.
- F. Should there be any differences between the Application and this Plan Approval, the Plan Approval shall govern.
- G. Pursuant to 310 CMR 7.02(3)(k), MassDEP may revoke this Plan Approval if the construction work is not commenced within two years from the date of issuance of this Plan Approval, or if the construction work is suspended for one year or more.
- H. This Plan Approval may be suspended, modified, or revoked by MassDEP if MassDEP determines that any condition or part of this Plan Approval is being violated.
- I. This Plan Approval may be modified or amended when in the opinion of MassDEP such is necessary or appropriate to clarify the Plan Approval conditions or after consideration of a written request by the Permittee to amend the Plan Approval conditions.
- J. The Permittee shall conduct emission testing, if requested by MassDEP, in accordance with USEPA Reference Test Methods and regulation 310 CMR 7.13. If required, a pretest

protocol report shall be submitted to MassDEP at least 30 days prior to emission testing and the final test results report shall be submitted within 45 days after emission testing.

- K. Pursuant to 310 CMR 7.01(3) and 7.02(3)(f), the Permittee shall comply with all conditions contained in this Plan Approval. Should there be any differences between provisions contained in the General Conditions and provisions contained elsewhere in the Plan Approval, the latter shall govern.

6. MASSACHUSETTS ENVIRONMENTAL POLICY ACT

MassDEP has determined that the filing of an Environmental Notification Form (ENF) with the Secretary of Energy & Environmental Affairs, for air quality control purposes, was not required prior to this action by MassDEP. Notwithstanding this determination, the Massachusetts Environmental Policy Act (MEPA) and 301 CMR 11.00, Section 11.04, provide certain "Fail-Safe Provisions," which allow the Secretary to require the filing of an ENF and/or an Environmental Impact Report (EIR) at a later time.

7. APPEAL PROCESS

This Plan Approval is an action of MassDEP. If you are aggrieved by this action, you may request an adjudicatory hearing. A request for a hearing must be made in writing and postmarked within twenty-one (21) days of the date of issuance of this Plan Approval.

Under 310 CMR 1.01(6)(b), the request must state clearly and concisely the facts, which are the grounds for the request, and the relief sought. Additionally, the request must state why the Plan Approval is not consistent with applicable laws and regulations.

The hearing request along with a valid check payable to the Commonwealth of Massachusetts in the amount of one hundred dollars (\$100.00) must be mailed to:

Commonwealth of Massachusetts
Department of Environmental Protection
P.O. Box 4062
Boston, MA 02211

This request will be dismissed if the filing fee is not paid, unless the appellant is exempt or granted a waiver as described below. The filing fee is not required if the appellant is a city or town (or municipal agency), county, or district of the Commonwealth of Massachusetts, or a municipal housing authority.

MassDEP may waive the adjudicatory hearing-filing fee for a person who shows that paying the fee will create an undue financial hardship. A person seeking a waiver must file, together with the hearing request as provided above, an affidavit setting forth the facts believed to support the claim of undue financial hardship.

Should you have any questions concerning this Plan Approval, please contact Todd Wheeler by telephone at 413-755-2297, or in writing at the letterhead address.

July 3, 2012

Date

This final document copy is being provided to you electronically by the
Department of Environmental Protection. A signed copy of this document
is on file at the DEP office listed on the letterhead.

Marc Simpson
Permit Chief
Bureau of Waste Prevention
Western Region

ecc: MassDEP/Boston - Yi Tian
MassDEP/Western Region - Peter Czapienski