San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

NOV 0 6 2014

George De Boer
Southern Cross Dairy
P O Box 757
Buttonwillow

Re: Notice of Preliminary Decision - Authority to Construct
Facility Number: S-4697
Project Number: S-1083805

Dear Mr. De Boer:

Enclosed for your review and comment is the District's analysis of Southern Cross Dairy's application for an Authority to Construct for an 800 kW diesel-fired turbine to provide emergency power in the event of an electrical outage, at 26509 Lerdo Highway in Buttonwillow, CA.

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. Jonah Aiyabei of Permit Services at (559) 230- 5910.

Sincerely,

Arnaud Marjollet
Director of Permit Services

AM:jka

Enclosures

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

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

Facility Name:	Southern Cross Dairy	Date:	November 4, 2014
Mailing Address:	26509 Lerdo Highway Buttonwillow, CA 93206	Engineer:	Thom Maslowski & Jonah Aiyabei
		Lead Engineer:	Joven Refuerzo
Contact Person:	George De Boer		
Telephone:	(661) 243-5604		
Application #:	S-4697-9-0		
Project #:	S-1083805		
Deemed Complete:	October 06, 2009		

I. Proposal

Southern Cross Dairy is applying for an Authority To Construct (ATC) for a diesel-fired emergency standby turbine. On May 7, 2008 the District performed a determination of commencement of construction (S-1053640) and determined that the turbine was not installed prior to January 1, 2004; therefore the previous in-House Permit to Operate (PTO) S-4697-5-0 was cancelled. This ATC replaces the previous PTO and will be subject to the requirements of District Rule 2201 at time the application was deemed complete.

II. Applicable Rules

Rule 1070 Inspections (12/17/92)
Rule 2020 Exemptions (12/20/07)
Rule 2201 New and Modified Stationary Source Review Rule (12/18/08)
Rule 2410 Prevention of Significant Deterioration (6/16/11)
Rule 2520 Federally Mandated Operating Permits (6/21/01)
Rule 4001 New Source Performance Standards (4/14/99)
Rule 4101 Visible Emissions (11/15/01)
Rule 4102 Nuisance (12/17/92)
Rule 4201 Particulate Matter (12/17/92)
Rule 4301 Fuel Burning Equipment (12/17/92)
Rule 4703 Stationary Gas Turbines (9/20/07)
Rule 4801 Sulfur Compounds (12/17/92)
CH&SC 41700 Health Risk Assessment
CH&SC 42301.6 School Notice
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 facility is located at 26509 Lerdo Highway in Buttonwillow. The equipment is not located within 1,000 feet of the outer boundary of a K-12 school. Therefore, the public notification requirement of California Health and Safety Code 42301.6 is not applicable to this project.

IV. Process Description

The emergency standby turbine powers an electrical generator to provide backup power to the dairy's milking center in the event of grid power failure. Other than emergency standby operation, the turbine may be operated up to 100 hours per year for maintenance and testing purposes.

V. Equipment Listing

S-4697-9-0: 800 KW SOLAR SATURN (S/N: 10257) DIESEL-FIRED EMERGENCY STANDBY TURBINE POWERING AN ELECTRICAL GENERATOR

VI. Emission Control Technology Evaluation

All five criteria pollutants (NO_X, SO_X, PM_{10}, CO, and VOC) are emitted from the turbine. It will be assumed the turbine is not equipped with any control devices; therefore, emissions will be considered as uncontrolled.

VII. General Calculations

A. Assumptions

Operating schedule:	100 hours/year non-emergency use
Density of diesel fuel:	7.1 lb/gal
EPA F-factor (adjusted to 60 °F):	9,051 dscf/MMBtu
Fuel heating value:	0.139 MMBtu/gal
Thermal Efficiency:	22.319% (Per Manufacturer)

B. Emission Factors

Diesel-fired Gas Turbine Emission Factors			
Pollutant	E.F. (lb/MMBtu)	E. F. (lb/kW-hr)**	Source
NO_X	0.88	0.01163	Manufacturer
SO_X	0.002	0.0000212	Mass Balance Equation Below*
PM_{10}	0.012	0.0001638	AP-42 (4/00) Table 3.1-2a
CO	1.617	0.02302	Manufacturer
VOC	0.00041	0.0000056	AP-42 (4/00) Table 3.1-2a

*0.000015 lb-S/lb-fuel x (7.1 lb-fuel/gal) x (2 lb-SO_2/1 lb-S) x (1 gal/0.139 MMBtu) = 0.002 lb/MMBtu
**lb/kW-hr = lb/MMBtu x 1 Btu/10^6 MMBtu x 3,413 Btu/kW-hr x 1/Eff
**AP42 assumes an efficiency of 25% but an efficiency of 22.319% will be used since it is representative of this turbine

C. Calculations

1. Pre-Project Potential to Emit (PE1)

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

2. Post Project Potential to Emit (PE2)

The daily and annual PE are calculated as follows:

Daily Post Project Emissions				
Pollutant	Emissions Factor (lb/kW-hr)	Rating (kW)	Daily Hours of Operation (hrs./day)	PE2 Total (lb/day)
NO_X	0.01163	800	24	223.3
SO_X	0.0000212	800	24	0.4
PM_{10}	0.0001638	800	24	3.1
CO	0.02302	800	24	442.0
VOC	0.0000056	800	24	0.1

