

MAY 26 2016

Carolyn Grant
Sycamore Cogeneration Facility
P O Box 80598
Bakersfield, CA 93380

Re: Notice of Preliminary Decision – Emission Reduction Credits
Facility Number: S-511
Project Number: S-1123816

Dear Ms. Grant:

Enclosed for your review and comment is the District's analysis of Sycamore Cogeneration Facility's application for Emission Reduction Credits (ERCs) resulting from reducing the permitted operation of four gas turbine engines, in Central Kern County. The quantity of ERCs proposed for banking is 355,338 metric tons CO₂e/yr.

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 comment period, the District intends to issue the ERCs. 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. Dan Klevann of Permit Services at (661) 392-5500.

Sincerely,



Arnaud Marjollet
Director of Permit Services

AM:dk

Enclosures

cc: Tung Le, CARB (w/enclosure) via email
cc: Gerardo C. Rios, EPA (w/enclosure) via email

Seyed Sadredin
Executive Director/Air Pollution Control Officer

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

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

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

San Joaquin Valley Air Pollution Control District
ERC Application Review - Greenhouse Gases
Reduction in Gas Turbine Engine Use

Facility Name: Sycamore Cogeneration Company

Date: May 11, 2016

Mailing Address: P O Box 80598
Bakersfield, CA 93380

Engineer: Dan Klevann

Lead Engineer: *L. Scardina 5/11/16*

Contact Person: Neil Burgess

Telephone: (661) 615-4630

Project #: S-1123816

Received: December 27, 2011

Deemed Complete: March 10, 2014

ERC #: S-4320-24

I. Summary

Sycamore Cogeneration Company (Sycamore) has reduced permitted operation of four gas turbine engines (GTE) at their operation in the Kern River oilfield. Sycamore is requesting an emission reduction credit (ERC) banking certificate for CO₂e. The primary business of this facility is steam and electricity generation. Sycamore has also submitted an application to bank the emission reduction credits (ERCs) for the actual emission reductions (AER) of the NO_x emissions (ERC Project S-1114928).

Selection of Geographical Boundary for Determining Permanence of the GHG Emission Reduction

Rule 2301 contains several eligibility criteria for emission reduction credit banking, including that the emission reduction must be permanent. When determining the geographical boundary in which the emission reduction is determined to be permanent, the applicant may consider how the GHG ERC may likely be used.

Please note that while Rule 2301 allows facilities to receive ERCs for GHG emission reductions, the District does not have any requirements on the use of GHG ERCs. However, it is anticipated that the likely uses of such GHG ERCs would be their future retirement as GHG mitigation in the California Environmental Quality Act (CEQA) process.

Pursuant to CEQA, lead agencies must consider the environmental impact of GHG emissions from a project and may require that such GHG emissions be mitigated. In evaluating various mitigation techniques, including the retirement of GHG ERCs, the lead agency must determine if the proposed mitigation technique adequately mitigates the projects GHG emission increase.

When a lead agency determines if the retirement of a particular GHG ERC provides adequate GHG mitigation for a project, the lead agency may choose to consider the location where the GHG ERC was generated and the geographical boundary used to determine the permanence of the emission reduction. In making this determination, the lead agency may conclude that the retirement of a particular GHG ERC would provide adequate mitigation for projects within that same geographical boundary. Again, that determination will be made by the lead agency for any particular project.

For this application, the facility has selected California as the geographical boundary for which the emission reduction is permanent. Sycamore has provided data showing the decline in California Oil Production from 1995 to 2012. The power and steam produced by the GTE's was used for oil production in the Kern River oilfield(see Appendix B). Additionally, Sycamore is an entity covered by California Cap and Trade (AB32), AB32 requires California to return to 1990 levels of greenhouse gas emissions by 2020. This information validates California as the geographical boundary selection for a permanent GHG emission reduction.

The following emission reductions have been found to qualify for banking:

GHG ERCs		
ERC Certificate	Pollutant	Amount
S-4320-24	CO ₂ e	355,338 metric tons/year

II. Applicable Rules

Rule 2301 Emission Reduction Credit Banking (1/19/12)

III. Location of Reduction

The equipment is located at Sycamore's facility in the Kern River Oilfield within Chevron's Kern County Heavy Oil Central stationary source. The location is below.

ERC: S-4320-24

S-511-1: Section 31, Township 28S, Range 28E

S-511-2: Section 31, Township 28S, Range 28E

S-511-3: Section 31, Township 28S, Range 28E

S-511-4: Section 31, Township 28S, Range 28E

IV. Method of Generating Reductions

The emission reductions are being generated by reducing the allowable usage and resulting NOx emissions from the four natural gas fired GE gas turbines. This NOx limit is only achieved by reducing the fuel combusted in the turbines. The reduction in fuel burned results in a reduction in GHG produced.

Equipment Description

PTO	Equipment
S-511-1	75 MW GENERAL ELECTRIC MODEL 7EA NATURAL GAS-FIRED COMBUSTION TURBINE COGENERATION UNIT WITH GE ENHANCED DRY LOW NOX DLN1+ COMBUSTOR TECHNOLOGY DISCHARGING TO ATMOSPHERE THROUGH A BYPASS STACK WHEN OPERATED IN SIMPLE CYCLE MODE OR THROUGH UNFIRED 450,000 LB/HR HEAT RECOVERY STEAM GENERATOR WHEN OPERATED IN COGENERATION MODE (SYCAMORE UNIT #1)
S-511-2	75 MW GENERAL ELECTRIC MODEL 7EA NATURAL GAS-FIRED COMBUSTION TURBINE COGENERATION UNIT WITH GE ENHANCED DRY LOW NOX DLN1+ COMBUSTOR TECHNOLOGY DISCHARGING TO ATMOSPHERE THROUGH A BYPASS STACK WHEN OPERATED IN SIMPLE CYCLE MODE OR THROUGH UNFIRED 450,000 LB/HR HEAT RECOVERY STEAM GENERATOR WHEN OPERATED IN COGENERATION MODE (SYCAMORE UNIT #2)
S-511-3	75 MW GENERAL ELECTRIC MODEL 7EA NATURAL GAS-FIRED COMBUSTION TURBINE COGENERATION UNIT WITH GE ENHANCED DRY LOW NOX DLN1+ COMBUSTOR TECHNOLOGY DISCHARGING TO ATMOSPHERE THROUGH A BYPASS STACK WHEN OPERATED IN SIMPLE CYCLE MODE OR THROUGH UNFIRED 450,000 LB/HR HEAT RECOVERY STEAM GENERATOR WHEN OPERATED IN COGENERATION MODE (SYCAMORE UNIT #3)
S-511-4	75 MW GENERAL ELECTRIC MODEL 7EA NATURAL GAS-FIRED COMBUSTION TURBINE COGENERATION UNIT WITH GE ENHANCED DRY LOW NOX DLN1+ COMBUSTOR TECHNOLOGY DISCHARGING TO ATMOSPHERE THROUGH A BYPASS STACK WHEN OPERATED IN SIMPLE CYCLE MODE OR THROUGH UNFIRED 450,000 LB/HR HEAT RECOVERY STEAM GENERATOR WHEN OPERATED IN COGENERATION MODE (SYCAMORE UNIT #4)

V. Calculations

A. Assumptions and Emission Factors

Assumptions

The actual emissions will be calculated annually in the baseline period. The Historical Actual Emissions (HAE) will be calculated using actual fuel use data and actual CO₂ source test emissions factors.

The applicant provided monthly fuel use data for the subject GTE's.

- Units of GHG AER is metric tons of CO₂e per year, rounded to the nearest metric ton
- 1,000 kg = 1 metric ton = 2,205 lbs.
- 1 therm of Natural Gas = 100 scf
- The facility provided actual CO₂ emissions from source tests (see values below). The CH₄ and N₂O portions were not supplied. Therefore, the CH₄ and N₂O portions will not be included in the historical actual emissions calculations.
- The District standard CO₂e emission factor including CH₄ and N₂O portions will be used to calculate the post project potential CO₂e emissions.

Emission Factors (EF)

The facility has provided source test results(see Appendix C) encompassing the baseline period which shows the CO₂ emission factors. We will use the actual CO₂ source test values for calculating the amount of baseline emissions from each unit.

Unit	S-511-1	S-511-2	S-511-3	S-511-4
Source Test	CO ₂ lb/MMBtu			
2/28/06	122	123	122	123
2/20/07	125	126	126	126
4/24/08	119	124	119	118

The District standard CO₂e equivalent emission factor is from the District's Spreadsheet "ARB – Greenhouse Gas Emissions factors" will be used to calculate post project potential CO₂e emissions and is listed below.

$$EF_{CO_2e} = 52.9199 \text{ KG/MMBtu}$$

$$EF_{CO_2e} = 52.9199 \text{ KG/MMBtu} \times (1 \text{ metric ton} / 1000 \text{ kg})$$

$$EF_{CO_2e} = \mathbf{0.0529 \text{ metric tons/MMBtu}}$$

B. Baseline Period Determination

Pursuant to Rule 2301 section 4.5.4, the Baseline Period is the following:

The consecutive 24 month period immediately prior to the date the emission reduction occurred, or another consecutive 24 month period in the 60 months prior to the date the emission reduction occurred.

The original ERC Banking Project S-511, 1114928 specified the baseline period. Since the District has already established this as the correct baseline period for the criteria pollutant emission reductions that have already been evaluated and issued, the same baseline period is used for this evaluation.

The following baseline period was calculated (See fuel usage records in Appendix D, Calculations in Appendix E).

Baseline Period		
Location	Permit Unit	Dates
Sycamore Cogeneration (S31, T28S, R28E)	S-511-1	January 2007 – December 2008
	S-511-2	
	S-511-3	
	S-511-4	

C. Baseline Data

The baseline fuel use is determined from the fuel usage records supplied by the applicant(Appendix D).

Baseline Fuel Usage	
Year	Annual Fuel Use (MMBtu)
2007	32,542,838
2008	26,462,122

D. Historical Actual Emissions (HAE)

The HAE from the fuel use is determined by multiplying the fuel-use by the appropriate emission factor from the source test as presented above. The emission factor changes with the source tests as well as with each turbine. Therefore, the HAE will be calculated each month and added together for the yearly HAE. The emissions from each turbine will be calculated and added together to find the total actual annual emissions for the baseline

period then the 2-yr baseline period will be averaged for the yearly actual emissions. A sample calculation is shown below. The full calculations are in Appendix E.

Sample calculation:

Permit S-511-1, January, 2007:

$$\text{CO}_2\text{e} = [(\text{EF}) \times (\text{Fuel Heat Input})]$$

$$\text{CO}_2\text{e} = [(122 \text{ lb/MMbtu}) \times (742,580 \text{ MMbtu}) = 90,594,760 \text{ lb CO}_2\text{e}$$

CO ₂ e HAE		
Total HAE	3,659,338,254	Lb CO ₂ e/yr
Total HAE	1,659,564	Mt CO ₂ e/yr

E. Post Project Potential to Emit (PE2)

As discussed above, the turbines in this project have an annual specific limiting condition on all four units of 271,200 lb NO_x/yr. (see Appendix A). The CO₂e emissions are calculated by using the NO_x limit, CO₂e emission factor, and NO_x emission factor. The potential emissions from all four turbines are 1,304,225 Mt Co₂e / yr. (see Appendix E).

F. Emission Reductions Eligible for Banking

The emission reductions eligible for banking are the difference between the historical actual emissions and the potential to emit after the project.

$$\begin{aligned} \text{ERCs eligible for banking} &= 1,659,564 \text{ Mt CO}_2\text{e/year} - 1,304,225 \text{ Mt CO}_2\text{e/year} \\ &= 355,338 \text{ Mt CO}_2\text{e/year} \end{aligned}$$

VI. Compliance

Rule 2301 – Emission Reduction Credit Banking

Per District Rule Section 4.5, the following criteria must be met in order to deem such reductions eligible for banking:

4.5.1 The greenhouse gas emission reduction must have actually occurred on or after January 1, 2005, except as allowed in specific CARB approved GHG emission reduction project protocols.

The emission reductions occurred when the facility had stopped operating the turbines in a full time status. Sycamore had applied to change the permits in December 2011. As the emission reduction occurred after 1/1/05, this criteria has been satisfied.

4.5.2 The greenhouse gas emission reductions must have occurred within the San Joaquin Valley Unified Air Pollution Control District.

The emissions occurred at Sycamore's facility in the Kern River Oilfield within Chevron's Kern County Heavy Oil Central stationary source. Since this location is within the District, this criteria has been satisfied.

4.5.3 The greenhouse gas emission reductions are real, surplus, permanent, quantifiable, and enforceable, except as provided in Section 4.5.5.

Real:

The GHG emission reductions were generated by limitations of operation of the GTE's. The AER quantified above are based on actual, historical emissions and were calculated from actual fuel use data and source tests emission factors. The gas turbines have a new annual NOx emission limitation that inherently limits fuel use. Therefore, the AER due to limiting the turbines operation is real.

Surplus:

The facility is subject to the CARB cap and trade regulation; however, the reductions occurred prior January 1, 2012; therefore, the emission reductions satisfy the surplus requirement in Section 4.5.3.1.

The facility is subject to the CARB cap and trade regulation; however, the reductions occurred prior to the baseline period of cap and trade. Therefore, the emission reductions satisfy the surplus requirement in Section 4.5.3.2.

The emission reductions are not the result of an action taken by the permittee to comply with any requirement. The emission reductions are surplus and additional of all requirements. Therefore, the emission reductions satisfy the surplus requirement in section 4.5.3.4.

The Certificates will be identified according to Section 6.15.3 below.

Permanent:

When determining the geographical boundary in which the emission reduction is determined to be permanent, the applicant may consider how the GHG ERC may likely be used.

Please note that the while Rule 2301 allows facilities to receive ERCs for GHG emission reductions, the District does not have any requirements on the use of GHG ERCs. However, it is anticipated that the likely uses of such GHG ERCs would be their future retirement as GHG mitigation in the CEQA process.

Pursuant to CEQA, lead agencies must consider the environmental impact of GHG emissions from a project and may require that such GHG emissions be mitigated. In evaluating various mitigation techniques, including the retirement of GHG ERCs, the lead agency must determine if the proposed mitigation technique adequately mitigates the projects GHG emission increase.

When a lead agency determines if the retirement of a particular GHG ERC provides adequate GHG mitigation for a project, the lead agency may choose to consider the location where the GHG ERC was generated and the geographical boundary used to determine the permanence of the emission reduction. Then in making this determination, the lead agency may conclude that the retirement of a particular GHG ERC would provide adequate mitigation for projects within that same geographical boundary. Again, that determination will be made by the lead agency for a particular project.

Sycamore has selected California as the geographical boundary for which the emission reduction is permanent. Sycamore/Chevron has provided information verifying that the total oil production in the state of California has been in decline since 1985 (see graph in Appendix C). Additionally, Sycamore/Chevron is subject to the California Cap-and-Trade regulation which requires Chevron to reduce or mitigate a permanent reduction in GHG emissions. The combination of the decline in oil production in California and the reductions required by California's Cap-and-Trade regulation verify that the reductions are permanent within California. The geographical boundary for the ERCs will be the State of California and the ERC will include the following identifier:

"Shutdown of the gas turbines are verified as permanent within the State of California"

Quantifiable:

The actual emissions were calculated from historic fuel-use records and accepted emission factors. Therefore, the emission reductions are quantifiable and have been quantified.

Enforceable:

The gas turbines have an annual NOx emission limit on their permits which limits the fuel used in the turbines. Operation of the equipment resulting in NOx emissions over the allowable annual limit would subject the permittee to enforcement action. Therefore, the emission reductions are enforceable.

- 4.5.4** Greenhouse gas emission reductions are calculated as the difference between the historic annual average greenhouse gas emissions (as CO2E) calculated using the consecutive 24 month period immediately prior to the date the emission reduction occurred, or another consecutive 24 month period in the 60 months prior to the date the emission reduction occurred if determined by the APCO as being more representative of normal operations, and the potential greenhouse gas emissions (as CO2E) after the project is complete, except as provided in section 4.5.5.

The GHG emission reductions were calculated according to the baseline period identified above. The turbines have permit conditions which restrict the NOx emissions and thus the GHG emissions from the four combined units. The post-project GHG emissions are calculated above.

- 4.5.5** Greenhouse gas emission reductions proposed to be quantified using CARB approved emission reduction project protocols shall be calculated in accordance with the applicable protocol.

Since the GHG emission reductions are not subject to an applicable CARB-approved emission reduction project protocol, this section is not applicable.

- 4.5.6** Emission reduction credits shall be made enforceable through permit conditions. If the District, pursuant to state laws, is prohibited from permitting the emission unit, the source creating the greenhouse gas emission reduction shall execute a legal binding contract with the District which ensures that the emission reductions will be generated in accordance with the provisions of this rule, and shall continue for the reasonably

The steam turbines hold a legal District operating permit. Since the operation of the steam turbines more than the allowable NOx limit would require a new Authority to Construct, as discussed above the emission reduction is enforceable.

Section 5 identifies ERC Certificate application procedures.

Section 5.5.2 requires, for emission reductions occurring prior to 1/19/12, applications for ERCs must be submitted by 7/19/12.

The greenhouse gas ERC application was submitted on 12/27/2011 as part of project S1114928, therefore the application is timely.

Section 6.15 specifies the registration requirements for GHG ERCs.

Section 6.15.13 requires, the emission reductions are surplus and additional of all requirements pursuant to Section 4.5.3.4. Therefore the ERC certificate shall include the following notation:

“This emission reduction is surplus and additional to all applicable regulatory requirements.”

Compliance with Rule 2301 has been demonstrated and no adjustments are required under this Rule.

VII. Recommendation

Issue the ERC Certificate in the amount posted in the table below and on the Draft ERC Certificate in Appendix F.

