

DRAFT ENGINEERING EVALUATION
Facility ID No. 14
MECS, Inc.
1778 Monsanto Way, Martinez, CA 94553-4553
Application No. 31889

BACKGROUND

MECS is applying for an Authority to Construct (AC)/Permit to Operate (PO) for the following equipment:

S-93 Steam Boiler

Make: Victory Engine Model: F2-DB-574L-300X-S275

Maximum Firing Rate: 9.33 MM Btu/hr

Permit Condition Nos. 27891

MECS operates within the Marathon Martine oil refinery. As the Marathon refinery began to adjust to a renewable fuels refinery in 2020, many of the utilities and services it historically provided to the MECS plant were scheduled to shut down. One of the services which were shut down was the provision of pressurized steam. MECS must now provide its own pressurized steam. Steam is currently being provided to the plant via a temporary mobile boiler, but this application is to permit a permanent solution. The purpose of this application is to apply for a Permit to Operate for S-93 and to remove the registered temporary mobile boiler, S-91.

Even though the proposed boiler is rated at less than 10 MMBtu/hr, which would normally only require registration rather than a Permit to Operate, a certified package boiler could not provide steam at the pressure necessary to serve MECS process operations. Therefore, MECS contracted to have a boiler built specifically to serve these process needs. This customized boiler cannot be tested for certification purposes. Since the boiler cannot be tested for certification, it requires an Authority to Construct and Permit to Operate.

The criteria pollutants are nitrogen oxides (NO_x), carbon monoxide (CO), volatile organic compounds (VOC), sulfur dioxide (SO₂) and particulate matter (PM_{2.5} and PM₁₀).

The facility proposes to use natural gas supplied by Pacific Gas & Electric (PG&E), which is regulated by the California Public Utilities Commission (CPUC), or natural gas supplied by a private entity (non CPUC-regulated). Due to the potential fluctuations in the quantity of the gas proposed for use, the facility requested that the permitted NO_x concentrations be set at the regulatory limit of 15 ppmv, dry at 3% (0.0182 lbs/MM BTU) oxygen pursuant to Regulation 9-7-307.2, as opposed to 9 ppmv, dry at 3% oxygen estimated by the vendor.

The boiler manufacturer guarantees a CO concentration of 55 ppm, dry at 3% oxygen (0.0407 lbs/MM BTU).

Emission factors for PM, SOx, VOC, and toxics are based on the EPA's AP-42, 5th Edition, Chapter 1.4. For the non-CPUC regulated gas, the sulfur content will be set at the PG&E limit of 1 grain of sulfur per 100 cubic feet of gas. The facility will be required to conduct startup testing and routinely test the non-CPUC regulated gas to verify that sulfur content is meeting this expected rate prior to PO issuance.

This project is located within an Overburdened Community (OBC) as defined in Regulation 2-1-243. Therefore, it will be subject to a cancer risk limit of 6.0 in a million and must satisfy the public noticing requirements of the Rule.

EMISSIONS

As stated earlier, MECS has indicated that the facility plans to operate S-93 on either natural gas supplied by PG&E or natural gas supplied by a private entity. Emissions from both scenarios are compared below and the highest emission values will be used to determine compliance with Air District regulations.

Emission factors used to determine emissions from NOx and CO are calculated using the following formula:

$$EF \left(\frac{lb}{MMBtu} \right) = \frac{ppm}{10^6} \times F_d \times \left(\frac{20.9}{20.9 - \%O_2} \right) \times \frac{MW}{M_v}$$

Where,

EF = emission factor (lb/MM Btu)

M_v = molar volume (scf/lb-mole)

ppm = concentration in parts per million of NOx or CO

F_d = ratio of gas volume to the heat content of the fuel (dscf/MM Btu heat input)

MW = molecular weight (lb/lb-mole)

%O₂ = percentage of oxygen in gas

Basis:

