San Joaquin Valley Air Pollution Control District

Authority to Construct

Application Review

Diesel-Fired Emergency Standby IC Engine

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Facility Name: | [Facility Name] | | Date: | [Date] |
| Mailing Address: | [Mailing Address] | Engineer/  Specialist: | | [Your Name] |
| Lead Engineer: | | [Lead Engr Name] |
| Contact Person: | [Contact Person] | | | |
| Telephone: | [Phone #] | | | |
| E-mail: | [E-mail address] | | | |
| Application #: | [ATC #] | | | |
| Project #: | [Project #] | | | |
| Deemed Complete: | [Deemed Complete] | | | |

Note: This GEAR is only to be used for new (manufactured after 1/1/05) emergency standby IC engines that power electrical generators at non-major source facilities. If this document is used for any major source, the project will no longer be a GEAR. For projects at a major source facility only, please expand the proposal, discussions, and tables as necessary to accommodate extra units or special cases (PSD significant emissions increase, Major Modification, CEQA etc…) using APR-1010.

Section 3.15 of District Rule 4702 defines an “Emergency Standby Engine” as 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.

Prior to starting this evaluation, verify that the new IC engine meets the latest applicable off-road emissions standards (Tier rating) for the bhp rating range of the proposed engine (see Supervisor for guidance), and also verify that the PM10 emissions factor is less than or equal to 0.15 g/bhp-hr*.* If the engine does not meet these standards, the project may not be approvable (talk to your lead).

I. Proposal

Facility Name is proposing to install a XXX bhp (intermittent) diesel-fired emergency standby internal combustion (IC) engine powering an electrical generator.

**II. Applicable Rules**

Rule 2201 New and Modified Stationary Source Review Rule (2/18/16)

Rule 2410 Prevention of Significant Deterioration (6/16/11)

Rule 2520 Federally Mandated Operating Permits (6/21/01)

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 (11/14/13)

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**

*{For facilities with Street Addresses, use the following:}*

The equipment will be located at 1132 N. Belmont Rd. in Exeter, CA.

*{For facilities with a Mount Diablo Base Meridian Location, use the following:}*

The equipment will be located at the 31X oil and water treatment plant in the Cymric Oil Field, within the SW/4 of Section 31, Township 29S, Range 21E.

*{For facilities with a descriptive location, use the following:}*

The equipment will be located on the eastern side of 25th Avenue, approximately one mile south of State Route (SR) 198, in Kings County.

*{Verify whether or not the equipment is or will be located within 1,000 feet of the nearest outer boundary of a K-12 school (using Google maps, etc.). If there is a school within 1,000 feet, check to see if there is another school with ¼ mile of the emissions source and include that school with the school notice.}*

The District has verified that the equipment [is/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/is not] applicable to this project.

**IV. Process Description**

{Note: Typically, new emergency engines powering generators are limited to 50 hours per year. If the PM emissions rate is less than or equal to 0.01 g/bhp-hr, the engine may be operated up to 100 hours/year for maintenance and testing. Adjust the evaluation accordingly.}

The emergency standby engine powers an electrical generator. Other than emergency standby operation, the engine may be operated up to 50 hours per year for maintenance and testing purposes.

**V. Equipment Listing**

{Note: The maximum intermittent bhp rating of the engine shall be used in the equipment description.}

**X-XXXX-XX-XX:** [XXX] BHP (INTERMITTENT) [MAKE] MODEL [MODEL #] TIER [X] CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR

**VI. Emission Control Technology Evaluation**

The applicant has proposed to install a Tier X certified diesel-fired IC engine that is fired on very low-sulfur diesel fuel.

The proposed engine meets the latest Tier Certification requirements for emergency standby engines; therefore, the engine meets 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 sheet and/or the ARB/EPA executive order).

