



NOV 15 2017

Timothy Scully
WinCo Foods, LLC
PO Box 581770
Modesto, CA 951770

Re: Notice of Preliminary Decision - Authority to Construct
Facility Number: N-5367
Project Number: N-1172958

Dear Mr. Scully:

Enclosed for your review and comment is the District's analysis of WinCo Foods, LLC's application for an Authority to Construct for installation of a 1,214 bhp diesel-fired emergency standby IC engine powering an electrical generator, at 4400 Crows Landing, Modesto.

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 Ms. Andrea Ogden of Permit Services at (559) 230-5886.

Sincerely,

Arnaud Marjollet
Director of Permit Services

AM:ao

Enclosures

cc: Tung Le, 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

Application Review

Diesel-Fired Emergency Standby IC Engine

Facility Name: WinCo Foods, LLC
Mailing Address: PO Box 581770
Modesto, CA 95358-9304
Contact Person: Timothy Scully
Telephone: (209) 556-6040
E-mail: tim.scully@wincofoods.com
Application #: N-5367-8-0
Project #: N-1172958
Deemed Complete: August 31, 2017

Date: November 3, 2017
Engineer: Andrea Ogden
Lead Engineer: Robert Gilles

I. Proposal

WinCo Foods, LLC is proposing to install a 1,214 bhp (intermittent) diesel-fired emergency standby internal combustion (IC) engine powering an electrical generator. This unit will be replacing an existing permitted emergency IC engine, permit unit N-5367-6-0.

The following condition will be included on the Authority to Construct (ATC) to ensure compliance:

- Upon startup of the equipment authorized by this Authority to Construct (ATC), Permit to Operate N-5367-6-0 shall be surrendered to the District and the associated equipment shall be removed or rendered inoperable. [District Rule 2201]

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

The equipment will be located at 4400 Crows Landing Rd in Modesto, CA.

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

IV. Process Description

The emergency standby 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

N-5367-8-0: 1,214 BHP (INTERMITTENT) CATERPILLAR MODEL C27 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 Tier 2 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 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
Thermal efficiency of engine:	commonly ≈ 35%
PM ₁₀ fraction of diesel exhaust:	0.96 (CARB, 1988)
Conversion factor:	453.6 grams/lb

B. Emission Factors

Emission Factors		
Pollutant	Emission Factor (g/bhp-hr)	Source
NO _x	6.27	Engine Manufacturer
SO _x	0.0051	Mass Balance Equation Below
PM ₁₀	0.05	Engine Manufacturer
CO	0.43	Engine Manufacturer
VOC	0.05	Engine Manufacturer

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

C. Calculations

1. Pre-Project Potential to Emit (PE1)

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

2. Post-Project Potential to Emit (PE2)

The daily and annual PE2 are calculated as follows:

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

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

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/year)
NO _x	6.27	1,214	24	50	402.7	839
SO _x	0.0051	1,214	24	50	0.3	1
PM ₁₀	0.05	1,214	24	50	3.2	7
CO	0.43	1,214	24	50	27.6	58
VOC	0.05	1,214	24	50	3.2	7

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.

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

SSPE1 (lb/year)					
	NO_x	SO_x	PM₁₀	CO	VOC
SSPE1	3,524	4	61	379	325

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 and removal of the emergency standby engine permitted as -6-0. Thus:

SSPE2 (lb/year)					
Permit Unit	NO _x	SO _x	PM ₁₀	CO	VOC
SSPE1	3,524	4	61	379	325
N-5367-6-0 (removed)	-130	0	-5	-24	-9
N-5367-8-0	839	1	7	58	7
SSPE2	4,233	5	63	413	323

5. Major Source Determination

Rule 2201 Major Source Determination:

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

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

Rule 2201 Major Source Determination (lb/year)						
	NO _x	SO _x	PM ₁₀	PM _{2.5}	CO	VOC
SSPE1	3,524	4	61	61	379	325
SSPE2	4,233	5	63	63	413	323
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 following¹:

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

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?
NO _x	402.7	> 2.0	n/a	Yes
SO _x	0.3	> 2.0	n/a	No
PM ₁₀	3.2	> 2.0	n/a	Yes
CO	27.6	> 2.0 and SSPE2 ≥ 200,000 lb/yr	356	No
VOC	3.2	> 2.0	n/a	Yes

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

As shown above, BACT is triggered for NO_x, 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:

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

*Note: The certification requirements for emergency engines are as follows:
50 ≤ bhp < 75 – Tier 4I; 75 ≤ bhp < 750 – Tier 3; ≥ 750 bhp – Tier 2.

The facility has proposed to install a 1,214 bhp Tier 2 certified IC engine with a PM₁₀ emissions rate of 0.05 g/bhp-hr. Therefore, BACT is satisfied for NO_x, VOC, and PM₁₀.

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	PM ₁₀	CO	VOC
SSPE2	4,233	5	63	413	323
Offset Thresholds	20,000	54,750	29,200	200,000	20,000
Offsets Triggered?	No	No	No	No	No

2. Quantity of Offsets Required

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

C. Public Notification

1. Applicability

Public noticing is required for:

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

As shown in Sections VII.C.5, VII.C.7, and VII.C.8, this facility is not a new Major Source, not an SB 288 Major Modification, and not a Federal Major Modification, respectively. Therefore public noticing for these purposes is not required.

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

As calculated in Section VII.C.2, daily emissions for NOx are greater than 100 lb/day. Therefore public noticing for these purposes is required.

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

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

Offset Thresholds				
Pollutant	SSPE1 (lb/year)	SSPE2 (lb/year)	Offset Threshold	Public Notice Required?
NO _x	3,524	4,233	20,000 lb/year	No
SO _x	4	5	54,750 lb/year	No
PM ₁₀	61	63	29,200 lb/year	No
CO	379	413	200,000 lb/year	No
VOC	325	323	20,000 lb/year	No

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

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

For this project, the proposed 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 and public noticing is not required for SSIPE exceeding 20,000 lb/year for any pollutant.