- Operation Schedule: 24-hours/day, 7-days/week, 52-weeks/year, 8760 hours/ year
- Fuel Heat Value: 1020 Btu/scf (CPUC-regulated) or 1022 Btu/scf (facility tested non CPUC-regulated)
- Max Fuel Rate: 9.334 MMBtu/hour, 9,151 scf/hour
- Fuel Usage: 817,658 Therms/year, 224 MM Btu/day, 81,766 MM Btu/year
- Conservative Assumption: All PM emissions are PM2.5
- F_d (CPUC-regulated): 8,710 dscf exhaust/MMBtu heat input @ 68 °F and 1 atm
- F_d (non CPUC-regulated): 8,710 dscf exhaust/MMBtu heat input @ 68 °F and 1 atm
- Molar Volume: 385.3 scf/lb-mole at 68 °F and 1 atm
- Molecular Weight of NOx: 46 lb/lb-mole
- Molecular Weight of CO: 28 lb/lb-mole
- Molecular Weight of VOC as methane: 16 lb/lb-mole
- Molecular Weight of SO₂: 64 lb/lb-mole

Table 1. Annual and Daily Emissions from CPUC-Regulated Natural Gas Combustion in S-93 Boiler

Pollutant	Emission Factor			Post Project Emissions				BACT trigger	
	lb/MM cu. ft. fuel input	lb/MM Btu fuel input	Reference	max lb/hr	max lb/day	lb/yr	tons/yr	(lb/day)	Yes/No
NOx		0.0182	B	0.17	4.08	1489	0.745	10.0	NO
CO		0.0407	B	0.38	9.11	3325	1.662	10.0	NO
VOC	5.5	0.0054	A	0.05	1.21	441	0.220	10.0	NO
PM10	7.6	0.0075	A	0.07	1.67	609	0.305	10.0	NO
PM2.5	7.6	0.0075	A	0.07	1.67	609	0.305	10.0	NO
SO2	0.6	0.0006	A	0.01	0.13	48	0.024	10.0	NO

Notes:

- Reference A: AP-42, 5th Edition, Chapter 1.4
- Reference B: Vendor Guaranteed Concentration
- Reference C: PG&E limit for pipeline gas, 1 grain per 100 scf of gas
- Emission factor in lb/MMBtu derived by either dividing emission factor in lb/MM cu. ft. by fuel heat value or by using F_d

Table 2. Annual and Daily Emissions from Non-CPUC Regulated Natural Gas Combustion in S-93 Boiler

Pollutant	Emission Factor			Post Project Emissions				BACT trigger	
	lb/MM cu. ft. fuel input	lb/MM Btu fuel input	Reference	max lb/hr	max lb/day	lb/yr	tons/yr	(lb/day)	Yes/No
NOx		0.0179	B	0.17	4.01	1464	0.732	10.0	NO
CO		0.0400	B	0.37	8.96	3269	1.634	10.0	NO
VOC	5.5	0.0054	A	0.05	1.21	440	0.220	10.0	NO
PM10	7.6	0.0074	A	0.07	1.67	608	0.304	10.0	NO
PM2.5	7.6	0.0074	A	0.07	1.67	608	0.304	10.0	NO
SO2	2.85	0.0030	C	0.03	0.67	245	0.123	10.0	NO

TOXIC RISK SCREENING ANALYSIS

The toxic air contaminant (TAC) emission factors were obtained from *BAAQMD Permit Handbook Chapter 2.1*, which are in turn obtained from *AP-42 Chapter 1.4, Table 1.4-3*. An annual usage of 8,760 hours per year was used to determine the annual TAC emissions.