GHG ERCs		
ERC Certificate	Pollutant	Amount
S-4320-24	CO ₂ e	355,338 metric tons/year

List of Appendixes

- A. Current PTO's
- B. California production
- C. Source Test Data
- D. Fuel use data
- E. Calculations
- F. Draft ERC

Appendix A
Current PTO

San Joaquin Valley Air Pollution Control District

PERMIT UNIT: S-511-1-17

EXPIRATION DATE: 11/30/2015

SECTION: 31 **TOWNSHIP:** 28S **RANGE:** 28E

EQUIPMENT DESCRIPTION:

75 MW GENERAL ELECTRIC MODEL 7EA NATURAL GAS-FIRED COMBUSTION TURBINE COGENERATION UNIT WITH GE ENHANCED DRY LOW NOX DLN1+ COMBUSTOR TECHNOLOGY DISCHARGING TO ATMOSPHERE THROUGH A BYPASS STACK WHEN OPERATED IN SIMPLE CYCLE MODE OR THROUGH UNFIRED 450,000 LB/HR HEAT RECOVERY STEAM GENERATOR WHEN OPERATED IN COGENERATION MODE (SYCAMORE UNIT #1)

PERMIT UNIT REQUIREMENTS

1. Excess emissions indicated by the CEM system shall be considered violations of the applicable emission limit for the purposes of this permit. [PSD SJ 85-09] Federally Enforceable Through Title V Permit
2. The CGT combustors shall be a dry low NOx design capable of achieving 3 ppm or lower at 15% O2. [PSD SJ 85-09, X.B] Federally Enforceable Through Title V Permit
3. Sulfur compound emissions shall not exceed 0.015% by volume, 150 ppmv, on a dry basis averaged over 15 consecutive minutes. [40 CFR 60.333(a) and Kern County Rule 407] Federally Enforceable Through Title V Permit
4. Exhaust gas particulate matter concentration shall not exceed 0.0072 gr/scf calculated at 12% CO2. [District NSR Rule] Federally Enforceable Through Title V Permit
5. Emission rates from CGT shall not exceed any of the following: PM10 - 5.0 lb/hr, SOx (as SO2) - 0.9 lb/hr, or VOC - 2.5 lb/hr. [District Rule 2201] Federally Enforceable Through Title V Permit
6. Emission rates from CGT shall not exceed any of the following: PM10 - 120.0 lb/day, SOx (as SO2) - 21.6 lb/day, NOx (as NO2) - 552.8 lb/day, VOC - 60.0 lb/day, or CO - 1056.0 lb/day. [District Rule 2201 and PSD SJ 85-09, X.E] Federally Enforceable Through Title V Permit
7. Emission rates from CGT, except during startup, shutdown, tuning start-up, and/or reduced load periods, shall not exceed any of the following: NOx (as NO2) - 3 ppmvd @ 15% O2, 12.4 lb/hr on a 3-hr avg, or CO - 25 ppmvd @ 15% O2, 44.0 lb/hr on a 3-hr avg. [District Rules 2201 and 4703, 5.1.2 & 5.2; and PSD SJ 85-09, X.E] Federally Enforceable Through Title V Permit
8. NO2 and CO daily emissions during days of startup/shutdown shall be calculated from natural gas combustion rates and CEM results. [District Rule 1080] Federally Enforceable Through Title V Permit
9. During startup, shutdown, and tuning start-up, emissions shall not exceed any of the following: 140.0 lb/hr of NOx on a 2-hr avg, 140 lb/hr of CO on a 2-hr avg, or 200 lb/hr of CO on a 1-hr avg. [District Rule 2201] Federally Enforceable Through Title V Permit
10. Annual NOx emissions (as NO2) from all four CTG's (S-511-1, S-511-2, S-511-3, and S-511-4) calculated on a twelve month rolling basis shall not exceed 271,200 lb NOx / yr. [District Rule 2201] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE
These terms and conditions are part of the Facility-wide Permit to Operate.

11. Startup shall be defined as the period of time during which a unit is brought from a shutdown status to its operating temperature and pressure, including the time required by the unit's emission control system to reach full operations. Shutdown shall be defined as the period of time during which a unit is taken from an operational to a non-operational status as the fuel supply to the unit is completely turned off. [District Rule 4703, 3.29 and 3.26] Federally Enforceable Through Title V Permit
12. A tuning start-up shall be defined as "the period after a combustor unit replacement in which dynamic performance testing and corresponding operating optimization set point adjustment of the combustion system of the CGT is performed to meet the limits of this permit and Rule 4703". A tuning start-up period shall not exceed a time period of 12 consecutive hours per occurrence. [District Rule 4703, 5.3] Federally Enforceable Through Title V Permit
13. The duration of each startup or each shut down time shall not exceed two hours. Startup and shutdown emissions shall be counted toward all applicable emission limits. [District Rule 4703, 5.3.1] Federally Enforceable Through Title V Permit
14. Operations during periods of startup, shutdown, and tuning startup shall not constitute representative conditions for the purpose of a NOx performance test nor shall NOx emissions in excess of the level of the emission limit shown in this permit during periods of startup and shutdown be considered a violation of the applicable emission limit unless otherwise specified in the applicable standard. [40 CFR 60.8(c)] Federally Enforceable Through Title V Permit
15. Each CGT shall have a maximum heat input rate of 1020 MMBTU/hr on an LHV basis. Firing rate can be increased upon District witnessed emission sampling demonstration that compliance with emission sampling limits can be achieved at higher fuel rates. [District NSR Rule] Federally Enforceable Through Title V Permit
16. Permit unit shall include one unfired heat recovery steam generator (HRSG) for gas turbine engine assembly with rated steam output of 450,000 lb/hr at 80% quality steam production. [District NSR Rule] Federally Enforceable Through Title V Permit
17. CGT may exhaust either through unfired 450,000 lb/hr heat recovery steam generator or through bypass stack. [District NSR Rule] Federally Enforceable Through Title V Permit
18. When operating in cogeneration mode, exhaust gas ducting from CGT's through HRSG's to the atmosphere shall be gas-tight. [District NSR Rule] Federally Enforceable Through Title V Permit
19. Bypass stack valve preceding each HRSG shall be designed to be gas-tight to the atmosphere when exhaust is discharged through HRSG and shall be designed to be gas-tight to the HRSG when exhaust is discharged through the bypass stack. [District NSR Rule] Federally Enforceable Through Title V Permit
20. At such times as specified by the USEPA, permittee shall conduct or cause to be conducted performance tests (as described in 40 CFR 60.8) for CO on the exhaust stack gases and furnish the District, the California ARB and the USEPA a written report of the results of such tests. All performance tests shall be conducted on an annual basis and at the maximum operating capacity of the emissions unit being tested. Upon written request from permittee, and adequate justification, USEPA may waive a specific annual test and/or allow for testing to be done at less than maximum operating capacity. [PSD SJ 85- 09] Federally Enforceable Through Title V Permit
21. All continuous monitoring systems and monitoring devices shall be installed and operational prior to conducting performance tests. Verification of operational status shall, as a minimum, include completion of the manufacturer's written requirements or recommendations for installation, operation, and calibration of the device. [40 CFR 60.13(b)] Federally Enforceable Through Title V Permit
22. The USEPA shall be notified in writing at least 30 days in advance of such test to allow time for development of an approvable performance test plan and to arrange for an observer to be present at the test. Such prior approval shall minimize the possibility of USEPA rejection of test results for procedural deficiencies. In lieu of the above mentioned test methods, equivalent methods may be used with prior written approval from the USEPA. [PSD SJ 85-09] Federally Enforceable Through Title V Permit
23. Annual compliance tests shall be conducted by an independent laboratory in accordance with EPA guidelines, witnessed or authorized by the District. Results shall be submitted to the District within 60 days. [District Rule 1081] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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

24. Operator shall conform with the compliance testing procedures described in District Rule 1081. [District Rule 1081] Federally Enforceable Through Title V Permit
25. For performance test purposes, sampling ports, platforms, and access shall be provided by the facility on the emission unit exhaust system in accordance with 40 CFR 60.8(e). [PSD SJ 85-09] Federally Enforceable Through Title V Permit
26. Source testing to determine NOx and CO emissions and fuel gas sulfur content shall be conducted annually. [District Rule 1081] Federally Enforceable Through Title V Permit
27. The owner or operator shall provide source test information annually regarding the exhaust gas NOx and CO concentration corrected to 15% O2 (dry). EPA Methods 7E or 20 shall be used for NOx emissions. EPA Methods 10 or 10B shall be used for CO emissions. EPA Methods 3, 3A, or 20 shall be used for Oxygen content of the exhaust gas. [40 CFR 60.8(a), 40 CFR 60.335(b) and District Rule 4703, 5.1, 6.3.1, 6.4.1, 6.4.2, and 6.4.3] Federally Enforceable Through Title V Permit
28. Performance tests for the emissions of CO shall be conducted and results reported in accordance with the test methods set forth in 40 CFR 60.8 and 40 CFR 60, Appendix A. The performance tests for the emissions of CO shall be conducted using EPA Methods 1 through 4 and 10. [PSD SJ 85-09] Federally Enforceable Through Title V Permit
29. The owner or operator shall provide source test information annually regarding the demonstrated percent efficiency (EFF) as defined in District Rule 4703 (as amended 9/20/07), 5.1.1 and 6.4.6. [40 CFR 60.332(a) and (b) and District Rule 4703, 5.1.1 and 6.4.6] Federally Enforceable Through Title V Permit
30. The operator shall perform source testing for PM10 concentration and emission rate once per permit term using EPA Method 5. [40 CFR 60.8 (b) and (c)] Federally Enforceable Through Title V Permit
31. Audits of continuous emission monitoring system shall be conducted in accordance with EPA guidelines, witnessed at the District's discretion, and reports shall be submitted to the District within 60 days of such an audit. [District Rule 1080 and PSD SJ 85-09, X.D.3] Federally Enforceable Through Title V Permit
32. The Relative Accuracy Audit shall be conducted by an independent laboratory in accordance with EPA guidelines, witnessed or authorized by the District. Results shall be submitted to the District within 60 days. [District Rule 1080 and PSD SJ 85-09, X.D.3] Federally Enforceable Through Title V Permit
33. Results of continuous emissions monitoring must be reduced according to the procedure established in 40 CFR, Part 51, Appendix P, paragraphs 5.0 through 5.1.3, or by other methods deemed equivalent by mutual agreement with the District, the ARB, and the EPA. [District Rule 1080, 7.2] Federally Enforceable Through Title V Permit
34. Continuous emission monitoring system for NOx as NO2 and continuous monitoring system for CO & CO2 shall serve each CGT flue gas stream, shall conform to SJVUAPCD Rule 1080 specifications, shall meet EPA monitoring performance specifications, & shall be operational whenever the turbine is in operation. [District Rule 1080 and PSD SJ 85-09, X.D.1 and .2] Federally Enforceable Through Title V Permit
35. The continuous NOx and O2 monitoring system shall meet the performance specification requirements in 40 CFR 60, Appendix F, 40 CFR 51, Appendix P, and Part 60, Appendix B, or shall meet equivalent specifications established by mutual agreement of the District, the ARB, and the EPA. [District Rule 1080, 6.3, 6.5, 6.6 and 7.2] Federally Enforceable Through Title V Permit
36. All continuous emissions monitoring systems shall be calibrated and operated according to EPA guidelines as specified in 40 CFR 60, Appendix B and 40 CFR 52, Appendix E. CEM ppm and lb/hr shall be calculated as a three-hour and a 1-hour average. [District Rule 1080 and PSD SJ 85-09 X.D.2] Federally Enforceable Through Title V Permit
37. Results of the CEM system shall be averaged over a three hour period, using consecutive 15-minute sampling periods in accordance with either EPA Method 7E or EPA Method 20 for NOx, EPA Test Methods 10 or 10B for CO, or EPA Methods 3, 3A, or 20 for O2, or, if continuous emission monitors are used, all applicable requirements of CFR 60.13. [40 CFR 60.13 and District Rule 4703, 5.1, 6.4] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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38. Each 1-hour period in a 1, 2 or 3-hour average will commence on the hour. The 3-hour average will be compiled from the three most recent 1-hour periods. The 2-hour average will be compiled from the two most recent 1-hour periods. [District Rule 1080] Federally Enforceable Through Title V Permit
39. CEM cycling times shall be those specified in 40 CFR, Part 51, Appendix P, Sections 3.4 and 3.4.2, or shall meet equivalent specifications established by mutual agreement of the District, the ARB and the EPA. [District Rule 1080, 6.4] Federally Enforceable Through Title V Permit
40. Operator shall operate and maintain in calibration a system which continuously measures and records the following: control system operating parameters, elapsed time of operation, the exhaust gas NOx and O2 or CO2 concentration . [40 CFR 60.334(b),(c) and District Rules 2520, 9.4.2 and 4703, 6.2.1] Federally Enforceable Through Title V Permit
41. The owner or operator shall maintain records that contain the following: the occurrence and duration of any start-up, shutdown, tuning start-up, or malfunction, performance testing, evaluations, calibrations, checks, adjustments, any periods during which a continuous monitoring system or monitoring device is inoperative, maintenance of any CEM system that has been installed pursuant to District Rule 1080 (as amended 12/17/92), and emission measurements. [40 CFR 60.7(b) and District Rule 1080, 7.3] Federally Enforceable Through Title V Permit
42. The owner or operator of a stationary gas turbine system shall maintain all records of required monitoring data and support information for inspection at any time for a period of five years. [District Rules 2520, 9.4.2 and 4703, 6.2.4] Federally Enforceable Through Title V Permit
43. Daily records of NO2 and CO emission calculations during days of gas turbine startup/shutdown shall be maintained and such records shall be made readily available for District inspection upon request for a period of five years. [District Rule 1080] Federally Enforceable Through Title V Permit
44. The emission control systems shall be in operation and emissions shall be minimized insofar as technologically feasible during startup and shutdown. [District Rule 4703, 5.3.2] Federally Enforceable Through Title V Permit
45. Operator shall maintain a stationary gas turbine operating log that includes, on a daily basis the following: the actual local start-up and stop time, length and reason for reduced load periods, total hours of operation and quantity of fuel used. [40 CFR 60.332(b); District Rules 2520, 9.4.2 and 4703, 6.2.6; PSD SJ 85-09, X.D.1] Federally Enforceable Through Title V Permit
46. Reduced Load Period shall be defined as the time during which a gas turbine is operated at less than rated capacity in order to change the exhaust gas diverter gate not exceeding one hour. [District Rule 4703, 3.23] Federally Enforceable Through Title V Permit
47. The operator performing start-up or shutdown of this unit shall keep records of the duration of start-up or shutdown. [District Rule 4703, 6.2.8] Federally Enforceable Through Title V Permit
48. APCO or an authorized representative shall be allowed to inspect, as he or she determines to be necessary, the monitoring devices required by this rule to ensure that such devices are functioning properly. [District Rule 1080, 11.0] Federally Enforceable Through Title V Permit
49. The owner or operator shall, upon written notice from the APCO, provide a summary of the data obtained from the CEM systems. This summary of data shall be in the form and the manner prescribed by the APCO. [District Rule 1080, 7.1] Federally Enforceable Through Title V Permit
50. Each exhaust stack shall be equipped with permanent stack sampling provisions consistent with District Rule 1081, EPA reference Methods 5 and 8 and OSHA requirements. [District Rule 1081] Federally Enforceable Through Title V Permit
51. Each CGT shall have a fuel consumption monitor/recorder. [District NSR Rule and PSD SJ 85-09, X.D.1] Federally Enforceable Through Title V Permit
52. Operational records (including but not limited to: fuel characteristics, etc.) shall be maintained by Sycamore Cogeneration Company. [District NSR Rule] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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

53. Accurate records of NO_x (as NO₂) and carbon monoxide (CO) flue gas concentrations corrected to 15% O₂, dry and CGT fuel sulfur content shall be maintained and shall be reported as described by District Rule 1080 and upon request. [District Rule 1080] Federally Enforceable Through Title V Permit
54. Operator shall submit a quarterly report listing any daily period during which the sulfur content of the fuel being fired in the gas turbine exceeds 0.8% by weight. [40 CFR 60.334(i)] Federally Enforceable Through Title V Permit
55. Quarterly continuous emission monitoring system reports shall be submitted to the District, EPA and CEC, as required by EPA regulations as specified in CFR Title 40, Part 58, Appendix B and Part 60 Appendix B. [District Rule 1080 and PSD SJ 85-09, X.D.5] Federally Enforceable Through Title V Permit
56. Operators of CEM's installed at the direction of the APCO shall submit a written report for each calendar quarter to the APCO and EPA. The report is due on the 30th day following the end of the calendar quarter and shall include the following: A. time intervals, data and magnitude of excess emissions (computed in accordance with 40 CFR 60.13(h)), nature and cause of excess (if known), corrective actions taken and preventive measures adopted; B. averaging period used for data reporting corresponding to the averaging period specified in the emission test period used to determine compliance with an emission standard. [40 CFR 60.334 (j)(5); District Rule 1080, 8.0 and PSD SJ 85-09, X.D.3 and X.D.5.a through e] Federally Enforceable Through Title V Permit
57. The written report for each calendar quarter shall also include the following: C. applicable time and date of each period during which the CEM was inoperative (except for zero and span checks) and the nature of system repairs and adjustments; D. a negative declaration when no excess emissions occurred. Excess emissions shall be defined as any 3-hour period during which the average emissions for CO, as measured by the CEM system, exceeds the emission limit set forth in PSD SJ 85-09, X.E. [District Rule 1080, 8.0; PSD SJ 85-09, X.D.3 and X.D.5.a through e] Federally Enforceable Through Title V Permit
58. A violation of NO_x emission standards indicated by the NO_x CEM shall be reported by the operator to the APCO within 96 hours. [District Rule 1080, 9.0] Federally Enforceable Through Title V Permit
59. The APCO shall be notified no later than one hour after the detection of a breakdown of the CEM. The operator shall inform the APCO of the intent to shut down the CEM at least 24 hours prior to the event. [District Rules 1080, 10.0 and 1100, 6.1; PSD SJ 85-09, X.D.3] Federally Enforceable Through Title V Permit
60. The Regional Administrator shall be notified by telephone within 48 hours following any failure of air pollution control equipment, process equipment, or of a process to operate in a normal manner which results in an increase in emissions above any allowable emissions limit stated in this permit. In addition, the Regional Administrator shall be notified in writing within 15 days of any such failure. [PSD SJ 85-09] Federally Enforceable Through Title V Permit
61. This notification shall include a description of the malfunctioning equipment or abnormal operation, the date of initial failure, the period of time over which emissions were increased due to the failure, the cause of the failure, the estimated resultant emissions in excess of those allowed under the conditions of this permit, and the methods utilized to restore normal operations. Compliance with this malfunction notification provision shall not excuse or otherwise constitute a defense to any violations of this permit or of any law or regulations which such malfunction may cause. [PSD SJ 85-09] Federally Enforceable Through Title V Permit
62. CGT shall be fired on natural gas only. There shall be no provisions for oil firing. Natural gas used as fuel shall be pipeline quality with sulfur content of 0.3 gr/100 scf or less (0.001% sulfur by weight). [District NSR Rule; Kern County Rule 407] Federally Enforceable Through Title V Permit
63. The HHV and LHV of the gaseous fuel shall be determined using ASTM D3588, ASTM 1826, or ASTM 1945. [District Rule 4703, 6.4.5] Federally Enforceable Through Title V Permit
64. If the turbine is fired on PUC-regulated natural gas, then maintain on file copies of natural gas bills. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit
65. If the turbine is not fired on PUC-regulated natural gas, then the sulfur content of the natural gas being fired in the turbine shall be determined using ASTM method D 1072, D 3246, D4468 or D6667. [40 CFR 60.335(b)(10)] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE
These terms and conditions are part of the Facility-wide Permit to Operate.

