

**ENGINEERING EVALUATION**  
**Coca-Cola Bottling Company of California**  
**Plant: 20430**  
**Application: 22630**

14655 Wicks Blvd  
San Leandro, CA 94577

**BACKGROUND**

Coca-Cola Bottling Company of California (Coca-Cola) has requested to obtain a Permit to Operate the following equipment:

**S-1 Natural Gas Fired Steam Boiler, Triple S Manufacturing, Model # 777,  
16.8 MMBTU/hr rated capacity, with S.T. Johnson NOXmatic A-Type Ultra-Low NOx  
Burner**

Coca-Cola manufactures carbonated and non-carbonated beverages. S-1 will be used to heat water for cleaning and sanitizing the process equipment and the water filtration system. The process steam will also be used as a direct heat source for can and bottle warmers which heat the finished beverages to room temperature.

**EMISSIONS SUMMARY**

The following basis and assumptions are used to estimate the increase in criteria pollutant emissions associated with the operation of S-1:

- Operating schedule of 24 hr/day, 7 day/week, 52 week/yr
- Maximum firing rate of 16.8 MMBTU/hr
- Fuel heat value of 1,020 BTU/SCF, from AP-42, 5<sup>th</sup> Ed., Chapter 1.4 Natural Gas Combustion
- NOx and CO emission factors from vendor ppm specifications:
  - NOx: 15 ppm at 3% O<sub>2</sub> or 0.011 lb/MMBtu
  - CO: 50 ppm at 3% O<sub>2</sub> or 0.037 lb/MMBtu
- POC, PM<sub>10</sub>, and SO<sub>2</sub> emission factors from AP-42, 5<sup>th</sup> Ed., Chapter 1.4 Natural Gas Combustion

Note: VOC emission factor from this chapter of AP-42 document will be assumed equal to POC emission factor

**Table 1. Estimated emissions of criteria pollutants from operation of S-1**

Criteria Pollutant from Natural Gas Combustion	Emission Factor		Emission Rates		
	Source	lb/MMBtu	max lb/day	lb/yr	tons/yr
NOx	B	0.018	7.3	2670	1.34
CO	B	0.022	8.9	3250	1.63
POC	A	0.005	2.2	791	0.40
PM <sub>10</sub>	A	0.007	3.0	1090	0.55
SO <sub>2</sub>	A	0.001	0.2	86	0.04

Source: A AP-42, 5th Edition, Table 1.4-2

B Applicant, vendor ppm spec

**PLANT CUMMULATIVE INCREASE**

Coca-Cola is a new facility. Therefore, the District's database does not contain information on existing emissions at this facility. Table 2 summarizes the cumulative increases in criteria pollutant emissions that will result at Plant 20430 from the operation of S-1.

**Table 2. Cumulative increase in TPY**

Pollutants	Current Emissions (TPY)	New Emissions (TPY)	New Total Emissions (TPY)
POC	0.000	0.40	0.40
NO <sub>x</sub>	0.000	1.34	1.34
SO <sub>2</sub>	0.000	0.04	0.04
CO	0.000	1.63	1.63
PM <sub>10</sub>	0.000	0.55	0.55

### **TOXIC RISK SCREENING**

To estimate Toxic Air Contaminant (TAC) emissions from the operation of S-1, the emission factors presented in the BAAQMD Permit Handbook, Chapter 2.1, Boilers, Steam Generators & Process Heaters are used. Table 3 shows that toxic emission rates from operation of S-1 are below the TAC trigger levels listed in Table 2-5-1 of Regulation 2-5. Hence, the requirements of a Health Risk Screening Analysis are not triggered.