Table 3. TAC Emissions from S-93

TAC	CAS #	Default Emission Factor	Max Hourly Emissions	Annual Emissions	Reg 2-5 Acute Trigger Level	Reg 2-5 Chronic Trigger Level	HRSA Triggered?
		lb/MMBtu fuel input	lb/hr	lb/yr	lb/hr	lb/yr	Yes/No
ACETALDEHYDE	75-07-0	4.22E-06	3.94E-05	3.45E-01	2.10E-01	2.90E+01	No
ACROLEIN	107-02-8	2.65E-06	2.47E-05	2.17E-01	1.10E-03	1.40E+01	No
ARSENIC	7440-38-2	1.96E-07	1.83E-06	1.60E-02	8.80E-05	1.60E-03	Yes
BENZENE	71-43-2	7.84E-06	7.32E-05	6.41E-01	1.20E-02	2.90E+00	No
BERYLLIUM	7440-41-7	5.88E-09	5.49E-08	4.81E-04	NA	3.40E-02	No
CADMIUM	7440-43-9	1.08E-06	1.01E-05	8.83E-02	NA	1.90E-02	Yes
COPPER	7440-50-8	8.33E-07	7.78E-06	6.81E-02	4.40E-02	NA	No
ETHYLBENZENE	100-41-4	9.31E-06	8.69E-05	7.61E-01	NA	3.30E+01	No
FORMALDEHYDE	50-00-0	2.17E-04	2.03E-03	1.77E+01	2.40E-02	1.40E+01	Yes
n-HEXANE	110-54-3	6.18E-06	5.77E-05	5.05E-01	NA	2.70E+05	No
LEAD	7439-92-1	4.90E-07	4.57E-06	4.01E-02	NA	2.90E-01	No
MANGANESE	7439-96-5	3.73E-07	3.48E-06	3.05E-02	NA	3.50E+00	No
MERCURY	7439-97-6	2.55E-07	2.38E-06	2.09E-02	2.70E-04	2.10E-01	No
NAPHTHALENE	91-20-3	5.98E-07	5.58E-06	4.89E-02	NA	2.40E+00	No
NICKEL	7440-02-0	2.06E-06	1.92E-05	1.68E-01	8.80E-05	3.10E-01	No
PAH (as benzo(a)pyrene-equiv.)	1150/1151	6.60E-09	6.16E-08	5.40E-04	NA	3.30E-03	No
PROPYLENE	115-07-1	7.17E-04	6.69E-03	5.86E+01	NA	1.20E+05	No
SELENIUM	7782-49-2	1.18E-08	1.10E-07	9.65E-04	NA	8.00E+00	No
TOLUENE	108-88-3	3.59E-05	3.35E-04	2.94E+00	2.20E+00	1.60E+04	No
VANADIUM	7440-62-2	2.25E-06	2.10E-05	1.84E-01	1.30E-02	NA	No
XYLENES	1330-20-7	2.67E-05	2.49E-04	2.18E+00	9.70E+00	2.70E+04	No

Reference

BAAQMD Toxic Air Contaminant (TAC) Emission Factor Guidelines, Appendix A, Default TAC Emission Factors for Specific Source Categories, August 2020

According to Regulation 2-5-216, this project includes two new sources that were permitted within the last five years of AN 31889. New source S-90 was permitted under AN 29516 and new source S-92 was permitted under AN 31551.

Emissions from S-90 and S-92 are summarized in Tables 4 and 5, respectively.

Table 4 - Emissions from S-90/A-24 Permitted Under AN 29516

Component	CAS No.	Maximum Hourly Emissions (lb/hr)	Annual Emissions (lb/yr)
Divanadium pentaoxide	1314-62-1	9.55E-04	8.36E+00
Sulfuric acid	7664-93-9	9.55E-04	8.36E+00
Total Crystalline Respirable Silica	7631-86-9	3.44E-03	3.01E+01

Table 5 - Emissions from S-92 Permitted Under AN 31551

Application #	Source #	Rated Power Output [Bhp]	Annual Non-Emergency Operating Time [hours/year]	Emission Factors [g/bhp-hr]	Diesel Particulate Emissions [pounds/year]
31551	S-92	250	50	0.07	1.93

CUMULATIVE INCREASE AND OFFSETS

Pursuant to Regulation 2-2-302, offsets must be provided for any new or modified source at a facility that emits, or has a potential to emit (PTE), more than 10 tons per year of POC or NO_x. Furthermore, pursuant to Regulation 2-2-303 offsets must be provided for any new or modified source at a major facility with a cumulative increase that exceeds 1.0 ton per year of PM₁₀, PM_{2.5}, or SO₂. For purposes of Regulation 2-2-303, a major facility is defined as a facility that has a potential to emit 100 tons/yr or more of PM₁₀, PM_{2.5}, or SO₂.

Since the facility has yet to determine the type of natural gas that will be used to operate S-93, the maximum emissions will be used for the PTE. Comparing the emissions from Table 1 and Table 2, the maximum emissions occur from the use of gas meeting the PG&E sulfur limit. PTE emissions per source are shown in Appendix A of this report.

