

Engineering Evaluation
Corteva Agriscience – Pittsburg Operations
901 Loveridge Road, Pittsburg, CA 94565
Plant No. 24380 (Site No. A0031)
Application No. 32033

Project Description: New Portable Emergency Standby Diesel Fire Pump

BACKGROUND

Corteva Agriscience – Pittsburg Operations has applied to obtain an Authority to Construct (A/C) and/or Permit to Operate (P/O) for the following equipment:

S-745 Portable Emergency Standby Diesel Fire Pump

Make: Caterpillar Inc., Model: C-18, Model Year: 2020

Family: LCPXL18.1HXF, Horsepower 800 BHP, Fuel Rate: 41.7 Gal/Hour

Heat Input Rating: 5.71 MMBtu/hr

The portable emergency standby diesel fire pump (engine) may operate throughout the facility located on 901 Loveridge Road Pittsburg, CA 94565 for emergency-use. The engine may operate without restrictions during emergency-use events. Annual maintenance and testing hours will be limited to 50 hours per year and will occur at a designated location on the facility. The criteria pollutants associated with the engines are precursor organic compounds (POC), nitrogen oxides (NO_x), particulate matter 10 microns in size (PM₁₀), particulate matter 2.5 microns in size (PM_{2.5}), sulfur dioxide (SO₂), and carbon monoxide (CO).

The engine will burn commercially available California Air Resources Board (CARB) low sulfur diesel fuel. The sulfur content of the diesel shall not exceed 0.0015% by weight.

Portable engines are non-road engines as defined by 40 CFR 1039.801 and 1068.30. Section 209(e)(1) of the Federal Clean Air Act 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. Consider the following EPA rule below:

Appendix A to 40 CFR Part 1074, Subpart A and 40 CFR Part 1074, Subpart A, Section 1074.10 Scope of preemption.

(a) States and localities are preempted from adopting or enforcing standards or other requirements relating to the control of emissions from new engines smaller than 175 horsepower that are primarily used in farm or construction equipment or vehicles, as defined in this part. For equipment that is used in applications in addition to farming or construction activities, if the equipment is primarily used as farm and/or construction equipment or vehicles (as defined in this part), it is considered farm or construction equipment or vehicles.

(b) For nonroad engines or vehicles other than those described in paragraph (a) of this section and § 1074.12, States and localities are preempted from enforcing any standards or other requirements relating to control of emissions from nonroad engines or vehicles except as provided in subpart B of this part.

EMISSIONS CALCULATIONS

The applicant submitted supporting documents, which include engine manufacturer specifications and engine emissions data. The following table provides a summary of the information provided by the applicant.

Table 1. Engine Specifications and Certified Emission Factors	
Engine Manufacturer	Caterpillar Inc.
Model	C-18
Model Year	2020
Family Name	LCPXL18.1HXF
Engine Power Rating (hp)	800
Fuel Consumption¹ (gal/hr)	41.7
Maximum Input Heat Rating¹ (MMBtu/hr)	5.71
Engine Displacement (cu in)	1104.5
Engine Displacement (L)	18.1
NO_x + NMHC² (g/hp-hr)	2.18
NO_x² (g/hp-hr)	2.16
NMHC^{2,3} (g/hp-hr)	0.02
CO (g/hp-hr)	0.00
PM⁴ (g/hp-hr)	0.03

¹ The energy content of diesel fuel is 137,000 Btu per gallon.

² Manufacturer specifications provide individual certified emission factors for NO_x and non-methane hydrocarbons (NMHC).

³ NMHC = POC

⁴ PM = PM₁₀ = PM_{2.5}

Using the submitted information, the emission rate for each pollutant was determined. The following tables provide the potential to emit (PTE) and cumulative increase for each engine. The annual PTE is based on an assumed 100 hours for emergency events, plus 50 allowable hours for maintenance and testing. The cumulative increase is based only on 50 allowable hours for maintenance and testing.

Table 2. Potential to Emit Review for S-745							
Pollutant	Emission Factor (g/hp-hr)	Maximum Power Rating (hp)	Daily Operating Hours¹ (hr/day)	Annual Operating Hours² (hr/yr)	Daily Emission Rate (lb/day)	Annual Emission Rate (lb/yr)	Annual Emission Rate (ton/yr)
POC	0.02	800	24	150	0.8	5	0.003
NO _x	2.16	800	24	150	91.3	571	0.285
PM ₁₀	0.03	800	24	150	1.3	8	0.004
PM _{2.5}	0.03	800	24	150	1.3	8	0.004
SO ₂ ³	-	-	24	150	0.2	1	0.001
CO	0.00	800	24	150	0.0	0	0.000

¹ Maximum daily operation assumed to be 24 hours.

