San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

MAY 2 8 2014

Neil Burgess
Sycamore Cogeneration Company
PO Box 80598
Bakersfield, CA 93380

Re: Notice of Preliminary Decision – Emission Reduction Credits
Facility Number: S-511
Project Number: S-1114928

Dear Mr. Burgess:

Enclosed for your review and comment is the District's analysis of Sycamore Cogeneration Company's application for Emission Reduction Credits (ERCs) resulting from reducing the permitted operation of four gas turbine engines, at their Kern River Oilfield facility located at Section 31, Township 28S, Range 28E. The quantity of ERCs proposed for banking is 56,617 lb-NOx/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 the 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: Mike Tollstrup, CARB (w/enclosure) via email
cc: Gerardo C. Rios, EPA (w/enclosure) via email

EMISSION REDUCTION CREDIT BANKING APPLICATION REVIEW

Facility Name:	Sycamore Cogeneration Co.
Mailing Address:	PO Box 80598 Bakersfield, CA 93380
Contact Name:	Neil Burgess
Telephone:	(661) 615-4630
Facility:	S-511
Permit Numbers:	S-511-1, '-2, '-3, and '-4
ERC Certificate Numbers:	S-4249-2
Project Number:	S-1114928
Date Received:	December 27, 2011
Date Complete:	November 14, 2013
Engineer:	Dan Klevann
Date:	March 24, 2014
Lead Engineer:	Allan Phillips, Supervising AQE

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 NO_X. Sycamore has also proposed to bank the emission reduction credits for CO_2e. The CO_2e credits are being evaluated in a separate banking project S-1123816. The following emission reductions have been found to qualify for banking:

		ERC (lb)			
ERC #		Q1	Q2	Q3	Q4
S-4249-2	NOx	19,428	12,602	13,035	11,552

II. APPLICABLE RULES:

Rule 2201 New and Modified Stationary Source Review Rule (April 21, 2011)
Rule 2301 Emission Reduction Credit Banking (January 19, 2012)

III. PROJECT LOCATION:

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

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 EMISSION REDUCTIONS:

The emission reductions are being generated by reducing the allowable NOx emissions from the the four natural gas fired GE gas turbines.

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

The actual emissions will be calculated for each of the calendar quarters in the baseline period. The Historical Actual Emissions (HAE) will be calculated using actual fuel use data and source test results, permitted limits, or District rule limits whichever is less.

The applicant provided monthly fuel use data for the subject gas turbine engines from 1997 to 2011. The fuel usage showed a gradual decline during the time period. Therefore, the baseline period will be determined by using a representative 2 yr period in the 5 yr period preceeding the ERC banking application. The baseline period has been calculated to be January 2007 to December 2008. (See Appendix B.)

Sycamore has an annual specific limiting condition on each of the turbine permits. The condition restricts the NOx emissions of all four turbines to 271,200 lb NOx/yr. The assumption is that each turbine could run an equal amount of time each quarter. Most of the time the turbines are running at a steady state and not in startup/shutdown modes. Therefore each quarter the turbines could emit 67,800 lb NOx/qtr.

The following table lists the NOx emissions source tests for each of the permit units which covered the baseline period of January 2007 to December 2008 (see appendix C for actual source tests). The source tests during the baseline period were all under the

the permit limits. However, the source tests which covered 2007 were higher than the final Rule 4703 NOx limits of 3 ppmvd.

The current permitted limit for each of the turbines is 3 ppmvd. District rounding practices allow NOx emissions of up to 3.4 ppmvd to still be in compliance. The baseline period was determined to be January 2007 to December 2008. Therefore, the historical emissions will be calculated using rule limit emission factors for 2007 and source test emission factors for 2008.

Unit	S-511-1	S-511-2	S-511-3	S-511-4	Rule limit	
Source Test	NOx ppmvd (15% O_2)				NOx ppmvd (15% O2)	lb/MMBtu
2/28/06	8.6	6.7	8.6	8.6	3	0.0111
2/20/07	9	9.5	8.5	8.4	3	0.0111
4/24/08	3.1	3.2	3	3.3	3	0.0111

There are no other control measures noticed for workshop or include in the air quality attainment plan that apply to these units.

B. Baseline Period Determination

Per the following sections of Rule 2201, baseline period is defined as:

3.8.1 two consecutive years of operation immediately prior to submission of the complete application; or

3.8.2 another time period of at least two consecutive years within the five years immediately prior to submission of the complete application as determined by the APCO as more representative of normal operation;

The turbine engine operating limitations were implemented in December 2011. The following baseline period was calculated per Draft District Policy "Baseline Period Determinations for ERC Banking projects." (See fuel usage records in Appendix B).

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. Historical Actual Emissions (HAE)

The average emissions are determined from fuel use records supplied by the applicant. (see fuel use records in Appendix B, source tests in Appendix C, and calculations in Appendix D):

Assumptions:

The NOx emission factor changes during the baseline period. During 2007 we use the Rule 4703 limit of 0.011 lb NOx/MMBtu since the permit limit and source test are both higher than the eventual Rule limit. During 2008 we use the source test results as they are indicative of the actual emissions and also within the rule limits.

The following example calculation shows how the emissions are calculated:

HAE = [(NOx emissions factor) x (heat input per quarter)]

Example Equation

Permit S-511-1, 1st Quarter, 2007:

NOx = [(EF) x (Heat Input)]

NOx = [(0.0111 lb/MMbtu) x (2,103,608 MMbtu) = 23,350 lb/qtr

Quarterly NOx HAE:

Quarterly HAE for S-511-1 (NOx)				
	Q1	Q2	Q3	Q4
2007	23,351	23,311	23,162	23,698
2008	19,232	22,070	13,033	6,902
Total	42,582	45,382	36,196	30,602
HAE (Total/2)	21,291	22,691	18,098	15,301

Quarterly HAE for S-511-2 (NOx)				
	Q1	Q2	Q3	Q4
2007	23,224	22,525	21,839	20,565
2008	22,605	21,909	21,570	23,014
Total	45,829	43,615	43,409	43,580

HAE (Total/2)	22,914	21,808	21,705	21,790

Quarterly HAE for S-511-3 (NOx)				
	Q1	Q2	Q3	Q4
2007	23,799	22,903	22,811	18,525
2008	19,773	19,938	18,184	21,399
Total	43,573	42,842	40,995	39,924
HAE (Total/2)	21,786	21,421	20,497	19,962

Quarterly HAE for S-511-4 (NOx)				
	Q1	Q2	Q3	Q4
2007	24,223	23,208	22,895	23,503
2008	22,568	8,557	21,071	23,663
Total	46,791	31,765	43,965	47,166
HAE (Total/2)	23,395	15,883	21,983	23,583

D. Actual Emissions Reductions (AER)

Actual Emissions Reductions are calculated as follows:

AER = HAE - PE2

Where:

HAE = Historic Actual Emissions
PE2 = Post-project Potential to Emit

The turbines in this project have an annual specific limiting condition on all four units of 271,200 lb NOx/yr. This SLC is split evenly between each quarter. PE2 = 67,800 lb/Qtr.

