



**MAR 29 2012**

William Fall  
Chevron USA, Inc.  
P.O. Box 1392  
Bakersfield, CA 93302

**Re: Notice of Minor Title V Permit Modification  
District Facility # C-311  
Project # C-1110629**

Dear Mr. Fall:

Enclosed is the District's analysis of your application for minor Title V permit modification for the facility identified above. You proposed a Title V minor permit modification to incorporate recently issued Authorities to Construct C-311-88-10, -93-10, -93-11, -95-10, -95-11, -97-10, and -97-11 into the Title V operating permit. The modification involves designating each of the cogeneration gas turbine engines as non-compliant dormant emissions units and subsequently retrofitting cogeneration gas turbine engines under permit unit C-311-93, -95, and -97 with an SCR system for District Rule 4703 compliance

Enclosed is the engineering evaluation with the following attachments: proposed modified Title V permit, recently issued Authorities to Construct C-311-88-10, -93-10, -93-11, -95-10, -95-11, -97-10, and -97-11, emission increases, application, and previous Title V permit. This project will be subject to a 45-day EPA commenting period prior to the District taking final action.

Thank you for your cooperation in this matter. If you have any questions, please contact Mr. Jim Swaney at (559) 230-5900.

Sincerely,

David Warner  
Director of Permit Services

Enclosures

**Seyed Sadredin**  
Executive Director/Air Pollution Control Officer

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

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1990 E. Gettysburg Avenue  
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34946 Flyover Court  
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**MAR 29 2012**

Gerardo C. Rios, Chief  
Permits Office  
Air Division  
U.S. EPA - Region IX  
75 Hawthorne St  
San Francisco, CA 94105

Re: **Notice of Minor Title V Permit Modification**  
**District Facility # C-311**  
**Project # C-1110629**

Dear Mr. Rios:

Enclosed for you to review is an application for minor Title V permit modification for the facility identified above. Chevron USA, Inc. is proposing a Title V minor permit modification to incorporate the recently issued Authorities to Construct C-311-88-10, -93-10, -93-11, -95-10, -95-11, -97-10, and -97-11 into the Title V operating permit. The modification involves designating each of the cogeneration gas turbine engines as non-compliant dormant emissions units and subsequently retrofitting cogeneration gas turbine engines under permit unit C-311-93, -95, and -97 with an SCR system for District Rule 4703 compliance

Enclosed is the engineering evaluation with the following attachments: proposed modified Title V permit, recently issued Authorities to Construct C-311-88-10, -93-10, -93-11, -95-10, -95-11, -97-10, and -97-11, emission increases, application, and previous Title V permit. Please submit your written comments on this project within the 45-day comment period that begins on the date you receive this letter.

Thank you for your cooperation in this matter. If you have any questions, please contact Mr. Jim Swaney at (559) 230-5900.

Sincerely,

David Warner  
Director of Permit Services

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# **TITLE V APPLICATION REVIEW**

Minor Modification  
Project #: S-1110629

Engineer: Gurpreet Brar  
Date: March 21, 2012

Facility Number: C-311  
Facility Name: Chevron USA, Inc.  
Mailing Address: P.O. Box 1392  
Bakersfield, CA 93302

Contact Name: William Fall  
Phone: (661) 654-7038

Responsible Official: William Fall  
Title: HES Manager

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## **I. PROPOSAL**

Chevron USA, Inc. is proposing a Title V minor permit modification to incorporate the recently issued Authorities to Construct C-311-88-10, -93-10, -93-11, -95-10, -95-11, -97-10, and -97-11 into the Title V operating permit. The modification involves designating each of the cogeneration gas turbine engines as non-compliant dormant emissions units and subsequently retrofitting cogeneration gas turbine engines under permit unit C-311-93, -95, and -97 with an SCR system for District Rule 4703 compliance.

The purpose of this evaluation is to identify all applicable requirements, determine if the facility will comply with the applicable requirements and to provide the legal and factual basis for the proposed revisions.

## **II. FACILITY LOCATION**

These gas turbines are located at Chevron's Coalinga Oilfield in Fresno County, within Section 6, Township 20S, Range 15E.

### III. EQUIPMENT DESCRIPTION

#### After Implementation of DEU ATCs:

- C-311-88-12: NON-COMPLIANT DORMANT EMISSIONS UNIT CONSISTING OF 86.4 MMBTU/HR COGENERATION SYSTEM WITH A NOMINAL RATED 40.9 MMBTU/HR SOLAR MODEL CENTAUR 40-4500 TURBINE ENGINE #TG-104, DRIVING A 2.7 MW ELECTRICAL GENERATOR AND INCLUDING A STRUTHERS WASTE HEAT RECOVERY STEAM GENERATOR #SG-204, WITH A 36.4 MMBTU/HR COEN DUCT BURNER
- C-311-93-12: NON-COMPLIANT DORMANT EMISSIONS UNIT CONSISTING OF 86.4 MMBTU/HR COGENERATION SYSTEM WITH A NOMINAL RATED 40.9 MMBTU/HR SOLAR MODEL CENTAUR 40-4500 TURBINE ENGINE #TG-101, DRIVING A 2.7 MW ELECTRICAL GENERATOR AND INCLUDING A STRUTHERS WASTE HEAT RECOVERY STEAM GENERATOR #SG-201, WITH A 36.4 MMBTU/HR COEN DUCT BURNER
- C-311-95-12: NON-COMPLIANT DORMANT EMISSIONS UNIT CONSISTING OF 86.4 MMBTU/HR COGENERATION SYSTEM WITH A NOMINAL RATED 40.9 MMBTU/HR SOLAR MODEL CENTAUR 40-4500 TURBINE ENGINE #TG-102, DRIVING A 2.7 MW ELECTRICAL GENERATOR AND INCLUDING A STRUTHERS WASTE HEAT RECOVERY STEAM GENERATOR #SG-202, WITH A 36.4 MMBTU/HR COEN DUCT BURNER
- C-311-97-12: NON-COMPLIANT DORMANT EMISSIONS UNIT CONSISTING OF 86.4 MMBTU/HR COGENERATION SYSTEM WITH A NOMINAL RATED 40.9 MMBTU/HR SOLAR MODEL CENTAUR 40-4500 TURBINE ENGINE #TG-103, DRIVING A 2.7 MW ELECTRICAL GENERATOR AND INCLUDING A STRUTHERS WASTE HEAT RECOVERY STEAM GENERATOR #SG-203, WITH A 36.4 MMBTU/HR COEN DUCT BURNER

After Implementation of SCR Retrofit ATCs:

- C-311-93-13: 86.4 MMBTU/HR COGENERATION SYSTEM WITH A NOMINAL RATED 40.9 MMBTU/HR SOLAR MODEL CENTAUR 40-4500 TURBINE ENGINE #TG-101, DRIVING A 2.7 MW ELECTRICAL GENERATOR AND INCLUDING A WASTE HEAT RECOVERY STEAM GENERATOR #SG-201, WITH A 36.4 MMBTU/HR DUCT BURNER SERVED BY A SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM WITH AMMONIA INJECTION AND A CONTINUOUS EMISSIONS MONITORING SYSTEM (CEMS)
- C-311-95-13: 86.4 MMBTU/HR COGENERATION SYSTEM WITH A NOMINAL RATED 40.9 MMBTU/HR SOLAR MODEL CENTAUR 40-4500 TURBINE ENGINE #TG-102, DRIVING A 2.7 MW ELECTRICAL GENERATOR AND INCLUDING A WASTE HEAT RECOVERY STEAM GENERATOR #SG-202, WITH A 36.4 MMBTU/HR DUCT BURNER SERVED BY A SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM WITH AMMONIA INJECTION AND A CONTINUOUS EMISSIONS MONITORING SYSTEM (CEMS)
- C-311-97-13: 86.4 MMBTU/HR COGENERATION SYSTEM WITH A NOMINAL RATED 40.9 MMBTU/HR SOLAR MODEL CENTAUR 40-4500 TURBINE ENGINE #TG-103, DRIVING A 2.7 MW ELECTRICAL GENERATOR AND INCLUDING A WASTE HEAT RECOVERY STEAM GENERATOR #SG-203, WITH A 36.4 MMBTU/HR DUCT BURNER SERVED BY A SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM WITH AMMONIA INJECTION AND A CONTINUOUS EMISSIONS MONITORING SYSTEM (CEMS)

**IV. SCOPE OF EPA AND PUBLIC REVIEW**

This change to a Title V permit is considered to be a minor modification and, as such, requires no public review.

**V. APPLICABLE REQUIREMENTS**

District Rule 2520, Federally Mandated Operating Permits (Adopted June 21, 2001)

## VI. DESCRIPTION OF PROPOSED MODIFICATIONS

Chevron USA, Inc. is proposing to incorporate the recently issued Authorities to Construct C-311-88-12, -93-12, -93-13, -95-12, -95-13, -97-12 and -97-13 into the Title V operating permit. The modification involves designating each of the cogeneration gas turbine engines as non-compliant dormant emissions units and subsequently retrofitting cogeneration gas turbine engines under permit unit C-311-93, -95, and -97 with an SCR system for District Rule 4703 compliance.

All the permit units modified under this project are identical in function, as such, the previous Title V operating permits are nearly identical. The modifications made to these units are also identical; therefore, the description of the modifications to both permit units is described below:

### **Dormant Emissions Unit ATCs C-311-88-12, -93-12, -95-12 and -97-12:**

#### Conditions deleted from the ATCs:

Condition 1 on the ATCs was not included on the proposed PTOs, since the requirement has been satisfied with the submittal of this Title V Minor Modification application.

### **SCR System Retrofit ATCs C-311-93-13, -95-13 and -97-13:**

#### Conditions deleted from the ATCs:

Condition 1 on the ATCs was not included on the proposed PTOs, since the requirement has been satisfied with the submittal of this Title V Minor Modification application.

Condition 2 on the ATCs was not included on the proposed PTOs, since the condition is redundant with condition # 41 on the facility wide permit to operate C-311-0-2.

Condition 8 on the ATCs was not included on the proposed PTOs. This condition allowed a "shakedown" period of 60 calendar days to have the gas turbine comply with the new emissions limits of Rule 4703. Once the units are started and pass initial source test, this condition will no longer be required on the new PTOs.

Condition 37 on the ATCs was not included on the proposed PTOs. This condition is for initial performance testing and once the units are started and pass initial source test, this condition will no longer be required on the new PTOs.

Conditions modified from the ATCs:

Conditions 9 through 11 on the ATCs were modified and included as conditions 6 through 8 on the proposed PTO. The phrase "Upon concluding the initial shakedown period..." at the beginning of these conditions has been removed. Once the units are started and pass initial source test, the reference to shake down period will no longer be required on the new PTOs.

Conditions 18 and 19 on the ATCs were modified and included as conditions 15 and 16 on the proposed PTOs. These conditions required an initial source test conducted to measure NO<sub>x</sub>, CO, and VOC emissions within 60 days of initial start-up. Once the units are started and pass an initial source test, the reference to initial source test will no longer be required on the new PTOs.

Condition deleted from the existing PTOs:

Condition 2 and 3 were not included on the proposed PTOs because the daily heat input rate is calculated from the hourly heat input rate of the gas turbine engine (40.9 MMBtu/hr) and the duct burner (36.4 MMBtu/hr), which is stated in each permit's equipment description and 24 hr/day of operation. Thus stating a daily heat input rate is irrelevant given that the permit has an hourly heat input rate for the gas turbine and duct burner. Therefore, this condition has been removed from each permit.

Condition 10 was not included on the proposed PTOs because the definition and any reference to thermal stabilization period have been removed from latest amendment of District Rule 4703.

Conditions 19, 20, 21, 23, 25 and 26 were not included on the proposed PTOs because water-to-fuel ratio is a parametric approach to verify on-going compliance with NO<sub>x</sub> and CO emissions. This parametric approach is not necessary when Chevron will have CEMS analyzing NO<sub>x</sub> and CO in the exhaust gas. Therefore, these conditions have been removed from each permit.

Condition 16 was not included on the proposed PTO. This condition refers to complying with compliance testing procedures described in Rule 1081. This condition was replaced by conditions 13 through 15, 16, 17, 18, 19, 21 and 23 on the proposed PTOs. These conditions contain more specific compliance source testing requirements of Rule 1081.

Condition 27 was not included on the proposed PTOs C-311-93-13 and -97-13, since the facility has installed CEMS to measure and record the exhaust gas NO<sub>x</sub> and CO concentration.

Modified conditions from the existing PTOs:

The following tables summarized the conditions modified from the existing permits:

<b>Modified Conditions for Existing PTOs C-311-93-8 and -97-8</b>		
<i>Condition# on Existing PTOs</i>	<i>Condition# on Proposed PTOs</i>	<i>Comment</i>
1	1	This condition refers to the particulate matter emission limit of Rule 4201.
4	7 & 8	This condition refers to the NSR emission limit for all pollutants.
5, 6, 7 & 8	6	This condition refers to the District Rule 2201 and 4703 emission limit for all pollutants.
9	40	These conditions refer to the reduced load period requirements
11	3	This condition refers to the sulfur content limit of natural gas used.
12	4 & 33	This condition refers to the sulfur content test methods and testing frequency when turbine is not fired on PUC-regulated natural gas.
13	16 & 18	This condition refers to the test methods for compliance source testing.
14	19	This condition refers to the compliance source testing requirements with duct burners.
15	5	This condition refers to test methods used to determine HHV and LHV of the fuel.
16	12, 15, 17 & 18	This condition refers to the sampling and test methods for compliance with District Rule 1081.
17 & 18	13, 14 & 20	This condition refers to the submittal of source test results.
22	31	This condition refers to the quarterly submittal of written reports of CEMS operations
24	32	This condition defines the monitor downtime for a unit with CEMS for NOx emissions.
28	45	This condition refers to the permit shield from the requirements of 40 CFR 72.6 (b).
29	2	This condition refers to the record keeping requirements related to maintaining natural gas bills.

<b>Modified Conditions for Existing PTOs C-311-93-8 and -97-8</b>		
<i>Condition# on Existing PTOs</i>	<i>Condition# on Proposed PTOs</i>	<i>Comment</i>
30	30	This condition refers to the recordkeeping requirements of Rule 1080 and 2201.
32	43	This condition refers to maintaining of gas turbine system operating log.
33	44	This condition refers to maintaining all records for a period of five years.
34 & 35	46, 47 & 48	These conditions refer to all applicable permit shield requirements.

<b>Modified Conditions for Existing PTO C-311-95-8</b>		
<i>Condition# on Existing PTOs</i>	<i>Condition# on Proposed PTO</i>	<i>Comment</i>
1	1	This condition refers to the particulate matter emission limit of Rule 4201.
4	7 & 8	This condition refers to the NSR emission limit for all pollutants.
5, 6, 7 & 8	6	This condition refers to the District Rule 2201 and 4703 emission limit for all pollutants.
9	40	These conditions refer to the reduced load period requirements
11	3	This condition refers to the sulfur content limit of natural gas used.
12	4 & 33	This condition refers to the sulfur content test methods and testing frequency when turbine is not fired on PUC-regulated natural gas.
13	16 & 18	This condition refers to the test methods for compliance source testing.
14	19	This condition refers to the compliance source testing requirements with duct burners.
15	5	This condition refers to test methods used to determine HHV and LHV of the fuel.
16	12, 15, 17 & 18	This condition refers to the sampling and test methods for compliance with District Rule 1081.
17 & 18	13, 14 & 20	This condition refers to the submittal of source test results.

<b>Modified Conditions for Existing PTO C-311-95-8</b>		
<i>Condition# on Existing PTOs</i>	<i>Condition# on Proposed PTOs</i>	<i>Comment</i>
22	31	This condition refers to the quarterly submittal of written reports of CEMS operations
24	32	This condition defines the monitor downtime for a unit with CEMS for NOx emissions.
27	45	This condition refers to the permit shield from the requirements of 40 CFR 72.6 (b).
28	2	This condition refers to the record keeping requirements related to maintaining natural gas bills.
29	30	This condition refers to the record keeping requirements of Rule 1080 and 2201.
31	43	This condition refers to maintaining of gas turbine system operating log.
32	44	This condition refers to maintaining all records for a period of five years.
33 & 34	46, 47 & 48	These conditions refer to all applicable permit shield requirements.

Conditions added to draft PTOs:

Permit condition 9, 10 & 11 have been added to the proposed permits to specify the ammonia (NH<sub>3</sub>) emissions limit and defines the different calculation periods.

Permit condition 21 to 29 have been added to the proposed permits to install, certify, operate and inspect continuous emission monitor system (CEMS) on gas turbine.

Permit condition 34 thru 42 have been added to the proposed permits to comply with the requirements of District Rule 4703.

