



San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT



HEALTHY AIR LIVING™

JUL 02 2014

Jon Angin
Agilyx Corporation
Ref: WM Riverbank Recovery LLC
96000 Nimbus Avenue, Suite 260
Beaverton, OR 970008-7386

Re: Notice of Preliminary Decision - Authority to Construct
Facility Number: N-8700
Project Number: N-1141802

Dear Mr. Angin:

Enclosed for your review and comment is the District's analysis of WM Riverbank Recovery LLC's application for an Authority to Construct for the installation of a 2,220 bhp diesel-fired emergency standby IC engine powering an electrical generator, at 5300 Claus Road in Riverbank, California.

The notice of preliminary decision for this project will be published approximately three days from the date of this letter. 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. Wai-Man So of Permit Services at (209) 557- 6449.

Sincerely,

Arnaud Marjollet
Director of Permit Services

AM:WMS

Enclosures

cc: Mike Tollstrup, CARB (w/ enclosure) via email

Seyed Sadredin
Executive Director/Air Pollution Control Officer

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San Joaquin Valley Air Pollution Control District Authority to Construct

Emergency standby diesel-fired IC engine powers an electrical generator

Facility Name: WM Riverbank Recovery LLC Date: June 11, 2014
Mailing Address: 96000 SW Nimbus Ave., Suite 260 Engineer: Wai-Man So
Beaverton, OR 97008-7386 Lead Engineer: Nick Peirce
Contact Person: Jessica Good (Process Engineer)
Telephone: (503) 624 – 3028
Fax: (503) 624 – 3001 Email: jessica.good@jacobs.com
Application #(s): N-8700-9-0
Project #: N-1141802
Deemed Complete: April 21, 2014

I. PROPOSAL

WM Riverbank Recovery LLC (hereinafter WMRR) is requesting Authority to Construct (ATC) for the installation of a 2,220 bhp diesel-fired emergency standby IC engine powering an electrical generator.

II. APPLICABLE RULES

District Rule 2201 New and Modified Stationary Source Review Rule (04/21/11)
District Rule 2410 Prevention of Significant Deterioration (effective 11/26/12)
District Rule 2520 Federally Mandated Operating Permit (06/21/2001)
District Rule 4001 New Source Performance Standard (04/14/1999)
District Rule 4002 National Emission Standards for Hazardous Air Pollutants (05/20/04)
District Rule 4101 Visible Emissions (2/17/05)
District Rule 4102 Nuisance (12/17/92)
District Rule 4201 Particulate Matter Concentration (12/17/92)
District Rule 4701 Stationary Internal Combustion Engines – Phase 1 (8/21/2003)
District Rule 4702 Stationary Internal Combustion Engines – Phase 2 (11/14/2013)
District Rule 4801 Sulfur Compounds (12/17/92)
CH&SC 41700 Health Risk Assessment
CH&SC 42301.6 School Notice
Title 17 California Code of Regulations (CCR), Section 93115
– Airborne Toxic Control Measure (ATCM) for Stationary Compression-Ignition (CI) Engines
California Environmental Quality Act (CEQA)
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 5300 Claus Road in Riverbank, California. The District has verified that the site is not located within 1,000 feet to the outer boundary of any K-12 school. Pursuant to California Health and Safety Code 42301.6, a school notification is not required.

IV. PROCESS DESCRIPTION

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

V. EQUIPMENT LISTING

2,220 BHP (INTERMITTENT) CUMMINS MODEL QSK50-GR NR2 TIER 2 CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR

VI. EMISSION CONTROL TECHNOLOGY EVALUATION

The applicant has proposed to install a 2014 model year Tier 2 certified diesel-fired IC engine that is fired on very low-sulfur diesel fuel (0.0015% by weight sulfur maximum).

NO_x, CO, VOC and PM₁₀:

The proposed engine does not meet the latest published Tier Certification requirements. However, compliance with both BACT and CARB's stationary ATCM requirements will be met as described below (see copy of the emissions data sheet for engine in Appendix II of this document).

Although Tier 4i requirements for category of engine \geq 750 horsepower range went into effect in 2011, CARB regulations and District policy allows for the availability of Tier 4i units to be accounted for. CARB's Stationary ATCM exemption §93115.3(u) states, "If the Executive Officer or District finds, based on verifiable information from the engine manufacturer, distributor or dealer, that current model year engines meeting the current emission standards are not available or not available in sufficient numbers or in a sufficient range of makes, models and horsepower ratings, then the Executive Officer or the District may allow the sale, purchase or installation of a new stock engine meeting the emission standards from the previous model year to meet the new stationary diesel-fueled engine emission standards pursuant to Title 13 of the California Code of Regulations or 40 CFR part 89."

The District has thoroughly investigated, with each of the common engine manufacturers, the availability of Tier 4i units in this size range and has found them to be currently unavailable. Since Tier 4i units are not available, as described above, the installation of a Tier 2 unit is

acceptable for the horsepower range described above, as Tier 2 is the prior published Tier in this engine's size range.

SO_x:

The use of very low-sulfur diesel fuel 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
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
PM10 fraction of diesel exhaust:	0.96 (CARB, 1988)

B. Emission Factors

Pre-Project Emission Factors (EF1)

This is a new emissions unit. Therefore, EF1 is equal to zero.

Post-Project Emission Factors (EF2)

Emissions factors are taken from the engine's manufacturer data sheet (see copy of the emissions data sheet in Appendix II of this document). The engine has certified NO_x + VOC emissions of 4.2 g/bhp-hr. It will be assumed the NO_x + VOC emission factor is split 95% NO_x and 5% VOC (per the District's Carl Moyer program).

