San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

OCT 28 2011

Mike Torres
Project Engineer w/ OC Jones
Northern California Youth Center
7650 South Newcastle Road
Stockton, CA 95213

Re: Notice of Preliminary Decision - Authority to Construct
Project Number: N-1112728

Dear Mr. Torres
Project Engineer w/ OC Jones:

Enclosed for your review and comment is the District's analysis of Northern California Youth Center's application for an Authority to Construct for the installation of a new 1,490 bhp diesel-fired emergency standby IC engine powering an electrical generator, at 7650 S. Newcastle Road in Stockton.

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

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact Mr. Robert Gilles of Permit Services at (209) 557-6455.

Sincerely,

David Warner
Director of Permit Services

DW:RPG /st

Enclosures

Seyed Sadredin
Executive Director/Air Pollution Control Officer

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

Central Region (Main Office)
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www.valleyair.org www.healthyairliving.com

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

OCT 28 2011

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

Re: Notice of Preliminary Decision - Authority to Construct
Project Number: N-1112728

Dear Mr. Tollstrup:

Enclosed for your review and comment is the District's analysis of Northern California Youth Center's application for an Authority to Construct for the installation of a new 1,490 bhp diesel-fired emergency standby IC engine powering an electrical generator, at 7650 S. Newcastle Road in Stockton.

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

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact Mr. Robert Gilles of Permit Services at (209) 557-6455.

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Stockton Record
Stockton Record

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

NOTICE IS HEREBY GIVEN that the San Joaquin Valley Unified Air Pollution Control District solicits public comment on the proposed issuance of Authority to Construct to Northern California Youth Center for the installation of a new 1,490 bhp diesel-fired emergency standby IC engine powering an electrical generator, at 7650 S. Newcastle Road in Stockton.

The analysis of the regulatory basis for this proposed action, Project #N-1112728, is available for public inspection at http://www.valleyair.org/notices/public_notices_idx.htm and the District office at the address below. Written comments on this project must be submitted within 30 days of the publication date of this notice to **DAVID WARNER, DIRECTOR OF PERMIT SERVICES, SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT, 4800 ENTERPRISE WAY MODESTO, CA 95356.**

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

Facility Name:	Northern California Youth Center	Date:	October 26, 2011
Mailing Address:	7650 South Newcastle Road Stockton, CA 95213	Engineer:	Robert Gilles
		Lead Engineer:	Nick Peirce
Contact Person:	Mike Torres		
Telephone:	(510) 385-0088		
FAX:	(510) 809-3512		
Application #:	N-581-49-0		
Project #:	N-1112728		
Complete:	August 02, 2011		

I. Proposal

Northern California Youth Center is requesting an Authority to Construct (ATC) permit for the installation of a 1,490 bhp diesel-fired emergency standby internal combustion (IC) engine powering an electrical generator.

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 – 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 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 7650 S. Newcastle Road Stockton, CA.

The District has verified that the equipment is not located within 1,000 feet of the outer boundary of a K-12 school.

IV. Process Description

The standby diesel-fired engine powers an electrical generator for emergency use at a state youth correctional and rehabilitation facility in the City of Stockton. Other than emergency standby operation, the engine may be operated up to 50 hours per year for maintenance and testing purposes.

V. Equipment Listing

N-581-49-0: 1,490 BHP CUMMINS MODEL # QST30-G5 TIER 2 CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR

VI. Emission Control Technology Evaluation

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

The proposed engine meets the latest Tier Certification requirements; therefore, the engine meets the latest ARB/EPA emissions standards for diesel particulate matter, hydrocarbons, nitrogen oxides, and carbon monoxide.

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
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)

The engine has certified NO_X + VOC emissions of 4.77 g/bhp-hr. It will be assumed the NOx + VOC emission factor is split 95% NOx and 5% VOC (per the District's Carl Moyer program).

B. Emission Factors

Emission Factors (EF)		
Pollutant	Emission Factor (g/bhp-hr)	Source
NO_X	4.53	CARB/EPA Certification
SO_X	0.0051	Mass Balance Equation Below
PM_{10}	0.14	CARB/EPA Certification
CO	2.61	CARB/EPA Certification
VOC	0.24	CARB/EPA Certification

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

C. Calculations

1. Pre-Project Potential to Emit (PE1)

Since this is a new emissions unit, PE1 = 0 for all criteria pollutants.

2. Post-Project Potential to Emit (PE2)

The daily and annual PE values are calculated using the equations shown below:

Daily PE2 = [EF (g/bhp-hr) x Engine Rating (bhp) x 24 hrs/day] / (453.6 g/lb)

Annual PE2 = [EF (g/bhp-hr) x Engine Rating (bhp) x 50 hrs/yr] / (453.6 g/lb)

Daily and annual PE2 values for each pollutant are outlined in the table below.