## VII. COMPLIANCE

In accordance with Rule 2520, 3.20, these modifications:

1. Do not violate requirements of any applicable federally enforceable local or federal requirement;
2. Do not relax monitoring, reporting, or recordkeeping requirements in the permit and are not significant changes in existing monitoring permit terms or conditions;
3. Do not require or change a case-by-case determination of an emission limitation or other standard, or a source-specific determination for temporary sources of ambient impacts, or a visibility or increment analysis;
4. Do not seek to establish or change a permit term or condition for which there is no corresponding underlying applicable requirement and that the source has assumed to avoid an applicable requirement to which the source would otherwise be subject. Such terms and conditions include:
  - a. A federally enforceable emission cap assumed to avoid classification as a modification under any provisions of Title I of the Federal Clean Air Act; and
  - b. An alternative emissions limit approved pursuant to regulations promulgated under section 112(i)(5) of the Federal Clean Air Act; and
5. Are not Title I modifications as defined in District Rule 2520 or modifications as defined in section 111 or 112 of the Federal Clean Air Act; and
6. Do not seek to consolidate overlapping applicable requirements.

In accordance with Rule 2520, the application meets the procedural requirements of section 11.4 by including;

1. A description of the change, the emissions resulting from the change, and any new applicable requirements that will apply if the change occurs;
2. The source's suggested draft permit; and
3. Certification by a responsible official that the proposed modification meets the criteria for use of minor permit modification procedures and a request that such procedures be used.

## **VIII. ATTACHMENTS**

- A. Proposed Modified Title V Operating Permit No. C-311-88-12, -93-12, -95-12 and -97-12 (after the implementation of DEU ATCs)
- B. Proposed Modified Title V Operating Permit No. C-311-93-13, -95-13 and -97-13 (after the implementation of SCR retrofit ATCs)
- C. Authorities to Construct No.'s C-311-88-12, -93-12, -93-13, -95-12, -95-13, -97-12 and -97-13
- D. Emissions Increases
- E. Application
- F. Previous Title V Operating Permit No.'s C-311-88-8, -93-8, -95-8 and -97-8

# ATTACHMENT A

Proposed Modified Title V Operating Permit No.  
C-311-88-12, -93-12, -95-12 & -97-12  
(after the implementation of DEU ATCs)

# San Joaquin Valley Air Pollution Control District

**PERMIT UNIT:** C-311-88-12

**EXPIRATION DATE:** 12/31/2016

**SECTION:** 25 **TOWNSHIP:** 20S **RANGE:** 14E

## **EQUIPMENT DESCRIPTION:**

NON-COMPLIANT DORMANT EMISSIONS UNIT CONSISTING OF 86.4 MMBTU/HR COGENERATION SYSTEM WITH A NOMINAL RATED 40.9 MMBTU/HR SOLAR MODEL CENTAUR 40-4500 TURBINE ENGINE #TG-104, DRIVING A 2.7 MW ELECTRICAL GENERATOR AND INCLUDING A STRUTHERS WASTE HEAT RECOVERY STEAM GENERATOR #SG-204, WITH A 36.4 MMBTU/HR COEN DUCT BURNER

## **PERMIT UNIT REQUIREMENTS**

1. No modification to this unit shall be performed without an Authority to Construct for such modification(s), except for changes specified in conditions below. [District Rule 2010] Federally Enforceable Through Title V Permit
2. The fuel supply line shall be physically disconnected from this unit. [District Rule 4703] Federally Enforceable Through Title V Permit
3. This equipment shall not be operated for any reason until an Authority to Construct permit is issued approving all necessary retrofits required to comply with the applicable requirements of District Rule 4703 and all other applicable District regulations. [District Rule 4703] Federally Enforceable Through Title V Permit
4. {2256} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201, 3.1] Federally Enforceable Through Title V Permit
5. The Owner/Operator shall maintain a separate fuel meter to the turbine and a fuel meter to the duct burners. [District Rule 2201] Federally Enforceable Through Title V Permit
6. Natural gas consumption by the cogeneration system (turbine and duct burner) shall not exceed 1,812,000 scf/day. Natural gas consumption by the cogeneration system shall not exceed 654 million scf/year. [District Rule 2201]
7. Emissions from the cogeneration system shall not exceed any of the following limits: 233.7 lb-NOx/day, 3.6 lb-SOx/day, 47.1 lb-PM10/day, 257.3 lb-CO/day, or 47.1 lb-VOC/day. [District Rule 2201] Federally Enforceable Through Title V Permit
8. The owner or operator shall not operate the gas turbine under load conditions, excluding the thermal stabilization period or reduced load period, which results in the measured NOx emissions concentration exceeding 35 ppmv @ 15% O2. [40 CFR 60.332(a)(1), (a)(2) and District Rules 2201 and 4703, 5.1.2.1] Federally Enforceable Through Title V Permit
9. CO emissions from the cogeneration system with the duct burner firing shall not exceed 53 ppmv CO @ 15% O2 or 0.119 lb-CO/MMBtu, excluding thermal stabilization periods or reduced load periods. [District Rule 4703, 5.2] Federally Enforceable Through Title V Permit
10. CO emissions from the cogeneration system without duct burner firing shall not exceed 63 ppmv CO @ 15% O2 or 0.142 lb CO/MMBtu, excluding thermal stabilization periods or reduced load periods. [District Rule 4703, 5.2] Federally Enforceable Through Title V Permit
11. Emissions from the cogeneration system (with or without duct burner firing) shall not exceed any of the following limits: 0.002 lb-SOx/MMBtu, 0.026 lb-PM10/MMBtu, or 0.026 lb-VOC/MMBtu. [District Rule 2201] Federally Enforceable Through Title V Permit

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

12. Reduced Load Period shall be defined as the time during which the gas turbine is operated at less than rated capacity in order to change the position of the exhaust gas diverter gate, not exceeding one hour. [District Rule 4703, 3.19] Federally Enforceable Through Title V Permit
13. Thermal Stabilization Period shall be defined as the startup or shutdown, as defined in 40 CFR 60.2, time during which the exhaust gas is not within the normal operating temperature range, not to exceed two hours per startup or shutdown event. [District Rule 4703, 3.25] Federally Enforceable Through Title V Permit
14. This unit shall be fired exclusively on natural gas as defined in 40 CFR 60.331(u) and the natural gas shall have a total sulfur content less than or equal to 1.0 gr/100 scf. [40 CFR 60.333(b) and District Rules 2201 and 4201] Federally Enforceable Through Title V Permit
15. The sulfur fuel content of each fuel source shall be: (i) documented in a valid purchase contract, a supplier certification, a tariff sheet or transportation contract or (ii) monitored weekly using ASTM Methods D4084, D5504, D6228, or Gas Processors Association Standard 2377, or double GC for H<sub>2</sub>S and mercaptans. If the sulfur fuel content is less than 1.0 gr/100 scf for eight consecutive weeks, then the monitoring frequency shall be every 6 months. If any six-month monitoring tests result in a sulfur fuel content exceedance, weekly monitoring shall resume. [40 CFR 60.334(h)(3)] Federally Enforceable Through Title V Permit
16. Performance testing shall be conducted annually to measure NO<sub>x</sub> and CO emissions concentrations using the following test methods: EPA Methods 7E or 20 for NO<sub>x</sub> emissions, EPA Methods 10 or 10B for CO emissions, EPA Methods 3, 3A, or 20 for Oxygen content of the exhaust gas. The test will be comprised of three test runs performed at the highest physically achievable load of the gas turbine. The measured NO<sub>x</sub> concentrations shall be averaged over a three hour period, using consecutive 15-minute sampling periods. [40 CFR 60.335(a), (b)(2) and District Rule 4703, 5.1, 6.3.1, 6.3.2, and 6.4] Federally Enforceable Through Title V Permit
17. Any gas turbine with an intermittently operated auxiliary burner shall demonstrate compliance with the auxiliary burner both on and off. Source testing shall not be required with the duct burner on if it has not been in operation during the previous 12 months, i.e. the duct burner need not be started to solely perform source testing. Source testing shall not be required with the duct burner off if it has been in continuous operation during the previous 12 months, i.e. the duct burner need not be shut-down solely to perform source testing. Source testing shall be performed within 60 days of startup or shutdown of the duct burner unless source testing of the duct burner has been performed in the previous 12 months. [40 CFR 60.335(b) and District Rule 4703, 6.3.3] Federally Enforceable Through Title V Permit
18. HHV and LHV of the fuel shall be determined using ASTM D3588, ASTM 1826, or ASTM 1945. [40 CFR 60.335(b) and District Rule 4703, 6.4.5] Federally Enforceable Through Title V Permit
19. The owner or operator shall be required to conform to the sampling facilities and testing procedures described in Rule 1081 (as amended 12/16/93), Sections 3.0 and 6.1. [District Rule 1081] Federally Enforceable Through Title V Permit
20. The District must be notified 30 days prior to any performance testing and a test plan shall be submitted for approval 15 days prior to such testing. [District Rule 1081] Federally Enforceable Through Title V Permit
21. Performance testing shall be witnessed or authorized by District personnel. Test results must be submitted to the District within 60 days of performance testing. [District Rule 1081] Federally Enforceable Through Title V Permit
22. The owner or operator shall operate and maintain in calibration a system which continuously measures and records: control system operating parameters, elapsed time of operation, the fuel consumption and the ratio of water to fuel being fired in the turbine. [40 CFR 60.334(a) and District Rule 4703, 6.2.2] Federally Enforceable Through Title V Permit
23. The owner or operator shall develop and keep on-site a parameter monitoring plan which includes the procedures used to document the proper operation of the NO<sub>x</sub> emissions controls (water injection). This plan shall include the parameter(s) monitored, such as the water-to-fuel ratio, and the acceptable range(s) of the parameter(s) as well as the basis for designating the parameter(s) and acceptable range(s). Any supplemental data such as engineering analyses, design specifications, manufacturers recommendations and other relevant information shall be included in the monitoring plan. [40 CFR 60.334(g)] Federally Enforceable Through Title V Permit
24. The water to fuel ratio shall not be less than 0.45 on a weight basis. [District Rule 4703, 6.2.5] Federally Enforceable Through Title V Permit

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

25. The owner or operator shall submit a semi-annual excess NOx emissions and monitor downtime report to the APCO. Excess emissions shall be reported for all periods of operation, including startup, shutdown and malfunction. The report, post marked by the 30th day following the end of every other calendar quarter, shall include the following: Time intervals, average steam or water-to-fuel ratio, turbine load, nature and cause of excess emissions (if known), and corrective actions taken and preventative measures adopted. [40 CFR 60.334(j), (j)(5) and District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit
26. Excess emissions shall be defined as any operating hour for which the steam or water to fuel ratio, as measured by the continuous monitoring system, falls below the established steam or water to fuel ratio. Any operating hour in which no steam or water is injected into the turbine shall also be considered as excess emissions. [40 CR 60.334(j)(1)(i)(A)] Federally Enforceable Through Title V Permit
27. Monitor downtime shall be any operating hour in which the water or steam is injected into the turbine, but essential parametric data needed to determine the steam or water to fuel ratio are unavailable or invalid. [40 CFR 60.334(j)(1)(i)(B)] Federally Enforceable Through Title V Permit
28. Fuel consumption and the water-to-fuel ratio shall be monitored continuously with a system that is accurate to within 5 percent. [District Rule 2201] Federally Enforceable Through Title V Permit
29. The cogeneration system shall be equipped with a meter recording the total elapsed operating time. [District NSR Rule] Federally Enforceable Through Title V Permit
30. Permittee shall notify the District of any breakdown condition as soon as reasonably possible, but no later than one hour after its detection, unless the owner or operator demonstrates to the District's satisfaction that the longer reporting period was necessary. [District Rule 1100] Federally Enforceable Through Title V Permit
31. The District shall be notified in writing within ten days following the correction of any breakdown condition. The breakdown notification shall include a description of the equipment malfunction or failure, the date and cause of the initial failure, the estimated emissions in excess of those allowed, and the methods utilized to restore normal operations. [District Rule 1100] Federally Enforceable Through Title V Permit
32. If the water injection system is inoperative when the turbine is running, the operator shall follow procedures pursuant to District Rule 1100 (Equipment Breakdown). [District Rule 1100] Federally Enforceable Through Title V Permit
33. {741} The requirements of 40 CFR 72.6 (b) do not apply to this source because only non-Title IV sources can qualify to use the applicable template. A permit shield is granted from this requirement. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
34. If the turbine is fired on PUC-regulated natural gas, then the operator shall maintain a log describing the source of natural gas and quantity used. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit
35. Records shall be maintained and shall contain: the occurrence and duration of any start-up, shutdown or malfunction, performance testing, evaluations, calibrations, checks, adjustments and emissions measurements. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit
36. The owner or operator shall maintain a record of the cumulative rolling 12 month fuel usage for each turbine. The record shall be updated at the end of each calendar month. [District Rule 2201] Federally Enforceable Through Title V Permit
37. {787} Operator shall maintain a stationary gas turbine operating log that includes, on a daily basis, 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(a),(b) and District Rule 4703, 6.2.4] Federally Enforceable Through Title V Permit
38. {2271} 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 Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit
39. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following applicable requirements: 40 CFR 60.332(a)(1), (a)(2), 60.333 (b), (g), (h)(3), (j), (j)(1)(i)(A), (j)(1)(i)(b), and (j)(5); 60.335(a), (b)(2), (b)(3); and District Rule 4703 (as amended 4/25/02), Sections 5.1.2.1, 5.2, 6.2.2, 6.4, and 6.2.6. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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

40. Compliance with permit conditions in the Title V permit shall be deemed compliance with District Rule 1081(as amended 12/16/93), Section 3.0, 6.0, 7.1, 7.2, 7.3 and Rule 4201 (as amended 12/17/92). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

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

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# San Joaquin Valley Air Pollution Control District

**PERMIT UNIT:** C-311-93-12

**EXPIRATION DATE:** 12/31/2016

**SECTION:** 25 **TOWNSHIP:** 20S **RANGE:** 14E

## **EQUIPMENT DESCRIPTION:**

NON-COMPLIANT DORMANT EMISSIONS UNIT CONSISTING OF 86.4 MMBTU/HR COGENERATION SYSTEM WITH A NOMINAL RATED 40.9 MMBTU/HR SOLAR MODEL CENTAUR 40-4500 TURBINE ENGINE #TG-101, DRIVING A 2.7 MW ELECTRICAL GENERATOR AND INCLUDING A STRUTHERS WASTE HEAT RECOVERY STEAM GENERATOR #SG-201, WITH A 36.4 MMBTU/HR COEN DUCT BURNER

## **PERMIT UNIT REQUIREMENTS**

1. No modification to this unit shall be performed without an Authority to Construct for such modification(s), except for changes specified in conditions below. [District Rule 2010] Federally Enforceable Through Title V Permit
2. The fuel supply line shall be physically disconnected from this unit. [District Rule 4703] Federally Enforceable Through Title V Permit
3. This equipment shall not be operated for any reason until an Authority to Construct permit is issued approving all necessary retrofits required to comply with the applicable requirements of District Rule 4703 and all other applicable District regulations. [District Rule 4703] Federally Enforceable Through Title V Permit
4. {2256} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201, 3.1] Federally Enforceable Through Title V Permit
5. The Owner/Operator shall maintain a separate fuel meter to the turbine and a fuel meter to the duct burners. [District Rule 2201] Federally Enforceable Through Title V Permit
6. Natural gas consumption by the cogeneration system (turbine and duct burner) shall not exceed 1,812,000 scf/day. Natural gas consumption by the cogeneration system shall not exceed 654 million scf/year. [District Rule 2201]
7. Emissions from the cogeneration system shall not exceed any of the following limits: 233.7 lb-NOx/day, 3.6 lb-SOx/day, 47.1 lb-PM10/day, 257.3 lb-CO/day, or 47.1 lb-VOC/day. [District Rule 2201] Federally Enforceable Through Title V Permit
8. The owner or operator shall not operate the gas turbine under load conditions, excluding the thermal stabilization period or reduced load period, which results in the measured NOx emissions concentration exceeding 35 ppmv @ 15% O2. [40 CFR 60.332(a)(1), (a)(2) and District Rules 2201 and 4703, 5.1.2.1] Federally Enforceable Through Title V Permit
9. CO emissions from the cogeneration system with the duct burner firing shall not exceed 53 ppmv CO @ 15% O2 or 0.119 lb-CO/MMBtu, excluding thermal stabilization periods or reduced load periods. [District Rule 4703, 5.2] Federally Enforceable Through Title V Permit
10. CO emissions from the cogeneration system without duct burner firing shall not exceed 63 ppmv CO @ 15% O2 or 0.142 lb CO/MMBtu, excluding thermal stabilization periods or reduced load periods. [District Rule 4703, 5.2] Federally Enforceable Through Title V Permit
11. Emissions from the cogeneration system (with or without duct burner firing) shall not exceed any of the following limits: 0.002 lb-SOx/MMBtu, 0.026 lb-PM10/MMBtu, or 0.026 lb-VOC/MMBtu. [District Rule 2201] Federally Enforceable Through Title V Permit