66. If the turbine is not fired on PUC-regulated natural gas, the sulfur content of each fuel source shall be tested in accordance with the requirements of 40 CFR 60.334 (h) and 40 CFR 60.334(i). [40 CFR 60.334 (h) and 40 CFR 60.334(i)] Federally Enforceable Through Title V Permit
67. All equipment, facilities, and systems installed or used to achieve compliance with the terms and conditions of this permit shall at all times be maintained in good working order and be operated as efficiently as possible so as to minimize air pollutant emissions. [PSD SJ 85-09] Federally Enforceable Through Title V Permit
68. The owner and operator of the proposed project shall construct and operate the proposed stationary source in compliance with all other applicable provisions of 40 CFR Parts 52, 60 and 61 and all other applicable Federal, State and local air quality regulations. [PSD SJ 85-09] Federally Enforceable Through Title V Permit
69. The cogeneration facility is subject to the federal regulations entitled Standards of Performance for New Stationary Sources (40 CFR 60). The owner or operator shall meet all applicable requirements of Subparts A and GG of this regulation. [PSD SJ 85- 09] Federally Enforceable Through Title V Permit
70. All correspondence as required by this permit shall be forwarded to: a) Director, Enforcement Div (Attn: A-5), EPA Region IX, 75 Hawthorne Street, San Francisco, CA, 94105; b) Chief, Stationary Source Control Division, California Air Resource Board, P.O. Box 2815, Sacramento, CA, 95814; c) Director, SJVUAPCD, 1990 East Gettysburg, Fresno, CA, 93726-0244; and d) the California Energy Commission, 1516 Ninth Street, Sacramento, CA, 95814-5512. [PSD SJ 85-09] Federally Enforceable Through Title V Permit
71. Compliance with permit conditions in the Title V permit shall be deem compliance with the Kern County Rule 407. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
72. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following applicable requirements: 40 CFR 60.332 (a), and (b); 60.333 (a); 60.334 (b), (c), (h), (i) and (j)(5); and 60.335 (b). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
73. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following applicable requirements: 40 CFR 60.7(b), 60.8, 60.8(d), 60.13, and 60.13(b); District Rules 1080 (as amended 12/17/92), Sections 6.3, 6.4, 6.5, 7.0, 7.1, 7.2, 7.3, 8.0, 9.0, 10.0, and 11.0; and 1081 (as amended 12/16/93) as of the date of permit issuance. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

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

San Joaquin Valley Air Pollution Control District

PERMIT UNIT: S-511-2-18

EXPIRATION DATE: 11/30/2015

SECTION: 31 TOWNSHIP: 28S RANGE: 28E

EQUIPMENT DESCRIPTION:

75 MW GENERAL ELECTRIC MODEL 7EA NATURAL GAS-FIRED COMBUSTION TURBINE COGENERATION UNIT WITH GE ENHANCED DRY LOW NOX DLN1+ COMBUSTOR TECHNOLOGY DISCHARGING TO ATMOSPHERE THROUGH A BYPASS STACK WHEN OPERATED IN SIMPLE CYCLE MODE OR THROUGH UNFIRED 450,000 LB/HR HEAT RECOVERY STEAM GENERATOR WHEN OPERATED IN COGENERATION MODE (SYCAMORE UNIT #2)

PERMIT UNIT REQUIREMENTS

1. Excess emissions indicated by the CEM system shall be considered violations of the applicable emission limit for the purposes of this permit. [PSD SJ 85-09] Federally Enforceable Through Title V Permit
2. The CGT combustors shall be a dry low NOx design capable of achieving 3 ppm or lower at 15% O₂. [PSD SJ 85-09, X.B] Federally Enforceable Through Title V Permit
3. Sulfur compound emissions shall not exceed 0.015% by volume, 150 ppmv, on a dry basis averaged over 15 consecutive minutes. [40 CFR 60.333(a) and Kern County Rule 407] Federally Enforceable Through Title V Permit
4. Exhaust gas particulate matter concentration shall not exceed 0.0072 gr/scf calculated at 12% CO₂. [District NSR Rule] Federally Enforceable Through Title V Permit
5. Emission rates from CGT shall not exceed any of the following: PM₁₀ - 5.0 lb/hr, SO_x (as SO₂) - 0.9 lb/hr, or VOC - 2.5 lb/hr. [District Rule 2201] Federally Enforceable Through Title V Permit
6. Emission rates from CGT shall not exceed any of the following: PM₁₀ - 120.0 lb/day, SO_x (as SO₂) - 21.6 lb/day, NO_x (as NO₂) - 552.8 lb/day, VOC - 60.0 lb/day, or CO - 1056.0 lb/day. [District Rule 2201 and PSD SJ 85-09, X.E] Federally Enforceable Through Title V Permit
7. Emission rates from CGT, except during startup, shutdown, tuning start-up, and/or reduced load periods, shall not exceed any of the following: NO_x (as NO₂) - 3 ppmvd @ 15% O₂, 12.4 lb/hr on a 3-hr avg, or CO - 25 ppmvd @ 15% O₂, 44.0 lb/hr on a 3-hr avg. [District Rules 2201 and 4703, 5.1.2 & 5.2; and PSD SJ 85-09, X.E] Federally Enforceable Through Title V Permit
8. NO₂ and CO daily emissions during days of startup/shutdown shall be calculated from natural gas combustion rates and CEM results. [District Rule 1080] Federally Enforceable Through Title V Permit
9. During startup, shutdown, and tuning start-up, emissions shall not exceed any of the following: 140.0 lb/hr of NO_x on a 2-hr avg, 140 lb/hr of CO on a 2-hr avg, or 200 lb/hr of CO on a 1-hr avg. [District Rule 2201] Federally Enforceable Through Title V Permit
10. Annual NO_x emissions (as NO₂) from all four CTG's (S-511-1, S-511-2, S-511-3, and S-511-4) calculated on a twelve month rolling basis shall not exceed 271,200 lb NO_x / yr. [District Rule 2201] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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11. Startup shall be defined as the period of time during which a unit is brought from a shutdown status to its operating temperature and pressure, including the time required by the unit's emission control system to reach full operations. Shutdown shall be defined as the period of time during which a unit is taken from an operational to a non-operational status as the fuel supply to the unit is completely turned off. [District Rule 4703, 3.29 and 3.26] Federally Enforceable Through Title V Permit
12. A tuning start-up shall be defined as "the period after a combustor unit replacement in which dynamic performance testing and corresponding operating optimization set point adjustment of the combustion system of the CGT is performed to meet the limits of this permit and Rule 4703". A tuning start-up period shall not exceed a time period of 12 consecutive hours per occurrence. [District Rule 4703, 5.3] Federally Enforceable Through Title V Permit
13. The duration of each startup or each shut down time shall not exceed two hours. Startup and shutdown emissions shall be counted toward all applicable emission limits. [District Rule 4703, 5.3.1] Federally Enforceable Through Title V Permit
14. Operations during periods of startup, shutdown, and tuning startup shall not constitute representative conditions for the purpose of a NOx performance test nor shall NOx emissions in excess of the level of the emission limit shown in this permit during periods of startup and shutdown be considered a violation of the applicable emission limit unless otherwise specified in the applicable standard. [40 CFR 60.8(c)] Federally Enforceable Through Title V Permit
15. Each CGT shall have a maximum heat input rate of 1020 MMBTU/hr on an LHV basis. Firing rate can be increased upon District witnessed emission sampling demonstration that compliance with emission sampling limits can be achieved at higher fuel rates. [District NSR Rule] Federally Enforceable Through Title V Permit
16. Permit unit shall include one unfired heat recovery steam generator (HRSG) for gas turbine engine assembly with rated steam output of 450,000 lb/hr at 80% quality steam production. [District NSR Rule] Federally Enforceable Through Title V Permit
17. CGT may exhaust either through unfired 450,000 lb/hr heat recovery steam generator or through bypass stack. [District NSR Rule] Federally Enforceable Through Title V Permit
18. When operating in cogeneration mode, exhaust gas ducting from CGT's through HRSG's to the atmosphere shall be gas-tight. [District NSR Rule] Federally Enforceable Through Title V Permit
19. Bypass stack valve preceding each HRSG shall be designed to be gas-tight to the atmosphere when exhaust is discharged through HRSG and shall be designed to be gas-tight to the HRSG when exhaust is discharged through the bypass stack. [District NSR Rule] Federally Enforceable Through Title V Permit
20. At such times as specified by the USEPA, permittee shall conduct or cause to be conducted performance tests (as described in 40 CFR 60.8) for CO on the exhaust stack gases and furnish the District, the California ARB and the USEPA a written report of the results of such tests. All performance tests shall be conducted on an annual basis and at the maximum operating capacity of the emissions unit being tested. Upon written request from permittee, and adequate justification, USEPA may waive a specific annual test and/or allow for testing to be done at less than maximum operating capacity. [PSD SJ 85- 09] Federally Enforceable Through Title V Permit
21. All continuous monitoring systems and monitoring devices shall be installed and operational prior to conducting performance tests. Verification of operational status shall, as a minimum, include completion of the manufacturer's written requirements or recommendations for installation, operation, and calibration of the device. [40 CFR 60.13(b)] Federally Enforceable Through Title V Permit
22. The USEPA shall be notified in writing at least 30 days in advance of such test to allow time for development of an approvable performance test plan and to arrange for an observer to be present at the test. Such prior approval shall minimize the possibility of USEPA rejection of test results for procedural deficiencies. In lieu of the above mentioned test methods, equivalent methods may be used with prior written approval from the USEPA. [PSD SJ 85-09] Federally Enforceable Through Title V Permit
23. Annual compliance tests shall be conducted by an independent laboratory in accordance with EPA guidelines, witnessed or authorized by the District. Results shall be submitted to the District within 60 days. [District Rule 1081] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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24. Operator shall conform with the compliance testing procedures described in District Rule 1081. [District Rule 1081] Federally Enforceable Through Title V Permit
25. For performance test purposes, sampling ports, platforms, and access shall be provided by the facility on the emission unit exhaust system in accordance with 40 CFR 60.8(e). [PSD SJ 85-09] Federally Enforceable Through Title V Permit
26. Source testing to determine NOx and CO emissions and fuel gas sulfur content shall be conducted annually. [District Rule 1081] Federally Enforceable Through Title V Permit
27. The owner or operator shall provide source test information annually regarding the exhaust gas NOx and CO concentration corrected to 15% O2 (dry). EPA Methods 7E or 20 shall be used for NOx emissions. EPA Methods 10 or 10B shall be used for CO emissions. EPA Methods 3, 3A, or 20 shall be used for Oxygen content of the exhaust gas. [40 CFR 60.8(a), 40 CFR 60.335(b) and District Rule 4703, 5.1, 6.3.1, 6.4.1, 6.4.2, and 6.4.3] Federally Enforceable Through Title V Permit
28. Performance tests for the emissions of CO shall be conducted and results reported in accordance with the test methods set forth in 40 CFR 60.8 and 40 CFR 60, Appendix A. The performance tests for the emissions of CO shall be conducted using EPA Methods 1 through 4 and 10. [PSD SJ 85-09] Federally Enforceable Through Title V Permit
29. The owner or operator shall provide source test information annually regarding the demonstrated percent efficiency (EFF) as defined in District Rule 4703 (as amended 9/20/07), 5.1.1 and 6.4.6. [40 CFR 60.332(a) and (b) and District Rule 4703, 5.1.1 and 6.4.6] Federally Enforceable Through Title V Permit
30. The operator shall perform source testing for PM10 concentration and emission rate once per permit term using EPA Method 5. [40 CFR 60.8 (b) and (c)] Federally Enforceable Through Title V Permit
31. Audits of continuous emission monitoring system shall be conducted in accordance with EPA guidelines, witnessed at the District's discretion, and reports shall be submitted to the District within 60 days of such an audit. [District Rule 1080 and PSD SJ 85-09, X.D.3] Federally Enforceable Through Title V Permit
32. The Relative Accuracy Audit shall be conducted by an independent laboratory in accordance with EPA guidelines, witnessed or authorized by the District. Results shall be submitted to the District within 60 days. [District Rule 1080 and PSD SJ 85-09, X.D.3] Federally Enforceable Through Title V Permit
33. Results of continuous emissions monitoring must be reduced according to the procedure established in 40 CFR, Part 51, Appendix P, paragraphs 5.0 through 5.1.3, or by other methods deemed equivalent by mutual agreement with the District, the ARB, and the EPA. [District Rule 1080, 7.2] Federally Enforceable Through Title V Permit
34. Continuous emission monitoring system for NOx as NO2 and continuous monitoring system for CO & CO2 shall serve each CGT flue gas stream, shall conform to SJVUAPCD Rule 1080 specifications, shall meet EPA monitoring performance specifications, & shall be operational whenever the turbine is in operation. [District Rule 1080 and PSD SJ 85-09, X.D.1 and .2] Federally Enforceable Through Title V Permit
35. The continuous NOx and O2 monitoring system shall meet the performance specification requirements in 40 CFR 60, Appendix F, 40 CFR 51, Appendix P, and Part 60, Appendix B, or shall meet equivalent specifications established by mutual agreement of the District, the ARB, and the EPA. [District Rule 1080, 6.3, 6.5, 6.6 and 7.2] Federally Enforceable Through Title V Permit
36. All continuous emissions monitoring systems shall be calibrated and operated according to EPA guidelines as specified in 40 CFR 60, Appendix B and 40 CFR 52, Appendix E. CEM ppm and lb/hr shall be calculated as a three-hour and a 1-hour average. [District Rule 1080 and PSD SJ 85-09 X.D.2] Federally Enforceable Through Title V Permit
37. Results of the CEM system shall be averaged over a three hour period, using consecutive 15-minute sampling periods in accordance with either EPA Method 7E or EPA Method 20 for NOx, EPA Test Methods 10 or 10B for CO, or EPA Methods 3, 3A, or 20 for O2, or, if continuous emission monitors are used, all applicable requirements of CFR 60.13. [40 CFR 60.13 and District Rule 4703, 5.1, 6.4] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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38. Each 1-hour period in a 1, 2 or 3-hour average will commence on the hour. The 3-hour average will be compiled from the three most recent 1-hour periods. The 2-hour average will be compiled from the two most recent 1-hour periods. [District Rule 1080] Federally Enforceable Through Title V Permit
39. CEM cycling times shall be those specified in 40 CFR, Part 51, Appendix P, Sections 3.4 and 3.4.2, or shall meet equivalent specifications established by mutual agreement of the District, the ARB and the EPA. [District Rule 1080, 6.4] Federally Enforceable Through Title V Permit
40. Operator shall operate and maintain in calibration a system which continuously measures and records the following: control system operating parameters, elapsed time of operation, the exhaust gas NOx and O2 or CO2 concentration . [40 CFR 60.334(b),(c) and District Rules 2520, 9.4.2 and 4703, 6.2.1] Federally Enforceable Through Title V Permit
41. The owner or operator shall maintain records that contain the following: the occurrence and duration of any start-up, shutdown, tuning start-up, or malfunction, performance testing, evaluations, calibrations, checks, adjustments, any periods during which a continuous monitoring system or monitoring device is inoperative, maintenance of any CEM system that has been installed pursuant to District Rule 1080 (as amended 12/17/92), and emission measurements. [40 CFR 60.7(b) and District Rule 1080, 7.3] Federally Enforceable Through Title V Permit
42. The owner or operator of a stationary gas turbine system shall maintain all records of required monitoring data and support information for inspection at any time for a period of five years. [District Rules 2520, 9.4.2 and 4703, 6.2.4] Federally Enforceable Through Title V Permit
43. Daily records of NO2 and CO emission calculations during days of gas turbine startup/shutdown shall be maintained and such records shall be made readily available for District inspection upon request for a period of five years. [District Rule 1080] Federally Enforceable Through Title V Permit
44. The emission control systems shall be in operation and emissions shall be minimized insofar as technologically feasible during startup and shutdown. [District Rule 4703, 5.3.2] Federally Enforceable Through Title V Permit
45. Operator shall maintain a stationary gas turbine operating log that includes, on a daily basis the following: the actual local start-up and stop time, length and reason for reduced load periods, total hours of operation and quantity of fuel used. [40 CFR 60.332(b); District Rules 2520, 9.4.2 and 4703, 6.2.6; PSD SJ 85-09, X.D.1] Federally Enforceable Through Title V Permit
46. Reduced Load Period shall be defined as the time during which a gas turbine is operated at less than rated capacity in order to change the exhaust gas diverter gate not exceeding one hour. [District Rule 4703, 3.23] Federally Enforceable Through Title V Permit
47. The operator performing start-up or shutdown of this unit shall keep records of the duration of start-up or shutdown. [District Rule 4703, 6.2.8] Federally Enforceable Through Title V Permit
48. APCO or an authorized representative shall be allowed to inspect, as he or she determines to be necessary, the monitoring devices required by this rule to ensure that such devices are functioning properly. [District Rule 1080, 11.0] Federally Enforceable Through Title V Permit
49. The owner or operator shall, upon written notice from the APCO, provide a summary of the data obtained from the CEM systems. This summary of data shall be in the form and the manner prescribed by the APCO. [District Rule 1080, 7.1] Federally Enforceable Through Title V Permit
50. When CGT exhausts to bypass stack, the CEM probe located in the transition section shall be used to measure exhaust gas NOx, CO and O2 or CO2 concentration. [District Rule 2201] Federally Enforceable Through Title V Permit
51. Each exhaust stack shall be equipped with permanent stack sampling provisions consistent with District Rule 1081, EPA reference Methods 5 and 8 and OSHA requirements. [District Rule 1081] Federally Enforceable Through Title V Permit
52. Each CGT shall have a fuel consumption monitor/recorder. [District NSR Rule and PSD SJ 85-09, X.D.1] Federally Enforceable Through Title V Permit
53. Operational records (including but not limited to: fuel characteristics, etc.) shall be maintained by Sycamore Cogeneration Company. [District NSR Rule] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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