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

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

2. Public Notice Action

As demonstrated above, this project will require public noticing. Therefore, public notice documents will be submitted to the California Air Resources Board (CARB) and a public notice will be 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: 6.27 g-NOx/bhp-hr, 0.43 g-CO/bhp-hr, or 0.05 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]
- {4772} Emissions from this IC engine shall not exceed 0.05 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]
- {4258} Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [District Rules 2201 and 4801, and 17 CCR 93115]

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

The owner/operator will be required to monitor the number of hours the engine operates for emergency and nonemergency purposes for compliance with Rule 2201. The following condition will be included on the ATC as a mechanism to enforce compliance.

- This engine shall be equipped with a non-resettable hour meter with a minimum display capability of 9,999 hours. [District Rules 2201 and 4702, and 17 CCR 93115]

3. Recordkeeping

Recordkeeping is required to demonstrate compliance with the offset, public notification, and daily emission limit requirements of Rule 2201. The following conditions will be included on the ATC as a mechanism to enforce compliance.

- 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, emergency firefighting, 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 2201 and 4702, and 17 CCR 93115]

- All records shall be maintained and retained on-site for a minimum of five years, and shall be made available for District inspection upon request. [District Rules 2201 and 4702, and 17 CCR 93115]

4. Reporting

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

F. Ambient Air Quality Analysis (AAQA)

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

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

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

Rule 2410 Prevention of Significant Deterioration

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

Rule 2520 Federally Mandated Operating Permits

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

Rule 4001 New Source Performance Standards (NSPS)

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

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

Rule 4002 National Emission Standards for Hazardous Air Pollutants

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

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

Rule 4101 Visible Emissions

Rule 4101 states that no air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. Therefore, the following condition will be listed on 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)

District Policy APR 1905 – *Risk Management Policy for Permitting New and Modified Sources* specifies that for an increase in emissions associated with a proposed new

source or modification, the District perform an analysis to determine the possible impact to the nearest resident or worksite.

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

RMR Summary			
Categories	Emergency IC Engine (Unit 8-0)	Project Totals	Facility Totals
Prioritization Score	N/A	N/A	>1
Acute Hazard Index	N/A	N/A	0.0
Chronic Hazard Index	0.00	0.00	0.00
Maximum Individual Cancer Risk	1.49E-07	1.49E-07	3.78E-06
T-BACT Required?	No		
Special Permit Conditions?	Yes		

Discussion of T-BACT

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

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

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

- {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]

- {4772} Emissions from this IC engine shall not exceed 0.05 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]
- {4920} This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 50 hours per calendar year. [District Rules 2201, 4102, and 4702, and 17 CCR 93115]

Rule 4201 Particulate Matter Concentration

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

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

The new engine has a PM₁₀ emission factor less than 0.4 g/bhp-hr. Therefore, compliance 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 (NO_x), carbon monoxide (CO), and volatile organic compounds (VOC) from internal combustion engines. Except as provided in Section 4.0, the provisions of this rule apply to any internal combustion engine, rated greater than 50 bhp, that requires a PTO.

The proposed 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.

The following condition 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:

- This engine shall be equipped with a non-resettable hour meter with a minimum display capability of 9,999 hours. [District Rules 2201 and 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:

- 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 2201, 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]
- 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 2201, 4702 and 17 CCR 93115]

Rule 4801 Sulfur Compounds

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

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

n = moles SO₂

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

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

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

Since 1.0 ppmv is ≤ 2,000 ppmv, 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)

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.

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
<p>Emergency engine(s) must be fired on CARB diesel fuel, or an approved alternative diesel fuel.</p>	<p>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.</p> <ul style="list-style-type: none"> • {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]
<p>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.</p>	<p>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.</p>
<p>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 0.05 g/bhp-hr, therefore the engine is allowed 50 hours.</p>	<p>The following conditions will be included on the permit:</p> <ul style="list-style-type: none"> • {4772} Emissions from this IC engine shall not exceed 0.05 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115] • {4920} This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 50 hours per calendar year. [District Rules 2201, 4102, and 4702, and 17 CCR 93115]
<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' of a school.</p>
<p>A non-resettable hour meter with a minimum display capability of 9,999 hours shall be installed upon engine installation,</p>	<p>The following condition will be included on the permit:</p> <ul style="list-style-type: none"> • This engine shall be equipped with a non-resettable hour meter with a minimum display capability of

<p>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.</p>	<p>9,999 hours. [District Rules 2201 and 4702, and 17 CCR 93115]</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>The following condition will be included on the permit:</p> <ul style="list-style-type: none"> • 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 2201, 4702 and 17 CCR 93115]

California Environmental Quality Act (CEQA)

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

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

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

Pending a successful NSR public noticing period, issue Authority to Construct N-5367-8-0 subject to the permit conditions on the attached draft ATC in Appendix A.

Billing Schedule			
Permit Number	Fee Schedule	Fee Description	Fee Amount
N-5367-8-0	3020-10-F	1,214 bhp IC engine	\$820

Appendixes

- A. Draft ATC
- B. BACT Guideline and BACT Analysis
- C. Emissions Data Sheet
- D. RMR and AAQA
- E. QNEC Calculations
- F. SSPE1 Calculations

Appendix A
Draft ATC

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT

PERMIT NO: N-5367-8-0

LEGAL OWNER OR OPERATOR: WINCO FOODS
MAILING ADDRESS: PO BOX 5756
ATTN: PROPERTY ACCOUNTING
BOISE, ID 83705

LOCATION: 4400 CROWS LANDING
CERES, CA 95307

EQUIPMENT DESCRIPTION:

1,214 BHP (INTERMITTENT) CATERPILLAR MODEL C27 TIER 2 CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR

CONDITIONS

1. Upon startup of the equipment authorized by this Authority to Construct (ATC), Permit to Operate N-5367-6-0 shall be surrendered to the District and the associated equipment shall be removed or rendered inoperable. [District Rule 2201]
2. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
3. {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]
4. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
5. {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]
6. This engine shall be equipped with a non-resettable hour meter with a minimum display capability of 9,999 hours. [District Rules 2201, 4702 and 17 CCR 93115]
7. {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]
8. Emissions from this IC engine shall not exceed any of the following limits: 6.27 g-NOx/bhp-hr, 0.43 g-CO/bhp-hr, or 0.05 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]

