



JAN 28 2010

Sam Kingston
WM Bolthouse Farms- South Avenal
7200 E. Brundage Ln
Bakersfield, CA 93307

Re: Notice of Preliminary Decision - Authority to Construct
Project Number: C-1093343

Dear Mr. Kingston:

Enclosed for your review and comment is the District's analysis of WM Bolthouse Farms- South Avenal's application for an Authority to Construct for two stationary and three transportable diesel-fired IC engines powering agricultural booster pumps, at Highway 33 and Highway 41, Avenal, CA.

The notice of preliminary decision for this project will be published approximately three days from the date of this letter. Please submit your written comments on this project within the 30-day public comment period which begins on the date of publication of the public notice.

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact Mr. Stanley Tom of Permit Services at (559) 230-5900.

Sincerely,

David Warner
Director of Permit Services

DW:st

Enclosures

Seyed Sadredin
Executive Director/Air Pollution Control Officer

Northern Region
4800 Enterprise Way
Modesto, CA 95356-8718
Tel: (209) 557-6400 FAX: (209) 557-6475

Central Region (Main Office)
1990 E. Gettysburg Avenue
Fresno, CA 93726-0244
Tel: (559) 230-6000 FAX: (559) 230-6061

Southern Region
34946 Flyover Court
Bakersfield, CA 93308-9725
Tel: 661-392-5500 FAX: 661-392-5585



JAN 28 2010

Mike Tollstrup, Chief
Project Assessment Branch
Stationary Source Division
California Air Resources Board
PO Box 2815
Sacramento, CA 95812-2815

Re: Notice of Preliminary Decision - Authority to Construct
Project Number: C-1093343

Dear Mr. Tollstrup:

Enclosed for your review and comment is the District's analysis of WM Bolthouse Farms- South Avenal's application for an Authority to Construct for two stationary and three transportable diesel-fired IC engines powering agricultural booster pumps, at Highway 33 and Highway 41, Avenal, CA.

The notice of preliminary decision for this project will be published approximately three days from the date of this letter. Please submit your written comments on this project within the 30-day public comment period which begins on the date of publication of the public notice.

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Hanford Sentinel
Hanford Sentinel

**NOTICE OF PRELIMINARY DECISION
FOR THE PROPOSED ISSUANCE OF
AN AUTHORITY TO CONSTRUCT**

NOTICE IS HEREBY GIVEN that the San Joaquin Valley Unified Air Pollution Control District solicits public comment on the proposed issuance of Authority to Construct to WM Bolthouse Farms- South Avenal for two stationary and three transportable diesel-fired IC engines powering agricultural booster pumps, at Highway 33 and Highway 41, Avenal, CA.

The analysis of the regulatory basis for this proposed action, Project #C-1093343, is available for public inspection at http://www.valleyair.org/notices/public_notices_idx.htm and the District office at the address below. Written comments on this project must be submitted within 30 days of the publication date of this notice to **DAVID WARNER, DIRECTOR OF PERMIT SERVICES, SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT, 1990 EAST GETTYSBURG AVENUE, FRESNO, CA 93726.**

San Joaquin Valley Air Pollution Control District
Authority to Construct Application Review
Stationary and Transportable Diesel-fired Irrigation Pump IC Engines

Facility Name: WM Bolthouse Farms- South Avenal Date: January 20, 2010
 Mailing Address: 7200 E. Brudnage Ln Engineer: Stanley Tom
 Bakersfield, CA 93307 Lead Engineer: Joven Refuerzo
 Contact Person: Sam Kingston
 Telephone: (661) 366-7209 x1448
 ATC Application #(s): C-6982-18-0, '19-0, '20-0, '21-0, '22-0
 ATC Project #: C-1093343
 Deemed Complete: December 1, 2009

I. PROPOSAL

WM Bolthouse Farms – South Avenal (Bolthouse) has requested Authority to Construct (ATC) permits for two stationary and three transportable diesel-fired IC engines powering agricultural irrigation well/booster pumps. The engines have already been installed and the below table lists the installation date of each engine.

Each of the five engines is a Tier 2 or 3 certified diesel fired IC engine.

Engines			
ATC #	Max Power Rating (bhp)	Type	Installation Date
C-6982-18-0	230	Stationary Tier 3	February 2007
C-6982-19-0	500	Stationary Tier 2	June 2004
C-6982-20-0	60	Transportable Tier 2	September 2006
C-6982-21-0	250	Transportable Tier 2	January 2005
C-6982-22-0	300	Transportable Tier 2	January 2005

II. APPLICABLE RULES

Rule 2010	Permits Required (12/17/92)
Rule 2020	Exemptions (12/20/07)
Rule 2201	New and Modified Stationary Source Review Rule (9/21/06)
Rule 2520	Federally Mandated Operating Permits (6/21/01)
Rule 4001	New Source Performance Standards (4/14/99)
Rule 4002	National Emissions 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 4202	Particulate Matter Emission Rate (12/17/92)
Rule 4301	Fuel Burning Equipment (12/17/92)
Rule 4701	Internal Combustion Engines - Phase 1 (8/21/03)

Rule 4702 Internal Combustion Engines - Phase 2 (1/18/07)
Rule 4801 Sulfur Compounds (12/17/92)
CH&SC 41700 Health Risk Assessment
CH&SC 42301.6 School Notice
California Code of Regulations (CCR), Title 17 (Public Health), Division 3 (Air Resources), Chapter 1 (Air Resources Board), Subchapter 7.5 (Air Toxic Control Measures), Measure 93115 (Stationary Diesel Engines)
California Code of Regulations (CCR), Title 17 (Public Health), Division 3 (Air Resources), Chapter 1 (Air Resources Board), Subchapter 7.5 (Air Toxic Control Measures), Measure 93116 (Portable Diesel 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 site is located at Highway 33 and Highway 41, in Avenal, CA. 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 primary function of this facility is agricultural (growing of crops and/or raising of fowl or animals). The proposed stationary and transportable IC engines will power agricultural irrigation well/booster pumps.

No specific load information (e.g water pressures, pump information, or engine loads) were available from the applicant); therefore, the load the for engines will be assumed at 100%.

V. EQUIPMENT LISTING

Equipment Description:

- C-6982-18-0: 230 BHP CUMMINS MODEL QSC 8.3 SERIAL #46700192 TIER 3 DIESEL-FIRED IC ENGINE POWERING AN AGRICULTURAL IRRIGATION WELL PUMP (ENG 298)
- C-6982-19-0: 500 BHP CUMMINS MODEL QSX 15 SERIAL #79015700 TIER 2 DIESEL-FIRED IC ENGINE POWERING AN AGRICULTURAL IRRIGATION WELL PUMP (ENG 198)
- C-6982-20-0: TRANSPORTABLE 60 BHP PERKINS MODEL 1104C-44 SERIAL #U311121N TIER 2 DIESEL-FIRED IC ENGINE POWERING AN AGRICULTURAL IRRIGATION BOOSTER PUMP (ENG 292)

C-6982-21-0: TRANSPORTABLE 250 BHP JOHN DEERE MODEL 6068H SERIAL #PE6068H387832 TIER 2 DIESEL-FIRED IC ENGINE POWERING AN AGRICULTURAL IRRIGATION BOOSTER PUMP (ENG 302)

C-6982-22-0: TRANSPORTABLE 300 BHP JOHN DEERE MODEL 6081H SERIAL #RG6081H241661 TIER 2 DIESEL-FIRED IC ENGINE POWERING AN AGRICULTURAL IRRIGATION BOOSTER PUMP (ENG 275)

VI. EMISSION CONTROL TECHNOLOGY EVALUATION

Internal combustion engines production air contaminants such as sulfur oxides (SO_x), nitrogen oxides (NO_x), volatile organic compounds (VOC), carbon monoxide (CO), particulate matter 10 microns or less in aerodynamic diameter (PM₁₀).

Very low sulfur diesel fuel (0.0015% sulfur by weight maximum) reduces SO_x emissions by over 99% from standard diesel fuel.¹ This fuel is readily available and is considered AIP.

NO_x, VOC, CO, and PM₁₀ emissions are minimized with the use of a compression-ignited engine that is EPA certified as specified in 40 CFR Part 89, which identifies Tier 1 thru Tier 3 emission levels, or the Federal Register, Vol. 69, No. 124, June 29, 2004, which identifies Tier 4 emission levels.

VII. GENERAL CALCULATIONS

A. Assumptions

- All calculations and physical constants used are corrected to Standard Conditions as defined in District Rule 1020, Section 3.47 (60 °F and 14.7 lb/in²).
- Facility utilizes very low sulfur (0.0015% fuel S by weight) diesel fuel and will continue use very low sulfur diesel. Therefore, both the PE1 and PE2 will be based on the use of very low sulfur diesel.
- Density of diesel fuel: 7.1 lb/gal
- EPA F-factor (adjusted to 60°F): 9,051 dscf/MMBtu
- Diesel fuel heating value: 137,000 Btu/gal
- BHP to Btu/hr conversion: 2,542.5 Btu/hp·hr
- Thermal efficiency of engine: commonly ≈ 35%
- The engines can each potentially operate 6,500 hours/year (per applicant).

¹ From *Non-catalytic NO_x Control of Stationary Diesel Engines*, by Don Koeberlein, CARB.

B. Emission Factors

1. Pre-Project Emission Factors (EF1)

Since these are new emissions units, EF1 = 0 for all pollutants.

2. Post Project Emission Factors (EF2)

EF2 for Engine C-6982-18-0		
Pollutant	EF2 (g/bhp-hr)	Source
NO _x	2.83	ARB Certification*
SO _x	0.0051	Ultra-Low Sulfur Fuel
PM ₁₀	0.13	ARB Certification
CO	1.27	ARB Certification
VOC	0.15	ARB Certification*

*The Carl Moyer program assumes the combined NO_x + VOC emission factor is split 95% NO_x and 5% VOC.

EF2 for Engine C-6982-19-0		
Pollutant	EF2 (g/bhp-hr)	Source
NO _x	4.46	ARB Certification*
SO _x	0.0051	Ultra-Low Sulfur Fuel
PM ₁₀	0.075	ARB Certification
CO	0.45	ARB Certification
VOC	0.23	ARB Certification*

*The Carl Moyer program assumes the combined NO_x + VOC emission factor is split 95% NO_x and 5% VOC.

EF2 for Engine C-6982-20-0		
Pollutant	EF2 (g/bhp-hr)	Source
NO _x	5.03	ARB Certification*
SO _x	0.0051	Ultra-Low Sulfur Fuel
PM ₁₀	0.21	ARB Certification
CO	0.52	ARB Certification
VOC	0.26	ARB Certification*

*The Carl Moyer program assumes the combined NOx + VOC emission factor is split 95% NOx and 5% VOC.

