San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

NOV 03 2014

Richard Meyers
Ross Stores, Inc.
5130 Hacienda Drive
Dublin, CA 94568-7579

Re: Notice of Preliminary Decision - Authority to Construct
Facility Number: S-8529
Project Number: S-1143641

Dear Mr. Meyers:

Enclosed for your review and comment is the District's analysis of Ross Stores, Inc.'s application for an Authority to Construct for three emergency diesel-fired internal combustion engines, at 2801 Zachary Avenue, Shafter.

The notice of preliminary decision for this project will be published approximately three days from the date of this letter. After addressing all comments made during the 30-day public notice period, the District intends to issue the Authority to Construct. Please submit your written comments on this project within the 30-day public comment period, as specified in the enclosed public notice.

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact Mr. Homero Ramirez of Permit Services at (661) 392- 5616.

Sincerely,

Arnaud Marjollet
Director of Permit Services

AM:HAR/st

Enclosures

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

Seyed Sadredin
Executive Director/Air Pollution Control Officer

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San Joaquin Valley Air Pollution Control District
Authority to Construct
Application Review
Diesel-Fired Emergency Standby IC Engines

Facility Name:	Ross Stores, Inc.	Date:	October 15, 2014
Mailing Address:	5130 Hacienda Drive Dublin, CA 94568-7579	Engineer:	Homero Ramirez
		Lead Engineer:	Daniel Klevann
Contact Person:	Richard Meyers		
Telephone:	(951) 443-5500		
Application #:	S-8529-1-0 through -3-0		
Project #:	S-1143641		
Complete:	September 15, 2014		

I. Proposal

Ross Stores, Inc. requests Authorities to Construct (ATCs) S-8529-1-0, -2-0, and -3-0 to install two diesel-fired emergency standby internal combustion (IC) engines (one rated at 158 bhp and other rated at 904 bhp) that power electrical generators and one 376 bhp diesel-fired emergency standby IC engine that powers a firewater pump.

II. Applicable Rules

Rule 2201 New and Modified Stationary Source Review Rule (4/21/11)
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 (8/18/11)
Rule 4801 Sulfur Compounds (12/17/92)
CH&SC 41700 Health Risk Assessment
CH&SC 42301.6 School Notice
Title 17 CCR, Section 93115 - Airborne Toxic Control Measure (ATCM) for Stationary Compression-Ignition (CI) Engines
California Environmental Quality Act (CEQA)
Public Resources Code 21000-21177: California Environmental Quality Act (CEQA)
California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000-15387: CEQA Guidelines

III. Project Location

The project is located at 2801 Zachary Avenue in Shafter, CA. The District has verified that the equipment is not located within 1,000 feet of the outer boundary of a K-12 school. Therefore, the public notification requirement of California Health and Safety Code 42301.6 is not applicable to this project.

IV. Process Description

Two of the proposed emergency engines (S-8529-1-0 and -2-0) power electrical generators. Other than emergency standby operation, the engines may be operated up to 50 hours per year for maintenance and testing purposes.

One of the proposed emergency engine (S-8529-3-0) powers a firewater pump. Other than emergency operation, the engine may be operated up to 100 hours per year for maintenance and testing purposes.

V. Equipment Listing

S-8529-1-0: 158 BHP (INTERMITTENT) JOHN DEERE MODEL 4045HF285I TIER 3 CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR

S-8529-2-0: 904 BHP (INTERMITTENT) VOLVO PENTA MODEL TWD1643GE TIER 2 CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR

S-8529-3-0: 376 BHP (INTERMITTENT) JOHN DEERE MODEL 6090HFC47A TIER 3 CERTIFIED DIESEL-FIRED EMERGENCY IC ENGINE POWERING A FIREWATER PUMP

VI. Emission Control Technology Evaluation

The applicant has proposed to install two Tier 3 and one Tier 2 certified diesel-fired IC engines that are fired on very low-sulfur diesel fuel (0.0015% by weight sulfur maximum).

The proposed engines meet the latest Tier Certification requirements; therefore, the engines meet the latest ARB/EPA emissions standards for diesel particulate matter, hydrocarbons, nitrogen oxides, and carbon monoxide (see Appendix D for a copy of the emissions data sheet and/or the ARB/EPA executive order).

The use of very low-sulfur diesel fuel (0.0015% by weight sulfur maximum) reduces SO_X emissions by over 99% from standard diesel fuel.

VII. General Calculations

A. Assumptions

Emergency operating schedule:	24 hours/day
Non-emergency operating schedule:	50 hours/year (for engines powering electrical generators) and 100 hours/year (for engine powering firewater pump)
Density of diesel fuel:	7.1 lb/gal
EPA F-factor (adjusted to 60 °F):	9,051 dscf/MMBtu
Fuel heating value:	137,000 Btu/gal
BHP to Btu/hr conversion:	2,542.5 Btu/bhp-hr
Thermal efficiency of engine:	commonly ≈ 35%
PM_{10} fraction of diesel exhaust:	0.96 (CARB, 1988)

B. Emission Factors

Emission Factors for Engine S-8529-1-0		
Pollutant	Emission Factor (g/bhp-hr)	Source
NO_X	2.54	Engine Manufacturer
SO_X	0.0051	Mass Balance Equation Below [1]
PM_{10}	0.13	Engine Manufacturer
CO	0.97	Engine Manufacturer
VOC	0.15	Engine Manufacturer

Emission Factors for Engine S-8529-2-0		
Pollutant	Emission Factor (g/bhp-hr)	Source
NO_X	4.50	Engine Manufacturer
SO_X	0.0051	Mass Balance Equation Below [1]
PM_{10}	0.14	Engine Manufacturer
CO	0.54	Engine Manufacturer
VOC	0.14	Engine Manufacturer

[1]

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

Emission Factors for Engine S-8529-3-0		
Pollutant	Emission Factor (g/bhp-hr)	Source
NO_X	2.6	Engine Manufacturer
SO_X	0.0051	Mass Balance Equation Below [2]
PM_{10}	0.11	Engine Manufacturer
CO	0.7	Engine Manufacturer
VOC	0.1	Engine Manufacturer

C. Calculations

1. Pre-Project Emissions (PE1)

Since these are new emissions units, PE1 = 0.

2. Post-Project PE (PE2)

The daily and annual PE2 values are calculated as follows:

Daily PE2 (lb-pollutant/day) = EF (g-pollutant/bhp-hr) x Rating (bhp) x Operation (hr/day) / 453.6 g/lb

Annual PE2 (lb-pollutant/yr) = EF (g-pollutant/bhp-hr) x Rating (bhp) x Operation (hr/yr) / 453.6 g/lb

PE2 for S-8529-1-0:

Pollutant	Emissions Factor (g/bhp-hr)	Rating (bhp)	Daily Hours of Operation (hrs/day)	Annual Hours of Operation (hrs/yr)	Daily PE2 (lb/day)	Annual PE2 (lb/yr)
NO_X	2.54	158	24	50	**21.2**	**44**
SO_X	0.0051	158	24	50	**0.0**	**0**
PM_{10}	0.13	158	24	50	**1.1**	**2**
CO	0.97	158	24	50	**8.1**	**17**
VOC	0.15	158	24	50	**1.3**	**3**

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

PE2 for S-8529-2-0:

Pollutant	Emissions Factor (g/bhp-hr)	Rating (bhp)	Daily Hours of Operation (hrs/day)	Annual Hours of Operation (hrs/yr)	Daily PE2 (lb/day)	Annual PE2 (lb/yr)
NO_X	4.50	904	24	50	**215.2**	**448**
SO_X	0.0051	904	24	50	**0.2**	**1**
PM_{10}	0.14	904	24	50	**6.7**	**14**
CO	0.54	904	24	50	**25.8**	**54**
VOC	0.14	904	24	50	**6.7**	**14**

PE2 for S-8529-3-0:

Pollutant	Emissions Factor (g/bhp-hr)	Rating (bhp)	Daily Hours of Operation (hrs/day)	Annual Hours of Operation (hrs/yr)	Daily PE2 (lb/day)	Annual PE2 (lb/yr)
NO_X	2.6	376	24	100	**51.7**	**216**
SO_X	0.0051	376	24	100	**0.1**	**0**
PM_{10}	0.11	376	24	100	**2.2**	**9**
CO	0.7	376	24	100	**13.9**	**58**
VOC	0.1	376	24	100	**2.0**	**8**

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 ATCs or PTOs at the Stationary Source and the quantity of Emission Reduction Credits (ERCs) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site.