ERC S-4249, Permit Units S-511-1, -2, -3, -4:

Quarterly AER (NOx) lbs				
	Q1	Q2	Q3	Q4
Combined HAE	89,387	81,802	82,283	80,636
PE2	67,800	67,800	67,800	67,800
AER (NOx)	21,587	12,602	13,035	11,552

E. Air Quality Improvement Deduction (AQID)

Actual Emission Reductions must be discounted by 10% for Air Quality Improvement.

Sample calculation:

Q1 NOx lb = AER X (0.1)
= (21,587 lb) X (0.1)
= 2,159 lb

ERC S-4249, Permit Units S-511-1, -2, -3, -4:

	AQID (lb)			
	Q1	Q2	Q3	Q4
NOx	2,159	1,400	1,448	1,284

F. Increases in Permitted Emissions

The permit units have a specific limiting condition placed on the permit. This limit will reduce the yearly emissions from the permitted units. No emission increases are being authorized at this or any other location. Therefore, the Increase in Permitted Emissions for this application is zero.

G. Bankable Emissions Reductions Credits

The bankable emission reduction (ERC) is equal to the AER minus the AQID.

Sample calculation:

Q1 NOx lb = AER - AQID
= 21,587 lb – 2,159 lb
= 19,428 lb

ERC S-4249, Permit Units S-511-1, -2, -3, -4:

		ERC (lb)			
ERC #		Q1	Q2	Q3	Q4
S-4249-2	NOx	19,428	12,602	13,035	11,552

VI. COMPLIANCE:

To be eligible for banking, emission reduction credits (ERC's) must be verified as being real, enforceable, quantifiable, permanent, and surplus pursuant to District Rules 2201 and 2301. In addition, the application must be submitted within the timeline specified in Rule 2301.

A. Real

The AER quantified above are based on actual, historical emissions and were calculated from actual fuel use data, source tests, and representative emission factors. The gas turbines have a new emission limit on their permit.

Therefore, the AER due to limiting the turbines operation is real.

B. Enforceable

The annual specific limit condition NOx emission limit is listed on each of the turbine permits. Therefore, the quantified AER is enforceable.

C. Quantifiable

The actual emission reductions (AER) quantified above are based on actual, historical emissions calculated from fuel use data, source tests, and emission factors. Therefore, the AER is quantifiable.

D. Permanent

Sycamore provides some power and steam to the adjacent Kern River oilfield run by Chevron. Oil production in the Kern River field has been steadily declining after a peak in the mid 1990's (Appendix E). The Chevron facilities in the Kern River field (S-1127 and S-1131) have also been reducing their fuel usage in their steam generators at the same time that Sycamore was reducing fuel usage in it's turbines. Sycamore has shown the decline in fuel usage which correlates with the decline in oil production (Appendix E). Sycamore has also implemented ATC's which restrict the NOx emissions of the turbines. Therefore, the AER is permanent.

E. Surplus

The emission reductions are not mandated by any law, rule, regulation, agreement, or order of the District, State, or Federal Government. Rule 4703 applies to the gas turbines. The Rule 4703 limits the NOx emissions to 3 ppmv@15% O_2. Source tests performed on the turbines were at or below the NOx Rule limits. The emissions reductions are surplus of Rule 4703. Therefore, the AER is surplus.

F. Timeliness

The ERC application was submitted on December 27, 2011 before the ATC's were issued to Sycamore. The ERC application was submitted within 180 days after the date that emission reductions occurred. Therefore, the application is timely.

VII. RECOMMENDATION:

After public notice, comments and review, issue ERCs to Sycamore in the amounts shown below:

ERC S-4249, Permit Units S-511-1, -2, -3, -4:

		ERC (lb)			
ERC #		Q1	Q2	Q3	Q4
S-4249-2	NOx	19,428	12,602	13,035	11,552

Appendix A

S-511-1, '-2, '-3, '-4

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

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

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

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

53. Accurate records of NOx (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 NOx emission standards indicated by the NOx 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

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

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, 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

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

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

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

54. Accurate records of NOx (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 NOx emission standards indicated by the NOx 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

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 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

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

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, 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] 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. 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
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 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

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

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

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 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

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 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

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

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 NOx (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 NOx emission standards indicated by the NOx 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

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 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

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

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

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

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

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

53. Accurate records of NOx (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 NOx emission standards indicated by the NOx 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