Only California Air Resources Board (CARB) certified diesel fuel containing no more than 0.0015% sulfur by weight could be used. The emission factor for SO_x is calculated by following equation:

$$\begin{aligned}
 & \frac{0.000015 \text{ lb - S}}{\text{lb - fuel}} \times \frac{7.1 \text{ lb - fuel}}{\text{gallon}} \times \frac{2 \text{ lb - SO}_2}{1 \text{ lb - S}} \times \frac{1 \text{ gal}}{137,000 \text{ Btu}} \times \frac{1 \text{ bhp input}}{0.35 \text{ bhp out}} \times \frac{2,542.5 \text{ Btu}}{\text{bhp - hr}} \times \frac{453.6 \text{ g}}{\text{lb}} \\
 & = 0.0051 \frac{\text{g - SO}_x}{\text{bhp - hr}}
 \end{aligned}$$

Pollutant	Post-Project Emission Factors (EF2)	Source
NO _x	3.99 g/hp-hr	Manufacturer Data Sheet
SO _x	0.0051 g/hp-hr	Mass balance equation above
PM ₁₀	0.05 g/hp-hr	Manufacturer Data Sheet
CO	0.9 g/hp-hr	Manufacturer Data Sheet
VOC	0.21 g/hp-hr	Manufacturer Data Sheet

C. Potential to Emit (PE) Calculations

1. Daily and Annual PE

Pre-Project Potential to Emit (PE1)

This is a new emissions unit. Therefore, PE1 is equal to zero.

Post-Project Potential to Emit (PE2)

The PE2 for each pollutant is calculated as follow:

$$PE2 = EF2 \text{ (g/hp-hr)} \times \text{Power Rating (hp)} \times \text{Operating Schedule (hr/day or hr/year)} \div \text{Conversion (g/lb)}$$

$$\text{Daily PE2} = EF2 \text{ (g/hp-hr)} \times 2,220 \text{ (hp)} \times 24 \text{ (hr/day)} \div 453.6 \text{ (g/lb)}$$

$$\text{Annual PE2} = EF2 \text{ (g/hp-hr)} \times 2,220 \text{ (hp)} \times 50^1 \text{ (hr/yr)} \div 453.6 \text{ (g/lb)}$$

Pollutant	Post-Project Potential to Emit (PE2)					
	EF2 (g/hp-hr)	Power Rating (hp)	Operating Schedule (hr/day)	Conversion (g/lb)	Daily PE2 (lb/day)	Annual PE2 (lb/yr)
NO _x	3.99	2,220	24	453.6	468.7	976
SO _x	0.0051	2,220	24	453.6	0.6	1
PM ₁₀	0.05	2,220	24	453.6	5.9	12
CO	0.9	2,220	24	453.6	105.7	220
VOC	0.21	2,220	24	453.6	24.7	51

2. Quarterly Net Emissions Change

The Quarterly Net Emissions Changes (QNEC) is calculated for each pollutant, for each unit, as the difference between the quarterly PE2 and the quarterly baseline emissions (BE). The annual emissions are evenly distributed throughout each quarter using the following equation:

¹ The maximum annual operating hour of the diesel-fired IC engine powering electrical generator is limited to 50 hours per year (per Title 17 CCR, Section 93115).

$$\text{QNEC (lb/quarter)} = [\text{Annual PE2} - \text{Annual PE1}] (\text{lb/year}) / 4 (\text{quarter/year})$$

Pollutant	Quarterly Net Emissions Change (QNEC)			
	1 st Quarter (lb/quarter)	2 nd Quarter (lb/quarter)	3 rd Quarter (lb/quarter)	4 th Quarter (lb/quarter)
NO _x	244	244	244	244
SO _x	0	0	0	1
PM ₁₀	3	3	3	3
CO	55	55	55	55
VOC	12	13	13	13

3. Adjusted Increase in Permitted Emissions (AIPE)

AIPE is used to determine if Best Available Control Technology (BACT) is required for emission units that are being modified.

This is a new emission unit. Therefore, AIPE calculations are not required.

D. Facility Emissions

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

Pursuant to District Rule 2201, § 4.9, the Pre-Project Stationary Source Potential to Emit (SSPE1) is the Potential to Emit (PE) from all units with valid Authorities to Construct (ATC) or Permits to Operate (PTO) at the Stationary Source and the quantity of Emission Reduction Credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site.

The facility has a couple of expired ATCs, and the applicant confirmed that these expired ATCs will not be implemented.

There are no valid ATCs, PTOs, or ERCs at this stationary source. Therefore, this facility is considered a new facility per NSR purposes, and SSPE1 is equal to zero for each criteria pollutant.

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

Pursuant to District Rule 2201, § 4.10, the Post-Project Stationary Source Potential to Emit (SSPE2) is the Potential to Emit (PE) from all units with valid Authorities to Construct (ATC) or Permits to Operate (PTO) at the Stationary Source and the quantity of Emission Reduction Credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site.

Permit Number	Pollutants (lb/yr)				
	NO _x	SO _x	PM ₁₀	CO	VOC
ATC N-8700-9-0	976	1	12	220	51
ERC	0	0	0	0	0
SSPE2	976	1	12	220	51

3. Stationary Source Increase in Permitted Emissions (SSIPE)

SSIPE calculations are used to determine if the project triggers public notice pursuant to District Rule 2201, § 5.4.5. If SSIPE results greater than 20,000 lb/yr for any one pollutant then project requires public notification. At this time, it is District Practice to define the SSIPE as the difference of SSPE2 to SSPE1, and calculated by the following equation:

$$\text{SSIPE (lb/yr)} = \text{SSPE2 (lb/yr)} - \text{SSPE1 (lb/yr)}$$

SSIPE	Pollutants (lb/yr)				
	NO _x	SO _x	PM ₁₀	CO	VOC
SSPE2	976	1	12	220	51
SSPE1	0	0	0	0	0
SSIPE	976	1	12	220	51

As shown above, SSIPE is less than 20,000 pounds for each pollutant. Therefore, public notification and publication requirement are not required for this purpose.

4. Major Source Determination

Rule 2201 Major Source Determination:

Pursuant to District Rule 2201, Section 3.24, a Major Source is a stationary source with a SSPE2 equal to or exceeding one or more of the following threshold values. For the purpose 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 this 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	PM ₁₀	CO	VOC
Facility emission pre-project	0	0	0	0	0
Facility emission post-project	976	1	12	220	51
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, this is a new facility, and the facility is not becoming a Major Source as a result of this project.