Annual Post Project Emissions				
Pollutant	Emissions Factor (lb/kW-hr)	Rating (kW)	Annual Hours of Operation (hrs/yr)	PE2 Total (lb/yr)
NO_X	0.01163	800	100	930
SO_X	0.0000212	800	100	2
PM_{10}	0.0001638	800	100	13
CO	0.02302	800	100	1,842
VOC	0.0000056	800	100	0

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

Pursuant to Section 4.9 of District Rule 2201, the Pre-Project Stationary Source Potential to Emit (SSPE1) is the Potential to Emit (PE) from all units with valid Authorities to Construct (ATC) or Permits to Operate (PTO) at the Stationary Source and the quantity of emission reduction credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site.
The SSPE1 is shown in the table below:

Stationary Source Potential to Emit [SSPE1] (lb/year)					
Permit Unit	NO_X	SO_X	PM_{10}	CO	VOC
S-4697-8-2 Milk Parlor	0	0	0	0	2,400
S-4697-2-3 Cow Housing	0	0	51,917	0	71,073
S-4697-3-2 Liquid Manure	0	0	0	0	17,132
S-4697-4-2 Solid Manure	0	0	0	0	3,329
S-4697-10-1 Feed	0	0	0	0	79,140
Stationary Source Potential to Emit	0	0	51,917	0	173,074

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

Pursuant to Section 4.10 of District Rule 2201, the Post Project Stationary Source Potential to Emit (SSPE2) is the Potential to Emit (PE) from all units with valid Authorities to Construct (ATC) or Permits to Operate (PTO) at the Stationary Source and the quantity of emission reduction credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site.

Stationary Source Potential to Emit [SSPE2] (lb/year)					
Permit Unit	NO_X	SO_X	PM_{10}	CO	VOC
S-4697-8-2 Milk Parlor	0	0	0	0	2,400
S-4697-2-3 Cow Housing	0	0	51,917	0	71,073
S-4697-3-2 Liquid Manure	0	0	0	0	17,132
S-4697-4-2 Solid Manure	0	0	0	0	3,329
S-4697-9-0	930	2	13	1,842	0
S-4697-10-1 Feed	0	0	0	0	79,140
Stationary Source Potential to Emit	930	2	51,930	1,842	173,074

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

Pursuant to Section 3.25 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 3.25.2 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.

As determined in project S-1111433 all emissions from all permit units were fugitive except emissions from the lagoon, therefore emissioins from the turbine and lagoon will be used in determining if this facility is a major source.

Rule 2201 Major Source Determination (lb/year)					
	NO_X	SO_X	PM_{10}	CO	VOC
Facility emissions pre-project	0	0	0	0	10,125
Facility emissions – post project	930	2	13	1,842	10,125
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 or the equipment evaluated under this project is not listed as one of the categories specified in 40 CFR 52.21 (b)(1)(i). Therefore the following PSD Major Source thresholds are applicable.

PSD Major Source Determination (tons/year)						
	NO2	VOC	SO2	CO	PM	PM10
Estimated Facility PE before Project Increase	0	5	0	0	0	0
PSD Major Source Thresholds	250	250	250	250	250	250
PSD Major Source ? N	N	N	N	N	N	N

As shown above, 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)

The BE calculation (in lb/year) is performed on a pollutant-by-pollutant basis to determine the amount of offsets required, where necessary, when the SSPE1 is greater than the offset threshold. This project is exempt from offsets pursuant to Rule 2201, Section 4.6.9. Therefore, BE calculations are not required.

7. SB 288 Major Modification

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

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

8. Federal Major Modification

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

Since this facility is not a Major Source for any pollutants, this project does not constitute a Federal Major Modification. 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

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

- NO2 (as a primary pollutant)
- SO2 (as a primary pollutant)
- CO
- PM
- PM10

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

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

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

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

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

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

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

PSD Major Source Determination: Potential to Emit (tons/year)						
	NO2	VOC	SO2	CO	PM	PM10
Total PE from New and Modified Units	0	0	0	1	0	0
PSD Major Source threshold	250	250	250	250	250	250
New PSD Major Source?	N	N	N	N	N	N

*See Appendix E for CO2e Calculator

As shown in the table above, the project potential to emit, by itself, does not exceed any of the PSD major source thresholds. Therefore Rule 2410 is not applicable and no further discussion is required.

10. Quarterly Net Emissions Change (QNEC)

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

VIII. Compliance

Rule 1070 Inspections

This rule applies to any source operation, which emits or may emit air contaminants. This rule allows the District to perform inspections for the purpose of obtaining information necessary to determine whether air pollution sources are in compliance with applicable rules and regulations. The rule also allows the District to require record keeping, to make inspections and to conduct tests of air pollution sources.

Rule 2020 Exemptions

Prior to the passing of Senate Bill 700, agricultural operations were exempt from permits in California. With the passage of SB 700, as of January 1, 2004, agricultural operations

lost their exemption per District Rule 2020 (Exemptions, Section 9 [September 17, 1998]), and became subject to the provisions of District Rule 2010 (Permits Required), but shall not be subject to District Rule 2201 (New and Modified Stationary Source Review Rule), except for emission units that are being modified or replaced.