Post-project Emissions (PE2)						
Pollutant	EF (g/bhp-hr)	Engine Rating (bhp)	Hours of Operation		Daily PE2 (lb/day)	Annual PE2 (lb/year)
			Daily (hr/day)	Annual (hr/yr)		
NOx	4.53	1,490	24	50	357.1	744
SOx	0.0051	1,490	24	50	0.4	1
PM_{10}	0.14	1,490	24	50	11.0	23
CO	2.61	1,490	24	50	205.8	429
VOC	0.24	1,490	24	50	18.9	39

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.

The table below summarizes the SSPE1 values for this project. See Appendix E for SSPE1 calculation.

SSPE1 (lb/year)					
Permit Unit	NO_X	SO_X	PM_{10}	CO	VOC
SSPE1	**11,621**	**518**	**4,941**	**7,616**	**30,504**
Offset Threshold	20,000	54,750	29,200	200,000	20,000
Offsets Required?	No	No	No	No	Yes

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 engine, permit unit N-581-49-0. Thus:

SSPE2 (lb/year)					
Permit Unit	NO_X	SO_X	PM_{10}	CO	VOC
SSPE1	11,621	518	4,941	7,616	30,504
N-581-49-0	744	1	23	429	39
SSPE2 Total	**12,365**	**519**	**4,964**	**8,045**	**30,543**
Offset Threshold	20,000	54,750	29,200	200,000	20,000
Offsets Required?	No	No	No	No	Yes

5. Major Source Determination

Pursuant to Section 3.24 of District Rule 2201, a Major Source is a stationary source with post project emissions or a Post Project Stationary Source Potential to Emit (SSPE2), equal to or exceeding one or more of the following threshold values. However, Section 3.24.2 states, "for the purposes of determining major source status, the SSPE2 shall not include 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."

This facility does not contain ERCs which have been banked at the source; therefore, no adjustment to SSPE2 is necessary.

Major Source Determination					
Pollutant	SSPE1 (lb/yr)	SSPE2 (lb/yr)	Major Source Threshold (lb/yr)	Existing Major Source?	Becoming a Major Source?
NO_X	11,621	12,365	20,000	No	No
SO_X	518	519	140,000	No	No
PM_{10}	4,941	4,964	140,000	No	No
CO	7,616	8,045	200,000	No	No
VOC	30,504	30,543	20,000	Yes	Yes

As seen in the table above, the post-project facility is a Major Source for VOC.

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 3.22

Since this is a new emissions unit, then BE = PE1 = 0 for all criteria pollutants for this project.

7. SB288 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 a major source for VOC, the project's PE2 is compared to the SB288 Major Modification Thresholds in the following table in order to determine if the SB288 Major Modification calculation is required.

SB 288 Major Modification Thresholds			
Pollutant	Project PE2 (lb/year)	Threshold (lb/year)	SB 288 Major Modification Calculation Required?
VOC	39	50,000	No

Since the SB288 Major Modification Threshold for VOC is not surpassed with this project, this project does not constitute a SB288 Major Modification.

8. Federal Major Modification

As shown in section VII.C.5 of this document, the facility is a Major Source for VOC; therefore, a Federal Major Modification determination is necessary for VOC.

Pursuant to the District's draft policy titled *Implementation of Rule 2201 (as amended on 12/18/08 and effective on 6/10/10) for SB288 and Federal Major Modifications*, a permitting action is a Federal Major Modification if it will result in an increase in emission in excess of the thresholds specified in section 3.18 of Rule 2201 (as seen in the table below). Additionally, the draft policy states that if the emission increases are less than to or equal to 0.5 lb/day then they are to be rounded to zero (consistent with District Policy APR-1130).

Federal Major Modification Thresholds	
Pollutant	Threshold (lb/yr)
VOC	0

Using the annual PE2 calculated in section VII.C.2, the average daily increase in potential to emit (IPE) for VOC is calculated as follows:

IPE_{VOC} = (PE2 – BE) lb/year / (365 days/year)
= (39 – 0) lb/year / (365 days/year)
= 0.1 lb/day

IPE_{VOC} **= 0 lb/day**

As demonstrated above, the IPE for VOC is less than 0.5 lb/day. Pursuant to the District Draft Policy mentioned above, the VOC emissions increase will be rounded to 0 lb/day and will not exceed the Federal Major Modification Significance threshold for VOC. Therefore, this project is not a Federal Major Modification.

9. 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 Attachment I.

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[1]:

a) Any new emissions unit with a potential to emit exceeding 2.0 pounds per day;
b) The relocation from one Stationary Source to another of an existing emissions unit with a potential to emit exceeding 2.0 pounds per day;
c) Modifications to an existing emissions unit with a valid Permit to Operate resulting in an AIPE exceeding 2.0 pounds per day; and/or
d) Any new or modified emissions unit, in a stationary source project, which results in a Major Modification.