CONDITIONS CONTINUE ON NEXT PAGE

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

Seyed Sadredin, Executive Director, APCO

Arnaud Marjolle, Director of Permit Services

N-5367-8-0 Nov 8 2017 4:41PM - OGDENA - Joint Inspection NOT Required

9. 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]
10. {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]
11. {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]
12. {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]
13. {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]
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 2201, 4702 and 17 CCR 93115]
15. {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]
16. {4263} The permittee shall maintain monthly records of the type of fuel purchased. [District Rule 4702 and 17 CCR 93115]
17. 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 2201, 4702 and 17 CCR 93115]

DRAFT

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: 9/10/2013
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*		

*Note: The certification requirements are as follows: for emergency engines $50 \leq \text{bhp} < 75$ - Tier 4 Interim; for emergency engines $75 \leq \text{bhp} < 750$ - Tier 3; for emergency engines ≥ 750 bhp - Tier 2.

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 the Emergency IC Engine

BACT Guideline 3.1.1 (September 10, 2013) 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 NO_x and VOC Emissions:

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, the following EPA and state regulations were consulted:

- 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 does not meet the definition of a nonroad engine. Therefore, only Title 17 CCR, Section 93115 applies directly to the proposed emergency engine.

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).

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)	3.7 (5.0)
	4i	2008+		3.5 (4.7)	
75 ≤ HP < 100 (56 ≤ kW < 75)	2	2007	0.15 (0.20)	5.6 (7.5)	3.7 (5.0)
	3	2008+		3.5 (4.7)	
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+			

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 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 1,214 hp. Therefore, the applicable control technology option is EPA Tier 2 certification.

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 NO_x is the use of an EPA Tier 2 certified engine. The applicant is proposing such a unit. Therefore, BACT is satisfied for NO_x.

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

Please note 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, the applicable control technology option is a PM/PM₁₀ emission standard of 0.15 g/hp-hr.

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 is satisfied for PM₁₀.

Appendix C
Emissions Data Sheet

Fred Cruz

From: David Harris <DHarris@holtca.com>
Sent: Thursday, August 31, 2017 8:47 AM
To: Fred Cruz
Subject: Re: Emissions request
Attachments: Pages from Submittals for Record - Winco Foods Modesto.pdf

Date & Emissions Sheets for Winco Genset

David Harris

to: fredcruz

08/30/2017 10:58 AM

Thanks,

Dave Harris
Sales Engineer
Power Systems Division
Holt of California
3850 Channel Drive
West Sacramento, CA 95691-3443
Cell - (916) 826-3148
Fax - (916) 373-4146

HOLT
of California



Thanks,

Dave Harris
Sales Engineer
Power Systems Division
Holt of California
3850 Channel Drive
West Sacramento, CA 95691-3443
Cell - (916) 826-3148
Fax - (916) 373-4146

HOLT
of California



PERFORMANCE DATA[DM7696]

June 19, 2017

Performance Number: DM7696

Change Level: 02

SALES MODEL:	C27	COMBUSTION:	DI
BRAND:	CAT	ENGINE SPEED (RPM):	1,800
ENGINE POWER (BHP):	1,214	HERTZ:	60
GEN POWER WITH FAN (EKW):	800.0	FAN POWER (HP):	39.3
COMPRESSION RATIO:	16.5	ADDITIONAL PARASITICS (HP):	52.2
RATING LEVEL:	STANDBY	ASPIRATION:	TA
PUMP QUANTITY:	1	AFTERCOOLER TYPE:	ATAAC
FUEL TYPE:	DIESEL	AFTERCOOLER CIRCUIT TYPE:	JW+OC, ATAAC
MANIFOLD TYPE:	DRY	INLET MANIFOLD AIR TEMP (F):	120
GOVERNOR TYPE:	ADEM4	JACKET WATER TEMP (F):	210.2
ELECTRONICS TYPE:	ADEM4	TURBO CONFIGURATION:	PARALLEL
IGNITION TYPE:	CI	TURBO QUANTITY:	2
INJECTOR TYPE:	EUI	TURBOCHARGER MODEL:	GTA5008BS-56T-1.60
REF EXH STACK DIAMETER (IN):	10	CERTIFICATION YEAR:	2010
MAX OPERATING ALTITUDE (FT):	7,999	PISTON SPD @ RATED ENG SPD (FT/MIN):	1,800.0

INDUSTRY	SUBINDUSTRY	APPLICATION
OIL AND GAS	LAND PRODUCTION	PACKAGED GENSET
ELECTRIC POWER	STANDARD	PACKAGED GENSET

General Performance Data

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	BRAKE MEAN EFF PRES (BMEP)	BRAKE SPEC FUEL CONSUMPTN (BSFC)	VOL FUEL CONSUMPTN (VFC)	INLET MFLD PRES	INLET MFLD TEMP	EXH MFLD TEMP	EXH MFLD PRES	ENGINE OUTLET TEMP
EKW	%	BHP	PSI	LB/BHP-HR	GAL/HR	IN-HG	DEG F	DEG F	IN-HG	DEG F
800.0	100	1,214	324	0.330	57.3	58.6	120.5	1,230.6	41.1	952.5
720.0	90	1,100	294	0.334	52.5	53.7	115.2	1,195.3	37.5	932.4
640.0	80	988	264	0.339	47.8	48.4	113.4	1,168.6	33.4	919.7
600.0	75	932	249	0.341	45.4	45.5	113.0	1,155.3	31.2	913.8
560.0	70	876	234	0.342	42.9	42.2	111.6	1,138.9	28.8	906.0
480.0	60	765	204	0.344	37.6	34.9	107.3	1,095.6	23.9	882.8
400.0	50	654	175	0.346	32.3	27.3	102.5	1,039.6	19.1	850.4
320.0	40	545	145	0.349	27.1	20.4	98.3	967.7	14.9	804.3
240.0	30	436	116	0.355	22.1	14.5	95.0	875.5	11.4	739.0
200.0	25	380	101	0.359	19.5	11.7	93.6	822.1	9.9	699.4
160.0	20	324	86	0.366	17.0	9.1	92.4	763.2	8.5	654.7
80.0	10	210	56	0.402	12.0	5.1	92.2	626.6	6.3	544.7