Rule 2201 New and Modified Stationary Source Review Rule

A. Best Available Control Technology (BACT)

1. BACT Applicability

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

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

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

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 turbine with a PE greater than 2 lb/day for NO_X CO and PM_{10}. BACT is triggered for NO_X and PM_{10}, since the PEs are greater than 2 lbs/day. However BACT is not triggered for CO since the SSPE2 for CO is not greater than 200,000 lbs/year, as demonstrated in Section VII.C.5 above.

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

As discussed in Section I above, this project does not involve the relocation of emission units from one stationary source to another.

***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 does not constitute an SB 288 and/or Federal Major Modification for any emissions. Therefore BACT is not triggered for any pollutant.

2. Top-Down BACT Analysis

Per Permit Services Policies and Procedures for BACT, a Top-Down BACT analysis shall be performed as a part of the application review for each application subject to the BACT requirements pursuant to the District's NSR Rule.

Pursuant to the attached Top-Down BACT Analysis (Appendix B), BACT has been satisfied with the following:

NOx: 0.88 lb-NOx/MMBtu

PM10: Ultra Low Sulfur Diesel

B. Offsets

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

C. Public Notification

1. Applicability

Public noticing is required for:
a. New Major Sources, Federal Major Modifications, and SB 288 Major Modifications,
b. Any new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any one pollutant,
c. Any project which results in the offset thresholds being surpassed, and/or
d. Any project with an SSIPE of greater than 20,000 lb/year for any pollutant.

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

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

As demonstrated in Sections VII.C.7 and VII.C.8, this project does not constitute an SB 288 or Federal Major Modification; therefore, public noticing for SB 288 or Federal Major Modification purposes is not required.

b. PE > 100 lb/day

The PE2 for this new unit is compared to the daily PE Public Notice thresholds in the following table:

PE > 100 lb/day Public Notice Thresholds			
Pollutant	PE2 (lb/day)	Public Notice Threshold	Public Notice Triggered?
NO_X	223.3	100 lb/day	Yes
SO_X	0.4	100 lb/day	No
PM_{10}	3.1	100 lb/day	No
CO	442.0	100 lb/day	Yes
VOC	0.1	100 lb/day	No

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

c. Offset Threshold

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

Offset Thresholds				
Pollutant	SSPE1 (lb/year)	SSPE2 (lb/year)	Offset Threshold	Public Notice Required?
NO_X	0	930	20,000 lb/year	No
SO_X	0	2	54,750 lb/year	No
PM_{10}	51,917	51,930	29,200 lb/year	No
CO	0	1,842	200,000 lb/year	No
VOC	173,074	173,074	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. SSIPE > 20,000 lb/year

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

SSIPE Public Notice Thresholds					
Pollutant	SSPE2 (lb/year)	SSPE1 (lb/year)	SSIPE (lb/year)	SSIPE Public Notice Threshold	Public Notice Required?
NO_x	930	0	930	20,000 lb/year	No
SO_x	2	0	2	20,000 lb/year	No
PM_{10}	51,930	51,917	13	20,000 lb/year	No
CO	1,842	0	1,842	20,000 lb/year	No
VOC	173,074	173,074	0	20,000 lb/year	No

As demonstrated above, the SSIPEs for all pollutants were less than 20,000 lb/year; therefore public noticing for SSIPE purposes is not required.

2. Public Notice Action

As discussed above, public noticing is required for this project for NO_X and CO emissions in excess of 100 lb/day. Therefore, public notice documents will be submitted to the California Air Resources Board (CARB) and a public notice will be published in a local newspaper of general circulation prior to the issuance of the ATC for this equipment.

D. Daily Emission Limits (DELs)

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

- Emissions from this turbine shall not exceed any of the following limits: 0.88 lb-NOx/MMBtu (0.01163 lb/kW-hr), 1.617 lb-CO/MMBtu (0.02302 lb/kW-hr), 0.012 lb-PM10/MMBtu (0.0001638 lb/kW-hr), 0.002 lb-SOx/MMBtu (0.00002121 lb/kW-hr) or 0.00041 lb-VOC/MMBtu (0.00000056 lb/kW-hr). [District Rule 2201]

In addition, the DEL for SO_X is established by the sulfur content of the fuel being combusted in the turbine. Therefore, the following condition will be listed on the ATC to ensure compliance:

- {3395} Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [District Rules 2201 and 4801]

E. Compliance Assurance

1. Source Testing

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

2. Monitoring

No monitoring is required to demonstrate compliance with District Rule 2201.

3. Recordkeeping

Recordkeeping is required to demonstrate compliance with the offset, public notification, and daily emission limit requirements of Rule 2201. As required by District Rule 4703 this turbine is subject to recordkeeping requirements. Recordkeeping requirements, in accordance with District Rule 4703, will be discussed in Section VIII, *District Rule 4703*, of this evaluation.

4. Reporting

No reporting is required to demonstrate compliance with Rule 2201.

F. Ambient Air Quality Analysis

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 A** of this document for the AAQA summary sheet.

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

The proposed location is in a non-attainment area for 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 2410 Prevention of Significant Deterioration

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

Rule 2520 Federally Mandated Operating Permits

This facility is currently not a major source, hence Rule 2520 does not apply.

Rule 4001 New Source Performance Standards (NSPS)

40 CFR 60 Subpart GG—Standards of Performance for Stationary Gas Turbines

§ 60.330 Applicability and designation of affected facility.