The use of CARB certified diesel fuel (0.0015% by weight sulfur maximum) reduces SOX 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

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%

PM10 fraction of diesel exhaust: 0.96 (CARB, 1988)

Conversion factor: 1.34 bhp/kw

*{Include the following assumption if only a NOX + VOC emission factor is available.}*

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

**B. Emission Factors**

*{Emission Factors Table: Use this table if the applicant has supplied a manufacturer’s engine specific data sheet or if you are using ARB/EPA Certification emission factors. If using ARB/EPA Certification emission factors, the CERT values may be used (see FYI 320).*

|  |  |  |  |
| --- | --- | --- | --- |
| **Emission Factors** | | | |
| **Pollutant** | **Emission Factor**  **(g/bhp-hr)** | **Emission Factor**  **(g/kw-hr)** | **Source** |
| NOX | X.XX | X.XX | Engine Manufacturer |
| SOX | 0.0051 | 0.0068 | Mass Balance Equation Below |
| PM10 | X.XX | X.XX | ARB/EPA Certification |
| CO | X.XX | X.XX | ARB/EPA Certification |
| VOC | X.XX | X.XX | Engine Manufacturer |

|  |  |  |
| --- | --- | --- |
|  | 0.0051 |  |

**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)**

{Note: The maximum intermittent bhp rating of the engine shall be used in the emission calculations.}

The daily and annual PE2 are calculated as follows:

Daily PE2 (lb-pollutant/day) = EF (g-pollutant/bhp-hr) x rating (bhp)

x operation (hr/day) / 453.6 g/lb

Annual PE2 (lb-pollutant/yr) = EF (g-pollutant/bhp-hr) x rating (bhp)

x operation (hr/yr) / 453.6 g/lb

{Note: Enter data in cells for Emissions Factor, Rating, Daily and Annual Hours of Operation then Highlight cells for PE2 and press F9 to calculate emissions}

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Post Project Emissions (PE2)** | | | | | | |
| **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)** |
| NOx | XXX | XXX | XXX | XXX | **0.0** | **0** |
| SOx | XXX | XXX | XXX | XXX | **0.0** | **0** |
| PM10 | XXX | XXX | XXX | XXX | **0.0** | **0** |
| CO | XXX | XXX | XXX | XXX | **0.0** | **0** |
| VOC | XXX | XXX | XXX | XXX | **0.0** | **0** |

**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.

*{For a new facility use the following:}*

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.

*{If this is an existing facility use the following statement, otherwise delete:}*

SSPE1 is summarized in the following table. See Appendix F for detailed SSPE calculations.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **SSPE1 (lb/year)** | | | | | |
|  | **NOX** | **SOX** | **PM10** | **CO** | **VOC** |
| **SSPE1** | XXX | XXX | XXX | XXX | XXX |

**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 engine. Thus:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **SSPE2 (lb/year)** | | | | | |
| **Permit Unit** | **NOX** | **SOX** | **PM10** | **CO** | **VOC** |
| SSPE1 | XXX | XXX | XXX | XXX | XXX |
| X-XXXX-X-X | XXX | XXX | XXX | XXX | XXX |
| **SSPE2** | **0** | **0** | **0** | **0** | **0** |

**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)** | | | | | | |
|  | **NOX** | **SOX** | **PM10** | **PM2.5** | **CO** | **VOC** |
| SSPE1 | XXX | XXX | XXX | XXX | XXX | XXX |
| SSPE2 | XXX | XXX | XXX | XXX | XXX | XXX |
| Major Source Threshold | 20,000 | 140,000 | 140,000 | 140,000 | 200,000 | 20,000 |
| Major Source? | No | 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 this is a new emissions unit, 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."

Since this facility is not a major source for any of the pollutants addressed in this project, 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.

Since this facility is not a Major Source for any pollutants, 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 following[[1]](#footnote-1):

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.

As discussed in Section I, the facility is proposing to install a new emergency standby IC engine. 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 engine are compared to the BACT threshold levels in the following table:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **New Emissions Unit BACT Applicability** | | | | |
| **Pollutant** | **Daily Emissions for the new unit (lb/day)** | **BACT Threshold (lb/day)** | **SSPE2 (lb/yr)** | **BACT Triggered?** |
| NOX | XXX | > 2.0 | n/a | Yes/No |
| SOX | XXX | > 2.0 | n/a | Yes/No |
| PM10 | XXX | > 2.0 | n/a | Yes/No |
| CO | XXX | > 2.0 and  SSPE2 ≥ 200,000 lb/yr | XXX | No |
| VOC | XXX | > 2.0 | n/a | Yes/No |

As shown above, BACT will be triggered for NOX, SOX, PM10, and VOC emissions from the engine for this project.

**2. BACT Guideline**

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

**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:

{Delete the pollutants listed that do not trigger BACT. Check that the Certification (CERT) factors are less than the Standard (STD) factors}

NOX: Latest Available Tier Certification level for applicable horsepower

VOC: Latest Available Tier Certification level for applicable horsepower

SOX: Very low sulfur diesel (15 ppmw sulfur or less)

PM10: 0.15 g/bhp-hr

The facility has proposed to install a XXX bhp Tier X certified IC engine (with a PM10 emissions rate of 0.XX g/bhp-hr), and using very low sulfur diesel fuel. Therefore, BACT is satisfied for NOx, SOx, VOC, and PM10. (edit as necessary).