Rule 2410 Major Source Determination:

The facility evaluated under this project is not listed as one of the categories specified in 40 CFR 52.21(b)(1)(i). Therefore, the following PSD Major Source thresholds are applicable.

PSD Major Source Determination: Potential to Emit (tons/year)							
	NO2	VOC	SO2	CO	PM	PM10	CO2e
Total PE from existing unit	0	0	0	0	0	0	0
PSD Major Source Thresholds	250	250	250	250	250	250	100,000
Existing PSD Major Source ? (Y/N)	N	N	N	N	N	N	N

As shown above, the facility is not an existing major source for PSD for any pollutant. Therefore, the facility is not an existing major source for PSD.

5. Baseline Emissions (BE)

The BE calculation (in lb/year) is performed on a pollutant-by-pollutant basis to determine the amount of offsets required.

This is a new facility, so baseline emission is equal to zero for each pollutant.

6. 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.

7. 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. Additionally, since the facility is not a major source for PM₁₀ (140,000 lb/year), it is not a major source for PM_{2.5} (200,000 lb/year).

8. Rule 2410 – Prevention of Significant Deterioration (PSD) Applicability Determination

Rule 2410 applies to pollutants for which the District is in attainment or for unclassified, pollutants. The pollutants addressed in the PSD applicability determination are listed as follows:

- NO₂ (as a primary pollutant)
- SO₂ (as a primary pollutant)
- CO
- PM
- PM₁₀
- Greenhouses gases (GHG): CO₂, N₂O, CH₄, HFCs, PFCs, and SF₆

As determined in Section VII.D.4 of this document, this facility is not an existing PSD Major Source. Therefore, the project potential to emit from the new unit is compared to the PSD major source thresholds to determine if the project is subject to the requirements of Rule 2410.

As stated in Section VII.A of this document, it's assumed that 96% of PM is PM₁₀, (0.96 lb-PM₁₀/lb-PM). Therefore, the PM emissions from the combustion of diesel fuel for the 2,220 bhp diesel-fired IC engine (DICE), operating 50 hours per year are calculated as follows:

$$PE_{PM} = 0.05 \text{ g-PM}_{10}/\text{bhp-hr} \times \text{lb-PM}/0.96 \text{ lb-PM}_{10} \times 2,220 \text{ bhp} \times 50 \text{ hr/year} = 453.6 \text{ g/lb}$$

$$PE_{PM} = 12.7 \text{ lb-PM/year (equivalent to 0.006 ton-PM/year)}$$

The CO₂e emissions from the combustion of diesel fuel for the proposed 2,220 bhp DICE, operating 50 hours per year, are calculated as follows:

EF_{GHG}: 0.000187 metric tons/bhp-hr (CARB greenhouse gas emission factor)
Rating: 2,220 bhp
Schedule: 50 hour/year

$$PE_{GHG} = (0.000187 \text{ MT/bhp-hr}) \times (2,220 \text{ bhp}) \times (50 \text{ hour/year}) \times (2,205 \text{ lb/MT}) \times (\text{ton}/2,000 \text{ lb}) \\ = 22.9 \text{ tons/year}$$

The CO₂e emissions from the new unit are calculated to 22.9 ton-CO₂e/year.

As discussed above, the facility evaluated under this project is not listed as one of the categories specified in 40 CFR 52.21(b)(1)(i). Therefore, the following PSD Major Source thresholds are applicable.

PSD Major Source Determination: Potential to Emit (tons/year)							
	NO2	VOC	SO2	CO	PM	PM10	CO2e
Total PE from New Unit	0.5	0	0	0.1	0	0	22.9
PSD Major Source Thresholds	250	250	250	250	250	250	100,000
New PSD Major Source ? (Y/N)	N	N	N	N	N	N	N

As shown in the table above, the project potential to emit, by itself, does not exceed any of the PSD major source thresholds. Therefore, Rule 2410 is not applicable and no further discussion is required.

VIII.COMPLIANCE

District Rule 2201 New and Modified Stationary Source Review Rule

1. Best Available Control Technology (BACT)

A. BACT Applicability

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

- 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 APE exceeding two pounds per day, and/or
- d) Any new or modified emissions unit, in a stationary source project, which results in a Major Modification.

*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 of this document, the facility is proposing to install a new emergency standby IC engine. Additionally, as determined in Sections VII.D.6 and VII.D.7 of this document, this project does not result in an SB 288 Major Modification or Federal Major Modification. Therefore, BACT can only be triggered if the daily emissions exceed 2.0 lb/day for any pollutant.

The daily emission from the new engine is compared to the BACT threshold levels in the following table:

New Emissions Unit BACT Applicability				
Pollutant	Daily Emissions (lb/day)	BACT Threshold (lb/day)	SSPE2 (lb/yr)	BACT Triggered?
NO _x	468.7	> 2.0	n/a	Yes
SO _x	0.6	> 2.0	n/a	No
PM ₁₀	5.9	> 2.0	n/a	Yes
CO	105.7	> 2.0 and SSPE2 ≥ 200,000 lb/yr	220	No
VOC	24.7	> 2.0	n/a	Yes

As shown above, BACT will be triggered for NO_x, PM₁₀, and VOC emissions from this engine.

B. BACT Guideline

BACT Guideline 3.1.1, which appears in Appendix III of this document, covers diesel-fired emergency IC engine powering electrical generator.

C. 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."

The "Top-Down BACT Analysis" for NO_x, PM₁₀, and VOC emissions is performed in Appendix III of this document. According to this analysis, BACT is satisfied with:

- NO_x: Latest EPA Tier Certification level for applicable horsepower range
- PM₁₀: 0.15 g/hp-hr or the latest EPA Tier Certification level for applicable horsepower range, whichever is more stringent. (ATCM)
- VOC: Latest EPA Tier Certification level for applicable horsepower range

The proposed engine meets the above requirements. Therefore, BACT is satisfied for NO_x, PM₁₀, and VOC emissions.

2. Offsets

Since emergency IC engines are exempt from the offset requirements of Rule 2201, per Section 4.6.2, offsets are not required for this engine, and no offset calculations are required.

