



December 4, 2019

Mr. Tim Kooistra
BJ's Coffee Roasters
4510 NE 68th Drive #106
Vancouver, WA 98661

Subject: Notification of Coffee Roaster Installation – (SUN-223)

Dear Mr. Kooistra:

The Southwest Clean Air Agency (SWCAA) received your Small Unit Notification (SUN) on November 21, 2019 for installation and operation of a coffee roaster at 4510 NE 68th Drive, #106, Vancouver, Washington. For administrative and tracking purposes SWCAA has assigned tracking number SUN-223 to this notification. This notification was filed in accordance with SWCAA 400-072 and applies to the installation of one coffee roaster. The coffee roaster was identified as:

- (1) San Franciscan model SF75 natural gas fired roaster with a roasting capacity of 75 pounds per batch and a total heat input capacity (roaster and afterburner) of 1.25 MMBtu/hr. The unit has a serial number of 1004 and utilizes an afterburner with an Incinimite model J121A-3 burner rated at 0.1 to 1.2 MMBtu/hr.

SWCAA has completed a review of your notification and the associated support information and has determined that the notification meets the requirements of SWCAA 400-072(2). Once installed, affected equipment must maintain compliance with the requirements of SWCAA 400-072(5)(a) "**Coffee roasters**". A copy of the relevant SWCAA 400-072 section is attached for your information.

Be advised that emission units installed pursuant to SWCAA 400-072 are subject to source registration and periodic inspection. Registration fees for this equipment will be invoiced consistent with SWCAA 400-100.

If you need further assistance or have any questions regarding these matters, please contact me at (360) 574-3058 extension 130.

Sincerely,

Paul T. Mairose
Chief Engineer



SWCAA 400-072 Emission Standards for Selected Small Source Categories

[Statutory Authority: Chapter 70.94.141 RCW. Original adoption 09-21-056 filed 10/15/09, effective 11/15/09.]

- (5) **Source categories.**
- (a) **Coffee roasters.**
- (i) **Applicability.** The provisions of this section apply to batch configuration coffee roasters with a capacity of less than 100 pounds of green coffee beans per batch.
- (ii) **Emission limits and standards.**
- (A) Visible emissions from the coffee roaster exhaust stack shall not exceed five percent opacity for more than 3 minutes in any one hour period as determined in accordance with SWCAA Method 9 (SWCAA 400, Appendix A).
- (B) Operations that cause or contribute to odors that could unreasonably interfere with any other property owner's use and enjoyment of their property shall use recognized good practice and procedures to reduce those odors to a reasonable minimum, consistent with the requirements of SWCAA 400-040(4).
- (iii) **General requirements.**
- (A) Each coffee roaster shall be equipped with an afterburner designed for a minimum residence time of 0.5 seconds, and capable of maintaining an operating temperature of not less than 1,200°F.
- (B) Each coffee roaster shall have an operable temperature gauge capable of monitoring afterburner operating temperature on a continual basis.
- (C) Each coffee roaster shall be exhausted to the afterburner whenever smoke or odors are generated by roasting and cooling activities.
- (D) Afterburners shall be operated whenever the associated coffee roaster is in operation. The afterburner shall be operated and maintained in accordance with the manufacturer's specifications. Furthermore, the afterburner shall be operated in a manner that minimizes emissions.
- (E) The exhaust point for each coffee roaster shall be a minimum of 200 feet from the nearest residential structure.
- (F) Each coffee roaster and afterburner shall only be fired on natural gas or propane.
- (G) Afterburner exhaust shall be discharged vertically at least four feet above the roof peak of the building containing the afterburner, and at a point higher than surrounding buildings. Any device that obstructs or prevents vertical discharge is prohibited.
- (iv) **Monitoring and recordkeeping requirements.** The information listed below shall be recorded at the specified intervals, and maintained in a readily accessible form for a minimum of 3 years. With the exception of data logged by a computerized data acquisition system, each required record shall include the date and the name of the person making the record entry.
- (A) Afterburner operating temperature shall be recorded weekly;
- (B) Quantity of coffee roasted shall be recorded weekly;
- (C) Upset conditions that cause excess emissions shall be recorded for each occurrence; and
- (D) All air quality related complaints, including odor complaints, received by the permittee and the results of any subsequent investigation or corrective action shall be recorded promptly after each occurrence.

