



Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

Northeast Regional Office • 205B Lowell Street, Wilmington MA 01887 • 978-694-3200

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June 27, 2012

Mr. Larry Quinzani
Quinzani's Bakery, Inc.
380 Harrison Avenue
Boston, MA 02118

RE: BOSTON
Transmittal No.: X251056
Application No.: NE-12-007
Class: *NM25*
FMF No.: 52106
AIR QUALITY PLAN APPROVAL

Dear Mr. Quinzani:

The Massachusetts Department of Environmental Protection ("MassDEP"), Bureau of Waste Prevention, has reviewed your Limited Plan Application ("Application") listed above. This Application concerns your existing bread baking operations utilizing six (6) natural gas fired ovens and two (2) flour storage silos located at 380 Harrison Avenue, Boston, 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

The Permittee operates commercial bread baking operations consisting of three (3) natural gas fired rack ovens, three (3) natural gas fired tunnel ovens, and two (2) flour storage silos. The Permittee utilizes fabric breather bags to control particulate emissions from the flour storage silos which are located outside the building. The Permittee inspects these breather bags on a weekly basis and documents the inspection results on a log sheet. These bags are cleaned once per year and the Permittee keeps an extra set of bags on-site in case any defective bags need to be replaced. The Facility also houses a 400 kilowatts (KW) diesel fired emergency generator subject to Regulation 310 CMR 7.03 and two (2) exempt natural gas fired boilers, each having a maximum heat input capacity of 2,510,000 Btu per hour.

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 | Pollution Control Device (PCD) |
| EU1 | Dahlen 603 Rack Oven | 500,000 Btu/hr | None |
| EU2 | Dahlen 603 Rack Oven | 500,000 Btu/hr | None |
| EU3 | Dahlen 603 Rack Oven | 500,000 Btu/hr | None |
| EU4 | Winkler 50 Tunnel Oven | 2,500,000 Btu/hr | None |
| EU5 | Werner & Pfleiderer NUN Tunnel Oven | 2,500,000 Btu/hr | None |
| EU6 | FHS 60 Tunnel Oven | 3,000,000 Btu/hr | None |

Table 1 Key:

EU# = Emission Unit Number
 PCD = Pollution Control Device
 Btu/hr = British thermal units per hour

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 |
| EU1 EU2 EU3 EU4 EU5 EU6 | Maximum of 1,647 tons of bread production per month and 6,589 tons of bread production per consecutive 12-month period. | VOC | 2.3 TPM and 9.3 TPY |
| | | CO ₂ | 1925 TPM and 7700 TPY |

Table 2 Key:

- EU# = Emission Unit Number
- VOC = Volatile Organic Compounds
- CO₂ = Carbon dioxide
- TPM = tons per month
- TPY = tons per consecutive 12-month period

The primary air emissions from the bakery operations are volatile organic compounds (VOC) which are emitted by the bakery ovens. 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 ovens are the predominant emissions sources since ethanol is emitted when the dough is exposed to high temperatures in the oven, 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 breads baked.

The Permittee shall incorporate the initial yeast content, total yeast action time, spike yeast content and final spike time such that the equation used to determine VOC emission factors for each type of bread product produced is:

$$\text{VOC E.F.} = 0.95*Y_i + 0.195*T_i - 0.51*S - 0.86*T_s + 1.9^1$$

- Where: VOC E.F. = Pounds of VOC emitted per ton of bread type baked
- Y_i = initial yeast, in bakers percent of yeast to the nearest tenth of a percent
- T_i = Total yeast action time, in hours to the nearest tenth of an hour
- S = Spike yeast, in bakers percent of yeast to the nearest tenth of a percent
- T_s = final spike time, in hours to the nearest tenth of an hour

Foot Note:

1: From United States Environmental Protection Agency's "Alternative Control Technology Document for Bakery Oven Emissions" (Report Number: EPA 453/R-92-017) and "AP-42, Compilation of Air Pollutant Emission Factors", Section 9.9.6 "Breads Baking."