3. Public Notification

District Rule 2201, § 5.4, requires a public notification for the affected pollutants from the following types of projects:

a. New Major Source, Federal Major Modification, and SB 288 Major Modification

This facility is not becoming a new major source, and the proposed project will trigger neither Federal Major Modification nor SB 288 Major Modification. Therefore, public noticing for these purposes is not required.

b. New emission unit with PE > 100 lb/day for any one pollutant

The potential emission from the new engine is greater than 100 lb/day for each NO_x and CO emissions. Therefore, public noticing for this purpose is required.

c. Modifications with SSPE1 below an Offset threshold and SSPE2 above an Offset threshold on a pollutant-by-pollutant basis

The proposed project does not result in SSPE from below offset threshold level to above offset threshold level for any one pollutant. Therefore, public noticing for this purpose is not required.

d. New stationary sources with SSPE2 exceeding Offset thresholds

There is no new stationary source with SSPE2 exceeding offset thresholds as a result of this project. Therefore, public noticing for this purpose is not required.

e. Any permitting action with an SSIPE exceeding 20,000 lb/yr for any one pollutant

The proposed project does not result in SSIPE exceeding 20,000 lb/yr for any one pollutant. Therefore, public noticing for this purpose is not required.

As discussed above, public noticing is required for this project for the new emissions unit daily NO_x and CO potential emissions (PE) each greater than 100 pounds. 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 the equipment. Public notice is required for this project.

4. Daily Emission Limits (DELs)

Daily Emissions Limitations (DELs) and other enforceable conditions are required by Section 3.16 to restrict a unit's maximum daily emissions. Therefore, the following conditions will be listed on the ATC to ensure compliance:

- *Emissions from this IC engine shall not exceed any of the following limits: 3.99 g-NO_x/bhp-hr, 0.9 g-CO/bhp-hr, or 0.21 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]*
- *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]*

In addition, the DEL for SO_x is established by the sulfur content of the fuel being combusted in the engine. Therefore, the following condition will be listed on the ATC to ensure compliance:

- *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]*

5. Compliance Assurance

a. Source Testing

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

b. Monitoring

No monitoring is required to demonstrate compliance with Rule 2201.

c. Recordkeeping

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

d. Reporting

No reporting is required to ensure compliance with Rule 2201.

6. Ambient Air Quality Analysis

Section 4.14.1 of this Rule requires that an ambient air quality analysis (AAQA) be conducted for the purpose of determining whether a new or modified Stationary Source will cause or make worse a violation of a State or National ambient air quality standard. An AAQA is required to be performed for all New Source Review (NSR) public notice projects. As previously discussed, this project requires that a public notice be performed before issuance of the ATCs for this project. Therefore, the District is required to perform an AAQA for this project.

The Technical Services Division of the SJVAPCD conducted the required AAQA, criteria pollutant modeling for this project. The results of the criteria pollutant modeling are presented in the following table. See Appendix IV of this document for the detail AAQA summary sheet.

The results from the Criteria Pollutant Modeling² are as follows:

Diesel ICE	1 Hour	3 Hours	8 Hours	24 Hours	Annual
CO	NA ³	X	NA ³	X	X
NO _x	NA ³	X	X	X	Pass
SO _x	NA ³	NA ³	X	NA ³	Pass
PM ₁₀	X	X	X	NA ³	Pass ⁴

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

Compliance with the requirements of this rule is expected.

District Rule 2410 Prevention of Significant Deterioration

The provisions of this rule shall apply to any source and the owner or operator of any source subject to any requirements under Title 40 Code of Federal Regulations (40 CFR) Part 52.21 as incorporated into this rule.

As demonstrated in Section VII.D.8 of this document, the proposed project is not subject to the requirements of Rule 2410; therefore no further discussion is required.

District Rule 2520 Federally Mandated Operating Permit

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.

² Results were taken from the attached PSD spreadsheet.

³ This project is an intermittent source as defined in APR-1920. In accordance with APR-1920, compliance with short-term (i.e. 1-hour, 3-hours, 8-hours, and 24-hour) standards is not required.

⁴ The criteria pollutants are below EPA's level of significance as found in 40 CFR Part 51.165(b)(2).

District Rule 4001 New Source Performance Standards (NSPS)

40 CFR 60 Subpart III – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

§60.4200(a)(2)(i) states this subpart is applicable to operators of stationary compression ignition IC engines, where the operator commenced construction after July 11, 2005, provided that the engine was manufactured on or after April 1, 2006, and is not fire pump engine.

The applicant proposed to install a brand new 2014 model year, 2,220 bhp stationary compression ignition IC engine that powers an electrical generator. Therefore, the proposed engine is subject to the requirements of this subpart.

§60.4205(b) states the owners and operators of 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 nonroad 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.

§60.4202(a)(2) requires that the engine with maximum power greater or equal to 50 hp, the certification emission standard for new nonroad CI engines for the same model year and maximum engine power in 40 CFR 89.112 for all pollutants beginning in model year 2007.

§89.112 specifies the oxides of nitrogen, carbon monoxide, hydrocarbon, and particulate matter exhaust emission standards for different applicable horsepower range in various Tier Certification Level.

As discussed in Section VI of this document, the applicant proposed to install an EPA Tier 2 certified engine, which comply with the requirements of this subpart.

According to EPA⁵, only South Coast Air Quality Management District in California has obtained a delegation from EPA to enforce the requirements of this subpart. Therefore, the following condition will be listed on the ATC.

- *U.S. EPA administers the requirements of 40 CFR Part 60 Subpart III and 40 CFR Part 63 Subpart ZZZZ. The owner or operator shall comply with the emission and operating limitations, testing requirements, initial and continuous compliance requirements as specified in these subparts. The owner or operator shall submit all applicable notifications, reports, and records to the administrator by the required compliance dates. [District Rules 4001 and 4002]*

⁵ Per EPA website:

<http://yosemite.epa.gov/r9/r9nsps.nsf/0/E43C947C1DA07CFB88257536007A2B51?OpenDocument>

District 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)

This subpart is applicable to any stationary reciprocating internal combustion engine (RICE) at a major or area source of HAP (Hazardous Air Pollutant) emissions, except if the stationary engine is being tested at a stationary engine test cell/stand. A major source of HAP emissions is a facility that has the potential to emit any single HAP at a rate of 10 tons/year or greater or any combinations of HAPs at a rate of 25 tons/year or greater. An area source of HAP emissions is a facility is not a major source of HAP emissions.

