

**Engineering Evaluation
Equator Coffees, LLC
115 Jordan Street
San Rafael, CA 94901
Plant No. 15081
Application No. 31977**

BACKGROUND

Equator Coffees, LLC has applied for an Authority to Construct (AC) and Permit to Operate (PO) the following equipment at 115 Jordan Street, San Rafael, California:

S-7 Batch Coffee Roaster: Geisen 6WA, 53 lbs/hr capacity; 61,000 BTU/hr

**Abated by: A-4 Riello 40 N-120 Burner, natural gas, 120,000 Btu/hr
Emissions at: P-7 Stack**

The facility stated that S-4 roaster broke down. Therefore, S-4 roaster will be decommissioned. S-7 roaster will be replacing the S-4 roaster. A-4 afterburner from S-4 roaster will be used to abate emissions from S-7.

The current equipment descriptions for S-4 roaster are as follows:

**S-4 Batch Coffee Roaster, Petroncini TT-7-5, 7.5 kilo, natural gas,
66,000 Btu/hr,**

heated by

Riello 40 N-120 Burner, natural gas, 120,000 Btu/hr

**Abated by: A-4 Riello 40 N-120 Burner, natural gas, 120,000 Btu/hr, and
A-7 Cyclone**

Emissions at: P-4 Stack

A-4 burner was used to both preheat S-4 roaster and abate the emissions from S-4 roaster as an afterburner. In an email correspondence on February 21st, 2022, the applicant stated that A-4 will not be preheating S-7 coffee roaster; A-4 will only be used to abate the emissions from S-7. Furthermore, A-7 cyclone will not be used to abate emissions from S-7 roaster.

A district permit is required for any coffee roaster which processes 15 or more pounds of coffee beans per hour per Regulation 2-1-117.8. The proposed S-7 will process approximately 53 pounds per hour and therefore requires an AC and PO. The abatement unit A-4 afterburner is being proposed for the control of POC, CO, and PM, as well as to control smoke and odors. The burner is fueled by natural gas.

EMISSION CALCULATIONS

This section summarizes the basis for, and results of, the emission calculations associated with this application. All calculation assumptions listed below are consistent with the BAAQMD Engineering Handbook¹ and BAAQMD Toxic Air Contaminant (TAC) Emission Factor Guidelines, Appendix A² for natural gas combustion.

Air pollutant emissions resulting from coffee roasting operations generally include particulate matter, volatile organic compounds, organic acids, and natural gas combustion byproducts (BAAQMD Engineering Handbook Chapter 11.3). Table 1 provides a summary of emission factors used for calculations.

- Emission factors published in US EPA AP-42 Chapter 9.13.2 (Coffee Roasting)³ were used for the following coffee roasting emission byproducts: particulate matter (PM) and volatile organics (VOCs, assumed as 100% precursor organic compounds [POCs]).
- The roaster is also the main source of gaseous toxic air pollutants, including formaldehyde and acetaldehyde (aldehydes). There are no California Air Toxics Emission Factors (CATEF) factors for the aldehydes from coffee roasting. In accordance with the BAAQMD Permit Handbook, source test results from Peets Coffee and Tea, Inc. were referenced for the toxic emission factors of formaldehyde and acetaldehyde.
- Natural gas combustion byproducts from the coffee roaster includes nitrogen oxides (NO_x), carbon monoxide (CO), PM, trace amounts of sulfur dioxide (SO₂), methane (CH₄), and VOCs. Emission factors for the coffee roaster's natural gas combustion byproducts were taken from AP-42 Chapter 1.4 (Natural Gas Combustion).⁴ AP-42 Table 1.4-1 small boiler (< 100 MMBTU/hr) category was used for NO_x and CO emission factors; Table 1.4-2 was used to obtain emission factors for PM, SO₂, CH₄, and VOC. TAC emission factors from natural gas combustion were obtained from BAAQMD Toxic Air Contaminant (TAC) Emission Factor Guidelines, Appendix A².

A-4 is assumed to be operational 100% of the time S-7 is operating. No separate control efficiency certification documents were provided for the A-4 unit. Since a thermal afterburner is assumed to operate the same as a thermal oxidizer, the controlled emission factor with the thermal oxidizer for a batch roaster is used in the emission calculations. Emissions generated from the operation of abatement device operation are called secondary pollutants; secondary pollutant emissions have been calculated from operation of A-4 through the natural gas usage.