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	COMPRESSOR OUTLET PRES	COMPRESSOR OUTLET TEMP	WET INLET AIR VOL FLOW RATE	ENGINE OUTLET WET EXH GAS VOL FLOW RATE	WET INLET AIR MASS FLOW RATE	WET EXH GAS MASS FLOW RATE	WET EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)	DRY EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)
EKW	%	BHP	IN-HG	DEG F	CFM	CFM	LB/HR	LB/HR	FT3/MIN	FT3/MIN
800.0	100	1,214	61	362.1	2,216.4	6,011.7	9,543.1	9,944.2	2,093.1	1,894.9
720.0	90	1,100	57	341.6	2,124.9	5,659.3	9,125.9	9,493.8	1,998.8	1,815.5
640.0	80	988	51	320.7	2,001.3	5,260.8	8,572.1	8,906.9	1,875.2	1,707.1
600.0	75	932	48	309.9	1,930.4	5,042.0	8,257.4	8,575.1	1,805.0	1,645.1
560.0	70	876	44	295.4	1,851.1	4,797.3	7,907.3	8,207.3	1,727.2	1,576.0
480.0	60	765	37	264.1	1,678.1	4,260.9	7,148.0	7,411.6	1,560.5	1,427.2
400.0	50	654	29	233.3	1,497.7	3,697.0	6,361.6	6,588.0	1,367.5	1,272.0
320.0	40	545	22	203.3	1,329.0	3,157.0	5,630.4	5,820.5	1,228.0	1,129.6
240.0	30	436	16	173.6	1,175.4	2,643.8	4,970.3	5,124.7	1,084.4	1,003.3
200.0	25	380	13	158.7	1,102.8	2,392.1	4,660.7	4,797.2	1,014.7	942.2
160.0	20	324	10	143.8	1,032.8	2,142.5	4,363.5	4,482.1	945.3	881.3
80.0	10	210	6	121.2	826.9	1,716.6	3,911.4	3,995.6	840.3	792.1

Heat Rejection Data

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	REJECTION TO JACKET WATER	REJECTION TO ATMOSPHERE	REJECTION TO EXH	EXHAUST RECOVERY TO 350F	FROM OIL COOLER	FROM AFTERCOOLER	WORK ENERGY	LOW HEAT VALUE ENERGY	HIGH HEAT VALUE ENERGY
EKW	%	BHP	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN
800.0	100	1,214									
720.0	90	1,100									
640.0	80	988									
600.0	75	932									
560.0	70	876									
480.0	60	765									
400.0	50	654									
320.0	40	545									
240.0	30	436									
200.0	25	380									
160.0	20	324									
80.0	10	210									

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800.0	100	1,214	18,785	6,240	45,257	25,637	6,549	9,235	51,468	122,961	130,864
720.0	90	1,100	18,137	5,061	42,000	23,586	6,007	8,276	46,664	112,779	120,138
640.0	80	988	17,141	4,437	38,642	21,600	5,462	7,119	41,902	102,550	109,241
600.0	75	932	16,243	4,573	36,868	20,559	5,186	6,513	39,533	97,376	103,729
560.0	70	876	15,133	4,950	34,899	19,383	4,898	5,822	37,162	91,965	97,965
480.0	60	765	13,933	4,599	30,563	16,728	4,301	4,488	32,445	80,759	86,028
400.0	50	654	12,297	4,489	26,024	13,914	3,694	3,331	27,748	69,364	73,890
320.0	40	545	10,665	4,336	21,575	11,109	3,103	2,367	23,120	58,261	62,063
240.0	30	436	9,960	3,213	17,222	8,311	2,521	1,564	18,469	47,340	50,429
200.0	25	380	9,576	2,592	15,113	6,955	2,231	1,215	16,122	41,885	44,618
160.0	20	324	9,057	2,021	13,057	5,639	1,939	898	13,745	36,402	38,778
80.0	10	210	7,177	1,693	9,288	3,167	1,375	455	8,885	25,814	27,498

Emissions Data

RATED SPEED POTENTIAL SITE VARIATION: 1800 RPM

GENSET POWER WITH FAN	EKW	800.0	600.0	400.0	200.0	80.0
PERCENT LOAD	%	100	75	50	26	10
ENGINE POWER	BHP	1,214	932	654	380	210
TOTAL NOX (AS NO2)	G/HR	7,541	4,507	2,865	1,989	1,253
TOTAL CO	G/HR	517	644	630	514	567
TOTAL HC	G/HR	66	83	90	71	85
PART MATTER	G/HR	55.4	52.1	86.3	99.7	101.9
TOTAL NOX (AS NO2)	(CORR 5% O2) MG/NM3	3,121.8	2,374.5	2,149.1	2,626.2	2,606.8
TOTAL CO	(CORR 5% O2) MG/NM3	215.2	343.4	483.1	717.2	1,372.2
TOTAL HC	(CORR 5% O2) MG/NM3	23.7	38.9	59.2	87.9	183.2
PART MATTER	(CORR 5% O2) MG/NM3	18.9	22.9	55.1	113.5	210.1
TOTAL NOX (AS NO2)	(CORR 5% O2) PPM	1,521	1,157	1,047	1,279	1,270
TOTAL CO	(CORR 5% O2) PPM	172	275	386	574	1,098
TOTAL HC	(CORR 5% O2) PPM	44	73	111	164	342
TOTAL NOX (AS NO2)	G/HP-HR	6.27	4.86	4.40	5.25	6.00
TOTAL CO	G/HP-HR	0.43	0.69	0.97	1.36	2.72
TOTAL HC	G/HP-HR	0.05	0.09	0.14	0.19	0.41
PART MATTER	G/HP-HR	0.05	0.06	0.13	0.26	0.49
TOTAL NOX (AS NO2)	LB/HR	16.63	9.94	6.32	4.38	2.76
TOTAL CO	LB/HR	1.14	1.42	1.39	1.13	1.25
TOTAL HC	LB/HR	0.15	0.18	0.20	0.16	0.19
PART MATTER	LB/HR	0.12	0.11	0.19	0.22	0.22