The proposed engine is a stationary RICE located at an area source of HAP emissions. Therefore, this engine is subject to the requirements of this subpart.

According to EPA⁶, only twelve Air Pollution Control Districts in California have obtained a delegation from EPA to enforce the requirements of this subpart to non-major sources. This facility is not a major HAP source and the District is not the one of the delegated agencies. Therefore, the following condition will be listed on the ATC:

- *U.S. EPA administers the requirements of 40 CFR Part 60 Subpart IIII and 40 CFR Part 63 Subpart ZZZZ. The owner or operator shall comply with the emission and operating limitations, testing requirements, initial and continuous compliance requirements as specified in these subparts. The owner or operator shall submit all applicable notifications, reports, and records to the administrator by the required compliance dates. [District Rules 4001 and 4002]*

District Rule 4101 Visible Emissions

District Rule 4101, Section 5.0, indicates 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 dark or darker than Ringelmann 1 or equivalent to 20% opacity. The following condition will be listed on the permit 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]*

⁶ Per EPA website:

<http://yosemite.epa.gov/r9/r9nsps.nsf/0/0/B5D42C65285131CD88256F24007C0196?Opendocument>

District Rule 4102 Nuisance

Section 4.0 prohibits discharge of air contaminants, which could cause injury, detriment, nuisance or annoyance to the public. Public nuisance conditions are not expected as a result of these operations, provided the equipment is well maintained. The following condition will be listed on the permit 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 1905-1 (March 2, 2001) - 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. The health risk assessment results are as follow:

RMR Summary			
Categories	Emergency DICE (Unit 9-0)	Project Totals	Facility Totals
Prioritization Score	N/A ⁷	N/A ⁷	>1
Acute Hazard Index	N/A ⁸	N/A ⁸	0.004
Chronic Hazard Index	N/A ⁸	N/A ⁸	0.02
Maximum Individual Cancer Risk	6.01E-07	6.01E-07	4.82E-06
T-BACT Required?	No		
Special Permit Conditions?	Yes		

The cancer risk associated with the operation of the proposed diesel IC engine is 6.01E-07, which is less than the 1 in a million threshold. 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 following conditions will be listed on the permit to ensure compliance with this Safety Code.

- *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]*

⁷ Prioritization for this unit was not conducted since it has been determined that all diesel-fired IC engines will result in a prioritization score greater than 1.0.

⁸ Acute and Chronic Hazard Indices were not calculated since there is no risk factor, or the risk factor is so low that the risk has been determined to be insignificant for this type of unit.

- *The exhaust stack shall vent vertically upward. The vertically exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]*
- *The engine shall be operated only for maintenance, testing, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 50 hours per year. [District Rules 2201 and 4702 and 17 CCR 93115]*

District Rule 4201 Particulate Matter Concentration

Section 3.0 prohibits discharge of dust, fumes, or total particulate matter into the atmosphere from any single source operation in excess of 0.1 grain per dry standard cubic foot, which, as calculated below, is equivalent to a PM₁₀ emission factor of 0.4 g-PM₁₀/bhp-hr.

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

The new engine has a PM₁₀ emission factor less than 0.4 g/bhp-hr. Therefore, compliance with District Rule 4201 requirements is expected and a permit condition will be listed on the permit as follows:

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

District 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

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

District Rule 4702 Internal Combustion Engines – Phase 2

The following table demonstrates how the proposed engine will comply with the requirements of District Rule 4702.

District Rule 4702 Requirements Emergency Standby IC Engines	Proposed Method of Compliance with District Rule 4702 Requirements
<p>Operation of emergency standby engines is limited to 100 hours or less per calendar year for non-emergency purposes; verified through the use of a non-resettable elapsed operating time meter.</p>	<p>The Air Toxic Control Measure for Stationary Compression Ignition Engines (Stationary ATCM) limits the engine maintenance and testing to 50 hours/year for engine powering electrical generator. Thus, compliance is expected.</p>
<p>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.</p>	<p>The following conditions will be included on the permit:</p> <ul style="list-style-type: none"> • {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] • {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]
<p>The owner/operator must operate and maintain the engine(s) and any installed control devices according to the manufacturers written instructions.</p>	<p>The following condition will be included on the permit:</p> <ul style="list-style-type: none"> • 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]
<p>The owner/operator must monitor the operational characteristics of each engine as recommended by the engine manufacturer or emission control system supplier.</p>	<p>The following condition will be included on the permit:</p> <ul style="list-style-type: none"> • {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]

<p>Records of the total hours of operation of the emergency standby engine, type of fuel used, purpose for operating the engine, all hours of non-emergency and emergency operation, and 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.</p>	<p>The following conditions will be included on the permit:</p> <ul style="list-style-type: none"> • {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] • The permittee shall maintain monthly records of the type of fuel purchased. [District Rule 4702 and 17 CCR 93115] • 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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District 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 (universal gas constant) = $\frac{10.73 \text{ psi} \cdot \text{ft}^3}{\text{lb} \cdot \text{mol} \cdot \text{°R}}$

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

Since 1.0 ppmv is ≤ 2,000 ppmv, this engine is expected to comply with Rule 4801. Therefore, the following condition will be listed on the permit to ensure compliance:

- 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)

As discussed in Section III of this document, a school notice is not required for this project.

Title 17 California Code of Regulations (CCR), Section 93115

– Airborne Toxic Control Measure (ATCM) for Stationary Compression-Ignition (CI) Engines

The following table demonstrates how the proposed engine will comply with the requirements of Title 17 CCR Section 93115.