The cumulative increase and offset determination for the facility is as follows:

Table 6. Cumulative Increase

Pollutant	Permitted Emissions (since Reg 2-2-209 Baseline Date)	Offsets Previously Provided, including from SFB (Reg 2-2-608.2.2) TPY	Adjusted Actual Baseline (Reg 2-2-603)	Post Project PTE (TPY)	Project Cumulative Emissions Increase (Reg. 2-2-607)	Total Cumulative Increase
	(TPY)	(TPY)	(TPY)	(TPY)	(TPY)	(TPY)
NOx	0.081	0.000	0.000	0.745	0.745	0.826
CO	0.019	0.000	0.000	1.662	1.662	1.681
VOC	0.003	0.000	0.000	0.220	0.220	0.223
PM10	1.193	0.000	0.000	0.305	0.305	1.498
PM2.5	0.002	0.000	0.000	0.305	0.305	0.307
SO2	0.000	0.000	0.000	0.123	0.123	0.123

Table 7. Offsets Determination

Pollutant	Facility-Wide Post Project PTE (TPY)	Emissions Increase with Application (TPY)	Prior Cumulative Increase (TPY)	Total Facility Unoffset Cumulative Increase	Offset Thresholds (TPY)	Offsets Required?
NOx	2.354	0.745	0.081	0.826	Post-project Facility-wide PTE > 10	No
CO	13.725	1.662	0.019	1.681	N/A	N/A
VOC	0.642	0.220	0.003	0.223	Post-project Facility-wide PTE > 10	No
PM10	2.240	0.305	1.193	1.498	> 1.0 CI and ≥100 tpy post-project facility-wide PTE	No
PM2.5	0.514	0.305	0.002	0.307	> 1.0 CI and ≥100 tpy post-project facility-wide PTE	No
SO2	2.198	0.123	0.000	0.123	> 1.0 CI and ≥100 tpy post-project facility-wide PTE	No

NEW SOURCE PERFORMANCE STANDARDS

The following New Source Performance Standards (NSPS) may apply to S-93.

40 CFR Part 60 Subpart D

Pursuant to §60.40, an affected facility is each fossil fuel-fired steam generating unit of more than 250 MMBTU/hr. S-93 is a steam generating unit. However, the input heat rating of S-93 is not greater than 250 MMBTU/hr. Therefore, S-93 is not subject to the requirements of this subpart.

40 CFR Part 60 Subpart Da

Pursuant to §60.40Da, an affected facility is each electric utility steam generating unit that is capable of more than 250 MMBTU/hr, which was constructed after September 18, 1978. Since S-93 does not provide steam for the generation of electricity of a utility power distribution system for sale, S-93 is not considered electric utility steam generating unit. Furthermore, the input heat rating of S-93 is less than 250 MMBTU/hr. Therefore, S-93 is not subject to the requirements of this subpart.

40 CFR Part 60 Subpart Db

Pursuant to §60.40b(a), an affected facility is each steam generating unit that commences construction after June 19, 1984 and has a heat input capacity of 100 MMBTU/hr. S-93 is less than 100 MMBTU/hr. Therefore, S-93 is not subject to the requirements of this subpart.

40 CFR Part 60 Subpart Dc

Pursuant to §60.40c(a), an affected facility is each steam generating unit that commences construction after June 9, 1989 and has a heat input capacity in between 10 MMBTU/hr to 100 MMBtu/hr. S-93 is a steam generating unit, constructed after June 9, 1989, with a heat input capacity of less than 10 MMBtu/hr. Therefore, S-93 is not subject to this subpart.

NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS

The following National Emission Standards for Hazardous Air Pollutants (NESHAP) may apply to the facility.

40 CFR Part 63 Subpart DDDDD

Pursuant to §63.7485, industrial, commercial, and institutional boilers or process heaters, which are located at a major source of hazardous air pollutants (HAP), are subject to the requirements of this regulation. The facility is not major for HAPs. Therefore, S-93 is not subject to this subpart.

