

DRAFT

Engineering Evaluation Report
Taylor Made Farms LLC
7190 Keating Avenue
Sebastopol, CA 95472
Plant # 16718
Application Number 11514

I. BACKGROUND

Taylor Made Farm moved and began operation of the coffee roasting business on January 1, 2005. This new location is about a 500 feet from the previous location at 6793 McKinley Street in Sebastopol. Late fees were assessed since they did not apply for permits prior to their move. They are applying for a Permit to Operate for the following equipment:

S-1 Coffee Batch Roaster with integral Cooler, Loring Smart Roaster, Kestrel S35, 245 lb/hr capacity, abated by A-1, Cyclone/Built-in Afterburner, 285,000 Btu/hr.

Taylor Made received the permit for this roaster at the previous location in January 2004 under Application # 8878 with a maximum throughput of 350,000 lb/yr of coffee beans. The owner wants to continue to operate with the same amount of maximum throughput and the same permit conditions.

The Kestrel roaster utilizes a unique heat re-circulating process. The burner is in the cyclone such that air within the roaster is drawn through the cyclonic heating chamber where it is reheated. The air then returns to the roaster. The main burner also acts as an afterburner that operates at minimum 1400 °F and maintains at least 0.3 second residence time. The internal pressure of the system is balanced by allowing the products of combustion from the burner and the smoke from the roasting process to escape through an "incineration tube" that operates at after-burner temperatures.

II. EMISSION CALCULATIONS

a. Emission from batch roaster:

Emission factors for emissions of particulate, NO_x, CO, CO₂, aldehydes, and organics are taken from Permit Handbook Section 11, Chapter 3, and AP-42, Table 9.13.2-1,2 (9/95)- Emission Factors for Batch Roasting abated by the built in burner.

Pollutant	Emission Factors (lb/ton)	Throughput (ton.yr)	Maximum Daily Emissions (lb/day)	Annual Average Daily Emissions (lb/day)	Annual Emissions (lb/yr)	Maximum Annual Emissions (TPY)
NO _x	0.10	175	0.067	0.048	17.5	0.009

PM10	0.12	175	0.081	0.058	21	0.011
POC	0.047	175	0.316	0.225	82.25	0.00047
CO	0.55	175	0.370	0.264	96.25	0.048

Grain Loading calculation from coffee roasting process:

[21 lb PM10/yr X 7000 grain/lb] / [60 min/hr X 8 hr/day X 5 day/wk X 52 wk/yr X 12,000 dscfm] = 0.000098 grain/dscf.

III. PLANT CUMULATIVE INCREASE SINCE 4/5/1991

Pollutant	Current TPY	Annual Emissions (lbs/yr)	Maximum Annual Emissions (TPY)
NO _x	0	17.5	0.009
PM10	0	21	0.011
POC	0	82.25	0.00047
CO	0	96.25	0.048

IV. TOXIC RISK SCREENING

A risk screen is not required for this project because the toxic emissions from all sources did not exceed the toxic trigger level.

Toxic Pollutant	Controlled Emission Factors** (lb/ton)	Annual Emissions (lbs/yr)	Risk Screen Trigger Level (lbs/yr)
Formaldehyde	0.0054	0.95	33

**Controlled Emission Factors: (per District Permit Handbook Chapter 11.3)
Assuming 90% control efficiency- 0.054 (1.0-0.90) = 0.0054

V. BEST AVAILABLE CONTROL TECHNOLOGY

BACT is not triggered since emissions are less than 10 lbs per day for all pollutants.

VI. OFFSETS

Offsets are not required since the facility's POC and NO_x emissions do not exceed 10 ton/yr per Regulation 2-2-302.

VII. CEQA

This application is considered to be ministerial under the District's CEQA guidelines (Regulation 2-1-311) and therefore is not subject to CEQA review. The engineering review for this project requires only the application of standard permit conditions and standard emission factors in accordance with Permit Handbook Chapter 11.3.

VIII. STATEMENT OF COMPLIANCE

Source will comply with Regulation 6 as its estimated particulate emission of 0.000098 gr/dscf is well under the 0.15 gr/dscf allowed per Regulation 6-310.