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

As seen in Section VII.C.2 of this evaluation, the applicant is proposing to install a new diesel-fired IC engine with a PE greater than 2 lb/day for NOx, PM_{10}, CO, and VOC. Since SSPE2 is not greater than 200,000 lb/year for CO emissions, BACT will not be triggered for CO; therefore, BACT is triggered for PE>2lb/day for NOx, PM_{10}, and VOC for the proposed engine.

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

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

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

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

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

d. SB 288/Federal Major Modification

As discussed in sections VII.C.7 and VII.C.8 above, this project constitutes neither a SB288 Major Modification nor a Federal Major Modification; therefore BACT is not triggered for Major Modification purposes.

2. BACT Guideline

BACT Guideline 3.1.1 applies to the diesel-fired emergency IC engines. See Appendix B for BACT guideline 3.1.1.

3. Top Down BACT Analysis

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

Pursuant to the attached Top-Down BACT Analysis, which appears in Appendix B of this report, BACT is satisfied with:

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

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

The proposed engine meets the latest Tier Certification requirements for the applicable horsepower range; therefore, the engine meets the latest ARB/EPA emissions standards for diesel particulate matter, hydrocarbons, nitrogen oxides, and carbon monoxide.

The following condition will be listed on the ATC to ensure compliance with the PM_{10} BACT emissions limit:

- *Emissions from this IC engine shall not exceed 0.14 g-PM_{10}/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, 17 CCR 93115]*

B. Offsets

Pursuant to Section 4.6.2 of District Rule 2201, offsets are not required for emergency IC engines; therefore, offset calculations are not required for this proposed new engine.

C. Public Notification

1. Applicability

Public notification is required for:

a. *New Major Sources, Federal Major Modifications, and SB288 Major Modification*

This project does not represent a new facility; therefore, it cannot represent a New Major Source. Additionally, this project constitutes neither a SB288 Major Modification nor a Federal Major Modification; therefore, public notice requirements are not triggered for these purposes.

b. *Any new emissions unit with PE > 100 lb/day for any one pollutant*

As calculated in Section VII.C.2, daily emissions for NOx and CO are greater than 100 lb/day; therefore, public noticing requirements are triggered for PE > 100 lb/day purposes.

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

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

Offset Threshold				
Pollutant	SSPE1 (lb/year)	SSPE2 (lb/year)	Offset Threshold	Public Notice Triggered?
NO_X	11,621	12,365	20,000 lb/year	No
SOx	518	519	54,750 lb/year	No
PM_{10}	4,941	4,964	29,200 lb/year	No
CO	7,616	8,045	200,000 lb/year	No
VOC	30,504	30,543	20,000 lb/year	No

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

d. Any project where SSIPE > 20,000 lb/year for any pollutant.

Stationary Source Increase in Permitted Emissions (SSIPE) is calculated pursuant to District Policy as shown below:

SSIPE (lb/year) = (SSPE2 – SSPE1) lb/year

The following table compares the SSIPE values for each pollutant with the public notice threshold of 20,000 lb/year.

SSIPE (lb/year)					
Pollutant	SSPE2	SSPE1	SSIPE	Public Notice Threshold	Public Notice Triggered?
NOx	12,365	11,621	744	20,000	No
SOx	519	518	1	20,000	No
PM_{10}	4,964	4,941	23	20,000	No
CO	8,045	7,616	429	20,000	No
VOC	30,543	30,504	39	20,000	No

As shown in the table above, the public notice threshold of 20,000 lb/year has not been exceeded by any criteria pollutant as a result of this project; therefore, public notice requirements will not be triggered for these purposes.

2. Public Notice Action

As previously discussed, the project NOx emissions are greater than 100 lb/day; therefore, public notice requirements are triggered. 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 pursuant to District Rule 2201, Section 5.5.

D. Daily Emissions Limits

Daily Emissions Limitations (DELs) and other enforceable conditions are required by Section 3.15 to restrict a unit's maximum daily emissions, to a level at or below the emissions associated with the maximum design capacity. Per Sections 3.15.1 and 3.15.2, the DEL must be contained in the latest ATC and contained in or enforced by the latest PTO and enforceable, in a practicable manner, on a daily basis. Therefore, the following conditions will be listed on the ATC to ensure compliance:

- *Emissions from this IC engine shall not exceed any of the following limits: 4.53 g-NOx/bhp-hr, 2.61 g-CO/bhp-hr, or 0.24 g-VOC/bhp-hr. [District Rule 2201, 17 CCR 93115]*

- *Emissions from this IC engine shall not exceed 0.14 g-PM_{10}/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, 17 CCR 93115]*
- *Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [District Rules 2201 and 4801, 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

Section 4.14.1 of this Rule requires that an ambient air quality analysis (AAQA) be conducted for the purpose of determining whether a new or modified Stationary Source will cause or make worse a violation of an air quality standard. The Technical Services Division of the SJVAPCD conducted the required analysis. Refer to Appendix C 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 $PM_{2.5}$ and PM_{10}. The increases in the ambient $PM_{2.5}$ and PM_{10} concentrations due to the proposed equipment are shown on the table titled Calculated Contribution. The levels of significance, from 40 CFR Part 51.165 (b)(2), are shown on the table titled Significance Levels.