Since this is a new facility, SSPE1 = 0 lb/yr for all criteria pollutants.

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 ATCs or PTOs, except for emissions units proposed to be shut down as part of the Stationary Project, at the Stationary Source and the quantity of Emission Reduction Credits (ERCs) 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.

For this project the change in emissions for the facility is due to the installation of the new emergency standby IC engines. Thus:

SSPE2					
	NO_X (lb/yr)	SO_X (lb/yr)	PM_{10} (lb/yr)	CO (lb/yr)	VOC (lb/yr)
S-8529-1-0	44	0	2	17	3
S-8529-2-0	448	1	14	54	14
S-8529-3-0	216	0	9	58	8
SSPE2 Total	**708**	**1**	**26**	**129**	**25**
Offset Threshold	**20,000**	**54,750**	**29,200**	**200,000**	**20,000**
Offset Threshold Surpassed?	**No**	**No**	**No**	**No**	**No**

5. Major Source Determination

Rule 2201 Major Source Determination:

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

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

Rule 2201 Major Source Determination (lb/year)					
	NO_X	SO_X	PM_{10}	CO	VOC
Facility emissions pre-project	0	0	0	0	0
Facility emissions post-project	708	1	26	129	25
Major Source Threshold	20,000	140,000	140,000	200,000	20,000
Major Source?	No	No	No	No	No

As seen in the table above, the facility is not an existing Major Source and is not becoming a Major Source as a result of this project.

Rule 2410 Major Source Determination:

The facility is not an existing major source for PSD for at least one pollutant. Therefore the facility is not an existing major source for PSD.

6. Baseline Emissions (BE)

BE = Pre-project Potential to Emit for:

- Any unit located at a non-Major Source,
- Any Highly-Utilized Emissions Unit, located at a Major Source,
- Any Fully-Offset Emissions Unit, located at a Major Source, or
- Any Clean Emissions Unit, located at a Major Source.

otherwise,

BE = Historic Actual Emissions (HAE), calculated pursuant to Section 3.23

Since these are new emissions units, BE = PE1 = 0 for all criteria pollutants.

7. SB 288 Major Modification

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

Since this facility is not a major source for any of the pollutants addressed in this project, this project does not constitute an SB 288 major modification.

8. Federal Major Modification

District Rule 2201, Section 3.18 states that Federal Major Modifications are the same as "Major Modification" as defined in 40 CFR 51.165 and part D of Title I of the CAA.

Since this facility is not a Major Source for any pollutants, this project does not constitute a Federal Major Modification. Additionally, since the facility is not a major source for PM_{10} (140,000 lb/year), it is not a major source for PM2.5 (200,000 lb/year).

9. Rule 2410 - Prevention of Significant Deterioration (PSD) Applicability Determination

The project potential to emit, by itself, will not exceed any PSD major source thresholds. Therefore Rule 2410 is not applicable and no further discussion is required.

10. Quarterly Net Emissions Change (QNEC)

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

VIII. Compliance

Rule 2201 New and Modified Stationary Source Review Rule

A. Best Available Control Technology (BACT)

1. BACT Applicability

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

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

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

As discussed in Section I, the facility is proposing to install a new emergency standby IC engine. Additionally, as determined in Sections VII.C.7 and VII.C.8, this project does not result in an SB288 Major Modification or a Federal Major Modification, respectively. Therefore, BACT can only be triggered if the daily emissions exceed 2.0 lb/day for any pollutant.

The daily emissions from the new engine are compared to the BACT threshold levels in the following table:

New Emissions Unit BACT Applicability - S-8529-1-0				
Pollutant	Daily Emissions for unit -1-0 (lb/day)	BACT Threshold (lb/day)	SSPE2 (lb/yr)	BACT Triggered?
NO_X	21.2	> 2.0	n/a	Yes
SO_X	0.0	> 2.0	n/a	No
PM_{10}	1.1	> 2.0	n/a	No
CO	8.1	> 2.0 and SSPE2 ≥ 200,000 lb/yr	129	No
VOC	1.3	> 2.0	n/a	No

New Emissions Unit BACT Applicability - S-8529-2-0				
Pollutant	Daily Emissions for unit -2-0 (lb/day)	BACT Threshold (lb/day)	SSPE2 (lb/yr)	BACT Triggered?
NO_X	215.2	> 2.0	n/a	Yes
SO_X	0.2	> 2.0	n/a	No
PM_{10}	6.7	> 2.0	n/a	Yes
CO	25.8	> 2.0 and SSPE2 ≥ 200,000 lb/yr	129	No
VOC	6.7	> 2.0	n/a	Yes

New Emissions Unit BACT Applicability - S-8529-3-0				
Pollutant	Daily Emissions for unit -3-0 (lb/day)	BACT Threshold (lb/day)	SSPE2 (lb/yr)	BACT Triggered?
NO_X	51.7	> 2.0	n/a	Yes
SO_X	0.1	> 2.0	n/a	No
PM_{10}	2.2	> 2.0	n/a	Yes
CO	13.9	> 2.0 and SSPE2 ≥ 200,000 lb/yr	129	No
VOC	2.0	> 2.0	n/a	No

As shown above, BACT will be triggered for NO_X emissions for engine S-8529-1-0. BACT will be triggered for NO_X, PM10, and VOC emissions for engine S-8529-2-0. BACT will be triggered for NO_X and PM10 emissions for engine S-8529-3-0.

2. BACT Guideline

BACT Guideline 3.1.1, which appears in Appendix B of this report, covers diesel-fired emergency IC engines. This guideline applies to the engines powering electrical generators, S-8529-1-0 and -2-0.

BACT Guideline 3.1.4, which appears in Appendix C of this report, covers diesel-fired emergency IC engines driving fire pumps. This guideline applies to the engine powering the firewater pump, S-8529-3-0.

3. Top Down BACT Analysis

Per District Policy APR 1305, Section IX, "A top-down BACT analysis shall be performed as a part of the Application Review for each application subject to the BACT requirements pursuant to the District's NSR Rule for source categories or classes covered in the BACT Clearinghouse, relevant information under each of the following steps may be simply cited from the Clearinghouse without further analysis."

