

March 21, 2022

Vimal Vijaykumar
Amazon.com Services LLC - MCE1
PO Box 80842
Seattle, WA 98108

Re: Notice of Preliminary Decision - Authority to Construct
Facility Number: N-10060
Project Number: N-1213253

Dear Mr. Vijaykumar:

Enclosed for your review and comment is the District's analysis of Amazon.com Services LLC - MCE1's application for an Authority to Construct for a Tier 3 engine powering a fire water pump and a Tier 2 engine powering an electrical generator, at 3200 Fulkerth Road, Turlock, CA.

The notice of preliminary decision for this project has been posted on the District's website (www.valleyair.org). After addressing all comments made during the 30-day public notice period, the District intends to issue the Authority to Construct. Please submit your written comments on this project within the 30-day public comment period, as specified in the enclosed public notice.

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact Mr. Shobhit Mehrotra of Permit Services at (209) 557- 6451.

Sincerely,



Brian Clements
Director of Permit Services

BC:SM

Enclosures

cc: Courtney Graham, CARB (w/ enclosure) via email

Samir Sheikh
Executive Director/Air Pollution Control Officer

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San Joaquin Valley Air Pollution Control District

Authority to Construct

Application Review

Diesel-Fired Emergency Standby Internal Combustion Engines

Facility Name: Amazon.com Services LLC-MCE1 Date: March 16, 2021
Mailing Address: PO Box 80842 Engineer: Shobhit Mehrotra
 Seattle, Washington Lead Engineer: James Harader
 98108
Contact Person: Vimal Vijaykumar
 Telephone: (484) 252-1748
 E-mail: vvvijayk@amazon.com
Application #: N-10060-1-0 and '-2-0:
 Project #: N-1213253
Deemed Complete: October 28, 2021

I. Proposal

Amazon.com Services LLC-MCE1 is proposing to install two emergency internal combustion (IC) engines: a 909 bhp Tier 2 (intermittent) diesel-fired emergency standby IC engine powering an electrical generator, and a 630 bhp Tier 3 (intermittent) diesel-fired emergency standby IC engine powering a fire suppression system.

II. Applicable Rules

Rule 2201 New and Modified Stationary Source Review Rule (8/15/19)
Rule 2410 Prevention of Significant Deterioration (6/16/11)
Rule 2520 Federally Mandated Operating Permits (8/15/19)
Rule 4001 New Source Performance Standards (4/14/99)
Rule 4002 National Emission Standards for Hazardous Air Pollutants (5/20/04)
Rule 4101 Visible Emissions (2/17/05)
Rule 4102 Nuisance (12/17/92)
Rule 4201 Particulate Matter Concentration (12/17/92)
Rule 4701 Internal Combustion Engines - Phase 1 (8/21/03)
Rule 4702 Internal Combustion Engines (8/19/21)
Rule 4801 Sulfur Compounds (12/17/92)
CH&SC 41700 Health Risk Assessment
CH&SC 42301.6 School Notice
Title 17 CCR, Section 93115 - Airborne Toxic Control Measure (ATCM) for Stationary Compression-Ignition (CI) Engines
Public Resources Code 21000-21177: California Environmental Quality Act (CEQA)

California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000-15387: CEQA Guidelines

III. Project Location

The equipment will be located at 3200 Fulkerth Road, Turlock, CA.

The District has verified that the equipment is not located within 1,000 feet of the outer boundary of a K-12 school. Therefore, the public notification requirement of California Health and Safety Code 42301.6 is not applicable to this project.

IV. Process Description

The emergency standby engines power an electrical generator and a firewater pump. Other than emergency standby operation, the engine powering an electrical generator may be operated up to 50 hours per year for maintenance and testing purposes. Other than emergency standby operation, the engine powering a firewater pump may be operated up to 100 hours per year for maintenance and testing purposes.

V. Equipment Listing

N-10060-1-0: 909 BHP (INTERMITTENT) PERKINS MODEL 2806C-E18TAG3 TIER 2 CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR

N-10060-2-0: 630 BHP (INTERMITTENT) CATERPILLAR MODEL C18H0-UFAD12-D TIER 3 CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING A FIREWATER PUMP

VI. Emission Control Technology Evaluation

The applicant has proposed to install a Tier 2 and Tier 3 certified diesel-fired IC engines that are fired on very low-sulfur diesel fuel.

The proposed engines meets the latest available Tier Certification requirements for emergency standby engines (generator and fire-pump); therefore, the engines meet the latest ARB/EPA emissions standards for diesel particulate matter, hydrocarbons, nitrogen oxides, and carbon monoxide (see Appendix C for a copy of the emissions data).

The use of CARB certified diesel fuel (0.0015% by weight sulfur maximum) reduces SO_x emissions by over 99% from standard diesel fuel.

VII. General Calculations

A. Assumptions

| | |
|--|-------------------------------|
| Emergency operating schedule: | 24 hours/day |
| Non-emergency operating schedule: | 50 hours/year, 100 hours/year |
| Density of diesel fuel: | 7.1 lb/gal |
| EPA F-factor (adjusted to 60 °F): | 9,051 dscf/MMBtu |
| Fuel heating value: | 137,000 Btu/gal |
| BHP to Btu/hr conversion: | 2,542.5 Btu/bhp-hr |
| Thermal efficiency of engine: | commonly ≈ 35% |
| PM ₁₀ fraction of diesel exhaust: | 0.96 (CARB, 1988) |
| Conversion factor: | 1.34 bhp/kw |

N-10060-1-0

The engine has certified NO_x + VOC emissions of 3.88 g/bhp-hr. It will be assumed the NO_x + VOC emission factor is split 95% NO_x and 5% VOC (per the Carl Moyer program).

B. Emission Factors

| Emission Factors <u>N-10060-1-0</u> | | |
|-------------------------------------|----------------------------|-----------------------------|
| Pollutant | Emission Factor (g/bhp-hr) | Source |
| NO _x | 3.69 | Engine Manufacturer |
| SO _x | 0.0051 | Mass Balance Equation Below |
| PM ₁₀ | 0.05 | Engine Manufacturer |
| CO | 0.60 | Engine Manufacturer |
| VOC | 0.19 | Engine Manufacturer |

| Emission Factors <u>N-10060-2-0</u> | | |
|-------------------------------------|----------------------------|-----------------------------|
| Pollutant | Emission Factor (g/bhp-hr) | Source |
| NO _x | 2.88 | Engine Manufacturer |
| SO _x | 0.0051 | Mass Balance Equation Below |
| PM ₁₀ | 0.07 | Engine Manufacturer |
| CO | 0.45 | Engine Manufacturer |
| VOC | 0.04 | Engine Manufacturer |

$$\frac{0.000015 \text{ lb} - S}{\text{lb} - \text{fuel}} \times \frac{7.1 \text{ lb} - \text{fuel}}{\text{gallon}} \times \frac{2 \text{ lb} - SO_2}{1 \text{ lb} - S} \times \frac{1 \text{ gal}}{137,000 \text{ Btu}} \times \frac{1 \text{ bhp input}}{0.35 \text{ bhp out}} \times \frac{2,542.5 \text{ Btu}}{\text{bhp} - \text{hr}} \times \frac{453.6 \text{ g}}{\text{lb}} = 0.0051 \frac{\text{g} - SO_x}{\text{bhp} - \text{hr}}$$

C. Calculations

1. Pre-Project Potential to Emit (PE1)

Since this is a new emissions unit, PE1 = 0.

2. Post-Project Potential to Emit (PE2)

The daily and annual PE2 are calculated as follows:

$$\text{Daily PE2 (lb-pollutant/day)} = \text{EF (g-pollutant/bhp-hr)} \times \text{rating (bhp)} \times \text{operation (hr/day)} / 453.6 \text{ g/lb}$$

$$\text{Annual PE2 (lb-pollutant/yr)} = \text{EF (g-pollutant/bhp-hr)} \times \text{rating (bhp)} \times \text{operation (hr/yr)} / 453.6 \text{ g/lb}$$

| Post Project Emissions (PE2) – N-10060-1-0 | | | | | | |
|--|-----------------------------|--------------|------------------------------------|--------------------------------------|--------------------|--------------------|
| Pollutant | Emissions Factor (g/bhp-hr) | Rating (bhp) | Daily Hours of Operation (hrs/day) | Annual Hours of Operation (hrs/year) | Daily PE2 (lb/day) | Annual PE2 (lb/yr) |
| NO _x | 3.69 | 909 | 24 | 50 | 177.5 | 370 |
| SO _x | 0.0051 | 909 | 24 | 50 | 0.2 | 1 |
| PM ₁₀ | 0.05 | 909 | 24 | 50 | 2.4 | 5 |
| CO | 0.60 | 909 | 24 | 50 | 28.9 | 60 |
| VOC | 0.19 | 909 | 24 | 50 | 9.1 | 19 |

| Post Project Emissions (PE2) – N-10060-2-0 | | | | | | |
|--|-----------------------------|--------------|------------------------------------|--------------------------------------|--------------------|--------------------|
| Pollutant | Emissions Factor (g/bhp-hr) | Rating (bhp) | Daily Hours of Operation (hrs/day) | Annual Hours of Operation (hrs/year) | Daily PE2 (lb/day) | Annual PE2 (lb/yr) |
| NO _x | 2.88 | 630 | 24 | 100 | 96.0 | 400 |
| SO _x | 0.0051 | 630 | 24 | 100 | 0.2 | 1 |
| PM ₁₀ | 0.07 | 630 | 24 | 100 | 2.3 | 10 |
| CO | 0.45 | 630 | 24 | 100 | 15.0 | 63 |
| VOC | 0.04 | 630 | 24 | 100 | 1.3 | 6 |

3. Pre-Project Stationary Source Potential to Emit (SSPE1)

Pursuant to District Rule 2201, the SSPE1 is the Potential to Emit (PE) from all units with valid Authorities to Construct (ATCs) or Permits to Operate (PTOs) at the Stationary Source and the quantity of Emission Reduction Credits (ERCs) which have been banked since September 19, 1991 for Actual Emissions

Reductions (AER) that have occurred at the source, and which have not been used on-site.

Since this is a new facility, there are no valid ATCs, PTOs, or ERCs at the Stationary Source. Therefore, the SSPE1 is equal to zero.

4. Post-Project Stationary Source Potential to Emit (SSPE2)

Pursuant to District Rule 2201, the Post-Project Stationary Source Potential to Emit (SSPE2) is the PE from all units with valid ATCs or PTOs, except for emissions units proposed to be shut down as part of the Stationary Project, at the Stationary Source and the quantity of ERCs which have been banked since September 19, 1991 for AER that have occurred at the source, and which have not been used on-site.

For this project the change in emissions for the facility is due to the installation of the new emergency standby IC engines. Thus:

| SSPE2 (lb/year) | | | | | |
|-----------------|-----------------|-----------------|------------------|------------|-----------|
| Permit Unit | NO _x | SO _x | PM ₁₀ | CO | VOC |
| SSPE1 | 0 | 0 | 0 | 0 | 0 |
| N-10060-1-0 | 370 | 1 | 5 | 60 | 19 |
| N-10060-2-0 | 400 | 1 | 10 | 63 | 6 |
| SSPE2 | 770 | 2 | 15 | 123 | 25 |

5. Major Source Determination

Rule 2201 Major Source Determination:

Pursuant to District Rule 2201, a Major Source is a stationary source with a SSPE2 equal to or exceeding one or more of the following threshold values. For the purposes of determining major source status the following shall not be included:

- any ERCs associated with the stationary source
- Emissions from non-road IC engines (i.e. IC engines at a particular site at the facility for less than 12 months)
- Fugitive emissions, except for the specific source categories specified in 40 CFR 51.165

| Rule 2201 Major Source Determination (lb/year) | | | | | |
|---|-----------------------|-----------------------|------------------------|-----------|------------|
| | NO_x | SO_x | PM₁₀ | CO | VOC |
| SSPE1 | 0 | 0 | 0 | 0 | 0 |
| SSPE2 | 770 | 2 | 15 | 123 | 25 |
| Major Source Threshold | 20,000 | 140,000 | 140,000 | 200,000 | 20,000 |
| Major Source? | No | No | No | No | No |

As seen in the table above, the facility is not an existing Major Source and is not becoming a Major Source as a result of this project.