¹ <http://www.baaqmd.gov/permits/permitting-manuals>

² https://www.baaqmd.gov/~media/files/ab617-community-health/facility-risk-reduction/documents/tac_emission_factor_guidance_appendix_august_2020-pdf.pdf?la=en

³ <https://www3.epa.gov/ttnchie1/ap42/ch09/final/c9s13-2.pdf>

⁴ <https://www3.epa.gov/ttnchie1/ap42/ch01/final/c01s04.pdf>

Table 1: Emission Factors

Pollutant	Emission Factor		Reference
Batch Roasting Process (S-7 Coffee Roaster)			
VOC (assume POC)	0.047	lbs./ton	AP-42 Chapter 9.13.2 Coffee Roasting – Table 9.13.2-1. for Batch roaster with thermal oxidizer
CO	0.55	lbs./ton	AP-42 Chapter 9.13.2 Coffee Roasting – Table 9.13.2-2 for Batch roaster with thermal oxidizer
PM ₁₀ (filterable)	0.12	lbs./ton	AP-42 Chapter 9.13.2 Coffee Roasting – Table 9.13.2-1. for Batch roaster with thermal oxidizer
Formaldehyde	0.0008	lbs./ton	BAAQMD Engineering Handbook, Chapter 11.3 (Source testing at Peets Coffee and Tea, Inc.)
Acetaldehyde	0.0005	lbs./ton	
Natural Gas Combustion Process (S-7 Coffee Roaster)			
NOx	100	lbs./10 ⁶ scf	AP-42 Chapter 1.4 (Natural Gas Combustion) Table 1.4-1 (Small boilers < 100 MM BTU/hr, Uncontrolled)
CO	84	lbs./10 ⁶ scf	
PM (Assume PM ₁₀)	7.6	lbs./10 ⁶ scf	AP-42 Chapter 1.4 (Natural Gas Combustion) Table 1.4-2
SO ₂	0.6	lbs./10 ⁶ scf	
VOC (Assume POC)	5.5	lbs./10 ⁶ scf	
Acetaldehyde	4.22E-06	lbs./MMBtu	BAAQMD Toxic Air Contaminant (TAC) Emission Factor Guidelines, Appendix A.
Acrolein	2.65E-06	lbs./MMBtu	
Arsenic	1.96E-07	lbs./MMBtu	
Benzene	7.84E-06	lbs./MMBtu	
Beryllium	5.88E-09	lbs./MMBtu	
Cadmium	1.08E-06	lbs./MMBtu	
Copper	8.33E-07	lbs./MMBtu	
Ethyl Benzene	9.31E-06	lbs./MMBtu	
Formaldehyde	2.17E-04	lbs./MMBtu	
n-Hexane	6.18E-06	lbs./MMBtu	
Lead	4.90E-07	lbs./MMBtu	
Manganese	3.73E-07	lbs./MMBtu	
Mercury	2.55E-07	lbs./MMBtu	
Naphthalene	5.98E-07	lbs./MMBtu	
Nickel	2.06E-06	lbs./MMBtu	
PAH (as benzo(a)pyrene-equiv.)	6.60E-09	lbs./MMBtu	
Propylene	7.17E-04	lbs./MMBtu	
Selenium	1.18E-08	lbs./MMBtu	
Toluene	3.59E-05	lbs./MMBtu	
Vanadium	2.25E-06	lbs./MMBtu	
Xylene	2.67E-05	lbs./MMBtu	

Table 2 summarizes additional emission calculation assumptions pertaining to the proposed coffee roasting operation.