Pursuant to the attached Top-Down BACT Analysis, which appears in Appendix B of this report, BACT for engines S-8529-1-0 and -2-0 is satisfied with:

NO_X: Latest EPA Tier Certification level for applicable horsepower range
VOC: Latest EPA Tier Certification level for applicable horsepower range
PM_{10}: 0.15 g/hp-hr or the Latest EPA Tier Certification level for applicable horsepower range, whichever is more stringent. (ATCM)

Pursuant to the attached Top-Down BACT Analysis, which appears in Appendix C of this report, BACT for engine S-8529-3-0 is satisfied with:

NO_X: Certified NO_X emissions of 6.9 g/bhp-hr or less
PM_{10}: PM_{10} emissions of 0.4 g/bhp-hr or less

B. Offsets

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

C. Public Notification

1. Applicability

Public noticing is required for:

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

As shown in Sections VII.C.5, VII.C.7, and VII.C.8, this facility is not a new Major Source, not an SB 288 Major Modification, and not a Federal Major Modification, respectively.

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

As calculated in Section VII.C.2, daily NOx emissions for emissions unit S-8529-2-0 are greater than 100 lb/day for S-8529-2-0. Therefore, public noticing will be required.

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

As shown in Section VII.C.4, an offset threshold will not be surpassed.

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

For this project, the proposed engine is the only emissions source that will generate an increase in Potential to Emit. Since the proposed engine emissions are well below 20,000 lb/year for all pollutants (See Section VII.C.2), the SSIPE for this project will be below the public notice threshold.

2. Public Notice Action

As demonstrated above, this project will require public noticing. Therefore, public notice documents will be submitted to the California Air Resources Board (CARB) and a public notice will be published in a local newspaper of general circulation prior to the issuance of the ATC for this equipment.

D. Daily Emissions Limits

Daily Emissions Limitations (DELs) and other enforceable conditions are required by Section 3.16 to restrict a unit's maximum daily emissions, to a level at or below the emissions associated with the maximum design capacity. Per Sections 3.16.1 and 3.16.2, the DEL must be contained in the latest ATC and contained in or enforced by the latest PTO and enforceable, in a practicable manner, on a daily basis. Therefore, the following conditions will be listed on the ATCs to ensure compliance:

For S-8529-1-0:

- Emissions from this IC engine shall not exceed any of the following limits: 2.54 g-NOx/bhp-hr, 0.97 g-CO/bhp-hr, or 0.15 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]
- Emissions from this IC engine shall not exceed 0.13 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]
- {4258} Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [District Rules 2201 and 4801, and 17 CCR 93115]

For S-8529-2-0:

- Emissions from this IC engine shall not exceed any of the following limits: 4.50 g-NOx/bhp-hr, 0.54 g-CO/bhp-hr, or 0.14 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]
- Emissions from this IC engine shall not exceed 0.14 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]
- {4258} Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [District Rules 2201 and 4801, and 17 CCR 93115]

For S-8529-3-0:

- Emissions from this IC engine shall not exceed any of the following limits: 2.6 g-NOx/bhp-hr, 0.7 g-CO/bhp-hr, or 0.1 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]
- Emissions from this IC engine shall not exceed 0.13 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]
- {4258} Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [District Rules 2201 and 4801, and 17 CCR 93115]

E. Compliance Assurance

1. Source Testing

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

2. Monitoring

No monitoring is required to demonstrate compliance with Rule 2201.

3. Recordkeeping

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

4. Reporting

No reporting is required to ensure compliance with Rule 2201.

F. Ambient Air Quality Analysis (AAQA)

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

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

The proposed location is in a non-attainment area for the state's PM_{10} as well as federal and state $PM_{2.5}$ thresholds. As shown by the AAQA summary sheet the proposed equipment will not cause a violation of an air quality standard for PM_{10} and $PM_{2.5}$.

Rule 2520 Federally Mandated Operating Permits

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

Rule 4001 New Source Performance Standards (NSPS)

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

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

Rule 4002 National Emission Standards for Hazardous Air Pollutants

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

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

Rule 4101 Visible Emissions

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

- {15} No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]

Rule 4102 Nuisance

Rule 4102 states that no air contaminant shall be released into the atmosphere which causes a public nuisance. Public nuisance conditions are not expected as a result of these operations, provided the equipment is well maintained. Therefore, the following condition will be listed on the ATCs to ensure compliance:

- {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

California Health & Safety Code 41700 (Health Risk Assessment)

District Policy APR 1905 - Risk Management Policy for Permitting New and Modified Sources (dated 3/2/01) specifies that for an increase in emissions associated with a proposed new source or modification, the District perform an analysis to determine the possible impact to the nearest resident or worksite. Therefore, a risk management review (RMR) was performed for this project. The RMR results are summarized in the following table, and can be seen in detail in Appendix E.

RMR Results				
Unit	Acute Hazard Index	Chronic Hazard Index	Cancer Risk	T-BACT Required?
S-8529-1-0	N/A	N/A	0.0116 in a million	No
S-8529-2-0	N/A	N/A	0.0181 in a million	No
S-8529-3-0	N/A	N/A	0.0832 in a million	No

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

For S-8529-1-0:

- Emissions from this IC engine shall not exceed 0.13 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]
- {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
- {4262} This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 50 hours per calendar year. [District Rule 4702, 17 CCR 93115 and 40 CFR Part 60 Subpart IIII]

For S-8529-2-0:

- Emissions from this IC engine shall not exceed 0.14 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]
- {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
- {4262} This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 50 hours per calendar year. [District Rule 4702, 17 CCR 93115 and 40 CFR Part 60 Subpart IIII]

For S-8529-3-0:

- Emissions from this IC engine shall not exceed 0.13 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]
- {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
- {4262} This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 50 hours per calendar year. [District Rule 4702, 17 CCR 93115 and 40 CFR Part 60 Subpart IIII]

Rule 4201 Particulate Matter Concentration

Rule 4201 limits particulate matter emissions from any single source operation to 0.1 g/dscf, which, as calculated below, is equivalent to a PM_{10} emission factor of 0.4 g-PM_{10}/bhp-hr.

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

Each of the new engines has a PM_{10} emission factor less than 0.4 g/bhp-hr. Therefore, compliance is expected and the following condition will be listed on the ATCs:

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

Rule 4701 Internal Combustion Engines – Phase 1

The purpose of this rule is to limit the emissions of nitrogen oxides (NOx), carbon monoxide (CO), and volatile organic compounds (VOC) from internal combustion engines. Except as provided in Section 4.0, the provisions of this rule apply to any internal combustion engine, rated greater than 50 bhp, that requires a PTO.

The proposed 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 Internal Combustion Engines

The following summarizes District Rule 4702 Requirements for emergency standby IC engines:

1. Operation of emergency standby engines is limited to 100 hours or less per calendar year for non-emergency purposes.

   The Air Toxic Control Measure for Stationary Compression Ignition Engines (Stationary ATCM) limits the hours for engines powering electrical generators to 50 hours/year for maintenance and testing; therefore, compliance is expected. The following condition will be included on permits S-8529-1-0 and -2-0:

   - {4777} This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 50 hours per calendar year. [District Rules 2201 and 4702, and 17 CCR 93115]

   The Stationary ATCM allows engines powering firewater pumps to be operated the number of hours necessary to comply with the testing requirements of the National Fire Protection Association (NFPA) 25 - "Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems", 1998 edition. The following condition will be included on permit S-8529-3-0:

   - {3816} This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. For testing purposes, the engine shall only be operated the number of hours necessary to comply with the testing requirements of the National Fire Protection Association (NFPA) 25 - "Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems", 1998 edition. Total hours of operation for all maintenance, testing, and required regulatory purposes shall not exceed 100 hours per calendar year. [District Rule 4702 and 17 CCR 93115]

2. Properly operate and maintain each engine as recommended by the engine manufacturer or emission control system supplier. The following condition will be included on the permits:

   - {4261} This engine shall be operated and maintained in proper operating condition as recommended by the engine manufacturer or emissions control system supplier. [District Rule 4702]

3. Monitor the operational characteristics of each engine as recommended by the engine manufacturer or emission control system supplier. The following condition will be included on the permits:

- {3478} During periods of operation for maintenance, testing, and required regulatory purposes, the permittee shall monitor the operational characteristics of the engine as recommended by the manufacturer or emission control system supplier (for example: check engine fluid levels, battery, cables and connections; change engine oil and filters; replace engine coolant; and/or other operational characteristics as recommended by the manufacturer or supplier). [District Rule 4702]

4. Install and operate a nonresettable elapsed time meter. In lieu of installing a nonresettable elapsed time meter, the operator may use an alternative device, method, or technique, in determining operating time provided that the alternative is approved by the APCO and EPA and is allowed by Permit-to-Operate condition. The operator shall properly maintain and operate the nonresettable elapsed time meter or alternative device in accordance with the manufacturer's instructions.