40 CFR Part 63 Subpart JJJJJ

Pursuant to §63.11193, industrial, commercial, and institutional boilers, which are located at an area source of hazardous air pollutants (HAPs), are subject to the requirements of this regulation. The facility is not a major source of HAPs. Therefore, S-93 is not subject to this subpart.

STATEMENT OF COMPLIANCE

Regulation 2, Rule 1 (General Requirements)

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 facility is located more than 1,000 feet away from a school. Therefore, the requirements of the California Health & Safety Code §42301.6(a) do not apply.

Regulation 2-1-412 also requires public noticing and consideration of comments for an application if it includes a new or modified source located within an Overburdened Community as defined in Section 2-1-243 and for which a Health Risk Assessment is required pursuant to Section 2-5-401. This application meets these criteria. Therefore, S-93 is subject to the public notification requirements of Regulation 2-1-412 before the Air District issues an Authority to Construct or Permit to Operate.

Regulation 2-1-312: California Environmental Quality Act (CEQA): This permit application is exempt from CEQA review, because it meets the CEQA exemption outlined in Regulation 2-1-312.7 since it is a replacement of an existing source (S-91) where the new source will be located on the same site as the source replaced and will have substantially the same purpose and capacity as the source replaced.

In addition, this permit application also meets the CEQA exemption outlined in Regulation 2-1-312.11.4 since it satisfies the “no net emissions increase” provisions of the District Regulation 2-2 for which there will be some increase in the emissions of toxic air contaminants but for which the cancer risk is below 1.0 in a million and the chronic hazard index is below 0.20.

Regulation 2, Rule 2 (New Source Review)

Regulation 2-2-301: BACT: Pursuant to Regulation 2-2-301, BACT is required for any new or modified source with a regulated air pollutant PTE equal to or greater than 10.0 lb per highest day. BACT was not triggered in this application as shown in Tables 1 and 2.

Regulation 2-2-302 and 303: Offsets: This project will not result in any emission increases for ozone precursor pollutants: NO_x or POC that will cause the facility emissions to exceed the 10 tpy trigger level. Therefore, Regulation 2-2-302 does not apply to this project, and offsets for ozone precursor pollutants are not required.

Regulation 2-2-303 requires PM_{2.5}, PM₁₀, and SO₂ offsets for sites that are major sources of these pollutants. Since site-wide emissions will not exceed 100 tons/year of PM_{2.5}, PM₁₀, or 100 tons/year of SO₂, this site is not a major facility for either of these pollutants. Therefore, the PM₁₀ offset requirements do not apply to this facility.

Regulation 2-2-304-309: PSD: Since the maximum permitted site-wide emissions are less than 100 tons/year for each pollutant, PSD does not apply to this site.

Regulation 2, Rule 5 (New Source Review of Toxic Air Contaminants)

A health risk assessment (HRA), dated March 17, 2023, indicated that the project cancer risk is estimated at 0.19 in a million, the project chronic hazard index is estimated at 0.029, and the project acute hazard index is estimated at 0.014.

In accordance with the District's Regulation 2-5-301, the proposed new source (S-93) does not require TBACT because the individual source risk does not exceed a cancer risk of 1.0 in a million and/or a chronic HI of 0.20. Since the estimated project cancer risk does not exceed 6.0 in a million and hazard indices do not exceed 1.0, this project complies with the District's Regulation 2-5-301 project risk requirements, for projects located within an Overburden Community, as defined in Regulation 2-1-243.

Regulation 6, Rule 1 (Particulate Matter – General Requirements)

Pursuant to Regulations 6-1-301 and 6-1-302, a person 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. 1 on the Ringelmann Chart, or of such opacity as to obscure an observer's view to an equivalent or greater degree and/or an emission equal to or greater than 20% opacity as perceived by an opacity sensing device, where such a device is required by District regulations. The project is expected to meet the requirements of Regulations 6-1-301 and 6-1-302.

As per Regulation 6-1-305, fall out of visible particles on adjacent properties, in sufficient numbers so as to cause annoyance to any other person, is prohibited. The boiler is expected to meet this regulation as the particulate emissions from the boiler are fairly low.