EF2 for Engine C-6982-21-0		
Pollutant	EF2 (g/bhp-hr)	Source
NO _x	2.20	ARB Certification*
SO _x	0.0051	Ultra-Low Sulfur Fuel
PM ₁₀	0.097	ARB Certification
CO	0.45	ARB Certification
VOC	0.12	ARB Certification*

*The Carl Moyer program assumes the combined NOx + VOC emission factor is split 95% NOx and 5% VOC.

EF2 for Engine C-6982-22-0		
Pollutant	EF2 (g/bhp-hr)	Source
NO _x	4.32	ARB Certification*
SO _x	0.0051	Ultra-Low Sulfur Fuel
PM ₁₀	0.11	ARB Certification
CO	0.60	ARB Certification
VOC	0.23	ARB Certification*

*The Carl Moyer program assumes the combined NOx + VOC emission factor is split 95% NOx and 5% VOC.

C. Calculations

1. Pre-Project Potential to Emit (PE1)

For new emissions units, PE1 = 0 for all pollutants.

2. Post Project Potential to Emit (PE2)

The engine's potential emissions are based on the following equations:

$$PE2_{\text{daily}} = \text{Engine Load (bhp)} \times \text{EF (g/bhp-hr)} \times 24 \text{ hr/day} \times \text{lb/453.6 g}$$

$$PE2_{\text{annual}} = \text{Engine Load (bhp)} \times \text{EF (g/bhp-hr)} \times 6,500 \text{ hrs/year} \times \text{lb/453.6 g}$$

PE2 for Engine ATC #C-6982-18-0				
Pollutant	Engine Load (bhp)	EF2 (g/bhp-hr)	PE2 (lb/day)	PE2 (lb/year)
NO _x	230	2.83	34.4	9,327
SO _x		0.0051	0.1	17
PM ₁₀		0.13	1.6	428
CO		1.27	15.5	4,186
VOC		0.15	1.8	494

PE2 for Engine ATC #C-6982-19-0				
Pollutant	Engine Load (bhp)	EF2 (g/bhp-hr)	PE2 (lb/day)	PE2 (lb/year)
NO _x	500	4.46	118.0	31,955
SO _x		0.0051	0.1	37
PM ₁₀		0.075	2.0	537
CO		0.45	11.9	3,224
VOC		0.23	6.1	1,648

PE2 for Engine ATC #C-6982-20-0				
Pollutant	Engine Load (bhp)	EF2 (g/bhp-hr)	PE2 (lb/day)	PE2 (lb/year)
NO _x	60	5.03	16.0	4,325
SO _x		0.0051	0.0	4
PM ₁₀		0.21	0.7	181
CO		0.52	1.7	447
VOC		0.26	0.8	224

PE2 for Engine ATC #C-6982-21-0				
Pollutant	Engine Load (bhp)	EF2 (g/bhp-hr)	PE2 (lb/day)	PE2 (lb/year)
NO _x	250	2.20	29.1	7,881
SO _x		0.0051	0.1	18
PM ₁₀		0.097	1.3	347
CO		0.45	6.0	1,612
VOC		0.12	1.6	430

PE2 for Engine ATC #C-6982-22-0				
Pollutant	Engine Load (bhp)	EF2 (g/bhp-hr)	PE2 (lb/day)	PE2 (lb/year)
NO _x	300	4.32	68.6	18,571
SO _x		0.0051	0.1	22
PM ₁₀		0.11	1.7	473
CO		0.60	9.5	2,579
VOC		0.23	3.7	989

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

Pursuant to Section 4.9 of District Rule 2201, 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 following values were taken from project C-1052242.

SSPE1 (lb/year)					
Permit	NO _x	SO _x	PM ₁₀	CO	VOC
C-6982-2-0	30,127	2,862	1,506	9,159	3,434
C-6982-3-0	28,872	2,743	1,444	8,777	3,291
C-6982-4-0	28,872	2,743	1,444	8,777	3,291
C-6982-5-0	30,127	2,862	1,506	9,159	3,434
C-6982-6-0	62,765	5,963	3,138	19,080	7,155
SSPE1 (lb/year)	180,763	17,173	9,038	54,952	20,605

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

Pursuant to Section 4.10 of District Rule 2201, 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.

SSPE2 (lb/year)					
Permit	NO _x	SO _x	PM ₁₀	CO	VOC
C-6982-2-0	30,127	2,862	1,506	9,159	3,434
C-6982-3-0	28,872	2,743	1,444	8,777	3,291
C-6982-4-0	28,872	2,743	1,444	8,777	3,291
C-6982-5-0	30,127	2,862	1,506	9,159	3,434
C-6982-6-0	62,765	5,963	3,138	19,080	7,155
C-6982-18-0	9,327	17	428	4,186	494
C-6982-19-0	31,955	37	537	3,224	1,648
C-6982-20-0	4,325	4	181	447	224
C-6982-21-0	7,881	18	347	1,612	430
C-6982-22-0	18,571	22	473	2,579	989
SSPE2 (lb/year)	252,822	17,271	11,004	67,000	24,390

5. Major Source Determination

Pursuant to Section 3.25 of District Rule 2201, a major source is a stationary source with post-project emissions or a Stationary Source Potential to Emit (SSPE2), equal to or exceeding one or more of the following threshold values.

Major Source Determination (lb/year)					
	NO_x	SO_x	PM₁₀	CO	VOC
SSPE2	252,822	17,271	11,004	67,000	24,390
PE Transportable Engines*	23,677	44	1,001	4,638	1,643
SSPE2 Major Source	229,145	17,227	10,003	62,362	22,747
Major Source Threshold	50,000	140,000	140,000	200,000	50,000
Major Source?	Yes	No	No	No	No

*Per the CAA, Section 302(z), a major stationary source does not include “those emissions resulting directly from an internal combustion engine for transportation purposes or from a nonroad engine...” Therefore, the emissions from the nonroad (also called transportable) engines have been subtracted from the Major Source determination.

As seen in the table above, the facility is a major source for NOx.

6. Baseline Emissions (BE)

The BE calculation (in lb/year) is performed on a pollutant-by-pollutant basis to determine the amount of offsets required, where necessary. However, agricultural operations are exempt from offsets (see offsets discussion in Section VIII below). Therefore, BE calculations are not required.

7. Major Modification

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.”*

As discussed in Section VII.C.5 above, the facility is an existing Major Source for NOx; however, the project by itself would need to be a significant increase in order to trigger a Major Modification. Note, since transportable engines do not add to the major source determination, they do not add to the major modification determination either. The new emission units within this project do not have a combined potential to emit which is greater than Major Modification thresholds (see table below). Therefore, the project cannot be a significant increase and the project does not constitute a Major Modification.

As shown below, only the stationary engines contribute to the Major Modification calculation.

Major Modification Thresholds (Existing Major Source)			
Pollutant	Project PE2 (lb/year)	Threshold (lb/year)	Major Modification?
NO _x	9,327 + 31,955 = 41,282	50,000	No

8. Federal Major Modification

As shown above, this project does not constitute a Major Modification. Therefore, in accordance with District Rule 2201, Section 3.17, this project does not constitute a Federal Major Modification and no further discussion is required.

VIII. COMPLIANCE

Rule 2010 Permits Required

This rule requires any person building, altering, or replacing any operation, article, machine, equipment, or other contrivance, the use of which may cause the issuance of air contaminants, to first obtain authorization from the District in the form of an ATC. By the submission of the above-described ATC application, the applicant is complying with the requirements of this Rule.

Rule 2020 Exemptions

Per Section 6.20, agricultural sources are exempt from District permit requirements to the extent provided by CH&SC, section 42301.16. However this facility does not qualify for permit exemption since the NO_x and/or VOC emissions are greater than 25,000 lb/year (equivalent to ½ the Major Source Threshold).

Rule 2201 New and Modified Stationary Source Review Rule

A. Best Available Control Technology (BACT)

1. BACT Applicability

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

- 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 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.

a. New emissions units – PE > 2 lb/day

As seen in Section VII.C.2 of this evaluation, the applicant is proposing to install a diesel-fired IC engine with a PE greater than 2 lb/day. BACT is triggered for since the PEs are greater than 2 lbs/day. BACT is not triggered for CO since the SSPE2 for CO is less than 200,000 lbs/year, as demonstrated in Section VII.C.5 of this document.

BACT Applicability C-6982-18-0		
Pollutant	PE2 (lb/day)	BACT Triggered?
NO _x	34.4	Yes
SO _x	0.1	No
PM ₁₀	1.6	No
CO	15.5	No
VOC	1.8	No

BACT Applicability C-6982-19-0		
Pollutant	PE2 (lb/day)	BACT Triggered?
NO _x	118.0	Yes
SO _x	0.1	No
PM ₁₀	1.98	No
CO	11.9	No
VOC	6.1	Yes

BACT Applicability C-6982-20-0		
Pollutant	PE2 (lb/day)	BACT Triggered?
NO _x	16.0	Yes
SO _x	0.0	No
PM ₁₀	0.7	No
CO	1.7	No
VOC	0.8	No

BACT Applicability C-6982-21-0		
Pollutant	PE2 (lb/day)	BACT Triggered?
NO _x	29.1	Yes
SO _x	0.1	No
PM ₁₀	1.3	No
CO	6.0	No
VOC	1.6	No

BACT Applicability C-6982-22-0		
Pollutant	PE2 (lb/day)	BACT Triggered?
NO _x	68.6	Yes
SO _x	0.1	No
PM ₁₀	1.7	No
CO	9.5	No
VOC	3.7	Yes

b. Relocation of emissions units – PE > 2 lb/day

As discussed in Section I above, there are no emissions units being relocated from one stationary source to another; therefore BACT is not triggered.

c. Modification of emissions units – AIPE > 2 lb/day

As discussed in Section I above, there are no modified emissions units associated with this project; therefore BACT is not triggered.

d. Major Modification

As discussed in Section VII.C.7 above, this project does not constitute a Major Modification; therefore, BACT is not triggered as a result of a Major Modification.

2. BACT Guideline

The BACT Guidelines attached in Appendix C, applies to stationary and transportable AO diesel-fired IC engines greater than 50 bhp.

3. Top-Down BACT Analysis

Per Permit Services Policies and Procedures for BACT, 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.

Pursuant to the attached Top-Down BACT Analyses (see Appendix C), BACT has been satisfied with the following:

- NO_x: Latest certification
- PM₁₀: Latest certification
- CO: Latest certification
- VOC: Latest certification

B. Offsets

Per Section 4.6.9, offsets are not required for agricultural operations.