54. Accurate records of NO_x (as NO₂) and carbon monoxide (CO) flue gas concentrations corrected to 15% O₂, dry and CGT fuel sulfur content shall be maintained and shall be reported as described by District Rule 1080 and upon request. [District Rule 1080] Federally Enforceable Through Title V Permit
55. Operator shall submit a quarterly report listing any daily period during which the sulfur content of the fuel being fired in the gas turbine exceeds 0.8% by weight. [40 CFR 60.334(i)] Federally Enforceable Through Title V Permit
56. Quarterly continuous emission monitoring system reports shall be submitted to the District, EPA and CEC, as required by EPA regulations as specified in CFR Title 40, Part 58, Appendix B and Part 60 Appendix B. [District Rule 1080 and PSD SJ 85-09, X.D.5] Federally Enforceable Through Title V Permit
57. Operators of CEM's installed at the direction of the APCO shall submit a written report for each calendar quarter to the APCO and EPA. The report is due on the 30th day following the end of the calendar quarter and shall include the following: A. time intervals, data and magnitude of excess emissions (computed in accordance with 40 CFR 60.13(h)), nature and cause of excess (if known), corrective actions taken and preventive measures adopted; B. averaging period used for data reporting corresponding to the averaging period specified in the emission test period used to determine compliance with an emission standard. [40 CFR 60.334 (j)(5); District Rule 1080, 8.0 and PSD SJ 85-09, X.D.3 and X.D.5.a through e] Federally Enforceable Through Title V Permit
58. The written report for each calendar quarter shall also include the following: C. applicable time and date of each period during which the CEM was inoperative (except for zero and span checks) and the nature of system repairs and adjustments; D. a negative declaration when no excess emissions occurred. Excess emissions shall be defined as any 3-hour period during which the average emissions for CO, as measured by the CEM system, exceeds the emission limit set forth in PSD SJ 85-09, X.E. [District Rule 1080, 8.0; PSD SJ 85-09, X.D.3 and X.D.5.a through e] Federally Enforceable Through Title V Permit
59. A violation of NO_x emission standards indicated by the NO_x CEM shall be reported by the operator to the APCO within 96 hours. [District Rule 1080, 9.0] Federally Enforceable Through Title V Permit
60. The APCO shall be notified no later than one hour after the detection of a breakdown of the CEM. The operator shall inform the APCO of the intent to shut down the CEM at least 24 hours prior to the event. [District Rules 1080, 10.0 and 1100, 6.1; PSD SJ 85-09, X.D.3] Federally Enforceable Through Title V Permit
61. The Regional Administrator shall be notified by telephone within 48 hours following any failure of air pollution control equipment, process equipment, or of a process to operate in a normal manner which results in an increase in emissions above any allowable emissions limit stated in this permit. In addition, the Regional Administrator shall be notified in writing within 15 days of any such failure. [PSD SJ 85-09] Federally Enforceable Through Title V Permit
62. This notification shall include a description of the malfunctioning equipment or abnormal operation, the date of initial failure, the period of time over which emissions were increased due to the failure, the cause of the failure, the estimated resultant emissions in excess of those allowed under the conditions of this permit, and the methods utilized to restore normal operations. Compliance with this malfunction notification provision shall not excuse or otherwise constitute a defense to any violations of this permit or of any law or regulations which such malfunction may cause. [PSD SJ 85-09] Federally Enforceable Through Title V Permit
63. CGT shall be fired on natural gas only. There shall be no provisions for oil firing. Natural gas used as fuel shall be pipeline quality with sulfur content of 0.3 gr/100 scf or less (0.001% sulfur by weight). [District NSR Rule; Kern County Rule 407] Federally Enforceable Through Title V Permit
64. The HHV and LHV of the gaseous fuel shall be determined using ASTM D3588, ASTM 1826, or ASTM 1945. [District Rule 4703, 6.4.5] Federally Enforceable Through Title V Permit
65. If the turbine is fired on PUC-regulated natural gas, then maintain on file copies of natural gas bills. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit
66. If the turbine is not fired on PUC-regulated natural gas, then the sulfur content of the natural gas being fired in the turbine shall be determined using ASTM method D 1072, D 3246, D4468 or D6667. [40 CFR 60.335(b)(10)] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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

67. If the turbine is not fired on PUC-regulated natural gas, the sulfur content of each fuel source shall be tested in accordance with the requirements of 40 CFR 60.334 (h) and 40 CFR 60.334(i). [40 CFR 60.334 (h) and 40 CFR 60.334(i)] Federally Enforceable Through Title V Permit
68. All equipment, facilities, and systems installed or used to achieve compliance with the terms and conditions of this permit shall at all times be maintained in good working order and be operated as efficiently as possible so as to minimize air pollutant emissions. [PSD SJ 85-09] Federally Enforceable Through Title V Permit
69. The owner and operator of the proposed project shall construct and operate the proposed stationary source in compliance with all other applicable provisions of 40 CFR Parts 52, 60 and 61 and all other applicable Federal, State and local air quality regulations. [PSD SJ 85-09] Federally Enforceable Through Title V Permit
70. The cogeneration facility is subject to the federal regulations entitled Standards of Performance for New Stationary Sources (40 CFR 60). The owner or operator shall meet all applicable requirements of Subparts A and GG of this regulation. [PSD SJ 85-09] Federally Enforceable Through Title V Permit
71. All correspondence as required by this permit shall be forwarded to: a) Director, Enforcement Div (Attn: A-5), EPA Region IX, 75 Hawthorne Street, San Francisco, CA, 94105; b) Chief, Stationary Source Control Division, California Air Resource Board, P.O. Box 2815, Sacramento, CA, 95814; c) Director, SJVUAPCD, 1990 East Gettysburg, Fresno, CA, 93726-0244; and d) the California Energy Commission, 1516 Ninth Street, Sacramento, CA, 95814-5512. [PSD SJ 85-09] Federally Enforceable Through Title V Permit
72. Compliance with permit conditions in the Title V permit shall be deemed compliance with the Kern County Rule 407. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
73. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following applicable requirements: 40 CFR 60.332 (a), and (b); 60.333 (a); 60.334 (b), (c), (h), (i) and (j)(5); and 60.335 (b). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
74. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following applicable requirements: 40 CFR 60.7(b), 60.8, 60.8(d), 60.13, and 60.13(b); District Rules 1080 (as amended 12/17/92), Sections 6.3, 6.4, 6.5, 7.0, 7.1, 7.2, 7.3, 8.0, 9.0, 10.0, and 11.0; and 1081 (as amended 12/16/93) as of the date of permit issuance. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

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

San Joaquin Valley Air Pollution Control District

PERMIT UNIT: S-511-3-18

EXPIRATION DATE: 11/30/2015

SECTION: 31 TOWNSHIP: 28S RANGE: 28E

EQUIPMENT DESCRIPTION:

75 MW GENERAL ELECTRIC MODEL 7EA NATURAL GAS-FIRED COMBUSTION TURBINE COGENERATION UNIT WITH GE ENHANCED DRY LOW NOX DLN1+ COMBUSTOR TECHNOLOGY DISCHARGING TO ATMOSPHERE THROUGH A BYPASS STACK WHEN OPERATED IN SIMPLE CYCLE MODE OR THROUGH UNFIRED 450,000 LB/HR HEAT RECOVERY STEAM GENERATOR WHEN OPERATED IN COGENERATION MODE (SYCAMORE UNIT #3)

PERMIT UNIT REQUIREMENTS

1. Excess emissions indicated by the CEM system shall be considered violations of the applicable emission limit for the purposes of this permit. [PSD SJ 85-09] Federally Enforceable Through Title V Permit
2. The CGT combustors shall be a dry low NOx design capable of achieving 3 ppm or lower at 15% O₂. [PSD SJ 85-09, X.B] Federally Enforceable Through Title V Permit
3. Sulfur compound emissions shall not exceed 0.015% by volume, 150 ppmv, on a dry basis averaged over 15 consecutive minutes. [40 CFR 60.333(a) and Kern County Rule 407] Federally Enforceable Through Title V Permit
4. Exhaust gas particulate matter concentration shall not exceed 0.0072 gr/scf calculated at 12% CO₂. [District NSR Rule] Federally Enforceable Through Title V Permit
5. Emission rates from CGT shall not exceed any of the following: PM₁₀ - 5.0 lb/hr, SO_x (as SO₂) - 0.9 lb/hr, or VOC - 2.5 lb/hr. [District Rule 2201] Federally Enforceable Through Title V Permit
6. Emission rates from CGT shall not exceed any of the following: PM₁₀ - 120.0 lb/day, SO_x (as SO₂) - 21.6 lb/day, NO_x (as NO₂) - 552.8 lb/day, VOC - 60.0 lb/day, or CO - 1056.0 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit
7. Emission rates from CGT, except during startup, shutdown, tuning start-up, and/or reduced load periods, shall not exceed any of the following: NO_x (as NO₂) - 3 ppmvd @ 15% O₂, 12.4 lb/hr on a 3-hr avg, or CO - 25 ppmvd @ 15% O₂, 44.0 lb/hr on a 3-hr avg. [District Rules 2201 and 4703, 5.1.2 & 5.2; and PSD SJ 85-09, X.E] Federally Enforceable Through Title V Permit
8. During startup, shutdown, and tuning start-up, emissions shall not exceed any of the following: 140.0 lb/hr of NO_x on a 2-hr avg, 140 lb/hr of CO on a 2-hr avg, or 200 lb/hr of CO on a 1-hr avg. [District Rule 2201] Federally Enforceable Through Title V Permit
9. NO₂ and CO daily emissions during days of startup/shutdown shall be calculated from natural gas combustion rates and CEM results. [District Rule 1080] Federally Enforceable Through Title V Permit
10. Annual NO_x emissions (as NO₂) from all four CTG's (S-511-1, S-511-2, S-511-3, and S-511-4) calculated on a twelve month rolling basis shall not exceed 271,200 lb NO_x / yr. [District Rule 2201] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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11. Startup shall be defined as the period of time during which a unit is brought from a shutdown status to its operating temperature and pressure, including the time required by the unit's emission control system to reach full operations. Shutdown shall be defined as the period of time during which a unit is taken from an operational to a non-operational status as the fuel supply to the unit is completely turned off. [District Rule 4703, 3.29 and 3.26] Federally Enforceable Through Title V Permit
12. A tuning start-up shall be defined as "the period after a combustor unit replacement in which dynamic performance testing and corresponding operating optimization set point adjustment of the combustion system of the CGT is performed to meet the limits of this permit and Rule 4703". A tuning start-up period shall not exceed a time period of 12 consecutive hours per occurrence. [District Rule 4703, 5.3] Federally Enforceable Through Title V Permit
13. The duration of each startup or each shut down time shall not exceed two hours. Startup and shutdown emissions shall be counted toward all applicable emission limits. [District Rule 4703, 5.3.1] Federally Enforceable Through Title V Permit
14. Operations during periods of startup, shutdown, and tuning startup shall not constitute representative conditions for the purpose of a NOx performance test nor shall NOx emissions in excess of the level of the emission limit shown in this permit during periods of startup and shutdown be considered a violation of the applicable emission limit unless otherwise specified in the applicable standard. [40 CFR 60.8(c)] Federally Enforceable Through Title V Permit
15. Each CGT shall have a maximum heat input rate of 1020 MMBTU/hr on an LHV basis. Firing rate can be increased upon District witnessed emission sampling demonstration that compliance with emission sampling limits can be achieved at higher fuel rates. [District NSR Rule] Federally Enforceable Through Title V Permit
16. Permit unit shall include one unfired heat recovery steam generator (HRSG) for gas turbine engine assembly with rated steam output of 450,000 lb/hr at 80% quality steam production. [District NSR Rule] Federally Enforceable Through Title V Permit
17. CGT may exhaust either through unfired 450,000 lb/hr heat recovery steam generator or through bypass stack. [District NSR Rule] Federally Enforceable Through Title V Permit
18. When operating in cogeneration mode, exhaust gas ducting from CGT's through HRSG's to the atmosphere shall be gas-tight. [District NSR Rule] Federally Enforceable Through Title V Permit
19. When CGT exhausts to bypass stack, the CEM probe located in the transition section shall be used to measure exhaust gas NOx, CO and O2 or CO2 concentration. [District Rule 2201] Federally Enforceable Through Title V Permit
20. Bypass stack valve preceding each HRSG shall be designed to be gas-tight to the atmosphere when exhaust is discharged through HRSG and shall be designed to be gas-tight to the HRSG when exhaust is discharged through the bypass stack. [District NSR Rule] Federally Enforceable Through Title V Permit
21. At such times as specified by the USEPA, permittee shall conduct or cause to be conducted performance tests (as described in 40 CFR 60.8) for CO on the exhaust stack gases and furnish the District, the California ARB and the USEPA a written report of the results of such tests. All performance tests shall be conducted on an annual basis and at the maximum operating capacity of the emissions unit being tested. Upon written request from permittee, and adequate justification, USEPA may waive a specific annual test and/or allow for testing to be done at less than maximum operating capacity. [PSD SJ 85- 09] Federally Enforceable Through Title V Permit
22. All continuous monitoring systems and monitoring devices shall be installed and operational prior to conducting performance tests. Verification of operational status shall, as a minimum, include completion of the manufacturer's written requirements or recommendations for installation, operation, and calibration of the device. [40 CFR 60.13(b)] Federally Enforceable Through Title V Permit
23. The USEPA shall be notified in writing at least 30 days in advance of such test to allow time for development of an approvable performance test plan and to arrange for an observer to be present at the test. Such prior approval shall minimize the possibility of USEPA rejection of test results for procedural deficiencies. In lieu of the above mentioned test methods, equivalent methods may be used with prior written approval from the USEPA. [PSD SJ 85-09] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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24. Annual compliance tests shall be conducted by an independent laboratory in accordance with EPA guidelines, witnessed or authorized by the District. Results shall be submitted to the District within 60 days. [District Rule 1081] Federally Enforceable Through Title V Permit
25. Operator shall conform with the compliance testing procedures described in District Rule 1081. [District Rule 1081] Federally Enforceable Through Title V Permit
26. For performance test purposes, sampling ports, platforms, and access shall be provided by the facility on the emission unit exhaust system in accordance with 40 CFR 60.8(e). [PSD SJ 85-09] Federally Enforceable Through Title V Permit
27. Source testing to determine NOx and CO emissions and fuel gas sulfur content shall be conducted annually. [District Rule 1081] Federally Enforceable Through Title V Permit
28. The owner or operator shall provide source test information annually regarding the exhaust gas NOx and CO concentration corrected to 15% O2 (dry). EPA Methods 7E or 20 shall be used for NOx emissions. EPA Methods 10 or 10B shall be used for CO emissions. EPA Methods 3, 3A, or 20 shall be used for Oxygen content of the exhaust gas. [40 CFR 60.8(a), 40 CFR 60.335(b) and District Rule 4703, 5.1, 6.3.1, 6.4.1, 6.4.2, and 6.4.3] Federally Enforceable Through Title V Permit
29. Performance tests for the emissions of CO shall be conducted and results reported in accordance with the test methods set forth in 40 CFR 60.8 and 40 CFR 60, Appendix A. The performance tests for the emissions of CO shall be conducted using EPA Methods 1 through 4 and 10. [PSD SJ 85-09] Federally Enforceable Through Title V Permit
30. The owner or operator shall provide source test information annually regarding the demonstrated percent efficiency (EFF) as defined in District Rule 4703 (as amended 9/20/07), 5.1.1 and 6.4.6. [40 CFR 60.332(a) and (b) and District Rule 4703, 5.1.1 and 6.4.6] Federally Enforceable Through Title V Permit
31. The operator shall perform source testing for PM10 concentration and emission rate once per permit term using EPA Method 5. [40 CFR 60.8 (b) and (c)] Federally Enforceable Through Title V Permit
32. Audits of continuous emission monitoring system shall be conducted in accordance with EPA guidelines, witnessed at the District's discretion, and reports shall be submitted to the District within 60 days of such an audit. [District Rule 1080 and PSD SJ 85-09, X.D.3] Federally Enforceable Through Title V Permit
33. The Relative Accuracy Audit shall be conducted by an independent laboratory in accordance with EPA guidelines, witnessed or authorized by the District. Results shall be submitted to the District within 60 days. [District Rule 1080 and PSD SJ 85-09, X.D.3] Federally Enforceable Through Title V Permit
34. Results of continuous emissions monitoring must be reduced according to the procedure established in 40 CFR, Part 51, Appendix P, paragraphs 5.0 through 5.1.3, or by other methods deemed equivalent by mutual agreement with the District, the ARB, and the EPA. [District Rule 1080, 7.2] Federally Enforceable Through Title V Permit
35. Continuous emission monitoring system for NOx as NO2 and continuous monitoring system for CO & CO2 shall serve each CGT flue gas stream, shall conform to SJVUAPCD Rule 1080 specifications, shall meet EPA monitoring performance specifications, & shall be operational whenever the turbine is in operation. [District Rule 1080 and PSD SJ 85-09, X.D.1 and .2] Federally Enforceable Through Title V Permit
36. The continuous NOx and O2 monitoring system shall meet the performance specification requirements in 40 CFR 60, Appendix F, 40 CFR 51, Appendix P, and Part 60, Appendix B, or shall meet equivalent specifications established by mutual agreement of the District, the ARB, and the EPA. [District Rule 1080, 6.3, 6.5, 6.6 and 7.2] Federally Enforceable Through Title V Permit
37. All continuous emissions monitoring systems shall be calibrated and operated according to EPA guidelines as specified in 40 CFR 60, Appendix B and 40 CFR 52, Appendix E. CEM ppm and lb/hr shall be calculated as a three-hour and a 1-hour average. [District Rule 1080 and PSD SJ 85-09 X.D.2] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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38. Results of the CEM system shall be averaged over a three hour period, using consecutive 15-minute sampling periods in accordance with either EPA Method 7E or EPA Method 20 for NO_x, EPA Test Methods 10 or 10B for CO, or EPA Methods 3, 3A, or 20 for O₂, or, if continuous emission monitors are used, all applicable requirements of CFR 60.13. [40 CFR 60.13 and District Rule 4703, 5.1, 6.4] Federally Enforceable Through Title V Permit
39. Each 1-hour period in a 1, 2 or 3-hour average will commence on the hour. The 3-hour average will be compiled from the three most recent 1-hour periods. The 2-hour average will be compiled from the two most recent 1-hour periods. [District Rule 1080] Federally Enforceable Through Title V Permit
40. CEM cycling times shall be those specified in 40 CFR, Part 51, Appendix P, Sections 3.4 and 3.4.2, or shall meet equivalent specifications established by mutual agreement of the District, the ARB and the EPA. [District Rule 1080, 6.4] Federally Enforceable Through Title V Permit
41. Operator shall operate and maintain in calibration a system which continuously measures and records the following: control system operating parameters, elapsed time of operation, the exhaust gas NO_x and O₂ or CO₂ concentration . [40 CFR 60.334(b),(c) and District Rules 2520, 9.4.2 and 4703, 6.2.1] Federally Enforceable Through Title V Permit
42. The owner or operator shall maintain records that contain the following: the occurrence and duration of any start-up, shutdown, tuning start-up, or malfunction, performance testing, evaluations, calibrations, checks, adjustments, any periods during which a continuous monitoring system or monitoring device is inoperative, maintenance of any CEM system that has been installed pursuant to District Rule 1080 (as amended 12/17/92), and emission measurements. [40 CFR 60.7(b) and District Rule 1080, 7.3] Federally Enforceable Through Title V Permit
43. The owner or operator of a stationary gas turbine system shall maintain all records of required monitoring data and support information for inspection at any time for a period of five years. [District Rules 2520, 9.4.2 and 4703, 6.2.4] Federally Enforceable Through Title V Permit
44. Daily records of NO₂ and CO emission calculations during days of gas turbine startup/shutdown shall be maintained and such records shall be made readily available for District inspection upon request for a period of five years. [District Rule 1080] Federally Enforceable Through Title V Permit
45. The emission control systems shall be in operation and emissions shall be minimized insofar as technologically feasible during startup and shutdown. [District Rule 4703, 5.3.2] Federally Enforceable Through Title V Permit
46. Operator shall maintain a stationary gas turbine operating log that includes, on a daily basis the following: the actual local start-up and stop time, length and reason for reduced load periods, total hours of operation and quantity of fuel used. [40 CFR 60.332(b); District Rules 2520, 9.4.2 and 4703, 6.2.6; PSD SJ 85-09, X.D.1] Federally Enforceable Through Title V Permit
47. Reduced Load Period shall be defined as the time during which a gas turbine is operated at less than rated capacity in order to change the exhaust gas diverter gate not exceeding one hour. [District Rule 4703, 3.23] Federally Enforceable Through Title V Permit
48. The operator performing start-up or shutdown of this unit shall keep records of the duration of start-up or shutdown. [District Rule 4703, 6.2.8] Federally Enforceable Through Title V Permit
49. APCO or an authorized representative shall be allowed to inspect, as he or she determines to be necessary, the monitoring devices required by this rule to ensure that such devices are functioning properly. [District Rule 1080, 11.0] Federally Enforceable Through Title V Permit
50. The owner or operator shall, upon written notice from the APCO, provide a summary of the data obtained from the CEM systems. This summary of data shall be in the form and the manner prescribed by the APCO. [District Rule 1080, 7.1] Federally Enforceable Through Title V Permit
51. Each exhaust stack shall be equipped with permanent stack sampling provisions consistent with District Rule 1081, EPA reference Methods 5 and 8 and OSHA requirements. [District Rule 1081] Federally Enforceable Through Title V Permit
52. Each CGT shall have a fuel consumption monitor/recorder. [District NSR Rule and PSD SJ 85-09, X.D.1] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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