**B. Offsets**

**1. Offset Applicability**

Pursuant to Section 4.6.2 of this rule, offsets are not required for emergency IC engines. The engine in this project is an emergency IC engine; 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)** | | | | | |
|  | **NOx** | **SOx** | **PM10** | **CO** | **VOC** |
| SSPE2 | XXX | XXX | XXX | XXX | XXX |
| Offset Thresholds | 20,000 | 54,750 | 29,200 | 200,000 | 20,000 |
| Offsets Triggered? | No | No | No | No | No |

**2. Quantity of Offsets Required**

*{Make sure to indicate on the emissions profile page, for pollutants that exceed the offset threshold, that offsets are triggered, but an exemption applies.}*

*{If no offset thresholds are exceeded, use the following paragraph}*

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.

*{If an offset threshold is exceeded, use the following paragraph and check the box on the emission profile in PAS}*

As shown in the table above, offsets are triggered for {PM10} emissions since the {PM10} SSPE2 exceeds the offset trigger threshold; however, as previously discussed, 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:

1. 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.

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

{Choose the appropriate sentence}

As calculated in Section VII.C.2, daily emissions for all pollutants are less than 100 lb/day. **OR** As calculated in Section VII.C.2, daily emissions for NOX and CO are greater than 100 lb/day.

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

Public notification is required if the SSPE1 is increased from a level below the offset threshold to a level exceeding the emissions offset threshold, for any pollutant.

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?** |
| NOX | XXX | XXX | 20,000 lb/year | No |
| SOX | XXX | XXX | 54,750 lb/year | No |
| PM10 | XXX | XXX | 29,200 lb/year | No |
| CO | XXX | XXX | 200,000 lb/year | No |
| VOC | XXX | XXX | 20,000 lb/year | No |

*Example (a): (For a project not surpassing the offset threshold.)*

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

*Example (b): (For a project surpassing the offset threshold.)*

As detailed above, offset thresholds were surpassed for NOX with this project; therefore public noticing is required for offset purposes.

*(Note: Public notification is independent of whether or not Offsets are required. For example, if this project involves the installation of emergency (offset-exempt) equipment and the offset threshold is surpassed, then public notification would still be triggered.)*

1. 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 engine is the only emissions unit that will generate an increase in Potential to Emit. Since the proposed engine 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.

1. 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**

{For a project not requiring public notice.}

As demonstrated above, this project will not require public noticing.

{For a project requiring public notice.}

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 published in a local newspaper of general circulation 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:

* {4771} Emissions from this IC engine shall not exceed any of the following limits: X.XX g-NOx/bhp-hr, X.XX g-CO/bhp-hr, or X.XX g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]
* {4772} Emissions from this IC engine shall not exceed X.XX 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.

*(Note: Section F is applicable only when public notice is triggered, otherwise delete the following section for AAQA.)*

**F. Ambient Air Quality Analysis (AAQA)**

An AAQA is conducted by the Technical Services group, for any project which has an increase in emissions and triggers public notification requirements. Discuss the AAQA results as follows.

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 NOX, CO, and SOX. As shown by the AAQA summary sheet the proposed equipment will not cause a violation of an air quality standard for NOX, CO, or SOX.

The proposed location is in a non-attainment area for the state’s PM10 as well as federal and state PM2.5 thresholds. As shown by the AAQA summary sheet the proposed equipment will not cause a violation of an air quality standard for PM10 and PM2.5.

*(Note: Special permit conditions may be required as a result of the AAQA.)*

**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 the ATC 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 the ATC 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)**

Discuss whether a Health Risk Assessment is required and/or the results of the HRA, including any special conditions to consider when issuing the ATC(s).

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.

*Example (a): (For a project with a Prioritization score ≤ 1.)*

An HRA is not required for a project with a total facility prioritization score of less than or equal to one. According to the Technical Services Memo for this project (Appendix D), the total facility prioritization score including this project was less than or equal to one. Therefore, no further analysis is required to determine the impact from this project and compliance with the District’s Risk Management Policy is expected.