C. Public Notification

1. Applicability

Public noticing is required for:

- a. Any new Major Source, which is a new facility that is also a Major Source,
- b. Major Modifications,
- c. Any new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any one pollutant,
- d. Any project which results in the offset thresholds being surpassed, and/or
- e. Any project with an SSIPE of greater than 20,000 lb/year for any pollutant.

a. New Major Source

New Major Sources are new facilities, which are also Major Sources. Since this is not a new facility, public noticing is not required for this project for New Major Source purposes.

b. Major Modification

As demonstrated in Section VII.C.7 above, this project does not qualify as a Major Modification; public noticing is not required for Major Modification purposes.

c. PE > 100 lb/day

The PE₂ for these new units are compared to the daily PE Public Notice thresholds in the following table:

PE > 100 lb/day Public Notice Thresholds (C-6982-18-0)			
Pollutant	PE2 (lb/day)	Public Notice Threshold	Public Notice Triggered?
NO _x	34.4	100 lb/day	No
SO _x	0.1	100 lb/day	No
PM ₁₀	1.6	100 lb/day	No
CO	15.5	100 lb/day	No
VOC	1.8	100 lb/day	No

PE > 100 lb/day Public Notice Thresholds (C-6982-19-0)			
Pollutant	PE2 (lb/day)	Public Notice Threshold	Public Notice Triggered?
NO _x	118.0	100 lb/day	Yes
SO _x	0.1	100 lb/day	No
PM ₁₀	1.98	100 lb/day	No
CO	11.9	100 lb/day	No
VOC	6.1	100 lb/day	No

PE > 100 lb/day Public Notice Thresholds (C-6982-20-0)			
Pollutant	PE2 (lb/day)	Public Notice Threshold	Public Notice Triggered?
NO _x	16.0	100 lb/day	No
SO _x	0.0	100 lb/day	No
PM ₁₀	0.7	100 lb/day	No
CO	1.7	100 lb/day	No
VOC	0.8	100 lb/day	No

PE > 100 lb/day Public Notice Thresholds (C-6982-21-0)			
Pollutant	PE2 (lb/day)	Public Notice Threshold	Public Notice Triggered?
NO _x	29.1	100 lb/day	No
SO _x	0.1	100 lb/day	No
PM ₁₀	1.3	100 lb/day	No
CO	6.0	100 lb/day	No
VOC	1.6	100 lb/day	No

PE > 100 lb/day Public Notice Thresholds (C-6982-22-0)			
Pollutant	PE2 (lb/day)	Public Notice Threshold	Public Notice Triggered?
NO _x	68.6	100 lb/day	No
SO _x	0.1	100 lb/day	No
PM ₁₀	1.7	100 lb/day	No
CO	9.5	100 lb/day	No
VOC	3.7	100 lb/day	No

Therefore, public noticing for PE > 100 lb/day purposes is required.

d. Offset Threshold

The following table compares the SSPE1 with the SSPE2 in order to determine if any offset thresholds have been surpassed with this project.

Offset Threshold				
Pollutant	SSPE1 (lb/year)	SSPE2 (lb/year)	Offset Threshold	Public Notice Required?
NO _x	180,763	252,822	20,000 lb/year	No
SO _x	17,173	17,271	54,750 lb/year	No
PM ₁₀	9,038	11,004	29,200 lb/year	No
CO	54,952	67,000	200,000 lb/year	No
VOC	20,605	24,390	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.

e. SSIPE > 20,000 lb/year

Public notification is required for any permitting action that results in a Stationary Source Increase in Permitted Emissions (SSIPE) of more than 20,000 lb/year of any affected pollutant. According to District policy, the SSIPE is calculated as the Post Project Stationary Source Potential to Emit (SSPE2) minus the Pre-Project Stationary Source Potential to Emit (SSPE1), i.e. SSIPE = SSPE2 – SSPE1. The values for SSPE2 and SSPE1 are calculated according to Rule 2201, Sections 4.9 and 4.10, respectively. The SSIPE is compared to the SSIPE Public Notice thresholds in the following table:

Stationary Source Increase in Permitted Emissions [SSIPE] – Public Notice					
Pollutant	SSPE2 (lb/year)	SSPE1 (lb/year)	SSIPE (lb/year)	SSIPE Public Notice Threshold	Public Notice Required?
NO _x	252,822	180,763	72,059	20,000 lb/year	Yes
SO _x	17,271	17,173	98	20,000 lb/year	No
PM ₁₀	11,004	9,038	1,966	20,000 lb/year	No
CO	67,000	54,952	12,048	20,000 lb/year	No
VOC	24,390	20,605	3,785	20,000 lb/year	No

As demonstrated above, the SSIPE for NO_x was greater than 20,000 lb/year; therefore public noticing for SSIPE purposes is required.

2. Public Notice Action

As discussed above, public noticing is required for this project for NO_x emissions in excess of 100 lb/day and SSIPE greater than 20,000 lb/year for NO_x. 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 Emission Limits (DELs)

Daily Emissions Limitations (DELs) and other enforceable conditions are required by Section 3.15 to restrict a unit's maximum daily emissions, to a level at or below the emissions associated with the maximum design capacity. Per Sections 3.15.1 and 3.15.2, 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. The following conditions will appear on the permit:

- 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]

C-6982-18-0

- Emissions from this IC engine shall not exceed any of the following limits: 2.83 g-NO_x/bhp-hr, 1.27 g-CO/bhp-hr, or 0.15 g-VOC/bhp-hr. [District Rules 2201 and 4702, and 17 CCR 93115]
- Emissions from this IC engine shall not exceed 0.13 g-PM₁₀/bhp-hr based on US EPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]

C-6982-19-0

- Emissions from this IC engine shall not exceed any of the following limits: 4.46 g-NO_x/bhp-hr, 0.45 g-CO/bhp-hr, or 0.23 g-VOC/bhp-hr. [District Rules 2201 and 4702, and 17 CCR 93115]
- Emissions from this IC engine shall not exceed 0.075 g-PM₁₀/bhp-hr based on US EPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]

C-6982-20-0

- Emissions from this IC engine shall not exceed any of the following limits: 5.03 g-NO_x/bhp-hr, 0.52 g-CO/bhp-hr, or 0.26 g-VOC/bhp-hr. [District Rules 2201 and 4702, and 17 CCR 93115]
- Emissions from this IC engine shall not exceed 0.21 g-PM₁₀/bhp-hr based on US EPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]

C-6982-21-0

- Emissions from this IC engine shall not exceed any of the following limits: 2.20 g-NOx/bhp-hr, 0.45 g-CO/bhp-hr, or 0.12 g-VOC/bhp-hr. [District Rules 2201 and 4702, and 17 CCR 93115]
- Emissions from this IC engine shall not exceed 0.097 g-PM10/bhp-hr based on US EPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]

C-6982-22-0

- Emissions from this IC engine shall not exceed any of the following limits: 4.32 g-NOx/bhp-hr, 0.60 g-CO/bhp-hr, or 0.23 g-VOC/bhp-hr. [District Rules 2201 and 4702, and 17 CCR 93115]
- Emissions from this IC engine shall not exceed 0.11 g-PM10/bhp-hr based on US EPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]

E. Compliance Assurance

1. Source Testing

Pursuant to District Policy APR 1705, source testing is not required to demonstrate compliance with Rule 2201.

2. Monitoring

No monitoring is required to demonstrate compliance with Rule 2201. However, monitoring is required per Rule 4702 (Internal Combustion Engines - Phase 2), see the 4702 discussion below.

3. Recordkeeping

Recordkeeping is required to demonstrate compliance with the offset, public notification and daily emission limit requirements of Rule 2201, where applicable. The following conditions will appear on the permit:

- The permittee shall record the total time the engine operates, in hours per calendar year. [District Rule 2201]
- 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]

4. Reporting

No reporting is required to demonstrate compliance with Rule 2201.

F. 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 an air quality standard. The Technical Services Division of the SJVAPCD conducted the required analysis. Refer to Appendix A 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 PM₁₀. The increase in the ambient PM₁₀ concentration due to the proposed equipment is shown on the table titled Calculated Contribution. The levels of significance, from 40 CFR Part 51.165 (b)(2), are shown on the table titled Significance Levels.

Significance Levels					
Pollutant	Significance Levels (µg/m ³) - 40 CFR Part 51.165 (b)(2)				
	Annual Avg.	24 hr Avg.	8 hr Avg.	3 hr Avg.	1 hr Avg.
PM ₁₀	1.0	5	N/A	N/A	N/A

Calculated Contribution					
Pollutant	Calculated Contributions (µg/m ³)				
	Annual Avg.	24 hr Avg.	8 hr Avg.	3 hr Avg.	1 hr Avg.
PM ₁₀	0.89	0.05	N/A	N/A	N/A

As shown, the calculated contribution of PM₁₀ will not exceed the EPA significance level. This project is not expected to cause or make worse a violation of an air quality standard.

Rule 2520 Federally Mandated Operating Permits

As discussed in Section VII.C.5 above, this facility is an existing Major Source for NO_x, and is therefore subject to this rule. This rule will be addressed in the facility's initial Title V project.

Rule 4001 New Source Performance Standards (NSPS)

This rule incorporates NSPS from Part 60, Chapter 1, Title 40, Code of Federal Regulations (CFR); and applies to all new sources of air pollution and modifications of existing sources of air pollution listed in 40 CFR Part 60. However, no subparts of 40 CFR Part 60 apply to reciprocating IC engines.

Rule 4002 National Emission Standards for Hazardous Air Pollutants (NESHAPs)

This rule incorporates NESHAPs from Part 61, Chapter I, Subchapter C, Title 40, CFR and the NESHAPs from Part 63, Chapter I, Subchapter C, Title 40, CFR; and applies to all sources of hazardous air pollution listed in 40 CFR Part 61 or 40 CFR Part 63.

The requirements of 40 CFR Part 63, Subpart ZZZZ (*National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*) covers stationary engines greater than 500 bhp located at Major HAP sources. Since the proposed stationary engines are less than 500 bhp and the remaining engines are portable, this NESHAPs subpart does not apply.

There are no additional potentially applicable NESHAPs subparts.

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 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. 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. Therefore, compliance with this rule is expected. Therefore, the following condition will be listed on the ATC 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. Therefore pursuant to the policy, a risk management review has been performed for this project to analyze the impact of toxic emissions

The HRA results for each new engine proposed for this project are shown below (see the HRA Summary in Appendix A):

HRA Results				
Permit	Acute Hazard Index	Chronic Hazard Index	Cancer Risk	T-BACT Required for each engine?
ATC C-6982-18-0	N/A	N/A	0.26 in a million	No
ATC C-6982-19-0	N/A	N/A	0.77 in a million	No
ATC C-6982-208-0	N/A	N/A	0.11 in a million	No
ATC C-6982-21-0	N/A	N/A	0.52 in a million	No
ATC C-6982-22-0	N/A	N/A	0.84 in a million	No

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 10 in a million). As outlined by the HRA Summary in Appendix A of this report, the emissions increases for this project was determined to be less than significant.

Discussion of T-BACT

BACT for toxic emission control (TBACT) is required if the cancer risk exceeds one in one million. As demonstrated above, T-BACT is not required because the HRA indicates that the risk from each unit is not above the District's thresholds for triggering T-BACT requirements (1 in a million); therefore, compliance with the District's Risk Management Policy is expected.