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

Appendix B

Fuel Use Records

Monthly fuel usage for each GTE

	Unit 1	Unit 2	Unit 3	Unit 4	Total all 4 units
Jan-97	713,232	668,348	755,824	707,797	2,845,200
Feb-97	407,072	595,313	651,464	592,355	2,246,224
Mar-97	159,405	662,182	729,357	654,979	2,205,924
Apr-97	883,355	802,181	868,509	475,715	2,429,760
May-97	693,788	597,327	893,348	242,313	2,226,754
Jun-97	853,569	581,074	848,550	614,005	2,497,198
Jul-97	695,939	645,442	694,804	816,528	2,852,713
Aug-97	714,053	653,390	707,375	707,293	2,782,112
Sep-97	885,977	618,076	673,842	677,523	2,855,417
Oct-97	700,139	46,268	869,728	715,476	2,131,608
Nov-97	624,217	577,494	649,417	665,287	2,516,415
Dec-97	707,084	726,648	717,122	694,384	2,845,236
Jan-98	721,913	707,341	719,567	723,037	2,871,858
Feb-98	630,760	655,947	642,254	641,911	2,570,871
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	2,743,506
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	673,158	662,708	668,576	2,656,582
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	718,760	724,118	737,561	734,381	2,912,820
Jan-99	640,123	702,953	689,276	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	698,247	875,224	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	2,762,846
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	686,768	694,693	2,788,032
Dec-99	728,232	678,818	707,839	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	2,617,215
Mar-00	721,557	700,256	717,107	715,723	2,854,643
Apr-00	673,924	672,846	618,061	873,936	2,638,787
May-00	711,231	703,424	573,430	696,500	2,684,586
Jun-00	641,356	648,017	657,303	633,140	2,579,816
Jul-00	895,082	691,797	704,676	665,509	2,757,063
Aug-00	689,033	696,826	709,579	694,560	2,789,998
Sep-00	679,367	675,264	686,213	672,377	2,715,221
Oct-00	690,004	716,758	716,785	707,388	2,830,934
Nov-00	678,883	702,771	710,839	618,249	2,710,742
Dec-00	687,522	684,296	889,705	879,085	2,740,608
Jan-01	554,752	708,101	712,481	701,027	2,876,361
Feb-01	606,138	805,289	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	2,802,053
Jun-01	672,439	678,363	865,834	661,331	2,675,967
Jul-01	860,995	679,800	655,833	644,905	2,641,533
Aug-01	667,832	701,556	686,171	683,456	2,759,016
Sep-01	857,125	673,719	652,118	654,227	2,837,188
Oct-01	669,040	694,838	681,344	671,601	2,736,622
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	2,905,153
Feb-02	841,948	682,873	641,434	628,142	2,574,394
Mar-02	713,569	735,761	720,485	716,669	2,886,485
Apr-02	687,193	701,733	562,663	678,108	2,629,698
May-02	884,875	702,134	421,252	676,848	2,484,909
Jun-02	665,835	675,947	710,142	660,108	2,712,030
Jul-02	677,152	694,601	722,426	674,161	2,768,341
Aug-02	672,581	693,908	719,961	675,710	2,762,161
Sep-02	844,998	678,383	698,824	655,123	2,675,309
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	729,811	737,291	2,906,802
Feb-03	654,000	631,589	660,482	661,621	2,607,693
Mar-03	694,891	601,468	693,391	698,718	2,688,468
Apr-03	673,599	884,312	698,533	671,745	2,728,188
May-03	709,279	672,336	704,645	704,622	2,790,882
Jun-03	671,687	657,663	680,215	666,500	2,676,045

Source test	Unit1	Unit 2	Unit 3	Unit4	
2/28/2006	8.8	6.7	8.6	8.6	ppm NOx
2/20/2007	9	9.5	8.5	8.4	ppm NOx
4/24/2008	3.1	3.2	3.1	3.3	ppm NOx

Use permitted limit of 3 ppmvd @15% O2

3 ppmvd=	0.0111	lb/MMBtu
3.1 ppmvd=	0.0114	lb/MMBtu
3.2 ppmvd=	0.0118	lb/MMBtu
3.3 ppmvd=	0.0122	lb/MMBtu
3.4 ppmvd=	0.0125	lb/MMBtu

Jul-03	701,446	683,586	706,836	700,495	2,792,363		
Aug-03	692,695	692,695	702,908	696,951	2,785,247		
Sep-03	678,230	681,250	674,987	675,176	2,689,642		
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	2,872,640		
Jan-04	738,479	715,773	747,127	740,705	2,942,083		
Feb-04	675,905	661,110	686,122	662,642	2,685,979		
Mar-04	715,235	276,822	724,369	709,645	2,426,071		
Apr-04	876,481	725,438	630,944	687,105	2,719,969		
May-04	705,223	732,273	712,334	699,394	2,849,224		
Jun-04	675,338	699,817	664,677	674,076	2,733,906		
Jul-04	674,900	694,634	663,117	671,721	2,724,371		
Aug-04	701,693	716,763	709,700	699,897	2,830,054		
Sep-04	680,318	698,098	665,960	673,594	2,737,970		
Oct-04	580,955	599,602	671,002	657,214	2,508,774		
Nov-04	705,875	709,590	709,097	636,902	2,761,464		
Dec-04	720,258	740,889	727,912	735,465	2,924,523		
Jan-05	730,399	737,605	734,194	726,546	2,926,745		
Feb-05	647,180	654,893	648,653	649,089	2,600,014		
Mar-05	714,500	727,623	723,178	712,204	2,877,505		
Apr-05	678,039	702,068	677,774	868,540	2,726,421		
May-05	700,649	679,546	703,685	706,165	2,790,045		
Jun-05	681,608	691,517	683,718	679,585	2,736,428		
Jul-05	689,641	697,727	681,769	684,627	2,753,965		
Aug-05	891,543	700,941	699,146	688,341	2,779,972		
Sep-05	675,729	687,433	683,826	675,718	2,722,707		
Oct-05	704,859	713,298	714,388	698,544	2,831,089		
Nov-05	685,992	692,573	678,468	692,194	2,749,227		
Dec-05	699,397	710,119	706,696	704,495	2,820,707		
Jan-06	721,730	730,569	726,471	720,369	2,899,139		
Feb-06	641,673	652,101	645,084	645,032	2,583,890		
Mar-06	716,953	638,093	717,428	714,812	2,787,286		
Apr-06	680,010	679,718	550,037	671,560	2,581,325		
May-06	691,605	698,425	711,705	691,792	2,793,527		
Jun-06	660,357	664,104	681,581	853,314	2,659,357		
Jul-06	674,548	676,138	697,190	663,941	2,713,818		
Aug-06	675,380	675,816	705,478	876,463	2,733,237		
Sep-06	593,222	541,821	619,517	577,218	2,331,777		
Oct-06	429,769	710,643	680,137	456,076	2,276,824		
Nov-06	717,181	666,776	503,751	714,073	2,601,781		
Dec-06	764,907	705,644	734,908	759,974	2,965,432		
Jan-07	742,580	707,164	746,672	760,046	2,956,461	2,719,684	
Feb-07	618,982	635,263	669,829	683,259	2,607,332	2,719,969	
Mar-07	742,045	694,759	727,596	736,886	2,903,286	2,721,043	
Apr-07	713,467	664,813	700,892	708,902	2,788,075	2,723,612	
May-07	710,255	664,313	688,332	703,355	2,766,255	2,722,621	
Jun-07	676,415	646,789	674,135	878,571	2,875,910	2,720,099	
Jul-07	702,809	650,958	690,338	898,910	2,743,011	2,719,643	
Aug-07	701,455	654,862	691,824	689,269	2,737,410	2,717,659	
Sep-07	682,453	609,927	672,920	674,401	2,639,701	2,714,411	
Oct-07	699,763	465,734	624,136	709,291	2,498,924	2,700,570	
Nov-07	689,670	597,071	597,071	675,217	2,559,030	2,692,646	
Dec-07	745,581	741,160	447,756	732,925	2,667,441	2,686,259	
Jan-08	735,238	682,880	712,468	686,469	2,817,053	2,682,839	
Feb-08	630,734	633,736	574,152	635,348	2,473,969	2,678,259	
Mar-08	366,649	666,250	494,741	711,379	2,239,019	2,655,415	
Apr-08	576,621	418,692	540,568	542,205	2,078,086	2,634,446	
May-08	713,861	897,043	665,498	-	2,076,402	2,604,566	
Jun-08	660,662	685,745	557,142	208,075	2,111,644	2,581,745	
Jul-08	416,290	633,526	533,301	518,565	2,101,682	2,566,239	
Aug-08	319,777	584,629	681,162	572,100	2,137,667	2,531,424	
Sep-08	407,225	609,781	400,581	636,452	2,054,039	2,519,851	
Oct-08	347,324	548,798	826,288	602,687	2,125,097	2,513,529	
Nov-08	161,092	670,669	552,719	633,163	2,017,643	2,489,190	
Dec-08	97,140	730,887	698,098	703,696	2,229,821	2,456,540	
Jan-09	268,426	566,252	624,860	672,893	2,132,432	2,424,205	
Feb-09	248,328	529,200	588,304	552,762	1,918,594	2,395,508	
Mar-09	727,103	716,175	708,045	525,428	2,676,751	2,386,069	
Apr-09	615,970	819,001	459,685	403,613	2,098,268	2,357,327	
May-09	636,669	679,332	98,819	674,168	2,088,989	2,329,108	
Jun-09	621,036	565,476	196,232	674,490	2,057,238	2,303,330	
Jul-09	609,450	674,034	148,007	885,849	2,117,341	2,277,260	
Aug-09	573,834	532,208	399,227	641,728	2,146,796	2,252,851	
Sep-09	570,541	457,373	457,373	848,634	2,133,921	2,231,577	
Oct-09	453,749	316,041	664,988	584,667	2,019,465	2,211,599	
Nov-09	418,597	481,110	480,501	674,588	2,034,794	2,189,756	
Dec-09	595,777	733,496	707,961	468,836	2,506,071	2,183,032	2,359,323
Jan-10	292,157	703,563	659,203	137,781	1,792,703	2,140,351	2,328,998
Feb-10	48,198	528,851	568,323	110,506	1,275,877	2,090,431	2,290,011
Mar-10	113,221	241,344	593,484	462,928	1,410,977	2,055,929	2,248,558
Apr-10	22,904	872,271	687,799	123,531	1,506,504	2,032,113	2,212,959

