



**NOV 13 2013**

Joe Miller  
West Kern Water District  
PO Box 1105  
Taft, CA 93268

**RE: Notice of Final Action - Authority to Construct**  
**Facility Number: S-353**  
**Project Number: S-1133084**

Dear Mr. Miller:

The Air Pollution Control Officer has issued the Authority to Construct permit to West Kern Water District to increase the CO limit from 642 ppmv to 1,633 to ensure the engine achieves NOx reductions for Rule 4702 compliance and for adding LPG as a secondary fuel, at Section 21, Township 30S, Range 25E, in Kern County. Enclosed are the Authority to Construct permit and a copy of the notice of final action to be published approximately three days from the date of this letter.

Notice of the District's preliminary decision to issue the Authority to Construct permit was published on October 4, 2013. The District's analysis of the proposal was also sent to CARB on October 1, 2013. All comments received following the District's preliminary decision on this project were considered.

A summary of the comments and the District's response to each comment is included as an attachment to the enclosed revised engineering evaluation. These changes were minor and did not trigger additional public notification requirements, nor did they have any impact upon the Best Available Control Technology determination or on the amount of offsets required for project approval.

Also enclosed is an invoice for the engineering evaluation fees pursuant to District Rule 3010. Please remit the amount owed, along with a copy of the attached invoice, within 60 days.

**Seyed Sedredin**  
Executive Director/Air Pollution Control Officer

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**Northern Region**  
4800 Enterprise Way  
Modesto, CA 95358-8718  
Tel: (209) 557-6400 FAX: (209) 557-6475

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

**Southern Region**  
34946 Flyover Court  
Bakersfield, CA 93308-9725  
Tel: 681-392-5500 FAX: 661-392-5585

Mr. Joe Miller  
Page 2

Thank you for your cooperation in this matter. If you have any questions, please contact Mr. Jim Swaney at (559) 230-6000.

Sincerely,

A handwritten signature in black ink, appearing to read 'D. Warner', with a long horizontal flourish extending to the right.

David Warner  
Director of Permit Services

DW:jy

Enclosures

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



# San Joaquin Valley

AIR POLLUTION CONTROL DISTRICT

Due Date
1/6/2014

Amount Due
\$ 869.20

Amount Enclosed

ATCFEE S1133084  
353 S110609 11/6/2013

**RETURN THIS TOP PORTION ONLY, WITH REMITTANCE TO:**

WEST KERN WATER DISTRICT  
PO BOX 1105  
TAFT, CA 93268

SJVAPCD  
34946 Flyover Court  
Bakersfield, CA 93308

*Thank You!*



# San Joaquin Valley

AIR POLLUTION CONTROL DISTRICT

SJVAPCD Tax ID: 77-0262563

Facility ID
S353

Invoice Date
11/6/2013

Invoice Number
S110609

Invoice Type
Project: S1133084

WEST KERN WATER DISTRICT  
WELL FIELD

**PROJECT NUMBER: 1133084**

APPLICATION FILING FEES	\$ 71.00
ENGINEERING TIME FEES	\$ 798.20
TOTAL FEES	\$ 869.20
LESS PREVIOUSLY PAID PROJECT FEES APPLIED TO THIS INVOICE	\$ 0.00
<b>PROJECT FEES DUE (Enclosed is a detailed statement outlining the fees for each item.)</b>	<b>\$ 869.20</b>

Late Payment (see Rule 3010, Section 11.0 Late Fees)	
Postmarked	Total Due
After 1/6/2014 through 1/16/2014	\$ 956.12
After 1/16/2014	\$ 1,303.80
After 2/5/2014	Permits To Operate MAY BE SUSPENDED

San Joaquin Valley Air Pollution Control District  
34946 Flyover Court, Bakersfield, CA 93308, (661) 392-5500, Fax (661) 392-5585

**Invoice Detail**

Facility ID: S353

WEST KERN WATER DISTRICT  
WELL FIELD

Invoice Nbr: S110609  
Invoice Date: 11/6/2013  
Page: 1

**Application Filing Fees**

Project Nbr	Permit Number	Description	Application Fee
S1133084	S-353-3-9	MODIFICATION OF 615 HP WAUKESHA MODEL F-3521-GSI NATURAL GAS FIRED RICH BURN IC ENGINE POWERING A WATER PUMP (WELL 2-02): INCREASE THE CO LIMIT FROM 642 PPMV TO 1633 PPMV TO REDUCE NOX EMISSIONS FOR RULE 4702 COMPLIANCE AND ADD LPG AS AN ALTERNATE FUEL	\$ 71.00
<b>Total Application Filing Fees:</b>			<b>\$ 71.00</b>

**Engineering Time Fees**

Project Nbr	Quantity	Rate	Description	Fee
S1133084	8.2 hours	\$ 106.00 /h	Standard Engineering Time	\$ 869.20
			Less Credit For Application Filing Fees	(\$ 71.00)
			Standard Engineering Time SubTotal	\$ 798.20
<b>Total Engineering Time Fees:</b>				<b>\$ 798.20</b>



## AUTHORITY TO CONSTRUCT

**PERMIT NO:** S-353-3-9

**ISSUANCE DATE:** 11/06/2013

**LEGAL OWNER OR OPERATOR:** WEST KERN WATER DISTRICT

**MAILING ADDRESS:** PO BOX 1105  
TAFT, CA 93268

**LOCATION:** WELL FIELD

**SECTION:** SW21 **TOWNSHIP:** 30S **RANGE:** 25E

**EQUIPMENT DESCRIPTION:**

MODIFICATION OF 615 HP WAUKESHA MODEL F-3521-GSI NATURAL GAS FIRED RICH BURN IC ENGINE POWERING A WATER PUMP (WELL 2-02): INCREASE THE CO LIMIT FROM 642 PPMV TO 1633 PPMV TO REDUCE NOX EMISSIONS FOR RULE 4702 COMPLIANCE AND ADD LPG AS AN ALTERNATE FUEL

### CONDITIONS

1. Authority to Construct (ATC) S-353-3-7 shall be implemented concurrently, or prior to the modification and startup of the equipment authorized by this Authority to Construct. [District Rule 2201]
2. The facility shall submit an application to modify the Title V permit in accordance with the timeframes and procedures of District Rule 2520. [District Rule 2520]
3. Particulate emissions shall not exceed at the point of discharge, 0.1 gr/dscf. [District Rule 4201] Federally Enforceable Through Title V Permit
4. Sulfur compound emissions shall not exceed 0.2% by volume, 2000 ppmv, on a dry basis averaged over 15 consecutive minutes. [Kern County Rule 407 and District rule 4801] Federally Enforceable Through Title V Permit
5. The engine shall be fired on PUC quality natural gas with a sulfur content of less than or equal to 0.017% by weight or on liquefied petroleum gas (LPG) with a sulfur content of less than or equal to 0.008% by weight. [Kern County Rule 407 and District Rules 4702 and 4801] Federally Enforceable Through Title V Permit
6. If the IC engine is fired on PUC-regulated natural gas, then maintain on file copies of all natural gas bills. [District Rule 2520] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

**YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (661) 392-5500 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  
S-353-3-9 Nov 8 2013 7:21AM - YOSHIMUJI Joint Inspection NOT Required

7. If the engine is fired on natural gas but not PUC-regulated natural gas, then the sulfur content of the natural gas being fired in the IC engine shall be determined using ASTM Method D 1072, D 3031, D 4084 or D 3246. [District Rule 2520] Federally Enforceable Through Title V Permit
8. The sulfur content of each delivery of liquefied petroleum gas being fired in the IC engine shall be determined using ASTM method D2784. An equivalent test method may be accepted with prior written District approval. [District Rule 2520] Federally Enforceable Through Title V Permit
9. If the engine is fired on natural gas but not PUC-regulated natural gas, the sulfur content of each fuel source shall be tested weekly except that if compliance with the fuel sulfur content limit has been demonstrated for 8 consecutive weeks for a fuel source, then the testing frequency shall be quarterly. If a test shows noncompliance with the sulfur content requirement, the source must return to weekly testing until eight consecutive weeks show compliance. [District Rule 2520] Federally Enforceable Through Title V Permit
10. The engine shall be equipped with a controller which readily indicates air/fuel ratio setting within tolerance limits as recommended by the catalyst system supplier. [District Rule 2201] Federally Enforceable Through Title V Permit
11. This engine shall be equipped with an operational non-resettable elapsed-time meter or other APCO approved alternative. [District Rule 4702] Federally Enforceable Through Title V Permit
12. All exhaust emission shall exit through the catalyst. [District Rule 2201] Federally Enforceable Through Title V Permit
13. Emissions from this IC engine shall not exceed any of the following limits: 11 ppmvd NO<sub>x</sub> @ 15% O<sub>2</sub> or 0.15 g/bhp-hr, averaged over at least 15 minutes; 1,633 ppmvd CO @ 15% O<sub>2</sub> or 13.865 g/bhp-hr, averaged over at least 15 minutes; 250 ppmvd VOC @ 15% O<sub>2</sub> or 1.213 g/bhp-hr, averaged over at least 15 minutes; 0.033 g-PM<sub>10</sub>/bhp-hr; 0.009 g-SO<sub>x</sub>/bhp-hr. [District Rules 2201 and 4702]
14. For reoccurring emissions source testing, the arithmetic average of three 30-consecutive-minute test runs shall apply. If two of three runs are above an applicable limit, the test cannot be used to demonstrate compliance with an applicable limit. NO<sub>x</sub>, CO and VOC concentrations shall be reported in ppmv, corrected to 15% oxygen. [District Rule 4702] Federally Enforceable Through Title V Permit
15. Source testing to measure natural gas-combustion NO<sub>x</sub>, CO and VOC emissions from this engine shall be conducted not less than once every 24 months. [District Rule 4702] Federally Enforceable Through Title V Permit
16. Source testing shall be District witnessed or authorized and conducted by an ARB certified testing contractor. [District Rule 1081] Federally Enforceable Through Title V Permit
17. Source testing for District Rule 4702 compliance shall be conducted using the methods and procedures approved by the District. The District must be notified 30 days prior to any compliance source test, and a source test plan must be submitted for approval 15 days prior to testing. [District Rule 1081]
18. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081] Federally Enforceable Through Title V Permit
19. The following test methods shall be used: NO<sub>x</sub> (ppmv) - EPA Method 7E or ARB Method 100; CO (ppmv) - EPA Method 10 or ARB Method 100; stack gas oxygen - EPA Method 3 or 3A or ARB Method 100; VOC (ppmv) - EPA Method 25A or 25B, or ARB Method 100. EPA approved alternative test methods may also be used to satisfy the source testing requirements of this permit with prior written approval from the APCO. [District Rules 1081 and 4702] Federally Enforceable Through Title V Permit
20. The permittee shall monitor and record the stack concentration of NO<sub>x</sub>, CO, and O<sub>2</sub>, using a portable emission monitor that meets District specifications, at least once every calendar quarter (in which a source test is not performed and the engine is operated) or, if the engine is operated less than 120 calendar days in a calendar year, at least once during that calendar year (in which a source test is not performed and the engine is operated). Monitoring shall not be required if the engine is not in operation, i.e. the engine need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the engine unless monitoring has been performed within the last calendar quarter. Records must be maintained of the dates of non-operation to validate extended monitoring frequencies. [District Rule 4702] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

21. If either the NO<sub>x</sub> or CO concentrations corrected to 15% O<sub>2</sub>, as measured by the portable analyzer, exceed the allowable emission concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 8 hours after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 8 hours, the permittee shall notify the District within the following 1 hour, and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of performing the notification and testing required by this condition. [District Rule 4702] Federally Enforceable Through Title V Permit
22. All alternate monitoring parameter emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the permit-to-operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rule 4702] Federally Enforceable Through Title V Permit
23. The permittee shall maintain records of: (1) the date and time of NO<sub>x</sub>, CO, and O<sub>2</sub> measurements, (2) the O<sub>2</sub> concentration in percent and the measured NO<sub>x</sub> and CO concentrations corrected to 15% O<sub>2</sub>, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, and (5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rule 4702] Federally Enforceable Through Title V Permit
24. The permittee 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, compliance source test results, and any other information necessary to demonstrate compliance. [District Rule 4702] Federally Enforceable Through Title V Permit
25. Emissions source testing shall be conducted with the engine operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. [District Rule 4702] Federally Enforceable Through Title V Permit
26. The permittee shall update the I&M plan for this engine prior to any planned change in operation. The permittee must notify the District no later than seven days after changing the I&M plan and must submit an updated I&M plan to the APCO for approval no later than 14 days after the change. The date and time of the change to the I&M plan shall be recorded in the engine's operating log. For modifications, the revised I&M plan shall be submitted to and approved by the APCO prior to issuance of the Permit to Operate. The permittee may request a change to the I&M plan at any time. [District Rule 4702] Federally Enforceable Through Title V Permit
27. The engine shall be operated and maintained in proper operating condition according to the manufacturer's specifications. [District Rule 4702] Federally Enforceable Through Title V Permit
28. The engine shall be operated such that the O<sub>2</sub> sensor output voltage is within 0.6 volts DC - 1.0 volts DC as necessary to meet the air/fuel ratio setting. [40 Part CFR 64] Federally Enforceable Through Title V Permit
29. The permittee shall comply with the compliance assurance monitoring operation and maintenance requirements of 40 CFR part 64.7. [40 CFR Part 64] Federally Enforceable Through Title V Permit
30. The permittee shall comply with the recordkeeping and reporting requirements of 40 CFR part 64.9. [40 CFR Part 64] Federally Enforceable Through Title V Permit
31. If the District or EPA determine that a Quality improvement Plan is required under 40 CFR 64.7(d)(2), the permittee shall develop and implement the Quality Improvement Plan in accordance with 40 CFR part 64.8. [40 CFR Part 64] Federally Enforceable Through Title V Permit
32. The permittee shall record the O<sub>2</sub> sensor reading (in millivolts) on a daily basis. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit
33. The portable analyzer shall be calibrated in accordance with manufacturer guidelines and District policy SSP-1810. [District Rule 1081] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