Calculated Contribution					
Pollutant	Calculated Contributions ($\mu g/m^3$)				
	Annual Avg.	24 hr Avg.	8 hr Avg.	3 hr Avg.	1 hr Avg.
$PM_{2.5}$	0.001403	0.3	N/A	N/A	N/A
PM_{10}	0.001403	0.00	N/A	N/A	N/A

Significance Levels					
Pollutant	Significance Levels ($\mu g/m^3$) - 40 CFR Part 51.165 (b)(2)				
	Annual Avg.	24 hr Avg.	8 hr Avg.	3 hr Avg.	1 hr Avg.
$PM_{2.5}$	1.0	5.0	N/A	N/A	N/A
PM_{10}	1.0	5.0	N/A	N/A	N/A

As shown, the calculated contributions of $PM_{2.5}$ and PM_{10} will not exceed the EPA significance levels. This project is not expected to cause or make worse a violation of an air quality standard.

Permit conditions will be included on the ATC to ensure compliance with the AAQA.

Rule 2520 Federally Mandated Operating Permits

Pursuant to their current operating permits, Northern California Youth Center is an existing major source for VOC emission; therefore, Rule 2520 is applicable to this project. However, the facility has not received their Title V operating permit. The facility will be notified by the District to submit an application to comply with Rule 2520 – *Federally Mandated Operating Permits*; therefore, no action is required at this time.

Rule 4001 New Source Performance Standards (NSPS)

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

The proposed engine at this site is subject to the requirements of this subpart. The District has not yet obtained a delegation from EPA to enforce this subpart. Therefore, requirements of this subpart are not listed in the permit at this time.

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 proposed engine at this site is subject to the requirements of this subpart. The District has not yet obtained a delegation from EPA to enforce this subpart. Therefore, requirements of this subpart are not listed in the permit at this time.

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 permit to ensure compliance:

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

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 permit to ensure compliance:

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

California Health & Safety Code 41700 (Health Risk Assessment)

District Policy APR 1905 - 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 C.

RMR Results				
Unit	Acute Hazard Index	Chronic Hazard Index	Cancer Risk	T-BACT Required?
N-581-49-0	N/A[2]	N/A[2]	0.0821 in a million	No

Discussion of T-BACT

BACT for toxic emission control (T-BACT) is required if the cancer risk exceeds one in one million. As demonstrated above, T-BACT is not required for this project because the HRA indicates that the risk is not above the District's thresholds for

[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

triggering T-BACT requirements; therefore, compliance with the District's Risk Management Policy is expected.

District policy APR 1905 also specifies that the increase in emissions associated with a proposed new source or modification not have acute or chronic indices, or a cancer risk greater than the District's significance levels (i.e. acute and/or chronic indices greater than 1 and a cancer risk greater than 10 in a million). As outlined by the HRA Summary in Appendix C of this report, the emissions increases for this project was determined to be less than significant

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

- *Modified {1901} 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 and 4102, 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] N*
- *Modified {1344} The engine shall be operated only for maintenance, testing, and required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 50 hours per year. [District Rules 2201, and 4701] N*

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.

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

Since the new engine has a PM_{10} emission factor less than 0.4 g/bhp-hr, compliance is expected. The following condition will be listed on the permit to ensure continued compliance with this Rule:

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

Rule 4701 Internal Combustion Engines – Phase 1

Pursuant to Section 7.5.2.3 of District Rule 4702, as of June 1, 2006 District Rule 4701 is no longer applicable to diesel-fired emergency standby or emergency IC engines.

Therefore, the proposed emergency internal combustion engine will comply with the requirements of District Rule 4702 and no further discussion is required.

Rule 4702 Internal Combustion Engines – Phase 2

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

District Rule 4702 Requirements Emergency Standby IC Engines	Proposed Method of Compliance with District Rule 4702 Requirements
Operation of emergency standby engines is limited to 100 hours or less per calendar year for non-emergency purposes, verified through the use of a non-resettable elapsed operating time meter.	The Air Toxic Control Measure for Stationary Compression Ignition Engines (Stationary ATCM) limits this engine maintenance and testing to 50 hours/year. Thus, compliance is expected. • *This engine shall be operated only for maintenance, testing, and required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 50 hours per year. [District Rules 2201, 4701, and 4702 and 17 CCR 93115] N*
Emergency standby engines cannot be used to reduce the demand for electrical power when normal electrical power line service has not failed, or to produce power for the electrical distribution system, or in conjunction with a voluntary utility demand reduction program or interruptible power contract.	The following conditions will be included on the permit: • *{3807} An emergency situation is an unscheduled electrical power outage caused by sudden and reasonably unforeseen natural disasters or sudden and reasonably unforeseen events beyond the control of the permittee. [District Rule 4702]* • *{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]*
The owner/operator must operate and maintain the engine(s) and any installed control devices according to the manufacturers written instructions.	The following condition will be included on the permit: • *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]*
The owner/operator must monitor the operational characteristics of each engine as recommended by the engine manufacturer or emission control system supplier.	The following condition will be included on the permit: • *{3478} During periods of operation for maintenance, testing, and required regulatory purposes, the permittee shall monitor the operational characteristics of the engine as recommended by the manufacturer or emission control system supplier (for example: check engine fluid levels, battery, cables and connections; change engine oil and filters; replace engine coolant; and/or other operational characteristics as recommended by the manufacturer or supplier). [District Rule 4702]*