Rule 2410 Major Source Determination:

The facility is not an existing Major Source for PSD for at least one pollutant. Therefore the facility is not an existing Major Source for PSD.

6. Baseline Emissions (BE)

BE = Pre Project Potential to Emit for:

- Any unit located at a non-Major Source,
- Any Highly-Utilized Emissions Unit, located at a Major Source,
- Any Fully-Offset Emissions Unit, located at a Major Source, or
- Any Clean Emissions Unit, located at a Major Source.

otherwise,

BE = Historic Actual Emissions (HAE), calculated pursuant to District Rule 2201

Since the emission units under this project are new emissions units, BE = PE1 = 0 for all pollutants.

7. SB 288 Major Modification

SB 288 Major Modification is defined in 40 CFR Part 51.165 as "any physical change in or change in the method of operation of a major stationary source that would result in a significant net emissions increase of any pollutant subject to regulation under the Act."

Per section VII.C.5 above, this facility is not a major source for any pollutant addressed in this project. Thus, this project does not constitute an SB 288 major modification.

8. Federal Major Modification

District Rule 2201 states that a Federal Major Modification is the same as a “Major Modification” as defined in 40 CFR 51.165 and part D of Title I of the CAA.

Per section VII.C.5 above, this facility is not a Major Source for any pollutant. Thus, this project does not constitute a Federal Major Modification.

9. Rule 2410 - Prevention of Significant Deterioration (PSD) Applicability Determination

The project potential to emit, by itself, will not exceed any PSD major source thresholds. Therefore Rule 2410 is not applicable and no further discussion is required.

10. Quarterly Net Emissions Change (QNEC)

The QNEC is calculated solely to establish emissions that are used to complete the District’s PAS emissions profile screen. Detailed QNEC calculations are included in Appendix E.

VIII. Compliance

Rule 2201 New and Modified Stationary Source Review Rule

A. Best Available Control Technology (BACT)

1. BACT Applicability

BACT requirements are triggered on a pollutant-by-pollutant basis and on an emissions unit-by-emissions unit basis for the following¹:

- a. Any new emissions unit with a potential to emit exceeding two pounds per day,
- b. The relocation from one Stationary Source to another of an existing emissions unit with a potential to emit exceeding two pounds per day,
- c. Modifications to an existing emissions unit with a valid Permit to Operate resulting in an AIPE exceeding two pounds per day, and/or
- d. Any new or modified emissions unit, in a stationary source project, which results in an SB288 Major Modification or a Federal Major Modification, as defined by the rule.

¹ Except for CO emissions from a new or modified emissions unit at a Stationary Source with an SSPE2 of less than 200,000 pounds per year of CO.

As discussed in Section I, the facility is proposing to install a new emergency standby IC engines. Additionally, as determined in Sections VII.C.7 and VII.C.8, this project does not result in an SB288 Major Modification or a Federal Major Modification, respectively. Therefore, BACT can only be triggered if the daily emissions exceed 2.0 lb/day for any pollutant.

The daily emissions from the new engines are compared to the BACT threshold levels in the following table:

| N-10060-1-0 (generator) BACT Applicability | | | |
|---|--|---------------------------------------|----------------------------|
| Pollutant | Daily Emissions N-10060-1-0 | BACT Threshold (lb/day) | BACT Triggered? |
| NO _x | 177.5 | > 2.0 | Yes |
| SO _x | 0.2 | > 2.0 | No |
| PM ₁₀ | 2.4 | > 2.0 | Yes |
| CO | 28.9 (SSPE2 = 123 lb/yr) | > 2.0 and SSPE2 ≥ 200,000 lb/yr | No |
| VOC | 9.1 | > 2.0 | Yes |

| N-10060-2-0 (fire pump) Unit BACT Applicability | | | |
|--|--|---------------------------------------|----------------------------|
| Pollutant | Daily Emissions N-10060-2-0 | BACT Threshold (lb/day) | BACT Triggered? |
| NO _x | 96.0 | > 2.0 | Yes |
| SO _x | 0.2 | > 2.0 | No |
| PM ₁₀ | 2.3 | > 2.0 | Yes |
| CO | 15.0 (SSPE2 = 123 lb/yr) | > 2.0 and SSPE2 ≥ 200,000 lb/yr | No |
| VOC | 1.3 | > 2.0 | No |

As shown above, BACT will be triggered for NO_x, PM₁₀ and VOC emissions from the engine for permit unit N-10060-1-0 and BACT will be triggered for NO_x and PM₁₀ emissions from the engine for permit unit N-10060-2-0.

2. BACT Guideline

BACT Guideline 3.1.1, which appears in Appendix B of this report, covers diesel-fired emergency IC engines powering a generator.

BACT Guideline 3.1.4, which appears in Appendix B of this report, covers diesel-fired emergency IC engines powering a fire pump.

3. Top Down BACT Analysis

Per District Policy APR 1305, Section IX, “A top down BACT analysis shall be performed as a part of the Application Review for each application subject to the BACT requirements pursuant to the District’s NSR Rule for source categories or classes covered in the BACT Clearinghouse, relevant information under each of the following steps may be simply cited from the Clearinghouse without further analysis.”

Pursuant to the attached top down BACT Analysis, which appears in Appendix B of this report, BACT is satisfied with:

N-10060-1-0

NO_x: Latest Available Tier Certification level for applicable horsepower
PM₁₀: 0.15 g/bhp-hr
VOC: Latest Available Tier Certification level for applicable horsepower

N-10060-2-0

NO_x: Latest Available Tier Certification level for applicable horsepower
PM₁₀: 0.15 g/bhp-hr

The facility has proposed to install a 909 bhp Tier 2 and a 630 bhp Tier 3 certified IC engines (with a PM₁₀ emissions rate of 0.05 g/bhp-hr and of 0.07 g/bhp-hr respectively), and using very low sulfur diesel fuel. Therefore, BACT is satisfied for NO_x, PM₁₀ and VOC for N-10060-1-0 and NO_x and PM₁₀ for N-10060-2-0.

B. Offsets

1. Offset Applicability

Pursuant to Section 4.6.2 of this rule, offsets are not required for emergency IC engines. The engines in this project are emergency IC engines; therefore, this exemption is applicable to this project.

However, even when there is an applicable exemption, the SSPE2 values are compared to the offset threshold to determine if offsets are triggered. In its PAS database, the District keeps track of facilities where offsets are triggered but an exemption applies. The SSPE2 values are compared to the offset trigger thresholds in the following table:

| Offset Determination (lb/year) | | | | | |
|--------------------------------|-----------------|-----------------|------------------|---------|--------|
| | NO _x | SO _x | PM ₁₀ | CO | VOC |
| SSPE2 | 770 | 2 | 15 | 123 | 25 |
| Offset Thresholds | 20,000 | 54,750 | 29,200 | 200,000 | 20,000 |
| Offsets Triggered? | No | No | No | No | No |

2. Quantity of Offsets Required

As shown in the table above, no offset thresholds are exceeded with this project. Further, as previously stated, the offset exemption from Section 4.6.2 of District Rule 2201 is applicable to this project; therefore, offset calculations are not necessary and offsets are not required.

C. Public Notification

1. Applicability

Public noticing is required for:

a. New Major Sources, SB288 Major Modifications, and Federal Major Modifications

As shown in Sections VII.C.5, VII.C.7, and VII.C.8, this facility is not a new Major Source, not an SB 288 Major Modification, and not a Federal Major Modification, respectively. Thus, public notice is not required under this section.

b. Any new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any pollutant

As calculated in Section VII.C.2, daily emissions for NO_x are greater than 100 lb/day for N-10060-1-0. Thus, public notice is required for this project.

c. Any project which results in the offset thresholds being surpassed

The SSPE1 and SSPE2 are compared to the offset thresholds in the following table.

| Offset Thresholds | | | | |
|-------------------|--------------------|--------------------|---------------------|----------------------------|
| Pollutant | SSPE1 (lb/year) | SSPE2 (lb/year) | Offset Threshold | Public Notice Required? |
| NO _x | 0 | 770 | 20,000 lb/year | No |
| SO _x | 0 | 2 | 54,750 lb/year | No |
| PM ₁₀ | 0 | 15 | 29,200 lb/year | No |
| CO | 0 | 123 | 200,000 lb/year | No |
| VOC | 0 | 25 | 20,000 lb/year | No |

As detailed above, there were no thresholds surpassed with this project; therefore public noticing is not required for offset purposes.

d. Any project with a Stationary Source Project Increase in Permitted Emissions (SSIPE) greater than 20,000 lb/year for any pollutant

For this project, the proposed engines are the only emissions units that will generate an increase in Potential to Emit. Since the proposed engines emissions are well below 20,000 lb/year for all pollutants (See Section VII.C.2), the SSIPE for this project will be below the public notice threshold.

e. Any project which results in a Title V significant permit modification

Since this facility does not have a Title V operating permit, this change is not a Title V significant Modification, and therefore public noticing is not required.

2. Public Notice Action

As demonstrated above, this project will require public noticing. Therefore, public notice documents will be submitted to the California Air Resources Board (CARB) and a public notice will be electronically published on the District's website prior to the issuance of the ATC for this equipment.

D. Daily Emissions Limits

Daily Emissions Limitations (DELs) and other enforceable conditions are required by Rule 2201 to restrict a unit's maximum daily emissions, to a level at or below the emissions associated with the maximum design capacity. The DEL must be contained in the latest ATC and contained in or enforced by the latest PTO and enforceable, in a practicable manner, on a daily basis. Therefore, the following conditions will be listed on the ATC as a mechanism to ensure compliance:

N-10060-1-0

- {4771} Emissions from this IC engine shall not exceed any of the following limits: 3.69 g-NOx/bhp-hr, 0.60 g-CO/bhp-hr, or 0.19 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]
- {4772} Emissions from this IC engine shall not exceed 0.05 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]
- {4258} Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [District Rules 2201 and 4801, and 17 CCR 93115]

N-10060-2-0

- {4771} Emissions from this IC engine shall not exceed any of the following limits: 2.88 g-NOx/bhp-hr, 0.45 g-CO/bhp-hr, or 0.04 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]
- {4772} Emissions from this IC engine shall not exceed 0.07 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]
- {4258} Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [District Rules 2201 and 4801, and 17 CCR 93115]

E. Compliance Assurance

1. Source Testing

Pursuant to District Policy APR 1705, source testing is not required for emergency standby IC engines to demonstrate compliance with District Rule 2201.

2. Monitoring

No monitoring is required to demonstrate compliance with District Rule 2201.

3. Recordkeeping

Recordkeeping requirements, in accordance with District Rule 4702, will be discussed in Section VIII, District Rule 4702, of this evaluation.

4. Reporting

No reporting is required to ensure compliance with District Rule 2201.

F. Ambient Air Quality Analysis (AAQA)

An AAQA shall be conducted for the purpose of determining whether a new or modified Stationary Source will cause or make worse a violation of an air quality standard. The District's Technical Services Division conducted the required analysis. Refer to Appendix D of this document for the AAQA summary sheet.

The proposed location is in an attainment area for NO_x, CO, and SO_x. As shown by the AAQA summary sheet the proposed equipment will not cause a violation of an air quality standard for NO_x, CO, or SO_x.

The proposed location is in a non-attainment area for the state's PM₁₀ as well as federal and state PM_{2.5} thresholds. As shown by the AAQA summary sheet the proposed equipment will not cause a violation of an air quality standard for PM₁₀ and PM_{2.5}.

