

DRAFT ENGINEERING EVALUATION

Facility ID No. 3319
Vallejo Flood and Wastewater District
450 Ryder Street, Vallejo, CA 94590
Application No. 31475 and 710974

Background

Vallejo Flood and Wastewater District is applying for an Authority to Construct/Permit to Operate for the following equipment:

- S-284 Portable Emergency Diesel Engine, 1.72 MMBtu/hour**
John Deere, Model: 6068HFG06, Year: 2019, Tier 4,
323 bhp, 12.5 gallons per hour, EPA family: KJDXL06.831
Serial number: PE6068U081983
With integrated Selective Catalytic Reduction-urea, Ammonia Slip catalyst, Diesel
Oxidation catalyst, Diesel Particulate Filter
- S-285 Portable Emergency Diesel Engine, 1.72 MMBtu/hour**
John Deere, Model: 6068HFG09, Year: 2018, Tier 4,
323 bhp, 12.5 gallons per hour, EPA family: JJDXL06.8309
Serial number: PE6068U081982
With integrated Selective Catalytic Reduction-urea, Ammonia Slip catalyst, Diesel
Oxidation catalyst, Diesel Particulate Filter

These portable diesel engines are intended for use during emergencies when there is a power outage at any of the 38 sewer lift stations operated by Vallejo Flood and Wastewater District within the Air District's jurisdiction. The two engines (S-284 and S-285) are nearly identical and are the subject of permit application 31475 and 710974 respectively. The engines will be located at 450 Ryder St. Vallejo, California, 94590 for testing and maintenance purposes and limited to 50 hours per year. A list of the proposed locations is available in Attachment 1.

S-284 and S-285 meet the Environmental Protection Agency and California Air Resources Board (EPA/CARB) Tier 4 Off-road standard. These engines will burn commercially available California low sulfur diesel fuel. The sulfur content of the diesel fuel will not exceed 0.0015% by weight. The criteria pollutants associated with this engine's operation are nitrogen oxides (NO_x), carbon monoxide (CO), precursor organic compounds (POC) from unburned diesel fuel, sulfur dioxide (SO₂) and particulate matter (PM₁₀). All these pollutants are briefly discussed on the Air District's web site at www.baaqmd.gov.

Portable engines are non-road engines as defined by 40 CFR 1039.801 and 40 CFR 1068.30 of the Federal Clean Air Act. Appendix A to Subpart A of 40 CFR 1074 does not allow states "or political subdivisions" to impose emission control on non-road engines. The exception is standards and other requirements

imposed by the State of California necessary to achieve attainment of air pollution standards. The regulatory analysis for this application will take this into account.

This evaluation report will discuss compliance of the proposed project with all applicable rules and regulations.

Emissions

Table 1. Annual and Daily Emissions from EPA/CARB Certified Data from S-284

Pollutant	Emission Factor (g/bhp-hour)	Max Daily Emissions (lbs./day)	Annual Emissions (lbs./year)	Annual Emissions (tons/year)
NO _x	0.045	0.76	1.59	0.001
POC	0.015	0.25	0.53	0.000
CO	0.007	0.13	0.27	0.000
PM ₁₀ ¹	0.015	0.25	0.53	0.000
PM _{2.5} ¹	0.015	0.25	0.53	0.000
SO ₂	0.006 ²	0.09	0.20	0.000

Basis:

- Annual emissions: Reliability-related activity 50 hours for S-284
- Max daily emissions: 24-hour operation
- Emissions from EPA Carryover Engine Family GJDXL06.8311 for S-284
- CO Emission factor taken as 0.01 g/kW-hr from EXECUTIVE ORDER U-R-004-0580
- ¹ Diesel PM emission factor taken as minimum of 0.02 g/kW-hr; the Tier 4 standard for engines in the 130 to 560 kW range. Conservative Assumption: Diesel PM = PM₁₀ = PM_{2.5}
- ² SO₂ emission factor from AP-42 Table 3.4-1 assuming the complete conversion of sulfur in fuel to SO₂ and a maximum sulfur content of 15 ppm.

$$SO_2 \text{ Emission Factor } \left(\frac{g \text{ SO}_2}{bhp - hr} \right) = \frac{[\{ 8.09 \times 10^{-3} \times 0.0015 \} \frac{lbs}{bhp - hr}]}{454 \frac{g}{lbs}} = 0.006 \frac{g \text{ SO}_2}{bhp - hr}$$