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

12. Reduced Load Period shall be defined as the time during which the gas turbine is operated at less than rated capacity in order to change the position of the exhaust gas diverter gate, not exceeding one hour. [District Rule 4703, 3.19] Federally Enforceable Through Title V Permit
13. Thermal Stabilization Period shall be defined as the startup or shutdown, as defined in 40 CFR 60.2, time during which the exhaust gas is not within the normal operating temperature range, not to exceed two hours per startup or shutdown event. [District Rule 4703, 3.25] Federally Enforceable Through Title V Permit
14. This unit shall be fired exclusively on natural gas as defined in 40 CFR 60.331(u) and the natural gas shall have a total sulfur content less than or equal to 1.0 gr/100 scf. [40 CFR 60.333(b) and District Rules 2201 and 4201] Federally Enforceable Through Title V Permit
15. The sulfur fuel content of each fuel source shall be: (i) documented in a valid purchase contract, a supplier certification, a tariff sheet or transportation contract or (ii) monitored weekly using ASTM Methods D4084, D5504, D6228, or Gas Processors Association Standard 2377, or double GC for H<sub>2</sub>S and mercaptans. If the sulfur fuel content is less than 1.0 gr/100 scf for eight consecutive weeks, then the monitoring frequency shall be every 6 months. If any six-month monitoring tests result in a sulfur fuel content exceedance, weekly monitoring shall resume. [40 CFR 60.334(h)(3)] Federally Enforceable Through Title V Permit
16. Performance testing shall be conducted annually to measure NO<sub>x</sub> and CO emissions concentrations using the following test methods: EPA Methods 7E or 20 for NO<sub>x</sub> emissions, EPA Methods 10 or 10B for CO emissions, EPA Methods 3, 3A, or 20 for Oxygen content of the exhaust gas. The test will be comprised of three test runs performed at the highest physically achievable load of the gas turbine. The measured NO<sub>x</sub> concentrations shall be averaged over a three hour period, using consecutive 15-minute sampling periods. [40 CFR 60.335(a), (b)(2) and District Rule 4703, 5.1, 6.3.1, 6.3.2, and 6.4] Federally Enforceable Through Title V Permit
17. Any gas turbine with an intermittently operated auxiliary burner shall demonstrate compliance with the auxiliary burner both on and off. Source testing shall not be required with the duct burner on if it has not been in operation during the previous 12 months, i.e. the duct burner need not be started to solely perform source testing. Source testing shall not be required with the duct burner off if it has been in continuous operation during the previous 12 months, i.e. the duct burner need not be shut-down solely to perform source testing. Source testing shall be performed within 60 days of startup or shutdown of the duct burner unless source testing of the duct burner has been performed in the previous 12 months. [40 CFR 60.335(b) and District Rule 4703, 6.3.3] Federally Enforceable Through Title V Permit
18. HHV and LHV of the fuel shall be determined using ASTM D3588, ASTM 1826, or ASTM 1945. [40 CFR 60.335(b) and District Rule 4703, 6.4.5] Federally Enforceable Through Title V Permit
19. The owner or operator shall be required to conform to the sampling facilities and testing procedures described in Rule 1081 (as amended 12/16/93), Sections 3.0 and 6.1. [District Rule 1081] Federally Enforceable Through Title V Permit
20. The District must be notified 30 days prior to any performance testing and a test plan shall be submitted for approval 15 days prior to such testing. [District Rule 1081] Federally Enforceable Through Title V Permit
21. Performance testing shall be witnessed or authorized by District personnel. Test results must be submitted to the District within 60 days of performance testing. [District Rule 1081] Federally Enforceable Through Title V Permit
22. The owner or operator shall operate and maintain in calibration a system which continuously measures and records: control system operating parameters, elapsed time of operation, the fuel consumption and the ratio of water to fuel being fired in the turbine. [40 CFR 60.334(a) and District Rule 4703, 6.2.2] Federally Enforceable Through Title V Permit
23. The owner or operator shall develop and keep on-site a parameter monitoring plan which includes the procedures used to document the proper operation of the NO<sub>x</sub> emissions controls (water injection). This plan shall include the parameter(s) monitored, such as the water-to-fuel ratio, and the acceptable range(s) of the parameter(s) as well as the basis for designating the parameter(s) and acceptable range(s). Any supplemental data such as engineering analyses, design specifications, manufacturers recommendations and other relevant information shall be included in the monitoring plan. [40 CFR 60.334(g)] Federally Enforceable Through Title V Permit
24. The water to fuel ratio shall not be less than 0.45 on a weight basis. [District Rule 4703, 6.2.5] Federally Enforceable Through Title V Permit

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

25. The owner or operator shall submit a semi-annual excess NOx emissions and monitor downtime report to the APCO. Excess emissions shall be reported for all periods of operation, including startup, shutdown and malfunction. The report, post marked by the 30th day following the end of every other calendar quarter, shall include the following: Time intervals, average steam or water-to-fuel ratio, turbine load, nature and cause of excess emissions (if known), and corrective actions taken and preventative measures adopted. [40 CFR 60.334(j), (j)(5) and District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit
26. Excess emissions shall be defined as any operating hour for which the steam or water to fuel ratio, as measured by the continuous monitoring system, falls below the established steam or water to fuel ratio. Any operating hour in which no steam or water is injected into the turbine shall also be considered as excess emissions. [40 CR 60.334(j)(1)(i)(A)] Federally Enforceable Through Title V Permit
27. Monitor downtime shall be any operating hour in which the water or steam is injected into the turbine, but essential parametric data needed to determine the steam or water to fuel ratio are unavailable or invalid. [40 CFR 60.334(j)(1)(i)(B)] Federally Enforceable Through Title V Permit
28. Fuel consumption and the water-to-fuel ratio shall be monitored continuously with a system that is accurate to within 5 percent. [District Rule 2201] Federally Enforceable Through Title V Permit
29. The cogeneration system shall be equipped with a meter recording the total elapsed operating time. [District NSR Rule] Federally Enforceable Through Title V Permit
30. Permittee shall notify the District of any breakdown condition as soon as reasonably possible, but no later than one hour after its detection, unless the owner or operator demonstrates to the District's satisfaction that the longer reporting period was necessary. [District Rule 1100] Federally Enforceable Through Title V Permit
31. The District shall be notified in writing within ten days following the correction of any breakdown condition. The breakdown notification shall include a description of the equipment malfunction or failure, the date and cause of the initial failure, the estimated emissions in excess of those allowed, and the methods utilized to restore normal operations. [District Rule 1100] Federally Enforceable Through Title V Permit
32. If the water injection system is inoperative when the turbine is running, the operator shall follow procedures pursuant to District Rule 1100 (Equipment Breakdown). [District Rule 1100] Federally Enforceable Through Title V Permit
33. {741} The requirements of 40 CFR 72.6 (b) do not apply to this source because only non-Title IV sources can qualify to use the applicable template. A permit shield is granted from this requirement. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
34. If the turbine is fired on PUC-regulated natural gas, then the operator shall maintain a log describing the source of natural gas and quantity used. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit
35. Records shall be maintained and shall contain: the occurrence and duration of any start-up, shutdown or malfunction, performance testing, evaluations, calibrations, checks, adjustments and emissions measurements. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit
36. The owner or operator shall maintain a record of the cumulative rolling 12 month fuel usage for each turbine. The record shall be updated at the end of each calendar month. [District Rule 2201] Federally Enforceable Through Title V Permit
37. {787} Operator shall maintain a stationary gas turbine operating log that includes, on a daily basis, 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(a),(b) and District Rule 4703, 6.2.4] Federally Enforceable Through Title V Permit
38. {2271} 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 Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit
39. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following applicable requirements: 40 CFR 60.332(a)(1), (a)(2), 60.333 (b), (g), (h)(3), (j), (j)(1)(i)(A), (j)(1)(i)(b), and (j)(5); 60.335(a), (b)(2), (b)(3); and District Rule 4703 (as amended 4/25/02), Sections 5.1.2.1, 5.2, 6.2.2, 6.4, and 6.2.6. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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

40. Compliance with permit conditions in the Title V permit shall be deemed compliance with District Rule 1081(as amended 12/16/93), Section 3.0, 6.0, 7.1, 7.2, 7.3 and Rule 4201 (as amended 12/17/92). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

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

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# San Joaquin Valley Air Pollution Control District

**PERMIT UNIT:** C-311-95-12

**EXPIRATION DATE:** 12/31/2016

**SECTION:** 25 **TOWNSHIP:** 20S **RANGE:** 14

## **EQUIPMENT DESCRIPTION:**

NON-COMPLIANT DORMANT EMISSIONS UNIT CONSISTING OF 86.4 MMBTU/HR COGENERATION SYSTEM WITH A NOMINAL RATED 40.9 MMBTU/HR SOLAR MODEL CENTAUR 40-4500 TURBINE ENGINE #TG-102, DRIVING A 2.7 MW ELECTRICAL GENERATOR AND INCLUDING A STRUTHERS WASTE HEAT RECOVERY STEAM GENERATOR #SG-202, WITH A 36.4 MMBTU/HR COEN DUCT BURNER

## **PERMIT UNIT REQUIREMENTS**

1. No modification to this unit shall be performed without an Authority to Construct for such modification(s), except for changes specified in conditions below. [District Rule 2010] Federally Enforceable Through Title V Permit
2. The fuel supply line shall be physically disconnected from this unit. [District Rule 4703] Federally Enforceable Through Title V Permit
3. This equipment shall not be operated for any reason until an Authority to Construct permit is issued approving all necessary retrofits required to comply with the applicable requirements of District Rule 4703 and all other applicable District regulations. [District Rule 4703] Federally Enforceable Through Title V Permit
4. {2256} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201, 3.1] Federally Enforceable Through Title V Permit
5. The Owner/Operator shall maintain a separate fuel meter to the turbine and a fuel meter to the duct burners. [District Rule 2201] Federally Enforceable Through Title V Permit
6. Natural gas consumption by the cogeneration system (turbine and duct burner) shall not exceed 1,812,000 scf/day. Natural gas consumption by the cogeneration system shall not exceed 654 million scf/year. [District Rule 2201]
7. Emissions from the cogeneration system shall not exceed any of the following limits: 233.7 lb-NOx/day, 3.6 lb-SOx/day, 47.1 lb-PM10/day, 257.3 lb-CO/day, or 47.1 lb-VOC/day. [District Rule 2201] Federally Enforceable Through Title V Permit
8. The owner or operator shall not operate the gas turbine under load conditions, excluding the thermal stabilization period or reduced load period, which results in the measured NOx emissions concentration exceeding 35 ppmv @ 15% O2. [40 CFR 60.332(a)(1), (a)(2) and District Rules 2201 and 4703, 5.1.2.1] Federally Enforceable Through Title V Permit
9. CO emissions from the cogeneration system with the duct burner firing shall not exceed 53 ppmv CO @ 15% O2 or 0.119 lb-CO/MMBtu, excluding thermal stabilization periods or reduced load periods. [District Rule 4703, 5.2] Federally Enforceable Through Title V Permit
10. CO emissions from the cogeneration system without duct burner firing shall not exceed 63 ppmv CO @ 15% O2 or 0.142 lb CO/MMBtu, excluding thermal stabilization periods or reduced load periods. [District Rule 4703, 5.2] Federally Enforceable Through Title V Permit
11. Emissions from the cogeneration system (with or without duct burner firing) shall not exceed any of the following limits: 0.002 lb-SOx/MMBtu, 0.026 lb-PM10/MMBtu, or 0.026 lb-VOC/MMBtu. [District Rule 2201] Federally Enforceable Through Title V Permit

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

12. Reduced Load Period shall be defined as the time during which the gas turbine is operated at less than rated capacity in order to change the position of the exhaust gas diverter gate, not exceeding one hour. [District Rule 4703, 3.19] Federally Enforceable Through Title V Permit
13. Thermal Stabilization Period shall be defined as the startup or shutdown, as defined in 40 CFR 60.2, time during which the exhaust gas is not within the normal operating temperature range, not to exceed two hours per startup or shutdown event. [District Rule 4703, 3.25] Federally Enforceable Through Title V Permit
14. This unit shall be fired exclusively on natural gas as defined in 40 CFR 60.331(u) and the natural gas shall have a total sulfur content less than or equal to 1.0 gr/100 scf. [40 CFR 60.333(b) and District Rules 2201 and 4201] Federally Enforceable Through Title V Permit
15. The sulfur fuel content of each fuel source shall be: (i) documented in a valid purchase contract, a supplier certification, a tariff sheet or transportation contract or (ii) monitored weekly using ASTM Methods D4084, D5504, D6228, or Gas Processors Association Standard 2377, or double GC for H<sub>2</sub>S and mercaptans. If the sulfur fuel content is less than 1.0 gr/100 scf for eight consecutive weeks, then the monitoring frequency shall be every 6 months. If any six-month monitoring tests result in a sulfur fuel content exceedance, weekly monitoring shall resume. [40 CFR 60.334(h)(3)] Federally Enforceable Through Title V Permit
16. Performance testing shall be conducted annually to measure NO<sub>x</sub> and CO emissions concentrations using the following test methods: EPA Methods 7E or 20 for NO<sub>x</sub> emissions, EPA Methods 10 or 10B for CO emissions, EPA Methods 3, 3A, or 20 for Oxygen content of the exhaust gas. The test will be comprised of three test runs performed at the highest physically achievable load of the gas turbine. The measured NO<sub>x</sub> concentrations shall be averaged over a three hour period, using consecutive 15-minute sampling periods. [40 CFR 60.335(a), (b)(2) and District Rule 4703, 5.1, 6.3.1, 6.3.2, and 6.4] Federally Enforceable Through Title V Permit
17. Any gas turbine with an intermittently operated auxiliary burner shall demonstrate compliance with the auxiliary burner both on and off. Source testing shall not be required with the duct burner on if it has not been in operation during the previous 12 months, i.e. the duct burner need not be started to solely perform source testing. Source testing shall not be required with the duct burner off if it has been in continuous operation during the previous 12 months, i.e. the duct burner need not be shut-down solely to perform source testing. Source testing shall be performed within 60 days of startup or shutdown of the duct burner unless source testing of the duct burner has been performed in the previous 12 months. [40 CFR 60.335(b) and District Rule 4703, 6.3.3] Federally Enforceable Through Title V Permit
18. HHV and LHV of the fuel shall be determined using ASTM D3588, ASTM 1826, or ASTM 1945. [40 CFR 60.335(b) and District Rule 4703, 6.4.5] Federally Enforceable Through Title V Permit
19. The owner or operator shall be required to conform to the sampling facilities and testing procedures described in Rule 1081 (as amended 12/16/93), Sections 3.0 and 6.1. [District Rule 1081] Federally Enforceable Through Title V Permit
20. The District must be notified 30 days prior to any performance testing and a test plan shall be submitted for approval 15 days prior to such testing. [District Rule 1081] Federally Enforceable Through Title V Permit
21. Performance testing shall be witnessed or authorized by District personnel. Test results must be submitted to the District within 60 days of performance testing. [District Rule 1081] Federally Enforceable Through Title V Permit
22. The owner or operator shall operate and maintain in calibration a system which continuously measures and records: control system operating parameters, elapsed time of operation, the fuel consumption and the ratio of water to fuel being fired in the turbine. [40 CFR 60.334(a) and District Rule 4703, 6.2.2] Federally Enforceable Through Title V Permit
23. The owner or operator shall develop and keep on-site a parameter monitoring plan which includes the procedures used to document the proper operation of the NO<sub>x</sub> emissions controls (water injection). This plan shall include the parameter(s) monitored, such as the water-to-fuel ratio, and the acceptable range(s) of the parameter(s) as well as the basis for designating the parameter(s) and acceptable range(s). Any supplemental data such as engineering analyses, design specifications, manufacturers recommendations and other relevant information shall be included in the monitoring plan. [40 CFR 60.334(g)] Federally Enforceable Through Title V Permit
24. The water to fuel ratio shall not be less than 0.45 on a weight basis. [District Rule 4703, 6.2.5] Federally Enforceable Through Title V Permit

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

25. The owner or operator shall submit a semi-annual excess NOx emissions and monitor downtime report to the APCO. Excess emissions shall be reported for all periods of operation, including startup, shutdown and malfunction. The report, post marked by the 30th day following the end of every other calendar quarter, shall include the following: Time intervals, average steam or water-to-fuel ratio, turbine load, nature and cause of excess emissions (if known), and corrective actions taken and preventative measures adopted. [40 CFR 60.334(j), (j)(5) and District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit
26. Excess emissions shall be defined as any operating hour for which the steam or water to fuel ratio, as measured by the continuous monitoring system, falls below the established steam or water to fuel ratio. Any operating hour in which no steam or water is injected into the turbine shall also be considered as excess emissions. [40 CR 60.334(j)(1)(i)(A)] Federally Enforceable Through Title V Permit
27. Monitor downtime shall be any operating hour in which the water or steam is injected into the turbine, but essential parametric data needed to determine the steam or water to fuel ratio are unavailable or invalid. [40 CFR 60.334(j)(1)(i)(B)] Federally Enforceable Through Title V Permit
28. Fuel consumption and the water-to-fuel ratio shall be monitored continuously with a system that is accurate to within 5 percent. [District Rule 2201] Federally Enforceable Through Title V Permit
29. The cogeneration system shall be equipped with a meter recording the total elapsed operating time. [District NSR Rule] Federally Enforceable Through Title V Permit
30. Permittee shall notify the District of any breakdown condition as soon as reasonably possible, but no later than one hour after its detection, unless the owner or operator demonstrates to the District's satisfaction that the longer reporting period was necessary. [District Rule 1100] Federally Enforceable Through Title V Permit
31. The District shall be notified in writing within ten days following the correction of any breakdown condition. The breakdown notification shall include a description of the equipment malfunction or failure, the date and cause of the initial failure, the estimated emissions in excess of those allowed, and the methods utilized to restore normal operations. [District Rule 1100] Federally Enforceable Through Title V Permit
32. If the water injection system is inoperative when the turbine is running, the operator shall follow procedures pursuant to District Rule 1100 (Equipment Breakdown). [District Rule 1100] Federally Enforceable Through Title V Permit
33. {741} The requirements of 40 CFR 72.6 (b) do not apply to this source because only non-Title IV sources can qualify to use the applicable template. A permit shield is granted from this requirement. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
34. If the turbine is fired on PUC-regulated natural gas, then the operator shall maintain a log describing the source of natural gas and quantity used. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit
35. Records shall be maintained and shall contain: the occurrence and duration of any start-up, shutdown or malfunction, performance testing, evaluations, calibrations, checks, adjustments and emissions measurements. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit
36. The owner or operator shall maintain a record of the cumulative rolling 12 month fuel usage for each turbine. The record shall be updated at the end of each calendar month. [District Rule 2201] Federally Enforceable Through Title V Permit
37. {787} Operator shall maintain a stationary gas turbine operating log that includes, on a daily basis, 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(a),(b) and District Rule 4703, 6.2.4] Federally Enforceable Through Title V Permit
38. {2271} 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 Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit
39. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following applicable requirements: 40 CFR 60.332(a)(1), (a)(2), 60.333 (b), (g), (h)(3), (j), (j)(1)(i)(A), (j)(1)(i)(b), and (j)(5); 60.335(a), (b)(2), (b)(3); and District Rule 4703 (as amended 4/25/02), Sections 5.1.2.1, 5.2, 6.2.2, 6.4, and 6.2.6. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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