Table 2. S-7 Coffee Roaster Operation Assumptions

Parameter	Assumption	Units
S-7 Operational Uptime	8	hours/day
	260	days/year
	2,080	hours/year
S-7 Coffee Bean Roaster Maximum Throughput	13.2	lbs./batch
	4	batch/hour
	52.9	lbs./hour
	0.026	tons/hour
	32	batch/day
	423	lbs./day
	0.212	tons/day
	40,000	lbs./year
	20.0	tons/year
S-7 Natural Gas consumption	60,955	Roaster S-7, BTU/hour
	0.120	Afterburner Firing Rate: 0.120 MMBtu/hr
	0.1810	TOTAL, MMBTU/hour
	1.77E-04	TOTAL, MMSCF/hour
	376	TOTAL, MMBTU/year
	0.369	MMSCF/year
	37.639	therm/year
Standard Conversion Factors	2,000	lbs./ton
	1,020	MMBTU/MMSCF
	7000	grain/lb
	60	min/hour
	2.204	lbs./kg
	3,142	BTU/kW

BTU = British Thermal Units
 MMBTU = 10⁶ BTU
 MMSCF = 10⁶ standard cubic feet
 therm = 10⁵ BTU

Combined emissions from the S-7 and A-4 coffee roasting unit are summarized in Table 3.

Table 3. PTE for S-7 Roaster Abated by A-4 Afterburner

Pollutant	Calculated Emissions		
	lbs./day	lbs./year	ton/year
POC	0.020	4.110	0.002
NO _x	0.140	36.901	0.018
SO ₂	0.001	0.221	1.11E-04
CO	0.236	62.196	0.031
PM10	0.035	9.044	0.005
PM2.5	0.035	9.044	0.005

AP-42 does not list the emission factors for PM10 or PM2.5. It only lists the emission factors for filterable PM. For a conservative assumption, PM10 emissions and PM2.5 emissions are each assumed to equal that of filterable PM.

CUMULATIVE INCREASE

Table 4 shows the plant cumulative increase in emissions (tons per year, TPY) for this facility and the project increase.

Table 4. Plant Cumulative Increase Since 4/5/91:

	POC	NOx	SO2	CO	PM10	PM2.5
Existing	0.015	0.188	0.000	0.772	0.070	0.070
Un-Offset Total	0.015	0.188	0.000	0.772	0.070	0.070
S-4 Decommissioning	-2.55E-04	-0.001	0.000	-0.003	-0.001	-0.001
S-7 Emission Increase	0.002	0.018	1.11E-04	0.031	0.005	0.005
Offset Ratio	N/A	N/A	N/A	N/A	N/A	N/A
Offsets Provided	N/A	N/A	N/A	N/A	N/A	N/A
Bank Certificate	N/A	N/A	N/A	N/A	N/A	N/A
Onsite Credit	N/A	N/A	N/A	N/A	N/A	N/A
Post-Project Cumulative	0.032	0.394	1.11E-04	1.572	0.144	0.144
Post-Project Un- Offset Total	0.032	0.394	1.11E-04	1.572	0.144	0.144

Existing cumulative emissions are obtained from Application 30770. Application 30770 did not assume that PM2.5 emissions equal PM10 emissions; it assumed the PM2.5 emissions to equal zero. For a conservative estimation (and to be consistent with PM2.5 emission assumptions in Application 31977), PM2.5 emissions are assumed to equal PM10 emissions.

The actual throughput of S-4 in the past three years has been provided by the applicant.

HEALTH RISK ASSESSMENT (HRA)

Regulation 2-5-216 states that a “project shall include those new or modified sources of TACs at a facility that have been permitted within the five-year period immediately preceding the date a complete application is received”. The regulation also states, however, that previously permitted sources do not need to be included in the HRA for the current project if “the construction or modification of the sources included in the current application was neither (1) a reasonably foreseeable consequence of the previous project, nor (2) a critical element or integral part of the previous project”.

While Application 30770 for modifying S-4, S-5, and S-6 roasters was finalized within the past five years, the replacement of S-4 with S-7 in the current application as a result of an unforeseen breakdown satisfies the exemption requirements of HRA. Therefore, Application 30770 will not be included in the HRA for the current application.

Table 5 summarizes the TAC emissions associated with the current application in comparison with the respective HRA trigger levels set forth in BAAQMD Regulation 2-5, Table 1.