Table 2. Annual and Daily Emissions from CARB Certified Data from S-285

Pollutant	Emission Factor (g/bhp-hour)	Max Daily Emissions (lbs./day)	Annual Emissions (lbs./year)	Annual Emissions (tons/year)
NOx	0.045	0.76	1.59	0.001
POC	0.015	0.25	0.53	0.000
CO	0.075	1.27	2.65	0.001
PM ₁₀ ¹	0.015	0.26	0.53	0.000
PM _{2.5} ¹	0.015	0.26	0.53	0.000
SO ₂	0.006 ²	0.09	0.20	0.000

Basis:

- Annual emissions: Reliability-related activity 50 hours for S-285
- Maximum daily emissions: 24-hour operation
- Emissions from EPA Carryover Engine Family FJDXL06.8309 for S-285
- CO Emission factor taken as 0.1 g/kW-hr from EXECUTIVE ORDER U-R-004-0550
- ¹ Diesel PM emission factor taken as minimum of 0.02 g/kW-hr; the Tier 4 standard for engines in the 130 to 560 kW range. Conservative Assumption: Diesel PM = PM₁₀ = PM_{2.5}
- ² SO₂ emission factor from AP-42 Table 3.4-1 assuming the complete conversion of sulfur in fuel to SO₂ and a maximum sulfur content of 15 ppm.

$$SO_2 \text{ Emission Factor } \left(\frac{g \text{ SO}_2}{bhp - hr} \right) = \frac{[(8.09 \times 10^{-3} \times 0.0015)] \frac{lbs}{bhp - hr}}{454 \frac{g}{lbs}} = 0.006 \frac{g \text{ SO}_2}{bhp - hr}$$

Plant Cumulative Increase

Table 3 summarizes the cumulative increase in criteria pollutant emissions that will result from both engine applications.

Table 3. Plant Cumulative Emissions Increase, Post 4/5/91

Pollutant	Existing Emissions Post 4/5/91 (tons/year)		Application 31475 Emissions (tons/year)		Application 710974 Emissions (tons/year)		Cumulative Emissions (tons/year)
NOx	3.682	+	0.001	+	0.001	=	3.684
POC	5.779	+	0.000	+	0.000	=	5.779
CO	4.811	+	0.000	+	0.001	=	4.812
PM ₁₀	0.321	+	0.000	+	0.000	=	0.321
PM _{2.5}	0.000	+	0.000	+	0.000	=	0.000
SO ₂	0.040	+	0.000	+	0.000	=	0.040

Health Risk Assessment (HRA)

Non-road engines are subject to risk requirements. Regulation 2-5 requires that the cumulative impacts from all related projects permitted within the last 5 years be included in the HRA. Pursuant to Regulation 2-5-110, a project shall not be subject to this rule if, for each toxic air contaminant (TAC), the total project emissions are below the acute and chronic trigger levels listed in Table 2-5-1 of this regulation. A project includes all permitted sources within the previous five (5) year period from the date of a complete application. Emissions from S-284 and S-285 as permitted under AN 31475 and AN 710974 respectively would constitute the project.

Table 4 below tabulates the project emissions associated with these permit applications along with related projects permitted within the five-year period.

Table 4. Hourly and Annual Project TAC Emissions

Pollutant	Hourly	Annual	Acute Trigger	Chronic Trigger	Exceeds Acute Trigger?	Exceeds Chronic Trigger?
	lbs/hour	lbs/year	(lbs/hour)	(lbs/yr)		
AN 710974						
Ammonia ¹	0.02	1.05	1.40	7700	NO	NO
Diesel PM	0.01	0.53	None	0.26	NO	YES
AN 31475						
Ammonia ¹	0.02	1.05	1.40	7700	NO	NO
Diesel PM	0.01	0.53	None	0.26	NO	YES
PROJECT						
Ammonia	0.04	2.10	1.40	7700	NO	NO
Diesel PM	0.02	1.06	None	0.26	NO	YES

¹Ammonia emissions calculated based on ammonia slip concentration at 10 ppm.

It can be seen from Table 4 that the ammonia emissions, stemming from potential ammonia slip from the selective catalytic reduction systems, do not exceed the acute and/or chronic trigger levels in Regulation 2, Rule 5.

At a maximum rate of 0.53 lbs/year each, the diesel particulate emissions from S-284 and S-285 exceed the toxic trigger level of 0.26 lbs/year. The total project emissions are 1.06 lbs/year and therefore require a Health Risk Assessment (HRA).