40. Compliance with permit conditions in the Title V permit shall be deemed compliance with District Rule 1081(as amended 12/16/93), Section 3.0, 6.0, 7.1, 7.2, 7.3 and Rule 4201 (as amended 12/17/92). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

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

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# San Joaquin Valley Air Pollution Control District

**PERMIT UNIT:** C-311-97-12

**EXPIRATION DATE:** 12/31/2016  
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**SECTION:** 25 **TOWNSHIP:** 20S **RANGE:** 14E

## **EQUIPMENT DESCRIPTION:**

NON-COMPLIANT DORMANT EMISSIONS UNIT CONSISTING OF 86.4 MMBTU/HR COGENERATION SYSTEM WITH A NOMINAL RATED 40.9 MMBTU/HR SOLAR MODEL CENTAUR 40-4500 TURBINE ENGINE #TG-103, DRIVING A 2.7 MW ELECTRICAL GENERATOR AND INCLUDING A STRUTHERS WASTE HEAT RECOVERY STEAM GENERATOR #SG-203, WITH A 36.4 MMBTU/HR COEN DUCT BURNER

## **PERMIT UNIT REQUIREMENTS**

1. No modification to this unit shall be performed without an Authority to Construct for such modification(s), except for changes specified in conditions below. [District Rule 2010] Federally Enforceable Through Title V Permit
2. The fuel supply line shall be physically disconnected from this unit. [District Rule 4703] Federally Enforceable Through Title V Permit
3. This equipment shall not be operated for any reason until an Authority to Construct permit is issued approving all necessary retrofits required to comply with the applicable requirements of District Rule 4703 and all other applicable District regulations. [District Rule 4703] Federally Enforceable Through Title V Permit
4. {2256} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201, 3.1] Federally Enforceable Through Title V Permit
5. The Owner/Operator shall maintain a separate fuel meter to the turbine and a fuel meter to the duct burners. [District Rule 2201] Federally Enforceable Through Title V Permit
6. Natural gas consumption by the cogeneration system (turbine and duct burner) shall not exceed 1,812,000 scf/day. Natural gas consumption by the cogeneration system shall not exceed 654 million scf/year. [District Rule 2201]
7. Emissions from the cogeneration system shall not exceed any of the following limits: 233.7 lb-NO<sub>x</sub>/day, 3.6 lb-SO<sub>x</sub>/day, 47.1 lb-PM<sub>10</sub>/day, 257.3 lb-CO/day, or 47.1 lb-VOC/day. [District Rule 2201] Federally Enforceable Through Title V Permit
8. The owner or operator shall not operate the gas turbine under load conditions, excluding the thermal stabilization period or reduced load period, which results in the measured NO<sub>x</sub> emissions concentration exceeding 35 ppmv @ 15% O<sub>2</sub>. [40 CFR 60.332(a)(1), (a)(2) and District Rules 2201 and 4703, 5.1.2.1] Federally Enforceable Through Title V Permit
9. CO emissions from the cogeneration system with the duct burner firing shall not exceed 53 ppmv CO @ 15% O<sub>2</sub> or 0.119 lb-CO/MMBtu, excluding thermal stabilization periods or reduced load periods. [District Rule 4703, 5.2] Federally Enforceable Through Title V Permit
10. CO emissions from the cogeneration system without duct burner firing shall not exceed 63 ppmv CO @ 15% O<sub>2</sub> or 0.142 lb CO/MMBtu, excluding thermal stabilization periods or reduced load periods. [District Rule 4703, 5.2] Federally Enforceable Through Title V Permit
11. Emissions from the cogeneration system (with or without duct burner firing) shall not exceed any of the following limits: 0.002 lb-SO<sub>x</sub>/MMBtu, 0.026 lb-PM<sub>10</sub>/MMBtu, or 0.026 lb-VOC/MMBtu. [District Rule 2201] Federally Enforceable Through Title V Permit

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

12. Reduced Load Period shall be defined as the time during which the gas turbine is operated at less than rated capacity in order to change the position of the exhaust gas diverter gate, not exceeding one hour. [District Rule 4703, 3.19] Federally Enforceable Through Title V Permit
13. Thermal Stabilization Period shall be defined as the startup or shutdown, as defined in 40 CFR 60.2, time during which the exhaust gas is not within the normal operating temperature range, not to exceed two hours per startup or shutdown event. [District Rule 4703, 3.25] Federally Enforceable Through Title V Permit
14. This unit shall be fired exclusively on natural gas as defined in 40 CFR 60.331(u) and the natural gas shall have a total sulfur content less than or equal to 1.0 gr/100 scf. [40 CFR 60.333(b) and District Rules 2201 and 4201] Federally Enforceable Through Title V Permit
15. The sulfur fuel content of each fuel source shall be: (i) documented in a valid purchase contract, a supplier certification, a tariff sheet or transportation contract or (ii) monitored weekly using ASTM Methods D4084, D5504, D6228, or Gas Processors Association Standard 2377, or double GC for H<sub>2</sub>S and mercaptans. If the sulfur fuel content is less than 1.0 gr/100 scf for eight consecutive weeks, then the monitoring frequency shall be every 6 months. If any six-month monitoring tests result in a sulfur fuel content exceedance, weekly monitoring shall resume. [40 CFR 60.334(h)(3)] Federally Enforceable Through Title V Permit
16. Performance testing shall be conducted annually to measure NO<sub>x</sub> and CO emissions concentrations using the following test methods: EPA Methods 7E or 20 for NO<sub>x</sub> emissions, EPA Methods 10 or 10B for CO emissions, EPA Methods 3, 3A, or 20 for Oxygen content of the exhaust gas. The test will be comprised of three test runs performed at the highest physically achievable load of the gas turbine. The measured NO<sub>x</sub> concentrations shall be averaged over a three hour period, using consecutive 15-minute sampling periods. [40 CFR 60.335(a), (b)(2) and District Rule 4703, 5.1, 6.3.1, 6.3.2, and 6.4] Federally Enforceable Through Title V Permit
17. Any gas turbine with an intermittently operated auxiliary burner shall demonstrate compliance with the auxiliary burner both on and off. Source testing shall not be required with the duct burner on if it has not been in operation during the previous 12 months, i.e. the duct burner need not be started to solely perform source testing. Source testing shall not be required with the duct burner off if it has been in continuous operation during the previous 12 months, i.e. the duct burner need not be shut-down solely to perform source testing. Source testing shall be performed within 60 days of startup or shutdown of the duct burner unless source testing of the duct burner has been performed in the previous 12 months. [40 CFR 60.335(b) and District Rule 4703, 6.3.3] Federally Enforceable Through Title V Permit
18. HHV and LHV of the fuel shall be determined using ASTM D3588, ASTM 1826, or ASTM 1945. [40 CFR 60.335(b) and District Rule 4703, 6.4.5] Federally Enforceable Through Title V Permit
19. The owner or operator shall be required to conform to the sampling facilities and testing procedures described in Rule 1081 (as amended 12/16/93), Sections 3.0 and 6.1. [District Rule 1081] Federally Enforceable Through Title V Permit
20. The District must be notified 30 days prior to any performance testing and a test plan shall be submitted for approval 15 days prior to such testing. [District Rule 1081] Federally Enforceable Through Title V Permit
21. Performance testing shall be witnessed or authorized by District personnel. Test results must be submitted to the District within 60 days of performance testing. [District Rule 1081] Federally Enforceable Through Title V Permit
22. The owner or operator shall operate and maintain in calibration a system which continuously measures and records: control system operating parameters, elapsed time of operation, the fuel consumption and the ratio of water to fuel being fired in the turbine. [40 CFR 60.334(a) and District Rule 4703, 6.2.2] Federally Enforceable Through Title V Permit
23. The owner or operator shall develop and keep on-site a parameter monitoring plan which includes the procedures used to document the proper operation of the NO<sub>x</sub> emissions controls (water injection). This plan shall include the parameter(s) monitored, such as the water-to-fuel ratio, and the acceptable range(s) of the parameter(s) as well as the basis for designating the parameter(s) and acceptable range(s). Any supplemental data such as engineering analyses, design specifications, manufacturers recommendations and other relevant information shall be included in the monitoring plan. [40 CFR 60.334(g)] Federally Enforceable Through Title V Permit
24. The water to fuel ratio shall not be less than 0.45 on a weight basis. [District Rule 4703, 6.2.5] Federally Enforceable Through Title V Permit

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

25. The owner or operator shall submit a semi-annual excess NOx emissions and monitor downtime report to the APCO. Excess emissions shall be reported for all periods of operation, including startup, shutdown and malfunction. The report, post marked by the 30th day following the end of every other calendar quarter, shall include the following: Time intervals, average steam or water-to-fuel ratio, turbine load, nature and cause of excess emissions (if known), and corrective actions taken and preventative measures adopted. [40 CFR 60.334(j), (j)(5) and District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit
26. Excess emissions shall be defined as any operating hour for which the steam or water to fuel ratio, as measured by the continuous monitoring system, falls below the established steam or water to fuel ratio. Any operating hour in which no steam or water is injected into the turbine shall also be considered as excess emissions. [40 CR 60.334(j)(1)(i)(A)] Federally Enforceable Through Title V Permit
27. Monitor downtime shall be any operating hour in which the water or steam is injected into the turbine, but essential parametric data needed to determine the steam or water to fuel ratio are unavailable or invalid. [40 CFR 60.334(j)(1)(i)(B)] Federally Enforceable Through Title V Permit
28. Fuel consumption and the water-to-fuel ratio shall be monitored continuously with a system that is accurate to within 5 percent. [District Rule 2201] Federally Enforceable Through Title V Permit
29. The cogeneration system shall be equipped with a meter recording the total elapsed operating time. [District NSR Rule] Federally Enforceable Through Title V Permit
30. Permittee shall notify the District of any breakdown condition as soon as reasonably possible, but no later than one hour after its detection, unless the owner or operator demonstrates to the District's satisfaction that the longer reporting period was necessary. [District Rule 1100] Federally Enforceable Through Title V Permit
31. The District shall be notified in writing within ten days following the correction of any breakdown condition. The breakdown notification shall include a description of the equipment malfunction or failure, the date and cause of the initial failure, the estimated emissions in excess of those allowed, and the methods utilized to restore normal operations. [District Rule 1100] Federally Enforceable Through Title V Permit
32. If the water injection system is inoperative when the turbine is running, the operator shall follow procedures pursuant to District Rule 1100 (Equipment Breakdown). [District Rule 1100] Federally Enforceable Through Title V Permit
33. {741} The requirements of 40 CFR 72.6 (b) do not apply to this source because only non-Title IV sources can qualify to use the applicable template. A permit shield is granted from this requirement. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
34. If the turbine is fired on PUC-regulated natural gas, then the operator shall maintain a log describing the source of natural gas and quantity used. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit
35. Records shall be maintained and shall contain: the occurrence and duration of any start-up, shutdown or malfunction, performance testing, evaluations, calibrations, checks, adjustments and emissions measurements. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit
36. The owner or operator shall maintain a record of the cumulative rolling 12 month fuel usage for each turbine. The record shall be updated at the end of each calendar month. [District Rule 2201] Federally Enforceable Through Title V Permit
37. {787} Operator shall maintain a stationary gas turbine operating log that includes, on a daily basis, 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(a),(b) and District Rule 4703, 6.2.4] Federally Enforceable Through Title V Permit
38. {2271} 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 Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit
39. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following applicable requirements: 40 CFR 60.332(a)(1), (a)(2), 60.333 (b), (g), (h)(3), (j), (j)(1)(i)(A), (j)(1)(i)(b), and (j)(5); 60.335(a), (b)(2), (b)(3); and District Rule 4703 (as amended 4/25/02), Sections 5.1.2.1, 5.2, 6.2.2, 6.4, and 6.2.6. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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

40. Compliance with permit conditions in the Title V permit shall be deemed compliance with District Rule 1081(as amended 12/16/93), Section 3.0, 6.0, 7.1, 7.2, 7.3 and Rule 4201 (as amended 12/17/92). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

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

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# ATTACHMENT B

Proposed Modified Title V Operating Permit No.  
C-311-93-13, -95-13 & -97-13  
(after the implementation of SCR retrofit ATCs)

# San Joaquin Valley Air Pollution Control District

**PERMIT UNIT:** C-311-93-13

**EXPIRATION DATE:** 12/31/2016

**SECTION:** 25 **TOWNSHIP:** 20S **RANGE:** 14E

## **EQUIPMENT DESCRIPTION:**

86.4 MMBTU/HR COGENERATION SYSTEM WITH A NOMINAL RATED 40.9 MMBTU/HR SOLAR MODEL CENTAUR 40-4500 TURBINE ENGINE #TG-101, DRIVING A 2.7 MW ELECTRICAL GENERATOR AND INCLUDING A WASTE HEAT RECOVERY STEAM GENERATOR #SG-201, WITH A 36.4 MMBTU/HR DUCT BURNER SERVED BY A SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM WITH AMMONIA INJECTION AND A CONTINUOUS EMISSIONS MONITORING SYSTEM (CEMS)

## **PERMIT UNIT REQUIREMENTS**

1. {2256} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201, 3.1] Federally Enforceable Through Title V Permit
2. If the gas turbine system is fired on PUC-regulated or FERC regulated natural gas, then maintain on file copies of natural gas bills. [District Rule 2520] Federally Enforceable Through Title V Permit
3. This unit shall be fired exclusively on natural gas as defined in 40 CFR 60.331(u) and the natural gas shall have a total sulfur content less than or equal to 1.0 gr/100 scf. [40 CFR 60.333(b) and District Rules 2201 and 4201] Federally Enforceable Through Title V Permit
4. If the gas turbine system is not fired on PUC-regulated or FERC regulated natural gas, the sulfur content of each fuel source shall be tested weekly except that if compliance with the fuel sulfur content limit has been demonstrated for 8 consecutive weeks for a fuel source, then the testing frequency shall be quarterly. If a test shows noncompliance with the sulfur content requirement, the source must return to weekly testing until eight consecutive weeks show compliance. [40 CFR 60.334(h)(3)] Federally Enforceable Through Title V Permit
5. HHV and LHV of the fuel shall be determined by using ASTM D3588, ASTM 1826, or ASTM 1945. [40 CFR 60.335(b), District Rule 4703] Federally Enforceable Through Title V Permit
6. Emissions from the gas turbine system, when startup or shutdown or black start do not occur, shall not exceed any of the following limits: 9 ppmvd NO<sub>x</sub> @ 15% O<sub>2</sub> referenced as NO<sub>2</sub>; 53 ppmvd CO @ 15% O<sub>2</sub> when firing both gas turbine and duct burner simultaneously; 63 ppmvd CO @ 15% O<sub>2</sub> when firing gas turbine only; 0.026 lb-PM<sub>10</sub>/MMBtu; 0.026 lb-VOC/MMBtu referenced as methane; and 0.002 lb-SO<sub>x</sub>/MMBtu referenced as SO<sub>2</sub>. NO<sub>x</sub> and CO emission limits are based on 3-hour rolling average period. If unit is in either startup, shutdown, or black start mode during any portion of a clock hour, the unit will not be subject to the ppmvd limits for NO<sub>x</sub> and CO during that clock hour. [District Rules 2201 and 4703]
7. Emissions from the gas turbine system, on days when startup, shutdown, or black start occurs, shall not exceed any of the following limits: 67.4 lb-NO<sub>x</sub>/day referenced as NO<sub>2</sub>; 1199.5 lb-CO/day; 3.7 lb-SO<sub>x</sub>/day; 48.2 lb-PM<sub>10</sub>/day; 99.6 lb-VOC/day referenced as methane; and 52.7 lb-NH<sub>3</sub>/day. [District Rule 2201]
8. Emissions from the gas turbine system shall not exceed any of the following limits: 22,343 lb-NO<sub>x</sub>/year; 84,878 lb-CO/year; 1,354 lb-SO<sub>x</sub>/year; 17,606 lb-PM<sub>10</sub>/year; 17,863 lb-VOC/year; 19,239 lb-NH<sub>3</sub>/year. All annual emission limits are based on 12 consecutive month rolling emissions totals. [District Rule 2201]
9. Ammonia (NH<sub>3</sub>) emissions shall not exceed 21 ppmvd @ 15% O<sub>2</sub> over a 24-hour average period. [District Rule 2201]