Rule 4201 Particulate Matter Concentration

Particulate matter emissions from the engine will be less than or equal to the rule limit of 0.1 grain per cubic foot of gas at dry standard conditions as shown by the following:

C-6982-18-0

$$\text{PM Conc.} = 0.13 \text{ g-PM}_{10}/\text{bhp-hr} \times 1 \text{ g-PM}/0.96 \text{ g-PM}_{10} \times 1 \text{ bhp-hr}/2,542.5 \text{ Btu} \\ \times 1,000,000 \text{ Btu}/9,051 \text{ dscf} \times 0.35 \text{ Btu}_{\text{out}}/1 \text{ Btu}_{\text{in}} \times 15.43 \text{ gr/g}$$

$$\text{PM Conc.} = 0.03 \text{ gr-PM/dscf}$$

C-6982-19-0

$$\text{PM Conc.} = 0.075 \text{ g-PM}_{10}/\text{bhp-hr} \times 1 \text{ g-PM}/0.96 \text{ g-PM}_{10} \times 1 \text{ bhp-hr}/2,542.5 \text{ Btu} \\ \times 1,000,000 \text{ Btu}/9,051 \text{ dscf} \times 0.35 \text{ Btu}_{\text{out}}/1 \text{ Btu}_{\text{in}} \times 15.43 \text{ gr/g}$$

$$\text{PM Conc.} = 0.018 \text{ gr-PM/dscf}$$

C-6982-20-0

$$\text{PM Conc.} = 0.21 \text{ g-PM}_{10}/\text{bhp-hr} \times 1 \text{ g-PM}/0.96 \text{ g-PM}_{10} \times 1 \text{ bhp-hr}/2,542.5 \text{ Btu} \\ \times 1,000,000 \text{ Btu}/9,051 \text{ dscf} \times 0.35 \text{ Btu}_{\text{out}}/1 \text{ Btu}_{\text{in}} \times 15.43 \text{ gr/g}$$

$$\text{PM Conc.} = 0.05 \text{ gr-PM/dscf}$$

C-6982-21-0

$$\text{PM Conc.} = 0.097 \text{ g-PM}_{10}/\text{bhp-hr} \times 1 \text{ g-PM}/0.96 \text{ g-PM}_{10} \times 1 \text{ bhp-hr}/2,542.5 \text{ Btu} \\ \times 1,000,000 \text{ Btu}/9,051 \text{ dscf} \times 0.35 \text{ Btu}_{\text{out}}/1 \text{ Btu}_{\text{in}} \times 15.43 \text{ gr/g}$$

$$\text{PM Conc.} = 0.024 \text{ gr-PM/dscf}$$

C-6982-22-0

$$\text{PM Conc.} = 0.11 \text{ g-PM}_{10}/\text{bhp-hr} \times 1 \text{ g-PM}/0.96 \text{ g-PM}_{10} \times 1 \text{ bhp-hr}/2,542.5 \text{ Btu} \\ \times 1,000,000 \text{ Btu}/9,051 \text{ dscf} \times 0.35 \text{ Btu}_{\text{out}}/1 \text{ Btu}_{\text{in}} \times 15.43 \text{ gr/g}$$

$$\text{PM Conc.} = 0.027 \text{ gr-PM/dscf}$$

Since PM Conc is \leq to 0.1 grain per dscf, compliance with Rule 4201 is expected.

Therefore, the following condition will be listed on the ATCs to ensure compliance:

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

Rule 4202 Particulate Matter - Emission Rate

This rule establishes PM emission limits as a function of process weight rate in tons/hr. Gas and liquid fuels are excluded from the definition of process weight. Therefore, Rule 4202 does not apply to the IC engines.

Rule 4301 Fuel Burning Equipment

Pursuant to section 2.0, the provisions of this rule apply to any piece of fuel burning equipment. Section 3.1 defines fuel burning equipment as “any furnace, boiler, apparatus, stack, and all appurtenances thereto, used in the process of burning fuel for the primary purpose of producing heat or power by indirect heat transfer”.

IC engines produce power mechanically, not by indirect heat transfer. Therefore, the IC engines do not meet the definition of fuel burning equipment. Therefore, Rule 4301 does not apply.

Rule 4701 Internal Combustion Engines - Phase 1

The provisions of this rule do not apply to engines in agricultural operations in the growing of crops or raising of fowl or animals. Therefore, the following condition will be included on the permits:

- This IC engine shall only be used for the growing of crops or raising of fowl or animals.

Rule 4702 Stationary Internal Combustion Engines - Phase 2

Purpose:

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.

Applicability:

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

Requirements:

Section 5.1 requires that the owner of an internal combustion engine shall not operate it in such a manner that results in emissions exceeding the limits in the Engine Emission Limits table below for the appropriate engine type, according to the compliance schedule listed in Section 7.0. An engine shall be restricted by permit condition to emissions limits, in ppmv (corrected to 15% oxygen on a dry basis), that meet or exceed the following applicable emission limits pursuant to Section 5.1 or Section 8.2.

Engine Type	Emission Limit/ Standard	Compliance Date
1. Non-Certified Compression-Ignited Engine		
a. Greater than 50 bhp but not more than 500 bhp	EPA Tier 3 or Tier 4	1/1/2010
b. Greater than 500 bhp but not more than 750 bhp and less than 1000 annual operating hours	EPA Tier 3	1/1/2010
c. Greater than 750 bhp and less than 1000 annual operating hours	EPA Tier 4	7/1/2011
d. Greater than 500 bhp and greater than or equal to 1000 annual operating hours	80 ppm NO _x , 2,000 ppm CO, 750 ppm VOC	1/1/2008 or, if owner has an agreement to electrify, comply by 1/1/2010
2. Certified Compression-Ignited Engine		
a. EPA Certified Tier 1 or Tier 2 Engine	EPA Tier 4	1/1/2015 or 12 years after installation date, whichever is later
b. EPA Certified Tier 3 or Tier 4 Engine	Meet Certified Compression-Ignited Engine Standard in effect at time of installation	At time of installation

Per Section 5.1.3, on and after June 1, 2006, the owner of an AO rich-burn spark-ignited engine, AO lean-burn spark-ignited engine, or AO compression-ignited engine that is subject to the requirements of Section 5.1 shall not replace such engine with a rich-burn spark-ignited, lean-burn spark-ignited, or compression-ignited engine, respectively, that emits more emissions of NO_x, VOC, and CO, on a ppmv basis, (corrected to 15% oxygen on a dry basis) than the engine being replaced.

Per Section 5.1.4, The owner of a non-certified compression-ignited engine, in place on June 1, 2006, shall comply with the Emission Limit/Standard and Compliance Date in Table 2 based on the non-certified compression-ignited engine that was in place on June 1, 2006, unless the owner meets one of the following conditions:

- 5.1.4.1 Replaces the non-certified compression-ignited engine with a non-modified Tier 3 or a non-modified Tier 4 engine after June 1, 2006,
- 5.1.4.2 Controls the non-certified compression-ignited engine after June 1, 2006, to emit emissions less than, or equal to, 80 ppm NO_x, 2,000 ppm CO, and 750 ppm VOC, (corrected to 15% oxygen on a dry basis), or
- 5.1.4.3 Replaces the non-certified compression-ignited engine after June 1, 2006, with an engine or other source with emissions less than, or equal to, 80 ppm NO_x, 2,000 ppm CO, and 750 ppm VOC (corrected to 15% oxygen on a dry basis).

C-6982-18-0

The proposed engine is EPA certified Tier 3 and was installed after June 1, 2006. Therefore, the proposed IC engine falls under row 2b of the table and is in compliance with the emission requirements of the rule for the life of the engine.

C-6982-20-0

The proposed engine is EPA certified Tier 2 and was installed after June 1, 2006. Therefore, the proposed IC engine falls under row 2a of the table and is in compliance with the emission requirements of the rule for the life of the engine.

C-6982-19-0, '21-0, '22-0

The proposed engine is EPA certified Tier 2 and was installed prior to June 1, 2006. Therefore, the proposed IC engine falls under row 2a of the table and is in compliance with the emission requirements of the rule until 2015 or 12 years after first installation, whichever is later (not exceed 2018 – District Compliance Policy).

C-6982-21-0

- Submit an Authority to Construct (ATC) application before January 1, 2017 to be in compliance with Rule 4702. [District Rule 4702]

C-6982-22-0

- Submit an Authority to Construct (ATC) application before January 1, 2017 to be in compliance with Rule 4702. [District Rule 4702]

Monitoring:

Section 5.7.1 requires that the owner of an engine subject to the requirements of Section 5.1 or 4.2 shall comply with the requirements specified in Sections 5.7.2 through 5.7.5.

Section 5.7.2 requires the owner to properly operate and maintain each engine as recommended by the engine manufacturer or emission control system supplier.

Section 5.7.3 requires the owner to monitor the operational characteristics of each engine as recommended by the engine manufacturer or emission control system supplier.

Section 5.7.4 requires each engine to 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 Stationary 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.

Section 5.7.5 is applicable to engines retrofitted with a NOx exhaust control. The engines in this project do not have add-on NOx controls. Therefore, the requirements of Section 5.7.5 are not applicable.

Emission Control Plan:

Section 6.1 requires that the owner of an engine subject to the requirements of Section 5.1 or Section 8.0, except for an engine specified in Section 6.1.1, shall submit to the APCO an emission control plan (ECP) of all actions to be taken to satisfy the emission requirements of Section 5.1 and the compliance schedules of Section 7.0.

Section 6.1.1 states Sections 6.1.2 through Section 6.1.3 shall not apply to an engine specified below:

6.1.1.1 A certified compression-ignited engine that has not been retrofitted with an exhaust control and is not subject to the requirements of Section 8.0.

The engines in this project are certified compression-ignited engines not retrofitted with exhaust control and are not subject to Section 8.0. Therefore, an ECP is not required.

Recordkeeping:

Section 6.2 requires that except for engines subject to Section 4.0, the owner of an engine subject to the requirements of Section 5.1 shall maintain an engine operating log to demonstrate compliance with this rule. This information 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 engine-operating log shall include, on a monthly basis, the following information:

- Total hours of operation,
- Type of fuel used,
- Maintenance or modifications performed,
- Monitoring data,
- Compliance source test results, and
- Any other information necessary to demonstrate compliance with this rule.

Section 6.2.2 requires that the data collected pursuant to the requirements of Section 5.7 shall be maintained for at least five years, shall be readily available, and made available to the APCO upon request.

Compliance Testing:

Section 6.3 requires that the owner of an engine subject to the requirements of Section 5.1 or the requirements of Section 8.0, shall comply with the requirements of Section 6.3, except for an engine specified in Section 6.3.1.

Section 6.3.1 states Sections 6.3.2 through Section 6.3.4 shall not apply to an engine specified below:

6.3.1.1 A certified compression-ignited engine that has not been retrofitted with an exhaust control and is not subject to the requirements of Section 8.0.

The engines in this project are certified compression-ignited engines not retrofitted with exhaust control and are not subject to Section 8.0. Therefore, source testing is not applicable.