34. Upon detecting any excursion from the acceptable range of millivolt readings, the permittee shall investigate the excursion and take corrective action to minimize excessive emissions and prevent recurrence of the excursion as expeditiously as practicable. [40 CFR 64] Federally Enforceable Through Title V Permit
35. If the IC engine is fired on LPG, the permittee shall maintain supplier invoices for each delivery of liquefied petroleum gas including the corresponding certified sulfur content for a period of at least five years. [District Rule 2520] Federally Enforceable Through Title V Permit
36. Compliance with permit conditions in the Title V permit shall be deemed compliance with the applicable requirements of SJVUAPCD Rule 4201, Kern County Rule 407, and the subsumed requirements of Kern County Rule 404. A permit shield is granted from these requirements [District Rule 2520]
37. The engine shall be in full compliance with 40 CFR Part 63, Subpart ZZZZ (National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines. [40 CFR 63 Subpart ZZZZ] Federally Enforceable Through Title V Permit
38. The permittee must minimize the engine's time spent at idle during startup and minimize the engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes. [40 CFR 63 Subpart ZZZZ] Federally Enforceable Through Title V Permit
39. The engine's oil and filter shall be changed every 2,160 hours of operation or every 12 months, whichever comes first. [40 CFR 63 Subpart ZZZZ] Federally Enforceable Through Title V Permit
40. The engine's spark plugs shall be inspected every 2,160 hours of operation or every 12 months, whichever comes first, and replaced as necessary. [40 CFR 63 Subpart ZZZZ] Federally Enforceable Through Title V Permit
41. The engine's hoses and belts shall be inspected every 2,160 hours of operation or every 12 months, whichever comes first, and replaced as necessary. [40 CFR 63 Subpart ZZZZ] Federally Enforceable Through Title V Permit
42. The permittee shall maintain monthly records of the occurrence and duration of each malfunction of operation (i.e., process equipment) or the air pollution control and monitoring equipment. The permittee shall also maintain monthly records of action taken during periods of malfunction to minimize emissions in accordance with §63.6605(b), including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation. [40 CFR 63 Subpart ZZZZ] Federally Enforceable Through Title V Permit
43. The permittee has the option of utilizing an oil analysis program in order to extend the specified oil change requirement in Tables 2c and 2d of Subpart ZZZZ. The oil analysis must be performed at the same frequency specified for changing the oil in Table 2c or 2d to this subpart. The analysis program must at a minimum analyze the following three parameters: Total Acid Number, viscosity, and percent water content. The condemning limits for these parameters are as follows: Total Acid Number increases by more than 3.0 milligrams of potassium hydroxide (KOH) per gram from Total Acid Number of the oil when new; viscosity of the oil has changed by more than 20 percent from the viscosity of the oil when new; or percent water content (by volume) is greater than 0.5. If all of these condemning limits are not exceeded, the engine owner or operator is not required to change the oil. If any of the limits are exceeded, the engine owner or operator must change the oil within 2 days of receiving the results of the analysis; if the engine is not in operation when the results of the analysis are received, the engine owner or operator must change the oil within 2 days or before commencing operation, whichever is later. The owner or operator must keep records of the parameters that are analyzed as part of the program, the results of the analysis, and the oil changes for the engine. The analysis program must be part of the maintenance plan for the engine. [40 CFR 63 Subpart ZZZZ] Federally Enforceable Through Title V Permit
44. A portable emission monitor shall be used to measure LPG combustion NO<sub>x</sub>, CO, and VOC emissions from this unit within 60 days of initial LPG usage. [District Rules 2201 and 4702] Federally Enforceable Through Title V Permit



# San Joaquin Valley Air Pollution Control District

## Authority to Construct Application Review

Facility Name: West Kern Water District  
Mailing Address: PO Box 1105  
Taft, CA 93268  
Contact Person: Joe Miller  
Telephone: (661) 763-3151  
Fax: (661) 765-5435  
E-Mail: [joe@wkwd.org](mailto:joe@wkwd.org)  
Application #(s): S-353-3-9  
Project #: S-1133084  
Deemed Complete: 8/5/13

Date: 8/22/13  
Engineer: John Yoshimura  
Lead Engineer: Sheraz Gill

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### I. Proposal

West Kern Water District (WKWD) applied for an Authority to Construct (ATC) permit to reduce NOx emissions for Rule 4702 compliance in Project S-1114582. Prior to this application, the facility proposed to convert the engine from lean-burn to rich-burn and install a catalyst to decrease NOx emissions from 25 ppmv to 11 ppmv (Project S-114582). However, the applicant has now requested to increase CO emissions from 642 ppmv to 1,633 ppmv to ensure the permit unit can meet NOx limits on an ongoing basis with an adequate margin of compliance. The applicant is also requesting to use LPG as an alternative fuel.

This project assumes the modifications from Project S-114582 will be implemented concurrently, or before these proposed modifications. Therefore, the following condition will be included in the permit to ensure compliance with District Rule 4702:

- Authority to Construct (ATC) S-353-3-7 shall be implemented concurrently, or prior to the modification and startup of the equipment authorized by this Authority to Construct. [District Rule 2201]

### II. Applicable Rules

Rule 2201 New and Modified Stationary Source Review Rule (4/21/11)  
Rule 2410 Prevention of Significant Deterioration (6/16/11)  
Rule 2520 Federally Mandated Operating Permits (6/21/01)  
Rule 4001 New Source Performance Standards (4/14/99)  
Rule 4002 National Emission Standards for Hazardous Air Pollutants (5/20/04)  
Rule 4101 Visible Emissions (2/17/05)  
Rule 4102 Nuisance (12/17/92)  
Rule 4201 Particulate Matter Concentration (12/17/92)  
Rule 4701 Stationary Internal Combustion Engines – Phase 1 (8/21/03)  
Rule 4702 Stationary Internal Combustion Engines – Phase 2 (8/18/11)

Rule 4801 Sulfur Compounds (12/17/92)  
CH&SC 41700 Health Risk Assessment  
CH&SC 42301.6 School Notice

Title 13 California Code of Regulations (CCR), Section 2423 – Exhaust Emission Standards and Test Procedures, Off-Road Compression-Ignition Engines and Equipment

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

Public Resources Code 21000-21177: California Environmental Quality Act (CEQA)

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

### **III. Project Location**

The project is located within Section 21, Township 30S, Range 25E, in Kern County, California. The applicant states that the equipment is not located within 1,000 feet of the outer boundary of a K-12 school. Therefore, the public notification requirement of California Health and Safety Code 42301.6 is not applicable to this project.

### **IV. Process Description**

The IC engines are used to power pumping equipment for the transport of water. These engines operated in the rich-burn mode and use 3-way catalysts for control of NOx, CO and VOC. These IC engines are also permitted for continuous use.

### **V. Equipment Listing**

#### Pre-Project Equipment Description:

S-353-3-7: 615 HP WAUKESHA MODEL F-3521-GSI NATURAL GAS FIRED RICH BURN IC ENGINE POWERING A WATER PUMP (WELL 2-02)

#### ATC Equipment Description:

S-353-3-9: MODIFICATION OF 615 HP WAUKESHA MODEL F-3521-GSI NATURAL GAS FIRED RICH BURN IC ENGINE POWERING A WATER PUMP (WELL 2-02); INCREASE THE CO LIMIT FROM 642 PPMV TO 1633 PPMV TO REDUCE NOX EMISSIONS FOR RULE 4702 COMPLIANCE AND ADD LPG AS AN ALTERNATE FUEL

#### Post Project Equipment Description:

S-353-3-9: 615 HP WAUKESHA MODEL F-3521-GSI NATURAL GAS/LPG-FIRED RICH BURN IC ENGINE POWERING A WATER PUMP (WELL 2-02)

### **VI. Emission Control Technology Evaluation**

The emission control technology consists of a 3-way catalyst. The 3-way catalyst uses NSCR to decrease NOx emissions by using a precious metal catalyst to promote the chemical reduction of NOx to N<sub>2</sub>, and the oxidation of CO and VOC to CO<sub>2</sub> and H<sub>2</sub>O. The NSCR system will also decrease formaldehyde emissions, which is a type of volatile organic compound. The fuel/air mixture controller (O<sub>2</sub> controller) is used in conjunction with NSCR to maintain the NOx

reduction efficiency. The CPMS is used to continuously monitor the catalyst inlet temperature to ensure the minimum temperature is maintained for the catalytic reaction.

## VII. General Calculations

### A. Assumptions

- Operating schedule: 24 hr/day, 365 day/yr (current permit)
- Engine efficiency, 30%
- EPA F-factor (adjusted to 60 °F): 8,578 dscf/MMBtu (40 CFR 60 Appendix B)
- Natural Gas Fuel heating value: 1,000 Btu/dscf (District Policy APR-1720, dated 12/20/01)
- LPG Fuel heating value: 94,000 Btu/gal (AP-42, Appendix A, pg. 5, dated 9/85)
- BHP to Btu/hr conversion: 2,542.5 Btu/bhp-hr
- Sulfur concentration: 2.85 lb-S/MMscf (District Policy APR-1720, dated 12/20/01)
- The Pre-Project emissions are based on S-353-3-7
- Natural gas and LPG emissions factors will be the same (per applicant)

### B. Emission Factors

#### Pre-Project Emission Factors (EF1)

Pollutant	Natural gas	ppmv @ 15% O2	EF Source
	g/hp-hr		
NO <sub>x</sub>	0.15	11	Current Permit
SO <sub>x</sub>	0.009	-	Current Permit
PM <sub>10</sub>	0.033	-	Current Permit
CO	5.45	642	Current Permit
VOC	1.213	250	Current Permit

#### Post-Project Emission Factors (EF2)

The applicant has proposed to increase CO emissions from 642 ppmv to 1,633 ppmv. Please see Appendix H: CO Emission Factor Calculation.

Pollutant	Natural gas	LPG	ppmv @ 15% O2	EF Source
	g/bhp-hr	g/bhp-hr		
NO <sub>x</sub>	0.15	0.15	11	Current Permit
SO <sub>x</sub>	0.009	0.009	-	Current Permit
PM <sub>10</sub>	0.033	0.033	-	Current Permit
CO	13.865	13.865	1,633	Applicant Proposed
VOC	1.213	1.213	250	Current Permit

**C. Calculations**

**1. Pre-Project Potential to Emit (PE1)**

<b>Daily Pre-Project Emissions – S-353-3-7</b>					
Pollutant	Emissions Factor (g/bhp-hr)	Rating (bhp)	Daily Hours of Operation (hrs/day)	Conversion (g/lb)	PE1 Total (lb/day)
NO <sub>x</sub>	0.15	615	24	453.6	4.9
SO <sub>x</sub>	0.009	615	24	453.6	0.3
PM <sub>10</sub>	0.033	615	24	453.6	1.1
CO	5.45	615	24	453.6	177.3
VOC	1.213	615	24	453.6	39.5

<b>Annual Pre-Project Emissions – S-353-3-7</b>					
Pollutant	Emissions Factor (g/bhp-hr)	Rating (bhp)	Annual Hours of Operation (hrs/yr)	Conversion (g/lb)	PE1 Total (lb/yr)
NO <sub>x</sub>	0.15	615	8,760	453.6	1,782
SO <sub>x</sub>	0.009	615	8,760	453.6	107
PM <sub>10</sub>	0.033	615	8,760	453.6	392
CO	5.45	615	8,760	453.6	64,730
VOC	1.213	615	8,760	453.6	14,407

**2. Post Project Potential to Emit (PE2)**

The applicant has proposed to use both natural gas and LPG as fuel for this engine. However, emission factors for both types of fuel are the same; therefore, only one table is necessary to calculate the daily and annual potential to emit.

<b>Daily Post-Project Emissions – S-353-3-9</b>					
Pollutant	Emissions Factor (g/bhp-hr)	Rating (bhp)	Daily Hours of Operation (hrs/day)	Conversion (g/lb)	PE2 Total (lb/day)
NO <sub>x</sub>	0.15	615	24	453.6	4.9
SO <sub>x</sub>	0.009	615	24	453.6	0.3
PM <sub>10</sub>	0.033	615	24	453.6	1.1
CO	13.865	615	24	453.6	451.2
VOC	1.213	615	24	453.6	39.5

<b>Annual Post-Project Emissions – S-353-3-9</b>					
Pollutant	Emissions Factor (g/bhp-hr)	Rating (bhp)	Annual Hours of Operation (hrs/yr)	Conversion (g/lb)	PE2 Total (lb/yr)
NO <sub>x</sub>	0.15	615	8760	453.6	1,782
SO <sub>x</sub>	0.009	615	8760	453.6	107
PM <sub>10</sub>	0.033	615	8760	453.6	392
CO	13.865	615	8760	453.6	164,674
VOC	1.213	615	8760	453.6	14,407

### 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.

<b>SSPE1 (lb/year)</b>					
Permit Unit	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	CO	VOC
S-353-1-10	2,768	110	1,599	255,106	4,823
S-353-2-10	2,768	110	1,599	255,106	4,823
S-353-3-7	1,782	107	392	64,730	14,407
S-353-4-7	2,433	243	3,244	9,733	2,433
S-353-5-3	2	0	1	20	2
<b>SSPE1</b>	<b>9,753</b>	<b>570</b>	<b>6,835</b>	<b>584,695</b>	<b>26,488</b>

### 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.

<b>SSPE2 (lb/year)</b>					
Permit Unit	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	CO	VOC
S-353-1-10	2,768	110	1,599	255,106	4,823
S-353-2-10	2,768	110	1,599	255,106	4,823
S-353-3-9	1,782	107	392	164,674	14,407
S-353-4-8	2,433	243	3,244	9,733	2,433
S-353-5-3	2	0	1	206	2
<b>SSPE2</b>	<b>9,753</b>	<b>570</b>	<b>6,835</b>	<b>684,825</b>	<b>26,488</b>

## 5. Major Source Determination

### Rule 2201 Major Source Determination:

Pursuant to District Rule 2201, a Major Source is a stationary source with a SSPE2 equal to or exceeding one or more of the following threshold values. However, for the purposes of determining major source status, the SSPE2 shall not include the quantity of ERCs which have been banked since September 19, 1991 for AER that have occurred at the source, and which have not been used on-site.”

This source is an existing Major Source for CO and VOC emissions and will remain a Major Source for CO and VOC. No change in other pollutants are proposed or expected as a result of this project.

### Rule 2410 Major Source Determination:

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

PSD Major Source Determination (tons/year)							
	NO2	VOC	SO2	CO	PM	PM10	CO2e
Estimated Facility PE before Project Increase	4.9	13.2	0.3	292	3.4	3.4	2,451
PSD Major Source Thresholds	250	250	250	250	250	250	100,000
PSD Major Source ? (Y/N)	N	N	N	Y	N	N	N

As shown above, the facility is an existing major source for PSD for at least one pollutant. Therefore the facility is an existing major source for PSD.

## 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, when the SSPE1 is greater than the offset threshold. This project is exempt from offsets pursuant to Rule 2201, Section 4.6.8. Therefore, BE calculations are not required.

## 7. SB 288 Major Modification

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

Non-road engines shall not be considered in determining whether a project is an SB 288 Major Modification. The Federal CAA reserves the regulation of non-road engines to Title II (National Emission Standards) of the CAA.

Therefore this project is not an SB 288 Major Modification.

## 8. Federal Major Modification

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

The determination of Federal Major Modification is based on a two-step test. For the first step, only the emission *increases* are counted. Emission decreases may not cancel out the increases for this determination.