RATED SPEED NOMINAL DATA: 1800 RPM

GENSET POWER WITH FAN	EKW	800.0	600.0	400.0	200.0	80.0
PERCENT LOAD	%	100	75	50	25	10
ENGINE POWER	BHP	1,214	932	654	380	210
TOTAL NOX (AS NO2)	G/HR	6,233	3,725	2,368	1,644	1,036
TOTAL CO	G/HR	276	344	337	275	303
TOTAL HC	G/HR	35	44	48	37	45
TOTAL CO2	KG/HR	563	445	315	188	116
PART MATTER	G/HR	28.4	26.7	44.2	51.1	52.3
TOTAL NOX (AS NO2)	(CORR 5% O2) MG/NM3	2,580.0	1,962.4	1,776.1	2,170.4	2,154.4
TOTAL CO	(CORR 5% O2) MG/NM3	115.1	183.6	258.3	383.5	733.8
TOTAL HC	(CORR 5% O2) MG/NM3	12.5	20.6	31.3	46.5	96.9
PART MATTER	(CORR 5% O2) MG/NM3	9.7	11.8	28.3	58.2	107.7
TOTAL NOX (AS NO2)	(CORR 5% O2) PPM	1,257	956	865	1,057	1,049
TOTAL CO	(CORR 5% O2) PPM	92	147	207	307	587
TOTAL HC	(CORR 5% O2) PPM	23	38	58	87	181
TOTAL NOX (AS NO2)	G/HP-HR	5.18	4.02	3.63	4.34	4.96
TOTAL CO	G/HP-HR	0.23	0.37	0.52	0.72	1.45
TOTAL HC	G/HP-HR	0.03	0.05	0.07	0.10	0.22
PART MATTER	G/HP-HR	0.02	0.03	0.07	0.13	0.25
TOTAL NOX (AS NO2)	LB/HR	13.74	8.21	5.22	3.62	2.28
TOTAL CO	LB/HR	0.61	0.76	0.74	0.61	0.67
TOTAL HC	LB/HR	0.08	0.10	0.11	0.08	0.10
TOTAL CO2	LB/HR	1,240	982	694	414	255
PART MATTER	LB/HR	0.06	0.06	0.10	0.11	0.12
OXYGEN IN EXH	%	8.9	10.0	11.1	13.1	15.4
DRY SMOKE OPACITY	%	0.2	1.1	2.6	4.3	5.3
BOSCH SMOKE NUMBER		0.14	0.39	0.96	1.51	1.69

Regulatory Information

EPA TIER 2		2006 - 2010		
Locality	Agency	Regulation	Tier/Stage	Max Limits - G/BKW - HR
U.S. (INCL CALIF)	EPA	NON-ROAD	TIER 2	CO: 3.5 NOx + HC: 6.4 PM: 0.20

EPA EMERGENCY STATIONARY		2011 - ---		
Locality	Agency	Regulation	Tier/Stage	Max Limits - G/BKW - HR
U.S. (INCL CALIF)	EPA	STATIONARY	EMERGENCY STATIONARY	CO: 3.5 NOx + HC: 6.4 PM: 0.20

Altitude Derate Data

ALTITUDE CORRECTED POWER CAPABILITY (BHP)

AMBIENT OPERATING TEMP (F)	50	60	70	80	90	100	110	120	130	NORMAL
ALTITUDE (FT)										
0	1,214	1,214	1,214	1,214	1,214	1,214	1,214	1,214	1,214	1,214
1,000	1,214	1,214	1,214	1,214	1,214	1,214	1,214	1,214	1,214	1,214
2,000	1,214	1,214	1,214	1,214	1,214	1,214	1,214	1,214	1,214	1,214
3,000	1,214	1,214	1,214	1,214	1,214	1,214	1,214	1,214	1,214	1,214
4,000	1,214	1,214	1,214	1,214	1,214	1,214	1,214	1,214	1,214	1,214
5,000	1,214	1,214	1,214	1,214	1,214	1,214	1,214	1,214	1,214	1,214
6,000	1,214	1,214	1,214	1,214	1,214	1,214	1,214	1,214	1,197	1,214
7,000	1,214	1,214	1,214	1,214	1,214	1,212	1,191	1,170	1,150	1,214
8,000	1,214	1,214	1,214	1,207	1,185	1,164	1,144	1,124	1,105	1,214
9,000	1,214	1,204	1,181	1,159	1,138	1,118	1,098	1,079	1,061	1,214
10,000	1,178	1,165	1,134	1,113	1,092	1,073	1,054	1,036	1,018	1,195
11,000	1,130	1,109	1,088	1,067	1,048	1,029	1,011	994	977	1,154
12,000	1,084	1,063	1,043	1,024	1,005	987	970	953	937	1,115
13,000	1,039	1,019	1,000	981	964	946	930	914	898	1,077
14,000	896	877	858	840	823	807	791	776	761	1,039
15,000	854	835	818	801	784	769	753	739	724	1,003

Cross Reference

Test Spec	Setting	Engine Arrangement	Engineering Model	Engineering Model Version	Start Effective Serial Number	End Effective Serial Number
OK7925	PP5660	2671232	GS327	-	MJE00001	
3704841	GG0523	3495619	GS603	LS	MJE00001	
OK4031	GG0383	3541450	GS582	-	PEN00001	

Performance Parameter Reference

Parameters Reference:DM9600-08 PERFORMANCE DEFINITIONS

PERFORMANCE DEFINITIONS DM9600

APPLICATION:

Engine performance tolerance values below are representative of a typical production engine tested in a calibrated dynamometer test cell at SAE J1995 standard reference conditions. Caterpillar maintains ISO9001:2000 certified quality management systems for engine test Facilities to assure accurate calibration of test equipment. Engine test data is corrected in accordance with SAE J1995. Additional reference material SAE J1228, J1349, ISO 8665, 3046-1:2002E, 3046-3:1989, 1585, 2534, 2288, and 9249 may apply in part or are similar to SAE J1995. Special engine rating request (SERR) test data shall be noted.