(a) The provisions of this subpart are applicable to the following affected facilities: All stationary gas turbines with a heat input at peak load equal to or greater than 10.7 gigajoules (10 million Btu) per hour, based on the lower heating value of the fuel fired.

(g) Emergency gas turbines, military gas turbines for use in other than a garrison facility, military gas turbines installed for use as military training facilities, and fire fighting gas turbines are exempt from paragraph (a) of this section.

Since this turbine is an emergency gas turbine the provisions of this subpart are not applicable.

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 In-house PTO 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.

The emissions from this operation are not expected to impose any comfort, repose, health, or safety problems to the public provided the equipment is properly maintained and operated.

The following conditions will be placed on the In-house Permit to Operate (PTO).

- {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 Analysis)

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

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

An HRA is not required for a project with a total facility prioritization score of less than or equal to one. According to the Technical Services Memo for this project (Appendix A), the total facility prioritization score including this project was less than or equal to one. Therefore, no future analysis is required to determine the impact from this project and compliance with the District's Risk Management Policy is expected.

Rule 4201 Particulate Matter Concentration

Rule 4201 requires that particulate matter emissions shall not exceed 0.1 grain per cubic foot of gas at dry standard condition. As shown by the following calculation, the proposed turbine will be in compliance with this limit:

PM emissions = E.F. (lb/MMBtu) x MMBtu/9,051 dscf x 7,000 grain/lb
= 0.012 lb/MMBtu x MMBtu/9,051 dscf x 7,000 grain/lb
= 0.01 grain/dscf

Rule 4301 Fuel Burning Equipment

Rule 4301 limits air contaminant emissions from *fuel burning equipment*. Section 3.1 defines *fuel burning equipment* as "any furnace, boiler, apparatus, stack, and all appurtenances thereto, used in the process of burning fuel for the primary purpose of producing heat or power by indirect heat transfer."

The turbine produces power mechanically, i.e. the products of combustion pass across the power turbine blades causing the turbine shaft to rotate. The turbine shaft is coupled to an electrical generator shaft, which is rotated to produce electricity. Because the turbine produces power by mechanical means, it does not meet the definition of fuel burning equipment; therefore, Rule 4301 does not apply to this project.

Rule 4703 Stationary Gas Turbines

The purpose of this rule is to limit oxides of nitrogen (NO_X) emissions from stationary gas turbine systems.

This rule applies to all stationary gas turbine systems with ratings equal to or greater than a maximum heat input rating of more than 3,000,000 Btu/hr.

Gas Turbine is defined in section 3.8 as an internal combustion engine consisting of a compressor, a combustor, and a power turbine, that is gas and/or liquid fueled, with or without power augmentation.

Pursuant to Section 4.2, except for the requirements of Sections 6.1 and 6.2, the requirements of this rule shall not apply to emergency standby units limited by permit condition to operate less than 100 hours per calendar year for maintenance and testing

purposes.

Section 3.8 defines emergency standby unit as a stationary gas turbine system that is limited by permit condition to be operated only as a mechanical or electrical power source for a facility when the primary power source for a facility has been rendered inoperable due to failure beyond the reasonable control of the operator, except due to power interruption pursuant to an interruptible power supply agreement.

Section 6.1 requires that the owner or operator of any existing stationary gas turbine system submit for approval an emissions control plan of all actions which will be taken to comply with the requirements of the applicable NO_X Compliance Limit in Section 6.0 and Compliance Schedule in Section 7.0.

This unit is not subject to the NO_X limits of Section 6.0 and compliance schedules in Section 7.0. Therefore, this current application satisfies the requirements of the Emission Control Plan. No further discussion is required.

Section 6.2.7 requires that the owner or operator shall maintain a stationary gas turbine system operating log for units exempt under Section 4.2 that includes, on a daily basis, the actual local start-up time and stop time, total hours of operation, and cumulative hours of operation to date for the calendar year.

The following conditions will be added to the ATC to ensure compliance.

- The permittee shall maintain an operating log that includes, on a daily basis, the actual local start-up time and stop time, total hours of operation, and cumulative hours of operation to date for the calendar year. [District Rule 4703]

- 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 4703]

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) = $\frac{10.73\,\text{psi}\cdot\text{ft}^3}{\text{lb}\cdot\text{mol}\cdot{}^\circ\text{R}}$

$$\frac{0.000015\,lb-S}{lb-fuel}\times\frac{7.1\,\text{lb}}{\text{gal}}\times\frac{64\,\text{lb}-SO_2}{32\,\text{lb}-S}\times\frac{1\,\text{MMBtu}}{9{,}051\,\text{scf}}\times\frac{1\,\text{gal}}{0.139\,\text{MMBtu}}\times\frac{\text{lb}-\text{mol}}{64\,\text{lb}-SO_2}\times\frac{10.73\,\text{psi}-\text{ft}^3}{\text{lb}-\text{mol}-{}^\circ\text{R}}\times\frac{520^\circ\text{R}}{14.7\,\text{psi}}\times 1{,}000{,}000 = \quad 1.0\ \text{ppmv}$$

Since 1.0 ppmv is ≤ 2,000 ppmv, this engine is expected to comply with Rule 4801.