Inspection and Monitoring (I&M) Plan:

Section 6.5 requires that the owner of an engine subject to the requirements of Section 5.1 or the requirements of Section 8.0, except for an engine specified in Section 6.5.1, shall submit to the APCO for approval, an I&M plan that specified all actions to be taken to satisfy the requirements of Section 6.5 and 5.7.

Section 6.5.1 states Sections 6.5.2 through Section 6.5.9 shall not apply to an engine specified below:

6.5.1.1 A certified compression-ignited engine that has not been retrofitted with an exhaust control and is not subject to the requirements of Section 8.0.

The engines in this project are certified compression-ignited engines not retrofitted with exhaust control and are not subject to Section 8.0. Therefore, an I&M Plan is not applicable.

Compliance Schedule

Section 7.3.1.2 requires the owner of an engine that is subject to Section 5.1 and that is required to submit an ECP, an I&M Plan, or an Authority to Construct in order to comply with the requirements of Rule 4702, shall submit such documents 6 months before the engine is required to be in compliance with the requirements of Section 5.1 of Rule 4702. The engine currently is in compliance with rule, no further action is required at this time.

Rule 4801 Sulfur Compounds

This rule contains a limit on sulfur compounds. The limit at the point of discharge is 0.2 percent by volume, 2000 ppmv, calculated as sulfur dioxide (SO₂), on a dry basis averaged over 15 consecutive minutes.

The maximum sulfur content of the diesel combusted shall not exceed 0.0015% by weight. Therefore, the sulfur concentration is:

$$\text{S Conc.} = 0.0015\% \text{ S} \times 7.1 \text{ lb/gal} \times 64 \text{ lb-SO}_2/32 \text{ lb-S} \times \text{MMBtu}/9,051 \text{ scf} \times \text{gal-fuel}/0.137 \text{ MMBtu} \\ \times \text{lb-mol}/64 \text{ lb-SO}_2 \times 10.73 \text{ psi-ft}^3/\text{lb-mol-}^\circ\text{R} \times 520 \text{ }^\circ\text{R}/14.7 \text{ psi}$$

$$\text{S Conc.} = 1 \text{ ppmv}$$

Since 1 ppmv is \leq 2000 ppmv, this project is expected to comply with Rule 4801. 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 93116]

California Code of Regulations (CCR), Title 17 (Public Health), Division 3 (Air Resources), Chapter 1 (Air Resources Board), Subchapter 7.5 (Air Toxic Control Measures), Measure 93115 (Stationary Diesel Engines)

If applicable, this regulation is satisfied by District Rule 4702 (*Stationary Internal Combustion Engines - Phase 2*) in combination with the District's permitting and/or Permit-Exempt Equipment Registration (PEER) program. That is, these District regulations are considered equivalent to the Stationary ATCM for agricultural engines.

California Code of Regulations (CCR), Title 17 (Public Health), Division 3 (Air Resources), Chapter 1 (Air Resources Board), Subchapter 7.5 (Air Toxic Control Measures), Measure 93116 (Portable Diesel Engines)

The following statement is from a January 17, 2008 CARB legal memo from Robert Jenne (General Counsel) to Robert D. Fletcher (Chief Stationary Source Division) regarding the applicability of the Portable ATCM for agricultural engines:

"In light of specific statutory language codified as a result of the enactment of Senate Bill 700, it is clear that the Legislature intended to consider portable internal combustion engines operating at agricultural sources of air pollution to be a part of the agricultural stationary source. Accordingly, for portable engines owned by the agricultural source owner, the applicable airborne toxic control measure is the Stationary Engine ATCM. For portable engines not owned by the owner of the agricultural source, such as rental portable engines, the Portable Engine ATCM continues to apply."

Since the engine(s) are owned by the operator, this regulation does not apply.

California Health & Safety Code 42301.6 (School Notice)

The District has verified that this site 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.

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

- 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 activity will occur at an existing facility and the project involves negligible expansion of the existing use. Furthermore, the District determined that the activity will not have a significant effect on the environment. The District finds that the activity is categorically exempt from the provisions of CEQA pursuant to CEQA Guideline § 15031 (Existing Facilities), and finds that the project is exempt per the general rule that CEQA applies only to projects which have the potential for causing a significant effect on the environment (CEQA Guidelines §15061(b)(3)).

IX. Recommendation

Compliance with all applicable rules and regulations is expected. Issue ATCs #'s C-6982-18-0, '19-0, '20-0, '21-0, '22-0 subject to the permit conditions on the attached draft ATCs in Appendix B.

X. Billing Information

Annual Permit Fees			
Permit Number	Fee Schedule	Fee Description	Annual Fee
ATC #C-6982-18-0	3020-10-C	230 bhp IC engine	\$240
ATC #C-6982-19-0	3020-10-D	500 bhp IC engine	\$479
ATC #C-6982-20-0	3020-10-A	60 bhp IC engine	\$80
ATC #C-6982-21-0	3020-10-C	250 bhp IC engine	\$240
ATC #C-6982-22-0	3020-10-C	300 bhp IC engine	\$240

Appendices

- A: HRA and AAQA Summary**
- B: Draft ATCs**
- C: BACT Analyses**

APPENDIX A

HRA and AAQA Summary

San Joaquin Valley Air Pollution Control District Risk Management Review

To: Gurpreet Brar – Permit Services
 From: Yu Vu – Technical Services
 Date: January 13, 2010
 Facility Name: Bolthouse Farms, Inc.
 Location: TS-22S, R-17E, Kreyenhagen, CA
 Application #(s): C-6982-18-0 through -22-0
 Project #: C-1093343

A. RMR SUMMARY

RMR Summary							
Categories	Diesel ICE (Unit 18-0)	Diesel ICE (Unit 19-0)	Diesel ICE (Unit 20-0)	Diesel ICE (Unit 21-0)	Diesel ICE (Unit 22-0)	Project Totals	Facility Totals
Prioritization Score	NA ¹	NA ¹	NA ¹	NA ¹	NA ¹	>1.0	>1.0
Acute Hazard Index	N/A ²	N/A ²	N/A ²	N/A ²	N/A ²	N/A ²	N/A ²
Chronic Hazard Index	N/A ²	N/A ²	N/A ²	N/A ²	N/A ²	N/A ²	N/A ²
Maximum Individual Cancer Risk (10⁻⁶)	0.26	0.77	0.11	0.52	0.84	2.50	2.50
T-BACT Required?	No	No	No	No	No		
Special Permit Conditions?	Yes	Yes	Yes	Yes	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 not risk factor or the risk factor is so low that it 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# 18-0

1. The PM10 emissions rate shall not exceed 0.13 g/bhp-hr based on US EPA certification using ISO 8178 test procedure. [District Rules 2201]
2. 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]

3. 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]
4. Operation of this engine shall not exceed 6,500 hours per year. [District Rule 2201] N

Unit# 19-0

1. The PM10 emissions rate shall not exceed 0.075 g/bhp-hr based on US EPA certification using ISO 8178 test procedure. [District Rules 2201]
2. 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]
3. 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]
4. Operation of this engine shall not exceed 6,500 hours per year. [District Rule 2201] N

Unit# 20-0

1. The PM10 emissions rate shall not exceed 0.21 g/bhp-hr based on US EPA certification using ISO 8178 test procedure. [District Rules 2201]
2. 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]
3. 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]
4. Operation of this engine shall not exceed 6,500 hours per year. [District Rule 2201] N

Unit# 21-0

1. The PM10 emissions rate shall not exceed 0.097 g/bhp-hr based on US EPA certification using ISO 8178 test procedure. [District Rules 2201]
2. 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]
3. 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]
4. Operation of this engine shall not exceed 6,500 hours per year. [District Rule 2201] N

Unit# 22-0

1. The PM10 emissions rate shall not exceed 0.11 g/bhp-hr based on US EPA certification using ISO 8178 test procedure. [District Rules 2201]
2. 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]
3. 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]
4. Operation of this engine shall not exceed 6,500 hours per year. [District Rule 2201] N

B. RMR REPORT

I. Project Description

Technical Services received a request on June 17, 2004, to perform an Ambient Air Quality Analysis and a Risk Management Review for five (5) diesel-fired IC engines powering agricultural water pumps. The engines are:

- 1) Unit 18-0: #298 Cummins, Model: QSC83, Serial Number: 46700192
- 2) Unit 19-0: #198 Cummins, Model: QSX15, Serial Number: 79015700
- 3) Unit 20-0: #292 Perkins, Model: 1104C-44, Serial Number: V311121N
- 4) Unit 21-0: #302 John Deere, Model: 6068H, Serial Number: PE6068H387832
- 5) Unit 22-0: #275 John Deere, Model: 6081H, Serial Number: RG6081H241661

Units 18-0 and 19-0 are stationary and units 20-0, 21-0, and 22-0 are transportable.

II. Analysis

Technical Services performed a prioritization using the District's HEARTs database. Since the total facility prioritization score was greater than one, a refined health risk assessment was required. Emissions provided by the engineer and the District's DICE database were input into the HEARTs database. The AERMOD model was used, with the parameters outlined below and meteorological data for 2004-2008 from Fellows 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 Unit 18-0			
Source Type	Point	Location Type	Rural
Stack Height (m)	3.05	Closest Receptor (m)	2,414.02
Stack Diameter. (m)	0.101	Type of Receptor	Residential
Stack Exit Velocity (m/s)	165.08	Max Hours per Year	6,500
Stack Exit Temp. (°K)	358.15	Fuel Type	Diesel
Engine Rating (bhp)	230		

Analysis Parameters Unit 19-0			
Source Type	Point	Location Type	Rural
Stack Height (m)	2.44	Closest Receptor (m)	1,383.79
Stack Diameter. (m)	0.114	Type of Receptor	Residential
Stack Exit Velocity (m/s)	68.99	Max Hours per Year	6,500
Stack Exit Temp. (°K)	383.15	Fuel Type	Diesel
Engine Rating (bhp)	500		

Analysis Parameters Unit 20-0			
Source Type	Point	Location Type	Rural
Stack Height (m)	1.83	Closest Receptor (m)	402.34
Stack Diameter. (m)	0.063	Type of Receptor	Residential
Stack Exit Velocity (m/s)	40.09	Max Hours per Year	6,500
Stack Exit Temp. (°K)	298.15	Fuel Type	Diesel
Engine Rating (bhp)	60		

Analysis Parameters Unit 21-0			
Source Type	Point	Location Type	Rural
Stack Height (m)	2.44	Closest Receptor (m)	402.34
Stack Diameter. (m)	0.101	Type of Receptor	Residential
Stack Exit Velocity (m/s)	181.29	Max Hours per Year	6,500
Stack Exit Temp. (°K)	344.26	Fuel Type	Diesel
Engine Rating (bhp)	250		

Analysis Parameters Unit 22-0			
Source Type	Point	Location Type	Rural
Stack Height (m)	3.05	Closest Receptor (m)	402.34
Stack Diameter. (m)	0.101	Type of Receptor	Residential
Stack Exit Velocity (m/s)	98.83	Max Hours per Year	6,500
Stack Exit Temp. (°K)	310.93	Fuel Type	Diesel
Engine Rating (bhp)	300		

Technical Services also performed modeling for criteria pollutants CO, NO_x, SO_x and PM₁₀. The emission rates used for criteria pollutant modeling were:

Unit 18-0

Pollutant	Emission Rate (lb/hr)
CO	0.65
NO _x	1.41
SO _x	0.0042
PM ₁₀	0.067

Unit 19-0

Pollutant	Emission Rate (lb/hr)
CO	0.50
NO _x	4.85
SO _x	0.0042
PM ₁₀	0.083

Unit 20-0

Pollutant	Emission Rate (lb/hr)
CO	0.07
NO _x	0.67
SO _x	0.0007
PM ₁₀	0.029

Unit 21-0

Pollutant	Emission Rate (lb/hr)
CO	0.25
NO _x	1.21
SO _x	0.0042
PM ₁₀	0.054

Unit 22-0

Pollutant	Emission Rate (lb/hr)
CO	0.40
NO _x	2.86
SO _x	0.0042
PM ₁₀	0.071

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	Pass	X	Pass	X	X
NO _x	Pass	X	X	X	Pass
SO _x	Pass	Pass	X	Pass	Pass
PM ₁₀	X	X	X	Pass ¹	Pass ¹

*Results were taken from the attached PSD spreadsheet.