HRA Results

This analysis estimates the incremental health risk resulting from toxic air contaminant (TAC) emissions from non-emergency operation of standby generator diesel engines at facility 3319. Results from this HRA indicate that the maximum project cancer risk is estimated at **0.19 in a million**, and the maximum project chronic hazard index is estimated at **0.00015** while the project acute HI is estimated at **0.0015**. See HRA Report for more details.

Table 4. Risk Screening Results

Maximally Exposed Receptor	Maximum Cancer Risk	Maximum Chronic Hazard Index
Residential	0.071 chances in a million	0.000020
Off-Site Worker	0.19 chances in a million	0.00015

BACT for toxics (TBACT)

In accordance with the Air District's Regulation 2-5-301, this source does not require TBACT because the estimated source cancer risk is less than 1.0 in a million and the chronic hazard index is less than 0.2.

Although not subject to TBACT requirements, both S-284 and S-285 would meet what has recently been deemed to be achieved-in-practice TBACT, which is meeting EPA Tier 4 standards, as listed in the BAAQMD BACT/TBACT Workbook for IC Engine – Compression Ignition: Stationary Emergency, non-Agricultural, non-direct drive fire pump, for engines greater than 50 bhp and less than 1,000 bhp is described in *Document #96.1.3, Revision 9, dated 12/02/2024* (see Attachment 2).

Project Risk Limits

Since the proposed engine, operating at 50 hours/year for reliability related testing, does not require TBACT, and the estimated project cancer risk does not exceed 6.0 in a million and the chronic hazard index does not exceed 1.0, this project complies with the Air District's Regulation 2-5-302 project risk requirements. No additional operating hour restrictions were necessary for this project.

Best Available Control Technology (BACT)

Non-road engines like S-284 and S-285 are not subject to Best Available Control Technology (BACT). Additionally, as shown in Table 1 and 2, S-284 and S-285 do not emit more than 10 lbs./day for POC, NPOC, NO_x, CO, SO₂, or PM₁₀.

Offsets

Offset must be provided for any new or modified source at a facility that will have the potential to emit more than 10 tons per year of NO_x or POC, as specified in Regulation 2-2-302; 100 tons per year or more of PM_{2.5}, PM₁₀ or sulfur dioxide, as specified in Regulation 2-2- 303.

Table 6. Potential to Emit (PTE) for FID 3319

Pollutant	Existing Annual Emissions ¹ (TPY)		Application 31475 Annual Emissions ² (TPY)		Application 710974 Annual Emissions ² (TPY)		Facility Annual Emissions (TPY)	Offset Requirement (TPY)	Offset Required
NO _x	5.077	+	0.002	+	0.002	=	5.081	>10	N
POC	7.682	+	0.001	+	0.001	=	7.684	>10	N
CO	4.969	+	0.000	+	0.004	=	4.973	-	N
PM ₁₀	0.369	+	0.001	+	0.001	=	0.371	≥100	N
PM _{2.5}	0.369	+	0.001	+	0.001	=	0.371	≥100	N
SO ₂	0.084	+	0.000	+	0.000	=	0.084	≥100	N

¹See "Attachment 3" for Facility PTE calculations

²Annual PTE emissions: Reliability-related activity of 50 hours and emergency operation of 100 hours for S-284 and S-285.

Since the facility's potential to emit is below the offsets trigger levels specified in Regulation 2-2, offsets are not required.

Statement of Compliance

The owner/operator is expected to comply with all applicable requirements. Key requirements are listed below:

Regulation 2, Rule 1

The primary location for both these engines is Plant #3319. However, the engines will be allowed to operate at specific listed sites not contiguous with Plant #3319. When operating at the non-contiguous sites, each engine will operate as a multiple locations source.

Regulation 2-1-413 establishes operating requirements and emission limitations for multiple locations operating permits. The following are the details of compliance with Regulation 2-1-413:

- 2-1-413.1 S-284 and S-285 will comply with this section because they will not emit more than 10 tons per year of POC, NO_x, PM₁₀, PM_{2.5}, SO₂, CO, and non-precursor organic