53. Operational records (including but not limited to: fuel characteristics, etc.) shall be maintained by Sycamore Cogeneration Company. [District NSR Rule] Federally Enforceable Through Title V Permit
54. Accurate records of NO_x (as NO₂) and carbon monoxide (CO) flue gas concentrations corrected to 15% O₂, dry and CGT fuel sulfur content shall be maintained and shall be reported as described by District Rule 1080 and upon request. [District Rule 1080] Federally Enforceable Through Title V Permit
55. Operator shall submit a quarterly report listing any daily period during which the sulfur content of the fuel being fired in the gas turbine exceeds 0.8% by weight. [40 CFR 60.334(i)] Federally Enforceable Through Title V Permit
56. Quarterly continuous emission monitoring system reports shall be submitted to the District, EPA and CEC, as required by EPA regulations as specified in CFR Title 40, Part 58, Appendix B and Part 60 Appendix B. [District Rule 1080 and PSD SJ 85-09, X.D.5] Federally Enforceable Through Title V Permit
57. Operators of CEM's installed at the direction of the APCO shall submit a written report for each calendar quarter to the APCO and EPA. The report is due on the 30th day following the end of the calendar quarter and shall include the following: A. time intervals, data and magnitude of excess emissions (computed in accordance with 40 CFR 60.13(h)), nature and cause of excess (if known), corrective actions taken and preventive measures adopted; B. averaging period used for data reporting corresponding to the averaging period specified in the emission test period used to determine compliance with an emission standard. [40 CFR 60.334 (j)(5); District Rule 1080, 8.0 and PSD SJ 85-09, X.D.3 and X.D.5.a through e] Federally Enforceable Through Title V Permit
58. The written report for each calendar quarter shall also include the following: C. applicable time and date of each period during which the CEM was inoperative (except for zero and span checks) and the nature of system repairs and adjustments; D. a negative declaration when no excess emissions occurred. Excess emissions shall be defined as any 3-hour period during which the average emissions for CO, as measured by the CEM system, exceeds the emission limit set forth in PSD SJ 85-09, X.E. [District Rule 1080, 8.0; PSD SJ 85-09, X.D.3 and X.D.5.a through e] Federally Enforceable Through Title V Permit
59. A violation of NO_x emission standards indicated by the NO_x CEM shall be reported by the operator to the APCO within 96 hours. [District Rule 1080, 9.0] Federally Enforceable Through Title V Permit
60. The APCO shall be notified no later than one hour after the detection of a breakdown of the CEM. The operator shall inform the APCO of the intent to shut down the CEM at least 24 hours prior to the event. [District Rules 1080, 10.0 and 1100, 6.1; PSD SJ 85-09, X.D.3] Federally Enforceable Through Title V Permit
61. The APCO shall be notified no later than eight hours after the detection of a breakdown of the CEM. The operator shall inform the APCO of the intent to shut down the CEM at least 24 hours prior to the event. [PSD SJ 85-09, X.D.3] Federally Enforceable Through Title V Permit
62. The Regional Administrator shall be notified by telephone within 48 hours following any failure of air pollution control equipment, process equipment, or of a process to operate in a normal manner which results in an increase in emissions above any allowable emissions limit stated in this permit. In addition, the Regional Administrator shall be notified in writing within 15 days of any such failure. [PSD SJ 85-09] Federally Enforceable Through Title V Permit
63. This notification shall include a description of the malfunctioning equipment or abnormal operation, the date of initial failure, the period of time over which emissions were increased due to the failure, the cause of the failure, the estimated resultant emissions in excess of those allowed under the conditions of this permit, and the methods utilized to restore normal operations. Compliance with this malfunction notification provision shall not excuse or otherwise constitute a defense to any violations of this permit or of any law or regulations which such malfunction may cause. [PSD SJ 85-09] Federally Enforceable Through Title V Permit
64. CGT shall be fired on natural gas only. There shall be no provisions for oil firing. Natural gas used as fuel shall be pipeline quality with sulfur content of 0.3 gr/100 scf or less (0.001% sulfur by weight). [District NSR Rule; Kern County Rule 407] Federally Enforceable Through Title V Permit
65. The HHV and LHV of the gaseous fuel shall be determined using ASTM D3588, ASTM 1826, or ASTM 1945. [District Rule 4703, 6.4.5] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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66. If the turbine is fired on PUC-regulated natural gas, then maintain on file copies of natural gas bills. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit
67. If the turbine is not fired on PUC-regulated natural gas, then the sulfur content of the natural gas being fired in the turbine shall be determined using ASTM method D 1072, D 3246, D4468 or D6667. [40 CFR 60.335(b)(10)] Federally Enforceable Through Title V Permit
68. If the turbine is not fired on PUC-regulated natural gas, the sulfur content of each fuel source shall be tested in accordance with the requirements of 40 CFR 60.334 (h) and 40 CFR 60.334(i). [40 CFR 60.334 (h) and 40 CFR 60.334(i)] Federally Enforceable Through Title V Permit
69. All equipment, facilities, and systems installed or used to achieve compliance with the terms and conditions of this permit shall at all times be maintained in good working order and be operated as efficiently as possible so as to minimize air pollutant emissions. [PSD SJ 85-09] Federally Enforceable Through Title V Permit
70. The owner and operator of the proposed project shall construct and operate the proposed stationary source in compliance with all other applicable provisions of 40 CFR Parts 52, 60 and 61 and all other applicable Federal, State and local air quality regulations. [PSD SJ 85-09] Federally Enforceable Through Title V Permit
71. The cogeneration facility is subject to the federal regulations entitled Standards of Performance for New Stationary Sources (40 CFR 60). The owner or operator shall meet all applicable requirements of Subparts A and GG of this regulation. [PSD SJ 85-09] Federally Enforceable Through Title V Permit
72. All correspondence as required by this permit shall be forwarded to: a) Director, Enforcement Div (Attn: A-5), EPA Region IX, 75 Hawthorne Street, San Francisco, CA, 94105; b) Chief, Stationary Source Control Division, California Air Resource Board, P.O. Box 2815, Sacramento, CA, 95814; c) Director, SJVUAPCD, 1990 East Gettysburg, Fresno, CA, 93726-0244; and d) the California Energy Commission, 1516 Ninth Street, Sacramento, CA, 95814-5512. [PSD SJ 85-09] Federally Enforceable Through Title V Permit
73. Compliance with permit conditions in the Title V permit shall be deemed compliance with the Kern County Rule 407. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
74. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following applicable requirements: 40 CFR 60.332 (a), and (b); 60.333 (a); 60.334 (b), (c), (h), (i) and (j)(5); and 60.335 (b). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
75. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following applicable requirements: 40 CFR 60.7(b), 60.8, 60.8(d), 60.13, and 60.13(b); District Rules 1080 (as amended 12/17/92), Sections 6.3, 6.4, 6.5, 7.0, 7.1, 7.2, 7.3, 8.0, 9.0, 10.0, and 11.0; and 1081 (as amended 12/16/93) as of the date of permit issuance. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

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

San Joaquin Valley Air Pollution Control District

PERMIT UNIT: S-511-4-17

EXPIRATION DATE: 11/30/2015

SECTION: 31 TOWNSHIP: 28S RANGE: 28E

EQUIPMENT DESCRIPTION:

75 MW GENERAL ELECTRIC MODEL 7EA NATURAL GAS-FIRED COMBUSTION TURBINE COGENERATION UNIT WITH GE ENHANCED DRY LOW NOX DLN1+ COMBUSTOR TECHNOLOGY DISCHARGING TO ATMOSPHERE THROUGH A BYPASS STACK WHEN OPERATED IN SIMPLE CYCLE MODE OR THROUGH UNFIRED 450,000 LB/HR HEAT RECOVERY STEAM GENERATOR WHEN OPERATED IN COGENERATION MODE (SYCAMORE UNIT #4)

PERMIT UNIT REQUIREMENTS

1. Excess emissions indicated by the CEM system shall be considered violations of the applicable emission limit for the purposes of this permit. [PSD SJ 85-09] Federally Enforceable Through Title V Permit
2. The CGT combustors shall be a dry low NOx design capable of achieving 3 ppm or lower at 15% O2. [PSD SJ 85-09, X.B] Federally Enforceable Through Title V Permit
3. Sulfur compound emissions shall not exceed 0.015% by volume, 150 ppmv, on a dry basis averaged over 15 consecutive minutes. [40 CFR 60.333(a) and Kern County Rule 407] Federally Enforceable Through Title V Permit
4. Exhaust gas particulate matter concentration shall not exceed 0.0072 gr/scf calculated at 12% CO2. [District NSR Rule] Federally Enforceable Through Title V Permit
5. Emission rates from CGT shall not exceed any of the following: PM10 - 5.0 lb/hr, SOx (as SO2) - 0.9 lb/hr, or VOC - 2.5 lb/hr. [District Rule 2201] Federally Enforceable Through Title V Permit
6. Emission rates from CGT shall not exceed any of the following: PM10 - 120.0 lb/day, SOx (as SO2) - 21.6 lb/day, NOx (as NO2) - 552.8 lb/day, VOC - 60.0 lb/day, or CO - 1056.0 lb/day. [District Rule 2201 and PSD SJ 85-09, X.E] Federally Enforceable Through Title V Permit
7. Emission rates from CGT, except during startup, shutdown, tuning start-up, and/or reduced load periods, shall not exceed any of the following: NOx (as NO2) - 3 ppmvd @ 15% O2, 12.4 lb/hr on a 3-hr avg, or CO - 25 ppmvd @ 15% O2, 44.0 lb/hr on a 3-hr avg. [District Rules 2201 and 4703, 5.1.2 & 5.2; and PSD SJ 85-09, X.E] Federally Enforceable Through Title V Permit
8. NO2 and CO daily emissions during days of startup/shutdown shall be calculated from natural gas combustion rates and CEM results. [District Rule 1080] Federally Enforceable Through Title V Permit
9. During startup, shutdown, and tuning start-up, emissions shall not exceed any of the following: 140.0 lb/hr of NOx on a 2-hr avg, 140 lb/hr of CO on a 2-hr avg, or 200 lb/hr of CO on a 1-hr avg. [District Rule 2201] Federally Enforceable Through Title V Permit
10. Annual NOx emissions (as NO2) from all four CTG's (S-511-1, S-511-2, S-511-3, and S-511-4) calculated on a twelve month rolling basis shall not exceed 271,200 lb NOx / yr. [District Rule 2201] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE
These terms and conditions are part of the Facility-wide Permit to Operate.