   The following condition shall be used:

   - {4749} This engine shall be equipped with a non-resettable hour meter with a minimum display capability of 9,999 hours, unless the District determines that a non-resettable hour meter with a different minimum display capability is appropriate in consideration of the historical use of the engine and the owner or operator's compliance history. [District Rule 4702 and 17 CCR 93115]

5. Emergency standby engines cannot be used to reduce the demand for electrical power when normal electrical power line service has not failed, or to produce power for the electrical distribution system, or in conjunction with a voluntary utility demand reduction program or interruptible power contract. The following conditions will be included on the permits:

   - {3807} An emergency situation is an unscheduled electrical power outage caused by sudden and reasonably unforeseen natural disasters or sudden and reasonably unforeseen events beyond the control of the permittee. [District Rule 4702]

   - {3808} This engine shall not be used to produce power for the electrical distribution system, as part of a voluntary utility demand reduction program, or for an interruptible power contract. [District Rule 4702]

6. Records of the total hours of operation, type of fuel used, purpose for operating the engine, all hours of non-emergency and emergency operation, and other support documentation must be maintained. All records shall be retained for a period of at least five years, shall be readily available, and be made available to the APCO upon request. The following conditions will be included on the permits:

- {3496} The permittee shall maintain monthly records of emergency and non-emergency operation. Records shall include the number of hours of emergency operation, the date and number of hours of all testing and maintenance operations, the purpose of the operation (for example: load testing, weekly testing, rolling blackout, general area power outage, etc.) and records of operational characteristics monitoring. For units with automated testing systems, the operator may, as an alternative to keeping records of actual operation for testing purposes, maintain a readily accessible written record of the automated testing schedule. [District Rule 4702 and 17 CCR 93115]

- {4263} The permittee shall maintain monthly records of the type of fuel purchased. [District Rule 4702 and 17 CCR 93115]

- {3475} All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rule 4702 and 17 CCR 93115]

Rule 4801 Sulfur Compounds

Rule 4801 requires that sulfur compound emissions (as SO_2) shall not exceed 0.2% by volume. Using the ideal gas equation, the sulfur compound emissions are calculated as follows:

Volume SO_2 = (n x R x T) ÷ P
n = moles SO_2
T (standard temperature) = 60 °F or 520 °R
R (universal gas constant) = $\frac{10.73\,\text{psi}\cdot\text{ft}^3}{\text{lb}\cdot\text{mol}\cdot{}^\circ\text{R}}$

$$\frac{0.000015\,lb-S}{lb-fuel}\times\frac{7.1\,\text{lb}}{\text{gal}}\times\frac{64\,\text{lb}-SO_2}{32\,\text{lb}-S}\times\frac{1\,\text{MMBtu}}{9{,}051\,\text{scf}}\times\frac{1\,\text{gal}}{0.137\,\text{MMBtu}}\times\frac{\text{lb}-\text{mol}}{64\,\text{lb}-SO_2}\times\frac{10.73\,\text{psi}-\text{ft}^3}{\text{lb}-\text{mol}-{}^\circ\text{R}}\times\frac{520{}^\circ\text{R}}{14.7\,\text{psi}}\times 1{,}000{,}000 = 1.0\ \text{ppmv}$$

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

- {4258} Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [District Rules 2201 and 4801, and 17 CCR 93115]

California Health & Safety Code 42301.6 (School Notice)

The District has verified that this engine is not located within 1,000 feet of a school. Therefore, pursuant to California Health and Safety Code 42301.6, a school notice is not required.

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

The following requirements apply to new engines (those installed after 1/1/05):

Title 17 CCR Section 93115 Requirements for New Emergency IC Engines	Proposed Method of Compliance with Title 17 CCR Section 93115 Requirements
Emergency engine(s) must be fired on CARB diesel fuel, or an approved alternative diesel fuel.	The applicant has proposed the use of CARB certified diesel fuel. The proposed permit condition, requiring the use of CARB certified diesel fuel, was included earlier in this evaluation.
The engine(s) must meet the emission standards in Table 1 of the ATCM for the specific power rating and model year of the proposed engine.	The applicant has proposed the use of engine(s) that are certified to the latest EPA Tier Certification standards for the applicable horsepower range, guaranteeing compliance with the emission standards of the ATCM. Additionally, the proposed diesel PM emissions rate is less than or equal to 0.15 g/bhp-hr.
For engines powering electrical generators: The engine may not be operated more than 50 hours per year for maintenance and testing purposes. For engines powering firewater pumps: The proposed emergency diesel IC engine powering a firewater pump is exempt from the operating hours limitation provided the engine is only operated the amount of hours necessary to satisfy National Fire Protection Association (NFPA) regulations.	The following condition will be included on the permit: For engines powering electrical generators: • {4777} This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 50 hours per calendar year. [District Rules 2201 and 4702, and 17 CCR 93115] For engines powering firewater pumps: • {3816} This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. For testing purposes, the engine shall only be operated the number of hours necessary to comply with the testing requirements of the National Fire Protection Association (NFPA) 25 - "Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems", 1998 edition. Total hours of operation for all maintenance, testing, and required regulatory purposes shall not exceed 100 hours per calendar year. [District Rule 4702 and 17 CCR 93115]

Engines, with a PM10 emissions rate greater than 0.01 g/bhp-hr and located at schools, may not be operated for maintenance and testing whenever there is a school sponsored activity on the grounds. Additionally, engines located within 500 feet of school grounds may not be operated for maintenance and testing between 7:30 AM and 3:30 PM	The District has verified that this engine is not located within 500' of a school.
A non-resettable hour meter with a minimum display capability of 9,999 hours shall be installed upon engine installation, or by no later than January 1, 2005, on all engines subject to all or part of the requirements of sections 93115.6, 93115.7, or 93115.8(a) unless the District determines on a case-by-case basis that a non-resettable hour meter with a different minimum display capability is appropriate in consideration of the historical use of the engine and the owner or operator's compliance history.	The following condition will be included on the permit: • {4749} This engine shall be equipped with a non-resettable hour meter with a minimum display capability of 9,999 hours, unless the District determines that a non-resettable hour meter with a different minimum display capability is appropriate in consideration of the historical use of the engine and the owner or operator's compliance history. [District Rule 4702 and 17 CCR 93115]
An owner or operator shall maintain monthly records of the following: emergency use hours of operation; maintenance and testing hours of operation; hours of operation for emission testing; initial start-up testing hours; hours of operation for all other uses; and the type of fuel used. All records shall be retained for a minimum of 36 months.	Permit conditions enforcing these requirements were shown earlier in the evaluation.

California Environmental Quality Act (CEQA)

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

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

- Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.