Corteva Agriscience – Pittsburg Operations
Plant No. 24380 (Site No. A0031)
Application No. 32033

² For the PTE, the maximum annual operation will include reliability-related activities as defined in Regulation 9-8-232 and 100 hours for emergency events.

³ SO₂ emissions are based upon the Permit Handbook. The Permit Handbook suggests the use of EPA AP-42, Table 3.4-1. Assuming a sulfur content of 15 ppm, pursuant to the fuel requirements of CARB, the emission factor equates to 0.001515 lb SO₂/MMBtu.

Table 3. Cumulative Increase Review for S-745					
Pollutant	Emission Factor (g/hp-hr)	Maximum Power Rating (hp)	Annual Operating Hours¹ (hr/yr)	Annual Emission Rate (lb/yr)	Annual Emission Rate (ton/yr)
POC	0.02	800	50	2	0.001
NO _x	2.16	800	50	190	0.095
PM ₁₀	0.03	800	50	3	0.001
PM _{2.5}	0.03	800	50	3	0.001
SO ₂ ²	-	-	50	0	0.000
CO	0.00	800	50	0	0.000

¹ For the PTE, the maximum annual operation will only include reliability-related activities as defined in Regulation 9-8-232.

² SO₂ emissions are based upon the Permit Handbook. The Permit Handbook suggests the use of EPA AP-42, Table 3.4-1. Assuming a sulfur content of 15 ppm, pursuant to the fuel requirements of CARB, the emission factor equates to 0.001515 lb SO₂/MMBtu.

TOXIC RISK SCREENING ANALYSIS

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 new or modified sources of TACs within a 5-year period. The following table provides a review of the project TAC emission rates, which includes TAC emissions from this application only. No other sources of TAC's have been permitted withing the last five years.

Table 4. Regulation 2-5 Threshold Review						
Pollutant	Hourly Emission Rate (lb/hr)	Acute Threshold (lb/hr)	Exceeds Acute Threshold? (Yes/No)	Annual Emission Rate (lb/yr)	Chronic Threshold (lb/yr)	Exceeds Chronic Threshold? (Yes/No)
Diesel Exhaust Particulate Matter	0.5E-01	--	--	2.6E+00	2.6E-01	Yes

The project exceeds the listed Table 2-5-1 chronic trigger level for diesel exhaust particulate matter. The project is subject to the requirements of this regulation. The hours of use for emergencies are not included pursuant to Regulation 2-5-111.

Corteva Agriscience – Pittsburg Operations
Plant No. 24380 (Site No. A0031)
Application No. 32033

At a maximum rate of 2.64 pounds/year, the diesel particulate emissions from the project are less than the toxic trigger level of 39 pounds/year, for projects located in overburdened communities between 1,600 and 3,200 feet of the nearest receptor. All PM₁₀ emissions are considered diesel particulate emissions.

S-745 qualifies for the District’s Health Risk Assessment (HRA) streamlining policy for stationary diesel-fueled combustion engines used for backup power or fire pumps. The included HRA streamlining policy checklist shows that a refined HRA is not required for this permit application.

This analysis estimates the incremental health risk resulting from TAC emissions from non-emergency operation of a standby generator diesel engine at this facility. As the project qualifies for the streamlined HRA, it is considered to meet the requirements of Regulation 2-5. This includes requirements that the project is below a cancer risk of 6.0 in a million and a chronic hazard index (HI) of 1.0 as stated in Regulation 2-5-302. See HRA streamline report for more details.

Best Available Control Technology For Toxics (TBACT)

Portable engines are non-road engines as defined by 40 CFR 1039.801 and 1068.30. Therefore this portable engine, is not subject to TBACT as non-road engines are not subject to the requirements of TBACT. However, although not subject to TBACT, S-745 would meet what is considered current TBACT (a PM emission rate of 0.15 g/bhp-hour) as S-745 has a certified PM emission rate of 0.03 g/bhp-hour.

BEST AVAILABLE CONTROL TECHNOLOGY

Per Regulation 2-2-301, Best Available Control Technology (BACT) requirements apply to sources that have the potential to emit more than 10.0 pounds per highest day of NO_x, CO, SO₂, POC, NPOC, PM₁₀, and/or PM_{2.5}. As shown in Table 2, S-745 has the potential to emit more than 10.0 pounds per day of NO_x and would be subject to BACT requirements.