The following condition will be listed on the In-house PTO to ensure continued compliance:

- Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [District Rules 4801 and 40CFR60.333]

California Health & Safety Code 42301.6 (School Notice)

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

California Environmental Quality Act (CEQA)

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 District adopted its *Environmental Review Guidelines* (ERG) in 2001. The basic purposes of CEQA are to:

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

Greenhouse Gas (GHG) Significance Determination

It is determined that no other agency has or will prepare an environmental review document for the project. Thus the District is the Lead Agency for this project.

The District's engineering evaluation (this document – Appendix E) demonstrates that the project would not result in an 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.

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.

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 § 15301 (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

Issue Authority To Construct S-4697-9-0 subject to the permit conditions listed on the attached draft Authority To Construct.

X. Billing Information

Fee Schedule			
Permit Number	Fee Schedule	Fee Description	Fee
S-4697-9-0	3020-08A-B	800 kW	$766

XI. Appendix

A: Health Risk Assessment and Ambient Air Quality Analysis
B: Top Down BACT Analysis and BACT Guideline XXX
C: Draft ATC (S-4697-9-0)
D: QNEC
E: Green House Gas Emission Calculator

Appendix A

Health Risk Assessment and Ambient Air Quality Analysis

San Joaquin Valley Air Pollution Control District
Risk Management Review
Revised

To:	Thom Maslowski – Permit Services
From:	Cheryl Lawler – Technical Services
Date:	July 8, 2010
Facility Name:	Southern Cross Dairy
Location:	26509 Lerdo Highway, Buttonwillow
Application #(s):	S-4697-9-0
Project #:	S-1083805

A. RMR SUMMARY

RMR Summary			
Categories	**Diesel-Fired Turbine (Unit 9-0)**	**Project Totals**	**Facility Totals**
Prioritization Score	**0.02***	0.02	0.02
Acute Hazard Index	N/A	N/A	N/A
Chronic Hazard Index	N/A	N/A	N/A
Maximum Individual Cancer Risk	N/A	N/A	N/A
T-BACT Required?	**No**		
Special Permit Conditions?	**No**		

*Project passed on prioritization with a score less than 1; therefore, no further analysis was required.

B. RMR REPORT

I. Project Description

Technical Services received a request on July 1, 2010, to re-run an Ambient Air Quality Analysis (AAQA) and a Risk Management Review (RMR) for an 800 kw diesel-fired solar saturn turbine powering an emergency standby generator. The AAQA and RMR are being re-run because of revised emission rates supplied by the processing engineer.

II. Analysis

For the Risk Management Review, toxic emissions from the turbine were calculated using CATEF emission factors for turbines fueled by distillate oil. In accordance with the District's *Risk Management Policy for Permitting New and Modified Sources* (APR 1905-1, March 2, 2001), risks from the proposed project were prioritized using the procedures in the 1990 CAPCOA Facility Prioritization Guidelines and incorporated in the District's HEART's database. The prioritization score was less than 1.0 (see RMR Summary Table). Therefore, no further analysis was required or performed for the Risk Management Review.

The following parameters were used for the review:

Analysis Parameters Unit 9-0			
Source Type	Point	**Closest Receptor (m)**	853.44
Stack Height (m)	2.13	**Closest Receptor Type**	Business
Inside Diameter (m)	0.46	**Project Location Type**	Rural
Gas Exit Temperature (K)	742	**Stack Gas Velocity (m/s)**	18.38

Technical Services also performed modeling for criteria pollutants CO, NOx, SOx, and PM_{10}; as well as the RMR. The emission rates used for criteria pollutant modeling were 18.42 lb/hr CO, 9.3 lb/hr NOx, 0.02 lb/hr SOx, and 0.48 lb/hr PM_{10}.

The results from the Criteria Pollutant Modeling are as follows:

Criteria Pollutant Modeling Results*
Values are in $\mu g/m^3$

Unit 9-0	1 Hour	3 Hours	8 Hours	24 Hours	Annual
CO	Pass	X	Pass	X	X
NO_x	Pass[2]	X	X	X	Pass
SO_x	Pass	Pass	X	Pass	Pass
PM_{10}	X	X	X	Pass[1]	Pass[1]

*Results were taken from the attached PSD spreadsheets.
[1]The criteria pollutants are below EPA's level of significance as found in 40 CFR Part 51.165 (b)(2).
[2]The criteria pollutant 1-hour value passed using TEIR II NO_2 NAAQS modeling.

III. Conclusion

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

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

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

Appendix B

Top Down BACT Analysis and BACT Guideline XXX

BACT Analysis
(New BACT Determination)
Emergency Diesel Fired Turbine

Processing Engineer: Thom Maslowski
& Jonah Aiyabei
Lead Engineer: Joven Refuerzo
Date: November 4, 2014

Facility Name: Southern Cross Dairy
Mailing Address: 26509 Lerdo Highway
Buttonwillow, CA 93206

Contact Person: George DeBoer
Phone: (661) 243-5604

Project #: S-1083805
Application #: S-4697-9-0

I. PROPOSAL

The primary business of Southern Cross Dairy is the production of milk from dairy cattle. In March of 2005 Southern Cross Dairy was issued an Inhouse Permit To Operate (PTO), project S-1042289, for a 800 KW diesel fired emergency turbine powering a generator. In December of 2005 the District conducted a determination of construction commencement, project S-1053640, in which the District determined that the turbine was installed in 2005 and was therefore subject to District permitting. The applicant then submitted an Authority To Construct (ATC) application, S-1083805, for the installation of a new diesel-fired emergency turbine powering a generator. The equipment triggers BACT for NOx and PM10 emission but since there is not a BACT for this class and category of source a new BACT determination will be developed.