Rule 2410 Prevention of Significant Deterioration

As shown in Section VII.C.9 above, this project does not result in a new PSD major source or PSD major modification. No further discussion is required.

Rule 2520 Federally Mandated Operating Permits

Since this facility's potential to emit does not exceed any Major Source thresholds of Rule 2201, this facility is not a Major Source, and Rule 2520 does not apply.

Rule 4001 New Source Performance Standards (NSPS)

40 CFR 60 Subpart IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

The District has not been delegated the authority to implement Subpart IIII requirements for non-Major Sources; therefore, no requirements shall be included on the permit.

Rule 4002 National Emission Standards for Hazardous Air Pollutants

40 CFR 63 Subpart ZZZZ - National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Emissions (RICE)

The District has not been delegated the authority to implement NESHAP regulations for Area Source requirements for non-Major Sources; therefore, no requirements shall be included on the permit.

Rule 4101 Visible Emissions

Rule 4101 states that no air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. Therefore, the following condition will be listed on ATCs N-10060-1-0 and '-2-0 as a mechanism to ensure compliance:

- {15} No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]

Rule 4102 Nuisance

Rule 4102 states that no air contaminant shall be released into the atmosphere which causes a public nuisance. Public nuisance conditions are not expected as a result of these operations, provided the equipment is well maintained. Therefore, the following condition will be listed on ATCs N-10060-1-0 and '-2-0 as a mechanism to ensure compliance:

- {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

California Health & Safety Code 41700 (Health Risk Assessment)

District Policy APR 1905 – *Risk Management Policy for Permitting New and Modified Sources* specifies that for an increase in emissions associated with a proposed new source or modification, the District perform an analysis to determine the possible impact to the nearest resident or worksite.

An HRA is not required for a project with a total facility prioritization score of less than one. According to the Technical Services Memo for this project (Appendix D), the total facility prioritization score including this project was greater than one. Therefore, an HRA was required to determine the short-term acute and long-term chronic exposure from this project.

| Units | Prioritization Score | Acute Hazard Index | Chronic Hazard Index | Maximum Individual Cancer Risk | T-BACT Required | Special Permit Requirements |
|------------------------|----------------------|--------------------|----------------------|--------------------------------|-----------------|-----------------------------|
| 1-0 | 2.89 | NA ¹ | 0.00 | 1.52E-07 | No | Yes |
| 2-0 | 5.77 | NA ¹ | 0.00 | 4.81E-07 | No | Yes |
| Project Totals | 8.66 | 0.00 | 0.00 | 6.33E-07 | | |
| Facility Totals | >1 | 0.00 | 0.00 | 6.33E-07 | | |

Notes:

1. Acute Hazard Index was not calculated for Units 1 & 2 since there is no risk factor or the risk factor is so low that it has been determined to be insignificant for this type of unit.

Discussion of T-BACT

BACT for toxic emission control (T-BACT) is required if the cancer risk exceeds one in one million. As demonstrated above, T-BACT is not required for this project because the HRA indicates that the risk is not above the District's thresholds for triggering T-BACT requirements; therefore, compliance with the District's Risk Management Policy is expected.

District policy APR 1905 also specifies that the increase in emissions associated with a proposed new source or modification not have acute or chronic indices, or a cancer risk greater than the District's significance levels (i.e. acute and/or chronic indices greater than 1 and a cancer risk greater than 20 in a million). As outlined by the Technical Services Memo in Appendix D of this report, the emissions increases for this project were determined to be less than significant.

The following conditions will be listed on the ATC as a mechanism to ensure compliance with the RMR:

N-10060-1-0

- {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
- {4772} Emissions from this IC engine shall not exceed 0.05 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]
- {4920} This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 50 hours per calendar year. [District Rules 2201, 4102, and 4702, and 17 CCR 93115]

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- {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
- {4772} Emissions from this IC engine shall not exceed 0.07 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]
- {4920} This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 100 hours per calendar year. [District Rules 2201, 4102, and 4702, and 17 CCR 93115]

Rule 4201 Particulate Matter Concentration

Rule 4201 limits particulate matter emissions from any single source operation to 0.1 g/dscf, which, as calculated below, is equivalent to a PM₁₀ emission factor of 0.4 g-PM₁₀/bhp-hr.

$$0.1 \frac{\text{grain} - PM}{\text{dscf}} \times \frac{g}{15.43 \text{ grain}} \times \frac{1 \text{ Btu}_{in}}{0.35 \text{ Btu}_{out}} \times \frac{9,051 \text{ dscf}}{10^6 \text{ Btu}} \times \frac{2,542.5 \text{ Btu}}{1 \text{ bhp} - \text{hr}} \times \frac{0.96 \text{ g} - PM_{10}}{1 \text{ g} - PM} = 0.4 \frac{\text{g} - PM_{10}}{\text{bhp} - \text{hr}}$$

The new engines have a PM₁₀ emission factor less than 0.4 g/bhp-hr. Therefore, compliance is expected and the following condition will be listed on ATCs N-10060-1-0 and '-2-0 as a mechanism to ensure compliance:

- {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]

Rule 4701 Internal Combustion Engines - Phase 1

The purpose of this rule is to limit the emissions of nitrogen oxides (NO_x), carbon monoxide (CO), and volatile organic compounds (VOC) from internal combustion engines. Except as provided in Section 4.0, the provisions of this rule apply to any internal combustion engine, rated greater than 50 bhp, that requires a PTO.

The proposed engines are also subject to District Rule 4702, Internal Combustion Engines. Since emissions limits of District Rule 4702 and all other requirements are equivalent or more stringent than District Rule 4701 requirements for emergency engines,

compliance with District Rule 4702 requirements will satisfy requirements of District Rule 4701.

Rule 4702 Internal Combustion Engines

The purpose of this rule is to limit the emissions of nitrogen oxides (NO_x), carbon monoxide (CO), and volatile organic compounds (VOC) from internal combustion engines.

This rule applies to any internal combustion engine with a rated brake horsepower greater than 50 horsepower.

Each engine under this project is rated over 50 bhp; therefore, these engines are subject to the requirements of this rule.

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Emergency standby engines are subject to District Rule 4702 requirements. Emergency standby engines are defined in Section 3.0 of District Rule 4702 as follows:

3.15 Emergency Standby Engine: an internal combustion engine which operates as a temporary replacement for primary mechanical or electrical power during an unscheduled outage caused by sudden and reasonably unforeseen natural disasters or sudden and reasonably unforeseen events beyond the control of the operator. An engine shall be considered to be an emergency standby engine if it is used only for the following purposes: (1) periodic maintenance, periodic readiness testing, or readiness testing during and after repair work; (2) unscheduled outages, or to supply power while maintenance is performed or repairs are made to the primary power supply; and (3) if it is limited to operate 100 hours or less per calendar year for non-emergency purposes. An engine shall not be considered to be an emergency standby engine if it is used: (1) to reduce the demand for electrical power when normal electrical power line service has not failed, or (2) to produce power for the utility electrical distribution system, or (3) in conjunction with a voluntary utility demand reduction program or interruptible power contract.

Emergency standby engines cannot be used to reduce the demand for electrical power when normal electrical power line service has not failed, or to produce power for the electrical distribution system, or in conjunction with a voluntary utility demand reduction program or interruptible power contract. The following conditions will be included on the ATC:

- {3807} An emergency situation is an unscheduled electrical power outage caused by sudden and reasonably unforeseen natural disasters or sudden and reasonably unforeseen events beyond the control of the permittee. [District Rule 4702 and 17 CCR 93115]

- {3808} This engine shall not be used to produce power for the electrical distribution system, as part of a voluntary utility demand reduction program, or for an interruptible power contract. [District Rule 4702 and 17 CCR 93115]

The 100 hour requirement is less stringent than the Air Toxic Control Measure operating limitations for emergency standby engines. Therefore, compliance with the applicable Air Toxic Control Measure requirements ensures compliance with the 100 hour requirement.

Operation of emergency standby engines are limited to 100 hours or less per calendar year for non-emergency purposes. The Air Toxic Control Measure for Stationary Compression Ignition Engines (Stationary ATCM) limits the engines maintenance and testing to 50 hours/year; therefore, compliance is expected. The following conditions will be included on the ATC:

- {4920} This engine shall be operated only for testing and maintenance of the engines, required regulatory purposes, and during emergency situations. Operation of the engines for maintenance, testing, and required regulatory purposes shall not exceed 50 hours per calendar year. [District Rules 2201, 4102, and 4702, and 17 CCR 93115]

The following exemption in Section 4.2 of District Rule 4702 applies to emergency standby engines:

4.2 Except for the requirements of Section 5.9 and Section 6.2.3, the requirements of this rule shall not apply to:

4.2.1 An emergency standby engine as defined in Section 3.0 of this rule, and provided that it is operated with a nonresettable elapsed operating time meter. In lieu of a nonresettable time meter, the owner of an emergency engine may use an alternative device, method, or technique, in determining operating time provided that the alternative is approved by the APCO. The owner of the engines shall properly maintain and operate the time meter or alternative device in accordance with the manufacturer's instructions.

Pursuant to the exemption in Section 4.2, the following requirements of Section 5.9 are applicable to emergency standby engines

Section 5.9 requires the owner to:

5.9.2 Properly operate and maintain each engine as recommended by the engine manufacturer or emission control system supplier.

5.9.3 Monitor the operational characteristics of each engine as recommended by the engine manufacturer or emission control system supplier.

5.9.4 Install and operate a nonresettable elapsed operating time meter. In lieu of installing a nonresettable time meter, the owner of an engine may use an alternative device, method, or technique, in determining operating time provided that the alternative is approved by the APCO and is allowed by Permit-to-Operate or Permit-Exempt Equipment Registration condition. The owner of the engine shall properly maintain and operate the time meter or alternative device in accordance with the manufacturer's instructions.

Properly operate and maintain each engine as recommended by the engine manufacturer or emission control system supplier. The following condition will be included on the ATC:

- {4261} These engines shall be operated and maintained in proper operating condition as recommended by the engine manufacturer or emissions control system supplier. [District Rule 4702]

Monitor the operational characteristics of each engine as recommended by the engine manufacturer or emission control system supplier. The following condition will be included on the ATC:

- {3478} During periods of operation for maintenance, testing, and required regulatory purposes, the permittee shall monitor the operational characteristics of the engines as recommended by the manufacturer or emission control system supplier (for example: check the engine fluid levels, battery, cables and connections; change engine oil and filters; replace engine coolant; and/or other operational characteristics as recommended by the manufacturer or supplier). [District Rule 4702]

Install and operate a nonresettable elapsed time meter. In lieu of installing a nonresettable elapsed time meter, the operator may use an alternative device, method, or technique, in determining operating time provided that the alternative is approved by the APCO and EPA and is allowed by Permit-to-Operate condition. The operator shall properly maintain and operate the nonresettable elapsed time meter or alternative device in accordance with the manufacturer's instructions. The following condition will be included on the ATC:

- {4749} This engine shall be equipped with a non-resettable hour meter with a minimum display capability of 9,999 hours, unless the District determines that a non-resettable hour meter with a different minimum display capability is appropriate in consideration of the historical use of the engines and the owner or operator's compliance history. [District Rule 4702 and 17 CCR 93115]

The exemption in Rule 4702 Section 4.2 for emergency standby engines requires the engines to comply with Section 6.2.3, shown below.