Records of the total hours of operation of the emergency standby engine, type of fuel used, purpose for operating the engine, all hours of non-emergency and emergency operation, and support documentation must be maintained. All records shall be retained for a period of at least five years, shall be readily available, and be made available to the APCO upon request.	The following conditions will be included on the permit: • *{3496} The permittee shall maintain monthly records of emergency and non-emergency operation. Records shall include the number of hours of emergency operation, the date and number of hours of all testing and maintenance operations, the purpose of the operation (for example: load testing, weekly testing, rolling blackout, general area power outage, etc.) and records of operational characteristics monitoring. For units with automated testing systems, the operator may, as an alternative to keeping records of actual operation for testing purposes, maintain a readily accessible written record of the automated testing schedule. [District Rule 4702 and 17 CCR 93115]* • *The permittee shall maintain monthly records of the type of fuel purchased. [District Rule 4702 and 17 CCR 93115]* • *{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 permit to ensure compliance:

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

California Health & Safety Code 42301.6 (School Notice)

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.

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

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

Title 17 CCR Section 93115 Requirements for New Emergency IC Engines Powering Electrical Generators	Proposed Method of Compliance with Title 17 CCR Section 93115 Requirements
Emergency engine 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 must emit diesel PM at a rate less than or equal to 0.15 g/bhp-hr or must meet the diesel PM standard, as specified in the Off-road compression ignition standards for off-road engines with the same maximum rated power (Title 13 CCR, Section 2423).	The applicant has proposed the use of a Tier 2 certified engine which is the latest EPA Tier Certification level for the applicable horsepower range, guaranteeing compliance with the emission standards of this section. Additionally, the proposed diesel PM emissions rate is less than or equal to 0.15 g/bhp-hr.
The engine may not be operated more than 50 hours per year for maintenance and testing purposes.	The proposed permit condition enforcing this requirement was included earlier in this evaluation.
New stationary emergency standby diesel-fueled IC engines (> 50 bhp) must meet the standards for off-road engines of the same model year and maximum rated power as specified in the Off-Road Compression Ignition Engine Standards (Title 13, CCR, Section 2423).	The applicant has proposed the use of an engine that is Tier 2 certified, which meets the latest EPA Tier Certification level for the applicable horsepower range.
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.

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 – Appendix D) demonstrates that the project would not result in a significant 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. Pending successful NSR Public Noticing period, issue Authority to Construct (ATC) N-581-49-0 subject to the permit conditions on the attached draft ATC permit in Appendix A.

X. Billing Information

Annual Permit Fees			
Permit Number	Fee Schedule	Fee Description	Proposed Annual Fee
N-581-49-0	3020-10-F	1,490 bhp IC engine	$749.00

Appendixes

A. Draft ATC
B. BACT Guideline and BACT Analysis
C. HRA/RMR/AAQA Summary
D. Greenhouse Gas Evaluation
E. Stationary Source Potential to Emit (SSPE) Calculations

Appendix A

Draft ATC

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: N-581-49-0

ISSUANCE DATE: DRAFT

LEGAL OWNER OR OPERATOR: NORTHERN CALIFORNIA YOUTH CNTR
MAILING ADDRESS: PO BOX 213004
STOCKTON, CA 95213-9004

LOCATION: 7650 S NEWCASTLE RD
STOCKTON, CA 95205

EQUIPMENT DESCRIPTION:
1,490 BHP CUMMINS MODEL # QST30-G5 TIER 2 CERTIFIED DIESEL-FIRED IC EMERGENCY STANDBY ENGINE POWERING AN ELECTRICAL GENERATOR

CONDITIONS

1. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
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. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
4. {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
5. This engine shall be equipped with an operational non-resettable elapsed time meter or other APCO approved alternative. [District Rule 4702 and 17 CCR 93115]
6. Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [District Rules 2201 and 4801 and 17 CCR 93115]
7. Emissions from this IC engine shall not exceed any of the following limits: 4.53 g-NOx/bhp-hr, 2.61 g-CO/bhp-hr, or 0.24 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]
8. The PM10 emissions rate shall not exceed 0.14 g/hp-hr based on US EPA certification using ISO 8178 test procedure. [District Rule 2201 and 17 CCR 93115]
9. This engine shall be operated and maintained in proper operating condition as recommended by the engine manufacturer or emissions control system supplier. [District Rule 4702]