- compounds (NPOC) as designed. Therefore, no limitation will be added to the permit conditions.
- 2-1-413.2 S-284 and S-285 comply with the provisions of Regulation 2, Rule 5, New Source Review for Toxic Air Contaminants. The results of the Health Risk Assessment (HRA) show compliance with the Air District's project risk requirements, for projects located in an Overburdened Community. Note that the hours of emergency use are not considered by Regulation 2, Rule 5.
- 2-1-413.3 S-284 and S-285 will comply with this section because a public notice will be conducted for the 3 possible locations identified by the applicant as within 1,000 feet of a school. Permitted portable sources can generally operate close to K-12 schools if the applicant goes through the public notice procedures. These engines will operate during emergencies at these locations therefore, the public notice procedures are not feasible.
- 2-1-413.4 S-284 and S-285 are not expected to cause a public nuisance.
- 2-1-413.5 S-284 and S-285 are exempt from CEQA because the evaluation is considered ministerial per Chapter 2.3.3 of the Air District's Permit Handbook.
- 2-1-413.6 S-284 and S-285 will comply with this section because they will not be used at a synthetic minor facility.
- 2-1-413.7 S-284 and S-285 will comply with this section because they will be used as portable engines and will not remain at the same facility for more than 12 consecutive months. Reliability testing, however, will occur at Plant 3319 located at 450 Ryder St. Vallejo, CA, 94590 which will be considered the primary site.

Regulation 6-1 (Particulate Matter – General Requirements)

Non-road engines like S-284 and S-285 are not subject to Regulation 6, Rule 1. However, these engines are subject to the particulate limit in 40 CFR 1039.101 of 0.02 g PM/kW-hour.

Regulation 9-1 (Sulfur Dioxide)

Non-road engines like S-284 and S-285 are not subject to Regulation 9, Rule 1 but are subject to the use of CARB low sulfur diesel fuel with a sulfur content of 0.0015% by weight.

Regulation 9-8 (Nitrogen Oxides and Carbon Monoxide from Stationary Internal Combustion Engines)

Non-road engines like S-284 and S-285 are not subject to Regulation 9-8.

This rule limits the emissions of NO_x and CO from stationary internal combustion engines with an output rated by the manufacturer at more than 50 brake horsepower. Pursuant to Regulation 9-8-204, a stationary internal combustion engine is defined as any spark or compression ignited internal combustion engine that is operated, or intended to be operated, at a specific site for more than one year or is attached to a foundation at that site. S-284 and S-285 are intended to operate at multiple sites and do not meet the definition of a stationary internal combustion engine. Therefore, the engine is not subject to the requirements of this regulation.

California Air Resources Board (CARB) Airborne Toxic Control Measure (ATCM) for Diesel Particulate Matter from Portable Engines

Pursuant to §93116.1, engines with a maximum power rating equal to or greater than 50 hp are subject to this regulation. S-284 and S-285 are rated at 323 hp, thus are subject to the requirements of this regulation. The facility's fleet of portable engines consists of S-284 (323 bhp), S-285 (323 bhp), S-11 (130 bhp), and S-19 (68 bhp) for a combined fleet rating of 844 bhp. This rating exceeds a total maximum power rating of 750 bhp, then pursuant to §93116.2(a)(17), the fleet is defined as a large fleet.

Portable diesel-fueled emergency-use engines are excluded from the fleet requirements of this regulation pursuant to §93116.3(c)(3)(B). Since S-284 and S-285 are portable diesel-fueled emergency-use engines, they are excluded from the fleet requirements of this regulation. S-284 and S-285 are expected to meet the requirements of this regulation.

Permit Condition 100561 will limit non-emergency operation to 50 hours/year and hence will comply with this subsection.

California Environmental Quality Act (CEQA)

As per CEQA Article 18 section 15269, this project qualifies for a statutory exemption as an emergency project, necessary to maintain service essential to the public health, safety, or welfare. The project, described in both application 31475 and 710974, fits the definition in section 15269 (b) and (c) as the two engines, S-284, and S-285 will only support emergency work at the sewer lift stations operated by Vallejo Flood and Wastewater District when there is a power outage that could lead to sewer overflows. This project satisfies the requirements for CEQA review as per Regulation 2-1-312.9

New Source Performance Standards (NSPS)

40 CFR 60, Subpart IIII (NSPS IIII), Standards of Performance for Stationary Compression Ignition Internal Combustion Engines applies to stationary engines. Therefore, these engines are not subject to this NSPS.

National Emissions Standards for Hazardous Air Pollutants (NESHAP)

S-284 and S-285 are not subject to 40 CFR 63, Subpart ZZZZ, National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines because they are not considered stationary sources.

Prevention of Significant Deterioration (PSD)

Non-road engines are not subject to PSD. These applications are not part of a PSD project as defined in Regulation 2-2. Therefore, PSD does not apply to this application.

California Health & Safety Code §42301.6 and Public Notice, Schools & Over-Burdened Communities (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 Air 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.