(v) **Testing requirements.** None.

(vi) **Reporting requirements.**

- (A) The owner or operator of an affected emission unit shall provide written notification of initial operation to SWCAA within 10 days of occurrence.
- (B) All air quality related complaints, including odor complaints, received by the owner or operator shall be reported to SWCAA within 3 business days of receipt.
- (C) The owner or operator of an affected coffee roaster shall report the following information to the Agency no later than March 15th for the preceding calendar year:
 - (I) Quantity of natural gas consumed by the roaster and afterburner;
 - (II) Quantity of coffee roasted; and
 - (III) Air emissions of criteria air pollutants, VOCs, and toxic air pollutants (TAPs).

BJ's Coffee Roaster

Summary Information (by SWCAA) for SUN-223

BJ's Coffee Roaster, Inc. has proposed to move their coffee roasting business to a new location. The business uses a single coffee roaster.

Coffee Roaster: Coffee beans are loaded into a secondary hopper that feeds the roaster hopper. Each roast lasts approximately 17-18 minutes, at which point the roasted beans are discharged onto a cooling tray. During the roasting process, emissions are discharged directly to a thermal oxidizer that was part of the original package with the roaster. There is no separate chaff collector. Ambient air is drawn down through the beans on the cooling tray and discharged through a separate stack above the building roof.

Location: 4510 NE 68th Drive, Unit 106, Vancouver, WA 98661

Roaster Details

Make / Model:	San Franciscan / Model SF75LB
Capacity:	75 lbs/batch
Heat Input Capacity:	1.25 MMBtu/hr (total of roaster and afterburner)
Serial Number:	1004
Stack:	Exhausted through a 12" diameter stack terminating approximately 38' above ground level.

Thermal Oxidizer Details

Make / Model:	San Franciscan / no model identified – came with the roaster
Burner Make / Model:	Incinimite / J121A-3
Burner Heat Input Capacity:	0.1 – 1.2 MMBtu/hr



Roasting - Potential Emissions

Heat Rate for Control System = 1.20 MMBtu/hr
 Heat Rate for Roaster = 0.050 MMBtu/hr
 Gas Heat Content = 1,020 Btu/scf
 Fuel Consumption = 1.23E-03 MMscf/hr
 Fuel Consumption = 10.74 MMscf/yr
 Maximum Roasting Rate = 75.0 lb/batch
 Minimum Batch Time = 0.33 hours (16 minutes roasting + loading, unloading)
 Annual Operation = 8,760 hours
 Maximum Roasting = 985.5 tons per year

Pollutant	Emission		Emissions		Emission Factor Source
	Factor lb/ton beans	Emissions lb/hr	lb/yr		
NO _x	1.089	0.12254902	0.54		AP-42 Sec. 1.4 (7/98) 100 lb/MMscf
CO	0.550	0.011	0.048		AP-42 Sec. 9.13 (9/95)
VOC	0.047	0.0053	0.023		AP-42 Sec. 9.13 (9/95)
SO _x as SO ₂	0.007	0.00074	0.003		0.6 lb SO ₂ / MMscf natural gas
Total PM	0.179	0.0201	0.088		AP-42 Sec. 9.13 (9/95)
PM ₁₀	0.179	0.0201	0.088		AP-42 Sec. 9.13 (9/95)
PM _{2.5}	0.179	0.0201	0.088		AP-42 Sec. 9.13 (9/95)
Formaldehyde	0.039	0.00439	1.9E-02		PSCAA factor
Acetaldehyde	0.007	0.00079	3.4E-03		PSCAA factor
Acrolein	0.007	0.00079	3.4E-03		PSCAA factor