*Example (b): (For a project with a Prioritization score > 1.)*

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.

|  |  |  |  |
| --- | --- | --- | --- |
| **RMR Summary** | | | |
| Categories | **Emergency IC Engine**  **(Unit #-0)** | **Project Totals** | **Facility Totals** |
| Prioritization Score | **XXX** | XXX | XXX |
| Acute Hazard Index | XXX | XXX | XXX |
| **Chronic Hazard Index** | XXX | XXX | XXX |
| **Maximum Individual Cancer Risk** | XXX | XXX | XXX |
| T-BACT Required? | XXX |  | |
| Special Permit Conditions? | XXX |

**Discussion of T-BACT**

Discuss whether a T-BACT is or is not triggered and the requirements which satisfy T-BACT (if any).

*Example (a): (For a project where T-BACT not triggered.)*

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.

*Example (b): (For a project where T-BACT is triggered.)*

BACT for toxic emission control (T-BACT) is required if the cancer risk exceeds one in one million. As demonstrated above, T-BACT is required for this project because the HRA indicates that the risk is above the District’s thresholds for triggering T-BACT requirements.

For this project T-BACT is triggered for PM10. T-BACT is satisfied with BACT (see Appendix B), which is:

PM10: 0.15 g/bhp-hr

Therefore, compliance with the District’s Risk Management Policy is expected.

Also discuss whether the project has acute or chronic indices, or a cancer risk greater than the District’s significance levels.

*For example: (For most projects.)*

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:

Note: Delete the following if not applicable. Include any additional RMR conditions, as necessary.

* {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 X.XX 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]

**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 | xxxxx 0.4 |

The new engine has a PM10 emission factor less than 0.4 g/bhp-hr. Therefore, compliance is expected and the following condition will be listed on the ATC 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 (NOx), 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 engine is 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**

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 permit:

* + - * {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 this engine’s maintenance and testing to 50 hours/year; therefore, compliance is expected. The following conditions will be included on the permit:

* {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]

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 engine 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 permit:

* {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]

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 permit:

* {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]

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 permit:

* {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]

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 engine, 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 permit:

* {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]

**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:

Volume SO2 = (n x R x T) ÷ P

n = moles SO2

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

R (universal gas constant) = 

|  |  |
| --- | --- |
|  | 1.0 ppmv |

Since 1.0 ppmv is ≤ 2,000 ppmv, this engine is expected to comply with Rule 4801. Therefore, the following condition will be listed on the ATC 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)**

Reference project location and its proximity to a school and state whether or not school notice is required for this project.

*Example (a): (For a Non-School Notice project - > 1,000 feet.)*

The District has verified that this engine is 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.

*Example (b): (For a Non-School Notice project – no increase in emissions)*

The District has verified that this site is located within 1,000 feet of a school. However, pursuant to California Health and Safety Code 42301.6, since this project will not result in an increase in emissions, a school notice is not required.

*Example (c): (For a School Notice project.)*

The District has verified that this engine is located within 1,000 feet of the following school:

School Name: [Name]

Address: [Address]

Therefore, pursuant to California Health and Safety Code 42301.6, a school notice is required.

Prior to the issuance of the ATC for this equipment, notices will be provided to the parents/guardians of all students of the affected school, and will be sent to all residents within 1,000 feet of the site.

[If there is no school w/in ¼ mile of the emissions increase, include the following discussion, otherwise delete]:

The District has verified that there are no additional schools within one-quarter mile of the emission source.

[If there is a school w/in ¼ mile of the emissions increase, include the following discussion, otherwise delete]:

Since a school notice has been triggered (due to the above-listed school within 1,000 feet of the emission source), notices will also be provided to the parents/guardians of all students from all school sites within one-quarter mile of the emission source. The following school(s) is within one-quarter mile of the emission source:

School Name: [Name]

Address: [Address]

(add additional schools if necessary)

*(Note: Refer to* [*FYI - 71*](file:///C:\Users\sandhug\AppData\Local\Documents%20and%20Settings\Intranet_files\thaoc\shared\Intranet_files\PER\policies\dustyrose\Intranet_files\PER\policies\dustyrose\Intranet_Files\PER\policies\fyi\documents\71%20-%20School%20Notice.doc) *for guidance on how to process a School Notice project.)*