### Step 1

For existing emissions units, the increase in emissions is calculated as follows.

$$\text{Emission Increase} = \text{PAE} - \text{BAE} - \text{UBC}$$

Where: PAE = Projected Actual Emissions, and  
BAE = Baseline Actual Emissions  
UBC = Unused baseline capacity

If there is no increase in design capacity or potential to emit, the PAE is equal to the annual emission rate at which the unit is projected to emit in any one year, selected by the operator, within 5 years after the unit resumes normal operation (10 years for existing units with an increase in design capacity or potential to emit). If detailed PAE are not provided, the PAE is equal to the PE2 for each permit unit.

The BAE is calculated based on historical emissions and operating records for any 24 month period, selected by the operator, within the previous 10 year period (5 years for electric utility steam generating units). The BAE must be adjusted to exclude any non-compliant operation emissions and emissions that are no longer allowed due to lower applicable emission limits that were in effect when this application was deemed complete.

UBC: Since this project does not result in an increase in design capacity or potential to emit, and it does not impact the ability of the emission unit to operate at a higher utilization rate, the UBC is the portion of PAE that the emission units could have accommodated during the baseline period.

The project's combined total emission increases are calculated in Appendix E and compared to the Federal Major Modification Thresholds in the following table.

Federal Major Modification Thresholds for Emission Increases			
Pollutant	Total Emissions Increases (lb/yr)	Thresholds (lb/yr)	Federal Major Modification?
NO <sub>x</sub> *	0	0	No
VOC*	0	0	No
PM <sub>10</sub>	0	30,000	No
PM <sub>2.5</sub>	0	20,000	No
SO <sub>x</sub>	0	80,000	No

\*If there is any emission increases in NO<sub>x</sub> or VOC, this project is a Federal Major Modification and no further analysis is required.

Since none of the Federal Major Modification Thresholds are being surpassed with this project, this project does not constitute a Federal Major Modification and no further analysis is required.

## **9. Rule 2410 – Prevention of Significant Deterioration (PSD) Applicability Determination**

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

- NO<sub>2</sub> (as a primary pollutant)
- SO<sub>2</sub> (as a primary pollutant)
- CO
- PM
- PM<sub>10</sub>
- Greenhouse gases (GHG): CO<sub>2</sub>, N<sub>2</sub>O, CH<sub>4</sub>, HFCs, PFCs, and SF<sub>6</sub>

The first step of this PSD evaluation consists of determining whether the facility is an existing PSD Major Source or not (See Section VII.C.5 of this document).

In the case the facility is an existing PSD Major Source, the second step of the PSD evaluation is to determine if the project results in a PSD significant increase.

In the case the facility is NOT an existing PSD Major Source but is an existing source, the second step of the PSD evaluation is to determine if the project, by itself, would be a PSD major source.

In the case the facility is new source, the second step of the PSD evaluation is to determine if this new facility will become a new PSD major Source as a result of the project and if so, to determine which pollutant will result in a PSD significant increase.

### **I. Potential to Emit for New or Modified Emission Units vs PSD Major Source Thresholds**

As a screening tool, the project potential to emit from all new and modified units is compared to the PSD major source threshold, and if total project potential to emit from all new and modified units is below this threshold, no further analysis will be needed.

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



PSD Major Source Determination: Potential to Emit (tons/year)							
	NO2	VOC	SO2	CO	PM	PM10	CO2e
Total PE from New and Modified Units	4.9	13.2	0.3	82	3.4	3.4	2,451
PSD Major Source threshold	250	250	250	250	250	250	100,000
New PSD Major Source?	N	N	N	Y	N	N	N

As demonstrated in the table above, the project potential to emit, for all new and modified emission units exceeds one or more of the PSD major source thresholds. Consequently, further analysis is required to determine if the project results in an emission increase greater than the PSD major source threshold.

**II. Emission Increase of Each Attainment/Unclassified Pollutant from New or Modified Emission Units vs PSD Major Source Thresholds**

In this step, the emission increase for each attainment/unclassified pollutant is compared to the PSD major source thresholds, and if emission increase for each attainment pollutant is below this threshold, no further analysis is needed.

For new emissions units, the increase in emissions is equal to the PE2 for each new unit included in this project.

For existing emissions units, the increase in emissions is calculated as follows.

$$\text{Emission Increase} = \text{PAE} - \text{BAE} - \text{UBC}$$

Where: PAE = Projected Actual Emissions, and  
BAE = Baseline Actual Emissions  
UBC = Unused baseline capacity

As a conservative estimate, the applicant has proposed an emission increase of 50 tons-CO/year. This projected increase is compared to the PSD major source threshold in the following table.

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

PSD Major Source Determination (ton/year): Emission Increase (tons/year)							
	NO2	VOC	SO2	CO	PM	PM10	CO2e
Project Emission Increase	0	0	0	50	0	0	0
PSD Major Source Thresholds	250	250	250	250	250	250	100,000
New PSD Major Source ? (Y/N)	N	N	N	N	N	N	N

As shown in the table above, the project emission increase, for all new and modified emission units, does not exceed any of the PSD major source thresholds. Therefore Rule 2410 is not applicable and no further discussion is required.

## **10. Quarterly Net Emissions Change (QNEC)**

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

## **VIII. Compliance**

### **Rule 2201 New and Modified Stationary Source Review Rule**

#### **A. Best Available Control Technology (BACT)**

##### **1. BACT Applicability**

BACT requirements are triggered on a pollutant-by-pollutant basis and on an emissions unit-by-emissions unit basis. Unless specifically exempted by Rule 2201, BACT shall be required for the following actions\*:

- a. Any new emissions unit with a potential to emit exceeding two pounds per day,
- b. The relocation from one Stationary Source to another of an existing emissions unit with a potential to emit exceeding two pounds per day,
- c. Modifications to an existing emissions unit with a valid Permit to Operate resulting in an AIPE exceeding two pounds per day, and/or
- d. Any new or modified emissions unit, in a stationary source project, which results in an SB 288 Major Modification or a Federal Major Modification, as defined by the rule.

\*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.

However, BACT shall not be required for the following:

4.2.3 For existing facilities, the installation or modification of an emission control technique performed solely for the purpose of compliance with the requirements of District, State or Federal air pollution control laws, regulations, or orders, as approved by the APCO, shall be exempt from Best Available Control Technology for all air pollutants, provided all of the following conditions are met:

- 4.2.3.1 There shall be no increase in the physical or operational design of the existing facility, except for those changes to the design needed for the installation or modification of the emission control technique itself;
- 4.2.3.2 There shall be no increase in the permitted rating or permitted operating schedule of the permitted unit;
- 4.2.3.3 There shall be no increase in emissions from the stationary source that will cause or contribute to any violation of a National Ambient Air Quality Standard, Prevention of Significant Deterioration increment, or Air Quality Related Value in Class I areas; and
- 4.2.3.4 The project shall not result in an increase in permitted emissions or potential to emit of more than 25 tons per year of NO<sub>x</sub>, or 25 tons per

year of VOC, or 15 tons per year of SO<sub>x</sub>, or 15 tons per year of PM<sub>10</sub>, or 50 tons per year of CO.

4.2.3.5 The project shall not constitute a Federal Major Modification.

There is no increase in emissions from adding LPG as an alternative fuel. However, the applicant has proposed to increase the CO emissions in order to maintain ongoing compliance with Rule 4702 NO<sub>x</sub> emission limits. As shown Appendix I, the proposed CO emissions increase does not exceed 50 tons/year; these modifications satisfy the requirements of Rule 2201, Section 4.2.3.1 through 4.2.3.5. Therefore this project is exempt from BACT requirements.

**B. Offsets**

**1. Offset Applicability**

Per District Rule 2201, Section 4.6.8, for existing facilities, the installation or modification of an emission control technique performed solely for the purpose of compliance with the requirements of District, State or Federal air pollution control laws, regulations, or orders, as approved by the APCO, shall be exempt from offset requirements for all air pollutants provided all of the following conditions are met:

- 4.6.8.1 There shall be no increase in the physical or operational design of the existing facility, except for those changes to the design needed for the installation or modification of the emission control technique itself;
- 4.6.8.2 There shall be no increase in the permitted rating or permitted operating schedule of the permitted unit;
- 4.6.8.3 There shall be no increase in emissions from the stationary source that will cause or contribute to any violation of a National Ambient Air Quality Standard, Prevention of Significant Deterioration increment, or Air Quality Related Value in Class I areas; and
- 4.6.8.4 The project shall not result in an increase in permitted emissions or potential to emit of more than 25 tons per year of NO<sub>x</sub>, or 25 tons per year of VOC, or 15 tons per year of SO<sub>x</sub>, or 15 tons per year of PM-10, or 50 tons per year of CO.

There is no increase in emissions from adding LPG as an alternative fuel. However, the applicant has proposed to increase the CO emissions in order to maintain ongoing compliance with Rule 4702 NO<sub>x</sub> emission limits. As shown in Appendix I, the proposed CO emissions increase does not exceed 50 tons/year; these modifications satisfy the requirements of Rule 2201, Section 4.6.8.1 through 4.6.8.4; therefore this project is exempt from Offset requirements.

**C. Public Notification**

**1. Applicability**

Public noticing is required for:

- a. New Major Sources, Federal Major Modifications, and SB 288 Major Modifications,
- b. Any new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any one pollutant,
- c. Any project which results in the offset thresholds being surpassed, and/or

d. Any project with an SSIPE of greater than 20,000 lb/year for any pollutant.

**a. New Major Sources, Federal Major Modifications, and SB 288 Major Modifications**

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.

As demonstrated in VII.C.7, this project does not constitute an SB 288 or Federal Major Modification; therefore, public noticing for SB 288 or Federal Major Modification purposes is not required.

**b. PE > 100 lb/day**

Applications which include a new emissions unit with a PE greater than 100 pounds during any one day for any pollutant will trigger public noticing requirements. There are no new emissions units associated with this project. Therefore public noticing is not required for this project for PE > 100 lb/day.

**c. Offset Threshold**

As stated above in Section VIII above, this project is exempt from offsets. No further discussion is required.

**d. SSIPE > 20,000 lb/year**

Public notification is required for any permitting action that results in a SSIPE of more than 20,000 lb/year of any affected pollutant. According to District policy, the SSIPE = SSPE2 – SSPE1. The SSIPE is compared to the SSIPE Public Notice thresholds in the following table.

<b>SSIPE Public Notice Thresholds</b>					
<b>Pollutant</b>	<b>SSPE2 (lb/year)</b>	<b>SSPE1 (lb/year)</b>	<b>SSIPE (lb/year)</b>	<b>SSIPE Public Notice Threshold</b>	<b>Public Notice Required?</b>
NO <sub>x</sub>	9,753	9,753	0	20,000 lb/year	No
SO <sub>x</sub>	570	570	0	20,000 lb/year	No
PM <sub>10</sub>	6,835	6,835	0	20,000 lb/year	No
CO	684,825	584,881	99,944	20,000 lb/year	Yes
VOC	26,488	26,488	0	20,000 lb/year	No

As demonstrated above, the SSIPE for CO is 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 CO emissions in excess of 20,000 lb/year. 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)

DELs and other enforceable conditions are required by Rule 2201 to restrict a unit's maximum daily emissions, to a level at or below the emissions associated with the maximum design capacity. The DEL must be contained in the latest ATC and contained in or enforced by the latest PTO and enforceable, in a practicable manner, on a daily basis. DELs are also required to enforce the applicability of BACT.

For this IC engine, the DELs are stated in the form of emission factors (g/hp-hr or ppmv @ 15% oxygen), the maximum engine horsepower rating, and 24 hours per day.

### Proposed Rule 2201 (DEL) Conditions:

- Emissions from this IC engine shall not exceed any of the following limits: 11 ppmvd NOx @ 15% O2 or 0.15 g/bhp-hr, averaged over at least 15 minutes; 1,633 ppmvd CO @ 15% O2 or 13.865 g/bhp-hr, averaged over at least 15 minutes; 250 ppmvd VOC @ 15% O2 or 1.213 g/bhp-hr, averaged over at least 15 minutes; 0.033 g-PM10/hp-hr; 0.009 g-SOx /hp-hr. [District Rules 2201 and 4702]

## E. Compliance Assurance

### 1. Source Testing

As required by District Rules 4701, *Internal Combustion Engines – Phase 1*, and District Rule 4702, *Internal Combustion Engines – Phase 2*, this unit is subject to source testing requirements. Source testing requirements, in accordance with District Rules 4701 and 4702, will be discussed in Section VIII, District Rule 4702, of this evaluation.

The following condition will ensure compliance when the unit fires on backup LPG:

- A portable emission monitor shall be used to measure LPG combustion NOx, CO, and VOC emissions from this unit within 60 days of initial LPG usage. [District Rules 2201 and 4702] Y

### 2. Monitoring

As required by District Rules 4701, *Internal Combustion Engines – Phase 1*, and District Rule 4702, *Internal Combustion Engines – Phase 2*, this unit is subject to monitoring requirements. Monitoring requirements, in accordance with District Rules 4701 and 4702, will be discussed in Section VIII, District Rule 4702, of this evaluation.

### 3. Recordkeeping

As required by District Rules 4701, *Internal Combustion Engines – Phase 1*, and District Rule 4702, *Internal Combustion Engines – Phase 2*, this unit is subject to recordkeeping requirements. Recordkeeping requirements, in accordance with District Rules 4701 and 4702, will be discussed in Section VIII, District Rule 4702, of this evaluation.

### 4. Reporting

The facility is required to provide records upon request as stated in the permit conditions. Therefore, the following previously proposed condition will be listed on ATC to ensure compliance:

- {110} The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]

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

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

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

#### **Rule 2520 Federally Mandated Operating Permits**

WKWD received their Title V Permit on May 31, 1998. This modification can be classified as a Title V minor modification pursuant to Rule 2520, Section 3.20, and can be processed with a Certificate of Conformity (COC). But the facility has not requested that this project be processed in that manner; therefore, WKWD will be required to submit a Title V minor modification application prior to operating under the revised provisions of the ATC(s) issued with this project. The following conditions will ensure the applicant submits an application to modify their Title V permit:

- The facility shall submit an application to modify the Title V permit in accordance with the timeframes and procedures of District Rule 2520. [District Rule 2520]

#### **Rule 4001 New Source Performance Standards (NSPS)**

##### **40 CFR 60 Subpart IIII (Standards of Performance for Stationary Compression Ignition Internal Combustion Engines)**

The requirements of 40 CFR 60 Subpart IIII (*Standards of Performance for Stationary Compression Ignition Internal Combustion Engines*) applies to manufacturers, owners, and operators of stationary compression ignition (CI) internal combustion (IC) engines as specified in Section 60.4200. The subpart applies to owners and operators of stationary CI IC engines that commence construction after July 11, 2005 where the stationary CI ICE are: (i) Manufactured after April 1, 2006 and are not fire pump engines, or (ii) Manufactured as a certified National Fire Protection Association (NFPA) fire pump engine after July 1, 2006. This subpart also applies to owners and operators of stationary CI ICE that modify or reconstruct their stationary CI ICE after July 11, 2005. For the purposes of this subpart, the date that construction commences is the date the engine is ordered by the owner or operator.