The District performed an Engineering Evaluation (this document) for the proposed project and determined that the project qualifies for ministerial approval under the District's Guideline for Expedited Application Review (GEAR). Section 21080 of the Public Resources Code exempts from the application of CEQA those projects over which a public agency exercises only ministerial approval. Therefore, the District finds that this project is exempt from the provisions of CEQA.

IX. Recommendation

Pending a successful NSR Public Noticing period, issue Authorities to Construct S-8529-1-0, -2-0, and -3-0 subject to the permit conditions on the attached draft Authorities to Construct in Appendix A.

X. Billing Information

Billing Schedule			
Permit Number	**Fee Schedule**	**Fee Description**	**Fee Amount**
S-8529-1-0	3020-10-B	158 bhp IC engine	$117.00
S-8529-2-0	3020-10-E	904 bhp IC engine	$602.00
S-8529-3-0	3020-10-C	376 bhp IC engine	$240.00

Appendixes

A. Draft Authorities to Construct
B. BACT Guideline and BACT Analysis for Engines S-8529-1-0 and -2-0
C. BACT Guideline and BACT Analysis for Engine S-8529-3-0
D. Emissions Data Sheet
E. HRA Summary and AAQA
F. QNEC Calculations

Appendix A
Draft Authorities to Construct

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: S-8529-1-0

ISSUANCE DATE: DRAFT

LEGAL OWNER OR OPERATOR: ROSS STORES, INC.
MAILING ADDRESS: 5130 HACIENDA DRIVE
DUBLIN, CA 94568-7579

LOCATION: 2801 ZACHARY AVE
SHAFTER, CA 93263

EQUIPMENT DESCRIPTION:
158 BHP (INTERMITTENT) JOHN DEERE MODEL 4045HF285I TIER 2 CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR

CONDITIONS

1. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. {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]
3. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
4. {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
5. {4749} This engine shall be equipped with a non-resettable hour meter with a minimum display capability of 9,999 hours, unless the District determines that a non-resettable hour meter with a different minimum display capability is appropriate in consideration of the historical use of the engine and the owner or operator's compliance history. [District Rule 4702 and 17 CCR 93115]
6. {4258} Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [District Rules 2201 and 4801, and 17 CCR 93115]
7. Emissions from this IC engine shall not exceed any of the following limits: 2.54 g-NOx/bhp-hr, 0.97 g-CO/bhp-hr, or 0.15 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]
8. Emissions from this IC engine shall not exceed 0.13 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (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

DRAFT

Arnaud Marjollet, Director of Permit Services

S-8529-1-0 : Oct 15 2014 8:40AM – RAMIREZH : Joint Inspection NOT Required

9. {4261} This engine shall be operated and maintained in proper operating condition as recommended by the engine manufacturer or emissions control system supplier. [District Rule 4702]

10. {3478} During periods of operation for maintenance, testing, and required regulatory purposes, the permittee shall monitor the operational characteristics of the engine as recommended by the manufacturer or emission control system supplier (for example: check engine fluid levels, battery, cables and connections; change engine oil and filters; replace engine coolant; and/or other operational characteristics as recommended by the manufacturer or supplier). [District Rule 4702]

11. {3807} An emergency situation is an unscheduled electrical power outage caused by sudden and reasonably unforeseen natural disasters or sudden and reasonably unforeseen events beyond the control of the permittee. [District Rule 4702]

12. {3808} This engine shall not be used to produce power for the electrical distribution system, as part of a voluntary utility demand reduction program, or for an interruptible power contract. [District Rule 4702]

13. {3496} The permittee shall maintain monthly records of emergency and non-emergency operation. Records shall include the number of hours of emergency operation, the date and number of hours of all testing and maintenance operations, the purpose of the operation (for example: load testing, weekly testing, rolling blackout, general area power outage, etc.) and records of operational characteristics monitoring. For units with automated testing systems, the operator may, as an alternative to keeping records of actual operation for testing purposes, maintain a readily accessible written record of the automated testing schedule. [District Rule 4702 and 17 CCR 93115]

14. {4777} This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 50 hours per calendar year. [District Rules 2201 and 4702, and 17 CCR 93115]

15. {4263} The permittee shall maintain monthly records of the type of fuel purchased. [District Rule 4702 and 17 CCR 93115]

16. {3475} All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rule 4702 and 17 CCR 93115]

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: S-8529-2-0

ISSUANCE DATE: DRAFT

LEGAL OWNER OR OPERATOR: ROSS STORES, INC.
MAILING ADDRESS: 5130 HACIENDA DRIVE
DUBLIN, CA 94568-7579

LOCATION: 2801 ZACHARY AVE
SHAFTER, CA 93263

EQUIPMENT DESCRIPTION:
904 BHP (INTERMITTENT) VOLVO PENTA MODEL TWD1643GE TIER 2 CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR

CONDITIONS

1. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. {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]
3. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
4. {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
5. {4749} This engine shall be equipped with a non-resettable hour meter with a minimum display capability of 9,999 hours, unless the District determines that a non-resettable hour meter with a different minimum display capability is appropriate in consideration of the historical use of the engine and the owner or operator's compliance history. [District Rule 4702 and 17 CCR 93115]
6. {4258} Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [District Rules 2201 and 4801, and 17 CCR 93115]
7. Emissions from this IC engine shall not exceed any of the following limits: 4.50 g-NOx/bhp-hr, 0.54 g-CO/bhp-hr, or 0.14 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]
8. Emissions from this IC engine shall not exceed 0.14 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]

CONDITIONS CONTINUE ON NEXT PAGE

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Seyed Sadredin, Executive Director / APCO

DRAFT

Arnaud Marjollet, Director of Permit Services

S-8529-2-0 : Oct 15 2014 8:40AM – RAMIREZH : Joint Inspection NOT Required

9. {4261} This engine shall be operated and maintained in proper operating condition as recommended by the engine manufacturer or emissions control system supplier. [District Rule 4702]

10. {3478} During periods of operation for maintenance, testing, and required regulatory purposes, the permittee shall monitor the operational characteristics of the engine as recommended by the manufacturer or emission control system supplier (for example: check engine fluid levels, battery, cables and connections; change engine oil and filters; replace engine coolant; and/or other operational characteristics as recommended by the manufacturer or supplier). [District Rule 4702]

11. {3807} An emergency situation is an unscheduled electrical power outage caused by sudden and reasonably unforeseen natural disasters or sudden and reasonably unforeseen events beyond the control of the permittee. [District Rule 4702]

12. {3808} This engine shall not be used to produce power for the electrical distribution system, as part of a voluntary utility demand reduction program, or for an interruptible power contract. [District Rule 4702]

13. {3496} The permittee shall maintain monthly records of emergency and non-emergency operation. Records shall include the number of hours of emergency operation, the date and number of hours of all testing and maintenance operations, the purpose of the operation (for example: load testing, weekly testing, rolling blackout, general area power outage, etc.) and records of operational characteristics monitoring. For units with automated testing systems, the operator may, as an alternative to keeping records of actual operation for testing purposes, maintain a readily accessible written record of the automated testing schedule. [District Rule 4702 and 17 CCR 93115]

14. {4777} This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 50 hours per calendar year. [District Rules 2201 and 4702, and 17 CCR 93115]

15. {4263} The permittee shall maintain monthly records of the type of fuel purchased. [District Rule 4702 and 17 CCR 93115]

16. {3475} All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rule 4702 and 17 CCR 93115]