PERFORMANCE PARAMETER TOLERANCE FACTORS:

Power +/- 3%

Torque +/- 3%

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Exhaust stack temperature +/- 6%
 Inlet airflow +/- 5%
 Intake manifold pressure-gage +/- 10%
 Exhaust flow +/- 6%
 Specific fuel consumption +/- 3%
 Fuel rate +/- 5%
 Specific DEF consumption +/- 3%
 DEF rate +/- 5%
 Heat rejection +/- 5%
 Heat rejection exhaust only +/- 10%
 Heat rejection CEM only +/- 10%
 Heat Rejection values based on using treated water.

Torque is included for truck and industrial applications, do not use for Gen Set or steady state applications.

On C7 - C18 engines, at speeds of 1100 RPM and under these values are provided for reference only, and may not meet the tolerance listed.

These values do not apply to C280/3600, For these models, see the tolerances listed below.

C280/3600 HEAT REJECTION TOLERANCE FACTORS:

Heat rejection +/- 10%
 Heat rejection to Atmosphere +/- 50%
 Heat rejection to Lube Oil +/- 20%
 Heat rejection to Aftercooler +/- 5%

TEST CELL TRANSDUCER TOLERANCE FACTORS:

Torque +/- 0.5%
 Speed +/- 0.2%
 Fuel flow +/- 1.0%
 Temperature +/- 2.0 C degrees

Intake manifold pressure +/- 0.1 kPa

OBSERVED ENGINE PERFORMANCE IS CORRECTED TO SAE J1995 REFERENCE AIR AND FUEL CONDITIONS.

REFERENCE ATMOSPHERIC INLET AIR FOR 3500 ENGINES AND SMALLER

SAE J1228 AUG2002 for marine engines, and J1995 JAN2014 for other engines, reference atmospheric pressure is 100 KPA (29.61 in hg), and standard temperature is 25deg C (77 deg F) at 30% relative humidity at the stated aftercooler water temp, or inlet manifold temp.

FOR 3600 ENGINES

Engine rating obtained and presented in accordance with ISO 3046/1 and SAE J1995 JANJAN2014 reference atmospheric pressure is 100 KPA (29.61 in hg), and standard temperature is 25deg C (77 deg F) at 30% relative humidity and 150M altitude at the stated aftercooler water temperature.

MEASUREMENT LOCATION FOR INLET AIR TEMPERATURE

Location for air temperature measurement air cleaner inlet at stabilized operating conditions.

REFERENCE EXHAUST STACK DIAMETER

The Reference Exhaust Stack Diameter published with this dataset is only used for the calculation of Smoke Opacity values displayed in this dataset. This value does not necessarily represent the actual stack diameter of the engine due to the variety of exhaust stack adapter options available. Consult the price list, engine order or general dimension drawings for the actual stack diameter size ordered or options available.

REFERENCE FUEL

DIESEL

Reference fuel is #2 distillate diesel with a 35API gravity; A lower heating value is 42,780 KJ/KG (18,390 BTU/LB) when used at 29 (84.2), where the density is 838.9 G/Liter (7.001 Lbs/Gal).

GAS

Reference natural gas fuel has a lower heating value of 33.74 KJ/L (905 BTU/CU Ft). Low BTU ratings are based on 18.64 KJ/L (500 BTU/CU FT) lower heating value gas. Propane ratings are based on 87.56 KJ/L (2350 BTU/CU Ft) lower heating value gas.

ENGINE POWER (NET) IS THE CORRECTED FLYWHEEL POWER (GROSS) LESS

EXTERNAL AUXILIARY LOAD

Engine corrected gross output includes the power required to drive standard equipment; lube oil, scavenge lube oil, fuel transfer, common rail fuel, separate circuit aftercooler and jacket water pumps. Engine net power available for the external (flywheel) load is calculated by subtracting the sum of auxiliary load from the corrected gross flywheel output power. Typical auxiliary loads are radiator cooling fans, hydraulic pumps, air compressors and battery charging alternators. For Tier 4 ratings additional Parasitic losses would also include Intake, and Exhaust Restrictions.

ALTITUDE CAPABILITY

Altitude capability is the maximum altitude above sea level at standard temperature and standard pressure at which the engine could develop full rated output power on the current performance data set.

Standard temperature values versus altitude could be seen on TM2001.

When viewing the altitude capability chart the ambient temperature is the inlet air temp at the compressor inlet.

Engines with ADEM MEUI and HEUI fuel systems operating at

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conditions above the defined altitude capability derate for atmospheric pressure and temperature conditions outside the values defined, see TM2001.

Mechanical governor controlled unit injector engines require a setting change for operation at conditions above the altitude defined on the engine performance sheet. See your Caterpillar technical representative for non standard ratings.

REGULATIONS AND PRODUCT COMPLIANCE

TM1 Emissions information is presented at 'nominal' and 'Potential Site Variation' values for standard ratings. No tolerances are applied to the emissions data. These values are subject to change at any time. The controlling federal and local emission requirements need to be verified by your Caterpillar technical representative.

Customer's may have special emission site requirements that need to be verified by the Caterpillar Product Group engineer.