Pursuant to Regulation 2-1-412, prior to approving an application for a permit to construct or modification of a source, which is located within an Overburdened Community and for which a Health Risk Assessment is required pursuant to Regulation 2-5-401, the Air District shall prepare a public notice as detailed in §42301.6. As per Regulation 2-1-243, an Overburdened Community is defined as an area located within a census tract identified by the California Communities Environmental Health Screening Tool (CalEnviroScreen) Version 4.0, as having an overall CalEnviroScreen score at or above the 70th percentile or within 1,000 feet of any such census tract.

Reliability-related (non-emergency) operation will take place at 450 Ryder Street, Vallejo, CA 94590, which is considered the primary location. It is in an Overburdened Community (OBC), as defined in Regulation 2-1-243. Since a health risk assessment was required, this project is subject to the public notice requirement for operating within an OBC.

Vallejo Flood and Wastewater District declared that these engines may be operated within 1,000 feet of the outer boundary of a K-12 school. These school locations are listed below:

- Saint Patrick Saint Vincent High School, 1500 Benicia Road, Vallejo, CA 94591
- Glen Cove Elementary School, 501 Glen Cove Parkway, Vallejo, CA 94591
- Mare Island Health & Fitness Academy, 400 Rickover St., Vallejo, CA 94592

Therefore, a public notification is required to comply with the Health and Safety code at these 3 locations. Emergency use is not subject to Regulation 2-5 limits for Diesel PM per Section 2-5-111. Therefore, the use of the engine during emergencies is not restricted, except for the prohibition of operating within 1,000 feet of a school before public notice.

For this evaluation, public notification is required at these 4 locations. A complete list of the 38 locations supported by these engines is shown in Attachment 1.

Permit Conditions**Permit condition 100561**

1. The owner/operator of S-284 and S-285, Portable Emergency Diesel Engines, shall not operate either source in one location (footprint) for more than 12 consecutive months, following the date of initial operation. Any backup engine, which replaces the engine at the same location and is intended to perform the same function will count towards this limitation.
[Basis: Section 93116 ATCM for Portable CI Engines, 40 CFR 1068.30]
2. The owner/operator of S-284 and S-285 shall operate at all times the portable equipment in conformance with the eligibility requirements set forth in BAAQMD Regulation 2-1-413 for equipment at multiple locations within the Air District.
[Basis: Regulation 2-1-413]
3. The owner/operator of S-284 and S-285 shall not exceed 50 hours per year per engine for reliability-related activities. The owner/operator of S-284 and S-285 shall not perform reliability-related activities (maintenance and testing) at any location other than at 450 Ryder Street, Vallejo, CA 94590. Use of the engine(s) while mitigating emergency conditions is not limited except for the prohibition of operating within 1,000 feet of a school, except that the engines may operate within 1000 feet of the following schools:
 - Saint Patrick Saint Vincent High School, 1500 Benicia Road, Vallejo, CA 94591
 - Glen Cove Elementary School, 501 Glen Cove Parkway, Vallejo, CA 94591
 - Mare Island Health & Fitness Academy, 400 Rickover St., Vallejo, CA 94592The engine(s) shall not be operated within 1,000 feet of the outer boundary of any other K-12 school site, unless the applicable notice requirements of Health and Safety Code Section 42301.6 have been met.
[Basis: Cumulative Increase, Regulation 2-1-320, Regulation 2-1-413, Regulation 2, Rule 5, 17 CCR §93116.2(a)(15)]
4. The owner/operator of S-284 and S-285 shall operate S-284 and S-285 only for the following purposes:
 - a. To mitigate emergency conditions;
 - b. For emission testing to demonstrate compliance with an Air District, State, or Federal emission limit; or,
 - c. For reliability-related activities (maintenance and other testing, excluding emission testing).Operating while mitigating emergency conditions or while emission testing to show compliance with an Air District, State, or Federal emission limits is not limited.
[Basis: Cumulative Increase, 17 CCR §93116.2(a)(15), and Regulation 2-1-320]
5. The owner/operator shall operate each emergency standby engine only when a non-resettable totalizing meter (with a minimum display capability of 9,999 hours) that measures the hours of operation for the engine is installed, operated, and properly maintained.
[Basis: 17 CCR §93116.4(b)(2)(A)]

6. The owner/operator shall maintain the following monthly records in an Air District-approved log for at least two years from the date of entry. Log entries shall be retained on-site at a central location and made immediately available to Air District staff upon request.
 - a. Hours of operation for reliability-related activities (maintenance and testing);
 - b. Hours of operation for emission testing to show compliance with emission limits;
 - c. Hours of operation (emergency);
 - d. For each emergency, the nature of the emergency condition;
 - e. Fuel usage for the engine; and,
 - f. Location and total hours of operation at each off-site location.