May-10	12,292	614,325	661,549	311,448	1,599,613	2,012,247	2,180,552		
Jun-10	237,023	561,983	517,263	274,827	1,591,095	1,990,557	2,150,418		
Jul-10	252,484	224,023	640,250	413,081	1,529,837	1,966,730	2,116,719		
Aug-10	141,194	611,525	652,750	209,110	1,614,579	1,944,935	2,085,529		
Sep-10	175,591	602,489	602,489	112,624	1,493,192	1,921,566	2,053,682		
Oct-10	6,452	665,752	687,929	42,401	1,392,534	1,891,043	2,022,949		
Nov-10	196	688,434	413,742	477,313	1,579,685	1,872,795	1,995,745		
Dec-10	205	367,848	522,440	528,376	1,418,870	1,839,005	1,961,062	2,148,773	
Jan-11	536,019	138,376	222,475	539,284	1,436,154	1,809,994	1,922,704	2,117,099	
Feb-11	604,616	2,226	108,942	574,814	1,290,598	1,783,827	1,889,833	2,089,668	
Mar-11	4,892	878,493	711,819	31,923	1,427,126	1,731,759	1,867,280	2,058,914	
Apr-11	6,899	310,047	624,159	450,047	1,391,151	1,702,296	1,848,199	2,029,812	
May-11	645,468	428,743	531,914	149,360	1,755,505	1,688,401	1,839,285	2,008,754	
Jun-11	386,460	214,480	543,736	408,864	1,553,540	1,687,414	1,823,782	1,985,372	
Jul-11	268,917	117,837	688,777	491,697	1,547,227	1,643,659	1,808,380	1,960,459	
Aug-11	664,824	145,855	815,905	156,132	1,582,716	1,620,156	1,792,985	1,936,403	
Sep-11	342,496	138,790	615,171	391,097	1,487,554	1,593,224	1,777,229	1,912,400	
Oct-11	524,792	390,382	629,208	75,097	1,819,479	1,578,558	1,763,184	1,894,078	
Nov-11	467,355	105,370	651,483	173,840	1,397,648	1,550,018	1,745,968	1,869,887	
Dec-11	691,641	97,993	603,495	44,400	1,437,528	1,505,495	1,723,960	1,844,264	2,017,792
	Unit 1	Unit 2	Unit 3	Unit 4	Total all 4 units				
		Average Month =			2,465,331				
					total avg	24-mo avg	36-mo avg	48-mo avg	60-mo avg

Appendix C

Source Test data

Facility: S 511 SYCAMORE COGENERATION CO | Permit ID: 1 | Mod#: 12

Test Tracking | Periodic Test Setup | Test Equipment Details | **Test Result Details**

Representative Test

Unit Identification: UNIT 1

1 Unit Total

Description:

Add New Unit | Save | Cancel

Test Results For: UNIT 1 STACK

Pollutant	Units	Limit	Result	Failed	O2 Correction (%)	# Runs	Description
CO	ppm	25.0	4.08	☐	15	3	
CO	lbs/hr	44.0	7.86	☐		3	
CO	lbs/day	1056.0	188.6	☐		3	
CO RATA	ppm	10.0	3.6	☐	15	9	
CO RATA	lb/hr	10.0	4.51	☐		9	
CO2 RATA	% Difference	1.0	0.03	☐		9	
NOx	lbs/day	552.8	238.0	☐		3	
NOx	lbs/hr	12.4	9.93	☐		3	
NOx	ppm	3.0	3.14	☐	15	3	
NOx RATA	ppm	20.0	2.12	☐	15	9	
NOx RATA	lb/hr	20.0	2.9	☐		9	
PM10	gr/dscf@12%CO2	0.0072	0.0016	☐		3	
PM10	Lbs/day	120.0	47.28	☐		3	
PM10	lbs/hr	5.0	1.97	☐		3	

Add New Pollutant...