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: S-8529-3-0

ISSUANCE DATE: DRAFT

LEGAL OWNER OR OPERATOR: ROSS STORES, INC.
MAILING ADDRESS: 5130 HACIENDA DRIVE
DUBLIN, CA 94568-7579

LOCATION: 2801 ZACHARY AVE
SHAFTER, CA 93263

EQUIPMENT DESCRIPTION:
376 BHP (INTERMITTENT) JOHN DEERE MODEL 6090HFC47A TIER 3 CERTIFIED DIESEL-FIRED EMERGENCY IC ENGINE POWERING A FIREWATER PUMP

CONDITIONS

1. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. {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]
3. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
4. {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
5. {4749} This engine shall be equipped with a non-resettable hour meter with a minimum display capability of 9,999 hours, unless the District determines that a non-resettable hour meter with a different minimum display capability is appropriate in consideration of the historical use of the engine and the owner or operator's compliance history. [District Rule 4702 and 17 CCR 93115]
6. {4258} Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [District Rules 2201 and 4801, and 17 CCR 93115]
7. Emissions from this IC engine shall not exceed any of the following limits: 2.6 g-NOx/bhp-hr, 0.7 g-CO/bhp-hr, or 0.1 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]
8. Emissions from this IC engine shall not exceed 0.13 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]

CONDITIONS CONTINUE ON NEXT PAGE

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Seyed Sadredin, Executive Director/APCO

DRAFT

Arnaud Marjollet, Director of Permit Services

S-8529-3-0 : Oct 15 2014 8:40AM – RAMIREZH : Joint Inspection NOT Required

9. {4261} This engine shall be operated and maintained in proper operating condition as recommended by the engine manufacturer or emissions control system supplier. [District Rule 4702]

10. {3478} During periods of operation for maintenance, testing, and required regulatory purposes, the permittee shall monitor the operational characteristics of the engine as recommended by the manufacturer or emission control system supplier (for example: check engine fluid levels, battery, cables and connections; change engine oil and filters; replace engine coolant; and/or other operational characteristics as recommended by the manufacturer or supplier). [District Rule 4702]

11. {3807} An emergency situation is an unscheduled electrical power outage caused by sudden and reasonably unforeseen natural disasters or sudden and reasonably unforeseen events beyond the control of the permittee. [District Rule 4702]

12. {3808} This engine shall not be used to produce power for the electrical distribution system, as part of a voluntary utility demand reduction program, or for an interruptible power contract. [District Rule 4702]

13. {3496} The permittee shall maintain monthly records of emergency and non-emergency operation. Records shall include the number of hours of emergency operation, the date and number of hours of all testing and maintenance operations, the purpose of the operation (for example: load testing, weekly testing, rolling blackout, general area power outage, etc.) and records of operational characteristics monitoring. For units with automated testing systems, the operator may, as an alternative to keeping records of actual operation for testing purposes, maintain a readily accessible written record of the automated testing schedule. [District Rule 4702 and 17 CCR 93115]

14. {3816} This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. For testing purposes, the engine shall only be operated the number of hours necessary to comply with the testing requirements of the National Fire Protection Association (NFPA) 25 - "Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems". Total hours of operation for all maintenance, testing, and required regulatory purposes shall not exceed 100 hours per calendar year. [District Rule 4702 and 17 CCR 93115]

15. {4263} The permittee shall maintain monthly records of the type of fuel purchased. [District Rule 4702 and 17 CCR 93115]

16. {3475} All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rule 4702 and 17 CCR 93115]

Appendix B
BACT Guideline and BACT Analysis for Engines S-8529-1-0 and -2-0

San Joaquin Valley
Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline 3.1.1
Last Update: 7/10/2009
Emergency Diesel IC Engine

Pollutant	Achieved in Practice or in the SIP	Technologically Feasible	Alternate Basic Equipment
CO	Latest EPA Tier Certification level for applicable horsepower range*		
NOX	Latest EPA Tier Certification level for applicable horsepower range*		
PM10	0.15 g/bhp-hr		
SOX	Very low sulfur diesel fuel (15 ppmw sulfur or less)		
VOC	Latest EPA Tier Certification level for applicable horsepower range*		

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

BACT is the most stringent control technique for the emissions unit and class of source. Control techniques that are not achieved in practice or contained in a state implementation plan must be cost effective as well as feasible. Economic analysis to demonstrate cost effectiveness is required for all determinations that are not achieved in practice or contained in an EPA approved State Implementation Plan.

Top Down BACT Analysis for the Emergency IC Engine

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

1. BACT Analysis for NO_X and VOC Emissions:

a. Step 1 - Identify all control technologies

BACT Guideline 3.1.1 identifies only the following option:

- *Latest EPA Tier Certification level for applicable horsepower range*

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

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

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

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

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

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

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

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

Proposed engines S-8529-1-0 is rated at 158. Therefore, the applicable control technology option for those engines is EPA Tier 3 certification.

Proposed engine S-8529-2-0 is rated at 904 hp. Therefore, the applicable control technology option is EPA Tier 2 certification.

2. BACT Analysis for PM_{10} Emissions (for engines S-8529-2-0):

a. Step 1 - Identify all control technologies

BACT Guideline 3.1.1 identifies only the following option:

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

The latest EPA Tier Certification level for an engine of the proposed model year and horsepower rating is Tier 2 for engine S-8529-2-0. Refer to the Top-Down BACT analysis for NOx for a discussion regarding the determination of the EPA Tier level to be considered.

Please note that Tier 2 IC engines do not have a PM emission standard that is more stringent than 0.15 g/hp-hr. Additionally, the ATCM requires a PM emission standard of 0.15 g/hp-hr for all new emergency diesel IC engines.

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

b. Step 2 - Eliminate technologically infeasible options

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

c. Step 3 - Rank remaining options by control effectiveness

No ranking needs to be done because there is only one control option listed in Step 1.

d. Step 4 - Cost Effectiveness Analysis

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

e. Step 5 - Select BACT

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

Appendix C
BACT Guideline and BACT Analysis for Engine S-8529-3-0

San Joaquin Valley
Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline 3.1.4
Last Update: 6/30/2001

Emergency Diesel I.C. Engine Driving a Fire Pump

Pollutant	Achieved in Practice or in the SIP	Technologically Feasible	Alternate Basic Equipment
CO		Oxidation Catalyst	
NOx	Certified NOx emissions of 6.9 g/bhp-hr or less		
PM10	0.1 grams/bhp-hr (if TBACT is triggered) (corrected 7/16/01) 0.4 grams/bhp-hr (if TBACT is not triggered)		
SOx	Low-sulfur diesel fuel (500 ppmw sulfur or less) or Very Low-sulfur diesel fuel (15 ppmw sulfur or less), where available.		
VOC	Positive crankcase ventilation [unless it voids the Underwriters Laboratories (UL) certification]	Catalytic Oxidation	

1. Any engine model included in the ARB or EPA diesel engine certification lists and identified as having a PM10 emission rate of 0.149 grams/bhp-hr or less, based on ISO 8178 test procedure, shall be deemed to meet the 0.1 grams/bhp-hr requirement. 2. A site-specific Health Risk Analysis is used to determine if TBACT is triggered. (Clarification added 05/07/01)

BACT is the most stringent control technique for the emissions unit and class of source. Control techniques that are not achieved in practice or contained in s a state implementation plan must be cost effective as well as feasible. Economic analysis to demonstrate cost effectiveness is required for all determinations that are not achieved in practice or contained in an EPA approved State Implementation Plan.