CONDITIONS CONTINUE ON NEXT PAGE

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

Seyed Sadredin, Executive Director / APCO

DRAFT

DAVID WARNER, Director of Permit Services
N-581-49-0 : Oct 18 2011 2:40PM -- GILLESR : Joint Inspection NOT Required

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

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

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]

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

Appendix B

BACT Guideline and BACT Analysis

San Joaquin Valley
Unified Air Pollution Control District

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

Pollutant	Achieved in Practice or in the SIP	Technologically Feasible	Alternate Basic Equipment
CO	Latest EPA Tier Certification level for applicable horsepower range		
NOx	Latest EPA Tier Certification level for applicable horsepower range		
PM10	0.15 g/hp-hr or the Latest EPA Tier Certification level for applicable horsepower range, whichever is more stringent. (ATCM)		
SOx	Very low sulfur diesel fuel (15 ppmw sulfur or less)		
VOC	Latest EPA Tier Certification level for applicable horsepower range		

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

Top Down BACT Analysis for the Emergency IC Engine

1. **BACT Analysis for NO_X, PM_{10}, and VOC Emissions:**

a. Step 1 - Identify all control technologies

The SJVUAPCD BACT Clearinghouse guideline 3.1.1 identifies achieved in practice BACT for emissions from emergency diesel IC engines as follows:

Pollutant	Achieved in Practice
NOx and 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)

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 only one control option is listed in Step 1.

d. Step 4 - Cost Effectiveness Analysis

The applicant has proposed the only control option listed for each pollutant. Therefore, a cost effectiveness analysis is not required.

e. Step 5 - Select BACT

BACT for NOx, and VOC emissions from this emergency standby diesel IC engine is the latest EPA Tier Certification level for the applicable horsepower range. The applicant has proposed to install a Tier 2 certified 1,490 bhp emergency standby diesel IC engine, which is the latest Tier Certification for an engine this size as shown in the attached Tier Certification table at the end of this Appendix.

BACT for PM_{10} is 0.15 g/hp-hr, or the latest EPA Tier Certification level for the applicable horsepower range, whichever is more stringent. The applicant is proposing a Tier 2 certified engine that meets this requirement.

Title 13 CCR 2423

(December 2005)

Tier Certification & Exhaust Emission Standards

(grams per brake horsepower-hour)

Power Rating (hp)	Tier	Model Year	NO_x	HC	NMHC +NO_x	CO	PM
50 ≤ hp < 75	1	1998 – 2003	6.9	-	-	-	-
	2	2004 - 2007	-		5.6	3.7	0.3
	3	2008 - 2011			3.5		
	4*	2008 – 2012 (Interim)			3.5	3.7	0.22
75 ≤ hp < 100	1	1998 – 2003	6.9	-	-	-	-
	2	2004 – 2007	-		5.6	3.7	0.3
	3	2008 – 2011			3.5		
100 ≤ hp < 175	1	1997 – 2002	6.9	-	-	-	-
	2	2003 – 2006	-		4.9	3.7	0.22
	3	2007 – 2011			3.0		
175 ≤ hp < 300	1	1996 – 2002	6.9	1.0	-	8.5	0.4
	2	2003 – 2005	-	-	4.9	2.6	0.15
	3	2006 - 2010			3.0		
300 ≤ hp < 600	1	1996 – 2000	6.9	1.0	-	8.5	0.4
	2	2001 – 2005	-	-	4.8	2.6	0.15
	3	2006 – 2010			3.0		
600 ≤ hp ≤ 750	1	1996 – 2001	6.9	1.0	-	8.5	0.4
	2	2002 – 2005	-	-	4.8	2.6	0.15
	3	2006 – 2010			3.0		
> 750	1	2000 – 2005	6.9	1.0	-	8.5	0.4
	2	2006 – 2010	-	-	4.8	2.6	0.15

* Manufacturers may optionally certify engine families to the interim Tier 4 for this power category through 2012.

Appendix C

HRA/RMR/AAQA Summary

San Joaquin Valley Air Pollution Control District
Risk Management Review

To:	Robert Gilles - Permit Services
From:	Cheryl Lawler - Permit Services
Date:	October 14, 2011
Facility Name:	Northern California Youth Center
Location:	7650 S. Newcastle Road, Stockton
Application #(s):	N-581-49-0
Project #:	N-1112728

A. RMR SUMMARY

RMR Summary			
Categories	**Emergency Diesel ICE (Unit 49-0)**	**Project Totals**	**Facility Totals**
Prioritization Score	N/A[1]	N/A[1]	N/A[1]
Acute Hazard Index	N/A[2]	N/A[2]	0.34
Chronic Hazard Index	N/A[2]	N/A[2]	0.75
Maximum Individual Cancer Risk	**8.21E-08**	8.21E-08	8.21E-08
T-BACT Required?	**No**		
Special Permit Conditions?	**Yes**		

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

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

Proposed Permit Conditions

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

Unit 49-0

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. 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]
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]

B. RMR REPORT

I. Project Description

Technical Services received a request on August 2, 2011, to perform an Ambient Air Quality Analysis and a Risk Management Review for a 1490 bhp emergency diesel-fired internal combustion engine.