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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

10. Each three hour rolling average will be compiled from the three most recent one hour periods. Each one hour period shall commence on the hour. Each one hour period in a twenty-four hour average for ammonia slip will commence on the hour. The twenty-four hour average will be calculated starting and ending at twelve-midnight. [District Rule 2201]
11. Daily emissions shall be compiled for a twenty-four hour period starting and ending at twelve-midnight. Each calendar month in a twelve consecutive month rolling emissions total shall commence at the beginning of the first day of the month. The twelve consecutive month rolling emissions totals used to determine compliance with annual emission limits shall be compiled from the twelve most recent calendar months. [District Rule 2201]
12. The exhaust stack shall be equipped with permanent provisions to allow collection of stack gas samples consistent with EPA test methods and shall be equipped with safe permanent provisions to sample stack gases with a portable NO<sub>x</sub>, CO, and O<sub>2</sub> analyzer during District inspections. The sampling ports shall be located in accordance with the CARB regulation titled California Air Resources Board Air Monitoring Quality Assurance Volume VI, Standard Operating Procedures for Stationary Emission Monitoring and Testing. [District Rule 1081]
13. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081] Federally Enforceable Through Title V Permit
14. Source testing shall be witnessed or authorized by District personnel and samples shall be collected by a California Air Resources Board (CARB) certified testing laboratory or a CARB certified source testing firm. [District Rule 1081] Federally Enforceable Through Title V Permit
15. Source testing to measure start-up mass emission rates of NO<sub>x</sub>, CO, and VOC shall be conducted for one of the gas turbine engines (C-311-88, -93, -95 or -97) at least once every seven years thereafter. CEMS relative accuracy shall be determined during source testing in accordance with the procedure listed in 40 CFR Part 60, Appendix F with any necessary changes approved by the District. [District Rule 1081]
16. Source testing to determine compliance with the NO<sub>x</sub>, CO and NH<sub>3</sub> emission rates (ppmvd @ 15% O<sub>2</sub>) during normal operation shall be conducted annually. [District Rules 2201 and 4703, CFR 60.335(a)]
17. For the purpose of determining compliance with the emissions limits (ppmvd @ 15% O<sub>2</sub>) during normal operation in this permit, the arithmetic mean of three test runs shall apply, unless two of the three results are above an applicable limit. If two of three runs are above the applicable limit the test cannot be used to demonstrate compliance with an applicable limit. [District Rule 1081]
18. The following test methods shall be used: NO<sub>x</sub> - EPA Method 7E or 20 or CARB Method 100; CO - EPA Method 10 or 10B or CARB Method 100; VOC - EPA Method 18 or 25; PM<sub>10</sub> - EPA Method 5 (front half and back half) or 201 and 202a; ammonia - BAAQMD ST-1B; and O<sub>2</sub> - EPA Method 3, 3A, or 20 or CARB Method 100. EPA approved alternative test methods as approved by the District may also be used to address the source testing requirements of this permit. [District Rules 1081 and 4703, 40 CFR 60.335(a), and 40 CFR 60.335(b)(1)] Federally Enforceable Through Title V Permit
19. Source test to demonstrate compliance with NO<sub>x</sub> and CO emission limits shall be conducted with duct burner "on" and "off" configurations. An annual demonstration of compliance with the duct burner in operation is not required in any year in which the duct burner is not operated at all in the preceding 12 months, in such case, the unit shall be compliance source tested within 60 days of resumption of operation of the duct burner. An annual demonstration of compliance with the duct burner not in operation is not required in any year in which the duct burner operated continuously in conjunction with the turbine in the preceding 12 months, in such case, the unit shall be compliance source tested within 60 days of shutdown of operation of the duct burner. [District Rule 2201 and 4703] Federally Enforceable Through Title V Permit
20. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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

21. The owner or operator shall install, certify, maintain, operate, and quality-assure a continuous emission monitor system (CEMS) which continuously measures and records the exhaust gas NO<sub>x</sub>, CO, and O<sub>2</sub> concentrations. Continuous emissions monitors shall be capable of monitoring emissions during normal operating conditions and during startups and shutdowns, provided that CEMS passes the relative accuracy requirements of 40 CFR Part 60, Appendix B, Performance Specification 2 (PS-2) and District approved protocol for startups. If relative accuracy of CEMS cannot be demonstrated during the startup, CEMS results during startup and shutdown events shall be replaced with startup emission rates obtained from the source test conducted by the facility to determine compliance with emission limits contained in this document. [District Rules 1080, 2201 and 4703, 40 CFR 60.334(b)(1)]
22. The CEMS shall complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each 15-minute quadrant of the hour or shall meet equivalent specifications established by mutual agreement of the District, the CARB and the EPA. [District Rule 1080 and 40 CFR 60.334(b)(2)]
23. The NO<sub>x</sub>, CO and O<sub>2</sub> CEMS shall meet the requirements in 40 CFR 60, Appendix F Procedure 1 and Part 60, Appendix B Performance Specification 2 (PS 2), District approved protocol for startups, or shall meet equivalent specifications established by mutual agreement of the District, the CARB, and the EPA. [District Rule 1080 and 40 CFR 60.334(b)(1)]
24. In accordance with 40 CFR Part 60, Appendix F, 5.1, the CEMS must be audited at least once each calendar quarter. The District shall be notified prior to completion of the audits. Audit reports shall be submitted along with quarterly compliance reports to the District. [District Rule 1080]
25. The requirements in 40 CFR 60, Appendix F, shall be met through the following EPA and District approved modified procedures: 1) annual RATA testing of at least one gas turbine engine (C-311-88, -93, -95 or -97), and rotate the unit tested so that all four units are tested over four years, 2) annual RAA testing for the three gas turbine engines for which the annual RATA testing is not performed, 3) if any of the gas turbine engines fail the RAA testing, they must have a RATA test within 60 days, and 4) for every quarter that RATA or RAA testing is not performed, a CGA is to be performed for each gas turbine engine. [District Rules 1080 and 4703, 40 CFR 60.334(b)(1)]
26. APCO or an authorized representative shall be allowed to inspect, as determined to be necessary, the required monitoring devices to ensure that such devices are functioning properly. [District Rule 1080]
27. The CEMS data shall be reduced to hourly averages as specified in 40 CFR 60.13(h), or by other methods deemed equivalent by mutual agreement with the District, the CARB, and the EPA. [District Rule 1080 and 40 CFR 60.334(b)(3)]
28. Upon written notice from the District, the owner or operator shall provide a summary of the data obtained from the CEMS. This summary shall be in the form and the manner prescribed by the District. [District Rule 1080]
29. The facility shall install and maintain equipment, facilities, and systems compatible with the District's CEMS data polling software system, or a District approved alternative polling method, and shall make CEMS data available to the District on a daily basis. Upon notice by the District that the facility's CEMS is not providing polling data, the facility may continue to operate without providing automated data for a maximum of 30 days per calendar year provided the CEMS data is sent to the District by a District-approved alternative method. [District Rule 1080]
30. The permittee shall maintain the following records: the date, time and duration of any malfunction of the continuous monitoring equipment; dates of performance testing; dates of evaluations, calibrations, checks, and adjustments of the continuous monitoring equipment; date and time period which a continuous monitoring system or monitoring device was inoperative. [District Rules 1080 and 2201 and 40 CFR 60.8(d)]
31. The owner or operator shall submit a written report of CEM operations for each calendar quarter to the District. The report is due on the 30th day following the end of the calendar quarter and shall include the following: Time intervals, data and magnitude of excess NO<sub>x</sub> emissions, nature and the cause of excess (if known), corrective actions taken and preventive measures adopted; 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; 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; A negative declaration when no excess emissions occurred. [District Rule 1080 and 40 CFR 60.334(j)(5)]

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE  
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32. Monitor downtime for NOx shall be any unit operating hour in which sufficient data are not obtained to validate the hour for either NOx concentration or diluent O2 (or both). [40 CFR 60.334(j)(1)(iii)(B)]
33. If the gas turbine system is not fired on PUC-regulated or FERC regulated natural gas, then a fuel sample shall be collected during the source test to determine sulfur content of the fuel combusted in the turbine. The fuel sample shall be analyzed for the total sulfur content using ASTM D1072; D3031; D3246; D4084; D4468; D6228; or D6667; or double GC for H2S and mercaptans. The applicable ranges of some ASTM methods are not adequate to measure the levels of sulfur in some fuel gases. Dilution of samples before analysis (with verification of dilution ratio) may be used after getting a prior approval from the District. [40 CFR 60.335(b)(10)]
34. A totalizing mass or volumetric fuel flow computer shall be utilized and maintained to calculate the amount of natural gas combusted based on measured flow meter parameters (fuel pressure and temperature) and gas composition. [District Rules 2201 and 4703]
35. Except during black start, each startup shall not exceed two hours per event. [District Rules 2201 and 4703]
36. Each shutdown shall not exceed two hours per event. [District Rules 2201 and 4703]
37. The emission control systems shall be in operation and emissions shall be minimized insofar as technologically feasible during startup (black start) and shutdown. [District Rule 4703]
38. Start-up is 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 operation. [District Rule 4703]
39. Shutdown is defined as the period of time during which a unit is taken from an operational to a non-operational status by allowing it to cool down from its operating temperature to ambient temperature as the fuel supply to the unit is completely turned off. [District Rule 4703]
40. Reduced load period is defined as the time during which a gas turbine is operated at less than rated capacity in order to change the position of the exhaust gas diverter gate. Each reduced load period shall not exceed one hour. [District Rule 4703] Federally Enforceable Through Title V Permit
41. A black start event is defined as the startup of a unit while the cogen plant is electrically separated from the utility grid. A black start event shall not exceed 4.0 hours. [District Rules 2201 and 4703]
42. The owner or operator shall submit to the District information correlating the NOx control system operating parameters to the associated measured NOx output. The information must be sufficient to allow the District to determine compliance with the NOx emission limits of this permit when the CEMS is not operating properly. [District Rule 4703]
43. The owner or operator shall maintain a stationary gas turbine system operating log that includes, on a daily basis, the actual local startup and stop time, length and reason for reduced load periods, total hours of operation, the type and quantity of fuel used, duration of each start-up (or black start) and each shutdown time period. [District Rule 4703]
44. The owner or operator shall maintain all records of required monitoring data and support information for a period of five years from the date of data entry and shall make such records available to the District upon request. [District Rules 2201 and 4703] Federally Enforceable Through Title V Permit
45. {741} The requirements of 40 CFR 72.6 (b) do not apply to this source because only non-Title IV sources can qualify to use the applicable template. A permit shield is granted from this requirement. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
46. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following subsumed requirement: 40 CFR 60.332(a), 60.335 (a), (b) and (c) . A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
47. Compliance with the permit conditions in the Title V permit shall be deemed compliance with the following applicable requirements: SJVUAPCD Rule 4703, 6.2.4, 6.3, 6.4.1, 6.4.3 and 6.4.5. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

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

48. Compliance with permit conditions in the Title V permit shall be deemed compliance with District Rule 4201 (as amended 12/17/92). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

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

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# San Joaquin Valley Air Pollution Control District

PERMIT UNIT: C-311-95-13

EXPIRATION DATE: 12/31/2016

SECTION: 25 TOWNSHIP: 20S RANGE: 14

## EQUIPMENT DESCRIPTION:

86.4 MMBTU/HR COGENERATION SYSTEM WITH A NOMINAL RATED 40.9 MMBTU/HR SOLAR MODEL CENTAUR 40-4500 TURBINE ENGINE #TG-102, DRIVING A 2.7 MW ELECTRICAL GENERATOR AND INCLUDING A WASTE HEAT RECOVERY STEAM GENERATOR #SG-202, WITH A 36.4 MMBTU/HR DUCT BURNER SERVED BY A SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM WITH AMMONIA INJECTION AND A CONTINUOUS EMISSIONS MONITORING SYSTEM (CEMS)

## PERMIT UNIT REQUIREMENTS

1. {2256} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201, 3.1] Federally Enforceable Through Title V Permit
2. If the gas turbine system is fired on PUC-regulated or FERC regulated natural gas, then maintain on file copies of natural gas bills. [District Rule 2520] Federally Enforceable Through Title V Permit
3. This unit shall be fired exclusively on natural gas as defined in 40 CFR 60.331(u) and the natural gas shall have a total sulfur content less than or equal to 1.0 gr/100 scf. [40 CFR 60.333(b) and District Rules 2201 and 4201] Federally Enforceable Through Title V Permit
4. If the gas turbine system is not fired on PUC-regulated or FERC regulated natural gas, the sulfur content of each fuel source shall be tested weekly except that if compliance with the fuel sulfur content limit has been demonstrated for 8 consecutive weeks for a fuel source, then the testing frequency shall be quarterly. If a test shows noncompliance with the sulfur content requirement, the source must return to weekly testing until eight consecutive weeks show compliance. [40 CFR 60.334(h)(3)] Federally Enforceable Through Title V Permit
5. HHV and LHV of the fuel shall be determined by using ASTM D3588, ASTM 1826, or ASTM 1945. [40 CFR 60.335(b), District Rule 4703] Federally Enforceable Through Title V Permit
6. Emissions from the gas turbine system, when startup or shutdown or black start do not occur, shall not exceed any of the following limits: 9 ppmvd NO<sub>x</sub> @ 15% O<sub>2</sub> referenced as NO<sub>2</sub>; 53 ppmvd CO @ 15% O<sub>2</sub> when firing both gas turbine and duct burner simultaneously; 63 ppmvd CO @ 15% O<sub>2</sub> when firing gas turbine only; 0.026 lb-PM10/MMBtu; 0.026 lb-VOC/MMBtu referenced as methane; and 0.002 lb-SO<sub>x</sub>/MMBtu referenced as SO<sub>2</sub>. NO<sub>x</sub> and CO emission limits are based on 3-hour rolling average period. If unit is in either startup, shutdown, or black start mode during any portion of a clock hour, the unit will not be subject to the ppmvd limits for NO<sub>x</sub> and CO during that clock hour. [District Rules 2201 and 4703]
7. Emissions from the gas turbine system, on days when startup, shutdown, or black start occurs, shall not exceed any of the following limits: 67.4 lb-NO<sub>x</sub>/day referenced as NO<sub>2</sub>; 1199.5 lb-CO/day; 3.7 lb-SO<sub>x</sub>/day; 48.2 lb-PM10/day; 99.6 lb-VOC/day referenced as methane; and 52.7 lb-NH<sub>3</sub>/day. [District Rule 2201]
8. Emissions from the gas turbine system shall not exceed any of the following limits: 22,343 lb-NO<sub>x</sub>/year; 84,878 lb-CO/year; 1,354 lb-SO<sub>x</sub>/year; 17,606 lb-PM10/year; 17,863 lb-VOC/year; 19,239 lb-NH<sub>3</sub>/year. All annual emission limits are based on 12 consecutive month rolling emissions totals. [District Rule 2201]
9. Ammonia (NH<sub>3</sub>) emissions shall not exceed 21 ppmvd @ 15% O<sub>2</sub> over a 24-hour average period. [District Rule 2201]

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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