**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):

|  |  |
| --- | --- |
| **Title 17 CCR Section 93115 Requirements for New Emergency IC Engines Powering Electrical Generators** | **Proposed Method of Compliance with**  **Title 17 CCR Section 93115 Requirements** |
| Emergency engine(s) must be fired on CARB diesel fuel, or an approved alternative diesel fuel. | The applicant has proposed the use of CARB certified diesel fuel. The proposed permit condition, requiring the use of CARB certified diesel fuel, is included on the permit.   * {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] |
| The engine(s) must meet the emission standards in Table 1 of the ATCM for the specific power rating and model year of the proposed engine. | The applicant has proposed the use of an engine that is certified to the latest EPA Tier Certification standards for the applicable horsepower range, guaranteeing compliance with the emission standards of the ATCM. Additionally, the proposed diesel PM emissions rate is less than or equal to 0.15 g/bhp-hr. |
| The engine may not be operated more than 50 hours per year for maintenance and testing purposes unless the PM emissions are < 0.01 g/bhp-hr, then the engine is allowed 100 hours per year. Emissions from this engine are certified at 0.XXX g/bhp-hr, therefore the engine is allowed 50 hours. | The following conditions will be included on the permit:   * {4772} Emissions from this IC engine shall not exceed 0.XXX 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] |
| Engines, with a PM10 emissions rate greater than 0.01 g/bhp-hr and located at schools, may not be operated for maintenance and testing whenever there is a school sponsored activity on the grounds. Additionally, engines located within 500 feet of school grounds may not be operated for maintenance and testing between 7:30 AM and 3:30 PM | {Use the following language if the Unit is located on school grounds; otherwise delete}  The following condition will be included on the permit:   * {3417} If this engine is located on the grounds of a K-12 school, the engine shall not be operated for non-emergency purposes, including maintenance and testing, whenever there is a school sponsored activity. [17 CCR 93115]   {Use the following language if the Unit is located within 500’ of a school and is not on school grounds; otherwise delete}  The following condition will be included on the permit:   * {3416} If this engine is located on the grounds of a K-12 school, or if this engine is located within 500 feet of the property boundary of a K-12 school, the engine shall not be operated for non-emergency purposes, including maintenance and testing, between 7:30 a.m. and 3:30 p.m. on days when school is in session. [17 CCR 93115]   {Use if the following language if the engine is not within 500’ of a school; otherwise delete}  The District has verified that this engine is not located within 500’ of a school. |
| A non-resettable hour meter with a minimum display capability of 9,999 hours shall be installed upon engine installation, or by no later than January 1, 2005, on all engines subject to all or part of the requirements of sections 93115.6, 93115.7, or 93115.8(a) unless the District determines on a case-by-case basis 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. | The following condition will be included on the permit:   * {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] |
| An owner or operator shall maintain monthly records of the following: emergency use hours of operation; maintenance and testing hours of operation; hours of operation for emission testing; initial start-up testing hours; hours of operation for all other uses; and the type of fuel used. All records shall be retained for a minimum of 36 months. | The following condition will be included on the permit:   * {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] |

**California Environmental Quality Act (CEQA)**

**Reminder:** Use the following language if this project qualifies as a GEAR (engine located at non-Major Source):

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.

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**

*{For a project where noticing (public, school, or EPA) is not required, use the following:}*

Compliance with all applicable rules and regulations is expected. Issue Authority to Construct X-XXXX-X-X subject to the permit conditions on the attached draft ATC in Appendix A.

*{For a project where public noticing is triggered, use the following:}*

Pending a successful NSR public noticing period, issue Authority to Construct X-XXXX-X-X subject to the permit conditions on the attached draft ATC in Appendix A.

*{For a project where school noticing is triggered, use the following:}*

Pending a successful school noticing period, issue Authority to Construct X-XXXX-X-X subject to the permit conditions on the attached draft ATC in Appendix A.

**X. Billing Information**

{Note: Expand the following table as necessary to include extra units.}

|  |  |  |  |
| --- | --- | --- | --- |
| Billing Schedule | | | |
| **Permit Number** | **Fee Schedule** | **Fee Description** | **Fee Amount** |
| X-XXXX-XX-X | 3020-10-X | XXX bhp IC engine | $XXX |

**Appendixes**

Note: Adjust the following appendices as necessary.

A. Draft ATC and Emissions Profile *{Note: For public notice projects, the emissions profile is not included as a part of the Engineering Evaluation package.}*

B. BACT Guideline and BACT Analysis

C. Emissions Data Sheet and/or ARB/EPA Certification

D. RMR and AAQA

E. QNEC Calculations

F. SSPE1 Calculations

Appendix A

Draft ATC and Emissions Profile

Appendix B

BACT Guideline 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.