II. PROJECT LOCATION

Southern Cross Dairy is located at 26509 Lerdo Highway in Buttonwillow.

III. EQUIPMENT LISTING

S-4697-9-0:

800 KW SOLAR SATURN (S/N: 10257) DIESEL-FIRED EMERGENCY STANDBY TURBINE POWERING AN ELECTRICAL GENERATOR

IV. PROCESS DESCRIPTION

The emergency standby turbine powers an electrical generator to provide backup power to the dairy's milking center in the event of grid power failure. Other than emergency standby

operation, the turbine may be operated up to 100 hours per year for maintenance and testing purposes.

IV. CONTROL EQUIPMENT EVALUATION

All five criteria pollutants (NO_X, SO_X, PM_{10}, CO, and VOC) are emitted from the turbine. The turbine is not equipped with any control devices; therefore, emissions will be considered as uncontrolled.

A. Best Available Control Technology (BACT) for Permit Unit S-4697-9-0:

Applicability

District Rule 2201 Section 4.1 states that 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, and/or
c) Modifications to an existing emissions unit with a valid Permit to Operate resulting in an AIPE exceeding two pounds per day.
d) When a Major Modification is triggered for a modification project at a facility that is a Major Source.

Section 4.2 states that BACT is not triggered for CO emissions if the facility's post project Stationary Source Potential to Emit (SSPE2) is less than 200,000 lb of CO per year.

NO_X, CO, VOC, PM_{10} and SO_X are generated from the combustion of diesel in the turbine. The following table outlines the emissions from the turbines operation.

PE Table	NO_X (lb/day)	SO_X (lb/day)	PM_{10} (lb/day)	CO (lb/day)	VOC (lb/day)
S-4697-9-0	223.3	0.4	3.1	442.0	0.1
BACT Triggered?	Yes	No	Yes	No	No

As shown in the table above, BACT is triggered for NO_x and PM_{10} emissions.

B. BACT Policy

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".

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

C. Top-Down BACT Analysis for Permit Unit S-4697-9-0

The Environmental Protection Agency (EPA), California Air Resources Board (CARB), San Diego County Air Pollution Control District (SDCAPCD), South Coast Air Quality Management District (SCAQMD), and Bay Area Air Quality Management District (BAAQMD) BACT clearinghouses were reviewed to determine potential control technologies for this class and category of operation. The SJVAPCD permit database was also searched for possible facilities within this class and category of operation. The following guidelines were found:

South Coast Air Quality Management District (SCAQMD) - (BACT) Guidelines for Non-Major Polluting Facilities - Emergency Gas Turbine:

NOx, SOx, and PM10: Clean Fuels Policy[1]

1. BACT Analysis for NO_X Emissions:

a. Step 1 - Identify all control technologies

The SJVUAPCD identifies the following alternatives for control of NO_X emissions from emergency diesel-fired turbines:

1) 0.88 lb-NOx/MMBtu (Achieved-in-Practice)
2) Selective Catalytic Reduction (Technological Feasible)
3) Emergency IC Engine (Alternative Basic Equipment)

Manufacturer emissions data for this type of turbine were not available; and it does not appear that similar turbines are still generally available in the market. Due to the unavailability of equipment-specific data, the NOx emission rate from AP42 Table 3.1-1 (uncontrolled distillate oil-fired turbine) will be used as the Achieved-in-Practice standard.

b. Step 2 - Eliminate technologically infeasible options

Selective catalytic reduction is infeasible for emergency turbines which operate intermittently. The SCR catalyst is not active at ambient temperatures. With intermittent operation (several startups and shutdowns) of the engine for emergencies, maintenance, testing, and regulatory

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[1] In January 1988, the AQMD Governing Board adopted a Clean Fuels Policy that included a requirement to use clean fuels as part of BACT/LAER. A clean fuel is one that produces air emissions equivalent to or lower than natural gas for NOx, SOx, ROG, and fine respirable particulate matter (PM10). Besides natural gas,other clean fuels are methanol, liquid petroleum gas (LPG), and hydrogen. The burning of landfill, digester, refinery and other by-product gases is not subject to the clean fuels requirement. However, the combustion of these fuels must comply with other AQMD rules, including the sulfur content of the fuel.The requirement of a clean fuel is based on engineering feasibility. Engineering feasibility considers the availability of a clean fuel and safety concerns associated with that fuel. Some state and local safety requirements limit the types of fuel, which can be used for emergency standby purposes. Some fire departments or fire marshals do not allow the storage of LPG near occupied buildings. Fire officials have, in some cases, vetoed the use of methanol in hospitals. If special handling or safety considerations preclude the use of the clean fuel, the AQMD has allowed the use of fuel oil as a standby fuel in boilers and heaters, and for emergency standby generators. The use of these fuels must meet the requirements of AQMD rules limiting NO_x and sulfur emissions.

requirements there may be a significant amount of time associated with catalyst inactivity i.e. little or no control of NOx during heat up of the catalyst.