In accordance with Regulation 6-1-310, the applicable grain loading limits for a source depend on the source's potential to emit (PTE) for total suspended particulate (TSP). For this source type, the AP-42 emission factor of 7.6 lbs/MM scf for total filterable and condensable PM represents TSP, and the PM is estimated to all be emitted as less than PM_{2.5}. The PTE for S-93 is 609 lbs/yr (276 kg/yr) of TSP. Since the PTE for S-93 does not exceed 1000 kg, S-93 is subject to the Regulation 6-1-310.1 grain loading limit of 0.15 grains/dscf and is not subject to the more stringent limits in Regulation 6-1-310.2. S-93 satisfies the total suspended particulate (TSP) requirements of Table 6-1-310.1, because S-93 will emit a maximum of 0.002 grains per dscf of exhaust gas.

Regulation 9, Rule 1 (Sulfur Dioxide)

S-93 is subject to the SO₂ limitations of Regulation 9-1-301 (Limitations on Ground Level Concentrations of Sulfur Dioxide), Regulation 9-1-302 (Limitations Sulfur Dioxide Emissions) and 9-1-304 (Burning of Solid and Liquid Sulfur Dioxide Fuel).

Pursuant to Regulation 9-1-301, the ground level concentrations of SO₂ shall not exceed 0.5 ppm continuously for 3 consecutive minutes or 0.25 ppm averaged over 60 consecutive minutes, or 0.05 ppm averaged over 24 hours. Pursuant to Regulation 9-1-302, a person shall not emit from any source, a gas stream containing SO₂ in excess of 300 ppm (dry). Compliance with Regulation 9-1 is expected as SO₂ emission from natural gas contains very little sulfur. The likely SO₂ concentration in the exhaust gas from a boiler less than 10 lb/MM BTU in size fueled on gas meeting the 1 grain/100 scf sulfur limit is less than 3 parts per million (ppm).

Regulation 9, Rule 7 (NO_x and CO Emissions from Industrial, Institutional, and Commercial, Boilers, Steam Generators and Process Heaters)

Pursuant to Regulation 9-7-307, S-93 is required to meet the emission limitations for NO_x (15 ppmv at 3% O₂) and CO (400 ppmv at 3% O₂). As per the manufacturer's guaranteed emission rates, S-93 will

emit 15 ppmv of NO_x and 55 ppmv of CO, both at 3% O₂. Thus, S-93 meets the requirements of this regulation.

S-93 will be subject to the heat-input weighted average limit of Regulation 9-7-307.9. S-93 will meet the NO_x and CO volumetric concentration limits of Regulation 9-7-307.

In addition, pursuant to Regulation 9-7-312, no person shall operate a boiler or steam generator with a stack temperature that exceeds 100°F over hot water temperature for hot water boiler or 250°F greater than combustion air temperature, whichever is greater for a firetube boiler such as S-93. The manufacturer specifications list the saturated steam temperature as 397 °F and the combustion air temperature is listed as 160 °F, therefore the stack gas temperature will be limited to 497 °F (100 °F plus 397 °F). The manufacturer specifications list the exhaust temperature as 437 °F which meets this requirement.

Moreover, pursuant to Regulation 9-7-403, an initial demonstration of compliance is required. The initial demonstration specifies that source tests be performed to determine compliance with the limitations of Regulation 9-7-307, unless the devices have an input heat rating less than 10 MMBTU/hr; at which point a portable analyzer may be used after the initial compliance demonstration test. S-93 has an input heat rating less than 10 MMBTU/hr. Therefore, testing with a portable analyzer may be used after the initial start-up test.

Lastly, Regulation 9-7-503 requires the following records to be kept for at least 24 months from the date of entry, which are to be made available to District staff upon request.

- Documentation verifying the hours of equipment testing using non-gaseous fuel, and of total operating hours using non-gaseous fuel during each calendar month;
- Results of any testing required by Regulation 9-7-506; and,
- Total operating hours.