10. Each three hour rolling average will be compiled from the three most recent one hour periods. Each one hour period shall commence on the hour. Each one hour period in a twenty-four hour average for ammonia slip will commence on the hour. The twenty-four hour average will be calculated starting and ending at twelve-midnight. [District Rule 2201]
11. Daily emissions shall be compiled for a twenty-four hour period starting and ending at twelve-midnight. Each calendar month in a twelve consecutive month rolling emissions total shall commence at the beginning of the first day of the month. The twelve consecutive month rolling emissions totals used to determine compliance with annual emission limits shall be compiled from the twelve most recent calendar months. [District Rule 2201]
12. The exhaust stack shall be equipped with permanent provisions to allow collection of stack gas samples consistent with EPA test methods and shall be equipped with safe permanent provisions to sample stack gases with a portable NO<sub>x</sub>, CO, and O<sub>2</sub> analyzer during District inspections. The sampling ports shall be located in accordance with the CARB regulation titled California Air Resources Board Air Monitoring Quality Assurance Volume VI, Standard Operating Procedures for Stationary Emission Monitoring and Testing. [District Rule 1081]
13. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081] Federally Enforceable Through Title V Permit
14. Source testing shall be witnessed or authorized by District personnel and samples shall be collected by a California Air Resources Board (CARB) certified testing laboratory or a CARB certified source testing firm. [District Rule 1081] Federally Enforceable Through Title V Permit
15. Source testing to measure start-up mass emission rates of NO<sub>x</sub>, CO, and VOC shall be conducted for one of the gas turbine engines (C-311-88, -93, -95 or -97) at least once every seven years thereafter. CEMS relative accuracy shall be determined during source testing in accordance with the procedure listed in 40 CFR Part 60, Appendix F with any necessary changes approved by the District. [District Rule 1081]
16. Source testing to determine compliance with the NO<sub>x</sub>, CO and NH<sub>3</sub> emission rates (ppmvd @ 15% O<sub>2</sub>) during normal operation shall be conducted annually. [District Rules 2201 and 4703, CFR 60.335(a)]
17. For the purpose of determining compliance with the emissions limits (ppmvd @ 15% O<sub>2</sub>) during normal operation in this permit, the arithmetic mean of three test runs shall apply, unless two of the three results are above an applicable limit. If two of three runs are above the applicable limit the test cannot be used to demonstrate compliance with an applicable limit. [District Rule 1081]
18. The following test methods shall be used: NO<sub>x</sub> - EPA Method 7E or 20 or CARB Method 100; CO - EPA Method 10 or 10B or CARB Method 100; VOC - EPA Method 18 or 25; PM<sub>10</sub> - EPA Method 5 (front half and back half) or 201 and 202a; ammonia - BAAQMD ST-1B; and O<sub>2</sub> - EPA Method 3, 3A, or 20 or CARB Method 100. EPA approved alternative test methods as approved by the District may also be used to address the source testing requirements of this permit. [District Rules 1081 and 4703, 40 CFR 60.335(a), and 40 CFR 60.335(b)(1)] Federally Enforceable Through Title V Permit
19. Source test to demonstrate compliance with NO<sub>x</sub> and CO emission limits shall be conducted with duct burner "on" and "off" configurations. An annual demonstration of compliance with the duct burner in operation is not required in any year in which the duct burner is not operated at all in the preceding 12 months, in such case, the unit shall be compliance source tested within 60 days of resumption of operation of the duct burner. An annual demonstration of compliance with the duct burner not in operation is not required in any year in which the duct burner operated continuously in conjunction with the turbine in the preceding 12 months, in such case, the unit shall be compliance source tested within 60 days of shutdown of operation of the duct burner. [District Rule 2201 and 4703] Federally Enforceable Through Title V Permit
20. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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

21. The owner or operator shall install, certify, maintain, operate, and quality-assure a continuous emission monitor system (CEMS) which continuously measures and records the exhaust gas NO<sub>x</sub>, CO, and O<sub>2</sub> concentrations. Continuous emissions monitors shall be capable of monitoring emissions during normal operating conditions and during startups and shutdowns, provided that CEMS passes the relative accuracy requirements of 40 CFR Part 60, Appendix B, Performance Specification 2 (PS-2) and District approved protocol for startups. If relative accuracy of CEMS cannot be demonstrated during the startup, CEMS results during startup and shutdown events shall be replaced with startup emission rates obtained from the source test conducted by the facility to determine compliance with emission limits contained in this document. [District Rules 1080, 2201 and 4703, 40 CFR 60.334(b)(1)]
22. The CEMS shall complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each 15-minute quadrant of the hour or shall meet equivalent specifications established by mutual agreement of the District, the CARB and the EPA. [District Rule 1080 and 40 CFR 60.334(b)(2)]
23. The NO<sub>x</sub>, CO and O<sub>2</sub> CEMS shall meet the requirements in 40 CFR 60, Appendix F Procedure 1 and Part 60, Appendix B Performance Specification 2 (PS 2), District approved protocol for startups, or shall meet equivalent specifications established by mutual agreement of the District, the CARB, and the EPA. [District Rule 1080 and 40 CFR 60.334(b)(1)]
24. In accordance with 40 CFR Part 60, Appendix F, 5.1, the CEMS must be audited at least once each calendar quarter. The District shall be notified prior to completion of the audits. Audit reports shall be submitted along with quarterly compliance reports to the District. [District Rule 1080]
25. The requirements in 40 CFR 60, Appendix F, shall be met through the following EPA and District approved modified procedures: 1) annual RATA testing of at least one gas turbine engine (C-311-88, -93, -95 or -97), and rotate the unit tested so that all four units are tested over four years, 2) annual RAA testing for the three gas turbine engines for which the annual RATA testing is not performed, 3) if any of the gas turbine engines fail the RAA testing, they must have a RATA test within 60 days, and 4) for every quarter that RATA or RAA testing is not performed, a CGA is to be performed for each gas turbine engine. [District Rules 1080 and 4703, 40 CFR 60.334(b)(1)]
26. APCO or an authorized representative shall be allowed to inspect, as determined to be necessary, the required monitoring devices to ensure that such devices are functioning properly. [District Rule 1080]
27. The CEMS data shall be reduced to hourly averages as specified in 40 CFR 60.13(h), or by other methods deemed equivalent by mutual agreement with the District, the CARB, and the EPA. [District Rule 1080 and 40 CFR 60.334(b)(3)]
28. Upon written notice from the District, the owner or operator shall provide a summary of the data obtained from the CEMS. This summary shall be in the form and the manner prescribed by the District. [District Rule 1080]
29. The facility shall install and maintain equipment, facilities, and systems compatible with the District's CEMS data polling software system, or a District approved alternative polling method, and shall make CEMS data available to the District on a daily basis. Upon notice by the District that the facility's CEMS is not providing polling data, the facility may continue to operate without providing automated data for a maximum of 30 days per calendar year provided the CEMS data is sent to the District by a District-approved alternative method. [District Rule 1080]
30. The permittee shall maintain the following records: the date, time and duration of any malfunction of the continuous monitoring equipment; dates of performance testing; dates of evaluations, calibrations, checks, and adjustments of the continuous monitoring equipment; date and time period which a continuous monitoring system or monitoring device was inoperative. [District Rules 1080 and 2201 and 40 CFR 60.8(d)]
31. The owner or operator shall submit a written report of CEM operations for each calendar quarter to the District. The report is due on the 30th day following the end of the calendar quarter and shall include the following: Time intervals, data and magnitude of excess NO<sub>x</sub> emissions, nature and the cause of excess (if known), corrective actions taken and preventive measures adopted; 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; 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; A negative declaration when no excess emissions occurred. [District Rule 1080 and 40 CFR 60.334(j)(5)]

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE  
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32. Monitor downtime for NOx shall be any unit operating hour in which sufficient data are not obtained to validate the hour for either NOx concentration or diluent O2 (or both). [40 CFR 60.334(j)1)(iii)(B)]
33. If the gas turbine system is not fired on PUC-regulated or FERC regulated natural gas, then a fuel sample shall be collected during the source test to determine sulfur content of the fuel combusted in the turbine. The fuel sample shall be analyzed for the total sulfur content using ASTM D1072; D3031; D3246; D4084; D4468; D6228; or D6667; or double GC for H2S and mercaptans. The applicable ranges of some ASTM methods are not adequate to measure the levels of sulfur in some fuel gases. Dilution of samples before analysis (with verification of dilution ratio) may be used after getting a prior approval from the District. [40 CFR 60.335(b)(10)]
34. A totalizing mass or volumetric fuel flow computer shall be utilized and maintained to calculate the amount of natural gas combusted based on measured flow meter parameters (fuel pressure and temperature) and gas composition. [District Rules 2201 and 4703]
35. Except during black start, each startup shall not exceed two hours per event. [District Rules 2201 and 4703]
36. Each shutdown shall not exceed two hours per event. [District Rules 2201 and 4703]
37. The emission control systems shall be in operation and emissions shall be minimized insofar as technologically feasible during startup (black start) and shutdown. [District Rule 4703]
38. Start-up is 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 operation. [District Rule 4703]
39. Shutdown is defined as the period of time during which a unit is taken from an operational to a non-operational status by allowing it to cool down from its operating temperature to ambient temperature as the fuel supply to the unit is completely turned off. [District Rule 4703]
40. Reduced load period is defined as the time during which a gas turbine is operated at less than rated capacity in order to change the position of the exhaust gas diverter gate. Each reduced load period shall not exceed one hour. [District Rule 4703] Federally Enforceable Through Title V Permit
41. A black start event is defined as the startup of a unit while the cogen plant is electrically separated from the utility grid. A black start event shall not exceed 4.0 hours. [District Rules 2201 and 4703]
42. The owner or operator shall submit to the District information correlating the NOx control system operating parameters to the associated measured NOx output. The information must be sufficient to allow the District to determine compliance with the NOx emission limits of this permit when the CEMS is not operating properly. [District Rule 4703]
43. The owner or operator shall maintain a stationary gas turbine system operating log that includes, on a daily basis, the actual local startup and stop time, length and reason for reduced load periods, total hours of operation, the type and quantity of fuel used, duration of each start-up (or black start) and each shutdown time period. [District Rule 4703]
44. The owner or operator shall maintain all records of required monitoring data and support information for a period of five years from the date of data entry and shall make such records available to the District upon request. [District Rules 2201 and 4703] Federally Enforceable Through Title V Permit
45. {741} The requirements of 40 CFR 72.6 (b) do not apply to this source because only non-Title IV sources can qualify to use the applicable template. A permit shield is granted from this requirement. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
46. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following subsumed requirement: 40 CFR 60.332(a), 60.335 (a), (b) and (c) . A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
47. Compliance with the permit conditions in the Title V permit shall be deemed compliance with the following applicable requirements: SJVUAPCD Rule 4703, 6.2.4, 6.3, 6.4.1, 6.4.3 and 6.4.5. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE  
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48. Compliance with permit conditions in the Title V permit shall be deemed compliance with District Rule 4201 (as amended 12/17/92). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

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

DRAFT

# San Joaquin Valley Air Pollution Control District

**PERMIT UNIT:** C-311-97-13

**EXPIRATION DATE:** 12/31/2016

**SECTION:** 25 **TOWNSHIP:** 20S **RANGE:** 14E

## **EQUIPMENT DESCRIPTION:**

86.4 MMBTU/HR COGENERATION SYSTEM WITH A NOMINAL RATED 40.9 MMBTU/HR SOLAR MODEL CENTAUR 40-4500 TURBINE ENGINE #TG-103, DRIVING A 2.7 MW ELECTRICAL GENERATOR AND INCLUDING A WASTE HEAT RECOVERY STEAM GENERATOR #SG-203, WITH A 36.4 MMBTU/HR DUCT BURNER SERVED BY A SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM WITH AMMONIA INJECTION AND A CONTINUOUS EMISSIONS MONITORING SYSTEM (CEMS)

## **PERMIT UNIT REQUIREMENTS**

1. {2256} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201, 3.1] Federally Enforceable Through Title V Permit
2. If the gas turbine system is fired on PUC-regulated or FERC regulated natural gas, then maintain on file copies of natural gas bills. [District Rule 2520] Federally Enforceable Through Title V Permit
3. This unit shall be fired exclusively on natural gas as defined in 40 CFR 60.331(u) and the natural gas shall have a total sulfur content less than or equal to 1.0 gr/100 scf. [40 CFR 60.333(b) and District Rules 2201 and 4201] Federally Enforceable Through Title V Permit
4. If the gas turbine system is not fired on PUC-regulated or FERC regulated natural gas, the sulfur content of each fuel source shall be tested weekly except that if compliance with the fuel sulfur content limit has been demonstrated for 8 consecutive weeks for a fuel source, then the testing frequency shall be quarterly. If a test shows noncompliance with the sulfur content requirement, the source must return to weekly testing until eight consecutive weeks show compliance. [40 CFR 60.334(h)(3)] Federally Enforceable Through Title V Permit
5. HHV and LHV of the fuel shall be determined by using ASTM D3588, ASTM 1826, or ASTM 1945. [40 CFR 60.335(b), District Rule 4703] Federally Enforceable Through Title V Permit
6. Emissions from the gas turbine system, when startup or shutdown or black start do not occur, shall not exceed any of the following limits: 9 ppmvd NO<sub>x</sub> @ 15% O<sub>2</sub> referenced as NO<sub>2</sub>; 53 ppmvd CO @ 15% O<sub>2</sub> when firing both gas turbine and duct burner simultaneously; 63 ppmvd CO @ 15% O<sub>2</sub> when firing gas turbine only; 0.026 lb-PM<sub>10</sub>/MMBtu; 0.026 lb-VOC/MMBtu referenced as methane; and 0.002 lb-SO<sub>x</sub>/MMBtu referenced as SO<sub>2</sub>. NO<sub>x</sub> and CO emission limits are based on 3-hour rolling average period. If unit is in either startup, shutdown, or black start mode during any portion of a clock hour, the unit will not be subject to the ppmvd limits for NO<sub>x</sub> and CO during that clock hour. [District Rules 2201 and 4703]
7. Emissions from the gas turbine system, on days when startup, shutdown, or black start occurs, shall not exceed any of the following limits: 67.4 lb-NO<sub>x</sub>/day referenced as NO<sub>2</sub>; 1199.5 lb-CO/day; 3.7 lb-SO<sub>x</sub>/day; 48.2 lb-PM<sub>10</sub>/day; 99.6 lb-VOC/day referenced as methane; and 52.7 lb-NH<sub>3</sub>/day. [District Rule 2201]
8. Emissions from the gas turbine system shall not exceed any of the following limits: 22,343 lb-NO<sub>x</sub>/year; 84,878 lb-CO/year; 1,354 lb-SO<sub>x</sub>/year; 17,606 lb-PM<sub>10</sub>/year; 17,863 lb-VOC/year; 19,239 lb-NH<sub>3</sub>/year. All annual emission limits are based on 12 consecutive month rolling emissions totals. [District Rule 2201]
9. Ammonia (NH<sub>3</sub>) emissions shall not exceed 21 ppmvd @ 15% O<sub>2</sub> over a 24-hour average period. [District Rule 2201]