[Basis: Basis: 17 CCR §93116.4]

End of Conditions

Recommendation

The Air District has 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 will be located within an Overburdened Community and may operate within 1,000 feet of a school which triggers the public notification requirements of Air District Regulation 2-1-412 and the Health and Safety Code Section 42301.6 respectively. After the comments are received and reviewed, the Air District will make a final determination on the permit.

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

- S-284 Portable Emergency Diesel Engine, 1.72 MMBtu/hour**
John Deere, Model: 6068HFG06, Year: 2019, Tier 4,
323 bhp, 12.5 gallons per hour, EPA family: KJDXL06.831
Serial number: PE6068U081983
With integrated Selective Catalytic Reduction-urea, Ammonia Slip catalyst, Diesel
Oxidation catalyst, Diesel Particulate Filter
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With integrated Selective Catalytic Reduction-urea, Ammonia Slip catalyst, Diesel
Oxidation catalyst, Diesel Particulate Filter

Permit Conditions No: 100561

By: MK
MK
Air Quality Engineer

Date: 02/20/2025

And

KC
Air Quality Engineer

Date: 02/13/2025

DRAFT

Attachment 1**VFWD PUMP STATION PROXIMITY TO SCHOOLS**

ID	Pump/Lift Station Address	Nearest School Address	Distance
F01	Austin Creek PS 740 MARINE WORLD PKWY.	Federal Terrace Elementary School 415 DANIELS AVE.	1,180ft
F02	Solano Avenue PS 1095 SOLANO AVE.	Lincoln Elementary School 620 CAROLINA ST.	3,400ft
F03	Sonoma Blvd PS 1103 SONOMA BLVD.	Lincoln Elementary School 620 CAROLINA ST.	3,550ft
F04	Missouri Street PS 3239 SONOMA BLVD.	Caliber: ChangeMakers Academy 500 OREGON ST.	1,140ft
F06	South Tubbs Island PS 4203 SEARS POINT RD.	Mare Island Health & Fitness Academy 400 ROCKOVER ST.	Miles
F07	Tubbs Island PS 5400 SEARS POINT RD.	Mare Island Health & Fitness Academy 400 ROCKOVER ST.	Miles
S01	Sears Point PS 2418 SACRAMENTO ST.	Federal Terrace Elementary School 415 DANIELS AVE.	1,060ft
S02	Meadows PS 515 MEADOWS DR.	Dan Mini Elementary School 1530 LORENZO DR.	2,380ft
S03	Shady Lane PS 198 WILDFLOWER AVE.	Saint Patrick Saint Vincent High School 1500 BENICIA RD.	675ft
S04	Lemon Street PS 1332 LEMON ST.	Patterson Elementary School 1080 PORTER ST.	3,100ft
S05	Greenmont PS 230 GREENMONT DR.	Saint Patrick Saint Vincent High School 1500 BENICIA RD.	300ft
S06	Sandy Beach PS 100 SANDY BEACH RD.	Patterson Elementary School 1080 PORTER ST.	1,040ft
S07	Maritime Academy PS 198 MARITIME ACADEMY DR.	Patterson Elementary School 1080 PORTER ST.	4,000ft
S08	Regatta PS 480 GLEN COVE PKWY.	Glen Cove Elementary School 501 GLEN COVE PKWY.	440ft
S09	Marina PS 2015 GLEN COVE MARINA RD.	Glen Cove Elementary School 501 GLEN COVE PKWY.	2,700ft
S10	New Bedford PS 941 PUEBLO WAY	Glen Cove Elementary School 501 GLEN COVE PKWY.	2,350ft
S11	Catalina PS 701 CATALINA CIR.	Dan Mini Elementary School 1530 LORENZO DR.	5,770ft
S12	Dillon Point PS 150 SEA MIST DR.	Glen Cove Elementary School 501 GLEN COVE PKWY.	3,000ft
S13	State Park PS 120 WHITESIDES DR.	Glen Cove Elementary School 501 GLEN COVE PKWY.	2,200ft
S14	Columbus Pkwy PS 1500 COLUMBUS PKWY.	Saint Patrick Saint Vincent High School 1500 BENICIA RD.	1,340ft
S15	Admiral Callaghan PS 433 ADMIRAL CALLAGHAN LN.	North Hills Christian School 200 ADMIRAL CALLAGHAN LN.	1,150ft
S16	Wilson Ave. PS 815 WILSON AVE.	Federal Terrace Elementary School 415 DANIELS AVE.	1,960ft
S17	Sky Valley #1 PS 1649 LANDMARK DR.	Jesse Bethel High School 1800 ASCOT PKWY.	10,500ft
S18	Sky Valley #2 PS 1501 LANDMARK DR.	Jesse Bethel High School 1800 ASCOT PKWY.	10,600ft
S20	Orchard at Sky Valley 7098 ALDER CREEK AVE.	Jesse Bethel High School 1800 ASCOT PKWY.	10,450ft
S21	Missouri Street PS 105 COUCH ST.	Caliber: ChangeMakers Academy 500 OREGON ST.	1,360ft
MID02	MID02 PS BLDG 857; 385 RAILROAD AVE.	Federal Terrace Elementary School 415 DANIELS AVE.	5,600ft
MID03	MID03 PS BLDG 859; NORTH OF E STREET	Mare Island Health & Fitness Academy 400 ROCKOVER ST.	4,600ft