Portable engines are non-road engines as defined by 40 CFR 1039.801 and 1068.30. Therefore this portable engine is not subject to Best Available Control Technology (BACT) as Non-road engines are not subject to BACT.

Although not subject to BACT, S-745 would meet what is currently achieved-in-practice BACT:

Pollutant	Emission Factor	BACT(2) Standard
NO _x	2.16 g/bhp-hr	2.85 g/bhp-hr

* The standard is expressed as 3.0 g/bhp of NMHC+NO_x. NO_x is estimated to be 95% of the combined standard (3.0*0.95 = 2.85 g/bhp-hr)

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 NO_x.

Corteva Agriscience – Pittsburg Operations
Plant No. 24380 (Site No. A0031)
Application No. 32033

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 is permitted to emit 100 tons per year or more of PM₁₀, PM_{2.5}, or SO₂. As shown in the table below, Corteva is not a major facility for the purposes of Regulation 2-2-303. As such it does not need to provide offsets for PM₁₀, PM_{2.5}, or SO₂.

Table 5. Facility Cumulative Increase Review			
Pollutant	Existing Cumulative Increase (tons/year)	New/Modified Source Emissions Increase (tons/year)	New Cumulative Emissions Increase (tons/year)
POC	3.223	0.001	3.224
NO _x	2.103	0.095	2.198
PM ₁₀	1.999	0.001	2.000
PM _{2.5}	0.001	0.001	0.002
SO ₂	0.148	0.000	0.148
CO	6.543	0.000	6.543

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 NO_x. Facilities that have the potential to emit more than 35 tons per year of POC or NO_x must provide offsets at a 1.15:1 ratio for that respective pollutant. Facility PTE includes exempt sources. The facility currently has the following PTE:

- POC PTE > 35 ton/yr; and,
- NO_x PTE > 35 ton/yr.

Since the facility’s permitted levels of NO_x and POC’s are above the offset trigger levels specified in Regulation 2-2-302.2, offsets are required at 1.15:1 ratio.

POC’s (0.001 X 1.15) = 0.001 tons per year
 NO_x (0.095 X 1.15) = 0.109 tons per year

Prior to the Air District releasing the authority to construct for the equipment discussed in this application, Corteva will need to acquire and forfeit ERC’s in the quantities listed above.

NEW SOURCES PERFORMANCE STANDARDS

Non-road engines, as defined by US EPA, are not subject to NSPS 40 CFR Part 60, Subpart IIII.

NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS

Non-road engines, as defined by US EPA, are not subject to NESHAPS 40 CFR Part 63, Subpart ZZZZ.

CALIFORNIA AIR RESOURCES BOARD AIRBORNE TOXIC CONTROL MEASURE FOR DIESEL PARTICULATE MATTER FROM PORTABLE ENGINES

Corteva Agriscience – Pittsburg Operations
Plant No. 24380 (Site No. A0031)
Application No. 32033

Pursuant to §93116.1, engines with a maximum power rating equal to or greater than 50 hp are subject to this regulation. S-745 is rated at 800 hp and subject to the requirements of this regulation. Pursuant to §93116.2(a)(17), fleet is defined as an engine or group of engines with a total maximum horsepower over 750 bhp. Given that S-745 has a bhp of 800, it 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-745 is a portable diesel-fueled emergency-use engine, it is excluded from the fleet requirements of this regulation.

S-745 is expected to meet all other requirements of this regulation.

STATEMENT OF COMPLIANCE

Regulation 2, Rule 1

Regulation 2-1-413 establishes operating requirements and emission limitations for multiple locations operating permits.

This engine will operate throughout the facility, but will be restricted to operate within the facility boundary. Since the engine will operate throughout the facility, it is considered portable, and since it is limited to the facility, it is considered to operate only at one location and therefore not subject to this regulation.

Regulation 2, Rule 2

Prevention of Significant Deterioration (PSD) (Section 2-2-304-309): Regulations 2-2-304 through 309 apply to new major facilities or a modification of a major facility. Corteva Agriscience is an existing major facility. However, this application does not qualify as a major modification. Therefore, PSD is not applicable.

Regulation 2, Rule 6

This facility is subject to the Major Facility Review (MFR) permit requirements pursuant to Regulation 2-6-301, because it has the potential to emit 10 tons per year or more of a single hazardous air pollutant, or 25 tons per year or more of a combination of hazardous air pollutants (HAP) and is therefore considered to be a major source of HAP emissions as defined in Regulation 2-6-212.2.