This subpart does not apply since the engine is not compression ignited.

## **40 CFR 60 Subpart JJJJ – Standards of Performance for Stationary Spark Ignition Internal Combustion Engines**

§60.4230(a)(1) through (a)(5) specify the stationary spark ignition (SI) internal combustion engines (ICE) subject to the provisions of this subpart. For the purposes of this subpart, the date that construction commences is the date the engine is ordered by the owner or operator.

Section (a)(1) applies to stationary SI ICE with a maximum engine power less than or equal to 19 kilowatt (KW) (25 horsepower (HP)) that are manufactured on or after July 1, 2008. Permit units S-353-3 has a maximum engine power greater than 25 bhp. Therefore, this section does not apply.

Section (a)(2) applies to stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) that are gasoline fueled or that are rich-burn engines fueled by liquefied petroleum gas (LPG), where the date of manufacture is:

- (i) On or after July 1, 2008; or
- (ii) On or after January 1, 2009, for emergency engines.

Permit units S-353-3 is a rich-burn engine fueled by natural gas and LPG with a maximum engine rating over 25 bhp, but was manufactured before July 1, 2008. Therefore, this section does not apply.

Section (a)(3) applies to stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) that are not gasoline fueled and are not rich burn engines fueled by LPG, where the manufacturer participates in the voluntary manufacturer certification program described in this subpart and where the date of manufacture is:

- (i) On or after July 1, 2007, for engines with a maximum engine power greater than or equal to 500 HP (except lean burn engines with a maximum engine power greater than or equal to 500 HP and less than 1,350 HP);
- (ii) On or after January 1, 2008, for lean burn engines with a maximum engine power greater than or equal to 500 HP and less than 1,350 HP;
- (iii) On or after July 1, 2008, for engines with a maximum engine power less than 500 HP; or
- (iv) On or after January 1, 2009, for emergency engines.

Permit units S-353-3 is a rich-burn engine fueled by LPG and natural gas and was manufactured before July 1, 2007. Therefore, this section does not apply.

Section (a)(4) applies to stationary SI ICE that commence construction after June 12, 2006, where the stationary SI ICE are manufactured:

- (i) On or after July 1, 2007, for engines with a maximum engine power greater than or equal to 500 HP (except lean burn engines with a maximum engine power greater than or equal to 500 HP and less than 1,350 HP);
- (ii) On or after January 1, 2008, for lean burn engines with a maximum engine power greater than or equal to 500 HP and less than 1,350 HP;

- (iii) On or after July 1, 2008, for engines with a maximum engine power less than 500 HP;  
or
- (iv) On or after January 1, 2009, for emergency engines with a maximum engine power greater than 19 KW (25 HP).

Permit units S-353-3 is a rich-burn engine with a maximum engine power rating greater than 500 bhp, but was manufactured before July 1, 2008. Therefore, this section does not apply.

Section (a)(5) applies to stationary SI ICE that commence modification or reconstruction after June 12, 2006. According to the definition of "modification" from 40 CFR Part 60.2, permit unit S-353-3 has not commenced modification or reconstruction after June 12, 2006. Therefore, this section does not apply.

Permit unit S-353-3 does not meet any of the applicability requirements listed in §60.4230(a)(1) through (a)(5). Therefore, the requirements of 40 CFR 60 Subpart JJJJ does not apply to this engine.

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

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

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

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

§63.6590(a) states, "An affected source is any existing, new, or reconstructed stationary RICE located at a major or area source of HAP emissions, excluding stationary RICE being tested at a stationary RICE test cell/stand."

§63.6590(a)(1) defines the criteria for an existing stationary RICE as follows:

- (i) For stationary RICE with a site rating of more than 500 brake horsepower (HP) located at a major source of HAP emissions, a stationary RICE is existing if you commenced construction or reconstruction of the stationary RICE before December 19, 2002.
- (ii) For stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions, a stationary RICE is existing if you commenced construction or reconstruction of the stationary RICE before June 12, 2006.
- (iii) For stationary RICE located at an area source of HAP emissions, a stationary RICE is existing if you commenced construction or reconstruction of the stationary RICE before June 12, 2006.



- (iv) A change in ownership of an existing stationary RICE does not make that stationary RICE a new or reconstructed stationary RICE.

This facility is an area source of HAP emissions. Permit unit S-353-3 is a rich-burn natural gas fired engine greater than 500 bhp, and has not commenced construction or reconstruction on or after June 12, 2006. Therefore, permit unit S-353-3 meets the definition of an existing stationary RICE as defined in §63.6590(a)(1)(iii) and Subpart ZZZZ is applicable.

Populated areas are defined as not being located on a Department of Transportation (DOT) Class 1 pipeline segment or having more than 5 buildings within 0.25 miles used for occupation. The applicant has stated the engine is not located in a populated area; therefore, the following management practice requirements are applicable:

- On and after October 19, 2013, the permittee must minimize the engine's time spent at idle during startup and minimize the engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes. [40 CFR 63 Subpart ZZZZ]
- On and after October 19, 2013, the engine shall be in full compliance with 40 CFR Part 63, Subpart ZZZZ (National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines). [40 CFR 63 Subpart ZZZZ]
- On and after October 19, 2013, the engine's oil and filter shall be changed every 2,160 hours of operation or every 12 months, whichever comes first. [40 CFR 63 Subpart ZZZZ]
- On and after October 19, 2013, the engine's spark plugs shall be inspected every 2,160 hours of operation or every 12 months, whichever comes first, and replaced as necessary. [40 CFR 63 Subpart ZZZZ]
- On and after October 19, 2013, the engine's hoses and belts shall be inspected every 2,160 hours of operation or every 12 months, whichever comes first, and replaced as necessary. [40 CFR 63 Subpart ZZZZ]
- On and after October 19, 2013, this engine shall be equipped with an operational non-resettable elapsed time meter or other APCO approved alternative. [District Rule 4702 and 40 CFR 63 Subpart ZZZZ]
- On and after October 19, 2013, the permittee shall maintain monthly records of the occurrence and duration of each malfunction of operation (i.e., process equipment) or the air pollution control and monitoring equipment. The permittee shall also maintain monthly records of action taken during periods of malfunction to minimize emissions in accordance with §63.6605(b), including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation. [District Rule 1070 and 40 CFR 63 Subpart ZZZZ]
- On and after October 19, 2013, the permittee has the option of utilizing an oil analysis program in order to extend the specified oil change requirement in Tables 2c and 2d of Subpart ZZZZ. The oil analysis must be performed at the same frequency specified for changing the oil in Table 2c or 2d to this subpart. The analysis program must at a minimum analyze the following three parameters: Total Base Number, viscosity, and percent water content. The condemning limits for these parameters are as follows: Total Acid Number increases by more than 3.0 milligrams of potassium hydroxide (KOH) per gram from Total Acid Number of the oil when new; viscosity of the oil has changed by

more than 20 percent from the viscosity of the oil when new; or percent water content (by volume) is greater than 0.5. If all of these condemning limits are not exceeded, the engine owner or operator is not required to change the oil. If any of the limits are exceeded, the engine owner or operator must change the oil within 2 days of receiving the results of the analysis; if the engine is not in operation when the results of the analysis are received, the engine owner or operator must change the oil within 2 days or before commencing operation, whichever is later. The owner or operator must keep records of the parameters that are analyzed as part of the program, the results of the analysis, and the oil changes for the engine. The analysis program must be part of the maintenance plan for the engine. [40 CFR 63 Subpart ZZZZ]

- {modified 3873} All records shall be maintained and retained on-site for a period of at least 5 years and shall be made available for District inspection upon request. [District Rule 4702 and 40 CFR 63 Subpart ZZZZ]

#### **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. This engine is fired on a combination of natural gas and LPG, 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**

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.

#### **California Health & Safety Code 41700 (Health Risk Assessment)**

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

An HRA is not required for a project with a total facility prioritization score of less than or equal to one. According to the Technical Services Memo for this project (Appendix G), the total facility prioritization score including this project was less than or equal to one. Therefore, no future analysis is required to determine the impact from this project and 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:

$$0.175 \frac{g - PM_{10}}{bhp - hr} \times \frac{1g - PM}{0.96g - PM_{10}} \times \frac{1bhp - hr}{2,542.5 Btu} \times \frac{10^6 Btu}{8,578 dscf} \times \frac{0.35 Btu_{out}}{1 Btu_{in}} \times \frac{15.43 grain}{g} = 0.001 \frac{grain - PM}{dscf}$$

Since 0.001 grain-PM/dscf is  $\leq$  to 0.1 grain per dscf, compliance with Rule 4201 is expected.

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

### Rule 4202 Particulate Matter Emission Rate

Rule 4202 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.

The proposed IC engine runs on natural gas or LPG.

Therefore, the requirements of this rule do not apply to this project.

### Rule 4701 Internal Combustion Engines

The purpose of this rule is to limit the emissions of nitrogen oxides (NO<sub>x</sub>), carbon monoxide (CO), and volatile organic compounds (VOC) from internal combustion engines. Except as provided in Section 4.0, the provisions of this rule apply to any internal combustion engine, rated greater than 25 bhp, which requires a PTO.

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

### Rule 4702 Stationary Internal Combustion Engines – Phase 2

The purpose of this Rule is to limit NO<sub>x</sub>, CO, and VOC emissions from internal combustion engines rates 25 bhp or greater.

The existing engine is a rich-burn, spark-ignited internal combustion engine that is used to power pumping equipment for the transport of water. Therefore, this engine is subject to the requirements of this rule.

Section 5.1 applies to non-agricultural engines rated between 25 and 50 bhp. The engine is rated greater than 50 bhp. Therefore, this section does not apply.

Section 5.2.1 states the operator of a spark-ignited IC engine rated greater than 50 bhp that is used exclusively in non-agricultural operations (AO) shall not operate it in such a manner that results in emissions exceeding the limits in Table 1 for the appropriate engine type until such time that the engine has demonstrated compliance with Table 2 emission limits pursuant to the compliance deadlines in Section 7.5. In lieu of complying with Table 1 emission limits, the operator of a spark-ignited engine shall comply with the applicable emissions limits pursuant to Section 8.0.

The engines will comply with the emission limits specified in Table 2 (discussed below). Since the emissions limits in Table 2 are equal to or more stringent than the emission limits specified in Table 1, compliance with Table 2 emission limits will show compliance with Table 1 emission limits.

Section 5.2.2 states on and after the compliance schedule specified in Section 7.5, the operator of a spark-ignited engine > 50 bhp that is used in non-AO shall comply with all of the applicable requirements of the rule and one of the following, on an engine-by-engine basis:

- 5.2.2.1 On and after the compliance schedule specified in Section 7.5, the operator of a spark-ignited engine that is used exclusively in non-AO shall comply with the following requirements on an engine-by-engine basis:
  - 5.2.2.1.1 NO<sub>x</sub>, CO, and VOC emission limits pursuant to Table 2;
  - 5.2.2.1.2 SO<sub>x</sub> control requirements of Section 5.7, pursuant to the deadlines specified in Section 7.5; and
  - 5.2.2.1.3 Monitoring requirements of Section 5.10, pursuant to the deadlines specified in Section 7.5.
- 5.2.2.2 In lieu of complying with the NO<sub>x</sub> emission limit requirement of Section 5.2.2.1.1, an operator may pay an annual fee to the District, as specified in Section 5.6, pursuant to Section 7.6.
- 5.2.2.3 In lieu of complying with the NO<sub>x</sub>, CO, and VOC limits of Table 2 on an engine-by-engine basis, an operator may elect to implement an alternative emission control plan pursuant to Section 8.0. An operator electing this option shall not be eligible to participate in the fee payment option outlined in Section 5.2.2.2 and Section 5.6.

Per the compliance schedules in Section 7.5, the earliest compliance date for an engine subject to Table 2 emission limits is January 1, 2014. However, the engine already meets the requirements listed in Section 5.2.2.1. Therefore, compliance with Section 5.2.2 and Table 2 emission limits will be shown.

<b>Table 2: Rule 4702 Emission Limits</b>			
<b>Engine Type</b>	<b>NO<sub>x</sub> Emission Limit (ppmv @ 15% O<sub>2</sub>, dry)</b>	<b>CO Emission Limit (ppmv @ 15% O<sub>2</sub>, dry)</b>	<b>VOC Emission Limit (ppmv @ 15% O<sub>2</sub>, dry)</b>
<b>1. Rich-Burn</b>			
<b>a. Waste Gas Fueled</b>	50	2000	250
<b>b. Cyclic Loaded, Field Gas Fueled</b>	50	2000	250
<b>c. Limited Use</b>	25	2000	250
<b>d. Rich-Burn Engine, not listed above</b>	11	2000	250

The applicant has proposed to modify an existing natural gas/LPG-fired rich-burn full-time engine. Therefore, the engine falls under category 1.d of Table 2 (Rich-Burn, not listed above). The following conditions will be added to the permits to ensure compliance with rule emission limits:

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- Emissions from this IC engine shall not exceed any of the following limits: 11 ppmvd NO<sub>x</sub> @ 15% O<sub>2</sub> or 0.15 g/bhp-hr, averaged over at least 15 minutes; 1,633 ppmvd CO @ 15% O<sub>2</sub> or 13.865 g/bhp-hr, averaged over at least 15 minutes; 250 ppmvd VOC @ 15% O<sub>2</sub> or 1.213 g/bhp-hr, averaged over at least 15 minutes; 0.033 g-PM<sub>10</sub>/hp-hr; 0.009 g-SO<sub>x</sub> /hp-hr. [District Rules 2201 and 4702]

Section 5.2.3 applies to spark-ignited engines used exclusively in AO. The proposed engines will only be operated for non-AO. Therefore, this section does not apply.

Section 5.2.4 applies to certified compression-ignited engines. The proposed engines are not compression-ignited. Therefore, this section does not apply.

Section 5.2.5 applies to non-certified compression-ignited engines. The proposed engines are not compression-ignited. Therefore, this section does not apply.

Section 5.3 applies to engines equipped with a continuous emission monitoring system (CEMS). The proposed engines are not equipped with CEMS. Therefore, this section does not apply.

Sections 5.4 and 5.5 pertain to engines using a percent emission reduction to comply with the NO<sub>x</sub> emission limits specified in Section 5.2. Since a percent emission reduction is not being used, these sections of the rule are not applicable.