Top Down BACT Analysis for the Emergency IC Engine(s)

1. BACT Analysis for NO_X Emissions:

Oxides of nitrogen (NO_X) are generated from the high temperature combustion of the diesel fuel. A majority of the NO_X emissions are formed from the high temperature reaction of nitrogen and oxygen in the inlet air. The rest of the NO_X emissions are formed from the reaction of fuel-bound nitrogen with oxygen in the inlet air.

a. Step 1 - Identify all control technologies

The SJVUAPCD BACT Clearinghouse guideline 3.1.4 identifies achieved in practice BACT for NO_X emissions from emergency diesel IC engines powering a firewater pump as follows:

1) Certified emissions of 6.9 g-NO_X/bhp-hr or less

No technologically feasible alternatives or control alternatives identified as alternate basic equipment for this class and category of source are listed.

b. Step 2 - Eliminate technologically infeasible options

There are no technologically infeasible options to eliminate from step 1.

c. Step 3 - Rank remaining options by control effectiveness

No ranking needs to be done because the applicant has proposed the achieved in practice option.

d. Step 4 - Cost Effectiveness Analysis

The applicant has proposed the only control achieved in practice in the ranking list from Step 3. Therefore, per SJVUAPCD BACT policy, the cost effectiveness analysis is not required.

e. Step 5 - Select BACT

BACT for NO_X emissions from this emergency diesel IC engine powering a firewater pump is having certified emissions of 6.9 g-NO_X/bhp-hr or less. The applicant has proposed to install an emergency diesel IC engine powering a firewater pump with certified emissions of 2.6 g-NO_X/bhp-hr or less; therefore BACT for NO_X emissions is satisfied.

2. BACT Analysis for PM_{10} Emissions:

Particulate matter (PM_{10}) emissions occur from the reaction of various elements in the diesel fuel including fuel sulfur.

a. Step 1 - Identify all control technologies

The SJVUAPCD BACT Clearinghouse guideline 3.1.4 identifies achieved in practice BACT for PM_{10} emissions from emergency diesel IC engines powering a firewater pump as follows:

1) Certified emissions of (0.4 g-PM_{10}/bhp-hr since T-BACT is not triggered for this project) or (certified emissions of 0.1 g-PM_{10}/bhp-hr since T-BACT is triggered for this project) or less

No technologically feasible alternatives or control alternatives identified as alternate basic equipment for this class and category of source are listed.

b. Step 2 - Eliminate technologically infeasible options

There are no technologically infeasible options to eliminate from step 1.

c. Step 3 - Rank remaining options by control effectiveness

No ranking needs to be done because the applicant has proposed the achieved in practice option.

d. Step 4 - Cost Effectiveness Analysis

The applicant has proposed the only control achieved in practice in the ranking list from Step 3. Therefore, per SJVUAPCD BACT policy, the cost effectiveness analysis is not required.

e. Step 5 - Select BACT

BACT for PM_{10} emissions from this emergency diesel IC engine powering a firewater pump is having certified emissions of 0.4 g-PM_{10}/bhp-hr or less (since T-BACT is not triggered). The applicant has proposed to install an emergency diesel IC engine powering a firewater pump with certified emissions of 0.11 g-PM_{10}/bhp-hr or less; therefore BACT for PM_{10} emissions is satisfied.

Appendix D
Emissions Data Sheet

KOHLER.
POWER SYSTEMS

600REOZVB

60 HZ. DIESEL INDUSTRIAL GENERATOR SET
EMISSION DATA SHEET

ENGINE INFORMATION

Model:	Volvo, TWD1643GE	Bore:	144mm (5.67 in.)
Nameplate BPH @ 1800 RPM:	904	Stroke:	165mm (6.50 in.)
Type:	4-Cycle, 6 Cylinder, Inline	Displacement:	16.12 L (984 cu. in.)
Aspiration:	Turbocharged, Charge Air-Cooled		
Compression Ratio	16.5:1	EPA Family:	DVPXL16.1ACW
Emission Control Device	EM, TC, CAC	EPA Certificate:	DVPXL16.1ACW-004

PERFORMANCE DATA:	1/4 Standby	1/2 Standby	3/4 Standby	Full Standby
Engine bkW @ Stated Load	167.00	335.00	503.00	674.00
Fuel Consumption (g/kWh)	220.00	200.00	198.00	204.00
Exhaust Gas Flow (m^3/s)				2.17
Exhaust Temperature (°C)				461.00
EXHAUST EMISSION DATA:				
HC (Total Unburned Hydrocarbons)	0.185	0.095	0.071	0.064
NOx (Oxides of Nitrogen as NO2)	6.041	5.647	5.399	5.130
CO (Carbon Monoxide)	0.497	0.202	0.349	0.727
PM (Particular Matter)	0.191	0.047	0.039	0.048

Values are in g/kWh

TEST METHODS AND CONDITIONS

Test Conditions- 40 CFR part 89 - 5 Mode US constant speed test cycle

Data and specifications subject to change without notice
For further information, please contact Mark Annarumma @ 920-246-1968

KOHLER.
POWER SYSTEMS

100REOZJF

60 HZ. DIESEL INDUSTRIAL GENERATOR SET
EMISSION DATA SHEET

ENGINE INFORMATION

Model:	John Deere, 4045HF285I	Bore:	106mm (4.19 in.)
Nameplate BPH @ 1800 RPM:	158	Stroke:	127mm (5.00 in.)
Type:	4-Cycle, 4 Cylinder, Inline	Displacement:	4.5 L (276 cu. in.)
Aspiration:	Turbocharged, Charge Air-Cooled		
Compression Ratio	19:1	EPA Family:	DJDXL04.5119
		EPA Certificate:	DJDXL04.5119-008

Table 1

PERFORMANCE DATA:	1/4 Standby	1/2 Standby	3/4 Standby	Full Standby
Engine bkW @ Stated Load	29.50	59.00	68.50	118.00
Fuel Consumption (g/kWh)	272.10	254.70	237.40	222.40
Exhaust Gas Flow (m^3/min)				22.80
Exhaust Temperature (°C)				580.00

Table 2

EXHAUST EMISSION DATA:	EPA CERTIFICATE DATA
HC (Total Unburned Hydrocarbons)	0.2
NOx (Oxides of Nitrogen as NO2)	3.4
CO (Carbon Monoxide)	1.3
PM (Particular Matter)	0.17

Values are in g/kWh unless otherwise noted

TEST METHODS AND CONDITIONS

The EPA Certificate Data in Table 2 is a weighted average value per ISO 8528 D2.

Data and specifications subject to change without notice
For further information, please contact Todd Loes at John Deere Power Systems, 319-292-6050

Rating Specific Emissions Data - John Deere Power Systems

JOHN DEERE

Nameplate Rating Information

Clarke Model	JW6H-UFAD70
Power Rating (BHP / kW)	376 / 280
Certified Speed (RPM)	1760

Rating Data

Rating	6090HFC47A
Certified Power (kW)	315
Rated Speed	1760
Vehicle Model Number	Clarke Fire Pump

Units	g/kW-hr	g/hp-hr
NOx	3.5	2.6
HC	0.1	0.1
NOx + HC	3.7	2.7
Pm	0.14	0.11
CO	0.9	0.7

Certificate Data

Engine Model Year	2013
EPA Family Name	DJDXL09.0114
EPA JD Name	450HAB
EPA Certificate Number	DJDXL09.0114-005
CARB Executive Order	Not Applicable
Parent of Family	6090HFG84A

Units	g/kW-hr
NOx	3.8
HC	0.1
NOx + HC	3.9
Pm	0.13
CO	0.9

* The emission data listed is measured from a laboratory test engine according to the test procedures of 40 CFR 89 or 40 CFR 1039, as applicable. The test engine is intended to represent nominal production hardware, and we do not guarantee that every production engine will have identical test results. The family parent date represents multiple ratings and this data may have been collected at a different engine speed and load. Emission results may vary dua to engine manufacturing tolerences, engine operating conditions, fuels used, or other conditions beyond our control.