Table 5. TAC Emission Calculations

TAC Pollutant	Hourly Emissions (lbs./hr)	Acute Trigger Limit (lbs./hr)	Acute Trigger?	Annual Emissions (lbs./year)	Chronic Trigger Limit (lbs./year)	Chronic Trigger?
Acetaldehyde	1.40E-05	2.10E-01	no	3.42E-02	2.90E+01	no
Acrolein	4.80E-07	1.10E-03	no	4.20E-03	1.40E+01	no
Arsenic	3.55E-08	8.80E-05	no	3.11E-04	1.60E-03	no
Benzene	1.42E-06	1.20E-02	no	1.24E-02	2.90E+00	no
Beryllium	1.06E-09	--	no	9.32E-06	3.40E-02	no
Cadmium	1.95E-07	--	no	1.71E-03	1.90E-02	no
Copper	1.51E-07	4.40E-02	no	1.32E-03	--	no
Ethyl Benzene	1.68E-06	--	no	1.48E-02	3.30E+01	no
Formaldehyde	6.04E-05	2.40E-02	no	3.88E-01	1.40E+01	no
n-Hexane	1.12E-06	--	no	9.80E-03	2.70E+05	no
Lead	8.87E-08	--	no	7.77E-04	2.90E-01	no
Manganese	6.75E-08	--	no	5.91E-04	3.50E+00	no
Mercury	4.61E-08	2.70E-04	no	4.04E-04	2.10E-01	no
Naphthalene	1.08E-07	--	no	9.48E-04	2.40E+00	no
Nickel	3.73E-07	8.80E-05	no	3.27E-03	3.10E-01	no
PAH (as benzo(a)pyrene-equiv.)	1.19E-09	--	no	1.05E-05	3.30E-03	no
Propylene	1.30E-04	--	no	1.14E+00	1.20E+05	no
Selenium	2.14E-09	--	no	1.87E-05	8.00E+00	no
Toluene	6.50E-06	2.20E+00	no	5.69E-02	1.60E+04	no
Vanadium	4.07E-07	1.30E-02	no	3.57E-03	--	no
Xylene	4.83E-06	9.70E+00	no	4.23E-02	2.70E+04	no

All TAC emissions are below their respective trigger levels. Therefore, an HRA is not required.

STATEMENT OF COMPLIANCE

Regulation 1

The proposed coffee roaster is subject to and expected to comply with the requirements of Regulation 1-301 (Public Nuisance).

Regulation 2, Rule 1

District Regulation 2, Rule 1, Section 310 specifies that all proposed new and modified sources subject to District permit requirements must be reviewed in accordance with CEQA requirements, except for ministerial projects or projects exempt from CEQA under Section 2-1-312. 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 Coffee Roasting Operations. This application is ministerial under the District's CEQA Regulation 2-1-311 and is exempt from CEQA review.

California Environmental Quality Act (CEQA) and Regulation 2-1

This permit application was reviewed following the specific procedures, fixed standards and objective measurements set forth in BAAQMD Engineering Permit Handbook Chapters 2.1 (Boilers, Steam Generators & Process Heaters) and 11.3 (Coffee Roasting Operations) and is therefore classified as ministerial. As such, it is exempt from CEQA review per Regulation 2-1-311.

Public Notification

California Health & Safety Code §42301.6 and Regulation 2-1-412

Pursuant to California Health & Safety Code §42301.6(a), prior to approving an application for a permit to construct or modification of a source, which is located within 1,000 feet from the outer boundary of a school site, the District shall prepare a public notice as detailed in §42301.6. §42301.9(a) defines a "school" as any public or private school used for the purposes of the education of more than 12 children in kindergarten or any grades 1 to 12, inclusive, but does not include any private school in which education is primarily conducted in private homes.

The public notification requirements of Regulation 2-1-412 apply to modifications which result in an increase in toxic air contaminant or hazardous air contaminant emission at facilities within 1,000 feet of the boundary of a K-12 school.

Public School and Overburdened Community Notification

This project is not located within an Overburdened Community (OBC). However, this project is within 1,000 feet of James B. Davidson Middle School (280 Woodland Ave,

San Rafael, CA 94901) and Laurel Dell Elementary School (225 Woodland Ave, San Rafael, CA 94901). Therefore, this project is subject to the public notification requirements of Regulation 2-1-412. Notification of the proposed new source has been mailed out to all addresses within 1,000 feet of the source, and the parents or guardians of all children enrolled in either school within one-quarter mile of the source. A public notice period of 30 days began on TBD and ended on TBD. Comments included... OR No comments were received for this project.