11. Startup shall be defined as the period of time during which a unit is brought from a shutdown status to its operating temperature and pressure, including the time required by the unit's emission control system to reach full operations. Shutdown shall be defined as the period of time during which a unit is taken from an operational to a non-operational status as the fuel supply to the unit is completely turned off. [District Rule 4703, 3.29 and 3.26] Federally Enforceable Through Title V Permit
12. A tuning start-up shall be defined as "the period after a combustor unit replacement in which dynamic performance testing and corresponding operating optimization set point adjustment of the combustion system of the CGT is performed to meet the limits of this permit and Rule 4703". A tuning start-up period shall not exceed a time period of 12 consecutive hours per occurrence. [District Rule 4703, 5.3] Federally Enforceable Through Title V Permit
13. The duration of each startup or each shut down time shall not exceed two hours. Startup and shutdown emissions shall be counted toward all applicable emission limits. [District Rule 4703, 5.3.1] Federally Enforceable Through Title V Permit
14. Operations during periods of startup, shutdown, and tuning startup shall not constitute representative conditions for the purpose of a NOx performance test nor shall NOx emissions in excess of the level of the emission limit shown in this permit during periods of startup and shutdown be considered a violation of the applicable emission limit unless otherwise specified in the applicable standard. [40 CFR 60.8(c)] Federally Enforceable Through Title V Permit
15. Each CGT shall have a maximum heat input rate of 1020 MMBTU/hr on an LHV basis. Firing rate can be increased upon District witnessed emission sampling demonstration that compliance with emission sampling limits can be achieved at higher fuel rates. [District NSR Rule] Federally Enforceable Through Title V Permit
16. Permit unit shall include one unfired heat recovery steam generator (HRSG) for gas turbine engine assembly with rated steam output of 450,000 lb/hr at 80% quality steam production. [District NSR Rule] Federally Enforceable Through Title V Permit
17. CGT may exhaust either through unfired 450,000 lb/hr heat recovery steam generator or through bypass stack. [District NSR Rule] Federally Enforceable Through Title V Permit
18. When operating in cogeneration mode, exhaust gas ducting from CGT's through HRSG's to the atmosphere shall be gas-tight. [District NSR Rule] Federally Enforceable Through Title V Permit
19. Bypass stack valve preceding each HRSG shall be designed to be gas-tight to the atmosphere when exhaust is discharged through HRSG and shall be designed to be gas-tight to the HRSG when exhaust is discharged through the bypass stack. [District NSR Rule] Federally Enforceable Through Title V Permit
20. At such times as specified by the USEPA, permittee shall conduct or cause to be conducted performance tests (as described in 40 CFR 60.8) for CO on the exhaust stack gases and furnish the District, the California ARB and the USEPA a written report of the results of such tests. All performance tests shall be conducted on an annual basis and at the maximum operating capacity of the emissions unit being tested. Upon written request from permittee, and adequate justification, USEPA may waive a specific annual test and/or allow for testing to be done at less than maximum operating capacity. [PSD SJ 85- 09] Federally Enforceable Through Title V Permit
21. All continuous monitoring systems and monitoring devices shall be installed and operational prior to conducting performance tests. Verification of operational status shall, as a minimum, include completion of the manufacturer's written requirements or recommendations for installation, operation, and calibration of the device. [40 CFR 60.13(b)] Federally Enforceable Through Title V Permit
22. The USEPA shall be notified in writing at least 30 days in advance of such test to allow time for development of an approvable performance test plan and to arrange for an observer to be present at the test. Such prior approval shall minimize the possibility of USEPA rejection of test results for procedural deficiencies. In lieu of the above mentioned test methods, equivalent methods may be used with prior written approval from the USEPA. [PSD SJ 85-09] Federally Enforceable Through Title V Permit
23. Annual compliance tests shall be conducted by an independent laboratory in accordance with EPA guidelines, witnessed or authorized by the District. Results shall be submitted to the District within 60 days. [District Rule 1081] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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

24. Operator shall conform with the compliance testing procedures described in District Rule 1081. [District Rule 1081] Federally Enforceable Through Title V Permit
25. For performance test purposes, sampling ports, platforms, and access shall be provided by the facility on the emission unit exhaust system in accordance with 40 CFR 60.8(e). [PSD SJ 85-09] Federally Enforceable Through Title V Permit
26. Source testing to determine NOx and CO emissions and fuel gas sulfur content shall be conducted annually. [District Rule 1081] Federally Enforceable Through Title V Permit
27. The owner or operator shall provide source test information annually regarding the exhaust gas NOx and CO concentration corrected to 15% O2 (dry). EPA Methods 7E or 20 shall be used for NOx emissions. EPA Methods 10 or 10B shall be used for CO emissions. EPA Methods 3, 3A, or 20 shall be used for Oxygen content of the exhaust gas. [40 CFR 60.8(a), 40 CFR 60.335(b) and District Rule 4703, 5.1, 6.3.1, 6.4.1, 6.4.2, and 6.4.3] Federally Enforceable Through Title V Permit
28. Performance tests for the emissions of CO shall be conducted and results reported in accordance with the test methods set forth in 40 CFR 60.8 and 40 CFR 60, Appendix A. The performance tests for the emissions of CO shall be conducted using EPA Methods 1 through 4 and 10. [PSD SJ 85-09] Federally Enforceable Through Title V Permit
29. The owner or operator shall provide source test information annually regarding the demonstrated percent efficiency (EFF) as defined in District Rule 4703 (as amended 9/20/07), 5.1.1 and 6.4.6. [40 CFR 60.332(a) and (b) and District Rule 4703, 5.1.1 and 6.4.6] Federally Enforceable Through Title V Permit
30. The operator shall perform source testing for PM10 concentration and emission rate once per permit term using EPA Method 5. [40 CFR 60.8 (b) and (c)] Federally Enforceable Through Title V Permit
31. Audits of continuous emission monitoring system shall be conducted in accordance with EPA guidelines, witnessed at the District's discretion, and reports shall be submitted to the District within 60 days of such an audit. [District Rule 1080 and PSD SJ 85-09, X.D.3] Federally Enforceable Through Title V Permit
32. The Relative Accuracy Audit shall be conducted by an independent laboratory in accordance with EPA guidelines, witnessed or authorized by the District. Results shall be submitted to the District within 60 days. [District Rule 1080 and PSD SJ 85-09, X.D.3] Federally Enforceable Through Title V Permit
33. Results of continuous emissions monitoring must be reduced according to the procedure established in 40 CFR, Part 51, Appendix P, paragraphs 5.0 through 5.1.3, or by other methods deemed equivalent by mutual agreement with the District, the ARB, and the EPA. [District Rule 1080, 7.2] Federally Enforceable Through Title V Permit
34. Continuous emission monitoring system for NOx as NO2 and continuous monitoring system for CO & CO2 shall serve each CGT flue gas stream, shall conform to SJVUAPCD Rule 1080 specifications, shall meet EPA monitoring performance specifications, & shall be operational whenever the turbine is in operation. [District Rule 1080 and PSD SJ 85-09, X.D.1 and .2] Federally Enforceable Through Title V Permit
35. The continuous NOx and O2 monitoring system shall meet the performance specification requirements in 40 CFR 60, Appendix F, 40 CFR 51, Appendix P, and Part 60, Appendix B, or shall meet equivalent specifications established by mutual agreement of the District, the ARB, and the EPA. [District Rule 1080, 6.3, 6.5, 6.6 and 7.2] Federally Enforceable Through Title V Permit
36. All continuous emissions monitoring systems shall be calibrated and operated according to EPA guidelines as specified in 40 CFR 60, Appendix B and 40 CFR 52, Appendix E. CEM ppm and lb/hr shall be calculated as a three-hour and a 1-hour average. [District Rule 1080 and PSD SJ 85-09 X.D.2] Federally Enforceable Through Title V Permit
37. Results of the CEM system shall be averaged over a three hour period, using consecutive 15-minute sampling periods in accordance with either EPA Method 7E or EPA Method 20 for NOx, EPA Test Methods 10 or 10B for CO, or EPA Methods 3, 3A, or 20 for O2, or, if continuous emission monitors are used, all applicable requirements of CFR 60.13. [40 CFR 60.13 and District Rule 4703, 5.1, 6.4] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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38. Each 1-hour period in a 1, 2 or 3-hour average will commence on the hour. The 3-hour average will be compiled from the three most recent 1-hour periods. The 2-hour average will be compiled from the two most recent 1-hour periods. [District Rule 1080] Federally Enforceable Through Title V Permit
39. CEM cycling times shall be those specified in 40 CFR, Part 51, Appendix P, Sections 3.4 and 3.4.2, or shall meet equivalent specifications established by mutual agreement of the District, the ARB and the EPA. [District Rule 1080, 6.4] Federally Enforceable Through Title V Permit
40. Operator shall operate and maintain in calibration a system which continuously measures and records the following: control system operating parameters, elapsed time of operation, the exhaust gas NOx and O2 or CO2 concentration . [40 CFR 60.334(b),(c) and District Rules 2520, 9.4.2 and 4703, 6.2.1] Federally Enforceable Through Title V Permit
41. The owner or operator shall maintain records that contain the following: the occurrence and duration of any start-up, shutdown, tuning start-up, or malfunction, performance testing, evaluations, calibrations, checks, adjustments, any periods during which a continuous monitoring system or monitoring device is inoperative, maintenance of any CEM system that has been installed pursuant to District Rule 1080 (as amended 12/17/92), and emission measurements. [40 CFR 60.7(b) and District Rule 1080, 7.3] Federally Enforceable Through Title V Permit
42. The owner or operator of a stationary gas turbine system shall maintain all records of required monitoring data and support information for inspection at any time for a period of five years. [District Rules 2520, 9.4.2 and 4703, 6.2.4] Federally Enforceable Through Title V Permit
43. Daily records of NO2 and CO emission calculations during days of gas turbine startup/shutdown shall be maintained and such records shall be made readily available for District inspection upon request for a period of five years. [District Rule 1080] Federally Enforceable Through Title V Permit
44. The emission control systems shall be in operation and emissions shall be minimized insofar as technologically feasible during startup and shutdown. [District Rule 4703, 5.3.2] Federally Enforceable Through Title V Permit
45. Operator shall maintain a stationary gas turbine operating log that includes, on a daily basis the following: the actual local start-up and stop time, length and reason for reduced load periods, total hours of operation and quantity of fuel used. [40 CFR 60.332(b); District Rules 2520, 9.4.2 and 4703, 6.2.6; PSD SJ 85-09, X.D.1] Federally Enforceable Through Title V Permit
46. Reduced Load Period shall be defined as the time during which a gas turbine is operated at less than rated capacity in order to change the exhaust gas diverter gate not exceeding one hour. [District Rule 4703, 3.23] Federally Enforceable Through Title V Permit
47. The operator performing start-up or shutdown of this unit shall keep records of the duration of start-up or shutdown. [District Rule 4703, 6.2.8] Federally Enforceable Through Title V Permit
48. APCO or an authorized representative shall be allowed to inspect, as he or she determines to be necessary, the monitoring devices required by this rule to ensure that such devices are functioning properly. [District Rule 1080, 11.0] Federally Enforceable Through Title V Permit
49. The owner or operator shall, upon written notice from the APCO, provide a summary of the data obtained from the CEM systems. This summary of data shall be in the form and the manner prescribed by the APCO. [District Rule 1080, 7.1] Federally Enforceable Through Title V Permit
50. Each exhaust stack shall be equipped with permanent stack sampling provisions consistent with District Rule 1081, EPA reference Methods 5 and 8 and OSHA requirements. [District Rule 1081] Federally Enforceable Through Title V Permit
51. Each CGT shall have a fuel consumption monitor/recorder. [District NSR Rule and PSD SJ 85-09, X.D.1] Federally Enforceable Through Title V Permit
52. Operational records (including but not limited to: fuel characteristics, etc.) shall be maintained by Sycamore Cogeneration Company. [District NSR Rule] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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

53. Accurate records of NO_x (as NO₂) and carbon monoxide (CO) flue gas concentrations corrected to 15% O₂, dry and CGT fuel sulfur content shall be maintained and shall be reported as described by District Rule 1080 and upon request. [District Rule 1080] Federally Enforceable Through Title V Permit
54. Operator shall submit a quarterly report listing any daily period during which the sulfur content of the fuel being fired in the gas turbine exceeds 0.8% by weight. [40 CFR 60.334(i)] Federally Enforceable Through Title V Permit
55. Quarterly continuous emission monitoring system reports shall be submitted to the District, EPA and CEC, as required by EPA regulations as specified in CFR Title 40, Part 58, Appendix B and Part 60 Appendix B. [District Rule 1080 and PSD SJ 85-09, X.D.5] Federally Enforceable Through Title V Permit
56. Operators of CEM's installed at the direction of the APCO shall submit a written report for each calendar quarter to the APCO and EPA. The report is due on the 30th day following the end of the calendar quarter and shall include the following: A. time intervals, data and magnitude of excess emissions (computed in accordance with 40 CFR 60.13(h)), nature and cause of excess (if known), corrective actions taken and preventive measures adopted; B. averaging period used for data reporting corresponding to the averaging period specified in the emission test period used to determine compliance with an emission standard. [40 CFR 60.334 (j)(5); District Rule 1080, 8.0 and PSD SJ 85-09, X.D.3 and X.D.5.a through e] Federally Enforceable Through Title V Permit
57. The written report for each calendar quarter shall also include the following: C. applicable time and date of each period during which the CEM was inoperative (except for zero and span checks) and the nature of system repairs and adjustments; D. a negative declaration when no excess emissions occurred. Excess emissions shall be defined as any 3-hour period during which the average emissions for CO, as measured by the CEM system, exceeds the emission limit set forth in PSD SJ 85-09, X.E. [District Rule 1080, 8.0; PSD SJ 85-09, X.D.3 and X.D.5.a through e] Federally Enforceable Through Title V Permit
58. A violation of NO_x emission standards indicated by the NO_x CEM shall be reported by the operator to the APCO within 96 hours. [District Rule 1080, 9.0] Federally Enforceable Through Title V Permit
59. The APCO shall be notified no later than one hour after the detection of a breakdown of the CEM. The operator shall inform the APCO of the intent to shut down the CEM at least 24 hours prior to the event. [District Rules 1080, 10.0 and 1100, 6.1; PSD SJ 85-09, X.D.3] Federally Enforceable Through Title V Permit
60. The Regional Administrator shall be notified by telephone within 48 hours following any failure of air pollution control equipment, process equipment, or of a process to operate in a normal manner which results in an increase in emissions above any allowable emissions limit stated in this permit. In addition, the Regional Administrator shall be notified in writing within 15 days of any such failure. [PSD SJ 85-09] Federally Enforceable Through Title V Permit
61. This notification shall include a description of the malfunctioning equipment or abnormal operation, the date of initial failure, the period of time over which emissions were increased due to the failure, the cause of the failure, the estimated resultant emissions in excess of those allowed under the conditions of this permit, and the methods utilized to restore normal operations. Compliance with this malfunction notification provision shall not excuse or otherwise constitute a defense to any violations of this permit or of any law or regulations which such malfunction may cause. [PSD SJ 85-09] Federally Enforceable Through Title V Permit
62. CGT shall be fired on natural gas only. There shall be no provisions for oil firing. Natural gas used as fuel shall be pipeline quality with sulfur content of 0.3 gr/100 scf or less (0.001% sulfur by weight). [District NSR Rule; Kern County Rule 407] Federally Enforceable Through Title V Permit
63. The HHV and LHV of the gaseous fuel shall be determined using ASTM D3588, ASTM 1826, or ASTM 1945. [District Rule 4703, 6.4.5] Federally Enforceable Through Title V Permit
64. If the turbine is fired on PUC-regulated natural gas, then maintain on file copies of natural gas bills. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit
65. If the turbine is not fired on PUC-regulated natural gas, then the sulfur content of the natural gas being fired in the turbine shall be determined using ASTM method D 1072, D 3246, D4468 or D6667. [40 CFR 60.335(b)(10)] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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

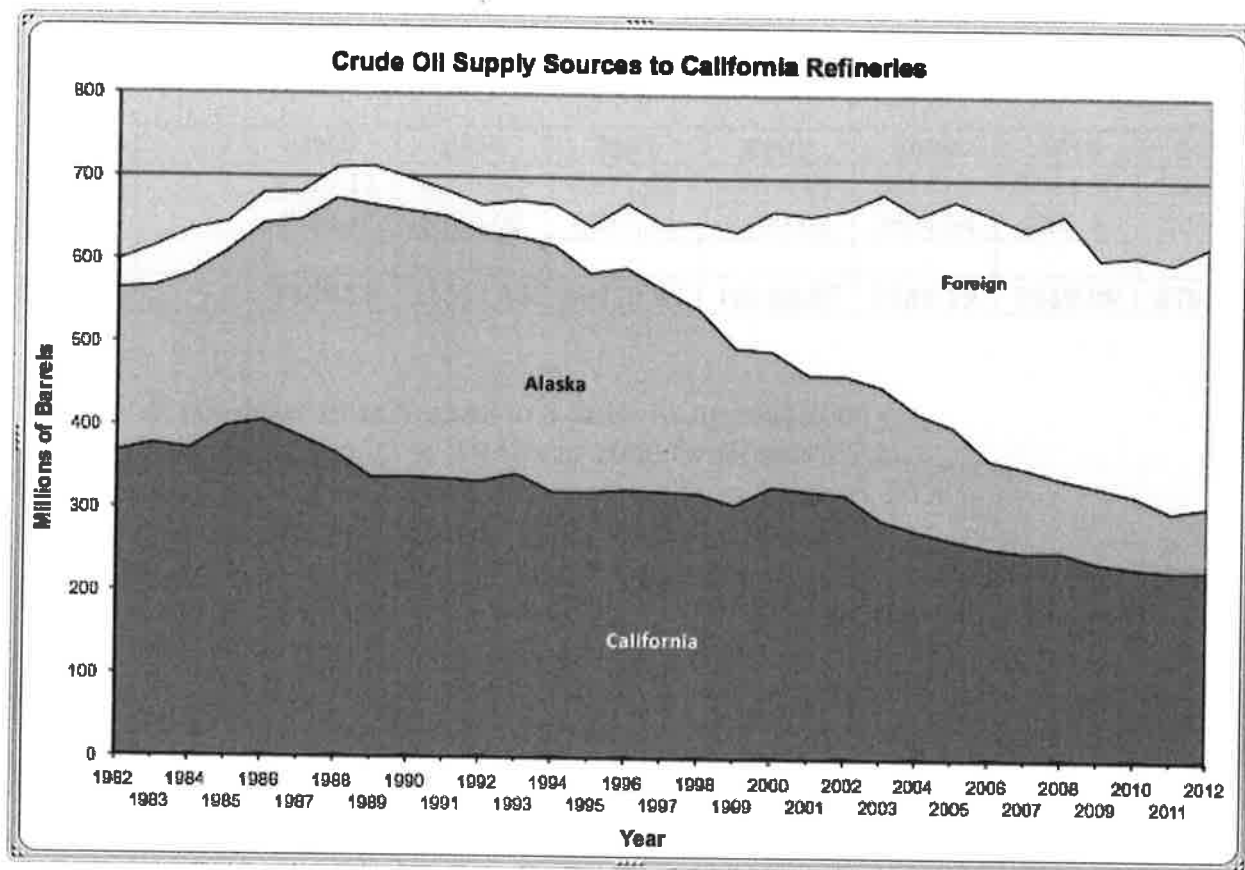
66. If the turbine is not fired on PUC-regulated natural gas, the sulfur content of each fuel source shall be tested in accordance with the requirements of 40 CFR 60.334 (h) and 40 CFR 60.334(i). [40 CFR 60.334 (h) and 40 CFR 60.334(i)] Federally Enforceable Through Title V Permit
67. All equipment, facilities, and systems installed or used to achieve compliance with the terms and conditions of this permit shall at all times be maintained in good working order and be operated as efficiently as possible so as to minimize air pollutant emissions. [PSD SJ 85-09] Federally Enforceable Through Title V Permit
68. The owner and operator of the proposed project shall construct and operate the proposed stationary source in compliance with all other applicable provisions of 40 CFR Parts 52, 60 and 61 and all other applicable Federal, State and local air quality regulations. [PSD SJ 85-09] Federally Enforceable Through Title V Permit
69. The cogeneration facility is subject to the federal regulations entitled Standards of Performance for New Stationary Sources (40 CFR 60). The owner or operator shall meet all applicable requirements of Subparts A and GG of this regulation. [PSD SJ 85-09] Federally Enforceable Through Title V Permit
70. All correspondence as required by this permit shall be forwarded to: a) Director, Enforcement Div (Attn: A-5), EPA Region IX, 75 Hawthorne Street, San Francisco, CA, 94105; b) Chief, Stationary Source Control Division, California Air Resource Board, P.O. Box 2815, Sacramento, CA, 95814; c) Director, SJVUAPCD, 1990 East Gettysburg, Fresno, CA, 93726-0244; and d) the California Energy Commission, 1516 Ninth Street, Sacramento, CA, 95814-5512. [PSD SJ 85-09] Federally Enforceable Through Title V Permit
71. Compliance with permit conditions in the Title V permit shall be deemed compliance with the Kern County Rule 407. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
72. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following applicable requirements: 40 CFR 60.332 (a), and (b); 60.333 (a); 60.334 (b), (c), (h), (i) and (j)(5); and 60.335 (b). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
73. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following applicable requirements: 40 CFR 60.7(b), 60.8, 60.8(d), 60.13, and 60.13(b); District Rules 1080 (as amended 12/17/92), Sections 6.3, 6.4, 6.5, 7.0, 7.1, 7.2, 7.3, 8.0, 9.0, 10.0, and 11.0; and 1081 (as amended 12/16/93) as of the date of permit issuance. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