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 |
| EU1-EU6 | 1. The Permittee shall monitor tons of each type of bread produced per month and per consecutive 12-month period to determine compliance status with the VOC and CO ₂ emission limits in Table 2, using the equation listed below Table 2. |
| Facility-wide | 2. The Permittee shall inspect the fabric breather bags on a weekly basis and document the inspection records on a log sheet. The bags shall be cleaned once per year. The Permittee shall keep an extra inventory of set of bags on-site at all times to be used if and when bags need to be replaced. |
| | 3. 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

USEPA = United States Environmental Protection Agency

| Table 4 | |
|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EU# | Record Keeping Requirements |
| EU1-EU6 | 1. The Permittee shall maintain on-site records of tons of each type of bread produced per month and per consecutive 12-month period to determine the Facility's compliance status with the emission limits for VOC and CO ₂ . |
| Facility-wide | 2. The Permittee shall 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 VOC and CO ₂ 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 15 th 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 . |
| | 3. The Permittee shall maintain records of fabric breather bags inspection, replacement, and cleaning on a weekly and annual basis as per monitoring and testing requirements contained in Table 3, item 2. |

| Table 4 | |
|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EU# | Record Keeping Requirements |
| | 4. The Permittee shall maintain a copy of this Plan Approval, underlying Application and the most up-to-date SOMP for the EUs approved herein on-site. |
| Facility-wide | 5. The Permittee shall maintain a record of routine maintenance activities performed on the approved EUs 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. |
| | 6. The Permittee shall maintain a record of all malfunctions affecting air contaminant emission rates on the approved EUs and monitoring equipment, as applicable. 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. |
| | 7. The Permittee shall maintain records required by this Plan Approval on-site for a minimum of five (5) years. |
| | 8. The Permittee shall make records required by this Plan Approval available to MassDEP and USEPA personnel upon request. |

Table 4 Key:

EU# = Emission Unit Number

SOMP = Standard Operating and Maintenance Procedure

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 Northeast Regional Office of MassDEP, BWP Permit Chief by e-mail at (nero.air@state.ma.us) or fax at (978) 694-3499 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 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. The Permittee shall provide a copy to MassDEP of any record required to be maintained by this Plan Approval within 30 days from MassDEP's request. |
| | 4. The Permittee shall submit to MassDEP for approval a stack emission pretest protocol, at least 30 days prior to emission testing, for any emission testing as defined in Table 3 Monitoring and Testing Requirements. |
| | 5. The Permittee shall submit to MassDEP a final stack emission test results report, within 45 days after the completion of any emission testing, as defined in Table 3 Monitoring and Testing Requirements. |

Table 5 Key:

EU# = Emission Unit Number

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. The Permittee shall limit the yeast percentage in its recipes to less than 3.0% to mirror the conditions of the emission test program from which the emission factor was derived. |

- B. The Permittee shall install and use exhaust stacks, as required in Table 7, on EU1-EU6 that are consistent with good air pollution control engineering practice and that discharge so as to not cause or contribute to a condition of air pollution. Exhaust stacks 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) |
| EU1-EU6 | 36 | 1 | 10 | 300 |

Table 7 Key:

EU# = Emission Unit Number

°F = Degree Fahrenheit

6. 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 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 emissions 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 emissions testing and the final test results report shall be submitted within 45 days after emissions 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.

7. 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.

8. 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 Dhiraj B. Desai by telephone at (978)694-3282 or in writing at the letterhead address.

Dhiraj B. Desai
Environmental Engineer

James E. Belsky
Permit Chief
Bureau of Waste Prevention

ecc: Boston Public health Commission, 1010 Mass Ave, Boston, MA 02118
Fire Department, 115 Southamton St, Boston, MA 02118
MassDEP/Boston - Yi Tian
MassDEP/NERO – M. Altobelli, M. Persky, D. Desai