ID	Pump/Lift Station Address	Nearest School Address	Distance
MID04	MID04 PS BLDG 861; 785 RAILROAD AVE.	Mare Island Health & Fitness Academy 400 ROCKOVER ST.	3,130ft
MID05	MID05 PS BLDG 863; A ST. & WATERFRONT AVE.	Mare Island Health & Fitness Academy 400 ROCKOVER ST.	3,110ft
MID06	MID06 PS BLDG 865; 1050 NIMITZ AVE.	Mare Island Health & Fitness Academy 400 ROCKOVER ST.	1,800ft
MID07	MID07 PS BLDG 914; 1115 RAILROAD AVE.	Mare Island Health & Fitness Academy 400 ROCKOVER ST.	920ft
MID08	MID08 PS BLDG 916; 1370 NIMITZ AVE.	Mare Island Health & Fitness Academy 400 ROCKOVER ST.	3,780ft
MID11	MID11 Farragut Village PS 591 TISDALE	Mare Island Health & Fitness Academy 400 ROCKOVER ST.	1,020ft
MID13	MID13 PS WEST END OF JAMES CAPOOT ST.	Mare Island Health & Fitness Academy 400 ROCKOVER ST.	2,240ft
NONE	L Street PS L ST. WEST OF RAILROAD AVE.	Federal Terrace Elementary School 415 DANIELS AVE.	5,700ft

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Attachment 2

BAY AREA AIR QUALITY MANAGEMENT DISTRICT Best Available Control Technology (BACT) Guideline
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Source Category

Source:	IC Engine – Compression Ignition: Stationary Emergency	Revision:	9
		Document #:	96.1.3
Class:	➤ 50 BHP and < 1000 BHP Output	Date:	12/02/2024

Determination

Pollutant	BACT 1. Technologically Feasible/Cost Effective 2. Achieved in Practice 3. TBACT	TYPICAL TECHNOLOGY
POC	1. n/s ^(a) 2. U.S. EPA Final Tier 4 standard ^(b) for POC at applicable horsepower rating (see attached Table 1)	1. n/s ^(a) 2. Any engine certified or verified to achieve the applicable Tier 4 Final standard for POC
NOx	1. n/s ^(a) 2. U.S. EPA Final Tier 4 standard ^(b) for NO _x at applicable horsepower rating (see attached Table 1)	1. n/s ^(a) 2. Any engine certified or verified to achieve the applicable Tier 4 Final standard for NO _x
SO₂	1. n/s ^(a) 2. Fuel sulfur content not to exceed 0.0015% (wt) or 15 ppm (wt)	1. n/s ^(a) 2. CARB Diesel Fuel (Ultra Low Sulfur Diesel)
CO	1. n/s ^(a) 2. U.S. EPA Final Tier 4 standard for CO at applicable horsepower rating (see attached Table 1)	1. n/s ^(a) 2. Any engine certified or verified to achieve the applicable Tier 4 Final standard for CO
PM₁₀	1. n/s ^(a) 2. U.S. EPA Final Tier 4 standard for PM ^(c) at applicable horsepower rating (see attached Table 1) 3. U.S. EPA Final Tier 4 standard for PM ^(c) at applicable horsepower rating (see attached Table 1)	1. n/s ^(a) 2. Any engine certified or verified to achieve the applicable Tier 4 Final standard for PM 3. Any engine or technology demonstrated, certified, or verified to achieve the applicable standard.
PM_{2.5}	1. n/s ^(a) 2. Same as PM ₁₀	1. n/s ^(a) 2. Same as for PM ₁₀
NPOC	1. n/s ^(a) 2. n/s	1. n/s ^(a) 2. n/s