¹The criteria pollutants are below EPA's level of significance as found in 40 CFR Part 51.165 (b)(2).

III. Conclusion

The acute and chronic indices are below 1.0 and the cancer risk associated with each diesel-fired ICE is less than 1.0 in a million. **In accordance with the District's Risk Management Policy, the project is approved without Toxic Best Available Control Technology (T-BACT).**

To ensure that human health risks will not exceed District allowable levels; the permit conditions 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.

Attachments:

- A. RMR request from the project engineer
- B. Additional information from the applicant/project engineer
- C. Toxic emissions summary
- D. Prioritization score
- E. AAQA results

Max 1 hr, 24 hr, Annual

AAQA for Bolthouse Farms (C-6982-1-24-Annual)
All Values are in ug/m^3

	NOx 1 Hour	NOx Annual	CO 1 Hour	CO 8 Hour	SOx 1 Hour	SOx 3 Hour	SOx 24 Hour	SOx Annual	PM 24 Hour	PM Annual
18	3.805E+00	5.244E-03	2.326E+00	0.000E+00	1.501E-02	0.000E+00	1.746E-02	1.282E-03	1.639E-02	3.266E-04
19	6.631E+00	7.776E-03	9.039E-01	0.000E+00	7.596E-03	0.000E+00	1.611E-03	3.453E-05	5.895E-03	1.766E-04
20	5.898E+01	3.459E-01	8.355E+00	0.000E+00	7.961E-02	0.000E+00	6.994E-04	1.644E-05	4.844E-01	1.930E-02
21	2.239E+00	7.163E-03	6.155E-01	0.000E+00	1.026E-02	0.000E+00	1.733E-02	6.379E-04	3.272E-02	4.205E-04
22	5.229E+01	7.678E-01	9.656E+00	0.000E+00	1.016E-01	0.000E+00	3.640E-03	7.819E-05	3.515E-01	2.607E-02
Background	1.110E+02	2.104E+01	3.612E+03	2.680E+03	1.598E+02	1.332E+02	7.193E+01	2.664E+01	3.510E+02	7.700E+01
Facility Totals	2.349E+02	2.217E+01	3.633E+03	2.680E+03	1.601E+02	1.332E+02	7.197E+01	2.664E+01	3.519E+02	7.705E+01
AAQS	338	56	23000	10000	655	1300	105	80	50	30
	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Fail	Fail
<i>x1.5</i>		<i>1.70</i>						<i>0.003</i>		<i>0.069</i>
	EPA's Significatance Level (ug/m^3)									
	NOx 1 Hour	NOx Annual	CO 1 Hour	CO 8 Hour	SOx 1 Hour	SOx 3 Hour	SOx 24 Hour	SOx Annual	PM 24 Hour	PM Annual
	0.0	1.0	2000.0	500.0	0.0	25.0	5.0	1.0	5.0	1.0

APPENDIX B

Draft ATCs

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: C-6982-18-0

LEGAL OWNER OR OPERATOR: WM BOLTHOUSE FARMS- SOUTH AVENAL
MAILING ADDRESS: 7200 E. BRUNDAGE LN
BAKERSFIELD, CA 93307

LOCATION: HIGHWAY 33 AND HIGHWAY 41
AVENAL, CA 93204

EQUIPMENT DESCRIPTION:
230 BHP CUMMINS MODEL QSC 8.3 SERIAL #46700192 TIER 3 DIESEL-FIRED IC ENGINE POWERING AN AGRICULTURAL IRRIGATION WELL PUMP (ENG 298)

CONDITIONS

1. This engine shall be replaced with an electric motor by January 1, 2012. [District Rule 2201]
2. This IC engine shall only be used for the growing of crops or raising of fowl or animals. [District Rules 2201, 4701, and 4702]
3. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
4. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
5. {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. This engine shall be equipped with an operational nonresettable elapsed time meter or other APCO approved alternative. [District Rule 4702]
7. 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]
8. Operation of this engine shall not exceed 6,500 hours per year. [District Rule 2201]
9. Emissions from this IC engine shall not exceed any of the following limits: 2.83 g-NOx/bhp-hr, 1.27 g-CO/bhp-hr, or 0.15 g-VOC/bhp-hr. [District Rules 2201 and 4702, and 17 CCR 93115]

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (559) 230-5950 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

DAVID WARNER, Director of Permit Services

C-6982-18-0: Jan 27 2010 2:38PM - TOMS : Joint Inspection NOT Required

10. Emissions from this IC engine shall not exceed 0.13 g-PM10/bhp-hr based on US EPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]
11. {3395} 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]
12. {3405} 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]
13. {4037} During periods of operation, 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]
14. {4050} The owner/operator shall maintain an engine operating log to demonstrate compliance. The engine operating log shall include, on a monthly basis, the following information: total hours of operation, type of fuel used, maintenance or modifications performed, monitoring data, and any other information necessary to demonstrate compliance. [District Rule 4702]
15. {4051} The permittee shall record the total time the engine operates, in hours per calendar year. [District Rule 2201]
16. {3497} 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]

DRAFT

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: C-6982-19-0

LEGAL OWNER OR OPERATOR: WM BOLTHOUSE FARMS- SOUTH AVENAL
MAILING ADDRESS: 7200 E. BRUNDAGE LN

BAKERSFIELD, CA 93307

LOCATION: HIGHWAY 33 AND HIGHWAY 41
AVENAL, CA 93204

EQUIPMENT DESCRIPTION:

500 BHP CUMMINS MODEL QSX 15 SERIAL #79015700 TIER 2 DIESEL-FIRED IC ENGINE POWERING AN AGRICULTURAL IRRIGATION WELL PUMP (ENG 198)

CONDITIONS

1. This engine shall be replaced with an electric motor by January 1, 2012. [District Rule 2201]
2. This IC engine shall only be used for the growing of crops or raising of fowl or animals. [District Rules 2201, 4701, and 4702]
3. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
4. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
5. {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. This engine shall be equipped with an operational nonresettable elapsed time meter or other APCO approved alternative. [District Rule 4702]
7. 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]
8. Operation of this engine shall not exceed 6,500 hours per year. [District Rule 2201]
9. Emissions from this IC engine shall not exceed any of the following limits: 4.46 g-NOx/bhp-hr, 0.45 g-CO/bhp-hr, or 0.23 g-VOC/bhp-hr. [District Rules 2201 and 4702, and 17 CCR 93115]

CONDITIONS CONTINUE ON NEXT PAGE

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Seyed Sadredin, Executive Director, APCO

DAVID WARNER, Director of Permit Services

C-6982-19-0 : Jan 27 2010 2:38PM -- TOMS : Joint Inspection NOT Required

10. Emissions from this IC engine shall not exceed 0.075 g-PM10/bhp-hr based on US EPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]
11. {3395} 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]
12. {3405} 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]
13. {4037} During periods of operation, 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]
14. {4050} The owner/operator shall maintain an engine operating log to demonstrate compliance. The engine operating log shall include, on a monthly basis, the following information: total hours of operation, type of fuel used, maintenance or modifications performed, monitoring data, and any other information necessary to demonstrate compliance. [District Rule 4702]
15. {4051} The permittee shall record the total time the engine operates, in hours per calendar year. [District Rule 2201]
16. {3497} 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]

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San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: C-6982-20-0

LEGAL OWNER OR OPERATOR: WM BOLTHOUSE FARMS- SOUTH AVENAL
MAILING ADDRESS: 7200 E. BRUNDAGE LN
BAKERSFIELD, CA 93307

LOCATION: HIGHWAY 33 AND HIGHWAY 41
AVENAL, CA 93204

EQUIPMENT DESCRIPTION:
TRANSPORTABLE 60 BHP PERKINS MODEL 1104C-44 SERIAL #U311121N TIER 2 DIESEL-FIRED IC ENGINE
POWERING AN AGRICULTURAL IRRIGATION BOOSTER PUMP (ENG 292)

CONDITIONS

1. This IC engine shall only be used for the growing of crops or raising of fowl or animals. [District Rules 2201, 4701, and 4702]
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. {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]
5. This engine shall be equipped with an operational nonresettable elapsed time meter or other APCO approved alternative. [District Rule 4702]
6. 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]
7. Operation of this engine shall not exceed 6,500 hours per year. [District Rule 2201]
8. Emissions from this IC engine shall not exceed any of the following limits: 5.03 g-NOx/bhp-hr, 0.52 g-CO/bhp-hr, or 0.26 g-VOC/bhp-hr. [District Rules 2201 and 4702, and 17 CCR 93115]
9. Emissions from this IC engine shall not exceed 0.21 g-PM10/bhp-hr based on US EPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]

CONDITIONS CONTINUE ON NEXT PAGE

YOU **MUST** NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (559) 230-5950 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.