NSPS, PSD, and NESHAPS are not triggered

Taylor Made Farms is located within 1000 feet of the following school:

Analy High
6950 Analy Avenue
Sebastopol, CA 95472
School Enrollment 1344

Taylor Made Farms is subject to the public notification requirements of Regulation 2-1-412. A public notice will be prepared and posted on the Internet and mailed to all parents and guardians of students enrolled at Analy High school. It will be mailed to all residential neighbors located within 1000 feet of the source of pollution.

IX. CONDITIONS

1. The owner/operator of S-1 shall not roast more than 350,000 pounds green coffee beans at Coffee Roaster S-1 totaled over any consecutive 12-month period. [Basis: Cumulative Increase]
2. The owner/operator of S-1 Coffee Roaster shall abate S-1, Coffee Roaster at all times by A-1 Cyclone/Built-in afterburner. [Basis: Cumulative Increase]
3. The owner/operator shall operate A-1 with a minimum furnace temperature of 1400 degrees F. [Basis: Regulation 2-1-403]
4. The minimum temperature requirement of Condition #3 shall not apply during an "Allowable Temperature Excursion" below the minimum temperature, provided that the controller set temperature is at or above the minimum temperature requirement. An Allowable Temperature Excursion is one of the following:
 - a. A temperature excursion not exceeding 20° F.
 - b. A temperature excursion for a period or periods which when combined are less than or equal to 15 minutes in any hour.
 - c. A temperature excursion for a period or periods which when combined are more than 15 minutes in any hour, provided that all three of the following criteria are met.
 - i. the excursion does not exceed 50 degrees F;
 - ii. the duration of the excursion does not exceed 24 hours; and

- iii. the total number of such excursions does not exceed 12 per calendar year (or any consecutive 12 month period)

Two or more excursions greater than 15 minutes in duration occurring during the same 24-hour period shall be counted as one excursion toward the 12 excursion limit. [Basis: Regulation 2-1-403]

- 5. The owner/operator shall ensure that A-1 Built-in afterburner is equipped with a temperature-measuring device capable of continuously measuring and recording the temperature in A-1 Built-in afterburner. This device shall be accurate to within 10 degrees Fahrenheit (° F) and shall be maintained in accordance with manufacturer's recommendations. This temperature monitor shall be used to determine compliance with the temperature requirements in Condition 3. [Basis: Regulation 1-521]
- 6. The permit to operate for S-1 Coffee Roaster is contingent upon compliance with Regulation 1-301, Standard for Public Nuisance, and Regulation 7, Odorous Substances. Upon receipt of a violation for either of these statutes, the Air Pollution Control Officer may require the operator to submit, within 60 days of notification by the APCO, a permit application for an Authority to Construct additional emission control or may require the owner/operator to curtail operations until either the operation can be modified or the meteorological conditions change, such that the community is no longer adversely impacted. [Basis: Regulation 1-301, 7-301, 7-302, 7-303]
- 7. To demonstrate compliance with the above conditions, the owner/operator shall maintain the following records and provide all of the data necessary to evaluate compliance with the above conditions, including the following information:
 - a. Monthly records of the quantity of green coffee beans roasted at S-1.
 - b. Monthly usage records shall be totaled for each consecutive 12-month period
 - c. Records of continuous temperature measurements of A-1 Thermal Oxidizer whenever S-1 Coffee Roaster is in operation.
- 8. All records shall be retained onsite for two years from the date of entry, and made available for inspection by District staff upon request. These recordkeeping requirements shall not replace the recordkeeping requirements contained in any applicable District Regulations. [Basis: Cumulative Increase]

X. RECOMMENDATION

Staff recommends that a conditional Permit to Operate be granted to Taylor Made Farms for:

- S1 Coffee Batch Roaster with integral Cooler, Loring Smart Roaster, Kestrel S35, 245 lb/hr capacity, abated by A-1, Cyclone/Built-in Afterburner, 285,000 Btu/hr.**

By: _____
Nancy Yee
Air Quality Engineer

_____ Date