Title 17 CCR Section 93115 Requirements for New Emergency IC Engines Powering Fire Pump	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, was included earlier in this evaluation.								
<p>Per Table 1 of this ATCM, a new stationary emergency standby diesel-fueled engine rated at 2,220 hp and model year 2014 or later, must meet the following emissions standards:</p> <table border="1" data-bbox="181 1075 824 1213"> <thead> <tr> <th>Max Engine Power</th> <th>NOx + VOC (g/bhp-hr)</th> <th>CO (g/bhp-hr)</th> <th>PM (g/bhp-hr)</th> </tr> </thead> <tbody> <tr> <td>> 750HP</td> <td>4.8</td> <td>2.6</td> <td>0.15</td> </tr> </tbody> </table>	Max Engine Power	NOx + VOC (g/bhp-hr)	CO (g/bhp-hr)	PM (g/bhp-hr)	> 750HP	4.8	2.6	0.15	<p>The applicant has proposed the use of engine(s) that are certified to the latest EPA Tier Certification level (See engine manufacturer datasheet in Appendix II of this document), guaranteeing compliance with the emission standards of this ATCM. Additionally, the proposed diesel PM emissions rate is less than or equal to 0.15 g/bhp-hr.</p>
Max Engine Power	NOx + VOC (g/bhp-hr)	CO (g/bhp-hr)	PM (g/bhp-hr)						
> 750HP	4.8	2.6	0.15						
The engine may not be operated more than 50 hours per year for maintenance and testing purposes.	<p>The following condition will be included on the permit:</p> <ul style="list-style-type: none"> 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 Rule 4702 and 17 CCR 93115] 								
New stationary emergency standby diesel-fueled CI engines (> 50 bhp) must meet the standards for off-road engines of the same model year and maximum rated power as specified in the Off-Road Compression Ignition Engine Standards (title 13, CCR, section 2423).	The applicant has proposed the use of engine(s) that are certified to the latest EPA Tier Certification level for the applicable horsepower range.								

<p>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</p>	<p>The District has verified that this engine is not located within 500 feet of a school.</p>
<p>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.</p>	<p>Permit conditions enforcing these requirements were shown earlier in the evaluation.</p>

California Environmental Quality Act (CEQA)

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 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; and
- 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.

IX. RECOMMENDATION

Pending a successful NSR Public Noticing period, issue Authority to Construct permit N-8700-9-0 subject to the permit conditions listed on the attached draft ATC in Appendix I.

X. BILLING INFORMATION

Annual Permit Fees			
Permit Number	Fee Schedule	Fee Description	Annual Fee
N-8700-9-0	3020-10-F (1,000 or Greater but less Than 5,000 bhp)	2,220 bhp	\$ 749

APPENDICES

- Appendix I: Draft Authority to Construct (ATC)*
- Appendix II: Engine's Manufacturer Datasheet*
- Appendix III: BACT Guideline & Top-Down BACT Analysis*
- Appendix IV: RMR and AAQA Summaries*

APPENDIX I

Draft Authority to Construct (ATC)

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: N-8700-9-0

LEGAL OWNER OR OPERATOR: WM RIVERBANK RECOVERY LLC
MAILING ADDRESS: 9600 NIMBUS AVENUE, STE 260
BEAVERTON, OR 97008-7388

LOCATION: 5300 CLAUS ROAD
RIVERBANK, CA

EQUIPMENT DESCRIPTION:
2,220 BHP (INTERMITTENT) CUMMINS MODEL QSK50-GR NR2 TIER 2 CERTIFIED DIESEL-FIRED EMERGENCY
STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR

CONDITIONS

1. {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]
2. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
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. This engine shall be equipped with an operational non-resettable elapsed time meter or other APCO approved alternative. [District Rules 4701 and 4702, and 17 CCR 93115]
6. 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: 3.99 g-NOx/bhp-hr, 0.9 g-CO/bhp-hr, or 0.21 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]
9. 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]

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.

Seyed Sadredin, Executive Director, APCO

Arnaud Marjolle, Director of Permit Services

N-8700-9-0 Jun 11 2014 1:13PM - 80W Joint Inspection NOT Required

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. 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 Rules 4701 and 4702]
12. 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 Rules 4701 and 4702]
13. 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 4701 and 4702 and 17 CCR 93115]
14. 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 Rules 4701 and 4702 and 17 CCR 93115]
15. The permittee shall maintain monthly records of the type of fuel purchased. [District Rules 4701 and 4702 and 17 CCR 93115]
16. 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 4701 and 4702 and 17 CCR 93115]
17. U.S. EPA administers the requirements of 40 CFR Part 60 Subpart IIII and 40 CFR Part 63 Subpart ZZZZ. The owner or operator shall comply with the emission and operating limitations, testing requirements, initial and continuous compliance requirements as specified in these subparts. The owner or operator shall submit all applicable notifications, reports, and records to the administrator by the required compliance dates. [District Rules 4001 and 4002].

DRAFT

APPENDIX II

Engine's Manufacturer Datasheet



**Power
Generation**

**2013 EPA Tier 2 Exhaust Emission
Compliance Statement
1500DQGAF
Stationary Emergency
60 Hz Diesel Generator Set**

Compliance Information:

The engine used in this generator set complies with Tier 2 emissions limit of U.S. EPA New Source Performance Standards for stationary emergency engines under the provisions of 40 CFR 60 Subpart IIII when tested per ISO8178 D2.