Close | Save

Facility: S 511 SYCAMORE COGENERATION CO | Permit ID: 2 | Mod#: 13

Test Tracking | Periodic Test Setup | Test Equipment Details | Test Result Details

Representative Test

Unit Identification: UNIT 2

1 Unit Total

Description:

Add New Unit | Save | Cancel

Test Results For: UNIT 2

Pollutant	Units	Limit	Result	Failed	O2 Correction (%)	# Runs	Description
CO	ppm	25.0	3.41	☐	15	3	
CO	lbs/hr	44.0	6.6	☐		3	
CO	lbs/day	1056.0	158.3	☐		3	
CO RRA	ppm	15.0	2.13	☐	15	3	
CO2 RAA	%	15.0	1.2	☐		3	
NOx	lbs/day	552.8	246.0	☐		3	
NOx	lbs/hr	12.4	10.26	☐		3	
NOx	ppm	3.0	3.24	☐	15	3	
NOx RAA	ppm	15.0	0.18	☐	15	3	
PM10	gr/dscf@12%CO2	0.0072	0.001	☐		3	
PM10	Lbs/day	120.0	44.8	☐		3	
PM10	lbs/hr	5.0	1.87	☐		3	
SO2	lbs/day	21.6	0.0	☐		3	
VOC	lbs/day	60.0	26.4	☐		3	

Add New Pollutant...

Close | Save

Facility: S 511 SYCAMORE COGENERATION CO | Permit ID: 3 | Mod#: 13

Test Tracking | Periodic Test Setup | Test Equipment Details | **Test Result Details**

Representative Test

Unit Identification: UNIT 3

1 Unit Total

Description:

Add New Unit | Save | Cancel

Test Results For: UNIT 3

Pollutant	Units	Limit	Result	Failed	O2 Correction (%)	# Runs	Description
CO	ppm	25.0	0.93	☐	15	3	
CO	lbs/hr	44.0	1.64	☐		3	
CO	lbs/day	1056.0	39.3	☐		3	
CO RRA	ppm	15.0	0.48	☐	15	3	
CO2 RAA	%	15.0	1.87	☐		3	
NOx	lbs/day	552.8	212.0	☐		3	
NOx	lbs/hr	12.4	8.83	☐		3	
NOx	ppm	3.0	3.06	☐	15	3	
NOx RAA	ppm	15.0	7.79	☐	15	3	
PM10	gr/dscf@12%CO2	0.0072	0.0023	☐		3	
PM10	Lbs/day	120.0	84.9	☐		3	
PM10	lbs/hr	5.0	3.54	☐		3	
SO2	lbs/day	21.6	0.0	☐		3	
VOC	lbs/day	60.0	23.9	☐		3	

Add New Pollutant...

Close | Save

Facility: S 511 SYCAMORE COGENERATION CO | Permit ID: 4 | Mod#: 12

Test Tracking | Periodic Test Setup | Test Equipment Details | **Test Result Details**

Representative Test

Unit Identification: UNIT 4

1 Unit Total

Description:

Add New Unit | Save | Cancel

Test Results For: UNIT 4

Pollutant	Units	Limit	Result	Failed	O2 Correction (%)	# Runs	Description
CO	ppm	25.0	3.16	☐	15	3	
CO	lbs/hr	44.0	6.0	☐		3	
NOx	lbs/hr	12.4	10.4	☐		3	
NOx	ppm	3.0	3.32	☐	15	3	
PM10	gr/dscf@12%CO2	0.0072	0.0006	☐		3	
PM10	Lbs/day	120.0	73.4	☐		3	
SO2	lbs/day	21.6	0.0	☐		3	

Add New Pollutant...

Close | Save

Facility: S 511 SYCAMORE COGENERATION CO | Permit ID: 1 | Mod#: 12

Test Tracking | Periodic Test Setup | Test Equipment Details | **Test Result Details**

Representative Test

Unit Identification: UNIT 1

1 Unit Total

Description:

Add New Unit | Save | Cancel

Test Results For: UNIT 1 STACK

Pollutant	Units	Limit	Result	Failed	O2 Correction (%)	# Runs	Description
CO	ppm	25.0	16.5	☐	15	3	
CO	lbs/hr	44.0	30.8	☐		3	
CO	lbs/day	1056.0	738.0	☐		3	
CO RATA	ppm	10.0		☐		3	
CO RATA	lb/hr	10.0		☐		3	
CO RRA	ppm	15.0	2.59	☐	15	3	
CO2 RAA	%	15.0	6.62	☐		3	
CO2 RATA	% Difference	1.0		☐		3	
NOx	lbs/day	552.8	233.0	☐		3	
NOx	lbs/hr	12.4	9.7	☐		3	
NOx	ppm	3.0	3.2	☐	15	3	
NOx RAA	ppm	15.0	8.24	☐	15	3	
NOx RATA	ppm	20.0		☐		3	
NOx RATA	lb/hr	20.0		☐			

Add New Pollutant...

Close | Save

Facility: S 511 SYCAMORE COGENERATION CO | Permit ID: 2 | Mod#: 13

Test Tracking | Periodic Test Setup | Test Equipment Details | **Test Result Details**

Representative Test

Unit Identification: UNIT 2 STACK RATA

1 Unit Total

Description:

Add New Unit | Save | Cancel

Test Results For: UNIT 2 STACK - RATA

Pollutant	Units	Limit	Result	Failed	O2 Correction (%)	# Runs	Description
CO	ppm	25.0	7.0	☐	15	3	
CO	lbs/hr	44.0	13.2	☐		3	
CO	lbs/day	1056.0	318.0	☐		3	
CO RATA	ppm	10.0	5.3	☐	15	9	
CO RATA	lb/hr	10.0	3.6	☐		3	
CO2 RATA	% Difference	1.0	0.12	☐		9	
NOx	lbs/hr	12.4	10.6	☐		3	
NOx	lbs/day	552.8	254.0	☐		3	
NOx	ppm	3.0	3.4	☐	15	3	
NOx RATA	ppm	20.0	10.5	☐	15	9	
NOx RATA	lb/hr	20.0	11.7	☐		3	

Add New Pollutant...

Close | Save

Facility: S 511 SYCAMORE COGENERATION CO | Permit ID: 3 | Mod#: 13

Test Tracking | Periodic Test Setup | Test Equipment Details | **Test Result Details**

Representative Test

Unit Identification: UNIT 3 STACK

1 Unit Total

Description:

Add New Unit | Save | Cancel

Test Results For: UNIT 3

Pollutant	Units	Limit	Result	Failed	O2 Correction (%)	# Runs	Description
CO	ppm	25.0	8.0	☐	15	3	
CO	lbs/hr	44.0	14.5	☐		3	
CO	lbs/day	1056.0	347.0	☐		3	
CO RRA	ppm	15.0	8.8	☐	15	3	
CO2 RAA	%	15.0	4.3	☐		3	
NOx	lbs/hr	12.4	10.3	☐		3	
NOx	lbs/day	552.8	247.0	☐		3	
NOx	ppm	3.0	3.4	☐	15	3	
NOx RAA	ppm	15.0	8.9	☐	15	3	

Add New Pollutant...