Pursuant to FYI 98, when equipment requiring a permit is installed without an ATC, a current BACT analysis must be performed. If BACT did not exist at the time of installation, the BACT analysis is limited to the types of controls that can be applied to the specific equipment that was already installed. A Tier 2 IC Engine is not a type of control that can be applied to the specific turbine installed; therefore, an Alternate Basic Equipment cost analysis in not required.

c. Step 3 - Rank remaining options by control effectiveness

0.88 lb-NOx/MMBtu (Achieved-in-Practice)

d. Step 4 - Cost Effectiveness Analysis

The proposed alternative is 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 standby diesel turbine is 0.88 lb-NOx/MMBtu.

2. BACT Analysis for PM10 Emissions:

a. Step 1 - Identify all control technologies

The SJVUAPCD identifies the following alternatives for control of PM10 emissions from emergency diesel turbines:

1) Ultra Low Sulfur Diesel[2] (Achieved-in-Practice)
2) Emergency IC Engine (Alternative Basic Equipment)

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

b. Step 2 - Eliminate technologically infeasible options

Pursuant to FYI 98, when equipment requiring a permit is installed without an ATC, a current BACT analysis must be performed. If BACT did not exist at the time of installation, the BACT analysis is limited to the types of controls that can be applied to the specific equipment that was already installed. A Tier 2 IC Engine is not a type of control that can be applied to the specific turbine installed; therefore, an Alternate Basic Equipment cost analysis in not required.

c. Step 3 - Rank remaining options by control effectiveness

Ultra Low Sulfur Diesel

d. Step 4 - Cost Effectiveness Analysis

The most stringent alternative has been proposed. Therefore, per SJVUAPCD BACT policy, the cost effectiveness analysis is not required.

e. Step 5 - Select BACT

Ultra Low Sulfur Diesel

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[2] Diesel fuel containing not more than 15 ppm Sulfur by weight, pursuant to California diesel fuel regulations.

Proposed Pages for the BACT Clearinghouse

San Joaquin Valley
Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline X-XX*

Emission Unit: Diesel-fired Emergency Standby Turbine

Industry Type: Dairy

Equipment Rating: All

Last Update: TBD

Pollutant	Achieved in Practice or contained in SIP	Technologically Feasible	Alternate Basic Equipment
NO_x	0.88 lb-NOx/MMBtu		IC Engine (Latest EPA Tier Certification level for applicable horsepower range)
PM_{10}	Ultra Low Sulfur Diesel		IC Engine (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.

***This is a Summary Page for this Class of Source - Permit Specific BACT Determinations on Next Page(s)**

San Joaquin Valley
Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline X.XX

Emission Unit: Diesel-fired Emergency Standby Turbine

Equipment Rating: All

Facility: Southern Cross Dairy

References: ATC #: S-4697-9-0
Project #: S-1083805

Location: 26509 Lerdo Highway, Buttonwillow.

Date of Determination: TBD

Pollutant	BACT Requirements
VOC	BACT NOT TRIGGERED
SO_x	BACT NOT TRIGGERED
NO_x	0.88 LB/MMBTU
CO	BACT NOT TRIGGERED
PM_{10}	ULTRA LOW SULFUR DIESEL

BACT Status:

X Achieved in practice __ Small Emitter __ T-BACT
__ Technologically feasible BACT
__ At the time of this determination achieved in practice BACT was equivalent to technologically feasible BACT
__ Contained in EPA approved SIP
X The following technologically feasible option was not technologically feasible: SCR
__ Alternate Basic Equipment
__ The following alternate basic equipment was not cost effective:

BACT CLEARINGHOUSE

--Submission Form--

Category

Source Category

Dairy Farm

SIC Code	0241	**View SIC Code List**
NAICS Code	112120	View NAICS Code List

Emission Unit Information

Manufacturer	Solar Turbines Inc.
Type	Saturn Gas Turbine
Model	N/A
Equipment Description	800 kW diesel-fired emergency standby turbine powering an electrical generator.
Capacity/Dimensions	
Fuel Type	Diesel
Multiple Fuel Types	
Operating Schedule	Emergency: 24 hrs/day; Non-emergency: 100 hrs/yr
Function of Equipment	The emergency standby turbine powers an electrical generator to provide backup power to the dairy's milking center in the event of grid power failure. Other than emergency standby operation, the turbine may be operated up to 100 hours per year for maintenance and testing purposes.

Facility/District Information

Facility Name	Southern Cross Dairy
Facility County	Kern
Facility Zip Code	93206
District Contact	Arnaud Marjollet, San Joaquin Valley Air Pollution District
District Contact Phone	(559) 230-6000
District Contact E-mail	arnaud.marjollet@valleyair.org

Project/Permit Information

Application or Permit Number	S-4697-9-0
New Construction/Modification	New Construction
ATC Date (mm-dd-yyyy)	TBD
PTO Date (mm-dd-yyyy)	TBD

Startup Date (mm-dd-yyyy)	TBD
Technology Status	Achieved in Practice
Source Test Available	No
Source Test Results	No