II. Analysis

Technical Services performed a screening level health risk assessment using the District developed DICE database.

The following parameters were used for the review:

Analysis Parameters Unit 49-0			
Source Type	Point	**Location Type**	Rural
BHP	1490	**PM_{10} g/hp-hr**	0.14
Closest Receptor (m)	1341	**Quad**	2
Max Hours per Year	50	**Type of Receptor**	Residence

Technical Services performed modeling for criteria pollutants NOx, SOx, PM_{10}, and $PM_{2.5}$; as well as a RMR. The emission rates used for criteria pollutant modeling were 744 lb/yr NOx, 1 lb/yr SOx, 23 lb/yr PM_{10}, and 23 lb/yr $PM_{2.5}$. The engineer supplied the maximum fuel rate for the IC engine used during the analysis.

The results from the Criteria Pollutant Modeling are as follows:

Criteria Pollutant Modeling Results*

Diesel ICE	1 Hour	3 Hours	8 Hours	24 Hours	Annual
CO	NA[1]	X	NA[1]	X	X
NO_x	NA[1]	X	X	X	Pass
SO_x	NA[1]	NA[1]	X	NA[1]	Pass
PM_{10}	X	X	X	NA[1]	Pass[2]
$PM_{2.5}$	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. Conclusion

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

The cancer risk associated with the operation of the proposed diesel IC engine is 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) for PM10.

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

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

Appendix D

Greenhouse Gas Evaluation

Greenhouse Gas (GHG) Evaluation

N-581-49-0

Emission Factors – CA low sulfur diesel fuel

Emission factors and global warming potentials (GWP) are taken from the California Climate Action Registry (CCAR), Version 3.1, January, 2009 (Appendix C, Tables C.7 and C.8):

- CO_2 73.1 kg/MMBtu (HHV) diesel fuel (161.2 lb/MMBtu)
- CH_4 0.003 kg/MMBtu (HHV) diesel fuel (0.0066 lb/MMBtu)
- N_2O 0.0006 kg/MMBtu (HHV) diesel fuel (0.0013 lb/MMBtu)

GWP for CH_4 = 23 lb-CO_2e per lb-CH4
GWP for N_2O = 296 lb-CO_2e per lb-N2O

Calculations:

Total Maximum Heat Input Increase for this project

Diesel Fuel Combustion	= 72.2 gallons/hour
Max. Annual Operation	= 50 hours/year
Total Annual Fuel Usage	= (72.2 gal/hr) x (50 hrs/year)
	= 3,610 gallons/year
Convert to MMBtu/yr	= (3,610 gal/yr) x (137,000 Btu/gal) x (MMBtu/10^6Btu)
	= **495 MMBtu/yr**

CO_2 Emissions = (495 MMBtu/year) x (161.2 lb/MMBtu) × (1 ton/2,000 lb)

= *40 ton-CO_2e/year*

CH_4 Emission = (495 MMBtu/year) x (0.0066 lb/MMBtu) × (23 lb-CO_2e/lb-CH_4) x (1 ton/2,000 lb)

= *0.04 ton-CO_2e/year*

N_2O Emissions = (495 MMBtu/year) x (0.0013 lb/MMBtu) × (296 lb-CO_2e/lb-CH_4) x (1 ton/2,000 lb)

= *0.10 ton-CO_2e/year*

Total Annual GHG Emissions = (40 + 0.04 + 0.10)ton-CO_2e/year
= 40.14 **short ton-CO_2e/year**

Metric Conversion:

Annual Emissions = (40.14 short ton-CO_2e/year) x 0.9072 metric tons/short ton
= **36 metric tons-CO_2e/year**

36 metric tons CO_2e/year < 230 metric tons CO_2e/year

Conclusion:

Per District Policy, project specific greenhouse gas emissions less than or equal to 230 metric tons-CO2e/year are considered to be zero for District permitting purposes and are exempt from further environmental review.

As shown above, the project specific greenhouse gas emissions are less than 230 metric tons-CO_2e/year. The emissions are therefore considered to be zero and no further discussion is required.