Permit Conditions

Permit Condition # 27891

GENERAL REQUIREMENTS

1. The owner/operator of S-93 shall only operate the source on natural gas fuel exclusively.
[Basis: Cumulative Increase]
2. The owner/operator of S-93 shall not exceed 817,658 therms of natural gas fuel in any consecutive 12-month period.
[Basis: Cumulative Increase]

EMISSION LIMITATIONS

3. The owner/operator shall ensure that the pollutant concentrations, in the combustion gases exhausting from S-93, shall not exceed the following limits:
 - a. NO_x: 15 ppmv @ 3% O₂, on a dry basis, when firing natural gas.
 - b. CO: 55 ppmv @ 3% O₂, on a dry basis, when firing natural gas.[Basis: Cumulative Increase and Regulation 9-7-307]

4. Any gas used at S-93 shall contain no more than 1 grain of sulfur per 100 standard cubic feet of gas. [Basis: Cumulative Increase]

TEST REQUIREMENTS

5. Within 60 days from the startup of S-93, the owner/operator shall conduct Air District approved source tests to determine initial compliance with the limits in Parts 3 and 4 for S-93. The owner/operator shall submit the source test results to the Air District's Source Test Section no later than 60 days after source test completion. [Basis: Cumulative Increase, Regulation 9-7-403, and Regulation 9-7-506]
6. Within a frequency of no less than once every 12 consecutive months after each emissions test, the owner/operator shall use a portable analyzer in accordance with a District approved method to determine compliance with the limits in Part 3 (a) and (b) of this condition. The owner/operator shall submit the portable analyzer results to the District's Source Test Section no later than 60 days after the source test is completed. [Basis: Regulation 9-7-403, Regulation 9-7-506, and 9-7-606]
7. During any month when S-93 is operated on natural gas not regulated by the California Public Utilities Commission, the owner/operator of S-93 shall test the sulfur content of this natural gas to verify compliance with the sulfur content limit in Part 4. [Basis: Regulation 2-1-403]
8. For all tests, the owner/operator shall comply with all applicable testing requirements as specified in Volume IV of the Air District's Manual of Procedures. The owner/operator shall notify the Air District's Source Test Section, in writing, of the source test protocols and projected test dates at least 30 days prior to testing. (Basis: Cumulative Increase)
9. The owner/operator shall ensure that S-93 is equipped with source test sampling ports and safe access as specified in Volume IV of the Air District's Manual of Procedures. The owner/operator shall obtain approval of the sampling ports locations, layout and access from the Air District's Source Test Section prior to installation. (Basis: Cumulative Increase)

MONITORING REQUIREMENTS

10. The owner/operator of S-93 shall equip S-93 with a non-resettable totalizing fuel flow meter that measures fuel usage for the boiler. [Basis: Cumulative Increase]
11. The owner/operator of S-93 shall observe the exhaust of S-93 for visible smoke during all periods of operation. If persistent smoke is detected, the owner/operator of the source shall take the necessary corrective actions to stop the emissions. [Basis: Regulation 6-1-303, 6-1-401, and 2-1-403]
12. If monitoring using the portable analyzer shows an exceedance of any applicable limits, the owner/operator of S-93 shall conduct a District approved source test to demonstrate compliance with the emissions limits of Part 3 within 60 days of the exceedance and shall submit the source test results to the Air District's Source Test Section within 60 days of completion of the source test.

[Basis: Regulation 9-7-506, Cumulative Increase]

RECORDKEEPING REQUIREMENTS

13. The owner/operator of S-93 shall maintain the following records for a minimum of two (2) years and shall make records available to the District upon request. These record-keeping requirements shall not replace the record-keeping requirements contained in any applicable District or state regulations.
- a. The owner/operator shall record both the monthly and total consecutive 12-month records of natural gas consumption for each source of natural gas (CPUC regulated natural gas and non-CPUC regulated gas and the source of any non-regulated gas).
 - b. Dates of all source testing and monitoring events, Source Test Section notification dates, and results submittal dates.
 - c. All testing and monitoring results including a comparison of these results to the applicable limits for all source testing or monitoring events conducted pursuant to these conditions.
 - d. All testing and monitoring data for S-93, including calibration data or other information needed to verify that proper testing and monitoring procedures were followed.