EMISSIONS DEFINITIONS:

Emissions : DM1176

HEAT REJECTION DEFINITIONS:

Diesel Circuit Type and HHV Balance : DM9500

HIGH DISPLACEMENT (HD) DEFINITIONS:

3500: EM1500

RATING DEFINITIONS:

Agriculture : TM6008

Fire Pump : TM6009

Generator Set : TM6035

Generator (Gas) : TM6041

Industrial Diesel : TM6010

Industrial (Gas) : TM6040

Irrigation : TM5749

Locomotive : TM6037

Marine Auxiliary : TM6036

Marine Prop (Except 3600) : TM5747

Marine Prop (3600 only) : TM5748

MSHA : TM6042

Oil Field (Petroleum) : TM6011

Off-Highway Truck : TM6039

On-Highway Truck : TM6038

SOUND DEFINITIONS:

Sound Power : DM8702

Sound Pressure : TM7080

Date Released : 7/7/15

Appendix D
Technical Services Memo and AAQA

San Joaquin Valley Air Pollution Control District Risk Management Review

To: Fred Cruz – Permit Services
 From: Jessica Rosas – Technical Services
 Date: August 31, 2017
 Facility Name: Winco Foods LLC
 Location: 4400 Crows Landing Road, Modesto
 Application #(s): N-5367-8-0
 Project #: N-1172958

A. RMR SUMMARY

RMR Summary						
Units	Prioritization Score	Acute Hazard Index	Chronic Hazard Index	Maximum Individual Cancer Risk	T-BACT Required?	Special Permit Requirements?
Unit 8-0 (DICE)	N/A ¹	N/A ²	0.00	1.49E-07	No	Yes
Project Totals	N/A ¹	N/A ²	0.00	1.49E-07		
Facility Totals	>1	0.0	0.00	3.78E-06		

¹Prioritization 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.

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

Proposed Permit Requirements

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

Unit # 8-0

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

B. RMR REPORT

I. Project Description

Technical Services received a request on August 31, 2017, to perform a Risk Management Review for a proposed installation of a 1214 bhp Caterpillar model C27 diesel-fired emergency IC engine powering an electric generator.

II. Analysis

Toxic emissions for this proposed unit were calculated using PM10 emission rates calculated and supplied by the processing engineer, and input into the San Joaquin Valley APCD's Hazard Assessment and Reporting Program (SHARP). 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. The prioritization score for this proposed facility was greater than 1.0 (see RMR Summary Table). Therefore, a refined health risk assessment was required. The AERMOD model was used, with the parameters outlined below and meteorological data for 2010-2014 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 SHARP Program, which then used the Air Dispersion Modeling and Risk Tool (ADMRT) of the Hot Spots Analysis and Reporting Program Version 2 (HARP 2) to calculate the chronic and acute hazard indices and the carcinogenic risk for the project.

The following parameters were used for the review:

Analysis Parameters Unit 8-0			
Source Type	Point	Location Type	Rural
Stack Height (m)	3.35	Closest Receptor (m)	152
Stack Diameter. (m)	0.25	Type of Receptor	Residential
Stack Exit Velocity (m/s)	55.9	Max Hours per Year	50
Stack Exit Temp. (°K)	784	Fuel Type	Diesel
PM10 Emission (lb/hr)	0.13	PM10 Emission (lb/yr)	7

Technical Services performed modeling for criteria pollutants CO, NO_x, SO_x, and PM₁₀ with the emission rates below:

Unit #	NO _x (Lbs.)		SO _x (Lbs.)		CO (Lbs.)		PM ₁₀ (Lbs.)	
	Hr.	Yr.	Hr.	Yr.	Hr.	Yr.	Hr.	Yr.
8-0	16.73	836.5	0.01	1	1.15	58	0.13	7

The results from the Criteria Pollutant Modeling are as follows:

Criteria Pollutant Modeling Results*

	Background Site	1 Hour	3 Hours	8 Hours	24 Hours	Annual
CO	Modesto-14 th Street (2016)	Pass	X	Pass	X	X
NO _x	Turlock (2016)	Pass ¹	X	X	X	Pass
SO _x	Fresno – Garland (2016)	Pass	Pass	X	Pass	Pass
PM ₁₀	Modesto-14 th Street (2016)	X	X	X	Pass ²	Pass ²
PM _{2.5}	Modesto-14 th Street (2015)	X	X	X	Pass ³	Pass ³

*Results were taken from the attached PSD spreadsheet.

¹The project was compared to the 1-hour NO₂ National Ambient Air Quality Standard that became effective on April 12, 2010 using the District's approved procedures.

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

³The court has vacated EPA's PM_{2.5} SILs. Until such time as new SIL values are approved, the District will use the corresponding PM₁₀ SILs for both PM₁₀ and PM_{2.5} analyses.

III. Conclusion

The acute and chronic indices are below 1.0 and the cancer risk associated with the project is greater than 1.0 in a million, but less than 20 in a million. **In accordance with the District's Risk Management Policy, the project is approved with Toxic Best Available Control Technology (T-BACT).**

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

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

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

IV. Attachments

- A. RMR request from the project engineer
- B. Additional information from the applicant/project engineer
- C. Convert
- D. Facility Summary
- E. AAQA Summary

Appendix E

QNEC Calculations

Quarterly Net Emissions Change (QNEC)

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

QNEC = PE2 - PE1, where:

QNEC = Quarterly Net Emissions Change for each emissions unit, lb/qtr

PE2 = Post-Project Potential to Emit for each emissions unit, lb/qtr

PE1 = Pre-Project Potential to Emit for each emissions unit, lb/qtr

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

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

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

QNEC		
Pollutant	PE2 Total (lb/year)	Quarterly PE2 (lb/qtr)
NO _x	839	209.8
SO _x	1	0.3
PM ₁₀	7	1.8
CO	58	14.5
VOC	7	1.8

Appendix F

SSPE1 Calculations

Emission Factors (N-5367-1-0)		
Pollutant	Emission Factor (g/bhp-hr)	Source
NO _x	3.80	Current Permit
SO _x	0.0051	Mass Balance Equation Below
PM ₁₀	0.1	Current Permit
CO	0.38	Current Permit
VOC	1.12	Current Permit

Emission Factors (N-5367-2-0)		
Pollutant	Emission Factor (g/bhp-hr)	Source
NO _x	5.91	Current Permit
SO _x	0.0051	Mass Balance Equation Below
PM ₁₀	0.141	Current Permit
CO	0.88	Current Permit
VOC	1.12	Current Permit

