pscleanair.org
Puget Sound Clean Air Agency

# Puget Sound Clean Air Agency

*1904 3rd Ave, Ste 105, Seattle, WA 98101-3317*

Notice of Construction No. **12121**

Registration No. **10783**

Date

## GENERAL REGULATORY ORDER

Under the authority of Puget Sound Clean Air Agency Regulation I, Section 3.03, General Regulatory Orders, this Order is issued to:

**Starbucks Coffee Co**

for the facility located at:

**18411 77th Pl S**
**Kent, WA 98032**

DRAFT

1. The owner or operator shall limit facility-wide emissions of the following pollutants during any consecutive 12 month period to:
    a. 90 tons oxides of nitrogen (NOx); and
    b. 90 tons carbon monoxide (CO).

**Compliance Demonstration:**

2. Within 30 days of the end of each month, the owner or operator shall calculate and record monthly emissions of $NO_x$ and CO for that month and for the previous 12-month period ending with and including that month.
    a. Emissions of NOx and CO from heaters and boilers shall be calculated using AP-42 and CARB CATEF emission factors or other factors approved in writing by the Agency and the fuel consumption data. In lieu of tracking fuel consumption data, potential emissions can be calculated based on operating each unit 24 hours per day at the maximum rated capacity. The record must identify the method being used.
    b. Emissions of NOx and CO from each roasting line shall be calculated from the tons of green beans processed during the previous month and the most recently Agency-approved unit specific emission factor determined in accordance with Condition #5.

3. The owner or operator shall develop and submit for Agency approval roasting line specific emission factors based on the following criteria:
    a. Prior to the completion of a unit-specific test on the roasting line, the owner or operator shall use the following emission factors:
        i. 1.08 lb/ton emission factor for calculation of NOx emissions from lines 1B, 2A, 3A, 3B, 4A and 4B
        ii. 4.26 lb/ton emission factor for calculation of NOx emissions from lines 1A and 2B
        iii. 2.18 lb/ton emission factor for calculation of all roaster line CO emissions
    b. Once an emission test has been completed on the unit, the owner or operator shall submit the resulting unit-specific emission factors with the emission test report required by Regulation I, Section 3.07. The emission factor shall be the result of the most recent test completed under this Order. The unit-specific emission factors must be used for the next and subsequent monthly emission calculations (Condition #2) beginning in the first month following testing. If results of an emission test are found to be unrepresentative or unusable after PSCAA review, then the previous emission factor will be utilized until corrective testing can be completed.

4. Within 30 days at the end of each month, the owner or operator shall calculate compliance with the emission limits of Condition #1.

5. The facility shall conduct emission tests on each of the roasting lines to develop unit-specific NOx lb/ton and CO lb/ton emission factors. The emission testing must meet the following requirements:
    a. NOx emissions (lb/ton, to two significant figures) shall be measured using EPA Methods 1, 2, 3A, 4, and 7E.
    b. CO emissions (lb/ton, to two significant figures) shall be measured using EPA Methods 1, 2, 3A, 4, and 10.
    c. The initial source test shall be conducted within 180 days after issuance of this Order of Approval and shall follow the test plan as required by Condition #7.a.
    d. Testing on each unit shall consist of at least three runs. Run duration shall be long enough to measure a minimum of six complete batches back-to-back on each roaster. Batches shall be conducted continuously and measurements shall be taken for the full duration of the preheat, roast, and cooling cycle.
    e. Testing shall occur while roasting the darkest roast of coffee for which batch size is equal to the roaster's maximum design batch size, or during maximum normal operations.
    f. Testing shall mark the start and end times of each batch and the average $NO_x$ (ppm @3% $O_2$) and CO (ppm @3% $O_2$) concentrations from each batch will be calculated. The average NOx ppm @3% $O_2$ and CO ppm @3% $O_2$ from each batch will constitute a sample set for determination of the two-tailed 95% confidence interval for each pollutant using the Student t-distribution. The 95% confidence interval for NOx and CO on each tested unit shall be included in the test report.
    g. Testing shall be conducted at least once every five years with at least 48 months and no more than 61 months between testing. Following the first year of testing, the owner or operator may request that a subset of identical units be tested as an alternative to testing each unit within a set of identical units, subject to approval of PSCAA. If testing a subset of identical units is approved by PSCAA, the emission factor from the tested unit shall be applied to each of the identical units. The unit(s) from a subset of identical units tested shall rotate with each test such that each unit from the subset is tested over time. If any of the identical units are modified or the operation of those units are modified testing shall revert to testing of each unit.