BACT Information

Pollutant Limit(s) and Control Method(s) – Please include proper units

NOx	Limit: 0.88 Units: lb/MMBtu Averaging Time: Control Method Type: Uncontrolled Control Method Description:
CO	Limit: Units: Averaging Time: Control Method Type: Control Method Description:
VOC	Limit: Units: Averaging Time: Control Method Type: Control Method Description:
PM	Limit: Units: Averaging Time: Control Method Type: Control Method Description:
PM 2.5	Limit: Units: Averaging Time: Control Method Type: Control Method Description:
PM 10	Limit: 0.012 Units: lb/MMBtu Averaging Time: Control Method Type: Uncontrolled Control Method Description:
SOx	Limit: Units: Averaging Time: Control Method Type: Control Method Description:
NH_3	Limit: Units: Averaging Time: Control Method Type: Control Method Description:

Appendix C

Draft Authority to Construct (S-4697-9-0)

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: S-4697-9-0

ISSUANCE DATE: DRAFT

LEGAL OWNER OR OPERATOR: SOUTHERN CROSS DAIRY
MAILING ADDRESS: P O BOX 757
BUTTONWILLOW, CA 93206

LOCATION: SW CORNER OF ROWLEE RD AND LERDO HWY
BUTTONWILLOW, CA

EQUIPMENT DESCRIPTION:
800 KW SOLAR SATURN (S/N: 10257) DIESEL-FIRED EMERGENCY STANDBY TURBINE 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. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
3. {15} No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]
4. Emissions from this turbine shall not exceed any of the following limits: 0.88 lb-NOx/MMBtu (0.01163 lb/kW-hr), 1.617 lb-CO/MMBtu (0.02302 lb/kW-hr), 0.012 lb-PM10/MMBtu (0.0001638 lb/kW-hr), 0.002 lb-SOx/MMBtu (0.00002121 lb/kW-hr) or 0.00041 lb-VOC/MMBtu (0.00000056 lb/kW-hr). [District Rule 2201]
5. This turbine shall be equipped with an operational non-resettable elapsed operating time meter or other APCO approved alternative. [District Rules 2201 and 4703]
6. This turbine shall be operated only for testing and maintenance, required regulatory purposes, and during emergency situations. Non-emergency operation of the turbine for maintenance, testing, and required regulatory purposes shall not exceed 100 hours per calendar year. [District Rule 4703]
7. 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 4703]
8. This turbine 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 4703]

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-4697-9-0 : Nov 4 2014 3:54PM – AIYABEJ : Joint Inspection NOT Required

9. Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [District Rule 4801 and 40CFR60.333]

10. The permittee shall maintain an operating log that includes, on a daily basis, the actual local start-up time and stop time, total hours of emergency and non-emergency operation, the purpose of the operation (e.g., load testing, weekly testing, rolling blackout, general area power outage, etc.), and cumulative hours of operation to date for the calendar year. [District Rule 1070 and 4703]

11. 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 4703]

Appendix D

QNEC

Quarterly Net Emissions Change (QNEC)

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

QNEC = PE2 - PE1, where:

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

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

$PE2_{quarterly}$ = $PE2_{annual}$ ÷ 4 quarters/year
= 13 lb/year ÷ 4 qtr/year
= 4 lb PM_{10}/qtr

$PE1_{quarterly}$ = $PE1_{annual}$ ÷ 4 quarters/year
= 0 lb/year ÷ 4 qtr/year
= 0 lb PM_{10}/qtr

Quarterly NEC [QNEC]			
	PE2 (lb/qtr)	PE1 (lb/qtr)	QNEC (lb/qtr)
NO_X	232.5	0	232.5
SO_X	1	0	1
PM_{10}	4	0	4
CO	461	0	461
VOC	0	0	0

Appendix E

Green House Gas Emission Calculator

Greenhouse Gas Emissions from IC Engines

CO2e Emission Factors for IC Engines						
Fuel Type	IC Engine Efficiency (%)	EF CO2e (kg/MMBtu)	EF CO2e (kg/bhp-hr$_{out}$)	EF CO2e (metric ton/bhp-hr$_{out}$)	EF CO2e (lb/bhp-hr$_{out}$)	EF CO2e (short ton/bhp-hr$_{out}$)
Diesel Fuel	35%	74.209	0.53984905	0.000539849	1.190163427	0.000595082
LPG	35%	63.229	0.45997272	0.000459973	1.014066264	0.000507033
Natural Gas	35%	53.072	0.386083477	0.000386083	0.851168368	0.000425584
Gasoline (motor)	35%	70.469	0.51264163	0.000512642	1.130181333	0.000565091

Emission Factors source: 40 CFR Part 98 and California ARB Regulation for the Mandatory Reporting of GHG Emissions

Calculations:

CO2e (metric ton/yr) = Horsepower (bhp) x Annual Operating Hours (hr/yr) x EF CO2e (metric ton/bhp-hr$_{out}$)

CO2e (short ton/yr) = Horsepower (bhp) x Annual Operating Hours (hr/yr) x EF CO2e (short ton/bhp-hr$_{out}$)

For CEQA purposes, use CO2e (metric ton/yr)
For PSD purposes, use CO2e (short ton/yr)

CO2e Emissions From IC Engines								
Permit Unit(s)	Horsepower (bhp)	Annual Operating Hours (hr/yr)	Fuel Type	# of Engines in Row if More Than 1 (e.g 2, 3, 4, ...)	EF CO2e (metric ton/bhp-hr$_{out}$)	EF CO2e (short ton/bhp-hr$_{out}$)	CO2e (metric ton/yr)	CO2e (short ton/yr)
S-4697	1,073	100	Diesel Fuel	1	0.000539849	0.000595082	58	64
						Total	58	64