6.2.3 An owner claiming an exemption under Section 4.2 or Section 4.3 shall maintain annual operating records. This information shall be retained for at least five years, shall be readily available, and provided to the APCO upon request. The records shall include, but are not limited to, the following:

6.2.3.1 Total hours of operation,

6.2.3.2 The type of fuel used,

6.2.3.3 The purpose for operating the engine,

6.2.3.4 For emergency standby engines, all hours of non-emergency and emergency operation shall be reported, and

6.2.3.5 Other support documentation necessary to demonstrate claim to the exemption.

Records of the total hours of operation, type of fuel used, purpose for operating the engines, all hours of non-emergency and emergency operation, and other support documentation must be maintained. All records shall be retained for a period of at least five years, shall be readily available, and be made available to the APCO upon request. The following conditions will be included on the ATC:

- {3496} The permittee shall maintain monthly records of emergency and non-emergency operation. Records shall include the number of hours of emergency operation, the date and number of hours of all testing and maintenance operations, the purpose of the operation (for example: load testing, weekly testing, rolling blackout, general area power outage, etc.) and records of operational characteristics monitoring. For units with automated testing systems, the operator may, as an alternative to keeping records of actual operation for testing purposes, maintain a readily accessible written record of the automated testing schedule. [District Rule 4702 and 17 CCR 93115]
- {4263} The permittee shall maintain monthly records of the type of fuel purchased. [District Rule 4702 and 17 CCR 93115]
- {3475} All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rule 4702 and 17 CCR 93115]

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Pursuant to Section 4.3, except for the requirements of Section 6.2.3, the requirements of this rule shall not apply to an internal combustion engine that meets the following conditions:

- 1) The engine is operated exclusively to preserve or protect property, human life, or public health during a disaster or state of emergency, such as a fire or flood, and
- 2) Except for operations associated with Section 4.3.1.1, the engine is limited to operate no more than 100 hours per calendar year as determined by an

operational nonresettable elapsed operating time meter, for periodic maintenance, periodic readiness testing, and readiness testing during and after repair work of the engine, and

- 3) The engine is operated with a nonresettable elapsed operating time meter. In lieu of installing a nonresettable time meter, the owner of an engine may use an alternative device, method, or technique, in determining operating time provided that the alternative is approved by the APCO. The owner of the engine shall properly maintain and operate the time meter or alternative device in accordance with the manufacturer's instructions.

The proposed 630 bhp diesel-fueled fire pump will be used to preserve or protect property and human life in case of a fire at the facility. This engine will not be operated more than 100 hours per calendar year for periodic maintenance, periodic readiness testing, and readiness testing during and after repair work of the engine. Furthermore, the engine will have operational non-resettable elapsed time meter. The following conditions in the permit will ensure compliance with this section:

- The engine shall be operated exclusively to preserve or protect property, human life, or public health during a disaster or state of emergency, such as a fire or flood. [District Rule 4702 and 17 CCR 93115]
- {3816} This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. For testing purposes, the engine shall only be operated the number of hours necessary to comply with the testing requirements of the National Fire Protection Association (NFPA) 25 - "Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems", 1998 edition. Total hours of operation for all maintenance, testing, and required regulatory purposes shall not exceed 100 hours per calendar year. [District Rule 4702 and 17 CCR 93115]
- {4749} This engine shall be equipped with a non-resettable hour meter with a minimum display capability of 9,999 hours, unless the District determines that a non-resettable hour meter with a different minimum display capability is appropriate in consideration of the historical use of the engines and the owner or operator's compliance history. [District Rule 4702 and 17 CCR 93115]

Section 6.2.3 requires that an owner claiming an exemption under Section 4.2 or Section 4.3 shall maintain annual operating records. This information shall be retained for at least five years, shall be readily available, and submitted to the APCO upon request and at the end of each calendar year in a manner and form approved by the APCO. The records shall include, but are not limited to the following:

- Total hours of operation,
- The type of fuel used,
- The purpose for operating the engine,

- For emergency standby engines, all hours of non-emergency and emergency operation shall be reported, and
- Other support documentation necessary to demonstrate claim to the exemption.

The following conditions will be included in the permit:

- {3489} The permittee shall maintain monthly records of emergency and non-emergency operation. Records shall include the number of hours of emergency operation, the date and number of hours of all testing and maintenance operations, and the purpose of the operation (for example: load testing, weekly testing, rolling blackout, general area power outage, etc.). For units with automated testing systems, the operator may, as an alternative to keeping records of actual operation for testing purposes, maintain a readily accessible written record of the automated testing schedule. [District Rule 4702 and 17 CCR 93115]
- The permittee shall maintain monthly records of the type of fuel purchased. [District Rule 4702 and 17 CCR 93115]
- {3475} All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rule 4702 and 17 CCR 93115]

Rule 4801 Sulfur Compounds

Rule 4801 requires that sulfur compound emissions (as SO₂) shall not exceed 0.2% by volume. Using the ideal gas equation, the sulfur compound emissions are calculated as follows:

$$\text{Volume SO}_2 = (n \times R \times T) \div P$$

n = moles SO₂

T (standard temperature) = 60 °F or 520 °R

$$R (\text{universal gas constant}) = \frac{10.73 \text{ psi} \cdot \text{ft}^3}{\text{lb} \cdot \text{mol} \cdot \text{°R}}$$

$$\frac{0.000015 \text{ lb} - \text{S}}{\text{lb} - \text{fuel}} \times \frac{7.1 \text{ lb}}{\text{gal}} \times \frac{64 \text{ lb} - \text{SO}_2}{32 \text{ lb} - \text{S}} \times \frac{1 \text{ MMBtu}}{9,051 \text{ scf}} \times \frac{1 \text{ gal}}{0.137 \text{ MMBtu}} \times \frac{\text{lb} - \text{mol}}{64 \text{ lb} - \text{SO}_2} \times \frac{10.73 \text{ psi} \cdot \text{ft}^3}{\text{lb} - \text{mol} \cdot \text{°R}} \times \frac{520 \text{°R}}{14.7 \text{ psi}} \times 1,000,000 = 1.0 \text{ ppmv}$$

Since 1.0 ppmv is ≤ 2,000 ppmv, these engines are expected to comply with Rule 4801. Therefore, the following condition will be listed on ATCs N-10060-1-0 and '-2-0 as a mechanism to ensure compliance:

- {4258} Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [District Rules 2201 and 4801, and 17 CCR 93115]

California Health & Safety Code 42301.6 (School Notice)

The District has verified that these engines are not located within 1,000 feet of a school. Therefore, pursuant to California Health and Safety Code 42301.6, a school notice is not required.

Title 17 California Code of Regulations (CCR), Section 93115 - Airborne Toxic Control Measure (ATCM) for Stationary Compression-Ignition (CI) Engines

The following requirements apply to new engines (those installed after 1/1/05):

§93115.5 - Fuel and Fuel Additive Requirements for New and In-Use Stationary CI Engines That Have a Rated Brake Horsepower of Greater than 50 (>50 bhp)

This regulation also stipulates that as of January 1, 2006 an owner or operator of a new or in-use stationary diesel-fueled CI emergency standby engine shall fuel the engine with CARB Diesel Fuel.

Since the engines involved in this project is a new stationary diesel-fueled CI emergency standby engines, these fuel requirements are applicable. Therefore, the following condition(s) (previously proposed in this engineering evaluation) will be included in the permits:

- Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [District Rules 2201 and 4801, and 17 CCR 93115]

§93115.6 Emergency Standby Diesel-Fueled CI Engine (>50 bhp) Operating Requirements and Emission Standards

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Section (a)(3)(A), Emissions Standards and Hours of Operating Requirements

1. New Stationary emergency standby diesel-fueled engines ((>50 bhp) shall:
 - a. meet the applicable emissions standards for all pollutants as specified in Table 1 Emissions Standards for New Stationary Emergency Standby Diesel-Fueled CI Engines, in effect on the date of acquisition or submittal, as defined in section 93115.4, and
 - b. after December 31, 2008, be certified to the new nonroad compression-ignition (CI) engine emission standards for all pollutants for 2007 and later model year engines as specified in 40 CFR, Part 60, Subpart IIII-Standards of Performance for Stationary Compression Ignition Internal Combustion Engine; and
 - c. not operate more than 50 hours per year for maintenance and testing purposes, except as provided in 93115.6(a)(3)(A)2. This subsection does not limit engine

operation for emergency use and for emission testing to show compliance with 93115.6(a)(3).

| Table 1: Emission Standards for New Stationary Emergency Standby Diesel-Fueled CI Engines g/bhp-hr (g/kW-hr) | | | | |
|---|----------------------|-------------|------------------------|-----------|
| Maximum Engine Power | Model year(s) | PM | NMHC+NOx | CO |
| 50 ≤ HP < 75 (37 ≤ kW < 56) | 2007 | 0.15 (0.20) | 5.6 (7.5) 3.5 (4.7) | 3.7 (5.0) |
| | 2008+ | | | |
| 75 ≤ HP < 100 (56 ≤ kW < 75) | 2007 | 0.15 (0.20) | 5.6 (7.5) 3.5 (4.7) | 3.7 (5.0) |
| | 2008+ | | | |
| 100 ≤ HP < 175 (75 ≤ kW < 130) | 2007 | 0.15 (0.20) | 3.0 (4.0) | 3.7 (5.0) |
| | 2008+ | | | |
| 175 ≤ HP < 300 (130 ≤ kW < 225) | 2007 | 0.15 (0.20) | 3.0 (4.0) | 2.6 (3.5) |
| | 2008+ | | | |
| 300 ≤ HP < 600 (225 ≤ kW < 450) | 2007 | 0.15 (0.20) | 3.0 (4.0) | 2.6 (3.5) |
| | 2008+ | | | |
| 600 ≤ HP < 750 (450 ≤ kW < 560) | 2007 | 0.15 (0.20) | 3.0 (4.0) | 2.6 (3.5) |
| | 2008+ | | | |
| HP > 750 (kW > 560) | 2007 | 0.15 (0.20) | 4.8 (6.4) | 2.6 (3.5) |
| | 2008+ | | | |

1. May be subject to additional emission limitations as specified in current applicable district rules, regulations or policies.

The proposed 909 bhp diesel-fueled emergency IC engine is 2020 year model Tier 2 certified engine. The certified emission rates are 3.88 g/bhp-hr of NOx + NMHC, 0.05 g/bhp-hr of PM emissions, and 0.60 g/bhp-hr of CO emissions. These emissions rates are below the required emission standards of 4.8 g/bhp-hr of NOx+NMHC, 0.15 g/bhp-hr of PM emissions, and 2.6 g/bhp of CO (stated in the above table). Therefore, compliance is expected with item a of Section (a)(3)(A)(1).

40 CFR Part 60 Subpart IIII-Standards of Performance for Stationary Compression Ignition Internal Combustion Engine, Section 60.4205(b), requires that 2007 model year and later emergency stationary CI ICE with a displacement of less than 30 liters per cylinder that are not fire pump engines must comply with the emission standards for new non-road CI engines in §60.4202, for all pollutants, for the same model year and maximum engine power for their 2007 model year and later emergency stationary CI ICE. Furthermore, section 60.4202(a) states Stationary CI internal combustion engine manufacturers must certify their 2007 model year and later emergency stationary CI ICE with a maximum engine power less than or equal to 2,237 KW (3,000 HP) and a displacement of less than 10 liters per cylinder that are not fire pump engines to the emission standards specified in paragraphs (a)(1) through (2) of this section.

- (1) For engines with a maximum engine power less than 37 KW (50 HP):

- (i) The certification emission standards for new nonroad CI engines for the same model year and maximum engine power in 40 CFR 89.112 and 40 CFR 89.113 for all pollutants for model year 2007 engines, and
 - (ii) The certification emission standards for new nonroad CI engines in 40 CFR 1039.104, 40 CFR 1039.105, 40 CFR 1039.107, 40 CFR 1039.115, and table 2 to this subpart, for 2008 model year and later engines.
- (2) For engines with a rated power greater than or equal to 37 KW (50 HP), the Tier 2 or Tier 3 emission standards for new nonroad CI engines for the same rated power as described in 40 CFR part 1039, appendix I, for all pollutants and the smoke standards as specified in 40 CFR 1039.105 beginning in model year 2007.