Close | Save

Facility: S 511 SYCAMORE COGENERATION CO | Permit ID: 4 | Mod#: 12

Test Tracking | Periodic Test Setup | Test Equipment Details | **Test Result Details**

Representative Test

Unit Identification: UNIT 4 STACK

1 Unit Total

Description:

Add New Unit | Save | Cancel

Test Results For: UNIT 4 STACK

Pollutant	Units	Limit	Result	Failed	O2 Correction (%)	# Runs	Description
CO	ppm	25.0	6.1	☐	15	3	
CO	lbs/hr	44.0	11.4	☐		3	
CO	lbs/day	1056.0	273.0	☐		3	
CO RRA	ppm	15.0	11.8	☐	15	3	
CO2 RAA	%	15.0	3.6	☐		3	
NOx	lbs/hr	12.4	10.4	☐		3	
NOx	lbs/day	552.8	249.0	☐		3	
NOx	ppm	3.0	3.4	☐	15	3	
NOx RAA	ppm	15.0	8.2	☐	15	3	

Add New Pollutant...

Close | Save

Appendix D

Calculations

Emissions from Permit S-511-1

	Unit 1 MMBtu	Emission Factor (lb/MMBtu)	lb/month	lb 1st qtr	2nd qtr	3rd qtr	4th qtr
Jan-07	742,580	0.0111	8,243	8,243			
Feb-07	618,982	0.0111	6,871	6,871			
Mar-07	742,046	0.0111	8,237	8,237			
Apr-07	713,467	0.0111	7,919		7,919		
May-07	710,255	0.0111	7,884		7,884		
Jun-07	676,415	0.0111	7,508		7,508		
Jul-07	702,809	0.0111	7,801			7,801	
Aug-07	701,455	0.0111	7,786			7,786	
Sep-07	682,453	0.0111	7,575			7,575	
Oct-07	699,763	0.0111	7,767				7,767
Nov-07	689,670	0.0111	7,655				7,655
Dec-07	745,581	0.0111	8,276				8,276
Jan-08	735,238	0.0111	8,161	8,161			
Feb-08	630,734	0.0111	7,001	7,001			
Mar-08	366,649	0.0111	4,070	4,070			
Apr-08	576,621	0.0111	6,400		6,400		
May-08	713,861	0.0114	8,138		8,138		
Jun-08	660,682	0.0114	7,532		7,532		
Jul-08	416,290	0.0114	4,746			4,746	
Aug-08	319,777	0.0114	3,645			3,645	
Sep-08	407,225	0.0114	4,642			4,642	
Oct-08	347,324	0.0114	3,959				3,959
Nov-08	161,092	0.0114	1,836				1,836
Dec-08	97,140	0.0114	1,107				1,107

Total	lb/qtr	42,582	45,382	36,196	30,602
Historical actual	lb/qtr	21,291	22,691	18,098	15,301

Source test	Unit1	
2/28/2006	8.6	ppm NOx
2/20/2007	9	ppm NOx
4/24/2008	3.1	ppm NOx

permitted limit of 3 ppmvd @15% O2

3 ppmvd=	0.0111	lb/MMBtu
3.1 ppmvd=	0.0114	lb/MMBtu
3.2 ppmvd=	0.0118	lb/MMBtu
3.3 ppmvd=	0.0122	lb/MMBtu
3.4 ppmvd=	0.0125	lb/MMBtu

Emissions from Permit S-511-2

	Unit 2 MMBtu	Emission Factor (lb/MMBtu)	lb/month	lb 1st qtr	2nd qtr	3rd qtr	4th qtr
Jan-07	707,164	0.0114	8,062	8,062			
Feb-07	635,263	0.0114	7,242	7,242			
Mar-07	694,759	0.0114	7,920	7,920			
Apr-07	664,813	0.0114	7,579		7,579		
May-07	664,313	0.0114	7,573		7,573		
Jun-07	646,789	0.0114	7,373		7,373		
Jul-07	650,956	0.0114	7,421			7,421	
Aug-07	654,862	0.0114	7,465			7,465	
Sep-07	609,927	0.0114	6,953			6,953	
Oct-07	465,734	0.0114	5,309				5,309
Nov-07	597,071	0.0114	6,807				6,807
Dec-07	741,180	0.0114	8,449				8,449
Jan-08	682,880	0.0114	7,785	7,785			
Feb-08	633,736	0.0114	7,225	7,225			
Mar-08	666,250	0.0114	7,595	7,595			
Apr-08	418,692	0.0114	4,773		4,773		
May-08	697,043	0.0118	8,225		8,225		
Jun-08	685,745	0.0118	8,092		8,092		
Jul-08	633,526	0.0118	7,476			7,476	
Aug-08	584,629	0.0118	6,899			6,899	
Sep-08	609,781	0.0118	7,195			7,195	
Oct-08	548,798	0.0118	6,476				6,476
Nov-08	670,669	0.0118	7,914				7,914
Dec-08	730,887	0.0118	8,624				8,624

Total	lb/qtr	45,829	43,615	43,409	43,580
Historical actual	lb/qtr	22,914	21,808	21,705	21,790

Source test	Unit 2	
2/28/2006	6.7	ppm NOx
2/20/2007	9.5	ppm NOx
4/24/2008	3.2	ppm NOx

permitted limit of 3 ppmvd @15% O2

3 ppmvd=	0.0111	lb/MMBtu
3.1 ppmvd=	0.0114	lb/MMBtu
3.2 ppmvd=	0.0118	lb/MMBtu
3.3 ppmvd=	0.0122	lb/MMBtu
3.4 ppmvd=	0.0125	lb/MMBtu