Engine Manufacturer:	Cummins Inc
EPA Certificate Number:	DCEXL050.AAD-025
Effective Date:	05/01/2012
Date Issued:	05/01/2012
EPA Engine Family (Cummins Emissions Family):	DCEXL050.AAD (D283)

Engine Information:

Model:	QSK50-G5 NR2	Bore:	6.25 in. (159 mm)
Engine Nameplate HP:	2220	Stroke:	6.25 in. (159 mm)
Type:	4 Cycle, 60°V, 16 Cylinder Diesel	Displacement:	3067cu. in. (50.2 liters)
Aspiration:	Turbocharged and CAC	Compression Ratio:	15.0:1
Emission Control Device:	Electronic Control		

Diesel Fuel Emission Limits

D2 Cycle Exhaust Emissions

	Grams per BHP-hr			Grams per kWm-hr		
	<u>NOx + NMHC</u>	<u>CO</u>	<u>PM</u>	<u>NOx + NMHC</u>	<u>CO</u>	<u>PM</u>
Test Results - Diesel Fuel (300-4000 ppm Sulfur)	4.6	0.9	0.06	6.1	1.2	0.08
EPA Emissions Limit	4.8	2.6	0.15	6.4	3.5	0.20
Test Results - CARB Diesel Fuel (<15 ppm Sulfur)	4.2	0.9	0.05	5.6	1.2	0.07
CARB Emissions Limit	4.8	2.6	0.15	6.4	3.5	0.20

The CARB emission values are based on CARB approved calculations for converting EPA (500 ppm) fuel to CARB (15 ppm) fuel.
Test Methods: EPA/CARB Nonroad emissions recorded per 40CFR89 (ref. ISO8178-1) and weighted at load points prescribed in Subpart E, Appendix A for Constant Speed Engines (ref. ISO8178-4, D2).

Diesel Fuel Specifications: Cetane Number: 40-48. Reference: ASTM D975 No. 2-D.

Reference Conditions: Air Inlet Temperature: 25°C (77°F), Fuel Inlet Temperature: 40°C (104°F). Barometric Pressure: 100 kPa (29.53 in Hg), Humidity: 10.7 g/kg (75 grains H2O/lb) of dry air; required for NOx correction. Restrictions: Intake Restriction set to a maximum allowable limit for clean filter; Exhaust Back Pressure set to a maximum allowable limit.

Tests conducted using alternate test methods, instrumentation, fuel or reference conditions can yield different results.

Engine operation with excessive air intake or exhaust restriction beyond published maximum limits, or with improper maintenance, may result in elevated emission levels.

APPENDIX III

BACT Guideline & Top-Down BACT Analysis

San Joaquin Valley Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline 3.1.1
Last Update: 7/10/2009
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/hp-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 for NO_x & VOC emissions

BACT Guideline 3.1.1 applies to emergency diesel-fired IC engines. In accordance with the District BACT policy, information from that guideline will be utilized without further analysis:

Step 1 - Identify all control technologies

Achieved in Practice or contained in the SIP:

Latest EPA Tier Certification level for applicable horsepower range

To determine the latest applicable Tier level, the following EPA and state regulations were consulted:

- 40 CFR Part 60 Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines
- 40 CFR Part 89 – Control of Emissions from New and In-Use Nonroad Compression – Ignition Engines
- 40 CFR Part 1039 – Control of Emissions from New and In-Use Nonroad Compression-Ignition Engines
- Title 17 CCR, Section 93115 - Airborne Toxic Control Measure (ATCM) for Stationary Compression-Ignition (CI) Engines

40 CFR Parts 89 and 1039, which apply only to nonroad engines, do not directly apply because the proposed emergency engine(s) do not meet the definition of a nonroad engine. Therefore, only Title 17 CCR, Section 93115 and 40 CFR Part 60 Subpart IIII apply directly to the proposed emergency engine(s).

Title 17 CCR, Section 93115.6(a)(3)(A) (CARB stationary diesel engine ATCM) applies to emergency standby diesel-fired engines and requires that such engines be certified to the emission levels in Table 1 (below). Please note that these levels are at least as stringent or more stringent than the emission levels in 40 CFR Subpart IIII.

Table 1: Emission Standards for New Stationary Emergency Standby Diesel-Fueled CI Engines g/bhp-hr (g/kW-hr)					
Maximum Engine Power	Tier	Model Year(s)	PM	NMHC+NOx	CO
50 ≤ HP < 75 (37 ≤ kW < 56)	2	2007	0.15 (0.20)	5.6 (7.5) 3.5 (4.7)	3.7 (5.0)
	4i	2008+			
75 ≤ HP < 100 (56 ≤ kW < 75)	2	2007	0.15 (0.20)	5.6 (7.5) 3.5 (4.7)	3.7 (5.0)
	3	2008+			
100 ≤ HP < 175 (75 ≤ kW < 130)	3	2007	0.15 (0.20)	3.0 (4.0)	3.7 (5.0)
		2008+			
175 ≤ HP < 300 (130 ≤ kW < 225)	3	2007	0.15 (0.20)	3.0 (4.0)	2.6 (3.5)
		2008+			
300 ≤ HP < 600 (225 ≤ kW < 450)	3	2007	0.15 (0.20)	3.0 (4.0)	2.6 (3.5)
		2008+			
600 ≤ HP ≤ 750 (450 ≤ kW ≤ 560)	3	2007	0.15 (0.20)	3.0 (4.0)	2.6 (3.5)
		2008+			
HP > 750 (kW > 560)	2	2007	0.15 (0.20)	4.8 (6.4)	2.6 (3.5)
		2008+			

Additionally, 40 CFR Subpart IIII establishes emission standards for emergency diesel IC engines. These emission standards are the same as those specified in the CARB ATCM, except for engines rated greater than or equal to 50 and less than 75 hp. For such IC engines, the CARB ATCM is more stringent.

Therefore, the most stringent applicable emission standards are those listed in the CARB ATCM (Table 1).

For IC engines rated greater than or equal to 50 hp and less than 75 hp the the highest Tier required is Tier 4i. For IC engines rated greater than or equal to 75 hp and less than 750 hp the highest Tier required is Tier 3. For engines rated equal to or greater than 750 hp the highest Tier required is Tier 2.

Also, please note that neither the state ATCM nor the Code of Federal Regulations require the installation of IC engines meeting a higher Tier standard than those listed above for emergency applications, due to concerns regarding the effectiveness of the exhaust emissions controls during periods of short-term operation (such as testing operational readiness of an emergency engine).

The proposed engine is rated at 2,220 hp. As discussed in section VI of this document, the applicable control technology option is EPA Tier 2 certification level.

Technologically Feasible:

There is no technologically feasible control technology listed on this guideline.

Alternate Basic Equipment:

There is no alternate basic equipment listed on this guideline.