Section 5.6 applies to operators who elect to pay an annual fee in lieu of complying with the NO<sub>x</sub> emission limit requirements of Section 5.2.2.1.1. The engines will comply with the NO<sub>x</sub> emission limit requirement of Section 5.2.2.1.1. Therefore, this section does not apply.

Section 5.7 states that on and after the compliance schedule specified in Section 7.5, operators of non-AO spark-ignited engines and non-AO compression-ignited engines shall comply with one of the following requirements:

- 5.7.1 Operate the engine exclusively on PUC-quality natural gas, commercial propane, butane, or liquefied petroleum gas, or a combination of such gases; or
- 5.7.2 Limit gaseous fuel sulfur content to no more than five (5) grains of total sulfur per one hundred (100) standard cubic feet; or
- 5.7.3 Use California Reformulated Gasoline for all gasoline-fired spark-ignited engines; or
- 5.7.4 Use California Reformulated Diesel for all compression-ignited engines; or
- 5.7.5 Operate the engine on liquid fuel that contains no more than 15 ppm sulfur, as determined by the test method specified in Section 6.4.6; or
- 5.7.6 Install and properly operate an emission control system that reduces SO<sub>2</sub> emissions by at least 95% by weight as determined by the test method specified in Section 6.4.6.

Per the compliance schedules in Section 7.5, the earliest compliance date for an engine subject to SO<sub>x</sub> emission control requirements is January 1, 2014. However, the engine will be fired exclusively on a combination of PUC-quality natural gas and LPG. Therefore, compliance with this section will be met, and the following condition will be added to the permits:

- Unit shall be fired on PUC quality natural gas with a sulfur content of less than or equal to 0.017% by weight or on liquefied petroleum gas (LPG) with a sulfur content of less than or equal to 0.008% by weight. [District Rules 4702 and 4801 and Kern County Rule 407]

Section 5.8.1 states that for each engine with a rated brake horsepower of 1,000 hp or greater and which is permitted to operate more than 2,000 hours per calendar year, or with an external emission control device, shall either install, operate, and maintain continuous monitoring equipment for NO<sub>x</sub>, CO, and oxygen, as identified in Rule 1080 (Stack Monitoring), or install, operate, and maintain APCO-approved alternate monitoring. The monitoring system may be a continuous emissions monitoring system (CEMS), a parametric emissions monitoring system (PEMS), or an alternative monitoring system approved by the APCO. APCO-approved alternate monitoring shall consist of one or more of the following:

- Periodic NO<sub>x</sub> and CO emission concentrations,
- Engine exhaust oxygen concentration,
- Air-to-fuel ratio,
- Flow rate of reducing agents added to engine exhaust,
- Catalyst inlet and exhaust temperature,
- Catalyst inlet and exhaust oxygen concentration,
- Other operational characteristics.

The engine has an external emission control device, therefore this section applies. The applicant has not proposed to modify the current pre-approved alternate monitoring procedure "A", Monitoring of NO<sub>x</sub>, CO, and O<sub>2</sub> Concentrations, as given in SSP 1810, Emissions Monitoring for Rules 4701 and 4702.

The following conditions ensure continued compliance with the requirements of this section:

- {modified 3785} The permittee shall monitor and record the stack concentration of NO<sub>x</sub>, CO, and O<sub>2</sub>, using a portable emission monitor that meets District specifications, at least once every calendar quarter (in which a source test is not performed and the engine is operated) or, if the engine is operated less than 120 calendar days in a calendar year, at least once during that calendar year (in which a source test is not performed and the engine is operated). Monitoring shall not be required if the engine is not in operation, i.e. the engine need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the engine unless monitoring has been performed within the last calendar quarter. Records must be maintained of the dates of non-operation to validate extended monitoring frequencies. [District Rule 4702]
- {3786} If either the NO<sub>x</sub> or CO concentrations corrected to 15% O<sub>2</sub>, as measured by the portable analyzer, exceed the allowable emission concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 8 hours after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 8 hours, the permittee shall notify the District within the following 1 hour, and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must

then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of performing the notification and testing required by this condition. [District Rule 4702]

- {3787} All alternate monitoring parameter emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the permit-to-operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rule 4702]
- {3788} The permittee shall maintain records of: (1) the date and time of NO<sub>x</sub>, CO, and O<sub>2</sub> measurements, (2) the O<sub>2</sub> concentration in percent and the measured NO<sub>x</sub> and CO concentrations corrected to 15% O<sub>2</sub>, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, and (5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rule 4702]

Section 5.8.2 requires engines not subject to 5.8.1 to have their operational characteristics monitored as recommended by the engine manufacturer or emission control system supplier, and approved by the APCO. The proposed engines are subject to Section 5.8.1; therefore, Section 5.8.2 is not applicable.

Section 5.8.3 requires each engine using an alternative monitoring system to submit to and receive approval from the APCO adequate verification of the alternative monitoring system's acceptability. The applicant has satisfied the requirements of Section 5.8.3 by using a District pre-approved alternate monitoring procedure as indicated in Section 5.8.1 above.

Section 5.8.4 requires IC engines equipped with CEMS to operate the CEMS in compliance with the requirements of 40 Code of Federal Regulations (CFR) Part 51, 40 CFR Parts 60.7 and 60.13 (except subsection h), 40 CFR Appendix B (Performance Specifications), 40 CFR Appendix F (Quality Assurance Procedures), and applicable provisions of Rule 1080 (Stack Monitoring). The proposed engines in this project are not equipped with CEMS; therefore, Section 5.8.4 is not applicable.

Section 5.8.5 requires that the APCO approve the data gathering and retrieval capabilities of an installed monitoring system. Section 5.8.5 is not applicable since the applicant is not using an installed monitoring system on the proposed engines.

Section 5.8.6 requires the operator to install and operate a nonresettable elapsed operating time meter. In lieu of installing a nonresettable time meter, the owner or operator 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.

The following condition will be listed on the permits to ensure compliance with Section 5.8.6:

- This engine shall be equipped with an operational nonresettable elapsed time meter or other APCO approved alternative. [District Rule 4702]

Section 5.8.7 requires that for each engine, the permittee implement the Inspection and Monitoring (I&M) plan, if any, submitted to and approved by the APCO pursuant to Section 6.5. The pre-approved alternate emissions monitoring procedure proposed in Section 5.8.1 above will satisfy the requirements of Section 5.8.7. Therefore, compliance with Section 5.8.7 is expected.

Section 5.8.8 requires the operator to collect data through the I&M plan in a form approved by the APCO. By following the pre-approved alternate emissions monitoring procedure proposed in Section 5.8.1 above, the applicant will be collecting data in a form approved by the APCO. Therefore, compliance with Section 5.8.8 is expected.

Section 5.8.9 requires that the operator to use a portable NOx analyzer to take NOx emission readings to verify compliance with the emission requirements of Section 5.2 or Section 8.0 during each calendar quarter in which a source test is not performed.

- 5.8.9.1 If an engine is operated less than 120 calendar days per calendar year, take one NOx emission reading during the calendar year in which a source test is not performed and the engine is operated.
- 5.8.9.2 All emission readings shall be taken with the engine operating either at conditions representative of normal operations or conditions specified in the Permit-to-Operate or Permit-Exempt Equipment Registration.
- 5.8.9.3 The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO.
- 5.8.9.4 All NOx emissions readings shall be reported to the APCO in a manner approved by the APCO.
- 5.8.9.5 NOx emission readings taken pursuant to this section shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive minute sample reading or by taking at least five (5) readings evenly spaced out over the 15 consecutive-minute period.

The alternate monitoring procedure proposed in Section 5.8.1 above, and all related permit conditions, will satisfy the requirements of Section 5.8.9. Therefore, compliance with Section 5.8.9 is expected.

Section 5.8.10 requires documentation that an alternative monitoring system provides a reasonable assurance of compliance with applicable emission limits. By following the pre-approved alternate emissions monitoring procedure proposed in Section 5.8.1 above, the applicant has satisfied the requirement of Section 5.8.10.

Section 5.8.11 requires that for each engine subject to Section 8.0, a nonresettable fuel meter be installed and operated. The proposed engines are not subject to Section 8.0. However, as previously discussed in Section 5.8.6, the engines are already required to have a nonresettable time meter.



Section 5.9 lists monitoring requirements for all other engines not subject to the monitoring requirements of Section 5.8. The proposed engines are subject to the monitoring requirements of Section 5.8. Therefore, this section does not apply.

Section 5.10 lists SO<sub>x</sub> emissions monitoring requirements for engines that satisfy the SO<sub>x</sub> emission control requirements of Section 5.7 by complying with either Sections 5.7.2, 5.7.5, or 5.7.6. The proposed engines satisfy Section 5.7 requirements by complying with Section 5.7.1. Therefore, Section 5.10 does not apply.

Section 5.11 applies to engines used in AO subject to Permit-Exempt Equipment Registration. The engines are not used in AO. Therefore, this section does not apply.

Section 6.1 requires that the operator of an engine to submit to the APCO an emission control plan of all actions to be taken to satisfy the emission requirements of Section 5.2 and the compliance schedules of Section 7.0.

As discussed above, the proposed engines already comply with the emission requirements of Section 5.2 ahead of the compliance schedules of Section 7.0. Therefore, an emission control plan for these engines is not required.

Section 6.2.1 requires the operator of an engine subject to the requirements of Section 5.2 of this rule 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.

The following conditions will be added to the permits to ensure compliance with Section 6.2.1:

- {3788} The permittee shall maintain records of: (1) the date and time of NO<sub>x</sub>, CO, and O<sub>2</sub> measurements, (2) the O<sub>2</sub> concentration in percent and the measured NO<sub>x</sub> and CO concentrations corrected to 15% O<sub>2</sub>, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, and (5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rule 4702]
- The permittee 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, compliance source test results, and any other information necessary to demonstrate compliance. [District Rule 4702]

Section 6.2.2 requires that the data collected pursuant to the requirements of Section 5.8 and Section 5.9 shall be maintained for at least five years, shall be readily available, and made available to the APCO upon request.

Condition #9 of the facility-wide permit satisfies the requirements of this section and will ensure continued compliance.

Section 6.2.3 applies to operators claiming an exemption under Section 4.2 or Section 4.3. The proposed engines are not exempt from any requirements under Sections 4.2 or 4.3. Therefore, this section does not apply.

Section 6.3.1 states the requirements of Section 6.3.2 through 6.3.4 shall apply to the following engines:

- Engines that have been retrofitted with an exhaust control device, except those certified per Section 9.0;
- Engines subject to Section 8.0;
- An AO spark-ignited engine that is subject to the requirements of Section 8.0;
- An AO spark-ignited engine that has been retrofitted with a catalytic emission control and is not subject to the requirements of Section 8.0.

The engine is equipped with an exhaust control device. Therefore, the engine is subject to the requirements of Section 6.3.2 through 6.3.4

Section 6.3.2 requires owners to demonstrate compliance with applicable limits in accordance with the test methods in Section 6.4 by the applicable date specified in Section 5.2, and at least once every 24 months thereafter.

Section 6.3.3 requires owners to conduct emissions source testing with the engine operating either at conditions representative of normal operations or conditions specified in the Permit-to-Operate or Stationary Equipment Registration. For emissions source testing performed pursuant to Section 6.3.2 for the purpose of determining compliance with an applicable standard or numerical limitation, the arithmetic average of three (3) 30-consecutive minute test runs shall apply. If two (2) of three (3) runs are above an applicable limit, the test cannot be used to demonstrate compliance with an applicable limit. VOC shall be reported as methane. VOC, NO<sub>x</sub>, and CO concentrations shall be reported in ppmv, corrected to 15 percent oxygen. For engines that comply with a percent reduction limit, the percent reduction of NO<sub>x</sub> emissions shall also be reported.

Section 6.3.4 states that in addition to other information, the source test protocol shall describe which critical parameters will be measured and how the appropriate range for these parameters shall be established. The range for these parameters shall be incorporated into the I&M plan.

Section 6.3.5 states engines that are limited by Permit-to-Operate or Permit-Exempt Equipment Registration condition to be fueled exclusively with PUC quality natural gas shall not be subject to the reoccurring source test requirements of Section 6.3.2 for VOC emissions.

The following conditions will be added to the permits to ensure compliance with Sections 6.3.2 through 6.3.5:

- Emissions from this IC engine shall not exceed any of the following limits: 11 ppmvd NO<sub>x</sub> @ 15% O<sub>2</sub> or 0.15 g/bhp-hr, averaged over at least 15 minutes; 1,633 ppmvd CO @ 15% O<sub>2</sub> or 13.865 g/bhp-hr, averaged over at least 15 minutes; 250 ppmvd VOC @ 15% O<sub>2</sub> or 1.213 g/bhp-hr, averaged over at least 15 minutes; 0.033 g-PM<sub>10</sub>/hp-hr; 0.009 g-SO<sub>x</sub> /hp-hr. [District Rules 2201 and 4702]
- Source testing to measure natural gas-combustion NO<sub>x</sub> and CO emissions from this engine shall be conducted not less than once every 24 months. [District Rules 2201 and 4702]
- {modified 3791} Emissions source testing shall be conducted with the engine operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. [District Rule 4702]
- For reoccurring emissions source testing, the arithmetic average of three 30-consecutive-minute test runs shall apply. If two of three runs are above an applicable limit, the test cannot be used to demonstrate compliance with an applicable limit. NO<sub>x</sub> and CO concentrations shall be reported in ppmv, corrected to 15% oxygen. [District Rule 4702]

Section 6.3.6 allows for representative testing from a unit or units that represents a specified group of units. The applicant has not requested representative testing. Therefore, this section does not apply.

Section 6.4 requires that the compliance with the requirements of Section 5.2 shall be determined in accordance with the following test procedures or any other method approved by EPA and the APCO:

- Oxides of nitrogen - EPA Method 7E, or ARB Method 100.
- Carbon monoxide - EPA Method 10, or ARB Method 100.
- Stack gas oxygen - EPA Method 3 or 3A, or ARB Method 100.
- Volatile organic compounds - EPA Method 25A or 25B, or ARB Method 100. Methane and ethane, which are exempt compounds, shall be excluded from the result of the test.
- Operating horsepower determination - any method approved by EPA and the APCO.
- Oxides of sulfur – EPA Method 6C or 8, or ARB Method 100.