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE  
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10. Each three hour rolling average will be compiled from the three most recent one hour periods. Each one hour period shall commence on the hour. Each one hour period in a twenty-four hour average for ammonia slip will commence on the hour. The twenty-four hour average will be calculated starting and ending at twelve-midnight. [District Rule 2201]
11. Daily emissions shall be compiled for a twenty-four hour period starting and ending at twelve-midnight. Each calendar month in a twelve consecutive month rolling emissions total shall commence at the beginning of the first day of the month. The twelve consecutive month rolling emissions totals used to determine compliance with annual emission limits shall be compiled from the twelve most recent calendar months. [District Rule 2201]
12. The exhaust stack shall be equipped with permanent provisions to allow collection of stack gas samples consistent with EPA test methods and shall be equipped with safe permanent provisions to sample stack gases with a portable NO<sub>x</sub>, CO, and O<sub>2</sub> analyzer during District inspections. The sampling ports shall be located in accordance with the CARB regulation titled California Air Resources Board Air Monitoring Quality Assurance Volume VI, Standard Operating Procedures for Stationary Emission Monitoring and Testing. [District Rule 1081]
13. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081] Federally Enforceable Through Title V Permit
14. Source testing shall be witnessed or authorized by District personnel and samples shall be collected by a California Air Resources Board (CARB) certified testing laboratory or a CARB certified source testing firm. [District Rule 1081] Federally Enforceable Through Title V Permit
15. Source testing to measure start-up mass emission rates of NO<sub>x</sub>, CO, and VOC shall be conducted for one of the gas turbine engines (C-311-88, -93, -95 or -97) at least once every seven years thereafter. CEMS relative accuracy shall be determined during source testing in accordance with the procedure listed in 40 CFR Part 60, Appendix F with any necessary changes approved by the District. [District Rule 1081]
16. Source testing to determine compliance with the NO<sub>x</sub>, CO and NH<sub>3</sub> emission rates (ppmvd @ 15% O<sub>2</sub>) during normal operation shall be conducted annually. [District Rules 2201 and 4703, CFR 60.335(a)]
17. For the purpose of determining compliance with the emissions limits (ppmvd @ 15% O<sub>2</sub>) during normal operation in this permit, the arithmetic mean of three test runs shall apply, unless two of the three results are above an applicable limit. If two of three runs are above the applicable limit the test cannot be used to demonstrate compliance with an applicable limit. [District Rule 1081]
18. The following test methods shall be used: NO<sub>x</sub> - EPA Method 7E or 20 or CARB Method 100; CO - EPA Method 10 or 10B or CARB Method 100; VOC - EPA Method 18 or 25; PM<sub>10</sub> - EPA Method 5 (front half and back half) or 201 and 202a; ammonia - BAAQMD ST-1B; and O<sub>2</sub> - EPA Method 3, 3A, or 20 or CARB Method 100. EPA approved alternative test methods as approved by the District may also be used to address the source testing requirements of this permit. [District Rules 1081 and 4703, 40 CFR 60.335(a), and 40 CFR 60.335(b)(1)] Federally Enforceable Through Title V Permit
19. Source test to demonstrate compliance with NO<sub>x</sub> and CO emission limits shall be conducted with duct burner "on" and "off" configurations. An annual demonstration of compliance with the duct burner in operation is not required in any year in which the duct burner is not operated at all in the preceding 12 months, in such case, the unit shall be compliance source tested within 60 days of resumption of operation of the duct burner. An annual demonstration of compliance with the duct burner not in operation is not required in any year in which the duct burner operated continuously in conjunction with the turbine in the preceding 12 months, in such case, the unit shall be compliance source tested within 60 days of shutdown of operation of the duct burner. [District Rule 2201 and 4703] Federally Enforceable Through Title V Permit
20. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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21. The owner or operator shall install, certify, maintain, operate, and quality-assure a continuous emission monitor system (CEMS) which continuously measures and records the exhaust gas NO<sub>x</sub>, CO, and O<sub>2</sub> concentrations. Continuous emissions monitors shall be capable of monitoring emissions during normal operating conditions and during startups and shutdowns, provided that CEMS passes the relative accuracy requirements of 40 CFR Part 60, Appendix B, Performance Specification 2 (PS-2) and District approved protocol for startups. If relative accuracy of CEMS cannot be demonstrated during the startup, CEMS results during startup and shutdown events shall be replaced with startup emission rates obtained from the source test conducted by the facility to determine compliance with emission limits contained in this document. [District Rules 1080, 2201 and 4703, 40 CFR 60.334(b)(1)]
22. The CEMS shall complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each 15-minute quadrant of the hour or shall meet equivalent specifications established by mutual agreement of the District, the CARB and the EPA. [District Rule 1080 and 40 CFR 60.334(b)(2)]
23. The NO<sub>x</sub>, CO and O<sub>2</sub> CEMS shall meet the requirements in 40 CFR 60, Appendix F Procedure 1 and Part 60, Appendix B Performance Specification 2 (PS 2), District approved protocol for startups, or shall meet equivalent specifications established by mutual agreement of the District, the CARB, and the EPA. [District Rule 1080 and 40 CFR 60.334(b)(1)]
24. In accordance with 40 CFR Part 60, Appendix F, 5.1, the CEMS must be audited at least once each calendar quarter. The District shall be notified prior to completion of the audits. Audit reports shall be submitted along with quarterly compliance reports to the District. [District Rule 1080]
25. The requirements in 40 CFR 60, Appendix F, shall be met through the following EPA and District approved modified procedures: 1) annual RATA testing of at least one gas turbine engine (C-311-88, -93, -95 or -97), and rotate the unit tested so that all four units are tested over four years, 2) annual RAA testing for the three gas turbine engines for which the annual RATA testing is not performed, 3) if any of the gas turbine engines fail the RAA testing, they must have a RATA test within 60 days, and 4) for every quarter that RATA or RAA testing is not performed, a CGA is to be performed for each gas turbine engine. [District Rules 1080 and 4703, 40 CFR 60.334(b)(1)]
26. APCO or an authorized representative shall be allowed to inspect, as determined to be necessary, the required monitoring devices to ensure that such devices are functioning properly. [District Rule 1080]
27. The CEMS data shall be reduced to hourly averages as specified in 40 CFR 60.13(h), or by other methods deemed equivalent by mutual agreement with the District, the CARB, and the EPA. [District Rule 1080 and 40 CFR 60.334(b)(3)]
28. Upon written notice from the District, the owner or operator shall provide a summary of the data obtained from the CEMS. This summary shall be in the form and the manner prescribed by the District. [District Rule 1080]
29. The facility shall install and maintain equipment, facilities, and systems compatible with the District's CEMS data polling software system, or a District approved alternative polling method, and shall make CEMS data available to the District on a daily basis. Upon notice by the District that the facility's CEMS is not providing polling data, the facility may continue to operate without providing automated data for a maximum of 30 days per calendar year provided the CEMS data is sent to the District by a District-approved alternative method. [District Rule 1080]
30. The permittee shall maintain the following records: the date, time and duration of any malfunction of the continuous monitoring equipment; dates of performance testing; dates of evaluations, calibrations, checks, and adjustments of the continuous monitoring equipment; date and time period which a continuous monitoring system or monitoring device was inoperative. [District Rules 1080 and 2201 and 40 CFR 60.8(d)]
31. The owner or operator shall submit a written report of CEM operations for each calendar quarter to the District. The report is due on the 30th day following the end of the calendar quarter and shall include the following: Time intervals, data and magnitude of excess NO<sub>x</sub> emissions, nature and the cause of excess (if known), corrective actions taken and preventive measures adopted; 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; 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; A negative declaration when no excess emissions occurred. [District Rule 1080 and 40 CFR 60.334(j)(5)]

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32. Monitor downtime for NOx shall be any unit operating hour in which sufficient data are not obtained to validate the hour for either NOx concentration or diluent O2 (or both). [40 CFR 60.334(j)(iii)(B)]
33. If the gas turbine system is not fired on PUC-regulated or FERC regulated natural gas, then a fuel sample shall be collected during the source test to determine sulfur content of the fuel combusted in the turbine. The fuel sample shall be analyzed for the total sulfur content using ASTM D1072; D3031; D3246; D4084; D4468; D6228; or D6667; or double GC for H2S and mercaptans. The applicable ranges of some ASTM methods are not adequate to measure the levels of sulfur in some fuel gases. Dilution of samples before analysis (with verification of dilution ratio) may be used after getting a prior approval from the District. [40 CFR 60.335(b)(10)]
34. A totalizing mass or volumetric fuel flow computer shall be utilized and maintained to calculate the amount of natural gas combusted based on measured flow meter parameters (fuel pressure and temperature) and gas composition. [District Rules 2201 and 4703]
35. Except during black start, each startup shall not exceed two hours per event. [District Rules 2201 and 4703]
36. Each shutdown shall not exceed two hours per event. [District Rules 2201 and 4703]
37. The emission control systems shall be in operation and emissions shall be minimized insofar as technologically feasible during startup (black start) and shutdown. [District Rule 4703]
38. Start-up is 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 operation. [District Rule 4703]
39. Shutdown is defined as the period of time during which a unit is taken from an operational to a non-operational status by allowing it to cool down from its operating temperature to ambient temperature as the fuel supply to the unit is completely turned off. [District Rule 4703]
40. Reduced load period is defined as the time during which a gas turbine is operated at less than rated capacity in order to change the position of the exhaust gas diverter gate. Each reduced load period shall not exceed one hour. [District Rule 4703] Federally Enforceable Through Title V Permit
41. A black start event is defined as the startup of a unit while the cogen plant is electrically separated from the utility grid. A black start event shall not exceed 4.0 hours. [District Rules 2201 and 4703]
42. The owner or operator shall submit to the District information correlating the NOx control system operating parameters to the associated measured NOx output. The information must be sufficient to allow the District to determine compliance with the NOx emission limits of this permit when the CEMS is not operating properly. [District Rule 4703]
43. The owner or operator shall maintain a stationary gas turbine system operating log that includes, on a daily basis, the actual local startup and stop time, length and reason for reduced load periods, total hours of operation, the type and quantity of fuel used, duration of each start-up (or black start) and each shutdown time period. [District Rule 4703]
44. The owner or operator shall maintain all records of required monitoring data and support information for a period of five years from the date of data entry and shall make such records available to the District upon request. [District Rules 2201 and 4703] Federally Enforceable Through Title V Permit
45. {741} The requirements of 40 CFR 72.6 (b) do not apply to this source because only non-Title IV sources can qualify to use the applicable template. A permit shield is granted from this requirement. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
46. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following subsumed requirement: 40 CFR 60.332(a), 60.335 (a), (b) and (c) . A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
47. Compliance with the permit conditions in the Title V permit shall be deemed compliance with the following applicable requirements: SJVUAPCD Rule 4703, 6.2.4, 6.3, 6.4.1, 6.4.3 and 6.4.5. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

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

48. Compliance with permit conditions in the Title V permit shall be deemed compliance with District Rule 4201 (as amended 12/17/92). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

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

DRAFT

# ATTACHMENT C

Authorities to Construct No.'s  
(C-311-88-10, -93-10, -93-11, -95-10, -95-11, -  
97-10 and -97-11)



## AUTHORITY TO CONSTRUCT

PERMIT NO: C-311-88-10

ISSUANCE DATE: 12/23/2009

LEGAL OWNER OR OPERATOR: CHEVRON USA INC  
MAILING ADDRESS: PO BOX 1392  
BAKERSFIELD, CA 93302

LOCATION: HEAVY OIL PRODUCTION  
FRESNO COUNTY, CA

SECTION: 25 TOWNSHIP: 20S RANGE: 14E

**EQUIPMENT DESCRIPTION:**

MODIFICATION OF 86.4 MMBTU/HR COGENERATION SYSTEM WITH A NOMINAL RATED 40.9 MMBTU/HR SOLAR MODEL CENTAUR 40-4500 TURBINE ENGINE #TG-104, DRIVING A 2.7 MW ELECTRICAL GENERATOR AND INCLUDING A STRUTHERS WASTE HEAT RECOVERY STEAM GENERATOR #SG-204, WITH A 36.4 MMBTU/HR COEN DUCT BURNER; DESIGNATE AS A NON-COMPLIANT DORMANT EMISSIONS UNIT FOR TIER-3 NOX STANDARDS OF RULE 4703

### CONDITIONS

1. The facility shall submit an application to modify the Title V permit in accordance with the timeframes and procedures of District Rule 2520. [District Rule 2520] Federally Enforceable Through Title V Permit
2. No modification to this unit shall be performed without an Authority to Construct for such modification(s), except for changes specified in conditions below. [District Rule 2010]
3. The fuel supply line shall be physically disconnected from this unit. [District Rule 4703]
4. This equipment shall not be operated for any reason until an Authority to Construct permit is issued approving all necessary retrofits required to comply with the applicable requirements of District Rule 4703 and all other applicable District regulations. [District Rule 4703]
5. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201, 3.1] Federally Enforceable Through Title V Permit
6. The Owner/Operator shall maintain a separate fuel meter to the turbine and a fuel meter to the duct burners. [District Rule 2201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (559) 230-5950 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director / APCO

  
DAVID WARNER, Director of Permit Services

7. Natural gas consumption by the cogeneration system (turbine and duct burner) shall not exceed 1,812,000 scf/day. Natural gas consumption by the cogeneration system shall not exceed 654 million scf/year. [District Rule 2201]
8. Emissions from the cogeneration system shall not exceed any of the following limits: 233.7 lb-NO<sub>x</sub>/day, 3.6 lb-SO<sub>x</sub>/day, 47.1 lb-PM<sub>10</sub>/day, 257.3 lb-CO/day, or 47.1 lb-VOC/day. [District Rule 2201] Federally Enforceable Through Title V Permit
9. The owner or operator shall not operate the gas turbine under load conditions, excluding the thermal stabilization period or reduced load period, which results in the measured NO<sub>x</sub> emissions concentration exceeding 35 ppmv @ 15% O<sub>2</sub>. [40 CFR 60.332(a)(1), (a)(2) and District Rules 2201 and 4703, 5.1.2.1] Federally Enforceable Through Title V Permit
10. CO emissions from the cogeneration system with the duct burner firing shall not exceed 53 ppmv CO @ 15% O<sub>2</sub> or 0.119 lb-CO/MMBtu, excluding thermal stabilization periods or reduced load periods. [District Rule 4703, 5.2] Federally Enforceable Through Title V Permit
11. CO emissions from the cogeneration system without duct burner firing shall not exceed 63 ppmv CO @ 15% O<sub>2</sub> or 0.142 lb CO/MMBtu, excluding thermal stabilization periods or reduced load periods. [District Rule 4703, 5.2] Federally Enforceable Through Title V Permit
12. Emissions from the cogeneration system (with or without duct burner firing) shall not exceed any of the following limits: 0.002 lb-SO<sub>x</sub>/MMBtu, 0.026 lb-PM<sub>10</sub>/MMBtu, or 0.026 lb-VOC/MMBtu. [District Rule 2201] Federally Enforceable Through Title V Permit
13. Reduced Load Period shall be defined as the time during which the gas turbine is operated at less than rated capacity in order to change the position of the exhaust gas diverter gate, not exceeding one hour. [District Rule 4703, 3.19] Federally Enforceable Through Title V Permit
14. Thermal Stabilization Period shall be defined as the startup or shutdown, as defined in 40 CFR 60.2, time during which the exhaust gas is not within the normal operating temperature range, not to exceed two hours per startup or shutdown event. [District Rule 4703, 3.25] Federally Enforceable Through Title V Permit
15. This unit shall be fired exclusively on natural gas as defined in 40 CFR 60.331(u) and the natural gas shall have a total sulfur content less than or equal to 1.0 gr/100 scf. [40 CFR 60.333(b) and District Rules 2201 and 4201] Federally Enforceable Through Title V Permit
16. The sulfur fuel content of each fuel source shall be: (i) documented in a valid purchase contract, a supplier certification, a tariff sheet or transportation contract or (ii) monitored weekly using ASTM Methods D4084, D5504, D6228, or Gas Processors Association Standard 2377, or double GC for H<sub>2</sub>S and mercaptans. If the sulfur fuel content is less than 1.0 gr/100 scf for eight consecutive weeks, then the monitoring frequency shall be every 6 months. If any six-month monitoring tests result in a sulfur fuel content exceedance, weekly monitoring shall resume. [40 CFR 60.334(h)(3)] Federally Enforceable Through Title V Permit
17. Performance testing shall be conducted annually to measure NO<sub>x</sub> and CO emissions concentrations using the following test methods: EPA Methods 7E or 20 for NO<sub>x</sub> emissions, EPA Methods 10 or 10B for CO emissions, EPA Methods 3, 3A, or 20 for Oxygen content of the exhaust gas. The test will be comprised of three test runs performed at the highest physically achievable load of the gas turbine. The measured NO<sub>x</sub> concentrations shall be averaged over a three hour period, using consecutive 15-minute sampling periods. [40 CFR 60.335(a), (b)(2) and District Rule 4703, 5.1, 6.3.1, 6.3.2, and 6.4] Federally Enforceable Through Title V Permit
18. Any gas turbine with an intermittently operated auxiliary burner shall demonstrate compliance with the auxiliary burner both on and off. Source testing shall not be required with the duct burner on if it has not been in operation during the previous 12 months, i.e. the duct burner need not be started to solely perform source testing. Source testing shall not be required with the duct burner off if it has been in continuous operation during the previous 12 months, i.e. the duct burner need not be shut-down solely to perform source testing. Source testing shall be performed within 60 days of startup or shutdown of the duct burner unless source testing of the duct burner has been performed in the previous 12 months. [40 CFR 60.335(b) and District Rule 4703, 6.3.3] Federally Enforceable Through Title V Permit
19. HHV and LHV of the fuel shall be determined using ASTM D3588, ASTM 1826, or ASTM 1945. [40 CFR 60.335(b) and District Rule 4703, 6.4.5] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

20. The owner or operator shall be required to conform to the sampling facilities and testing procedures described in Rule 1081 (as amended 12/16/93), Sections 3.0 and 6.1. [District Rule 1081] Federally Enforceable Through Title V Permit
21. The District must be notified 30 days prior to any performance testing and a test plan shall be submitted for approval 15 days prior to such testing. [District Rule 1081] Federally Enforceable Through Title V Permit
22. Performance testing shall be witnessed or authorized by District personnel. Test results must be submitted to the District within 60 days of performance testing. [District Rule 1081] Federally Enforceable Through Title V Permit
23. The owner or operator shall operate and maintain in calibration a system which continuously measures and records: control system operating parameters, elapsed time of operation, the fuel consumption and the ratio of water to fuel being fired in the turbine. [40 CFR 60.334(a) and District Rule 4703, 6.2.2] Federally Enforceable Through Title V Permit
24. The owner or operator shall develop and keep on-site a parameter monitoring plan which includes the procedures used to document the proper operation of the NO<sub>x</sub> emissions controls (water injection). This plan shall include the parameter(s) monitored, such as the water-to-fuel ratio, and the acceptable range(s) of the parameter(s) as well as the basis for designating the parameter(s) and acceptable range(s). Any supplemental data such as engineering analyses, design specifications, manufacturers recommendations and other relevant information shall be included in the monitoring plan. [40 CFR 60.334(g)] Federally Enforceable Through Title V Permit
25. The water to fuel ratio shall not be less than 0.45 on a weight basis. [District Rule 4703, 6.2.5] Federally Enforceable Through Title V Permit
26. The owner or operator shall submit a semi-annual excess NO<sub>x</sub> emissions and monitor downtime report to the APCO. Excess emissions shall be reported for all periods of operation, including startup, shutdown and malfunction. The report, post marked by the 30th day following the end of every other calendar quarter, shall include the following: Time intervals, average steam or water-to-fuel ratio, turbine load, nature and cause of excess emissions (if known), and corrective actions taken and preventative measures adopted. [40 CFR 60.334(j), (j)(5) and District Rule 2520, 9.3.2)] Federally Enforceable Through Title V Permit
27. Excess emissions shall be defined as any operating hour for which the steam or water to fuel ratio, as measured by the continuous monitoring system, falls below the established steam or water to fuel ratio. Any operating hour in which no steam or water is injected into the turbine shall also be considered as excess emissions. [40 CR 60.334(j)(1)(i)(A)] Federally Enforceable Through Title V Permit
28. Monitor downtime shall be any operating hour in which the water or steam is injected into the turbine, but essential parametric data needed to determine the steam or water to fuel ratio are unavailable or invalid. [40 CFR 60.334(j)(1)(i)(B)] Federally Enforceable Through Title V Permit
29. Fuel consumption and the water-to-fuel ratio shall be monitored continuously with a system that is accurate to within 5 percent. [District Rule 2201] Federally Enforceable Through Title V Permit
30. The cogeneration system shall be equipped with a meter recording the total elapsed operating time. [District NSR Rule] Federally Enforceable Through Title V Permit
31. Permittee shall notify the District of any breakdown condition as soon as reasonably possible, but no later than one hour after its detection, unless the owner or operator demonstrates to the District's satisfaction that the longer reporting period was necessary. [District Rule 1100] Federally Enforceable Through Title V Permit
32. The District shall be notified in writing within ten days following the correction of any breakdown condition. The breakdown notification shall include a description of the equipment malfunction or failure, the date and cause of the initial failure, the estimated emissions in excess of those allowed, and the methods utilized to restore normal operations. [District Rule 1100] Federally Enforceable Through Title V Permit
33. If the water injection system is inoperative when the turbine is running, the operator shall follow procedures pursuant to District Rule 1100 (Equipment Breakdown). [District Rule 1100] Federally Enforceable Through Title V Permit
34. The requirements of 40 CFR 72.6 (b) do not apply to this source because only non-Title IV sources can qualify to use the applicable template. A permit shield is granted from this requirement. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