Emission Factors (N-5367-3-0)		
Pollutant	Emission Factor (g/bhp-hr)	Source
NO _x	5.93	Current Permit
SO _x	0.0051	Mass Balance Equation Below
PM ₁₀	0.11	Current Permit
CO	0.72	Current Permit
VOC	1.12	Current Permit

Emission Factors (N-5367-4-0)		
Pollutant	Emission Factor (g/bhp-hr)	Source
NO _x	5.2	Current Permit
SO _x	0.0051	Mass Balance Equation Below
PM ₁₀	0.09	Current Permit
CO	0.27	Current Permit
VOC	0.15	Current Permit

Emission Factors (N-5367-5-0)		
Pollutant	Emission Factor (g/bhp-hr)	Source
NO _x	5.2	Current Permit
SO _x	0.0051	Mass Balance Equation Below
PM ₁₀	0.09	Current Permit
CO	0.27	Current Permit
VOC	0.15	Current Permit

Emission Factors (N-5367-6-0)		
Pollutant	Emission Factor (g/bhp-hr)	Source
NO _x	2.46	Current Permit
SO _x	0.0051	Mass Balance Equation Below
PM ₁₀	0.09	Current Permit
CO	0.45	Current Permit
VOC	0.17	Current Permit

Emission Factors (N-5367-7-0)		
Pollutant	Emission Factor (g/bhp-hr)	Source
NO _x	3.98	Current Permit
SO _x	0.0051	Mass Balance Equation Below
PM ₁₀	0.06	Current Permit
CO	0.46	Current Permit
VOC	0.07	Current Permit

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

Pre Project Emissions (N-5367-1-0)						
Pollutant	Emissions Factor (g/bhp-hr)	Rating (bhp)	Daily Hours of Operation (hrs/day)	Annual Hours of Operation (hrs/year)	Daily PE2 (lb/day)	Annual PE2 (lb/yr)
NO _x	3.80	157.5	24	50	398.9	831
SO _x	0.0051	157.5	24	50	0.3	1
PM ₁₀	0.1	157.5	24	50	3.2	7
CO	0.38	157.5	24	50	27.6	58
VOC	1.12	157.5	24	50	3.2	7

Pre Project Emissions (N-5367-2-0)						
Pollutant	Emissions Factor (g/bhp-hr)	Rating (bhp)	Daily Hours of Operation (hrs/day)	Annual Hours of Operation (hrs/year)	Daily PE2 (lb/day)	Annual PE2 (lb/yr)
NO _x	5.91	1,186	24	50	157.5	773
SO _x	0.0051	1,186	24	50	0.3	1
PM ₁₀	0.141	1,186	24	50	8.8	18
CO	0.88	1,186	24	50	55.2	115
VOC	1.12	1,186	24	50	70.3	146

Pre Project Emissions (N-5367-3-0)						
Pollutant	Emissions Factor (g/bhp-hr)	Rating (bhp)	Daily Hours of Operation (hrs/day)	Annual Hours of Operation (hrs/year)	Daily PE2 (lb/day)	Annual PE2 (lb/yr)
NO _x	5.93	1,114	24	50	349.5	728
SO _x	0.0051	1,114	24	50	0.3	1
PM ₁₀	0.11	1,114	24	50	6.5	14
CO	0.72	1,114	24	50	42.4	88
VOC	1.12	1,114	24	50	66.0	138

Pre Project Emissions (N-5367-4-0)						
Pollutant	Emissions Factor (g/bhp-hr)	Rating (bhp)	Daily Hours of Operation (hrs/day)	Annual Hours of Operation (hrs/year)	Daily PE2 (lb/day)	Annual PE2 (lb/yr)
NO _x	5.2	300	24	67	82.5	230
SO _x	0.0051	300	24	67	0.1	0
PM ₁₀	0.09	300	24	67	1.4	4
CO	0.27	300	24	67	4.3	12
VOC	0.15	300	24	67	2.4	7

Pre Project Emissions (N-5367-5-0)						
Pollutant	Emissions Factor (g/bhp-hr)	Rating (bhp)	Daily Hours of Operation (hrs/day)	Annual Hours of Operation (hrs/year)	Daily PE2 (lb/day)	Annual PE2 (lb/yr)
NO _x	5.2	300	24	67	82.5	230
SO _x	0.0051	300	24	67	0.1	0
PM ₁₀	0.09	300	24	67	1.4	4
CO	0.27	300	24	67	4.3	12
VOC	0.15	300	24	67	2.4	7

Pre Project Emissions (N-5367-6-0)						
Pollutant	Emissions Factor (g/bhp-hr)	Rating (bhp)	Daily Hours of Operation (hrs/day)	Annual Hours of Operation (hrs/year)	Daily PE2 (lb/day)	Annual PE2 (lb/yr)
NO _x	2.46	480	24	50	62.5	130
SO _x	0.0051	480	24	50	0.1	0
PM ₁₀	0.09	480	24	50	2.3	5
CO	0.45	480	24	50	11.4	24
VOC	0.17	480	24	50	4.3	9

Pre Project Emissions (N-5367-7-0)						
Pollutant	Emissions Factor (g/bhp-hr)	Rating (bhp)	Daily Hours of Operation (hrs/day)	Annual Hours of Operation (hrs/year)	Daily PE2 (lb/day)	Annual PE2 (lb/yr)
NO _x	3.98	1,372	24	50	288.9	602
SO _x	0.0051	1,372	24	50	0.4	1
PM ₁₀	0.06	1,372	24	50	4.4	9
CO	0.46	1,372	24	50	33.4	70
VOC	0.07	1,372	24	50	5.1	11

SSPE1 (lb/year)					
	NO_x	SO_x	PM₁₀	CO	VOC
N-5367-1-0	831	1	7	58	7
N-5367-2-0	773	1	18	115	146
N-5367-3-0	728	1	14	88	138
N-5367-4-0	230	0	4	12	7
N-5367-5-0	230	0	4	12	7
N-5367-6-0	130	0	5	24	9
N-5367-7-0	602	1	9	70	11
SSPE1	3,524	4	61	379	325