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

Appendix B
California production

ATTACHMENT 1

Oil Production Graph



http://energyalmanac.ca.gov/petroleum/statistics/crude_oil_receipts.html

ATTACHMENT 2

Historical Fuel Use from Steam Generators/Turbines at S-1127 & S-1131 (Fuel in mmcf)

Facility	2205	2006	2007	2008	2009	2010	2011
S-1127	5237.11	5015.33	3871.22	3911.45	3681.65	3684.86	3540.13
S-1131	4232.48	6496.02	6447.84	6400.62	3854.54	4265.13	3225.11
TOTAL	9469.59	11511.35	10319.06	10312.07	7536.19	7949.99	6765.24

Notes:

- 1) KRCC (S-88) went from 4 units to 3 units in August 2005
- 2) KRCC went from 3 units to 2 units in 2006 (with new PPA)
- 3) Sycamore (S-511) went from 4 units to 3 units in January 2008
- 4) Sycamore went from 3 units to 2 units in 2010 (new PPA)
- 5) Data for S-1131 for 2006 has been adjusted (appears to have been a transposition error in annual emissions inventory)

Appendix C
Source Test Data

TABLE 2-2
REPRESENTATIVE EMISSIONS FACTORS DATA SUMMARY
HRSG OUTLET STACK UNIT NO. 1
AUTHORITY TO CONSTRUCT NO. S-511-1-10
SYCAMORE COGENERATION COMPANY
BAKERSFIELD, CALIFORNIA
MARCH 2, 2006

Parameter	Run 1	Run 2	Run 3	Average
<u>Nitrogen Oxides (NO_x)</u>				
lb/MMBtu	0.0318	0.0317	0.0322	0.0319
lb/MMscf	33.2	33.1	33.6	33.3
<u>Carbon Monoxide (CO)</u>				
lb/MMBtu	0.0072	0.0069	0.0066	0.0069
lb/MMscf	7.53	7.21	6.92	7.22
<u>Carbon Dioxide (CO₂)</u>				
lb/MMBtu	121	122	123	122
lb/MMscf	126,029	127,555	128,813	127,466

TABLE 2-5
REPRESENTATIVE EMISSIONS FACTORS DATA SUMMARY
AUTHORITY TO CONSTRUCT NO. S-511-2-10
HRSG OUTLET STACK UNIT NO. 2
SYCAMORE COGENERATION COMPANY
BAKERSFIELD, CALIFORNIA
MARCH 1, 2006

Parameter	Run 1	Run 2	Run 3	Average
<u>Nitrogen Oxides (NO_x)</u>				
lb/MMBtu	0.0249	0.0244	0.0244	0.0246
lb/MMscf	26.0	25.5	25.4	25.6
<u>Carbon Monoxide (CO)</u>				
lb/MMBtu	0.0061	0.0066	0.0066	0.0064
lb/MMscf	6.34	6.93	6.92	6.73
<u>Carbon Dioxide (CO₂)</u>				
lb/MMBtu	123	124	123	123
lb/MMscf	128,668	129,052	128,013	128,578

TABLE 2-8
REPRESENTATIVE EMISSIONS FACTORS DATA SUMMARY
AUTHORITY TO CONSTRUCT NO. S-511-3-10
HRSG OUTLET STACK UNIT NO. 3
SYCAMORE COGENERATION COMPANY
BAKERSFIELD, CALIFORNIA
FEBRUARY 28, 2006

Parameter	Run 1	Run 2	Run 3	Average
<u>Nitrogen Oxides (NO_x)</u>				
lb/MMBtu	0.0318	0.0317	0.0322	0.0319
lb/MMscf	33.2	33.1	33.6	33.3
<u>Carbon Monoxide (CO)</u>				
lb/MMBtu	0.0072	0.0069	0.0066	0.0069
lb/MMscf	7.53	7.21	6.92	7.22
<u>Carbon Dioxide (CO₂)</u>				
lb/MMBtu	121	122	123	122
lb/MMscf	126,029	127,555	128,813	127,466

TABLE 2-11
REPRESENTATIVE EMISSIONS FACTORS DATA SUMMARY
AUTHORITY TO CONSTRUCT NO. S-511-4-10
HRSG OUTLET STACK UNIT NO. 4
SYCAMORE COGENERATION COMPANY
BAKERSFIELD, CALIFORNIA
FEBRUARY 28, 2006

Parameter	Run 1	Run 2	Run 3	Average
<u>Nitrogen Oxides (NO_x)</u>				
lb/MMBtu	0.0317	0.0324	0.0320	0.0320
lb/MMscf	33.0	33.8	33.4	33.4
<u>Carbon Monoxide (CO)</u>				
lb/MMBtu	0.0114	0.0110	0.0111	0.0112
lb/MMscf	11.91	11.53	11.60	11.68
<u>Carbon Dioxide (CO₂)</u>				
lb/MMBtu	123	123	123	123
lb/MMscf	128,172	128,604	128,760	128,512

TABLE 2-1
COMPLIANCE DATA SUMMARY
HRSG OUTLET STACK UNIT NO. 1
AUTHORITY TO CONSTRUCT NO. S-511-1-10
SYCAMORE COGENERATION COMPANY
BAKERSFIELD, CALIFORNIA
FEBRUARY 20, 2007

Parameter	Run 1	Run 2	Run 3	Average	Limits
<u>Oxygen (O₂)</u>					
%	14.82	14.87	14.88	14.86	
<u>Nitrogen Oxides (NO_x)</u>					
ppm	8.92	9.04	9.02	8.99	
ppm @ 15% O ₂	8.66	8.84	8.84	8.78	16.4
lb/hr	26.3	26.7	26.6	26.5	79.7
lb/day	632	640	639	637	1629.6
lb/MMBtu	0.0318	0.0325	0.0325	0.0323	
lb/MMscf	32.8	33.5	33.5	33.2	
<u>Carbon Monoxide (CO)</u>					
ppm	0.59	0.53	0.46	0.53	
ppm @ 15% O ₂	0.58	0.51	0.45	0.51	25.0
lb/hr	1.07	0.95	0.83	0.95	44.0
lb/day	25.6	22.7	20.0	22.8	1,056
lb/MMBtu	0.0013	0.0012	0.0010	0.0012	
lb/MMscf	1.33	1.19	1.05	1.19	
<u>Carbon Dioxide (CO₂)</u>					
%	3.67	3.65	3.63	3.65	
lb/hr	103,637	103,241	102,534	103,137	
lb/day	2,487,280	2,477,787	2,460,817	2,475,295	
lb/MMBtu	125	125	125	125	
lb/MMscf	128,929	128,930	128,930	128,930	
<u>Gas Turbine Efficiency</u>					
(EEF ₁)	33.0	32.8	33.0	32.9	
<u>Mega Watts</u>					
MW	78.9	78.8	79.1	78.9	

TABLE 2-3
COMPLIANCE DATA SUMMARY
AUTHORITY TO CONSTRUCT NO. S-511-2-12
HRSG OUTLET STACK UNIT NO. 2
SYCAMORE COGENERATION COMPANY
BAKERSFIELD, CALIFORNIA
FEBRUARY 20, 2007

Parameter	Run 1	Run 2	Run 3	Average	Limits
<u>Oxygen (O₂)</u>					
%	15.09	15.09	15.09	15.09	
<u>Nitrogen Oxides (NO_x)</u>					
ppm	9.40	9.42	9.52	9.45	
ppm @ 15% O ₂	9.55	9.57	9.67	9.59	16.4
lb/hr	29.5	29.6	30.2	29.8	79.7
lb/day	709	711	725	715	1629.6
lb/MMBtu	0.0351	0.0352	0.0355	0.0353	
lb/MMscf	36.1	36.2	36.6	36.3	
<u>Carbon Monoxide (CO)</u>					
ppm	2.84	2.59	2.66	2.70	
ppm @ 15% O ₂	2.88	2.63	2.70	2.74	25.0
lb/hr	5.44	4.96	5.14	5.18	44.0
lb/day	130	119	123	124	1,056
lb/MMBtu	0.0065	0.0059	0.0060	0.0061	
lb/MMscf	6.64	6.06	6.22	6.31	
<u>Carbon Dioxide (CO₂)</u>					
%	3.53	3.52	3.52	3.52	
lb/hr	106,150	105,850	106,801	106,267	
lb/day	2,547,608	2,540,391	2,563,216	2,550,405	
lb/MMBtu	126	126	126	126	
lb/MMscf	129,759	129,392	129,392	129,514	
<u>Gas Turbine Efficiency</u>					
(EEF ₁)	31.5	31.5	31.2	31.4	
<u>Mega Watts</u>					
MW	78.3	77.8	77.7	77.9	

TABLE 2-5
COMPLIANCE DATA SUMMARY
AUTHORITY TO CONSTRUCT NO. S-511-3-12
HRSG OUTLET STACK UNIT NO. 3
SYCAMORE COGENERATION COMPANY
BAKERSFIELD, CALIFORNIA
FEBRUARY 21, 2007

Parameter	Run 1	Run 2	Run 3	Average	Limits
<u>Oxygen (O₂)</u>					
%	15.02	15.04	15.06	15.04	
<u>Nitrogen Oxides (NO_x)</u>					
ppm	8.49	8.41	8.40	8.43	
ppm @ 15% O ₂	8.52	8.47	8.48	8.49	16.4
lb/hr	27.8	27.6	27.4	27.6	79.7
lb/day	668	661	657	662	1629.6
lb/MMBtu	0.0313	0.0311	0.0312	0.0312	
lb/MMscf	32.2	32.0	32.1	32.1	
<u>Carbon Monoxide (CO)</u>					
ppm	2.77	2.71	2.37	2.61	
ppm @ 15% O ₂	2.77	2.73	2.39	2.63	25.0
lb/hr	5.52	5.40	4.69	5.20	44.0
lb/day	132.4	129.7	112.6	124.9	1,056
lb/MMBtu	0.0062	0.0061	0.0053	0.0059	
lb/MMscf	6.39	6.28	5.50	6.06	
<u>Carbon Dioxide (CO₂)</u>					
%	3.55	3.56	3.55	3.55	
lb/hr	111,143	111,738	110,550	111,144	
lb/day	2,667,421	2,681,718	2,653,202	2,667,447	
lb/MMBtu	125	126	126	126	
lb/MMscf	128,781	129,662	129,662	129,369	
<u>Gas Turbine Efficiency</u>					
(EEF ₁)	32.9	32.9	32.8	32.9	
<u>Mega Watts</u>					
MW	85.8	85.4	84.3	85.2	

TABLE 2-7
COMPLIANCE DATA SUMMARY
AUTHORITY TO CONSTRUCT NO. S-511-4-10
HRSG OUTLET STACK UNIT NO. 4
SYCAMORE COGENERATION COMPANY
BAKERSFIELD, CALIFORNIA
FEBRUARY 22, 2007

Parameter	Run 1	Run 2	Run 3	Average	Limits
<u>Oxygen (O₂)</u>					
%	14.97	15.00	15.03	15.00	
<u>Nitrogen Oxides (NO_x)</u>					
ppm	8.60	8.41	8.19	8.40	
ppm @ 15% O ₂	8.56	8.41	8.23	8.40	16.4
lb/hr	27.3	26.7	26.2	26.7	79.7
lb/day	654	640	628	641	1629.6
lb/MMBtu	0.0315	0.0309	0.0303	0.0309	
lb/MMscf	32.4	31.8	31.1	31.8	
<u>Carbon Monoxide (CO)</u>					
ppm	1.36	1.21	1.17	1.25	
ppm @ 15% O ₂	1.35	1.21	1.18	1.25	25.0
lb/hr	2.63	2.34	2.28	2.41	44.0
lb/day	63.0	56.1	54.6	57.9	1,056
lb/MMBtu	0.0030	0.0027	0.0026	0.0028	
lb/MMscf	3.12	2.79	2.71	2.87	
<u>Carbon Dioxide (CO₂)</u>					
%	3.58	3.57	3.57	3.57	
lb/hr	108,583	108,280	109,120	108,661	
lb/day	2,606,002	2,598,723	2,618,878	2,607,868	
lb/MMBtu	125	126	126	126	
lb/MMscf	128,934	129,888	129,888	129,570	
<u>Gas Turbine Efficiency</u>					
(EEF ₁)	33.4	33.2	32.5	33.0	
<u>Mega Watts</u>					
MW	86.1	84.0	82.2	84.1	

TABLE 2-2
REPRESENTATIVE EMISSIONS FACTORS DATA SUMMARY
HRSG OUTLET STACK UNIT NO. 1
AUTHORITY TO CONSTRUCT NO. S-511-1-12
SYCAMORE COGENERATION COMPANY
BAKERSFIELD, CALIFORNIA
JUNE 11, 2008

Parameter	Run 1	Run 2	Run 3	Average
<u>Nitrogen Oxides (NO_x)</u>				
lb/MMBtu	0.0121	0.0123	0.0123	0.0122
lb/MMscf	12.1	12.3	12.3	12.2
<u>Carbon Monoxide (CO)</u>				
lb/MMBtu	0.0068	0.0071	0.0073	0.0071
lb/MMscf	6.85	7.08	7.34	7.09
<u>Carbon Dioxide (CO₂)</u>				
lb/MMBtu	118	119	118	119
lb/MMscf	118,654	119,508	118,907	119,023
<u>Volatile Organic Compounds (C₁-C₆, as methane)</u>				
lb/MMBtu	ND<0.0012	ND<0.0012	ND<0.0012	ND<0.0012
lb/MMscf	ND<1.2	ND<1.2	ND<1.2	ND<1.2

TABLE 2-5
REPRESENTATIVE EMISSIONS FACTORS DATA SUMMARY
AUTHORITY TO CONSTRUCT NO. S-511-2-13
HRSG OUTLET STACK UNIT NO. 2
SYCAMORE COGENERATION COMPANY
BAKERSFIELD, CALIFORNIA
APRIL 24, 2008

Parameter	Run 1	Run 2	Run 3	Average
<u>Nitrogen Oxides (NO_x)</u>				
lb/MMBtu	0.0118	0.0120	0.0118	0.0119
lb/MMscf	11.86	12.09	11.83	11.93
<u>Carbon Monoxide (CO)</u>				
lb/MMBtu	0.0088	0.0075	0.0066	0.0076
lb/MMscf	8.81	7.56	6.62	7.66
<u>Carbon Dioxide (CO₂)</u>				
lb/MMBtu	124	125	124	124
lb/MMscf	124,277	125,062	124,161	124,500
<u>Volatile Organic Compounds (C₁-C₆, as methane)</u>				
lb/MMBtu	ND<0.0013	ND<0.0013	ND<0.0013	ND<0.0013
lb/MMscf	ND<1.31	ND<1.31	ND<1.31	ND<1.31

TABLE 2-8
REPRESENTATIVE EMISSIONS FACTORS DATA SUMMARY
AUTHORITY TO CONSTRUCT NO. S-511-3-13
HRSG OUTLET STACK UNIT NO. 3
SYCAMORE COGENERATION COMPANY
BAKERSFIELD, CALIFORNIA
MAY 20, 2008

Parameter	Run 1	Run 2	Run 3	Average
<u>Nitrogen Oxides (NO_x)</u>				
lb/MMBtu	0.0112	0.0112	0.0113	0.0112
lb/MMscf	11.23	11.25	11.34	11.27
<u>Carbon Monoxide (CO)</u>				
lb/MMBtu	0.0024	0.0020	0.0019	0.0021
lb/MMscf	2.36	2.00	1.90	2.09
<u>Carbon Dioxide (CO₂)</u>				
lb/MMBtu	119.4	119.4	119.4	119.4
lb/MMscf	119,890	119,838	119,894	119,874
<u>Volatile Organic Compounds (C₁-C₆, as methane)</u>				
lb/MMBtu	ND<0.0013	ND<0.0013	ND<0.0013	ND<0.0013
lb/MMscf	ND<1.31	ND<1.31	ND<1.31	ND<1.31