[Select only the appropriate BACT Analyses]

**Top Down BACT Analysis for the Emergency IC Engine**

BACT Guideline 3.1.1 (June 13, 2019) applies to emergency diesel IC engines. In accordance with the District BACT policy, information from that guideline will be utilized without further analysis.

**1. BACT Analysis for NOX, VOC, and CO Emissions:**

(delete pollutants for which BACT is not required)

**a. 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, staff should perform an industry survey of the latest Tier certifcation level available for the proposed engine horsepower rating. Please see your Supervisor for guidance.

**b. Step 2 - Eliminate technologically infeasible options**

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

**c. 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.

**d. Step 4 - Cost Effectiveness Analysis**

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

**e. Step 5 - Select BACT**

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

**{Delete if BACT not triggered for SOx}**

**2. BACT Analysis for SOX Emissions:**

**a. Step 1 - Identify all control technologies**

BACT Guideline 3.1.1 identifies only the following option:

* *Very low sulfur diesel fuel (15 ppmw sulfur or less)*

**b. Step 2 - Eliminate technologically infeasible options**

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

**c. 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.

**d. Step 4 - Cost Effectiveness Analysis**

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

**e. Step 5 - Select BACT**

BACT for SOx is the use of very low sulfur diesel fuel (15 ppmw sulfur or less). The applicant is proposing the use of CARB certified diesel fuel that is rated at 15 ppmw sulfur or less. Therefore, BACT will be satisfied.

**{Delete if BACT not triggered for PM10}**

**3. BACT Analysis for PM10 Emissions:**

**a. 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 X. Refer to the Top-Down BACT analysis for NOx for a discussion regarding the determination of the EPA Tier level to be considered.

Please note Tier X IC engines do not have a PM emission standard that is more stringent than 0.15 g/hp-hr. Additionally, the ATCM requires a PM emission standard of 0.15 g/hp-hr for all new emergency diesel IC engines.

Therefore, a PM/PM10 emission standard of 0.15 g/hp-hr is required as BACT.

**b. Step 2 - Eliminate technologically infeasible options**

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

**c. 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.

**d. Step 4 - Cost Effectiveness Analysis**

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

**e. Step 5 - Select BACT**

BACT for PM10 is emissions of 0.15 g/hp-hr or less. The applicant is proposing an engine that meets this requirement. Therefore, BACT will be satisfied.

Appendix C

Emissions Data Sheet and or ARB/EPA Certification

Appendix D

Technical Services Memo and AAQA

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:

PE2quarterly = PE2 (lb/yr) ÷ 4 quarters/year = QNEC

{After entering the data in column 2, highlight column 3 and press F9:}

|  |  |  |
| --- | --- | --- |
| QNEC | | |
| Pollutant | PE2 Total (lb/yr) | Quarterly PE2 (lb/qtr) |
| NOX | XXX | 0.0 |
| SOX | XXX | 0.0 |
| PM10 | XXX | 0.0 |
| CO | XXX | 0.0 |
| VOC | XXX | 0.0 |

Appendix F

SSPE1 Calculations

[Attach SSPE1 Calculations if applicable.]

IC Engine Permit Conditions

You may copy and paste the following general condition numbers into the PAS conditions screen, or use the general conditions located in the GEAR 11>Diesel Emergency Standby (7/1/14) general conditions folder in PAS:

Only add general condition {1898} if it is required by the RMR.

98, 15, 14, 1898, 4749, 4258, 4771, 4772, 4261, 3478, 3807, 3808, 3496, 4920, 4263, 3475

If the engine is located within 500’ of a school (see below), add: 3416 or 3417

* {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
* {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]
* {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]

Add the following condition if required by the RMR:

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

{Use the following condition only if the engine is located within 500’ of a school and is not on school grounds; otherwise delete}

* {3416} If this engine is located on the grounds of a K-12 school, or if this engine is located within 500 feet of the property boundary of a K-12 school, the engine shall not be operated for non-emergency purposes, including maintenance and testing, between 7:30 a.m. and 3:30 p.m. on days when school is in session. [17 CCR 93115]

{Use the following condition only if the engine is located on school grounds}

* {3417} If this engine is located on the grounds of a K-12 school, the engine shall not be operated for non-emergency purposes, including maintenance and testing, whenever there is a school sponsored activity. [17 CCR 93115]

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. [↑](#footnote-ref-1)