Sayed Sadredin, Executive Director APCO

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DAVID WARNER, Director of Permit Services

C-6982-20-0 Jan 20 2010 8:20AM - TOMS : Joint Inspection NOT Required

10. {3395} 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]
11. This engine shall be operated at one location or site at a facility for no more than 12 consecutive months, or if at a seasonal source, the engine shall not be operated at one location or site at a facility for more than the duration of the season. [District Rules 2201 and 4701 and 17 CCR 93115]
12. {3405} 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]
13. {4037} During periods of operation, 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]
14. {4050} The owner/operator shall maintain an engine operating log to demonstrate compliance. The engine operating log shall include, on a monthly basis, the following information: total hours of operation, type of fuel used, maintenance or modifications performed, monitoring data, and any other information necessary to demonstrate compliance. [District Rule 4702]
15. {4051} The permittee shall record the total time the engine operates, in hours per calendar year. [District Rule 2201]
16. {3497} 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]

DRAFT

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT

PERMIT NO: C-6982-21-0

LEGAL OWNER OR OPERATOR: WM BOLTHOUSE FARMS- SOUTH AVENAL
MAILING ADDRESS: 7200 E. BRUNDAGE LN
BAKERSFIELD, CA 93307

LOCATION: HIGHWAY 33 AND HIGHWAY 41
AVENAL, CA 93204

EQUIPMENT DESCRIPTION:
TRANSPORTABLE 250 BHP JOHN DEERE MODEL 6068H SERIAL #PE6068H387832 TIER 2 DIESEL-FIRED IC ENGINE POWERING AN AGRICULTURAL IRRIGATION BOOSTER PUMP (ENG 302)

CONDITIONS

1. The permittee shall submit an Authority to Construct (ATC) application before January 1, 2017 to be in compliance with Rule 4702. [District Rule 4702]
2. This IC engine shall only be used for the growing of crops or raising of fowl or animals. [District Rules 2201, 4701, and 4702]
3. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
4. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
5. {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. This engine shall be equipped with an operational nonresettable elapsed time meter or other APCO approved alternative. [District Rule 4702]
7. 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]
8. Operation of this engine shall not exceed 6,500 hours per year. [District Rule 2201]
9. Emissions from this IC engine shall not exceed any of the following limits: 2.20 g-NOx/bhp-hr, 0.45 g-CO/bhp-hr, or 0.12 g-VOC/bhp-hr. [District Rules 2201 and 4702, and 17 CCR 93115]

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (559) 230-5950 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

DAVID WARNER, Director of Permit Services

C-6982-21-0: Jan 22 2010 4:39PM - TOMS : Joint Inspection NOT Required

10. Emissions from this IC engine shall not exceed 0.097 g-PM10/bhp-hr based on US EPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]
11. {3395} 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]
12. This engine shall be operated at one location or site at a facility for no more than 12 consecutive months, or if at a seasonal source, the engine shall not be operated at one location or site at a facility for more than the duration of the season. [District Rules 2201 and 4701 and 17 CCR 93115]
13. {3405} 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]
14. {4037} During periods of operation, 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]
15. {4050} The owner/operator shall maintain an engine operating log to demonstrate compliance. The engine operating log shall include, on a monthly basis, the following information: total hours of operation, type of fuel used, maintenance or modifications performed, monitoring data, and any other information necessary to demonstrate compliance. [District Rule 4702]
16. {4051} The permittee shall record the total time the engine operates, in hours per calendar year. [District Rule 2201]
17. {3497} 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]

DRAFT

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT

PERMIT NO: C-6982-22-0

LEGAL OWNER OR OPERATOR: WM BOLTHOUSE FARMS- SOUTH AVENAL
MAILING ADDRESS: 7200 E. BRUNDAGE LN
BAKERSFIELD, CA 93307

LOCATION: HIGHWAY 33 AND HIGHWAY 41
AVENAL, CA 93204

EQUIPMENT DESCRIPTION:
TRANSPORTABLE 300 BHP JOHN DEERE MODEL 6081H SERIAL # RG6081H241661 TIER 2 DIESEL-FIRED IC
ENGINE POWERING AN AGRICULTURAL IRRIGATION BOOSTER PUMP (ENG 275)

CONDITIONS

1. The permittee shall submit an Authority to Construct (ATC) application before January 1, 2017 to be in compliance with Rule 4702. [District Rule 4702]
2. This IC engine shall only be used for the growing of crops or raising of fowl or animals. [District Rules 2201, 4701, and 4702]
3. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
4. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
5. {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. This engine shall be equipped with an operational nonresettable elapsed time meter or other APCO approved alternative. [District Rule 4702]
7. 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]
8. Operation of this engine shall not exceed 6,500 hours per year. [District Rule 2201]
9. Emissions from this IC engine shall not exceed any of the following limits: 4.32 g-NOx/bhp-hr, 0.60 g-CO/bhp-hr, or 0.23 g-VOC/bhp-hr. [District Rules 2201 and 4702, and 17 CCR 93115]

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (559) 230-5950 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

DAVID WARNER, Director of Permit Services

C-6982-22-0 : Jan 22 2010 4:38PM - TOMS : Joint Inspection NOT Required

Central Regional Office • 1990 E. Gettysburg Ave. • Fresno, CA 93726 • (559) 230-5900 • Fax (559) 230-6061

10. Emissions from this IC engine shall not exceed 0.11 g-PM10/bhp-hr based on US EPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]
11. {3395} 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]
12. This engine shall be operated at one location or site at a facility for no more than 12 consecutive months, or if at a seasonal source, the engine shall not be operated at one location or site at a facility for more than the duration of the season. [District Rules 2201 and 4701 and 17 CCR 93115]
13. {3405} 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]
14. {4037} During periods of operation, 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]
15. {4050} The owner/operator shall maintain an engine operating log to demonstrate compliance. The engine operating log shall include, on a monthly basis, the following information: total hours of operation, type of fuel used, maintenance or modifications performed, monitoring data, and any other information necessary to demonstrate compliance. [District Rule 4702]
16. {4051} The permittee shall record the total time the engine operates, in hours per calendar year. [District Rule 2201]
17. {3497} 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]

DRAFT

APPENDIX C

BACT Analyses

San Joaquin Valley Unified Air Pollution Control District
Best Available Control Technology (BACT) Guideline

Emission Unit: Stationary Compression-Ignited AO IC Engines **Industry Type:** Agriculture

Equipment Rating: ≤ 1,000 bhp

Last Update: June 1, 2006

Pollutant	Achieved in Practice	Technologically Feasible	Alternate Basic Equipment
VOC	<ul style="list-style-type: none"> The proposed engine shall meet the latest available CARB certification standard for the particular horsepower range. <p>(Example: a 200 bhp engine proposed in 2007 shall emit ≤ 0.149 g-PM10/bhp-hr if triggers BACT for PM10)</p>		<ul style="list-style-type: none"> Electrification NG Fired Engine to meet 4702 LPG/Propane Fired Engine to meet 4702
NO _x		SCR	
CO			
PM ₁₀		PM Filter	
SO _x	<ul style="list-style-type: none"> Very Low Sulfur Fuel (0.0015% fuel S by weight) 		

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. A cost effectiveness analysis is required for all determinations that are not achieved in practice or contained in an EPA approved State Implementation Plan.

*This is a Summary Page for this Class of Source

Top-Down BACT Analysis for VOC and NO_x Emissions

BACT Analysis for NO_x Emissions

I. Step 1 - Identify All Possible Control Technologies

Option 1: Latest Available Certified Compression-Ignited Engine, Achieved in Practice (AIP)

Option 2: Natural Gas Fueled Engine, Alternate Basic Equipment (ABE)

Option 3: Propane/Liquid Petroleum Gas (ABE)

Option 4: Electrification (ABE)

Option 5: SCR, Technologically Feasible (TF)

II. Step 2 - Eliminate Technologically Infeasible Options

There are no technologically infeasible options shown in Step 1.

III. Step 3 - Rank Technologies

Control Technology	Rank	Emissions	Technology Classification for BACT
Electrification	1	0	ABE
SCR	2	≥ 85% NO _x reduction (≤ 0.8 g/bhp-hr)	TF
Natural Gas Engine	3	4702 Level for NO _x (≤ 1.1 g/bhp-hr)	ABE
LPG Engine	4		
Latest Certification	5	Latest Tier Certification Level	AIP

IV. Step 4 - Cost Effectiveness Analyses

Cost Effectiveness Analysis: Electrification

As demonstrated in the cost analysis below, electrification for any engine 50 – 1,000 bhp is cost effective. Therefore, electrification is cost effective for the proposed 230 and 500 bhp diesel fired IC engines.

The most effective control technology is cost effective. Therefore, additional cost effectiveness analyses are not required.

V. Step 5 - Select BACT

Since electrification, which is the most effective control alternative shown in Step 4, is cost effective, the applicant proposes to install an electric motor and has applied for the necessary electrical line connection with the electric utility company. However, the electric utility company has not provided a definite schedule as to when the electrical line extension will be installed.

Therefore, in the interim, the Achieved in Practice (AIP) control in Step 4 (latest available certified compression-ignited engine) is considered BACT for this class and category of source until the utility company installs an electrical line extension to power the proposed electric motor. The applicant has proposed the latest certification, therefore, BACT is satisfied.

BACT Analysis for VOC Emissions

Step 1 - Identify All Possible Control Technologies

Option 1: Latest Available Certified Compression-Ignited Engine, Achieved in Practice (AIP)

Option 2: Natural Gas Fueled Engine, Alternate Basic Equipment (ABE)

Option 3: Propane/Liquid Petroleum Gas (ABE)

Option 4: Electrification (ABE)

Step 2 - Eliminate Technologically Infeasible Options

All options from Step 1 are technologically feasible.

Step 3 - Rank Remaining Control Technologies

Control Technology	Rank	Emissions	Technology Classification for BACT
Electrification	1	0	ABE
Natural Gas Engine	2	4702 Level for VOC (≤ 1.1 g/bhp-hr)	ABE
LPG Engine	3		
Latest Certification	4	Latest Tier Certification Level	AIP

Step 4 - Cost Effectiveness Analyses

Cost Effectiveness Analysis: Electrification

As demonstrated in the cost analysis below, electrification for any engine 50 – 1,000 bhp is cost effective. Therefore, electrification is cost effective for the proposed 230 and 500 bhp diesel fired IC engines.

The most effective control technology is cost effective. Therefore, additional cost effectiveness analyses are not required.

V. Step 5 - Select BACT

Since electrification, which is the most effective control alternative shown in Step 4, is cost effective, the applicant proposes to install an electric motor and has applied for the necessary electrical line connection with the electric utility company. However, the electric utility company has not provided a definite schedule as to when the electrical line extension will be installed.

Therefore, in the interim, the Achieved in Practice (AIP) control in Step 4 (latest available certified compression-ignited engine) is considered BACT for this class and category of source until the utility company installs an electrical line extension to power the proposed electric motor. The applicant has proposed the latest certification, therefore, BACT is satisfied.