TABLE 2-2
REPRESENTATIVE EMISSIONS FACTORS DATA SUMMARY
HRSG OUTLET STACK UNIT NO. 1
AUTHORITY TO CONSTRUCT NO. S-511-1-12
SYCAMORE COGENERATION COMPANY
BAKERSFIELD, CALIFORNIA
APRIL 24, 2008

Parameter	Run 1	Run 2	Run 3	Average
<u>Nitrogen Oxides (NO_x)</u>				
lb/MMBtu	0.0115	0.0115	0.0116	0.0115
lb/MMscf	11.51	11.58	11.66	11.58
<u>Carbon Monoxide (CO)</u>				
lb/MMBtu	0.0095	0.0091	0.0088	0.0091
lb/MMscf	9.51	9.15	8.84	9.16
<u>Carbon Dioxide (CO₂)</u>				
lb/MMBtu	119	119	118	118
lb/MMscf	119,489	118,991	118,393	118,958
<u>Volatile Organic Compounds (C₁-C₄, as methane)</u>				
lb/MMBtu	ND<0.0012	ND<0.0012	0.0022	0.0015
lb/MMscf	ND<1.2	ND<1.2	2.21	1.54

Appendix D
Fuel Use Data

	MMBtu				Total all 4 units					
	Unit 1	Unit 2	Unit 3	Unit 4		Source test	Unit1	Unit 2	Unit 3	Unit4
Jan-97	713,232	668,348	755,824	707,797	2,845,201					
Feb-97	407,072	595,313	651,484	592,355	2,246,224					
Mar-97	159,405	662,182	729,357	654,979	2,205,923					
Apr-97	683,355	602,181	668,509	475,715	2,429,760					
May-97	693,766	597,327	693,348	242,313	2,226,754	2/28/2006	122	123	122	123 lb CO2/ MMBtu
Jun-97	653,569	581,074	648,550	614,005	2,497,198	2/22/2007	125	126	126	126 lb CO2/ MMBtu
Jul-97	695,939	645,442	694,804	616,528	2,652,713	4/24/2008	119	124	119	118 lb CO2/ MMBtu
Aug-97	714,053	653,390	707,375	707,293	2,782,111					
Sep-97	685,977	618,076	673,842	677,523	2,655,418					
Oct-97	700,139	46,268	669,726	715,476	2,131,609					
Nov-97	624,217	577,494	649,417	665,287	2,516,415					
Dec-97	707,084	726,648	717,122	694,384	2,845,238					
Jan-98	721,913	707,341	719,567	723,037	2,871,858					
Feb-98	630,760	655,947	642,254	641,911	2,570,872					
Mar-98	698,238	707,178	694,684	716,927	2,817,027					
Apr-98	696,728	706,008	682,443	702,492	2,787,671					
May-98	692,721	705,959	690,982	683,547	2,773,209					
Jun-98	682,125	689,424	683,056	688,902	2,743,507					
Jul-98	684,488	689,056	664,672	695,025	2,733,241					
Aug-98	686,091	696,754	677,177	694,290	2,754,312					
Sep-98	652,143	673,156	662,708	668,576	2,656,583					
Oct-98	706,794	694,540	647,967	711,645	2,760,946					
Nov-98	699,218	709,098	681,985	705,436	2,795,737					
Dec-98	716,760	724,118	737,561	734,381	2,912,820					
Jan-99	640,123	702,953	689,275	710,943	2,743,294					
Feb-99	655,186	650,585	638,208	653,925	2,597,904					
Mar-99	70,368	701,521	706,330	620,101	2,098,320					
Apr-99	697,951	682,128	687,248	699,305	2,766,632					
May-99	696,247	675,224	678,873	685,628	2,735,972					
Jun-99	668,632	677,895	662,772	670,828	2,680,127					
Jul-99	693,825	690,814	686,354	688,607	2,759,600					
Aug-99	691,514	689,999	691,797	689,538	2,762,848					
Sep-99	669,024	666,505	652,116	670,854	2,658,499					
Oct-99	693,157	589,423	691,093	672,367	2,646,040					
Nov-99	705,313	701,239	686,788	694,693	2,788,033					
Dec-99	726,232	678,818	707,639	700,126	2,812,815					
Jan-00	723,877	714,036	708,708	705,560	2,852,181					
Feb-00	658,116	672,480	671,775	614,843	2,617,214					
Mar-00	721,557	700,256	717,107	715,723	2,854,643					
Apr-00	673,924	672,846	618,061	673,936	2,638,767					
May-00	711,231	703,424	573,430	696,500	2,684,585					
Jun-00	641,356	648,017	657,303	633,140	2,579,816					
Jul-00	695,082	691,797	704,676	665,509	2,757,064					
Aug-00	689,033	696,826	709,579	694,560	2,789,998					
Sep-00	679,367	675,264	688,213	672,377	2,715,221					
Oct-00	690,004	716,758	716,785	707,388	2,830,935					
Nov-00	678,883	702,771	710,839	618,249	2,710,742					
Dec-00	687,522	684,296	689,705	679,085	2,740,608					
Jan-01	554,752	708,101	712,481	701,027	2,676,361					
Feb-01	606,138	605,289	598,275	422,089	2,231,791					
Mar-01	611,549	611,704	616,688	616,443	2,456,384					
Apr-01	679,435	512,681	631,872	659,051	2,483,039					
May-01	700,769	713,956	698,119	689,208	2,802,052					
Jun-01	672,439	676,363	665,834	661,331	2,675,967					
Jul-01	660,995	679,800	655,833	644,905	2,641,533					
Aug-01	687,832	701,556	686,171	683,456	2,759,015					
Sep-01	657,125	673,719	652,118	654,227	2,637,189					
Oct-01	689,040	694,638	681,344	671,601	2,736,623					
Nov-01	674,539	692,491	671,726	664,427	2,703,183					
Dec-01	728,978	485,195	711,344	715,931	2,641,448					
Jan-02	724,733	739,693	726,791	713,937	2,905,154					
Feb-02	641,946	662,873	641,434	628,142	2,574,395					
Mar-02	713,569	735,761	720,485	716,669	2,886,484					
Apr-02	687,193	701,733	562,663	678,108	2,629,697					
May-02	684,675	702,134	421,252	676,848	2,484,909					
Jun-02	665,835	675,947	710,142	660,106	2,712,030					
Jul-02	677,152	694,601	722,426	674,161	2,768,340					
Aug-02	672,581	693,908	719,961	675,710	2,762,160					
Sep-02	644,998	676,363	698,824	655,123	2,675,308					
Oct-02	253,040	714,442	736,185	685,352	2,389,019					
Nov-02	720,151	683,073	695,378	614,316	2,712,918					
Dec-02	691,711	704,320	720,666	291,722	2,408,419					
Jan-03	733,571	706,129	729,611	737,291	2,906,602					
Feb-03	654,000	631,589	660,482	661,621	2,607,692					
Mar-03	694,891	601,468	693,391	698,718	2,688,468					
Apr-03	673,599	684,312	698,533	671,745	2,728,189					
May-03	709,279	672,336	704,645	704,622	2,790,882					
Jun-03	671,667	657,663	680,215	666,500	2,676,045					
Jul-03	701,446	683,586	706,836	700,495	2,792,363					
Aug-03	692,695	692,695	702,906	696,951	2,785,247					
Sep-03	678,230	661,250	674,987	675,176	2,689,643					
Oct-03	724,077	696,934	718,235	711,424	2,850,670					
Nov-03	707,318	691,380	717,969	710,728	2,827,395					
Dec-03	721,473	703,440	725,789	721,937	2,872,639					
Jan-04	738,479	715,773	747,127	740,705	2,942,084					
Feb-04	675,905	661,110	686,122	662,842	2,685,979					
Mar-04	715,235	276,822	724,369	709,645	2,426,071					
Apr-04	676,481	725,438	630,944	687,105	2,719,968					
May-04	705,223	732,273	712,334	699,394	2,849,224					
Jun-04	675,336	699,817	684,677	674,076	2,733,906					
Jul-04	674,900	694,634	683,117	671,721	2,724,372					
Aug-04	704,600	710,700	700,700	690,600	2,806,600					

Appendix E Calculations

CO2e Emissions from Permit S-511-1

	Unit 1 MMBtu	Emission Factor (lb CO2e /MMBtu)	lb				
			lb/month	1st qtr	2nd qtr	3rd qtr	4th qtr
Jan-07	742,580	122	90,594,732	90,594,732			
Feb-07	618,982	122	75,515,756	75,515,756			
Mar-07	742,046	125	92,755,696	92,755,696			
Apr-07	713,467	125	89,183,419		89,183,419		
May-07	710,255	125	88,781,913		88,781,913		
Jun-07	676,415	125	84,551,866		84,551,866		
Jul-07	702,809	125	87,851,170			87,851,170	
Aug-07	701,455	125	87,681,910			87,681,910	
Sep-07	682,453	125	85,306,656			85,306,656	
Oct-07	699,763	125	87,470,411				87,470,411
Nov-07	689,670	125	86,208,796				86,208,796
Dec-07	745,581	125	93,197,622				93,197,622
Jan-08	735,238	125	91,904,717	91,904,717			
Feb-08	630,734	125	78,841,780	78,841,780			
Mar-08	366,649	125	45,831,069	45,831,069			
Apr-08	576,621	125	72,077,652		72,077,652		
May-08	713,861	125	89,232,565		89,232,565		
Jun-08	660,682	119	78,621,165		78,621,165		
Jul-08	416,290	119	49,538,480			49,538,480	
Aug-08	319,777	119	38,053,463			38,053,463	
Sep-08	407,225	119	48,459,785			48,459,785	
Oct-08	347,324	119	41,331,537				41,331,537
Nov-08	161,092	119	19,169,961				19,169,961
Dec-08	97,140	119	11,559,703				11,559,703

Total	lb/qtr	475,443,751	502,448,581	396,891,465	338,938,029
Historical actual	lb/qtr	237,721,876	251,224,290	198,445,732	169,469,015

CO2e Emissions from Permit S-511-2

	Unit 2 MMBtu	Emission Factor (lb CO2e /MMBtu)	lb/month	lb 1st qtr	2nd qtr	3rd qtr	4th qtr
Jan-07	707,164	123	86,981,182	86,981,182			
Feb-07	635,263	123	78,137,331	78,137,331			
Mar-07	694,759	126	87,539,607	87,539,607			
Apr-07	664,813	126	83,766,449		83,766,449		
May-07	664,313	126	83,703,425		83,703,425		
Jun-07	646,789	126	81,495,392		81,495,392		
Jul-07	650,956	126	82,020,415			82,020,415	
Aug-07	654,862	126	82,512,549			82,512,549	
Sep-07	609,927	126	76,850,743			76,850,743	
Oct-07	465,734	126	58,682,457				58,682,457
Nov-07	597,071	126	75,230,977				75,230,977
Dec-07	741,180	126	93,388,661				93,388,661
Jan-08	682,880	126	86,042,822	86,042,822			
Feb-08	633,736	126	79,850,758	79,850,758			
Mar-08	666,250	126	83,947,474	83,947,474			
Apr-08	418,692	126	52,755,175		52,755,175		
May-08	697,043	124	86,433,313		86,433,313		
Jun-08	685,745	124	85,032,370		85,032,370		
Jul-08	633,526	124	78,557,253			78,557,253	
Aug-08	584,629	124	72,493,969			72,493,969	
Sep-08	609,781	124	75,612,882			75,612,882	
Oct-08	548,798	124	68,050,944				68,050,944
Nov-08	670,669	124	83,162,915				83,162,915
Dec-08	730,887	124	90,629,930				90,629,930

Total	lb/qtr	502,499,174	473,186,124	468,047,812	469,145,885
Historical actual	lb/qtr	251,249,587	236,593,062	234,023,906	234,572,942

CO2e Emissions from Permit S-511-3

	Unit 3 MMBtu	Emission Factor (lb CO2e /MMBtu)	lb/month	lb 1st qtr	2nd qtr	3rd qtr	4th qtr
Jan-07	746,672	122	91,093,948	91,093,948			
Feb-07	669,829	122	81,719,141	81,719,141			
Mar-07	727,596	126	91,677,048	91,677,048			
Apr-07	700,892	126	88,312,453		88,312,453		
May-07	688,332	126	86,729,830		86,729,830		
Jun-07	674,135	126	84,941,057		84,941,057		
Jul-07	690,336	126	86,982,342			86,982,342	
Aug-07	691,824	126	87,169,843			87,169,843	
Sep-07	672,920	126	84,787,937			84,787,937	
Oct-07	624,136	126	78,641,095				78,641,095
Nov-07	597,071	126	75,230,977				75,230,977
Dec-07	447,756	126	56,417,208				56,417,208
Jan-08	712,466	126	89,770,773	89,770,773			
Feb-08	574,152	126	72,343,209	72,343,209			
Mar-08	494,741	126	62,337,395	62,337,395			
Apr-08	540,568	126	68,111,531		68,111,531		
May-08	665,498	126	83,852,786		83,852,786		
Jun-08	557,142	119	66,299,863		66,299,863		
Jul-08	533,301	119	63,462,802			63,462,802	
Aug-08	661,162	119	78,678,223			78,678,223	
Sep-08	400,581	119	47,669,148			47,669,148	
Oct-08	626,288	119	74,528,244				74,528,244
Nov-08	552,719	119	65,773,534				65,773,534
Dec-08	698,098	119	83,073,711				83,073,711
		Total	lb/qtr	488,941,514	478,247,522	448,750,297	433,664,769
		Historical actual	lb/qtr	244,470,757	239,123,761	224,375,148	216,832,385

CO2e Emissions from Permit S-511-4

	Unit 4 MMBtu	Emission Factor (lb CO2e /MMBtu)	lb				
			lb/month	1st qtr	2nd qtr	3rd qtr	4th qtr
Jan-07	760,046	123	93,485,618	93,485,618			
Feb-07	683,259	123	84,040,797	84,040,797			
Mar-07	738,886	126	93,099,654	93,099,654			
Apr-07	708,902	126	89,321,661		89,321,661		
May-07	703,355	126	88,622,706		88,622,706		
Jun-07	678,571	126	85,499,929		85,499,929		
Jul-07	698,910	126	88,062,649			88,062,649	
Aug-07	689,269	126	86,847,902			86,847,902	
Sep-07	674,401	126	84,974,551			84,974,551	
Oct-07	709,291	126	89,370,697				89,370,697
Nov-07	675,217	126	85,077,403				85,077,403
Dec-07	732,925	126	92,348,495				92,348,495
Jan-08	686,469	126	86,495,128	86,495,128			
Feb-08	635,346	126	80,053,612	80,053,612			
Mar-08	711,379	126	89,633,808	89,633,808			
Apr-08	542,205	126	68,317,871		68,317,871		
May-08	-	118	0		0		
Jun-08	208,075	118	24,552,888		24,552,888		
Jul-08	518,565	118	61,190,688			61,190,688	
Aug-08	572,100	118	67,507,762			67,507,762	
Sep-08	636,452	118	75,101,281			75,101,281	
Oct-08	602,687	118	71,117,120				71,117,120
Nov-08	633,163	118	74,713,287				74,713,287
Dec-08	703,696	118	83,036,077				83,036,077

Total	lb/qtr	526,808,618	356,315,056	463,684,834	495,663,081
Historical actual	lb/qtr	263,404,309	178,157,528	231,842,417	247,831,540

Current Permitted limits for S-511-1, '-2, '-3, '-4

NOx limitation

271,200 lb NOx/yr combined 4 turbines

67,800 lb NOx/qtr combined 4 turbines

lb NOx/yr * emission factor 0.011 lb NOx/Mmbtu * 0.0529 metric ton CO2e/MMBtu = metric ton CO2e/yr

$$271200 \div 0.011 \times 0.0529 = 1,304,225 \text{ metric ton CO2e/qtr}$$

Emissions for each permit unit grouped by quarter

	total from all 4 turbines	
1st qtr HAE	452,085	Mt CO2e
1st qtr current permitted	326,056	Mt CO2e
1st qtr AER	126,028	Mt CO2e
2nd qtr HAE	410,476	Mt CO2e
2nd qtr current permitted	326,056	Mt CO2e
2nd qtr AER	84,419	Mt CO2e
3rd qtr HAE	403,033	Mt CO2e
3rd qtr current permitted	326,056	Mt CO2e
3rd qtr AER	76,976	Mt CO2e
4th qtr HAE	393,971	Mt CO2e
4th qtr current permitted	326,056	Mt CO2e
4th qtr AER	67,915	Mt CO2e

All 4 GTE Combined

Annual HAE	1,659,564	Mt CO2e/yr
current permitted	1,304,225	Mt CO2e/yr
Bankable AER	355,338	Mt CO2e/yr

Appendix F
Draft ERC's

San Joaquin Valley
Air Pollution Control District

Southern Regional Office • 34946 Flyover Court • Bakersfield, CA 93308

Emission Reduction Credit Certificate

S-4320-24

DRAFT

ISSUED TO: SYCAMORE COGENERATION CO
ISSUED DATE: <DRAFT>
LOCATION OF REDUCTION: HEAVY OIL CENTRAL
CA
SECTION: 31 TOWNSHIP: 28S RANGE: 28E

For CO2E Reduction In The Amount Of:

355,338 metric tons / year

Method Of Reduction

- Shutdown of Entire Stationary Source
 Shutdown of Emissions Units
 Other

Reduction in permitted usage of gas turbine engines (S-511-1, '-2, '-3, & '-4) verified as permanent within the State of California.

Emission Reduction Qualification Criteria

This emission reduction is surplus and additional to all applicable regulatory requirements.

Seyed Sadredin, Executive Director / APCO

DRAFT

Arnaud Marjollet, Director of Permit Services