As previously discussed, source testing for VOC and sulfur are not required for these engines. The following condition will be listed on the permits to ensure compliance with Section 6.4:

- The following test methods shall be used: NO<sub>x</sub> (ppmv) - EPA Method 7E or ARB Method 100; CO (ppmv) - EPA Method 10 or ARB Method 100; stack gas oxygen - EPA Method 3 or 3A or ARB Method 100. EPA approved alternative test methods may also be used to satisfy the source testing requirements of this permit with prior written approval from the APCO. [District Rules 1081 and 4702]

Section 6.5 requires that the operator of an engine subject to the requirements of Section 5.2 or the requirements of Section 8.0 shall submit to the APCO for approval of an I&M plan that specifies all actions to be taken to satisfy the following requirements and the requirements of

Section 5.8. The actions to be identified in the I&M plan shall include, but are not limited to, the following requirements listed in Sections 6.5.2 through 6.5.9. If there is not change to the previously approved I&M plan, the operator shall submit a letter to the District indicating that previously approved plan is still valid.

Section 6.5.1 states the requirements of Section 6.5.2 through 6.5.9 shall apply to the following engines:

- Engines that have been retrofitted with an exhaust control device, except those certified per Section 9.0;
- Engines subject to Section 8.0;
- An AO spark-ignited engine that is subject to the requirements of Section 8.0;
- An AO spark-ignited engine that has been retrofitted with a catalytic emission control and is not subject to the requirements of Section 8.0.

The engine has an exhaust control device. Therefore, Sections 6.5.2 through 6.5.9 apply.

Section 6.5.2 requires procedures for establishing ranges for control equipment parameters, engine operating parameters, and engine exhaust oxygen concentrations that source testing has shown result in pollutant concentrations within the rule limits.

Section 6.5.3 requires procedures for monthly inspections as approved by the APCO. The applicable control equipment parameters and engine operating parameters will be inspected and monitored weekly (proposed by the applicant) in conformance with a regular inspection schedule listed in the I&M plan. Such weekly inspection and monitoring of the control equipment and engine operating parameters will be accompanied by quarterly emissions monitoring as specified in the approved alternate monitoring plan.

West Kern Water District has proposed to take monthly post-catalyst temperature readings, and O2 sensor voltage readings on a daily basis.

The following conditions ensure compliance:

- The engine shall be operated such that the O2 sensor output voltage is within 0.6 volts DC - 1.0 volts DC as necessary to meet the air/fuel ratio setting. [District Rule 4702 and 40 Part CFR 64]
- The permittee shall record the O2 sensor reading (in millivolts) on a daily basis. [District Rules 2520, 9.4.2 and 4702]
- The permittee shall record post-catalyst temperature readings on a monthly basis. [District Rule 4702]

Section 6.5.4 requires procedures for the corrective actions on the noncompliant parameter(s) that the owner or operator will take when an engine is found to be operating outside the acceptable range for control equipment parameters, engine operating parameters, and engine exhaust NOx, CO, VOC, or oxygen concentrations.

Section 6.5.5 requires procedures for the owner or operator to notify the APCO when an engine is found to be operating outside the acceptable range for control equipment parameters, engine operating parameters, and engine exhaust NOx, CO, VOC, or oxygen concentrations.

The following condition ensures compliance with Sections 6.5.4 and 6.5.5:

- If either the NO<sub>x</sub> or CO concentrations corrected to 15% O<sub>2</sub>, as measured by the portable analyzer, exceed the allowable emission concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 8 hours after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 8 hours, the permittee shall notify the District within the following 1 hour, and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of performing the notification and testing required by this condition. [District Rule 4702]

The alternate monitoring scheme proposed in Section 5.8.1 above will satisfy the requirements of Sections 6.5.2, 6.5.3, 6.5.4 and 6.5.5 of the rule. Therefore, compliance with Sections 6.5.2, 6.5.3, 6.5.4, and 6.5.5 is expected.

Section 6.5.6 requires procedures for preventive and corrective maintenance performed for the purpose of maintaining an engine in proper operating condition. The alternate monitoring procedure proposed in Section 5.6.1 above will satisfy the requirements of Section 6.5.6. Moreover, the applicant will operate and maintain engine according to the manufacturer's specifications:

- This engine shall be operated and maintained in proper operating condition according to the manufacturer's specifications. [District Rule 4702]
- The permittee shall maintain records of: (1) the date and time of NO<sub>x</sub>, CO, and O<sub>2</sub> measurements, (2) the O<sub>2</sub> concentration in percent and the measured NO<sub>x</sub> and CO concentrations corrected to 15% O<sub>2</sub>, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, and (5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rule 4702]
- Upon detecting any excursion from the acceptable range of millivolt readings, the permittee shall investigate the excursion and take corrective action to minimize excessive emissions and prevent recurrence of the excursion as expeditiously as practicable. [40 CFR 64]

Section 6.5.7 requires procedures and a schedule for using a portable NO<sub>x</sub> analyzer to take NO<sub>x</sub> emission readings pursuant to Section 5.6.9. The alternate monitoring procedure proposed in Section 5.6.1 above will ensure compliance with the requirements of Section 6.5.7.

Section 6.5.8 requires procedures for collecting and recording required data and other information in a form approved by the APCO including, but not limited to, data collected through the I&M plan and the monitoring systems described in Sections 5.6.1 and 5.6.2. Data collected through the I&M plan shall have retrieval capabilities as approved by the APCO.

The data collection and recordkeeping requirement described in Section 6.2.1 above will satisfy the requirements of Section 6.5.8.

Section 6.5.9 specifies procedures for revising the I&M plan. The owner of an engine may request a change to the I&M plan at any time. The I&M plan shall be updated to reflect any change in operation and prior to any planned change in operation. An engine owner that changes significant I&M plan elements must notify the District no later than seven days after the change and must submit an updated I&M plan to the APCO no later than 14 days after the change for approval. The date and time of the change to the I&M plan shall be recorded in the engine operating log. For new engines and modifications to existing engines, the I&M plan shall be submitted to and approved by the APCO prior to issuance of the Permit-to-Operate. Therefore, the following condition will be listed on the ATC to ensure compliance with Section 6.5.9:

- {3212} The permittee shall update the I&M plan for this engine prior to any planned change in operation. The permittee must notify the District no later than seven days after changing the I&M plan and must submit an updated I&M plan to the APCO for approval no later than 14 days after the change. The date and time of the change to the I&M plan shall be recorded in the engine's operating log. For modifications, the revised I&M plan shall be submitted to and approved by the APCO prior to issuance of the Permit to Operate. The permittee may request a change to the I&M plan at any time. [District Rule 4702]

Section 8.0 allows an operator to comply with the NOx emission requirements of Section 5.2 for a group of engines by aggregating their NOx emissions.

The facility has not requested to comply with an Alternative Emission Control Plan in lieu of the requirements of Section 5.2. Therefore, this section will not be addressed.

### **Rule 4801 Sulfur Compounds**

The combustion of natural gas or LPG is not expected to result in sulfur compound emissions greater than 0.2% by volume. Compliance with this rule is expected.

### **Permit Shield**

A permit shield legally protects a facility from enforcement of the shielded regulations when a source is in compliance with the terms and conditions of the Title V permit (District Rule 2520, 13.2). Compliance with the terms and conditions of the Title V permit is considered compliance with all applicable requirements upon which those conditions are based.

County Rules 404 (Madera), 406 (Fresno) and 407 (Kings, Merced, San Joaquin, Tulare, Kern, and Stanislaus County)

A permit shield will be granted for County Rules 404 (Madera), 406 (Fresno) and 407 (Kings, Merced, San Joaquin, Tulare, Kern, and Stanislaus County) because the sulfur compound emission limit is stated in ATC condition #4. A permit shield is granted from these requirements in ATC condition #36.

### **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 Valley Unified Air Pollution Control District (District) adopted its *Environmental Review Guidelines* (ERG) in 2001. The basic purposes of CEQA are to:

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

### **Greenhouse Gas (GHG) Significance Determination**

It is determined that no other agency has or will prepare an environmental review document for the project. Thus the District is the Lead Agency for this project. The District's engineering evaluation (this document) demonstrates that the project would not result in an increase in fuel usage or operation; therefore, there will be no increase in project specific greenhouse gas emissions. The District therefore concludes that the project would have a less than cumulatively significant impact on global climate change.

### **District CEQA Findings**

The District is the Lead Agency for this project because there is no other agency with broader statutory authority over this project. 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 Authority to Construct S-353-3-9 subject to the permit conditions on the attached draft Authority to Construct in Appendix A.

**X. Billing Information**

<b>Annual Permit Fees</b>			
<b>Permit Number</b>	<b>Fee Schedule</b>	<b>Fee Description</b>	<b>Annual Fee</b>
S-353-3-9	3020-10-D	615 hp IC engine	\$479.00

**Appendices**

- A: Draft ATC
- B: Current ATC
- C: Quarterly Net Emissions Change
- D: Emission Profile
- E: Federal Major Modification Calculations
- F: AAQA Summary Sheet
- G: HRA Summary
- H: CO Emission Factor Calculation
- I: SSIPE Calculations
- J: Public Comments/District Response



**APPENDIX A**  
**Draft ATC**

San Joaquin Valley  
Air Pollution Control District

**AUTHORITY TO CONSTRUCT**

ISSUANCE DATE: DRAFT  
**DRAFT**

**PERMIT NO:** S-353-3-9

**LEGAL OWNER OR OPERATOR:** WEST KERN WATER DISTRICT  
**MAILING ADDRESS:** PO BOX 1105  
TAFT, CA 93268

**LOCATION:** WELL FIELD

**SECTION:** SW21 **TOWNSHIP:** 30S **RANGE:** 25E

**EQUIPMENT DESCRIPTION:**

MODIFICATION OF 615 HP WAUKESHA MODEL F-3521-GSI NATURAL GAS FIRED RICH BURN IC ENGINE  
POWERING A WATER PUMP (WELL 2-02): INCREASE THE CO LIMIT FROM 642 PPMV TO 1633 PPMV TO REDUCE  
NOX EMISSIONS FOR RULE 4702 COMPLIANCE AND ADD LPG AS AN ALTERNATE FUEL

**CONDITIONS**

1. Authority to Construct (ATC) S-353-3-7 shall be implemented concurrently, or prior to the modification and startup of the equipment authorized by this Authority to Construct. [District Rule 2201]
2. The facility shall submit an application to modify the Title V permit in accordance with the timeframes and procedures of District Rule 2520. [District Rule 2520]
3. Particulate emissions shall not exceed at the point of discharge, 0.1 gr/dscf. [District Rule 4201] Federally Enforceable Through Title V Permit
4. Sulfur compound emissions shall not exceed 0.2% by volume, 2000 ppmv, on a dry basis averaged over 15 consecutive minutes. [Kern County Rule 407 and District rule 4801] Federally Enforceable Through Title V Permit
5. The engine shall be fired on PUC quality natural gas with a sulfur content of less than or equal to 0.017% by weight or on liquefied petroleum gas (LPG) with a sulfur content of less than or equal to 0.008% by weight. [Kern County Rule 407 and District Rules 4702 and 4801] Federally Enforceable Through Title V Permit
6. If the IC engine is fired on PUC-regulated natural gas, then maintain on file copies of all natural gas bills. [District Rule 2520] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

**YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (661) 392-6500 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

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DAVID WARNER, Director of Permit Services  
S-353-3-9 : Nov 5 2013 2:50PM - YDSH/MUJ : Joint Inspection NOT Required

7. If the engine is fired on natural gas but not PUC-regulated natural gas, then the sulfur content of the natural gas being fired in the IC engine shall be determined using ASTM Method D 1072, D 3031, D 4084 or D 3246. [District Rule 2520] Federally Enforceable Through Title V Permit
8. The sulfur content of each delivery of liquefied petroleum gas being fired in the IC engine shall be determined using ASTM method D2784. An equivalent test method may be accepted with prior written District approval. [District Rule 2520] Federally Enforceable Through Title V Permit
9. If the engine is fired on natural gas but not PUC-regulated natural gas, the sulfur content of each fuel source shall be tested weekly except that if compliance with the fuel sulfur content limit has been demonstrated for 8 consecutive weeks for a fuel source, then the testing frequency shall be quarterly. If a test shows noncompliance with the sulfur content requirement, the source must return to weekly testing until eight consecutive weeks show compliance. [District Rule 2520] Federally Enforceable Through Title V Permit
10. The engine shall be equipped with a controller which readily indicates air/fuel ratio setting within tolerance limits as recommended by the catalyst system supplier. [District Rule 2201] Federally Enforceable Through Title V Permit
11. This engine shall be equipped with an operational non-resettable elapsed-time meter or other APCO approved alternative. [District Rule 4702] Federally Enforceable Through Title V Permit
12. All exhaust emission shall exit through the catalyst. [District Rule 2201] Federally Enforceable Through Title V Permit
13. Emissions from this IC engine shall not exceed any of the following limits: 11 ppmvd NO<sub>x</sub> @ 15% O<sub>2</sub> or 0.15 g/bhp-hr, averaged over at least 15 minutes; 1,633 ppmvd CO @ 15% O<sub>2</sub> or 13.865 g/bhp-hr, averaged over at least 15 minutes; 250 ppmvd VOC @ 15% O<sub>2</sub> or 1.213 g/bhp-hr, averaged over at least 15 minutes; 0.033 g-PM<sub>10</sub>/bhp-hr; 0.009 g-SO<sub>x</sub>/bhp-hr. [District Rules 2201 and 4702]
14. For reoccurring emissions source testing, the arithmetic average of three 30-consecutive-minute test runs shall apply. If two of three runs are above an applicable limit, the test cannot be used to demonstrate compliance with an applicable limit. NO<sub>x</sub>, CO and VOC concentrations shall be reported in ppmv, corrected to 15% oxygen. [District Rule 4702] Federally Enforceable Through Title V Permit
15. Source testing to measure natural gas-combustion NO<sub>x</sub>, CO and VOC emissions from this engine shall be conducted not less than once every 24 months. [District Rule 4702] Federally Enforceable Through Title V Permit
16. Source testing shall be District witnessed or authorized and conducted by an ARB certified testing contractor. [District Rule 1081] Federally Enforceable Through Title V Permit
17. Source testing for District Rule 4702 compliance shall be conducted using the methods and procedures approved by the District. The District must be notified 30 days prior to any compliance source test, and a source test plan must be submitted for approval 15 days prior to testing. [District Rule 1081]
18. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081] Federally Enforceable Through Title V Permit
19. The following test methods shall be used: NO<sub>x</sub> (ppmv) - EPA Method 7E or ARB Method 100; CO (ppmv) - EPA Method 10 or ARB Method 100; stack gas oxygen - EPA Method 3 or 3A or ARB Method 100; VOC (ppmv) - EPA Method 25A or 25B, or ARB Method 100. EPA approved alternative test methods may also be used to satisfy the source testing requirements of this permit with prior written approval from the APCO. [District Rules 1081 and 4702] Federally Enforceable Through Title V Permit
20. The permittee shall monitor and record the stack concentration of NO<sub>x</sub>, CO, and O<sub>2</sub>, using a portable emission monitor that meets District specifications, at least once every calendar quarter (in which a source test is not performed and the engine is operated) or, if the engine is operated less than 120 calendar days in a calendar year, at least once during that calendar year (in which a source test is not performed and the engine is operated). Monitoring shall not be required if the engine is not in operation, i.e. the engine need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the engine unless monitoring has been performed within the last calendar quarter. Records must be maintained of the dates of non-operation to validate extended monitoring frequencies. [District Rule 4702] Federally Enforceable Through Title V Permit