Regulation 2, Rule 2

Best Available Control Technology (BACT)

Pursuant to Regulation 2-2-301, BACT is required for a new source with PTE emission increases that equal 10.0 lbs or greater of POC, NPOC, NO_x, SO₂, PM₁₀, PM_{2.5}, or CO. The proposed S-7 will not emit criteria pollutants (POC, NPOC, NO_x, SO₂, PM₁₀, PM_{2.5}, or CO) at rates of 10 lbs or more per highest day and therefore, is not required to implement BACT per Regulation 2-2-301.

Offsets

Pursuant to Regulation 2-2-302, offsets must be provided for any new or modified source at a facility that emits, or is permitted to emit, more than 10 tons per year of POC or NOX. Furthermore, pursuant to Regulation 2-2-303, offsets must be provided for any new or modified source with a cumulative increase that exceeds 100 tons per year of PM₁₀ or SO₂. Potential emissions for this facility are equal to the permitted emissions from S-7 and do not exceed the offset threshold for any pollutant. Therefore, offsets are not triggered for this project.

Lastly, the facility will not emit greater than 100 tons per year or more of any air pollutant subject to regulation under the Clean Air Act or 10 tons of a single hazardous air pollutant (HAP) or 25 tons of a combination of HAPs per year. The facility is not a major facility and is not required to meet the requirements of Regulation 2-2-303 (Offsets for PM₁₀ and SO_x), 2-2-304 (Prevention of Significant Deterioration (PSD)), and 2-2-405 (Publication and Public Comment).

Prevention of Significant Deterioration (PSD)

The requirements in District Regulation 2, Rule 2, Section 304 through 306 apply to PSD projects. A PSD project is defined in Section 2-2-224 and includes new or modified sources located at a facility that has potential emissions of 100 tons per year or more of any regulated NSR Pollutant (including fugitive emissions), if one of the 28 PSD source categories listed in section 169(l) of the federal Clean Air Act, or if not in a listed source category, 250 tons/year for each regulated air pollutant (excluding fugitive emissions for determining if a project is major). This facility is not one of the 28 listed PSD source categories, and the maximum potential facility-wide emissions will be less than 250 tons/year for each regulated air pollutant. Therefore, this project is not a PSD project and is not subject to the PSD requirements in Sections 2-2-304 through 306.

Section 2-2-307 applies to projects located in Class I areas; this project is not located in a Class I area, so this section does not apply. Section 2-2-308 applies to projects with a significant net emission increase in a pollutant subject to a National Ambient Air Quality Standard, as defined in Sections 2-2-224.3 and 2-2-227.2. The emissions from the proposed new emergency engine-generator are less than the significance thresholds in Section 2-2-227.2. Therefore, Section 2-2-308 does not apply.

Regulation 2, Rule 5

Pursuant to Regulation 2-5-110, the provisions of this rule are not subject to sources with an increase in emissions less than the trigger levels listed in Table 2-5-1. Based on the proposed operation parameters, the proposed coffee roaster does not trigger a Health Risk Assessment.

Regulation 6, Rule 1

Source S-7 is expected to comply with Regulation 6-1-301, which requires that visible emissions do not exceed Ringelmann 1 for period or periods aggregating more than three minutes in any hour. S-7 is expected to comply with this visible emission limit with operation of the afterburner.

Grain Loading Rate

The grain loading rate calculation is required for determining the compliance of this application with BAAQMD Regulation 6, Rule 1.

$$\frac{[0.12 \text{ lb PM}_{10}/\text{ton} \times 20.0 \text{ ton}/\text{year} \times \text{year}/2,080 \text{ operation hours} \times 7000 \text{ grain}/\text{lb}]}{[60 \text{ min}/\text{hr} \times 60.6 \text{ cfm}]} = 0.002 \text{ grain}/\text{dscf}$$

Assumptions:

- 0.12 lb PM₁₀/ton from the coffee roaster (excluding the PM₁₀ emissions due to natural gas fuel combustion) is assumed to represent TSP, as there is no TSP data available.
- 7000 grain/lb standard conversion factor.
- 2,080 operation hours in a year.
- The applicant was unable to provide the air flow rate for the A-4 afterburner. However, the applicant provided the S-7 roaster air flow rate. For a conservative estimation, the air flow rate at the S-7 roaster before it is abated by the A-4 afterburner is used.
- The applicant provided the S-7 roaster air flow ranges of 60.6 cfm to 105.6 cfm for roast air and 294.3 cfm to 618 cfm for cool air. For the worst case grain loading assumptions, 60.6 cfm is used in the grain loading rate calculation. Since dscfm value is unknown, the cfm value was used for the dcfm value.