40 CFR Part 1039, Appendix I, Table 2, does not list standard for engines with starting model year 2006 rated greater than 560 kW (>750 hp) engines. Furthermore, section 40 CFR 1039.105 (b) lists smoke emission standards including exhaust opacity not to exceed 20% during acceleration mode, 15% during the lugging mode and 50% during the peaks in either the acceleration or lugging modes.

The proposed engine is an EPA certified engine. Therefore, compliance is expected with item b of (a)(3)(A)(1).

The proposed engine will be permitted to operate up to 50 hours per year for non-emergency (i.e., primarily maintenance and testing) operation. Therefore, compliance is expected with item c of (a)(3)(A)(1).

The following condition(s) will be included in the permit N-10060-1-0:

- {4771} Emissions from this IC engine shall not exceed any of the following limits: 3.69 g-NOx/bhp-hr, 0.60 g-CO/bhp-hr, or 0.19 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]
 - {4772} Emissions from this IC engine shall not exceed 0.05 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]
2. The District may allow a new stationary emergency standby diesel-fueled CI engine (>50 bhp) to operate up to 100 hours per year for maintenance and testing purposes on a site-specific basis, provided the diesel PM emission rate is less than or equal to 0.01 g/bhp-hr.

The District practice is to allow up to 50 hours per year for non-emergency operation (i.e., for testing, maintenance, system readiness, or other similar operation) for emergency standby gen-set engines similar to ones proposed in this project.

Section (a)(3) (B), the District:

1. May establish more stringent diesel PM, NMHC+NO_x, HC, NO_x, and CO emission rate standards; and
2. May establish more stringent limits on hours of maintenance and testing on a site-specific basis; and
3. Shall determine an appropriate limit on the number of hours of operation for demonstrating compliance with other District rules and initial start-up testing.

The emission rates for the proposed engine are established based on the information provided in the application package, and are equal to or stringent than the current District requirements. The proposed engine will be permitted to operate up to 50 hours per year for maintenance and testing purposes.

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Section (a)(4)(A), Standards and Hours of Operating Requirements

1. New direct-drive emergency standby diesel-fueled fire pump engines (>50 bhp) shall:
 - a. meet the applicable emissions standards for all pollutants as specified in Table 2 Emissions Standards for New Stationary Emergency Standby Direct-Drive Fire Pump Engines for the model year and NFPA nameplate power rating; and
 - b. meet the new fire pump engine certification requirements and emission standards required by 40 CFR 60.4202(d) Standards of Performance for Stationary Compression Ignition Internal Combustion Engines (2006); and
 - c. not operate more than the number of hours necessary to comply with the testing requirements of the National Fire Protection Association (NFPA) 25 – “Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems” 2002 edition, which is incorporated herein by reference. This subsection does not limit engine operation for emergency use and for emission testing to show compliance with 93115.6(a)(4).

| Maximum Engine Power | Model year(s) | PM | NMHC+NOx | CO |
|------------------------------------|--|----------------------------|-------------------------|-----------|
| 50 ≤ HP < 75 (37 ≤ kW < 56) | 2010 and earlier 2011+ ¹ | 0.60 (0.80) 0.30 (0.40) | 7.8 (10.5) 3.5 (4.7) | 3.7 (5.0) |
| 75 ≤ HP < 100 (56 ≤ kW < 75) | 2010 and earlier 2011+ ¹ | 0.60 (0.80) 0.30 (0.40) | 7.8 (10.5) 3.5 (4.7) | 3.7 (5.0) |
| 100 ≤ HP < 175 (75 ≤ kW < 130) | 2009 and earlier 2010+ ² | 0.60 (0.80) 0.22 (0.30) | 7.8 (10.5) 3.0 (4.0) | 3.7 (5.0) |
| 175 ≤ HP < 300 (130 ≤ kW < 225) | 2008 and earlier 2009+ ³ | 0.40 (0.54) 0.15 (0.20) | 7.8 (10.5) 3.0 (4.0) | 2.6 (3.5) |
| 300 ≤ HP < 600 (225 ≤ kW < 450) | 2008 and earlier 2009+ ³ | 0.40 (0.54) 0.15 (0.20) | 7.8 (10.5) 3.0 (4.0) | 2.6 (3.5) |
| 600 ≤ HP < 750 (450 ≤ kW < 560) | 2008 and earlier 2009+ | 0.40 (0.54) 0.15 (0.20) | 7.8 (10.5) 3.0 (4.0) | 2.6 (3.5) |
| HP > 750 (kW > 560) | 2007 and earlier 2008+ | 0.40 (0.54) 0.15 (0.20) | 7.8 (10.5) 4.8 (6.4) | 2.6 (3.5) |

1. For model years 2011–2013, manufacturers, owners and operators of fire pump stationary CI ICE in this engine power category with a rated speed of greater than 2,650 revolutions per minute (rpm) may comply with the emission limitations for 2010 model year engines.
2. For model years 2010–2012, manufacturers, owners and operators of fire pump stationary CI ICE in this engine power category with a rated speed of greater than 2,650 rpm may comply with the emission limitations for 2009 model year engines.
3. In model years 2009–2011, manufacturers of fire pump stationary CI ICE in this engine power category with a rated speed of greater than 2,650 rpm may comply with the emission limitations for 2008 model year engines.

The proposed 630 bhp engine is a 2020 year model Tier 3 certified engine. The emission rates from this engine are 2.88 g/bhp-hr of NOx and NMHC, 0.07 g/bhp-hr of PM emissions, and 0.45 g/bhp-hr of CO emissions. These emissions rates are less than the required emission standards of 3.0 g/bhp-hr of NOx+NMHC, 0.15 g/bhp-hr of PM emissions and 2.6 g/bhp-hr of CO emissions listed in the above table for the proposed engine rating. Therefore, compliance is expected with item a of Section (a)(4)(A)(1).

40 CFR Part 60 Subpart IIII-Standards of Performance for Stationary Compression Ignition Internal Combustion Engine, Section 60.4202(d), requires that beginning with the model years in Table 3 to this subpart, stationary CI internal combustion engine manufacturers must certify their fire pump stationary CI ICE to the emission standards in Table 4 to this subpart, for all pollutants, for the same model year and NFPA nameplate power.

Per Table 3, starting model year for engines between 175≤bhp≤750 is 2009; and per Table 4, the standards for the engines in range 600≤bhp≤750 for 2009+ model

years are 4.0 g/kW-hr (3.0 g/bhp-hr) for NMHC + NO_x and 0.20 g/kW-hr (0.15 g/bhp-hr) for PM.

The emission rates from the proposed engine are less than the standards stated in the above paragraph. Therefore, compliance is expected with item b of (a)(4)(A)(1).

The proposed engine will not be permitted to operate more than 100 hours per year for maintenance and testing purposes. Therefore, compliance is expected with item c of (a)(4)(A)(1).

The following condition(s) will be included in the permit:

- {4771} Emissions from this IC engine shall not exceed any of the following limits: 2.88 g-NO_x/bhp-hr, 0.45 g-CO/bhp-hr, or 0.04 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]
- {4772} Emissions from this IC engine shall not exceed 0.07 g-PM₁₀/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]

Section (a)(4)(B), the District:

1. May establish more stringent diesel PM, NMHC+NO_x, HC, NO_x, and CO emission rate standards; and
2. May establish more stringent limits on hours of maintenance and testing on a site-specific basis; and
3. Shall determine an appropriate limit on the number of hours of operation for demonstrating compliance with other District rules and initial start-up testing.

The emission rates for the proposed engine are established based on the engine's certified emissions level, and are equal to or stringent than the current District requirements.

§93115.10 – Recordkeeping, Reporting, and Monitoring Requirements

Pursuant to section (f), starting January 1, 2005, each owner or operator of an emergency standby diesel-fueled CI engine shall keep records and prepare a monthly summary that shall list and document the nature of use for each of the following:

- a. Emergency use hours of operation;
- b. Maintenance and testing hours of operation;
- c. Hours of operation for emission testing;
- d. Initial start-up hours; and
- e. If applicable, hours of operation to comply with the testing requirements of NFPA 25
- f. Hours of operation for all uses other than those specified in sections 'a' through 'd' above; and
- g. If applicable, DRP (Demand Response Program) engine hours of operation, and
- h. The fuel used.

The following condition(s) will be included in the permit N-10060-1-0:

- The permittee shall maintain monthly records of emergency and non-emergency operation. Records shall include the number of hours of emergency operation, the date and number of hours of all testing and maintenance operations, and the purpose of the operation (for example: load testing, emergency usage, etc.). For units with automated testing systems, the operator may, as an alternative to keeping records of actual operation for testing purposes, maintain a readily accessible written record of the automated testing schedule. [District Rule 4702 and 17 CCR 93115]

The following condition(s) will be included in the permit N-10060-2-0:

- {3816} This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. For testing purposes, the engine shall only be operated the number of hours necessary to comply with the testing requirements of the National Fire Protection Association (NFPA) 25 - "Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems", 1998 edition. Total hours of operation for all maintenance, testing, and required regulatory purposes shall not exceed 100 hours per calendar year. [District Rule 4702 and 17 CCR 93115]

The following condition(s) will be included in the permits N-10060-1-0 and '-2-0:

- All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rules 4702 and 17 CCR 93115]

Compliance is expected with this regulation.

California Environmental Quality Act (CEQA)

The California Environmental Quality Act (CEQA) requires each public agency to adopt objectives, criteria, and specific procedures consistent with CEQA Statutes and the CEQA Guidelines for administering its responsibilities under CEQA, including the orderly evaluation of projects and preparation of environmental documents. The San Joaquin Valley Unified Air Pollution Control District (District) adopted its *Environmental Review Guidelines* (ERG) in 2001. The basic purposes of CEQA are to:

- Inform governmental decision-makers and the public about the potential, significant environmental effects of proposed activities.
- Identify the ways that environmental damage can be avoided or significantly reduced.
- Prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible.
- Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.

District CEQA Findings

The District performed an Engineering Evaluation (this document) for the proposed project and determined that the project qualifies for ministerial approval under the District's Guideline for Expedited Application Review (GEAR). Section 21080 of the Public Resources Code exempts from the application of CEQA those projects over which a public agency exercises only ministerial approval. Therefore, the District finds that this project is exempt from the provisions of CEQA.

Indemnification Agreement/Letter of Credit Determination

According to District Policy APR 2010 (CEQA Implementation Policy), when the District is the Lead or Responsible Agency for CEQA purposes, an indemnification agreement and/or a letter of credit may be required. The decision to require an indemnity agreement and/or a letter of credit is based on a case-by-case analysis of a particular project's potential for litigation risk, which in turn may be based on a project's potential to generate public concern, its potential for significant impacts, and the project proponent's ability to pay for the costs of litigation without a letter of credit, among other factors.

As described above, the project requires only ministerial approval, and is exempt from the provisions of CEQA. As such, an Indemnification Agreement or a Letter of Credit will not be required for this project in the absence of expressed public concern.

IX. Recommendation

Compliance with all applicable rules and regulations is expected. Issue Authority to Construct N-10060-1-0 and N-10060-2-0 subject to the permit conditions on the attached draft ATC in Appendix A.