Step 2 - Eliminate technologically infeasible options

There are no technologically infeasible options that can be eliminated from step 1.

Step 3 - Rank remaining options by control effectiveness

Ranking of the control technologies is not required since the applicant has proposed utilize the only control technology, achieved in practice control technology listed on this guideline.

Step 4 - Cost Effectiveness Analysis

Pursuant to District BACT Policy APR 1305 IX.D.3 (11/99), a cost-effective analysis is not required since the applicant has proposed utilize the most stringent control technology option listed in Step 3. Therefore, the cost effectiveness analysis is not required.

Step 5 - Select BACT

BACT for NO_x and VOC will be the use of an EPA Tier 2 certified engine. The applicant is proposing such unit. See engine's manufacturer datasheet in Appendix II of this document. Therefore, BACT will be satisfied.

Top-Down BACT Analysis for PM₁₀ emissions

BACT Guideline 3.1.1 applies to emergency diesel-fired IC engines. In accordance with the District BACT policy, information from that guideline will be utilized without further analysis:

Step 1 - Identify all control technologies

Achieved in Practice or contained in the SIP:

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

The proposed engine is rated at 2,220 hp. As discussed in section VI of this document, the applicable control technology option is EPA Tier 2 certification level.

EPA Tier 2 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.

Technologically Feasible & Alternate Basic Equipment:

There is no technologically feasible control technology or alternate basic equipment listed on this guideline.

Step 2 - Eliminate technologically infeasible options

There are no technologically infeasible options that can be eliminated from step 1.

Step 3 - Rank remaining options by control effectiveness

Ranking of the control technologies is not required since the applicant has proposed utilize the only control technology, achieved in practice control technology listed on this guideline.

Step 4 - Cost Effectiveness Analysis

Pursuant to District BACT Policy APR 1305 IX.D.3 (11/99), a cost-effective analysis is not required since the applicant has proposed utilize the most stringent control technology option listed in Step 3. Therefore, the cost effectiveness analysis is not required.

Step 5 - Select BACT

BACT for PM₁₀ is emissions of 0.15 g/hp-hr. The applicant is proposing engine with PM₁₀ emissions rate of 0.05 g/hp-hr. Therefore, BACT (T-BACT) will be satisfied.

APPENDIX VI

RMR and AAQA Summaries

San Joaquin Valley Air Pollution Control District Risk Management Review

To: Wai-Man So - Permit Services
 From: Ester Davila - Permit Services
 Date: June 11, 2014
 Facility Name: WM Riverbank Recovery LLC
 Location: 5300 Claus Road, Riverbank CA
 Application #(s): N-8700-9-0
 Project #: N-1141802

A. RMR SUMMARY

RMR Summary			
Categories	Emergency Diesel ICE (Unit 9-0)	Project Totals	Facility Totals
Prioritization Score	N/A ¹	N/A ¹	>1
Acute Hazard Index	N/A ²	N/A ²	0.004
Chronic Hazard Index	N/A ²	N/A ²	0.02
Maximum Individual Cancer Risk	6.01E-07	6.01E-07	4.82E-06
T-BACT Required?	No		
Special Permit Conditions?	Yes		

1. Prioritization for this unit was not conducted since it has been determined that all diesel-fired IC engines will result in a prioritization score greater than 1.0.
2. Acute and Chronic Hazard Indices were not calculated since there is no risk factor, or the risk factor is so low that the risk has been determined to be insignificant for this type of unit.

Proposed Permit Conditions

To ensure that human health risks will not exceed District allowable levels; the following permit conditions must be included for:

Unit 9-0

1. The PM10 emissions rate shall not exceed **0.05 g/bhp-hr** based on US EPA certification using ISO 8178 test procedure. [District Rules 2201]
2. {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] N
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**. [District Rule 4702 and 17 CCR 93115]

III. Conclusions

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

The Cancer Risk associated with the operation of the proposed diesel IC engine is **6.01E-07**, which is less than the 1 in a million threshold. 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 conditions listed on Page 1 of this report must be included for the 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.

Attachments

RMR Request Form
Project Location Maps
DICE Spreadsheet
AAQA Results
Facility Summary
AERMOD Non-Regulatory Option Checklist

B. RMR REPORT

I. Project Description

Technical Services received a request on May 14, 2014, to perform an Ambient Air Quality Analysis (AAQA) and a Risk Management Review (RMR) for a 2200 bhp TEIR 2 emergency diesel IC engine powering an electrical generator.

II. Analysis

Diesel exhaust emissions from the engine were calculated using the District approved DICE spreadsheet. These emissions were input into the HEARTs database. The AERMOD model was used, with the parameters outlined below and meteorological data for 2005 to 2009 from Modesto 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 Hot Spots Analysis and Reporting Program (HARP) risk assessment module to calculate the chronic and acute hazard indices and the carcinogenic risk for the project.

The following parameters were used for the review:

Analysis Parameters			
PM₁₀ g/hp-hr	0.05	Source Type	Point
BHP	2200	Stack Diameter (m)	0.36
Closest Receptor (m)	183	Stack Height (m)	4.3
Max Hours per Year	50	Stack Gas Temp. (K)	791.5
Location Type	Urban	Stack Gas Velocity (m/s)	57.5

Technical Services also performed modeling for criteria pollutants NO_x, SO_x, CO and PM₁₀, as well as the RMR. The emission rates used for criteria pollutant modeling were 976 lbs/yr NO_x, 0.5 lbs/yr SO_x, 220 lbs/yr CO and 12 lbs/yr PM₁₀.

The results from the Criteria Pollutant Modeling are as follows:

Criteria Pollutant Modeling Results*

Diesel ICE	1 Hour	3 Hours	8 Hours	24 Hours	Annual
CO	NA ¹	X	NA ¹	X	X
NO _x	NA ¹	X	X	X	Pass
SO _x	NA ¹	NA ¹	X	NA ¹	Pass
PM ₁₀	X	X	X	NA ¹	Pass ²

*Results were taken from the attached PSD spreadsheet.

¹The 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).