**Table 3. Toxic Air Contaminant (TAC) emissions and trigger levels**

TACs from Natural Gas Combustion	AP-42 Emission Factor	Emission Factor	Annual Emission Rate	TAC Trigger Level	Triggered?	Hourly Emission Rate	TAC Trigger Level	Triggered?
	lb/MM cu. ft.	lb/MMBtu	lb/yr	lb/yr	yes/no	lb/hr	lb/hr	yes/no
Benzene	2.10E-03	2.1E-06	3.0E-01	3.8E+00	No	3.5E-05	2.9E+00	No
Formaldehyde	7.50E-02	7.4E-05	1.1E+01	1.8E+01	No	1.2E-03	1.2E-01	No
Toluene	3.40E-03	3.3E-06	4.9E-01	1.2E+04	No	5.6E-05	8.2E+01	No

Note: Based on September 7, 2005 Memorandum from Brian Bateman (Subject: Emission Factors for Toxic Air Contaminants from Miscellaneous Natural Gas Combustion Sources)

### **BEST AVAILABLE CONTROL TECHNOLOGY (BACT)**

In accordance with Regulation 2, Rule 2, Section 301, BACT is triggered for any new or modified source with the potential to emit 10 pounds or more per highest day of POC, NPOC, NO<sub>x</sub>, CO, SO<sub>2</sub> or PM<sub>10</sub>. Based on the emissions calculations above, the highest daily emissions of each of these criteria pollutants are not in excess of 10 pounds. Therefore, the operation of S-1 does not trigger the BACT requirements of Regulation 2-2-301.1.

### **OFFSETS**

Offsets must be provided for any new or modified source at a facility that emits more than 10 tons per year of POC or NO<sub>x</sub> per Regulation 2, Rule 2, Section 302. According to Table 2 that summarizes the increases in criteria pollutant emissions that will result from the operation of S-1, offsets are not required.

### **STATEMENT OF COMPLIANCE**

The owner/operator of S-1 Natural Gas Fired Steam Boiler shall comply with Regulation 6-1 (Particulate Matter: General Requirements), Regulation 9-1-301 (Inorganic Gaseous Pollutants: Sulfur Dioxide for Limitations on Ground Level Concentrations), and Regulation 9-7 (Inorganic Gaseous Pollutants: Nitrogen Oxides and Carbon Monoxide from Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters).

Permit condition will be imposed to assure compliance with the above applicable requirements.

The project is considered to be ministerial under the District's CEQA 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 emissions factors and therefore is not discretionary as defined by CEQA (BAAQMD Permit Handbook, Chapter 2.1).

A Toxics Risk Screening Analysis is not required due to the emissions at the rates discussed above. TBACT does not apply to this project.

Pursuant to Regulation 2-2-304, this project is not subject to PSD review because the facility is not a major facility emitting more than 100 TPY.

Offsets, NSPS, and NESHAPS are not triggered.

The project is within 1000 feet from the nearest school and therefore is subject to the public notification requirements of Reg. 2-1-412. A public notice was prepared and sent to:

All addresses within 1000 feet of the diesel generator set.

Parents and guardians of students of:

James Madison Elementary School, 14751 Juniper St, San Leandro, CA 94579-1222

### **PERMIT CONDITIONS**

Condition # 24808

1. The owner/operator of S-1 shall operate this source exclusively on natural gas fuel. (Basis: Cumulative Increase)
2. The owner/operator shall not use more than 1,500,000 therms of natural gas fuel at S-1 in any consecutive twelve-month period. (Basis: Cumulative Increase)
3. To determine compliance with the above conditions, the owner/operator shall maintain the following records in District-approved logs 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 natural gas (therms) burned at S-1.
  - b. Monthly records of the number and duration (hours) of shutdowns and startups.
  - c. Monthly records shall be totaled for each consecutive 12-month period.

These logs shall be retained on-site for at least two years, from the date of entry, and shall be made available to the District upon request. (Basis: Cumulative Increase)

***End of Conditions***

**RECOMMENDATION**

I recommend that Coca-Cola Bottling Company of California be issued an Authority to Construct for the following equipment:

- S-1 Natural Gas Fired Steam Boiler, Triple S Manufacturing, Model # 777,  
16.8 MMBTU/hr rated capacity, with S.T. Johnson NOXmatic A-Type Ultra-Low NOx  
Burner**

By: \_\_\_\_\_

Elisha Ezersky  
Air Quality Engineer  
January 27, 2011