6. During each year when stack testing as required by Condition #5 is not conducted, the facility shall conduct emission checks of $NO_x$ (ppm), CO (ppm), and $O_2$ (%) on each of the roasting lines to ensure that emissions are still represented by the most recent source test. The emission checks must meet the following requirements:
    a. Emission checks shall be conducted with at least 6 months and no more than 18 months between the most recent test or check.
    b. Emission checks shall be conducted while roasting the darkest roast of coffee for which batch size is equal to the roaster's maximum design batch size, or during maximum normal operations. Readings must be taken over the full duration of the roasting period with frequency to ensure representative readings.
    c. Emission checks shall be conducted using a portable gas analyzer measuring method (ASTM D6522-00, ANSI/ASME PTC 19.10-1981, EPA CTM-030, or EPA CTM-034), or alternative approved by PSCAA.

d. For each check, the facility shall record the NOx, CO, and $O_2$ results, the date of the emission check and the operational parameters specified in Condition #8. The checks are not subject to PSCAA Regulation I 3.07.

In the event that the average NOx (ppm @3% $O_2$) or CO (ppm @3% $O_2$) concentrations measured during the emission check are outside of the 95% confidence interval determined from the most recent stack test as specified in Condition #5.f the facility must conduct stack testing of the unit(s) with NOx or CO concentrations outside the 95% confidence interval. Testing must be conducted according to Condition #5, except for the timeline of Condition #5.c. Instead, testing must be completed within 60 days of determination of an emission check exceeding the 95% confidence interval from the most recent stack test.

**Recordkeeping and Reporting:**

7. The unit-specific emission factor testing required by Condition #5 are subject to PSCAA Regulation I 3.07 as well as the following:
    a. Within 60 days of issuance of this Order, the facility shall submit a source test plan to the Agency for approval. The source test plan shall include a list of the operating parameters to be measured during the test and included in the report. The operating parameters must include the Agtron number(s) (or equivalent measure of darkness of roast) of each roast to be tested, the batch size(s) catalyst pressure drop for all catalyst inlets and outlets, temperature range for each roaster and temperature range for each oxidizer.
    b. If the facility requests to test a subset of identical units, the request must be submitted to the Agency at least 60 days prior to the next test deadline specified in Condition #5.g and must include the unit(s) for which testing a subset of identical units is requested, the make, model, design capacity, coffee bean recipes roasted, and maintenance and modification history for each unit.

8. The facility shall maintain records of the NOx, CO, and $O_2$ emission checks required by Condition #6 including the date the check was completed, the NOx, CO and $O_2$ results, the hand-held analyzer method used, the batch size, measure of darkness of the roast, catalyst pressure drop for all catalyst inlets and outlets, temperature ranges for each roaster, temperature range for each oxidizer and hand-held analyzer calibration data.

9. The facility shall maintain the records of NOx and CO emissions as required by Condition #2 which will document the unit-specific emission factor, the tons of green beans processed on each emission unit for the calendar month, the resulting NOx and CO emissions from bean roasting, and the total NOx and CO emissions facility-wide.

10. The owner or operator shall notify the Puget Sound Clean Air Agency in writing, within 60 days after the end of any 12-month period if, during that period, facility-wide emissions of NOx or CO exceeded 90 tons. The report shall include a summary of the total 12-month emissions, the unit specific emission factors, and the amount of green beans roasted for the time period for which these thresholds were exceeded. Upon request, the owner or operator shall provide the supporting emission calculations for the reported emission totals.

11. All records maintained by this Order of Approval must be maintained for five years (in hard copy or electronic format) and must be made available to Puget Sound Clean Air Agency personnel upon request.

APPEAL RIGHTS

Pursuant to Regulation I, Section 3.17 and RCW 43.21B.310, this Order may be appealed to the Pollution Control Hearings Board (PCHB). To appeal to the PCHB, an appeal must be filed with the PCHB and a copy served upon Puget Sound Clean Air Agency within 30 days of receiving this Order.

D R A F T

| | |
|---|---|
| Madeline McFerran | John Dawson |
| Reviewing Engineer | Engineering Manager |