JDPS 3/1/2013

Appendix E
HRA Summary and AAQA

San Joaquin Valley Air Pollution Control District
Risk Management Review

To:	Homero Ramirez - Permit Services
From:	Cheryl Lawler - Permit Services
Date:	September 30, 2014
Facility Name:	Ross Stores, Inc.
Location:	2801 Zachary Avenue, Shafter
Application #(s):	S-8529-1-0, 2-0, 3-0
Project #:	S-1143641

A. RMR SUMMARY

RMR Summary					
Categories	**Emergency Diesel ICE (Unit 1-0)**	**Emergency Diesel ICE (Unit 2-0)**	**Emergency Diesel ICE (Unit 3-0)**	**Project Totals**	**Facility Totals**
Prioritization Score	N/A[1]	N/A[1]	N/A[1]	N/A[1]	>1
Acute Hazard Index	N/A[2]	N/A[2]	N/A[2]	N/A[2]	0.00
Chronic Hazard Index	N/A[2]	N/A[2]	N/A[2]	N/A[2]	0.00
Maximum Individual Cancer Risk	**1.16E-08**	**1.81E-08**	**8.32E-08**	1.13E-07	1.13E-07
T-BACT Required?	**No**	**No**	**No**		
Special Permit Conditions?	**Yes**	**Yes**	**Yes**		

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

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

Proposed Permit Conditions

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

Unit 1-0

1. The PM10 emissions rate shall not exceed **0.13** g/bhp-hr based on US EPA certification using ISO 8178 test procedure. [District Rules 2201]
2. {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102] N
3. This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed **50** hours per calendar year. [District Rule 4702 and 17 CCR 93115]

Unit 2-0

1. The PM10 emissions rate shall not exceed **0.14** g/bhp-hr based on US EPA certification using ISO 8178 test procedure. [District Rules 2201]
2. {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102] N
3. This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed **50** hours per calendar year. [District Rule 4702 and 17 CCR 93115]

Unit 3-0

1. The PM10 emissions rate shall not exceed **0.11** g/bhp-hr based on US EPA certification using ISO 8178 test procedure. [District Rules 2201]
2. {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102] N
3. This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed **100** hours per calendar year. [District Rule 4702 and 17 CCR 93115]

B. RMR REPORT

I. Project Description

Technical Services received a request on September 18, 2014, to perform an Ambient Air Quality Analysis (AAQA) and a Risk Management Review (RMR) for three emergency diesel IC engines. Two will power electrical generators and one will power a fire pump.

II. Analysis

Diesel exhaust emissions and the Cancer Risk from the engines were calculated using the District approved DICE spreadsheet. However, for Unit 3-0, a refined Health Risk Assessment was required and performed because the exhaust vents horizontally.

The following parameters were used for the review:

Analysis Parameters Unit 1-0			
PM_{10} g/hp-hr	0.13	**Source Type**	Point
BHP	158	**Stack Diameter (m)**	0.10
Closest Receptor (m)	2134	**Stack Height (m)**	2.43
Max Hours per Year	50	**Stack Gas Temp. (K)**	853
Location Type	Rural	**Stack Gas Velocity (m/s)**	46.86

Analysis Parameters Unit 2-0			
PM_{10} g/hp-hr	0.14	**Source Type**	Point
BHP	904	**Stack Diameter (m)**	0.11
Closest Receptor (m)	2134	**Stack Height (m)**	3.05
Max Hours per Year	50	**Stack Gas Temp. (K)**	734
Location Type	Rural	**Stack Gas Velocity (m/s)**	87.68*

*Used a District approved default value for a similar size engine.

Analysis Parameters Unit 3-0			
PM_{10} g/hp-hr	0.11	**Source Type**	Point
BHP	376	**Stack Diameter (m)**	0.13
Closest Receptor (m)	2134	**Stack Height (m)**	5.49
Max Hours per Year	100	**Stack Gas Temp. (K)**	714
Location Type	Rural	**Stack Gas Velocity (m/s)**	69.56**

**Per the RMR request form, the stack vents horizontally. Therefore, the source group was designated as such in AERMOD's Source Pathway Module during refined modeling for the project per District policy.

Technical Services also performed modeling for criteria pollutants NOx, SOx, and PM_{10}; as well as the RMR for all three engines. For Unit 1-0, the emission rates used for criteria pollutant modeling were 44.2 lb/yr NOx, 0.1 lb/yr SOx, and 2.2 lb/yr PM_{10}. For Unit 2-0, the emission rates used for criteria pollutant modeling were 448.9 lb/yr NOx, 0.5 lb/yr SOx, and 14.2 lb/yr PM_{10}. For Unit 3-0, the emission rates used for criteria pollutant modeling were 107.8 lb/yr NOx, 0.2 lb/yr SOx, and 4.6 lb/yr PM_{10}.

The results from the Criteria Pollutant Modeling are as follows:

Criteria Pollutant Modeling Results*

Three Diesel ICEs	1 Hour	3 Hours	8 Hours	24 Hours	Annual
CO	NA[1]	X	NA[1]	X	X
NO_x	NA[1]	X	X	X	Pass
SO_x	NA[1]	NA[1]	X	NA[1]	Pass
PM_{10}	X	X	X	NA[1]	Pass[2]

*Results were taken from the attached PSD spreadsheet.
[1]The project is an intermittent source as defined in APR-1920. In accordance with APR-1920, compliance with short-term (i.e., 1-hour, 3-hour, 8-hour, and 24-hour) standards is not required.
[2]The criteria pollutants are below EPA's level of significance as found in 40 CFR Part 51.165 (b)(2).

III. Conclusions

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

The Cancer Risks associated with the operation of the proposed diesel IC engines are less than 1.0 in a million. In accordance with the District's Risk Management Policy, the project is approved **without** Toxic Best Available Control Technology (T-BACT).

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

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 & Attachments
DICE Spreadsheets
Unit 3-0 Risk Results
AAQA Results
Facility Summary
AERMOD Non-Regulatory Option Checklist

Appendix F
QNEC Calculations

Quarterly Net Emissions Change (QNEC)

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

QNEC = PE2 - PE1, where:

QNEC = Quarterly Net Emissions Change for each emissions unit, lb/qtr
PE2 = Post-Project Potential to Emit for each emissions unit, lb/qtr
PE1 = Pre-Project Potential to Emit for each emissions unit, lb/qtr

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

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

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

QNEC for S-8529-1-0		
Pollutant	PE2 Total (lb/yr)	Quarterly PE2 (lb/qtr)
NO_X	44	11.0
SO_X	0	0.0
PM_{10}	2	0.5
CO	17	4.3
VOC	3	0.8

QNEC for S-8529-2-0		
Pollutant	PE2 Total (lb/yr)	Quarterly PE2 (lb/qtr)
NO_X	448	112.0
SO_X	1	0.3
PM_{10}	14	3.5
CO	54	13.5
VOC	14	3.5

QNEC for S-8529-3-0		
Pollutant	PE2 Total (lb/yr)	Quarterly PE2 (lb/qtr)
NO_X	216	54.0
SO_X	0	0.0
PM_{10}	9	2.3
CO	58	14.5
VOC	8	2.0