X. Billing Information

| Billing Schedule | | | |
|-------------------------|---------------------|------------------------|-------------------|
| Permit Number | Fee Schedule | Fee Description | Fee Amount |
| N-10060-1-0 | 3020-10-E | 909 bhp IC engine | \$723 |
| N-10060-2-0 | 3020-10-D | 630 bhp IC engine | \$577 |

Appendixes

- A. Draft ATCs
- B. BACT Guidelines and BACT Analysis
- C. Emissions Data Sheets
- D. RMR and AAQA
- E. QNEC Calculations

Appendix A
Draft ATCs

*San Joaquin Valley
Air Pollution Control District*

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: N-10060-1-0

LEGAL OWNER OR OPERATOR: AMAZON.COM SERVICES LLC - MCE1

MAILING ADDRESS:
3200 FULKERTH ROAD
TURLOCK, CA

LOCATION:
3200 FULKERTH ROAD
TURLOCK, CA

EQUIPMENT DESCRIPTION:

909 BHP (INTERMITTENT) PERKINS MODEL 2806C-E18TAG3 TIER 2 CERTIFIED DIESEL-FIRED EMERGENCY STANDBY INTERNAL COMBUSTION (IC) ENGINE POWERING AN ELECTRICAL GENERATOR

CONDITIONS

1. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. {15} No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]
3. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
4. {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
5. {4749} This engine shall be equipped with a non-resettable hour meter with a minimum display capability of 9,999 hours, unless the District determines that a non-resettable hour meter with a different minimum display capability is appropriate in consideration of the historical use of the engine and the owner or operator's compliance history. [District Rule 4702 and 17 CCR 93115]
6. {4258} Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [District Rules 2201 and 4801, and 17 CCR 93115]
7. Emissions from this IC engine shall not exceed any of the following limits: 3.69 g-NOx/bhp-hr, 0.60 g-CO/bhp-hr, or 0.19 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]
8. Emissions from this IC engine shall not exceed 0.05 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (209) 557-6400 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Samir Sheikh, Executive Director / APCO

Brian Clements, Director of Permit Services

N-10060-1-0 : Mar 8 2022 2:25PM -- MEHROTTS : Joint Inspection NOT Required

9. {4261} This engine shall be operated and maintained in proper operating condition as recommended by the engine manufacturer or emissions control system supplier. [District Rule 4702]
10. {3478} During periods of operation for maintenance, testing, and required regulatory purposes, the permittee shall monitor the operational characteristics of the engine as recommended by the manufacturer or emission control system supplier (for example: check engine fluid levels, battery, cables and connections; change engine oil and filters; replace engine coolant; and/or other operational characteristics as recommended by the manufacturer or supplier). [District Rule 4702]
11. {3807} An emergency situation is an unscheduled electrical power outage caused by sudden and reasonably unforeseen natural disasters or sudden and reasonably unforeseen events beyond the control of the permittee. [District Rule 4702 and 17 CCR 93115]
12. {3808} This engine shall not be used to produce power for the electrical distribution system, as part of a voluntary utility demand reduction program, or for an interruptible power contract. [District Rule 4702 and 17 CCR 93115]
13. {3496} The permittee shall maintain monthly records of emergency and non-emergency operation. Records shall include the number of hours of emergency operation, the date and number of hours of all testing and maintenance operations, the purpose of the operation (for example: load testing, weekly testing, rolling blackout, general area power outage, etc.) and records of operational characteristics monitoring. For units with automated testing systems, the operator may, as an alternative to keeping records of actual operation for testing purposes, maintain a readily accessible written record of the automated testing schedule. [District Rule 4702 and 17 CCR 93115]
14. {4920} This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 50 hours per calendar year. [District Rules 2201, 4102, and 4702, and 17 CCR 93115]
15. {4263} The permittee shall maintain monthly records of the type of fuel purchased. [District Rule 4702 and 17 CCR 93115]
16. {3475} All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rule 4702 and 17 CCR 93115]

DRAFT

*San Joaquin Valley
Air Pollution Control District*

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT

PERMIT NO: N-10060-2-0

LEGAL OWNER OR OPERATOR: AMAZON.COM SERVICES LLC - MCE1

MAILING ADDRESS: 3200 FULKERTH ROAD
TURLOCK, CA

LOCATION: 3200 FULKERTH ROAD
TURLOCK, CA

EQUIPMENT DESCRIPTION:

630 BHP (INTERMITTENT) CATERPILLAR MODEL C18H0-UFAD12-D TIER 3 CERTIFIED DIESEL-FIRED EMERGENCY INTERNAL COMBUSTION (IC) ENGINE POWERING A FIREWATER PUMP

CONDITIONS

1. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. {15} No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]
3. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
4. {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
5. {4749} This engine shall be equipped with a non-resettable hour meter with a minimum display capability of 9,999 hours, unless the District determines that a non-resettable hour meter with a different minimum display capability is appropriate in consideration of the historical use of the engine and the owner or operator's compliance history. [District Rule 4702 and 17 CCR 93115]
6. {4258} Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [District Rules 2201 and 4801, and 17 CCR 93115]
7. Emissions from this IC engine shall not exceed any of the following limits: 2.88 g-NOx/bhp-hr, 0.45 g-CO/bhp-hr, or 0.04 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]
8. Emissions from this IC engine shall not exceed 0.07 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (209) 557-6400 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Samir Sheikh, Executive Director / APCO

Brian Clements, Director of Permit Services

N-10060-2-0 : Mar 8 2022 2:25PM -- MEHROTTS : Joint Inspection NOT Required

9. The engine shall be operated exclusively to preserve or protect property, human life, or public health during a disaster or state of emergency, such as a fire or flood. [District Rule 4702 and 17 CCR 93115]
10. {3478} During periods of operation for maintenance, testing, and required regulatory purposes, the permittee shall monitor the operational characteristics of the engine as recommended by the manufacturer or emission control system supplier (for example: check engine fluid levels, battery, cables and connections; change engine oil and filters; replace engine coolant; and/or other operational characteristics as recommended by the manufacturer or supplier). [District Rule 4702]
11. {3816} This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. For testing purposes, the engine shall only be operated the number of hours necessary to comply with the testing requirements of the National Fire Protection Association (NFPA) 25 - "Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems". Total hours of operation for all maintenance, testing, and required regulatory purposes shall not exceed 100 hours per calendar year. [District Rule 4702 and 17 CCR 93115]
12. {3496} The permittee shall maintain monthly records of emergency and non-emergency operation. Records shall include the number of hours of emergency operation, the date and number of hours of all testing and maintenance operations, the purpose of the operation (for example: load testing, weekly testing, rolling blackout, general area power outage, etc.) and records of operational characteristics monitoring. For units with automated testing systems, the operator may, as an alternative to keeping records of actual operation for testing purposes, maintain a readily accessible written record of the automated testing schedule. [District Rule 4702 and 17 CCR 93115]
13. {4263} The permittee shall maintain monthly records of the type of fuel purchased. [District Rule 4702 and 17 CCR 93115]
14. {3475} All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rule 4702 and 17 CCR 93115]

DRAFT

Appendix B
BACT Guidelines and BACT Analysis

San Joaquin Valley Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline 3.1.1
Last Update: 6/13/2019
Emergency Diesel IC Engine

| Pollutant | Achieved in Practice or in the SIP | Technologically Feasible | Alternate Basic Equipment |
|-----------|---|--------------------------|---------------------------|
| CO | Latest EPA Tier Certification level for applicable horsepower range | | |
| NOX | Latest EPA Tier Certification level for applicable horsepower range | | |
| PM10 | 0.15 g/bhp-hr or the Latest EPA Tier Certification level for applicable horsepower range, whichever is more stringent. (ATCM) | | |
| SOX | Very low sulfur diesel fuel (15 ppmw sulfur or less) | | |
| VOC | Latest EPA Tier Certification level for applicable horsepower range | | |

BACT is the most stringent control technique for the emissions unit and class of source. Control techniques that are not achieved in practice or contained in a state implementation plan must be cost effective as well as feasible. Economic analysis to demonstrate cost effectiveness is required for all determinations that are not achieved in practice or contained in an EPA approved State Implementation Plan.

Top Down BACT Analysis

N-10060-1-0

This application was deemed complete on October 28, 2021. Therefore, BACT Guideline 3.1.1 (June 13, 2019) was in effect at the time the project was deemed complete and will be used for this emergency diesel IC engine. In accordance with the District BACT policy, information from that guideline will be utilized without further analysis.

1. BACT Analysis for NO_x and VOC Emissions:

Step 1 - Identify all control technologies

BACT Guideline 3.1.1 identifies only the following option:

- *Latest EPA Tier Certification level for applicable horsepower range*

To determine the latest applicable Tier level, the following steps were taken:

- Conduct a survey of all the emergency IC engines permitted in the District to determine the latest EPA Tier certification level that has been permitted for the proposed engine size
- Conduct a survey of the major IC engine manufacturers/genset vendors to determine the latest EPA Tier certification level that is readily available for the proposed engine size and use
- Review Title 17 CCR, Section 93115 - Airborne Toxic Control Measure (ATCM) for Stationary Compression-Ignition (CI) Engines to determine the latest Tier certification level required in California for the proposed engine size

Survey of Permitted Units:

The proposed emergency IC engine is rated at 930 bhp. A single manufacturer, Volvo, has supplied 17 such 900-1000 bhp Tier 4 Final standby engines within the SJVAPCD.

Survey of IC Engine Manufacturers/Genset Vendors:

The applicant contacted various engine vendors to conduct a survey to determine the availability of Tier 4F certified units in the size range associated with the proposed project that are suitable for stationary emergency standby applications. Based on the survey, the applicant reported there are no readily available Tier 4 Final engines with the required bhp rating for emergency standby use. Due to COVID pandemic and supply chain constraints no Tier 4F engine could be delivered in a reasonable period of time.

Stationary ATCM:

Table 1 of the CARB Stationary Air Toxic Control Measure (ATCM) for stationary emergency standby diesel-fired IC engines requires a Tier 2 certification level for IC engines rated greater than 750 bhp. The ATCM does not require a Tier certification level higher than Tier 2 for engines rated greater than 750 bhp. As discussed in Section VIII of the Engineering Evaluation for this project, the proposed engine is in compliance with ATCM emission standards.

Summary:

The proposed emergency IC engines is rated at 930 bhp and Tier 2 Certified.

Based on the above analysis, the District finds that a Tier 4F emergency IC engine/generator with a rating of approximately 930 bhp is not readily available due to supply chain constraints.

Consequently, the District considers a Tier 2 certification level to be the latest available Tier certification level for the proposed engine size at this time. Furthermore, a Tier 2 certification level satisfies the stationary ATCM requirement for emergency standby IC engines rated greater than 750 bhp.

Step 2 - Eliminate technologically infeasible options

The control option listed in Step 1 is not technologically infeasible.

Step 3 - Rank remaining options by control effectiveness

No ranking needs to be done because there is only one control option listed in Step 1.

Step 4 - Cost Effectiveness Analysis

The applicant has proposed the only control option remaining under consideration. Therefore, a cost effectiveness analysis is not required.

Step 5 - Select BACT

BACT for NOx and VOC will be the use of an EPA Tier 2 certified engine. The applicant is proposing such a unit. Therefore, BACT will be satisfied.

2. BACT Analysis for PM₁₀ Emissions:

Step 1 - Identify all control technologies

BACT Guideline 3.1.1 identifies only the following option:

- *0.15 g/bhp-hr or the Latest EPA Tier Certification level for applicable horsepower range, whichever is more stringent. (ATCM)*

The latest EPA Tier Certification level for an engine of the proposed model year and horsepower rating is Tier 2. Refer to the Top-Down BACT analysis for NO_x for a discussion regarding the determination of the EPA Tier level to be considered.

Please note the proposed Tier 2 IC engine has a PM emission factor of 0.05 g/hp-hr. Additionally, the ATCM requires a PM emission standard of 0.15 g/hp-hr for all new emergency standby diesel IC engines.

Therefore, the proposed PM/PM₁₀ emission factor of 0.05 g/hp-hr meets BACT requirements, and also satisfies the stationary ATCM requirement for new emergency standby diesel IC engines.

Step 2 - Eliminate technologically infeasible options

The control option listed in Step 1 is not technologically infeasible.

Step 3 - Rank remaining options by control effectiveness

No ranking needs to be done because there is only one control option listed in Step 1.

Step 4 - Cost Effectiveness Analysis

The applicant has proposed the only control option remaining under consideration. Therefore, a cost effectiveness analysis is not required.