Emissions from Permit S-511-3

	Unit 3 MMBtu	Emission Factor (lb/MMBtu)	lb/month	lb 1st qtr	2nd qtr	3rd qtr	4th qtr
Jan-07	746,672	0.0111	8,288	8,288			
Feb-07	669,829	0.0111	7,435	7,435			
Mar-07	727,596	0.0111	8,076	8,076			
Apr-07	700,892	0.0111	7,780		7,780		
May-07	688,332	0.0111	7,640		7,640		
Jun-07	674,135	0.0111	7,483		7,483		
Jul-07	690,336	0.0111	7,663			7,663	
Aug-07	691,824	0.0111	7,679			7,679	
Sep-07	672,920	0.0111	7,469			7,469	
Oct-07	624,136	0.0111	6,928				6,928
Nov-07	597,071	0.0111	6,627				6,627
Dec-07	447,756	0.0111	4,970				4,970
Jan-08	712,466	0.0111	7,908	7,908			
Feb-08	574,152	0.0111	6,373	6,373			
Mar-08	494,741	0.0111	5,492	5,492			
Apr-08	540,568	0.0111	6,000		6,000		
May-08	665,498	0.0114	7,587		7,587		
Jun-08	557,142	0.0114	6,351		6,351		
Jul-08	533,301	0.0114	6,080			6,080	
Aug-08	661,162	0.0114	7,537			7,537	
Sep-08	400,581	0.0114	4,567			4,567	
Oct-08	626,288	0.0114	7,140				7,140
Nov-08	552,719	0.0114	6,301				6,301
Dec-08	698,098	0.0114	7,958				7,958

Total	lb/qtr	43,573	42,842	40,995	39,924
Historical actual	lb/qtr	21,786	21,421	20,497	19,962

Source test	Unit 3	
2/28/2006	8.6	ppm NOx
2/20/2007	8.5	ppm NOx
4/24/2008	3.1	ppm NOx

permitted limit of 3 ppmvd @15% O2

3 ppmvd=	0.0111	lb/MMBtu
3.1 ppmvd=	0.0114	lb/MMBtu
3.2 ppmvd=	0.0118	lb/MMBtu
3.3 ppmvd=	0.0122	lb/MMBtu
3.4 ppmvd=	0.0125	lb/MMBtu

Emissions from Permit S-511-4

	Unit 4 MMBtu	Emission Factor (lb/MMBtu)	lb/month	lb 1st qtr	2nd qtr	3rd qtr	4th qtr
Jan-07	760,046	0.0111	8,437	8,437			
Feb-07	683,259	0.0111	7,584	7,584			
Mar-07	738,886	0.0111	8,202	8,202			
Apr-07	708,902	0.0111	7,869		7,869		
May-07	703,355	0.0111	7,807		7,807		
Jun-07	678,571	0.0111	7,532		7,532		
Jul-07	698,910	0.0111	7,758			7,758	
Aug-07	689,269	0.0111	7,651			7,651	
Sep-07	674,401	0.0111	7,486			7,486	
Oct-07	709,291	0.0111	7,873				7,873
Nov-07	675,217	0.0111	7,495				7,495
Dec-07	732,925	0.0111	8,135				8,135
Jan-08	686,469	0.0111	7,620	7,620			
Feb-08	635,346	0.0111	7,052	7,052			
Mar-08	711,379	0.0111	7,896	7,896			
Apr-08	542,205	0.0111	6,018		6,018		
May-08	-	0.0122	0		0		
Jun-08	208,075	0.0122	2,539		2,539		
Jul-08	518,565	0.0122	6,326			6,326	
Aug-08	572,100	0.0122	6,980			6,980	
Sep-08	636,452	0.0122	7,765			7,765	
Oct-08	602,687	0.0122	7,353				7,353
Nov-08	633,163	0.0122	7,725				7,725
Dec-08	703,696	0.0122	8,585				8,585

Total	lb/qtr	46,791	31,765	43,965	47,166
Historical actual	lb/qtr	23,395	15,883	21,983	23,583

Source test	Unit4	
2/28/2006	8.6	ppm NOx
2/20/2007	8.4	ppm NOx
4/24/2008	3.3	ppm NOx

permitted limit of 3 ppmvd @15% O2

3 ppmvd=	0.0111	lb/MMBtu
3.1 ppmvd=	0.0114	lb/MMBtu
3.2 ppmvd=	0.0118	lb/MMBtu
3.3 ppmvd=	0.0122	lb/MMBtu
3.4 ppmvd=	0.0125	lb/MMBtu

Emissions for each permit unit grouped by quarter

	total from all 4 turbines	
1st qtr HAE	89,387	lb NOx
1st qtr current permitted	67,800	lb NOx
1st qtr AER	21,587	lb NOx
1st qtr AQID	2,159	lb NOx
1st qtr bankable	19,428	lb NOx
2nd qtr HAE	81,802	lb NOx
2nd qtr current permitted	67,800	lb NOx
2nd qtr AER	14,002	lb NOx
2nd qtr AQID	1,400	lb NOx
2nd qtr bankable	12,602	lb NOx
3rd qtr HAE	82,283	lb NOx
3rd qtr current permitted	67,800	lb NOx
3rd qtr AER	14,483	lb NOx
3rd qtr AQID	1,448	lb NOx
3rd qtr bankable	13,035	lb NOx
4th qtr HAE	80,636	lb NOx
4th qtr current permitted	67,800	lb NOx
4th qtr AER	12,836	lb NOx
4th qtr AQID	1,284	lb NOx
4th qtr bankable	11,552	lb NOx