Appendix E

Stationary Source Potential to Emit (SSPE) Calculations

Stationary Source Potential to Emit Calculations (SSPE)

A. Pre-project SSPE (SSPE1)

For permits N-581-1-2 and '-2-2, PE1 values were gathered from Project N-1052042. For permits N-581-3-0, '-4-1, '-5-0, '-6-1, '7-0, '-8-0, '-9-0, '-10-0, '-11-0, '12-0, '-13-0, '-14-0, '-19-0, and '-20-0, PE1 values were gathered from Project N-1010797. For projects N-581-21-1, '-25-1, '-26-1, and '-27-1, PE1 values were gathered from Project N-1041834. For N-581-29-1 and '-30-1, PE1 values were gathered from Project N-960615. The PE1 values for Permit units N-581-22-0, '-23-0, and '-28-1 were calculated as shown below.

1. Permit Unit N-581-22-0

This unit is a 54 bhp diesel-fired emergency standby IC engine powering an electrical generator.

Assumptions

- Maximum annual operation is 20 hours (current permit condition);
- All other assumptions are from the District's GEAR 11 for diesel-fired emergency standby IC engines.

Calculations

Emission factors for NOx, CO, PM_{10}, and VOC were gathered from AP 42 Table 3.3-1 (10/96). The emission factor for SOx was calculated using the assumptions in District GEAR 11.

The Annual Potential to Emit (PE) is calculated in the following table.

Emission Factors (N-581-22-0)				
Pollutant	EF (lb/bhp-hr)	Engine Rating (bhp)	Operating Schedule (hrs/year)	Annual PE (lb/year)
NOx	0.031	54	20	33
SOx	0.00001	54	20	0
PM_{10}	0.0022	54	20	2
CO	0.00668	54	20	7
VOC	0.00247	54	20	3

2. Permit Unit N-581-23-0

This unit is a 135 bhp diesel-fired emergency standby IC engine powering an electrical generator.

The same assumptions used for N-581-22-0 Annual PE calculations above are used here to calculate the Annual PE for this unit. The following table shows the calculation.

Emission Factors (N-581-22-0)				
Pollutant	EF (lb/bhp-hr)	Engine Rating (bhp)	Operating Schedule (hrs/year)	Annual PE (lb/year)
NOx	0.031	135	20	84
SOx	0.00001	135	20	0
PM_{10}	0.0022	135	20	6
CO	0.00668	135	20	18
VOC	0.00247	135	20	7

3. Permit Unit N-581-28-1

This unit is a Gasoline Dispensing Facility (GDF) with one nozzle. The assumptions from District GEAR 1 for GDFs with above ground storage tanks.

Assumptions

- VOC is the only pollutant emitted from this operation;
- This facility may operate 24 hours per day, 365 days per year (worst case);
- Maximum daily gasoline dispensed at each fueling point (FP) is 1,800 gallons/FP-day (District GEAR 1 Policy);
- There is only 1 gasoline fueling point (current permit equipment description).

The emission factor in terms of lb-VOC/FP-day can be calculated as follows:

EF = (1.313 lb-VOC/1,000 gal)x(1,800 gal/FP-day)

= 2.36 lb-VOC/FP-day

Calculations

Daily Emissions = EF (lb-VOC/1,000 gal) x Number of Fueling Points (# FP)
Annual Emissions = Daily Emissions (lb-VOC/day) x 365 days/year

Daily Emissions = (2.36 lb-VOC/FP-day) x 1 FP
= **2.4 lb-VOC/day**

Annual Emissions = (2.4 lb-VOC/day) x 365 days/year
= **876 lb-VOC/year**

The following table summarizes the Annual PE for each unit currently permitted at this facility prior to this project.

SSPE1 (lb/year)					
Permit Unit	NO_X	SO_X	PM_{10}	CO	VOC
N-581-1-2	1,800	144	68	756	50
N-581-2-2	1,800	144	68	756	50
N-581-3-0	0	0	2,263	0	14,600
N-581-4-1	0	0	2,263	0	14,600
N-581-5-0	0	0	0	0	0
N-581-6-1	0	0	0	0	0
N-581-7-0	0	0	0	0	0
N-581-8-0	0	0	0	0	0
N-581-9-0	0	0	0	0	0
N-581-10-0	0	0	0	0	0
N-581-11-0	0	0	0	0	0
N-581-12-0	1,126	75	80	264	91
N-581-13-0	570	38	41	123	46
N-581-14-0	570	38	41	123	46
N-581-19-0	570	38	41	123	46
N-581-20-0	570	38	41	123	46
N-581-21-1	277	0	2	456	4
N-581-22-0	33	0	2	7	3
N-581-23-0	84	0	6	18	7
N-581-25-1	280	0	2	461	4
N-581-26-1	485	0	3	542	4
N-581-27-1	3,456	3	20	3,864	31
N-581-28-1	0	0	0	0	876
N-581-29-1	0	0	0	0	0
N-581-30-1	0	0	0	0	0
SSPE1 (lb/year)	**11,621**	**518**	**4,941**	**7,616**	**30,504**