Step 5 - Select BACT

BACT for PM₁₀ is emissions of 0.15 g/hp-hr or less. The applicant is proposing an engine certified at 0.05 g/bhp-hr. Therefore, BACT requirements are satisfied.

San Joaquin Valley
Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline 3.1.4*

Last Update: 3/2/2020

Emergency Diesel-Fired IC Engine Powering a Fire Pump

| Pollutant | Achieved in Practice or contained in the SIP | Technologically Feasible | Alternate Basic Equipment |
|-----------|---|--------------------------|---------------------------|
| VOC | Latest EPA Tier Certification level for applicable horsepower range | | |
| SOx | Diesel fuel with sulfur content no greater than 0.0015% by weight | | |
| PM10 | - 0.1 grams/bhp-hr** (if T-BACT*** is triggered) - 0.15 grams/bhp-hr (if T-BACT*** is not triggered) | | |
| NOx | Latest EPA Tier Certification level for applicable horsepower range | | |
| CO | Latest EPA Tier Certification level for applicable horsepower range | | |

**Any engine model included in the ARB or EPA diesel engine certification lists and identified as having a PM10 emission rate of 0.149 g/bhp-hr or less, based on ISO 8178 test procedure, shall be deemed to meet the 0.1 g/bhp-hr requirement.

***A site-specific Health Risk Analysis is used to determine if T-BACT is triggered.

BACT is the most stringent control technique for the emissions unit and class of source. Control techniques that are not achieved in practice or contained in a State Implementation Plan must be cost effective as well as feasible. Economic analysis to demonstrate cost effectiveness is required for all determinations that are not achieved in practice or contained in an EPA approved State Implementation Plan.

***This is a Summary Page for this Class of Source**

Top Down BACT Analysis

N-10060-2-0

This application was deemed complete on October 28, 2021. Therefore, BACT Guideline 3.1.4 (March 2, 2020) was in effect at the time the project was deemed complete and will be used for this emergency diesel IC engine. In accordance with the District BACT policy, information from that guideline will be utilized without further analysis.

1. BACT Analysis for NO_x Emissions:

Step 1 - Identify all control technologies

BACT Guideline 3.1.4 identifies only the following option:

- *Latest EPA Tier Certification level for applicable horsepower range*

To determine the latest applicable Tier level, the following steps were taken:

- Conduct a survey of all the emergency IC engines permitted in the District to determine the latest EPA Tier certification level that has been permitted for the proposed engine size
- Conduct a survey of the major IC engine manufacturers/genset vendors to determine the latest EPA Tier certification level that is readily available for the proposed engine size and use
- Review Title 17 CCR, Section 93115 - Airborne Toxic Control Measure (ATCM) for Stationary Compression-Ignition (CI) Engines to determine the latest Tier certification level required in California for the proposed engine size

Survey of Permitted Units:

A review of the emergency standby fire pump IC engines permitted in the District revealed that the District has permitted 98 Tier 3 certified emergency standby fire pump CI engines, ranging in size from 86 bhp to 575 bhp.

The following permitted units were found which utilize Tier 3 IC engines:

- N-8044-2-1 (305 BHP CUMMINS MODEL CFP9E-F30 TIER 3)
- N-9021-1-0 (575 BHP JOHN DEERE MODEL JX6H-UFADP0 TIER 3)
- N-9220-2-0 (526 BHP JOHN DEERE MODEL JX6H-UFADK0 TIER 3)

No Tier 4F certified units have been permitted.

Survey of IC Engine Manufacturers/Genset Vendors:

An internet search for emergency standby fire pump IC engines revealed only one manufacturer, Clark Fire (<http://www.clarkefire.com/>), which offers Tier 2 and Tier 3 certified units. No Tier 4F certified units could be found in the size range > 500 bhp.

Stationary ATCM:

The requirements set forth in Table 2 of CARB's Stationary Air Toxic Control Measure (ATCM) for stationary emergency standby diesel-fired IC engines are summarized in the table below.

| Maximum Engine Power | NMHC+NOx | CO |
|----------------------|---------------|---------------|
| 50 ≤ bhp < 75 | 3.5 (Tier 4i) | 3.7 (Tier 4i) |
| 75 ≤ bhp < 100 | 3.5 (Tier 3) | 3.7 (Tier 3) |
| 100 ≤ bhp < 175 | 3.0 (Tier 3) | 3.7 (Tier 3) |
| 175 ≤ bhp < 750 | 3.0 (Tier 3) | 2.6 (Tier 3) |
| ≥ 750 bhp | 4.8 (Tier 2) | 2.6 (Tier 2) |

Summary:

Based on a survey of currently permitted units, manufacturer availability, and State ATCM requirements, the District considers the following table to represent the latest available EPA Tier certification levels for this class and category of source at this time:

| Engine Size | NOx | VOC | CO |
|-----------------|---------|---------|---------|
| 50 ≤ bhp < 100 | Tier 4i | Tier 4i | Tier 4i |
| 100 ≤ bhp < 750 | Tier 3 | Tier 3 | Tier 3 |
| ≥ 750 bhp | Tier 2 | Tier 2 | Tier 2 |

Step 2 - Eliminate technologically infeasible options

The control option listed in Step 1 is not technologically infeasible.

Step 3 - Rank remaining options by control effectiveness

No ranking needs to be done because there is only one control option listed in Step 1.

Step 4 - Cost Effectiveness Analysis

The applicant has proposed the only control option remaining under consideration. Therefore, a cost effectiveness analysis is not required.

Step 5 - Select BACT

BACT is to use Tier 3 certified engine for the proposed horsepower engine. The applicant has proposed use such engine. Therefore, BACT requirement for NOx is satisfied.

2. BACT Analysis for PM₁₀ Emissions:

Particulate matter (PM₁₀) emissions occur from the reaction of various elements in the diesel fuel including fuel sulfur.

Step 1 - Identify all control technologies

BACT guideline 3.1.4, identifies the following achieved in practice BACT for PM₁₀ emissions from emergency diesel IC engines powering a firewater pump:

- 0.1 grams/bhp-hr (if TBACT is triggered)
- 0.15 grams/bhp-hr (if TBACT is not triggered)

Step 2 - Eliminate technologically infeasible options

There are no technologically infeasible options to eliminate from step 1.

Step 3 - Rank remaining options by control effectiveness

No ranking needs to be done because the applicant has proposed the achieved in practice option.

Step 4 - Cost Effectiveness Analysis

The applicant has proposed the only control achieved in practice in the ranking list from Step 3. Therefore, per SJVUAPCD BACT policy, the cost effectiveness analysis is not required.

Step 5 - Select BACT

BACT for PM₁₀ emissions is to use an engine with certified emissions of 0.15 g/bhp-hr or less.

The applicant has proposed to install a 630 bhp emergency diesel IC engine powering a firewater pump with certified PM emissions of 0.05 g/bhr-hr; therefore BACT for PM₁₀ emissions is satisfied.

Appendix C
Emissions Data Sheets

STATEMENT OF EXHAUST EMISSIONS

2020 PERKINS DIESEL FUELED GENERATOR

The measured emissions values provided here are proprietary to Generac and its authorized dealers. This information may only be disseminated upon request, to regulatory governmental bodies for emissions permitting purposes or to specifying organizations as submittal data when expressly required by project specifications, and shall remain confidential and not open to public viewing. This information is not intended for compilation or sales purposes and may not be used as such, nor may it be reproduced without the expressed written permission of Generac Power Systems, Inc. The data provided shall not be meant to include information made public by Generac.

| | | | |
|-----------------------------|--------------------------|-----------------------------|--------------------------------------|
| Generator Model: | SD/MD600 | EPA Certificate Number: | LCPXL18.1NYS-019 |
| kW _e Rating: | 600 | CARB Certificate Number: | Not Applicable |
| Engine Family: | LCPXL18.1NYS | SCAQMD CEP Number: | 545379 |
| Engine Model: | 2806C-E18TAG3 | Emission Standard Category: | Tier 2 |
| Rated Engine Power (BHP)*: | 909 | Certification Type: | Stationary Emergency CI |
| Fuel Consumption (gal/hr)*: | 41.4 | | (40 CFR Part 60 Subpart IIII) |
| Aspiration: | Turbo/Aftercooled | | |
| Rated RPM: | 1800 | | |

*Engine Power and Fuel Consumption are declared by the Engine Manufacturer of Record and the U.S. EPA.

**Emissions based on engine power of specific Engine Model.
(These values are actual composite weighted exhaust emissions results over the EPA 5-mode test cycle.)**

| | | | |
|-------------|-------------|-------------|--------------|
| CO | NOx + NMHC | PM | |
| 0.80 | 5.20 | 0.07 | Grams/kW-hr |
| 0.60 | 3.88 | 0.05 | Grams/bhp-hr |

- The stated values are actual exhaust emission test measurements obtained from an engine representative of the type described above.
- Values based on 5mode testing are official data of record as submitted to regulatory agencies for certification purposes. Testing was conducted in accordance with prevailing EPA protocol, which is typically accepted by SCAQMD and other regional authorities.
- No emissions values provided above are to be construed as guarantees of emission levels for any given Generac generator unit.
- Generac Power Systems, Inc. reserves the right to revise this information without prior notice.
- Consult state and local regulatory agencies for specific permitting requirements.
- The emission performance data supplied by the equipment manufacturer is only one element required toward completion of the permitting and installation process. State and local regulations may vary on a case-by-case basis and local agencies must be consulted by the permit application/equipment owner prior to equipment purchase or installation. The data supplied herein by Generac Power Systems cannot be construed as a guarantee of installability of the generating set.

| | | | | |
|------------------|--------------|---------|--------------|---------|
| Clarke Model | C18H0-UFAD12 | | | |
| | | | | |
| Derived Rating | 343 | kW | 460 | hp |
| | | | | |
| Rated Speed | 1760 | rpm | 1760 | rpm |
| NOx | 2.67 | g/kW-hr | 1.99 | g/hp-hr |
| HC | 0.21 | g/kW-hr | 0.16 | g/hp-hr |
| PM | 0.125 | g/kW-hr | 0.093 | g/hp-hr |
| CO | 4.77 | g/kW-hr | 3.56 | g/hp-hr |
| | | | | |
| Certified Rating | 470 kW | | 630 hp | |
| Rated Speed | 2100 rpm | | 2100 rpm | |
| NOx | 3.86 g/kW-hr | | 2.88 g/hp-hr | |
| HC | 0.05 g/kW-hr | | 0.04 g/hp-hr | |
| PM | 0.09 g/kW-hr | | 0.07 g/hp-hr | |
| CO | 0.60 g/kW-hr | | 0.45 g/hp-hr | |

-Applicable to Cat C18 700hp Tier 3, 630hp Tier 3 fire pump driver engines.

-PQ3060, PQ3061 respectively

-700 hp and 630 hp ratings are U.S. EPA certified as variable speed Emergency Stationary engines per 40 CFR Part 60 Subpart IIII.

-Estimated Nominal Emissions data for the fire pump rating cycle emissions are shown above.

-These engines are Certified to the variable speed 8 Mode C1 cycle that can be used in either constant or variable speed applications.

-This information is Caterpillar Confidential. Unauthorized distribution of this information beyond its intended audience is prohibited.