Section 6-1-310.1 limits the total suspended particulate (TSP) concentration to no more than 0.15 gr/dscf. Since 0.0002 gr/dscf is less than 0.15 gr/dscf, compliance with this rule is expected.

The TSP limits in 6-1-310.2 will not apply because the potential to emit TSP is below 1,000 kg per year.

Regulation 7

Compliance with Regulation 7, Odorous Substances, is expected with the operation of A-4 thermal afterburner.

Regulation 9, Rule 1

The coffee roaster is subject to and will comply with Regulation 9, Rule 1 (Inorganic Gaseous Pollutants, Sulfur Dioxide) by restricting fuel use to natural gas only. Combustion of natural gas is expected to produce a SO₂ concentration of no more than 1 ppmv of SO₂, thereby meeting the requirement of a maximum outlet concentration of 300 ppmv of SO₂ prescribed in Regulation 9, Rule 1-302.

New Sources Performance Standards (NSPS)

Coffee roasting operation is not subject to NSPS.

National Emission Standards for Hazardous Air Pollutants (NESHAP)

Coffee roasting operation is not subject to NESHAP.

Permit Condition # 27875

1. The owner/operator shall not exceed the following limits at the sources indicated over any consecutive 12-month period:

S-7 Coffee Roaster	20 tons (40,000 pounds)/year
Natural Gas Usage	0.369 MM scf/yr
[basis: Cumulative Increase]	

2. The owner/operator shall abate S-7 Coffee Roaster at all times while operating by A-4 Afterburner. [basis: Cumulative Increase]

3. The minimum stack furnace temperature of A-4 shall be at least:

- (a) 280°C during a roast cycle when no airflow is introduced into the combustion chamber; and
- (b) 200°C during a roast cycle when airflow is introduced into the combustion chamber (for roast manipulation or to operate the cooler, if applicable).

These temperatures may be adjusted by the District if source test data demonstrate that an alternate temperature is necessary for or capable of maintaining compliance with Condition 3 above. (Basis: Regulation 2-1-403)”

4. The owner/operator shall ensure that A-4 Afterburner is equipped with a temperature- measuring device capable of continuously measuring and recording the temperature in the thermal oxidizers. These devices shall be accurate to within 10 degrees Fahrenheit (° F) and shall be maintained in accordance with manufacturer's recommendations. These temperature monitors shall be used to determine compliance with the temperature requirements in Part 3. [basis: Regulation 1-521]

5. The owner/operator shall not emit from any source for a period or periods aggregating more than three minutes in any hour, a visible emission which is as dark or darker than No. 0.5 on the Ringelmann Chart or of such opacity as to obscure an observer's view to an equivalent or greater degree. [basis: BACT]

6. 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-7 Coffee Roaster.
- b. Monthly records of natural gas usage.
- c. Monthly usage records shall be totaled for each consecutive 12-month period.
- d. Records of continuous temperature measurements of A-4 Afterburner whenever S-7 Coffee Roaster is in operation.
- e. Source test reports.

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 record-keeping requirements shall not replace the record keeping requirements contained in any applicable District Regulations. [basis: Cumulative Increase]

7. The owner/operator shall not exceed the following limits while operating any roaster or afterburner:

NO_x= 0.097 lb/MMBTU
CO= 0.163 lb/MMBTU
POC= 0.095 lb/ton of beans roasted
Formaldehyde= 2.28E-03 lb/ton
Acetaldehyde= 5.29E-04 lb/ton
[basis: Cumulative Increase, BACT]

8. The owner/operator shall not operate S-4 and S-7 Coffee Roasters concurrently.

9. The owner/operator shall notify the District immediately when S-4 has been permanently decommissioned.

RECOMMENDATION

(Upon satisfying the school notice requirement) Issue an Authority to Construct for the following source:

S-7 Batch Coffee Roaster: Geisen 6WA, 53 lbs/hr capacity; 61,000 BTU/hr

**Abated by: A-4 Riello 40 N-120 Burner, natural gas, 120,000 Btu/hr
Emissions at: P-7 Stack**



Youjin Kim
Air Quality Engineer

03/06/2023
Date