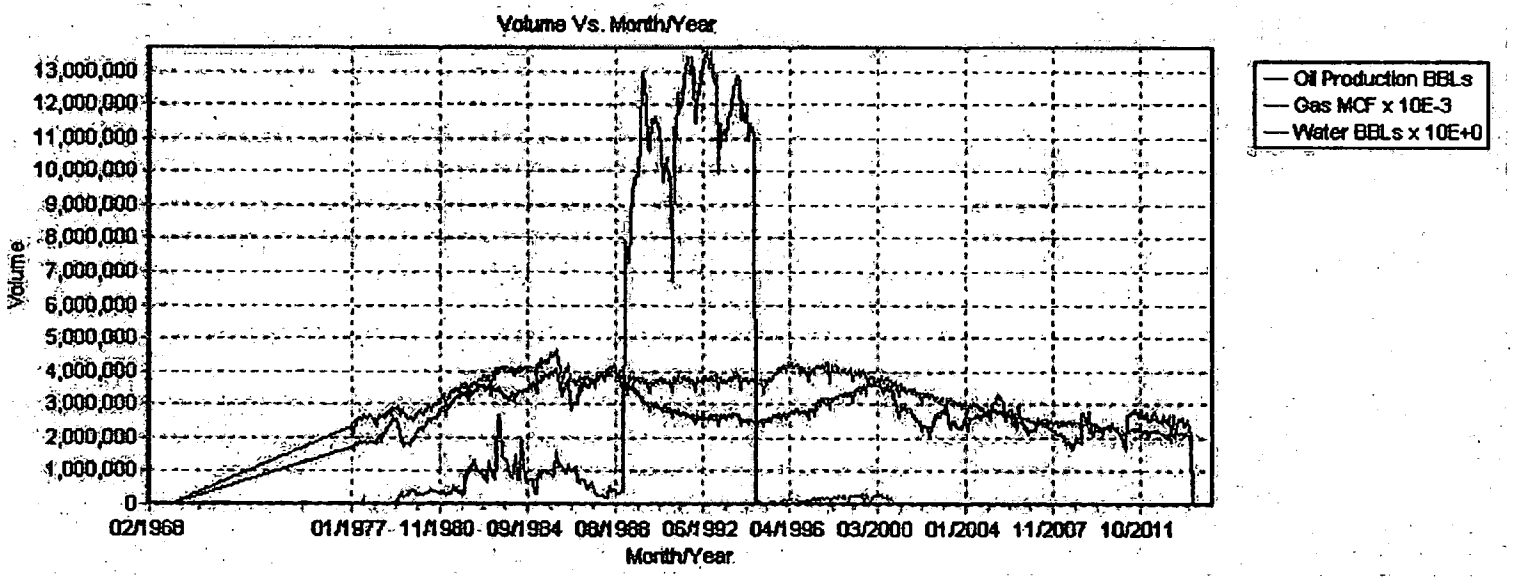
Appendix E

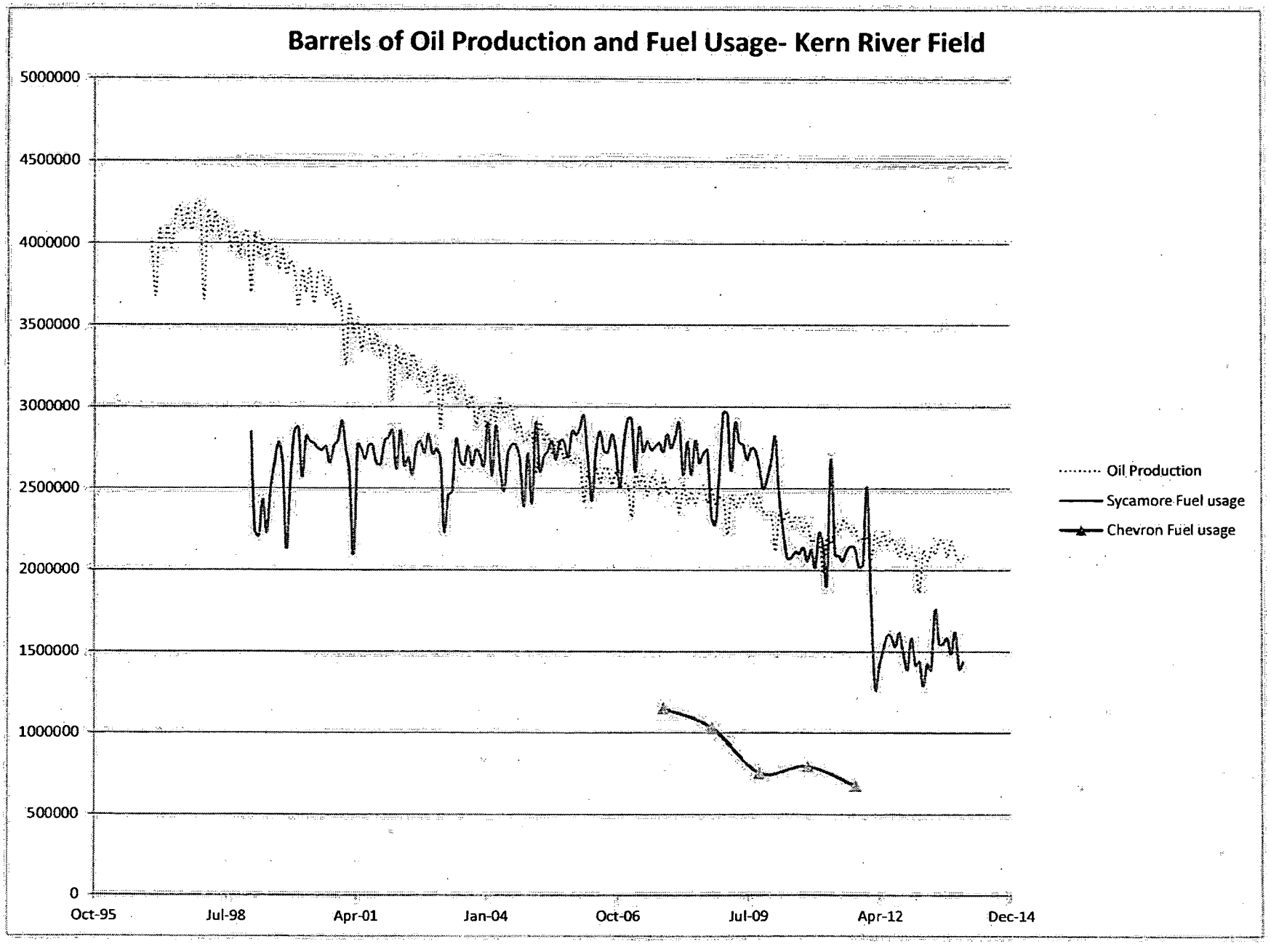
Oil production and fuel usage in Kern River

Number of Well Types: 33,727 **Well Types Having Production:** 15,366 **Well Types Having Injection:** 17,846

Oper: Chevron U.S.A. Inc. C5640

Field: Kern River




Barrels of Oil Production and Fuel Usage- Kern River Field
5000000
4500000
4000000
3500000
3000000
2500000
2000000
1500000
1000000
500000
0
Oct-95
Jul-98
Apr-01
Jan-04
Oct-06
Jul-09
Apr-12
Dec-14
Oil Production
Sycamore Fuel usage
Chevron Fuel usage

Appendix F

Draft ERC

San Joaquin Valley
Air Pollution Control District

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

Emission Reduction Credit Certificate

DRAFT

S-4249-2

ISSUED TO: SYCAMORE COGENERATION CO

ISSUED DATE: <DRAFT>

LOCATION OF REDUCTION: HEAVY OIL CENTRAL
CA
SECTION: 31 TOWNSHIP: 28S RANGE: 28E

For NOx Reduction In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
19,428 lbs	12,602 lbs	13,035 lbs	11,552 lbs

[ ] Conditions Attached

Method Of Reduction

[ ] Shutdown of Entire Stationary Source
[ ] Shutdown of Emissions Units
[X] Other

reduction in gas turbine engine usage

Use of these credits outside the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) is not allowed without express written authorization by the SJVUAPCD.

Seyed Sadredin, Executive Director / APCO

DRAFT

Arnaud Marjollet, Director of Permit Services

Apr 28 2014 1:15PM -- KLEVANNO