References

- a. Cost effectiveness analysis must be based on the lesser of reliability-related testing allowed per Regulation 9, Rule 8 (either 100 hours per year if facility is an essential public service as defined in Regulation 9, Rule 8 or 50 hours per year, otherwise) or as limited by an Air District health risk assessment.
- b. Where a standard is combined for non-methane hydrocarbon (NMHC) and NO_x (with no individual standards for NMHC or NO_x), the portions may be considered 5% NMHC and 95% NO_x. For the purposes of determining BACT NMHC = POC. Any engine which has been certified or demonstrated to meet the Tier 4 Final standard may be considered compliant with the certified emission standard for that pollutant.
- c. As measured by United States EPA Method 5 (filterable portion only).

Table 1. Achieved-in-Practice BACT Emission Limits Based on U.S. EPA Final Tier 4 Standards

Maximum Engine Power	Emission Limits (g/bhp-hour)			
	NMHC ⁽¹⁾	NO _x	CO	PM ⁽²⁾
50 ≤ HP < 75	3.5		3.7	0.022
75 ≤ HP < 100	0.14	0.29	3.7	0.015
100 ≤ HP < 175	0.14	0.29	2.6	0.015
175 ≤ HP < 300	0.14	0.29	2.6	0.015
300 ≤ HP < 600	0.14	0.29	2.6	0.015
600 ≤ HP ≤ 750	0.14	0.29	2.6	0.015
750 < HP < 1000	0.14	0.49	2.6	0.022

Notes:

1. Non-methane hydrocarbons
2. As measured by United States EPA Method 5 (filterable portion only)

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Attachment 3: Facility PTE Calculations

Combustion Sources

Pollutant	Potential to Emit (tons/year)						
	S-11	S-15	S-16	S-17*	S-19**	S-20*	Total
POC	0.006	2.800	2.800	0.089	0.004	0.003	5.702
NOx	0.200	1.400	1.400	1.961	0.060	0.057	5.077
PM ₁₀	0.003	0.160	0.160	0.041	0.002	0.003	0.369
PM _{2.5}	0.003	0.160	0.160	0.041	0.002	0.003	0.369
SO ₂	0.005	0.010	0.010	0.059	0.000	0.000	0.084
CO	0.021	2.300	2.300	0.312	0.009	0.027	4.969
Allowable Operating Hours	200	2500	2500	50	30	50	
Application #	7163	3209	3209	13369	18354	22187	

*Emissions multiplied by 3 as emission based on 50 hours, while 150 for PTE

**Emission multiplied by 4.333 as emissions based on 30 hours, while 130 is PTE

Other Sources

Pollutant	S100* (lbs/yr)	S15 (tpy)
POC	3960.25	1.980

* POC PTE based on 0.7 lb/ million gallons per day (MGD) and 15.5 MGD from the facility’s NPDES permitted ADWF (see Figure 3.1)

All other sources had no emissions associated with them.

WDID	2 482012001
CIWQS Place ID	270006
Discharger	Vallejo Flood and Wastewater District
Facility Name	Vallejo Flood and Wastewater District Wastewater Treatment Plant and its collection system
Facility Address	450 Ryder Street Vallejo, CA 94590 Solano County
Facility Contact, Title, Phone	Johnson Ho, Director of Operations and Maintenance, (707) 644-8949
Authorized Person to Sign and Submit Reports	Melissa Morton, District Manager, (707) 644-8949
Mailing Address	Same as facility address
Billing Address	Same as facility address
Facility Type	Publicly-Owned Treatment Works (POTW)
Major or Minor Facility	Major
Threat to Water Quality	1
Complexity	A
Pretreatment Program	Yes
Mercury and PCBs Requirements	NPDES Permit No. CA0038849
Nutrients Requirements	NPDES Permit No. CA0038873
Facility Permitted Flow	15.5 million gallons per day (MGD) (average dry weather flow)
Facility Design Flow	15.5 MGD - maximum dry weather design flow 35.0 MGD - peak wet weather secondary treatment design flow 60.0 MGD - peak wet weather primary treatment design flow
Watershed	San Pablo Basin
Receiving Water	Carquinez and Mare Island Straits
Receiving Water Type	Estuarine
Date of Last Inspection	June 28, 2022

Figure 3.1. Vallejo Flood and Wastewater District NPDES Permit Information