Per Regulation 2-6-114, the emissions are not included in a facility's potential to emit for applicability of Major Facility Review and the engines are not included in Title V permits.

Regulation 6, Rule 1, Particulate Matter

Pursuant to Regulation 6-1-303 a person shall not emit, from an internal combustion engine with less than a 25-liter displacement, for a period or periods aggregating more than three minutes in any hour, a visible emission that is as dark or darker than No. 2 on the Ringelmann Chart, or of such opacity as to obscure an observer's view to an equivalent or greater degree, nor shall said emission, as perceived by an opacity sensing device in good working order, where such device is

Corteva Agriscience – Pittsburg Operations
Plant No. 24380 (Site No. A0031)
Application No. 32033

required by District Regulations, be equal to or greater than 40% opacity. The engine is expected to meet the requirements of Regulation 6-1-303.

Regulation 9, Rule 1

The engine 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). Lastly, pursuant to Regulation 9-1-304, a person shall not burn any liquid fuel having a sulfur content in excess of 0.5% by weight. Compliance with Regulation 9-1 is expected due to the use of CARB low sulfur diesel fuel with a sulfur content of 0.0015% by weight.

Regulation 9, Rule 8

Portable engines are non-road engines as defined by 40 CFR 1039.801 and 1068.30. Therefore this portable engine is not subject to Regulation 9-8.

California Environmental Quality Act

This project includes an emergency standby diesel fire pump (engine) that may operate during testing and maintenance and without restrictions during emergency-use events. It may be employed to prevent or reduce damage to life, health, and property at an existing facility.

The 2023 California Environmental Quality Act (CEQA) Statue and Guidelines lists classes of projects in Section 15300, which have been determined not to have a significant effect on the environment and which shall, therefore, be exempt from the provisions of CEQA.

Section 15301 lists Class 1 projects that involve negligible or no expansion of use. This includes additions to existing structures provided that the addition will not result in an increase of more than 50 percent of the floor area of the structures before the addition, or 2,500 square feet, whichever is less, as listed in Section 15301(e)(1). The floor area in this situation is the facility which equates to approximately 12,000 square feet. 50% of this would be 6,000 square feet.

The footprint of the emergency fire pump is not expected to exceed the increase thresholds of 50 percent of the floor area of the existing structure, or 2,500 square feet. As such, this project is exempt from the provisions of CEQA and no further CEQA analysis is required.

Additionally, the applicant has completed Form Appendix H (Environmental Information Form) and it has been reviewed by the Air District, as required for categorical CEQA exemptions.

Regulation 2-1-412 Public Noticing Requirement

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

Corteva Agriscience – Pittsburg Operations
Plant No. 24380 (Site No. A0031)
Application No. 32033

public notice. A “school” is defined 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 source is located greater than 1,000 feet from the nearest school. The school noticing requirement does not apply.

Pursuant to Regulation 2-1-412(ii) a new or modified source located within an Overburdened Community (OBC) as defined in Section 2-1-243 and for which a HRA is required pursuant to Section 2-5-401, the APCO shall prepare and distribute a public notice. Since this facility is located within an OBC and the project requires health risk assessment, a public notice must be performed.

PERMIT CONDITIONS

Permit Condition #100189

1. The owner/operator shall not exceed 50 hours per year for reliability-related activities. [Basis: Cumulative Increase and 17 CCR §93116.2(a)(15)]
2. The owner/operator shall operate only for the following purposes:
 - a. To mitigate emergency conditions;
 - b. For emission testing to demonstrate compliance with a 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 District, State, or Federal emission limits is not limited. [Basis: Cumulative Increase, 17 CCR §93116.2(a)(15), and Regulation 2-1-320]

3. The owner/operator shall operate 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)]
4. The owner/operator shall maintain the following monthly records in a District-approved log for at least five years from the date of entry. Log entries shall be retained on-site at a central location, and made immediately available to the 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; and,
 - e. Fuel usage[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 is subject to the public notification requirements of Regulation 2-1-412. After the comments are received from the public 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 and/or a Permit to Operate for the following equipment:

S-745 Portable Emergency Standby Diesel Fire Pump

Make: Caterpillar Inc., Model: C-18, Model Year: 2020

Family: LCPXL18.1HXF, Horsepower 800 BHP, Fuel Rate: 41.7 Gal/Hour

Heat Input Rating: 5.71 MMBtu/hour

By: Kevin Creaven

Kevin Creaven
Air Quality Engineer

Date: 11/15/2023