Appendix D
RMR and AAQA

San Joaquin Valley Air Pollution Control District

Risk Management Review and Ambient Air Quality Analysis

To: John Yoshimura – Permit Services
 From: Edgar Jimenez – Technical Services
 Date: January 31, 2022
 Facility Name: AMAZON.COM SERVICES LLC - MCE1
 Location: 3200 FULKERTH ROAD, TURLOCK
 Application #(s): N-10060-1-0, -2-0
 Project #: N-1213253

1. Summary

1.1 RMR

| Units | Prioritization Score | Acute Hazard Index | Chronic Hazard Index | Maximum Individual Cancer Risk | T-BACT Required | Special Permit Requirements |
|------------------------|----------------------|--------------------|----------------------|--------------------------------|-----------------|-----------------------------|
| 1-0 | 2.89 | NA ¹ | 0.00 | 1.52E-07 | No | Yes |
| 2-0 | 3.47 | NA ¹ | 0.00 | 2.88E-07 | No | Yes |
| Project Totals | 6.35 | NA ¹ | 0.00 | 4.41E-07 | | |
| Facility Totals | 6.35 | NA ¹ | 0.00 | 4.41E-07 | | |

Notes:

- Acute Hazard Index was not calculated for Unit 1 & 2 since there is no risk factor or the risk factor is so low that it has been determined to be insignificant for this type of unit.

1.2 AAQA

| Pollutant | Air Quality Standard (State/Federal) | | | | |
|-----------------|--------------------------------------|-----------------|-----------------|-----------------|-------------------|
| | 1 Hour | 3 Hours | 8 Hours | 24 Hours | Annual |
| CO | NA ² | | NA ² | | |
| NO _x | NA ² | | | | Pass |
| SO _x | NA ² | NA ² | | NA ² | Pass |
| PM10 | | | | NA ² | Pass ⁴ |
| PM2.5 | | | | NA ² | Pass ⁵ |
| Ozone | NA ² | | NA ² | | |

Notes:

- Results were taken from the attached AAQA Report.
- The project is an intermittent source as defined in APR-1920. In accordance with APR-1920, compliance with short-term (i.e., 1-hour, 3-hour, 8-hour and 24-hour) standards is not required.
- ²The criteria pollutants are below EPA's level of significance as found in 40 CFR Part 51.165 (b)(2) unless otherwise noted.
- Modeled PM10 concentrations were below the District SIL for non-fugitive sources of 1 µg/m³ for the annual concentration.
- Modeled PM2.5 concentrations were below the District SIL for non-fugitive sources of 0.2 µg/m³ for the annual concentration.

1.3 Proposed Permit Requirements

To ensure that human health risks will not exceed District allowable levels; the following shall be included as requirements for:

Unit # 1-0.

1. The PM₁₀ emissions rate shall not exceed 0.05 g/bhp-hr based on US EPA certification using ISO 8178 test procedure.
2. The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction.
3. This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 50 hours per calendar year.

Unit # 2-0

1. The PM₁₀ emissions rate shall not exceed 0.07 g/bhp-hr based on US EPA certification using ISO 8178 test procedure.
2. This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 50 hours per calendar year.

2. Project Description

Technical Services received a request on November 17, 2021 to perform a Risk Management Review (RMR) and Ambient Air Quality Analysis (AAQA) for the following:

- Unit -1-0: 909 BHP (INTERMITTENT) PERKINS MODEL 2806C-E18TAG3 TIER 2 CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR
- Unit -2-0: 630 BHP (INTERMITTENT) CLARKE MODEL C18H0-UFAD12-D TIER 3 CERTIFIED DIESEL-FIRED EMERGENCY IC ENGINE POWERING A FIREWATER PUMP

3. RMR Report

3.1 Analysis

The District performed an analysis pursuant to the District's Risk Management Policy for Permitting New and Modified Sources (APR 1905, May 28, 2015) to determine the possible cancer and non-cancer health impact to the nearest resident or worksite. This policy requires that an assessment be performed on a unit by unit basis, project basis, and on a facility-wide basis. If a preliminary prioritization analysis demonstrates that:

- A unit's prioritization score is less than the District's significance threshold and;
- The project's prioritization score is less than the District's significance threshold and;
- The facility's total prioritization score is less than the District's significance threshold

Then, generally no further analysis is required.

The District's significant prioritization score threshold is defined as being equal to or greater than 1.0. If a preliminary analysis demonstrates that either the unit's or the project's or the facility's total prioritization score is greater than the District threshold, a screening or a refined assessment is required

If a refined assessment is greater than one in a million but less than 20 in one million for carcinogenic impacts (Cancer Risk) and less than 1.0 for the Acute and Chronic hazard indices(Non-Carcinogenic) on a unit by unit basis, project basis and on a facility-wide basis the proposed application is considered less than significant. For unit's that exceed a cancer risk of 1 in one million, Toxic Best Available Control Technology (TBACT) must be implemented.

Toxic emissions for this project were calculated using the following methods:

- Toxic emissions for the proposed unit were calculated and provided by the processing engineer.

These emissions were input into the San Joaquin Valley APCD's Hazard Assessment and Reporting Program (SHARP). In accordance with the District's Risk Management Policy, risks from the proposed unit's toxic emissions were prioritized using the procedure in the 2016 CAPCOA Facility Prioritization Guidelines. The prioritization score for this proposed facility was greater than 1.0 (see RMR Summary Table). Therefore, a refined health risk assessment was required.

The AERMOD model was used, with the parameters outlined below and meteorological data for 2013-2017 from Modesto (rural dispersion coefficient selected) to determine the dispersion factors (i.e., the predicted concentration or X divided by the normalized source strength or Q) for a receptor grid. These dispersion factors were input into the SHARP Program, which then used the Air Dispersion Modeling and Risk Tool (ADMRT) of the Hot Spots Analysis and Reporting Program Version 2 (HARP 2) to calculate the chronic and acute hazard indices and the carcinogenic risk for the project.

The following parameters were used for the review:

| Source Process Rates | | | | | |
|----------------------|------------|------------------|---------------|---------------------|---------------------|
| Unit ID | Process ID | Process Material | Process Units | Hourly Process Rate | Annual Process Rate |
| 1-0 | 1 | PM10 | LBS | 0.1 | 5.0 |
| 2-0 | 1 | PM10 | LBS | 0.1 | 6.0 |

| Point Source Parameters | | | | | | |
|-------------------------|------------------|--------------------|------------|-----------------------|--------------------|----------------------------|
| Unit ID | Unit Description | Release Height (m) | Temp. (°K) | Exit Velocity (m/sec) | Stack Diameter (m) | Vertical/Horizontal/Capped |
| 1-0 | 909 BHP DICE | 2.67 | 827 | 128.84 | 0.15 | Vertical |
| 2-0 | 630 BHP DICE | 3.05 | 744 | 46.13 | 0.20 | Capped |

4. AAQA Report

The District modeled the impact of the proposed project on the National Ambient Air Quality Standard (NAAQS) and/or California Ambient Air Quality Standard (CAAQS) in accordance with District Policy APR-1925 (Policy for District Rule 2201 AAQA Modeling) and EPA's Guideline for Air Quality Modeling (Appendix W of 40 CFR Part 51). The District uses a progressive three level approach to perform AAQAs. The first level (Level 1) uses a very conservative approach. If this analysis indicates a likely exceedance of an AAQS or Significant Impact Level (SIL), the analysis proceeds to the second level (Level 2) which implements a more refined approach. For the 1-hour NO₂ standard, there is also a third level that can be implemented if the Level 2 analysis indicates a likely exceedance of an AAQS or SIL.

The modeling analyses predicts the maximum air quality impacts using the appropriate emissions for each standard's averaging period. Required model inputs for a refined AAQA include background ambient air quality data, land characteristics, meteorological inputs, a receptor grid, and source parameters including emissions. These inputs are described in the sections that follow.

Ambient air concentrations of criteria pollutants are recorded at monitoring stations throughout the San Joaquin Valley. Monitoring stations may not measure all necessary pollutants, so background data may need to be collected from multiple sources. The following stations were used for this evaluation:

| Monitoring Stations | | | | |
|---------------------|---------------------|------------|---------|------------------|
| Pollutant | Station Name | County | City | Measurement Year |
| CO | Modesto-14th Street | Stanislaus | Modesto | 2018 |
| NOx | Turlock | Stanislaus | Turlock | 2018 |
| PM10 | Turlock | Stanislaus | Turlock | 2018 |
| PM2.5 | Turlock | Stanislaus | Turlock | 2018 |
| SOx | Fresno - Garland | Fresno | Fresno | 2018 |

Technical Services performed modeling for directly emitted criteria pollutants with the emission rates below:

| Emission Rates (lbs/year) | | | | | | |
|---------------------------|---------|-----|-----|-----|------|-------|
| Unit ID | Process | NOx | SOx | CO | PM10 | PM2.5 |
| 1-0 | 1 | 370 | 1.0 | 60 | 5.0 | 5.0 |
| 2-0 | 1 | 200 | 1.0 | 247 | 6.0 | 6.0 |

The AERMOD model was used to determine if emissions from the project would cause or contribute to an exceedance of any state or federal air quality standard. The parameters outlined below and meteorological data for 2013-2017 from Modesto (rural dispersion coefficient selected) were used for the analysis:

The following parameters were used for the review:

| Point Source Parameters | | | | | | |
|-------------------------|------------------|--------------------|------------|-----------------------|--------------------|----------------------------|
| Unit ID | Unit Description | Release Height (m) | Temp. (°K) | Exit Velocity (m/sec) | Stack Diameter (m) | Vertical/Horizontal/Capped |
| 1-0 | 909 BHP DICE | 2.67 | 827 | 128.84 | 0.15 | Vertical |
| 2-0 | 630 BHP DICE | 3.05 | 744 | 46.13 | 0.20 | Capped |

5. Conclusion

5.1 RMR

The cumulative acute and chronic indices for this facility, including this project, are below 1.0; and the cumulative cancer risk for this facility, including this project, is less than 20 in a million. In addition, the cancer risk for each unit in this project is less than 1.0 in a million. **In accordance with the District's Risk Management Policy, the project is approved without Toxic Best Available Control Technology (T-BACT).**

To ensure that human health risks will not exceed District allowable levels; the permit requirements listed on page 1 of this report must be included for this proposed unit.

These conclusions are based on the data provided by the applicant and the project engineer. Therefore, this analysis is valid only as long as the proposed data and parameters do not change.

5.2 AAQA

The emissions from the proposed equipment will not cause or contribute significantly to a violation of the State and National AAQS.

6. Attachments

- A. Modeling request from the project engineer
- B. Additional information from the applicant/project engineer
- C. Prioritization score w/ toxic emissions summary
- D. Facility Summary
- E. AAQA results

Appendix E

QNEC Calculations

Quarterly Net Emissions Change (QNEC)

The Quarterly Net Emissions Change is used to complete the emission profile screen for the District's PAS database. The QNEC shall be calculated as follows:

QNEC = PE2 - PE1, where:

- QNEC = Quarterly Net Emissions Change for each emissions unit, lb/qtr
- PE2 = Post-Project Potential to Emit for each emissions unit, lb/qtr
- PE1 = Pre-Project Potential to Emit for each emissions unit, lb/qtr

Since this is a new unit, PE1 = 0 for all pollutants. Thus, QNEC = PE2 (lb/qtr).

Using the PE2 (lb/yr) values calculated in Section VII.C.2, Quarterly PE2 is calculated as follows:

$$PE2_{quarterly} = PE2 \text{ (lb/yr)} \div 4 \text{ quarters/year} = QNEC$$

N-10060-1-0

| QNEC | | |
|------------------|-------------------|------------------------|
| Pollutant | PE2 Total (lb/yr) | Quarterly PE2 (lb/qtr) |
| NO _x | 370 | 92.5 |
| SO _x | 1 | 0.25 |
| PM ₁₀ | 5 | 1.25 |
| CO | 60 | 15.0 |
| VOC | 19 | 4.75 |

N-10060-2-0

Calculate QNEC for this engine.

| QNEC | | |
|------------------|-------------------|------------------------|
| Pollutant | PE2 Total (lb/yr) | Quarterly PE2 (lb/qtr) |
| NO _x | 400 | 100.0 |
| SO _x | 1 | 0.25 |
| PM ₁₀ | 10 | 2.5 |
| CO | 63 | 15.75 |
| VOC | 6 | 1.5 |