Irrigation Pump Alternate Basic Equipment (ABE) Cost Analysis: Electric vs Diesel

Assumptions:

Irrigation pumps operate at an annual average of 65% load.
 Line Extension Distance (per applicant): **5,280 ft**
 Operating Schedule (per applicant): **6,500 hr/year**
 Electric Rate ¹: **0.15522 \$/kW-hr**
 Diesel Fuel Cost: **\$3.00 \$/gal**
 Brake Specific Fuel Consumption (diesel engines)²: **7,264 Btu/bhp-hr**
 Power Line Extension Cost: **40 \$/ft**
 Capital recovery factor (10%, 10 yrs): **0.163**
 Electric rates increase by 1.5%/yr over 10 yrs: **1.06**
 453.6 g/lb x 2,000 lb/ton: **907,200 g/ton**
 1 kW = 1.34 hp

Power Rating (bhp)	Diesel Engine Purchase Cost ³
50	\$6,000
100	\$9,000
150	\$14,700
200	\$17,600
250	\$25,500
300	\$34,000
400	\$37,700
500	\$38,600
600	\$54,000

Category	District Standard EF's (g/bhp-hr) ³				
	NOx	VOC	SOx	PM10	CO
Industry Standard EFs, Tier 3 for 50-100 hp:	3.325			0.3	3.7
Industry Standard EFs, Tier 3 for 101-174 hp:	2.9	0.15	0.0051	0.22	
Industry Standard EFs, Tier 3 for 175-751 hp:	4.7			0.149	2.6

Electrification Cost Effectiveness Summary

bhp	MCE ⁴ (\$/year)	Diesel Engine (\$/year)	Diesel Fuel (\$/year)	Electric Rate (\$/year)	Project Cost to Electrify ⁶ (\$/year)	Line Extension (\$/year)	Misc. Costs ⁷ (\$/year)	Customer Charges ⁸ (\$/year)	Cost Difference (ABE - Diesel) (\$/year)	Is Electrification Cost Effective?
50	\$31,349	\$978	\$51,696	\$39,905	\$2,445	\$34,426	\$600	\$791	\$25,493	YES
101	\$62,665	\$1,467	\$104,427	\$80,609	\$4,939	\$34,426	\$1,212	\$791	\$16,083	YES
175	\$93,987	\$2,396	\$180,937	\$139,669	\$8,558	\$34,426	\$2,100	\$791	\$2,210	YES
200	\$106,254	\$2,869	\$206,785	\$159,622	\$9,780	\$34,426	\$2,400	\$791	-\$2,636	YES
250	\$132,817	\$4,157	\$258,482	\$199,527	\$12,225	\$34,426	\$3,000	\$791	-\$12,670	YES
300	\$159,380	\$5,542	\$310,178	\$239,433	\$14,670	\$34,426	\$3,600	\$791	-\$22,801	YES
400	\$212,507	\$6,145	\$413,571	\$319,244	\$19,560	\$34,426	\$4,800	\$791	-\$40,896	YES
500	\$265,634	\$6,292	\$516,964	\$399,054	\$24,450	\$34,426	\$6,000	\$791	-\$58,534	YES
600	\$318,761	\$8,802	\$620,356	\$478,865	\$29,340	\$34,426	\$7,200	\$791	-\$78,536	YES

¹Taken from PG&E website listed below for large Ag (35 hp+), high use (1500 hr/yr+), rate schedule 'AG-5B & AG-5E', summer peak rate, effective May 1, 2008 to present; does not include daily customer charges

²<http://www.pge.com/nots/rates/tariffs/LgAgCurrent.xls>

³Based on thermodynamic conversion factor of 2,542.5 Btu/bhp-hr and diesel engine efficiency of 35%: 2,542.4/0.35 = 7,264

⁴The NOx, VOC and PM10 EFs are Tier 3 levels. The NOx EF is 95% of the NOx+HC EF, per Carl Moyer protocol. The VOC and CO EFs are from AP-42, Table 3.3-1, 10/96 (for diesel engines less than 600 hp). The SOx EF is based on very low S fuel since that kind of fuel is AIP.

⁵Multi-Pollutant Cost Effectiveness Threshold. Assumes BACT is triggered for NOx, VOC, and PM10. Reductions are difference between District standard diesel emissions and zero (no power plant emissions), i.e. 100% emissions reduction due to electrification.

⁶Per ERIP. Includes capital engine cost, misc. material, tax, and installation.

⁷Per ERIP. Includes variable speed drive (VSD) motor, r/v starter, head shaft, misc. equip., tax, and labor (Approx \$300/hp)

⁸Property tax, insurance, and administrative charges (Typically 4% of total capital investment). From OAQPS Control Cost Manual, 4th Edition, January 1990

⁹From PG&E, includes one-time meter charge of \$441 and ongoing meter charges of \$1.97/day

San Joaquin Valley Unified Air Pollution Control District
Best Available Control Technology (BACT) Guideline

Emission Unit: Transportable Compression-Ignited AO IC Engines **Industry Type:** Agriculture

Equipment Rating: ≤ 600 bhp

Last Update: June 1, 2006

Pollutant	Achieved in Practice	Technologically Feasible	Alternate Basic Equipment
VOC	<ul style="list-style-type: none"> • The proposed engine shall meet the latest available CARB certification standard for the particular horsepower range. <p>(Example: a 200 bhp engine proposed in 2007 shall emit ≤ 0.149 g-PM10/bhp-hr if triggers BACT for PM10)</p>		<ul style="list-style-type: none"> • LPG/Propane Fired Engine to meet 4702 (either lean, or rich w/3-way catalyst)
NO _x			
CO			
PM ₁₀		<ul style="list-style-type: none"> • LPG/Propane Fired Engine 	
SO _x	<ul style="list-style-type: none"> • Very Low Sulfur Fuel (0.0015% fuel S by weight) 		

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. A cost effectiveness analysis is required for all determinations that are not achieved in practice or contained in an EPA approved State Implementation Plan.

*This is a Summary Page for this Class of Source

3rd Quarter 2006

Top-Down BACT Analysis for VOC and NO_x Emissions

BACT Analysis for NO_x Emissions

I. Step 1 - Identify All Possible Control Technologies

- Option 1 - Latest available certified compression-ignited engine, Achieved in Practice (AIP)
- Option 2 - LPG fired engine, Alternate Basic Equipment (ABE)

II. Step 2 - Eliminate Technologically Infeasible Options

There are no technologically infeasible options shown in Step 1.

III. Step 3 - Rank Technologies

Control Technology	Rank	Emission Factors (g/bhp-hr)	Technology Classification for BACT
LPG/Propane Engine + 3-way catalyst	1	NO _x : 1.1 (Rule 4702) VOC: 1.1 (Rule 4702) CO: 3.0 (Rule 4702 + 3-way) PM ₁₀ : 0.063	ABE
Latest Tier Certification Levels	2	NO _x + VOC: 3.0 - 5.6 CO: 2.6 - 3.7 PM ₁₀ : 0.149 - 0.3	AIP

IV. Step 4 - Cost Effectiveness Analyses

Cost Effectiveness Analysis: LPG Engine (shown on next page)

The cost analysis shown is a multi-pollutant cost analysis for NO_x, SO_x, CO, PM₁₀, and VOC emissions. As demonstrated in the cost analysis, an LPG engine as ABE is not cost effective for any engine 50 - 600 bhp. Therefore, an LPG engine is not cost effective for the proposed 60, 250, and 300 bhp IC engines.

Cost Effectiveness Analysis: Latest Available Certified Compression-Ignited Engine

Per District BACT Policy, a cost effectiveness analysis is not required for AIP controls since the control must be implemented.

V. Step 5 - Select BACT

The remaining control not eliminated in Step 4 (latest available certification) is considered AIP BACT for this class and category of source. The applicant has proposed the latest certification; therefore, BACT is satisfied.

Irrigation Pump Alternate Basic Equipment (ABE) Cost Analysis: LPG vs Diesel

bhp	MCET ⁴ (\$/year)	Diesel Engine Purchase (\$/year)	Diesel Fuel ¹ (\$/year)	LPG Engine (\$/year)	3-way Cat (\$/year)	LPG Fuel ¹ (\$/year)	Cost Difference (ABE - Diesel) (\$/year)	Is LPG Cost Effective?
50	\$6,480	\$978	\$37,363	\$2,282	\$2,445	\$52,012	\$18,398	NO
100	\$12,961	\$1,467	\$74,726	\$3,668	\$2,445	\$104,024	\$33,944	NO
150	\$19,441	\$2,396	\$112,089	\$4,075	\$2,445	\$156,037	\$48,071	NO
200	\$25,921	\$2,869	\$149,453	\$6,341	\$2,445	\$208,049	\$64,513	NO
250	\$32,402	\$4,157	\$186,816	\$8,183	\$2,445	\$260,061	\$79,716	NO
300	\$38,882	\$4,189	\$224,179	\$8,981	\$2,445	\$312,073	\$95,132	NO
400	\$51,843	\$6,145	\$298,905	\$10,562	\$2,445	\$416,098	\$124,055	NO
500	\$64,804	\$6,292	\$373,631	\$12,844	\$2,445	\$520,122	\$155,488	NO
600	\$77,764	\$8,802	\$448,358	\$16,007	\$2,445	\$624,147	\$185,438	NO

Assumptions:

District Standard EF's - Tier 3 (g/bhp-hr) ³					Engine Rating (bhp)	Diesel Engine ² (\$)	LPG Engine ⁶ (\$)	3-way Cat (\$) ⁹
NOx	VOC	SOx	PM10	CO	50	100	150	200
2.85	0.15	0.0051	0.149	3.03	250 <td>300 <td>400 <td>500 </td></td></td>	300 <td>400 <td>500 </td></td>	400 <td>500 </td>	500
Agricultural Diesel Fuel Cost (\$/gal):					600			
Diesel Brake Specific Fuel Consumption ⁷ (Btu/bhp-hr):								
Spark-Ignited BSFC ⁷ (Btu/bhp-hr):								
Capital recovery factor (10%, 10 yrs):								
LPG fuel cost ⁸ (\$/gal):								
Op Schedule (hr/year):								
NG EF's (g/bhp-hr) ⁵								
NOx	VOC	SOx	PM10	CO				
1.275	1.232	0.01	0.1	17.242				

¹Takes into account that irrigation pumps typically operate at an annual average of 65% load.

²Per ERIP: Includes capital engine cost, misc. material, tax, and installation.

³The NOx, VOC and PM10 EFs are Tier 3 levels. The VOC and CO EFs are from AP-42, Table 3.3-1, 10/96 (for diesel engines less than 600 hp). The SOx EF is based on very low S fuel since that kind of fuel is AIP.

⁴The emissions reductions used for the MCET are based on the difference between District std diesel emissions (Tier 3) and required District Rule 4702 spark-ignited engine emission levels. Assumes BACT is triggered for NOx, VOC, and PM10.

⁵Minimum 4702 requirements for NOx, VOC, CO for rich-burn ag engines (would have 3-way catalyst)

⁶Per Cummins, includes purchase, misc. equip. and tax.

⁷CAPCOA Portable IC Engine Tech. Ref. Document, 5/95.

⁸Per Red Triangle Oil (559-485-4320), local propane supplier on 9/23/08

⁹Per Ceasar Balman (Engine Control Systems), turnkey cost about \$3,000; replacement every 2 yrs (total \$15,000 over 10 yrs)

Other Notes:

LPG HHV (Btu/gal): 90,500 (from AP-42, A-6, 9/85)
453.6 g/lb x 2,000 lb/ton = 907,200 g/ton