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CONDITIONS CONTINUE ON NEXT PAGE

21. If either the NO<sub>x</sub> or CO concentrations corrected to 15% O<sub>2</sub>, as measured by the portable analyzer, exceed the allowable emission concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 8 hours after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 8 hours, the permittee shall notify the District within the following 1 hour, and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of performing the notification and testing required by this condition. [District Rule 4702] Federally Enforceable Through Title V Permit
22. All alternate monitoring parameter emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the permit-to-operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rule 4702] Federally Enforceable Through Title V Permit
23. The permittee shall maintain records of: (1) the date and time of NO<sub>x</sub>, CO, and O<sub>2</sub> measurements, (2) the O<sub>2</sub> concentration in percent and the measured NO<sub>x</sub> and CO concentrations corrected to 15% O<sub>2</sub>, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, and (5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rule 4702] Federally Enforceable Through Title V Permit
24. The permittee 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, compliance source test results, and any other information necessary to demonstrate compliance. [District Rule 4702] Federally Enforceable Through Title V Permit
25. Emissions source testing shall be conducted with the engine operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. [District Rule 4702] Federally Enforceable Through Title V Permit
26. The permittee shall update the I&M plan for this engine prior to any planned change in operation. The permittee must notify the District no later than seven days after changing the I&M plan and must submit an updated I&M plan to the APCO for approval no later than 14 days after the change. The date and time of the change to the I&M plan shall be recorded in the engine's operating log. For modifications, the revised I&M plan shall be submitted to and approved by the APCO prior to issuance of the Permit to Operate. The permittee may request a change to the I&M plan at any time. [District Rule 4702] Federally Enforceable Through Title V Permit
27. The engine shall be operated and maintained in proper operating condition according to the manufacturer's specifications. [District Rule 4702] Federally Enforceable Through Title V Permit
28. The engine shall be operated such that the O<sub>2</sub> sensor output voltage is within 0.6 volts DC - 1.0 volts DC as necessary to meet the air/fuel ratio setting. [40 Part CFR 64] Federally Enforceable Through Title V Permit
29. The permittee shall comply with the compliance assurance monitoring operation and maintenance requirements of 40 CFR part 64.7. [40 CFR Part 64] Federally Enforceable Through Title V Permit
30. The permittee shall comply with the recordkeeping and reporting requirements of 40 CFR part 64.9. [40 CFR Part 64] Federally Enforceable Through Title V Permit
31. If the District or EPA determine that a Quality improvement Plan is required under 40 CFR 64.7(d)(2), the permittee shall develop and implement the Quality Improvement Plan in accordance with 40 CFR part 64.8. [40 CFR Part 64] Federally Enforceable Through Title V Permit
32. The permittee shall record the O<sub>2</sub> sensor reading (in millivolts) on a daily basis. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit
33. The portable analyzer shall be calibrated in accordance with manufacturer guidelines and District policy SSP-1810. [District Rule 1081] Federally Enforceable Through Title V Permit

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CONDITIONS CONTINUE ON NEXT PAGE

34. Upon detecting any excursion from the acceptable range of millivolt readings, the permittee shall investigate the excursion and take corrective action to minimize excessive emissions and prevent recurrence of the excursion as expeditiously as practicable. [40 CFR 64] Federally Enforceable Through Title V Permit
35. If the IC engine is fired on LPG, the permittee shall maintain supplier invoices for each delivery of liquefied petroleum gas including the corresponding certified sulfur content for a period of at least five years. [District Rule 2520] Federally Enforceable Through Title V Permit
36. Compliance with permit conditions in the Title V permit shall be deemed compliance with the applicable requirements of SJVUAPCD Rule 4201, Kern County Rule 407, and the subsumed requirements of Kern County Rule 404. A permit shield is granted from these requirements [District Rule 2520]
37. On and after October 19, 2013, the engine shall be in full compliance with 40 CFR Part 63, Subpart ZZZZ (National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines. [40 CFR 63 Subpart ZZZZ] Federally Enforceable Through Title V Permit
38. On and after October 19, 2013, the permittee must minimize the engine's time spent at idle during startup and minimize the engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes. [40 CFR 63 Subpart ZZZZ] Federally Enforceable Through Title V Permit
39. On and after October 19, 2013, the engine's oil and filter shall be changed every 2,160 hours of operation or every 12 months, whichever comes first. [40 CFR 63 Subpart ZZZZ] Federally Enforceable Through Title V Permit
40. On and after October 19, 2013, the engine's spark plugs shall be inspected every 2,160 hours of operation or every 12 months, whichever comes first, and replaced as necessary. [40 CFR 63 Subpart ZZZZ] Federally Enforceable Through Title V Permit
41. On and after October 19, 2013, the engine's hoses and belts shall be inspected every 2,160 hours of operation or every 12 months, whichever comes first, and replaced as necessary. [40 CFR 63 Subpart ZZZZ] Federally Enforceable Through Title V Permit
42. On and after October 19, 2013, the permittee shall maintain monthly records of the occurrence and duration of each malfunction of operation (i.e., process equipment) or the air pollution control and monitoring equipment. The permittee shall also maintain monthly records of action taken during periods of malfunction to minimize emissions in accordance with §63.6605(b), including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation. [40 CFR 63 Subpart ZZZZ] Federally Enforceable Through Title V Permit
43. On and after October 19, 2013, the permittee has the option of utilizing an oil analysis program in order to extend the specified oil change requirement in Tables 2c and 2d of Subpart ZZZZ. The oil analysis must be performed at the same frequency specified for changing the oil in Table 2c or 2d to this subpart. The analysis program must at a minimum analyze the following three parameters: Total Acid Number, viscosity, and percent water content. The condemning limits for these parameters are as follows: Total Acid Number increases by more than 3.0 milligrams of potassium hydroxide (KOH) per gram from Total Acid Number of the oil when new; viscosity of the oil has changed by more than 20 percent from the viscosity of the oil when new; or percent water content (by volume) is greater than 0.5. If all of these condemning limits are not exceeded, the engine owner or operator is not required to change the oil. If any of the limits are exceeded, the engine owner or operator must change the oil within 2 days of receiving the results of the analysis; if the engine is not in operation when the results of the analysis are received, the engine owner or operator must change the oil within 2 days or before commencing operation, whichever is later. The owner or operator must keep records of the parameters that are analyzed as part of the program, the results of the analysis, and the oil changes for the engine. The analysis program must be part of the maintenance plan for the engine. [40 CFR 63 Subpart ZZZZ] Federally Enforceable Through Title V Permit
44. A portable emission monitor shall be used to measure LPG combustion NO<sub>x</sub>, CO, and VOC emissions from this unit within 60 days of initial LPG usage. [District Rules 2201 and 4702] Federally Enforceable Through Title V Permit

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**APPENDIX B**  
**Current ATC**

# San Joaquin Valley Air Pollution Control District

**PERMIT UNIT:** S-353-3-6

**EXPIRATION DATE:** 10/31/2016

**SECTION:** SW21 **TOWNSHIP:** 30S **RANGE:** 25E

**EQUIPMENT DESCRIPTION:**

615 HP WAUKESHA MODEL F-3521-GL NATURAL GAS FIRED LEAN BURN IC ENGINE POWERING A WATER PUMP (WELL 2-02)

## PERMIT UNIT REQUIREMENTS

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1. Particulate emissions shall not exceed at the point of discharge, 0.1 gr/dscf. [District Rule 4201] Federally Enforceable Through Title V Permit
2. Sulfur compound emissions shall not exceed 0.2% by volume, 2000 ppmv, on a dry basis averaged over 15 consecutive minutes. [Kern County Rule 407 and District Rule 4801] Federally Enforceable Through Title V Permit
3. Unit shall be fired on PUC quality natural gas with a sulfur content of less than or equal to 0.017% by weight. [Kern County Rule 407 and District Rules 4702 and 4801] Federally Enforceable Through Title V Permit
4. If the IC engine is fired on PUC-regulated natural gas, then maintain on file copies of all natural gas bills. [District Rule 2520] Federally Enforceable Through Title V Permit
5. If the engine is not fired on PUC-regulated natural gas, then the sulfur content of the natural gas being fired in the IC engine shall be determined using ASTM method D 1072-80, D 3031-81, D 4084-82 or D 3246-81. [District Rule 2520] Federally Enforceable Through Title V Permit
6. The sulfur content of each delivery of liquefied petroleum gas being fired in the IC engine shall be determined using ASTM method D2784. An equivalent test method may be accepted with prior written District approval. [District Rule 2520] Federally Enforceable Through Title V Permit
7. If the engine is fired on natural gas but not PUC-regulated natural gas, the sulfur content of each fuel source shall be tested weekly except that if compliance with the fuel sulfur content limit has been demonstrated for 8 consecutive weeks for a fuel source, then the testing frequency shall be quarterly. If a test shows noncompliance with the sulfur content requirement, the source must return to weekly testing until eight consecutive weeks show compliance. [District Rule 2520] Federally Enforceable Through Title V Permit
8. This engine shall be equipped with an operational non-resettable elapsed time meter or other APCO approved alternative. [District Rule 4702] Federally Enforceable Through Title V Permit
9. Emissions from this IC engine shall not exceed any of the following limits: 65 ppmvd NO<sub>x</sub> @ 15% O<sub>2</sub> or 0.777 g-NO<sub>x</sub>/hp-hr, 0.009 g-SO<sub>x</sub>/hp-hr, 0.033 g-PM<sub>10</sub>/hp-hr, 642 ppmvd CO @ 15% O<sub>2</sub> or 2.65 g-CO/hp-hr, or 350 ppmvd VOC @ 15% O<sub>2</sub> or 1.455 g-VOC/hp-hr. [District Rules 2201 and District Rule 4702] Federally Enforceable Through Title V Permit
10. For reoccurring emissions source testing, the arithmetic average of three 30-consecutive-minute test runs shall apply. If two of three runs are above an applicable limit, the test cannot be used to demonstrate compliance with an applicable limit. NO<sub>x</sub>, CO and VOC concentrations shall be reported in ppmv, corrected to 15% oxygen. [District Rule 4702] Federally Enforceable Through Title V Permit
11. Source testing to measure natural gas-combustion NO<sub>x</sub>, CO and VOC emissions from this engine shall be conducted not less than once every 24 months. [District Rule 4702] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

These terms and conditions are part of the Facility-wide Permit to Operate.

12. Source testing shall be District witnessed or authorized and conducted by an ARB certified testing contractor. [District Rule 1081] Federally Enforceable Through Title V Permit
13. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified 30 days prior to any compliance source test, and a source test plan must be submitted for approval 15 days prior to testing. [District NSR Rule] Federally Enforceable Through Title V Permit
14. Source test results shall be submitted to the District within 60 days of the test. [District Rule 1081] Federally Enforceable Through Title V Permit
15. The following test methods shall be used: NOX (ppmv) - EPA Method 7E or ARB Method 100; CO (ppmv) - EPA Method 10 or ARB Method 100; stack gas oxygen - EPA Method 3 or 3A or ARB Method 100; VOC (ppmv) - EPA Method 25A or 25B, or ARB Method 100. EPA approved alternative test methods may also be used to satisfy the source testing requirements of this permit with prior written approval from the APCO. [District Rules 1081 and 4702] Federally Enforceable Through Title V Permit
16. The permittee shall monitor and record the stack concentration of NO<sub>x</sub>, CO, and O<sub>2</sub>, using a portable emission monitor that meets District specifications, at least once every calendar quarter (in which a source test is not performed and the engine is operated) or, if the engine is operated less than 120 calendar days in a calendar year, at least once during that calendar year (in which a source test is not performed and the engine is operated). Monitoring shall not be required if the engine is not in operation, i.e. the engine need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the engine unless monitoring has been performed within the last calendar quarter. Records must be maintained of the dates of non-operation to validate extended monitoring frequencies. [District Rule 4702] Federally Enforceable Through Title V Permit
17. If either the NO<sub>x</sub> or CO concentrations corrected to 15% O<sub>2</sub>, as measured by the portable analyzer, exceed the allowable emission concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 8 hours after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 8 hours, the permittee shall notify the District within the following 1 hour, and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of performing the notification and testing required by this condition. [District Rule 4702] Federally Enforceable Through Title V Permit
18. All alternate monitoring parameter emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the permit-to-operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rule 4702] Federally Enforceable Through Title V Permit
19. The permittee shall maintain records of: (1) the date and time of NO<sub>x</sub>, CO, and O<sub>2</sub> measurements, (2) the O<sub>2</sub> concentration in percent and the measured NO<sub>x</sub> and CO concentrations corrected to 15% O<sub>2</sub>, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, and (5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rule 4702] Federally Enforceable Through Title V Permit
20. The permittee 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, compliance source test results, and any other information necessary to demonstrate compliance. [District Rule 4702] Federally Enforceable Through Title V Permit
21. Emissions source testing shall be conducted with the engine operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. [District Rule 4702] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

These terms and conditions are part of the Facility-wide Permit to Operate.



22. The permittee shall update the I&M plan for this engine prior to any planned change in operation. The permittee must notify the District no later than seven days after changing the I&M plan and must submit an updated I&M plan to the APCO for approval no later than 14 days after the change. The date and time of the change to the I&M plan shall be recorded in the engine's operating log. For modifications, the revised I&M plan shall be submitted to and approved by the APCO prior to issuance of the Permit to Operate. The permittee may request a change to the I&M plan at any time. [District Rule 4702] Federally Enforceable Through Title V Permit
23. The engine shall be operated and maintained in proper operating condition according to the manufacturer's specifications. [District Rule 4702] Federally Enforceable Through Title V Permit
24. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following applicable requirements of SJVUAPCD Rule 4201; 407 (Kern). A permit shield is granted from these requirements. [District Rule 2520] Federally Enforceable Through Title V Permit
25. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following subsumed requirements: 404 (Kem). A permit shield is granted from these requirements. [District Rule 2520] Federally Enforceable Through Title V Permit
26. Compliance with permit conditions in the Title V permit shall be deemed compliance with the applicable requirements of District Rule 4201. A permit shield is granted from these requirements. [District Rule 2520] Federally Enforceable Through Title V Permit
27. By October 19, 2012, the owner/operator shall submit an Authority to Construct (ATC) permit application to the District to comply with 40 CFR 63, ZZZZ. [District Rule 2010] Federally Enforceable Through Title V Permit

These terms and conditions are part of the Facility-wide Permit to Operate.