[Basis: Regulation 2-1-403]

End of Conditions

Recommendation

The District reviewed the material contained in the permit application for the proposed project and has made a preliminary determination that the project is expected to comply with all applicable requirements of District, state, and federal air quality-related regulations. The preliminary recommendation is to issue an Authority to Construct for the equipment listed below. However, the proposed source(s) will be located within an Overburdened Community and requires an HRA which triggers the public notification requirements of Regulation 2-1-412. After the comments are received from the public and reviewed, the District will make a final determination on the permit.

I recommend that the District initiate a public notice and consider any comments received prior to taking any final action on issuance of an Authority to Construct and/or a Permit to Operate for the following equipment:

S-93 Steam Boiler

Make: Victory Engine Model: F2-DB-574L-300X-S275

Maximum Firing Rate: 9.33 MMBtu/hr

Permit Condition Nos. 27891

Prepared by: Simrun Dhoot, Supervising Air Quality Engineer

Appendix A – Facility PTE

S#	Description	Application Number					Nox (lb/yr)	CO (lb/yr)	VOC (lb/yr)	PM10 (lb/y)	PM2.5 (lb/yr)	SO2 (lb/yr)	
24	DRYER 1-406	26615	3854	25012									
25	DRY PELLETT HOPPER 1-321		3854	25012					1154				
26	CALCINER FEEDER 1-339		3854	25012									
27	OFF SIZE HOPPER 1-323		3854	25012									
30	PACKAGING STATION NO. 2 1-128	16337	8825	5958	3854	26301							
33	OFF SIZE BIN 2-219A	8825	5958	3854		26301							
34	CALCINED FINES BIN 2-219B	8825	5958	3854		26301							
35	FINISHED PRODUCT HOPPER 1-126	5958	3854			26301							
47	POTASSIUM SILICATE BATCH DISSOLVER 1-170	26622							1095				
48	Sulfuric Acid Catalyst Repackaging Station 2-222	26712	26301										
54	98% Sulfuric Acid Storage Tank [exempt]	28182					0	0	0	0	0		
55	Calciner 1-207;On AC, PO Pending;3,500 lb of catalyst/ hr	30644	20917	22831	28350	28479	28056	2782.15	24013.59	819.58	400.04	400.04	4142.57
61	Liquified Sulfur Dioxide Storage [exempt]	10177										0.26	
62	Diesel Generator, Emergency Use Only	10177					88.35	19.04	7.17	6.27	6.27	5.84	
63	Storage Tank, 25% NaOH [exempt]	10177					0	0	0	0	0	0	
64	Portable Conveyor 1-241	16337	3854	26301									
65	Flexible Wall Conveyor, 1-243	16337	3854	26301									
66	Bulk Packaging Screener 1-244	16337	3854	26301									
67	Bulk Bag Packaging Station 1-246	16337	3854	26301									
68	Pellet Screener 1-215	19544	3854	25012									
69	Finished Product Screener 1-217	19544	3854	26301									
70	White Pellet Elevator, 1-141	3854		25012									
71	White Pellet Feeder 1-142	3854		25012									
72	FP Elevator 1-125	3854	26301										
73	FP Elevator Feeder 1-121	3854	26301										
75	DE storage Silo (#4001)	19100	25010										
76	DE Storage Silo (#4002)	19100	25010										
77	DE Storage Silo(#4003)	19100	25010										
78	DE Storage Silo (#4004)	19100	25010						14.28				
79	DE Storage Silo (#4005)	19100	25010										
80	DE Storage Silo (#4006)	19100	25010										
81	De Feed Tank	19100	25010										
82	Batch Mixer Vessel	24303							32.85				
83	V2O5 Transfer System and Hopper	25011							22.13				
84	Recycle Conveyor, Horizontal Screw Conveyor/Hopper	26367							0.0039				
85	Mobile Repack Station	26301							1126				
87	Calciner Dumpster	28182							2.53	0.4			
88	Emergency Standby Diesel Engine - Generator Set	28403					280.5	79.8	14.76	7.98	7.98	0.27	
90	Finish Product Elevator Feeder	29516							8.44	1.28			
92	Emergency Diesel Fire Pump Engine	31551					68.07	12.4	2.2	1.93	1.93	0.15	
Total (tpy)							1.610	12.062	0.422	1.936	0.209	2.075	