**APPENDIX C**  
**Quarterly Net Emissions Change (QNEC)**

### Quarterly Net Emissions Change (QNEC)

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

QNEC = PE2 - PE1, where:

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

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

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

Using the values in Sections VII.C.2 and VII.C.6 in the evaluation above, quarterly PE2 and quarterly PE1 can be calculated as follows:

$$\begin{aligned} \text{PE2}_{\text{quarterly}} &= \text{PE2}_{\text{annual}} \div 4 \text{ quarters/year} \\ &= 164,674 \text{ lb/year} \div 4 \text{ qtr/year} \\ &= 41,168.5 \text{ lb PM}_{10}/\text{qtr} \end{aligned}$$

$$\begin{aligned} \text{PE1}_{\text{quarterly}} &= \text{PE1}_{\text{annual}} \div 4 \text{ quarters/year} \\ &= 64,730 \text{ lb/year} \div 4 \text{ qtr/year} \\ &= 16,182.5 \text{ lb PM}_{10}/\text{qtr} \end{aligned}$$

Quarterly NEC [QNEC]			
	PE2 (lb/qtr)	PE1 (lb/qtr)	QNEC (lb/qtr)
NO <sub>x</sub>	445.5	445.5	0
SO <sub>x</sub>	26.75	26.75	0
PM <sub>10</sub>	98.75	98.0	0
CO	41,168.5	16,182.5	24,986
VOC	3601.75	3,601.75	0

**APPENDIX D**  
**Emissions Profile**

Permit #: S-353-3-9	Last Updated
Facility: WEST KERN WATER DISTRICT	08/28/2013 YOSHIMUJ

Equipment Pre-Baselined: NO

	<u>NOX</u>	<u>SOX</u>	<u>PM10</u>	<u>CO</u>	<u>VOC</u>
Potential to Emit (lb/Yr):	1782.0	107.0	392.0	164674.0	14407.0
Daily Emis. Limit (lb/Day)	4.9	0.3	1.1	451.2	39.5
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	0.0	0.0	0.0	24986.0	0.0
Q2:	0.0	0.0	0.0	24986.0	0.0
Q3:	0.0	0.0	0.0	24986.0	0.0
Q4:	0.0	0.0	0.0	24986.0	0.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio					
Quarterly Offset Amounts (lb/Qtr)					
Q1:					
Q2:					
Q3:					
Q4:					

**APPENDIX E**  
**Federal Major Modification Calculations**

Federal Major Modification Thresholds for Emission Increases			
Pollutant	PE2 (lb/yr)	PE1 (lb/yr)	Total Emissions Increases (lb/yr)
NO <sub>x</sub> *	1,782	1,782	0
VOC*	14,407	14,407	0
PM <sub>10</sub>	392	392	0
PM <sub>2.5</sub>	392	392	0
SO <sub>x</sub>	107	107	0

**APPENDIX F**  
**AAQA Summary**

**San Joaquin Valley Air Pollution Control District  
Risk Management Review  
AAQA ONLY**

To: John Yoshimura – Permit Services  
 From: Cheryl Lawler – Technical Services  
 Date: August 26, 2013  
 Facility Name: West Kern Water District  
 Location: Section 21, Township 30S, Range 25E  
 Application #(s): S-353-3-9  
 Project #: S-1133084

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**A. RMR SUMMARY**

<b>RMR Summary</b>			
<b>Categories</b>	<b>Natural Gas/LPG ICE (Unit 3-9)</b>	<b>Project Totals</b>	<b>Facility Totals</b>
<b>Prioritization Score</b>	N/A*	N/A	N/A
<b>Acute Hazard Index</b>	N/A	N/A	N/A
<b>Chronic Hazard Index</b>	N/A	N/A	N/A
<b>Maximum Individual Cancer Risk</b>	N/A	N/A	N/A
<b>T-BACT Required?</b>	No		
<b>Special Permit Conditions?</b>	No		

\*A Risk Management Review was not required for this project, because one has already been performed and is still valid. Only an Ambient Air Quality Analysis (AAQA) was required. See Page Two of this memo for AAQA results.

**B. RMR REPORT**

**I. Project Description**

Technical Services received a request on August 22, 2013, to perform an Ambient Air Quality Analysis only for a 615 bhp Natural Gas/LPG ICE. A Risk Management Review was not required, because one has already been performed and is still valid.



## II. Analysis

The following parameters were used for the Ambient Air Quality Analysis:

Analysis Parameters			
Source Type	Point	Closest Receptor (m)	1609
Stack Height (m)	0.91	Closest Receptor Type	Residence & Business
Inside Diameter (m)	0.15	Project Location Type	Rural
Gas Exit Temperature (K)	355	Stack Gas Velocity (m/s)	92.45*

\*Because a Stack Gas Velocity was not provided, a District approved generic velocity for a similar horsepower engine was used.

Technical Services performed AAQA modeling for the criteria pollutant CO. The emission rate used for criteria pollutant modeling was 18.8 lb/hr of CO.

The results from the Criteria Pollutant Modeling are as follows:

### Criteria Pollutant Modeling Results\*

Values are in  $\mu\text{g}/\text{m}^3$

Natural Gas/LPG ICE	1 Hour	3 Hours	8 Hours	24 Hours	Annual
CO	Pass	X	Pass	X	X

\*Results were taken from the attached PSD spreadsheet.

## III. Conclusion

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

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

### Attachments

RMR/AAQA Request Form  
 AAQA Results  
 Facility Summary

**APPENDIX G**  
**HRA Summary**

## San Joaquin Valley Air Pollution Control District Risk Management Review

To: John Yoshimura – Permit Services  
 From: Cheryl Lawler – Technical Services  
 Date: August 16, 2013  
 Facility Name: West Kern Water District  
 Location: Section 21 T30S R25E  
 Application #(s): S-353-3-9  
 Project #: S-1133084

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### A. RMR SUMMARY

RMR Summary			
Categories	Natural Gas/LPG ICE (Unit 3-9)	Project Totals	Facility Totals
Prioritization Score	0.06*	0.06	0.06
Acute Hazard Index	N/A	N/A	N/A
Chronic Hazard Index	N/A	N/A	N/A
Maximum Individual Cancer Risk	N/A	N/A	N/A
T-BACT Required?	No		
Special Permit Conditions?	No		

\* The project passed on prioritization with a score of less than 1; therefore, no further analysis was required.

#### I. Project Description

Technical Services received a request on August 15, 2013, to perform a Risk Management Review for a 615 bhp natural gas/LPG IC engine.

#### II. Analysis

Toxic emissions for the engine were calculated using 2001 Ventura County Air Pollution Control District emission factors for natural gas fired internal combustion rich burn engines and the District's approved conversion factors from natural gas to LPG. In accordance with the District's *Risk Management Policy for Permitting New and Modified Sources* (APR 1905-1, March 2, 2001), risks from the proposed project were prioritized using the procedures in the 1990 CAPCOA Facility Prioritization Guidelines and incorporated in the District's HEART's database. The prioritization score for the project was less than 1.0 (see RMR Summary Table). Therefore, no further analysis was necessary.

The following parameters were used for the review:

<b>Analysis Parameters</b>			
<b>Facility Location Type</b>	Rural	<b>Closest Receptor (m)</b>	1609
<b>Propane Process Rate (1000 gallons/yr)</b>	416.36	<b>Closest Receptor Type</b>	Residence & Business

### **III. Conclusion**

The prioritization score for this project is not above 1.0. In accordance with the District's Risk Management Policy, the project is approved **without** Toxic Best Available Control Technology (T-BACT).

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

### **Attachments**

RMR Request Form  
LPG Usage Worksheet  
Prioritization  
Facility Summary

**APPENDIX H**  
**CO Emission Factor Calculation**

Parts Per Million Volume --> Grams/Brake Horsepower - Hour

ppmv --> g/Bhp-hr

Variables:

Engine Size:	600	hp
NO <sub>x</sub> :	11	ppmv
CO:	1633	ppmv
VOC:	250	ppmv (as CH <sub>4</sub> )
O <sub>2</sub> level:	15	%
Engine Efficiency:	30	% (Assumed)
F-factor:	8578	dscf/MMBtu
Fuel Type	1	
OIL (CRUDE, RESIDUAL, OR DISTILLATE)		0
GAS (NATURAL)		1
GAS (PROPANE)		2
GAS (BUTANE)		3

Given:

Conversion #1:	379.5	dscf/lb-mol
Conversion #2:	393.236	bhp-hr/MMBtu
Conversion #3:	453.59	g/lb
MW(CO):	46	
MW(VOC):	28	
O <sub>2</sub> Correction:	16	as CH <sub>4</sub>
Pressure (p)	3.542	
Temp (°F)	1	atm
	60	°F

Formula:

ppmv	F-factor	MW <sub>pollutant</sub>	20.9	1	1	Conversion #3	1
1	1	1	(20.9 - O <sub>2</sub> %)	Conversion #1	Conversion #2	1	Engine Eff.

for NO<sub>x</sub>:

$$\begin{array}{c} \rightarrow \\ \frac{11 \text{ parts}}{10^6 \text{ parts}} \end{array} \begin{array}{c} 8578 \text{ dscf} \\ \text{MMBtu} \end{array} \begin{array}{c} 46 \text{ lb} \\ 1 \text{ lb-mol} \end{array} \begin{array}{c} 20.9 \\ 20.9 - 15 \end{array} \begin{array}{c} 1 \text{ lb-mol} \\ 379.5 \text{ dscf} \end{array} \begin{array}{c} \text{MMBtu} \\ 393.24 \text{ bhp-hr} \end{array} \begin{array}{c} 453.59 \text{ g} \\ \text{lb} \end{array} \begin{array}{c} 1 \\ 30\% \end{array} =$$

=	0.153 g/bhp-hr	92.06 g/hr	0.203 lbs/hr	4.9 lbs/day
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for CO:

$$\begin{array}{c} \rightarrow \\ \frac{1633 \text{ parts}}{10^6 \text{ parts}} \end{array} \begin{array}{c} 8578 \text{ dscf} \\ \text{MMBtu} \end{array} \begin{array}{c} 28 \text{ lb} \\ 1 \text{ lb-mol} \end{array} \begin{array}{c} 20.9 \\ 20.9 - 15 \end{array} \begin{array}{c} \text{lb} \\ 379.5 \text{ dscf} \end{array} \begin{array}{c} \text{MMBtu} \\ 393.24 \text{ bhp-hr} \end{array} \begin{array}{c} 453.59 \text{ g} \\ \text{lb} \end{array} \begin{array}{c} 1 \\ 30\% \end{array} =$$

=	13.865 g/bhp-hr	8319 g/hr	18.3435 lbs/hr	440 lbs/day
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for VOC:

$$\begin{array}{c} \rightarrow \\ \frac{250 \text{ parts}}{10^6 \text{ parts}} \end{array} \begin{array}{c} 8578 \text{ dscf} \\ \text{MMBtu} \end{array} \begin{array}{c} 16 \text{ lb} \\ 1 \text{ lb-mol} \end{array} \begin{array}{c} 20.9 \\ 20.9 - 15 \end{array} \begin{array}{c} \text{lb} \\ 379.5 \text{ dscf} \end{array} \begin{array}{c} \text{MMBtu} \\ 393.24 \text{ bhp-hr} \end{array} \begin{array}{c} 453.59 \text{ g} \\ \text{lb} \end{array} \begin{array}{c} 1 \\ 30\% \end{array} =$$

=	1.213 g/bhp-hr	727.7 g/hr	1.60472 lbs/hr	39 lbs/day
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**APPENDIX I**  
**SSIPE Calculations**

<b>SSIPE Calculations</b>				
<b>Pollutant</b>	<b>SSPE2 (lb/year)</b>	<b>SSPE1 (lb/year)</b>	<b>SSIPE (lb/year)</b>	<b>SSIPE (ton/year)</b>
NO <sub>x</sub>	9,753	9,753	0	0
SO <sub>x</sub>	570	570	0	0
PM <sub>10</sub>	6,835	6,835	0	0
CO	684,825	584,881	99,944	50
VOC	26,488	26,488	0	0

**APPENDIX J**  
**Public Comments/District Response**



# Public Comments/District Response

West Kern Water District (WKWD) submitted public comments regarding the District's analysis and preliminary decision.

## **PUBLIC COMMENT #1**

WKWD has requested that the following condition be included in permit unit S-353-3-9. WKWD has not completed the modifications proposed in Project S-1114582; therefore, those modifications will need to be completed concurrently, or before the modifications proposed in this project.

- Authority to Construct (ATC) S-353-3-7 shall be implemented concurrently, or prior to the modification and startup of the equipment authorized by this Authority to Construct. [District Rule 2201]

## **DISTRICT RESPONSE**

The condition listed above has been added to permit unit S-353-3-9 as condition #1. WKWD will be required to complete the modifications listed on ATC S-353-3-7, concurrently, or prior to ATC S-353-3-9.

## **PUBLIC COMMENT #2**

WKWD has requested that condition #34 be removed from S-353-3-9.

## **DISTRICT RESPONSE**

The District has revised the condition to allow a one-time test using a portable emissions monitor to measure NO<sub>x</sub>, CO, and VOC emissions when the facility initially operates with LPG. The following condition will be listed as condition #44 on S-353-3-9:

44. A portable emission monitor shall be used to measure LPG combustion NO<sub>x</sub>, CO, and VOC emissions from this unit within 60 days of initial LPG usage. [District Rules 2201 and 4702] Y

## **PUBLIC COMMENT #3**

WKWD has requested that condition #11 be revised to require a non-resettable elapsed time meter instead of a fuel meter.

## **DISTRICT RESPONSE**

The District notes the current PTO S-353-3-6 requires a non-resettable elapsed time meter. Condition #11 has been revised as follows:

- This engine shall be equipped with an operational non-resettable elapsed time meter or other APCO approved alternative. [District Rule 4702]

**PUBLIC COMMENT #4**

WKWD has requested that condition #11 be revised to require a non-resettable elapsed time meter instead of a fuel meter.

**DISTRICT RESPONSE**

The District notes the current PTO S-353-3-6 requires a non-resettable elapsed time meter. Condition #11 has been revised as follows:

- This engine shall be equipped with an operational non-resettable elapsed time meter or other APCO approved alternative. [District Rule 4702]

**PUBLIC COMMENT #5**

WKWD has requested to correct the CO limit from 642 ppmv to 1,633 ppmv in the VIII Compliance – Rule 2201 section in the engineering evaluation.

**DISTRICT RESPONSE**

The CO limit has been corrected from 642 ppmv to 1,633 ppmv.