35. If the turbine is fired on PUC-regulated natural gas, then the operator shall maintain a log describing the source of natural gas and quantity used. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit
36. Records shall be maintained and shall contain: the occurrence and duration of any start-up, shutdown or malfunction, performance testing, evaluations, calibrations, checks, adjustments and emissions measurements. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit
37. The owner or operator shall maintain a record of the cumulative rolling 12 month fuel usage for each turbine. The record shall be updated at the end of each calendar month. [District Rule 2201] Federally Enforceable Through Title V Permit
38. Operator shall maintain a stationary gas turbine operating log that includes, on a daily basis, 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(a),(b) and District Rule 4703, 6.2.4] Federally Enforceable Through Title V Permit
39. 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 Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit
40. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following applicable requirements: 40 CFR 60.332(a)(1), (a)(2), 60.333 (b), (g), (h)(3), (j), (j)(1)(i)(A), (j)(1)(i)(b), and (j)(5); 60.335(a), (b)(2), (b)(3); and District Rule 4703 (as amended 4/25/02), Sections 5.1.2.1, 5.2, 6.2.2, 6.4, and 6.2.6. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
41. Compliance with permit conditions in the Title V permit shall be deemed compliance with District Rule 1081(as amended 12/16/93), Section 3.0, 6.0, 7.1, 7.2, 7.3 and Rule 4201 (as amended 12/17/92). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit



## AUTHORITY TO CONSTRUCT

PERMIT NO: C-311-93-10

ISSUANCE DATE: 12/23/2009

LEGAL OWNER OR OPERATOR: CHEVRON USA INC  
MAILING ADDRESS: PO BOX 1392  
BAKERSFIELD, CA 93302

LOCATION: HEAVY OIL PRODUCTION  
FRESNO COUNTY, CA

SECTION: 25 TOWNSHIP: 20S RANGE: 14E

### EQUIPMENT DESCRIPTION:

MODIFICATION OF 86.4 MMBTU/HR COGENERATION SYSTEM WITH A NOMINAL RATED 40.9 MMBTU/HR SOLAR MODEL CENTAUR 40-4500 TURBINE ENGINE #TG-101, DRIVING A 2.7 MW ELECTRICAL GENERATOR AND INCLUDING A STRUTHERS WASTE HEAT RECOVERY STEAM GENERATOR #SG-201, WITH A 36.4 MMBTU/HR COEN DUCT BURNER; DESIGNATE AS A NON-COMPLIANT DORMANT EMISSIONS UNIT FOR TIER-3 NOX STANDARDS OF RULE 4703

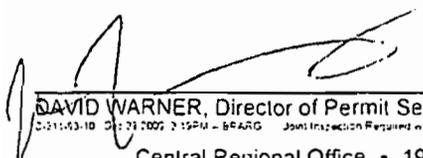
## CONDITIONS

1. The facility shall submit an application to modify the Title V permit in accordance with the timeframes and procedures of District Rule 2520. [District Rule 2520] Federally Enforceable Through Title V Permit
2. No modification to this unit shall be performed without an Authority to Construct for such modification(s), except for changes specified in conditions below. [District Rule 2010]
3. The fuel supply line shall be physically disconnected from this unit. [District Rule 4703]
4. This equipment shall not be operated for any reason until an Authority to Construct permit is issued approving all necessary retrofits required to comply with the applicable requirements of District Rule 4703 and all other applicable District regulations. [District Rule 4703]
5. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201, 3.1] Federally Enforceable Through Title V Permit
6. The Owner/Operator shall maintain a separate fuel meter to the turbine and a fuel meter to the duct burners. [District Rule 2201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (559) 230-5950 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director / APCO

  
DAVID WARNER, Director of Permit Services

C-311-93-10 01:21:00 12/23/09 - 59490 Joint Inspection Required with 59490

7. Natural gas consumption by the cogeneration system (turbine and duct burner) shall not exceed 1,812,000 scf/day. Natural gas consumption by the cogeneration system shall not exceed 654 million scf/year. [District Rule 2201]
8. Emissions from the cogeneration system shall not exceed any of the following limits: 233.7 lb-NO<sub>x</sub>/day, 3.6 lb-SO<sub>x</sub>/day, 47.1 lb-PM<sub>10</sub>/day, 257.3 lb-CO/day, or 47.1 lb-VOC/day. [District Rule 2201] Federally Enforceable Through Title V Permit
9. The owner or operator shall not operate the gas turbine under load conditions, excluding the thermal stabilization period or reduced load period, which results in the measured NO<sub>x</sub> emissions concentration exceeding 35 ppmv @ 15% O<sub>2</sub>. [40 CFR 60.332(a)(1), (a)(2) and District Rules 2201 and 4703, 5.1.2.1] Federally Enforceable Through Title V Permit
10. CO emissions from the cogeneration system with the duct burner firing shall not exceed 53 ppmv CO @ 15% O<sub>2</sub> or 0.119 lb-CO/MMBtu, excluding thermal stabilization periods or reduced load periods. [District Rule 4703, 5.2] Federally Enforceable Through Title V Permit
11. CO emissions from the cogeneration system without duct burner firing shall not exceed 63 ppmv CO @ 15% O<sub>2</sub> or 0.142 lb CO/MMBtu, excluding thermal stabilization periods or reduced load periods. [District Rule 4703, 5.2] Federally Enforceable Through Title V Permit
12. Emissions from the cogeneration system (with or without duct burner firing) shall not exceed any of the following limits: 0.002 lb-SO<sub>x</sub>/MMBtu, 0.026 lb-PM<sub>10</sub>/MMBtu, or 0.026 lb-VOC/MMBtu. [District Rule 2201] Federally Enforceable Through Title V Permit
13. Reduced Load Period shall be defined as the time during which the gas turbine is operated at less than rated capacity in order to change the position of the exhaust gas diverter gate, not exceeding one hour. [District Rule 4703, 3.19] Federally Enforceable Through Title V Permit
14. Thermal Stabilization Period shall be defined as the startup or shutdown, as defined in 40 CFR 60.2, time during which the exhaust gas is not within the normal operating temperature range, not to exceed two hours per startup or shutdown event. [District Rule 4703, 3.25] Federally Enforceable Through Title V Permit
15. This unit shall be fired exclusively on natural gas as defined in 40 CFR 60.331(u) and the natural gas shall have a total sulfur content less than or equal to 1.0 gr/100 scf. [40 CFR 60.333(b) and District Rules 2201 and 4201] Federally Enforceable Through Title V Permit
16. The sulfur fuel content of each fuel source shall be: (i) documented in a valid purchase contract, a supplier certification, a tariff sheet or transportation contract or (ii) monitored weekly using ASTM Methods D4084, D5504, D6228, or Gas Processors Association Standard 2377, or double GC for H<sub>2</sub>S and mercaptans. If the sulfur fuel content is less than 1.0 gr/100 scf for eight consecutive weeks, then the monitoring frequency shall be every 6 months. If any six-month monitoring tests result in a sulfur fuel content exceedance, weekly monitoring shall resume. [40 CFR 60.334(h)(3)] Federally Enforceable Through Title V Permit
17. Performance testing shall be conducted annually to measure NO<sub>x</sub> and CO emissions concentrations using the following test methods: EPA Methods 7E or 20 for NO<sub>x</sub> emissions, EPA Methods 10 or 10B for CO emissions, EPA Methods 3, 3A, or 20 for Oxygen content of the exhaust gas. The test will be comprised of three test runs performed at the highest physically achievable load of the gas turbine. The measured NO<sub>x</sub> concentrations shall be averaged over a three hour period, using consecutive 15-minute sampling periods. [40 CFR 60.335(a), (b)(2) and District Rule 4703, 5.1, 6.3.1, 6.3.2, and 6.4] Federally Enforceable Through Title V Permit
18. Any gas turbine with an intermittently operated auxiliary burner shall demonstrate compliance with the auxiliary burner both on and off. Source testing shall not be required with the duct burner on if it has not been in operation during the previous 12 months, i.e. the duct burner need not be started to solely perform source testing. Source testing shall not be required with the duct burner off if it has been in continuous operation during the previous 12 months, i.e. the duct burner need not be shut-down solely to perform source testing. Source testing shall be performed within 60 days of startup or shutdown of the duct burner unless source testing of the duct burner has been performed in the previous 12 months. [40 CFR 60.335(b) and District Rule 4703, 6.3.3] Federally Enforceable Through Title V Permit
19. HHV and LHV of the fuel shall be determined using ASTM D3588, ASTM 1826, or ASTM 1945. [40 CFR 60.335(b) and District Rule 4703, 6.4.5] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

20. The owner or operator shall be required to conform to the sampling facilities and testing procedures described in Rule 1081 (as amended 12/16/93), Sections 3.0 and 6.1. [District Rule 1081] Federally Enforceable Through Title V Permit
21. The District must be notified 30 days prior to any performance testing and a test plan shall be submitted for approval 15 days prior to such testing. [District Rule 1081] Federally Enforceable Through Title V Permit
22. Performance testing shall be witnessed or authorized by District personnel. Test results must be submitted to the District within 60 days of performance testing. [District Rule 1081] Federally Enforceable Through Title V Permit
23. The owner or operator shall operate and maintain in calibration a system which continuously measures and records: control system operating parameters, elapsed time of operation, the fuel consumption and the ratio of water to fuel being fired in the turbine. [40 CFR 60.334(a) and District Rule 4703, 6.2.2] Federally Enforceable Through Title V Permit
24. The owner or operator shall develop and keep on-site a parameter monitoring plan which includes the procedures used to document the proper operation of the NO<sub>x</sub> emissions controls (water injection). This plan shall include the parameter(s) monitored, such as the water-to-fuel ratio, and the acceptable range(s) of the parameter(s) as well as the basis for designating the parameter(s) and acceptable range(s). Any supplemental data such as engineering analyses, design specifications, manufacturers recommendations and other relevant information shall be included in the monitoring plan. [40 CFR 60.334(g)] Federally Enforceable Through Title V Permit
25. The water to fuel ratio shall not be less than 0.45 on a weight basis. [District Rule 4703, 6.2.5] Federally Enforceable Through Title V Permit
26. The owner or operator shall submit a semi-annual excess NO<sub>x</sub> emissions and monitor downtime report to the APCO. Excess emissions shall be reported for all periods of operation, including startup, shutdown and malfunction. The report, post marked by the 30th day following the end of every other calendar quarter, shall include the following: Time intervals, average steam or water-to-fuel ratio, turbine load, nature and cause of excess emissions (if known), and corrective actions taken and preventative measures adopted. [40 CFR 60.334(j), (j)(5) and District Rule 2520, 9.3.2)] Federally Enforceable Through Title V Permit
27. Excess emissions shall be defined as any operating hour for which the steam or water to fuel ratio, as measured by the continuous monitoring system, falls below the established steam or water to fuel ratio. Any operating hour in which no steam or water is injected into the turbine shall also be considered as excess emissions. [40 CR 60.334(j)(1)(i)(A)] Federally Enforceable Through Title V Permit
28. Monitor downtime shall be any operating hour in which the water or steam is injected into the turbine, but essential parametric data needed to determine the steam or water to fuel ratio are unavailable or invalid. [40 CFR 60.334(j)(1)(i)(B)] Federally Enforceable Through Title V Permit
29. Fuel consumption and the water-to-fuel ratio shall be monitored continuously with a system that is accurate to within 5 percent. [District Rule 2201] Federally Enforceable Through Title V Permit
30. The cogeneration system shall be equipped with a meter recording the total elapsed operating time. [District NSR Rule] Federally Enforceable Through Title V Permit
31. Permittee shall notify the District of any breakdown condition as soon as reasonably possible, but no later than one hour after its detection, unless the owner or operator demonstrates to the District's satisfaction that the longer reporting period was necessary. [District Rule 1100] Federally Enforceable Through Title V Permit
32. The District shall be notified in writing within ten days following the correction of any breakdown condition. The breakdown notification shall include a description of the equipment malfunction or failure, the date and cause of the initial failure, the estimated emissions in excess of those allowed, and the methods utilized to restore normal operations. [District Rule 1100] Federally Enforceable Through Title V Permit
33. If the water injection system is inoperative when the turbine is running, the operator shall follow procedures pursuant to District Rule 1100 (Equipment Breakdown). [District Rule 1100] Federally Enforceable Through Title V Permit
34. The requirements of 40 CFR 72.6 (b) do not apply to this source because only non-Title IV sources can qualify to use the applicable template. A permit shield is granted from this requirement. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

35. If the turbine is fired on PUC-regulated natural gas, then the operator shall maintain a log describing the source of natural gas and quantity used. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit
36. Records shall be maintained and shall contain: the occurrence and duration of any start-up, shutdown or malfunction, performance testing, evaluations, calibrations, checks, adjustments and emissions measurements. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit
37. The owner or operator shall maintain a record of the cumulative rolling 12 month fuel usage for each turbine. The record shall be updated at the end of each calendar month. [District Rule 2201] Federally Enforceable Through Title V Permit
38. Operator shall maintain a stationary gas turbine operating log that includes, on a daily basis, 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(a),(b) and District Rule 4703, 6.2.4] Federally Enforceable Through Title V Permit
39. 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 Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit
40. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following applicable requirements: 40 CFR 60.332(a)(1), (a)(2), 60.333 (b), (g), (h)(3), (j), (j)(1)(i)(A), (j)(1)(i)(b), and (j)(5); 60.335(a), (b)(2), (b)(3); and District Rule 4703 (as amended 4/25/02), Sections 5.1.2.1, 5.2, 6.2.2, 6.4, and 6.2.6. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
41. Compliance with permit conditions in the Title V permit shall be deemed compliance with District Rule 1081(as amended 12/16/93), Section 3.0, 6.0, 7.1, 7.2, 7.3 and Rule 4201 (as amended 12/17/92). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit



## AUTHORITY TO CONSTRUCT

PERMIT NO: C-311-93-11

ISSUANCE DATE: 12/23/2009

LEGAL OWNER OR OPERATOR: CHEVRON USA INC  
MAILING ADDRESS: PO BOX 1392  
BAKERSFIELD, CA 93302

LOCATION: HEAVY OIL PRODUCTION  
FRESNO COUNTY, CA

SECTION: 25 TOWNSHIP: 20S RANGE: 14E

### EQUIPMENT DESCRIPTION:

MODIFICATION OF 86.4 MMBTU/HR COGENERATION SYSTEM WITH A NOMINAL RATED 40.9 MMBTU/HR SOLAR MODEL CENTAUR 40-4500 TURBINE ENGINE #TG-101, DRIVING A 2.7 MW ELECTRICAL GENERATOR AND INCLUDING A STRUTHERS WASTE HEAT RECOVERY STEAM GENERATOR #SG-201, WITH A 36.4 MMBTU/HR COEN DUCT BURNER: REMOVE DAILY HEAT INPUT RATE (MMBTU/DAY); INSTALL A SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM WITH AMMONIA INJECTION TO COMPLY WITH RULE 4703 TIER 3 EMISSION LIMIT OF 9 PPMVD NOX @ 15% O2; REPLACE STRUTHERS-WELLS HEAT RECOVERY STEAM GENERATOR (HRSG) WITH ANOTHER HRSG (IF NECESSARY); REPLACE THE EXISTING 36.4 MMBTU/HR DUCT BURNER WITH A NEW 36.4 MMBTU/HR (NOMINAL RATING) DUCT BURNER (IF NECESSARY); AND INSTALL A CONTINUOUS EMISSIONS MONITORING SYSTEM (CEMS) TO MEASURE NOX, CO AND O2 CONCENTRATIONS

## CONDITIONS

1. The facility shall submit an application to modify the Title V permit in accordance with the timeframes and procedures of District Rule 2520. [District Rule 2520] Federally Enforceable Through Title V Permit
2. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
3. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201, 3.1] Federally Enforceable Through Title V Permit
4. If the gas turbine system is fired on PUC-regulated or FERC regulated natural gas, then maintain on file copies of natural gas bills. [District Rule 2520]
5. This unit shall be fired exclusively on natural gas as defined in 40 CFR 60.331(u) and the natural gas shall have a total sulfur content less than or equal to 1.0 gr/100 scf. [40 CFR 60.333(b) and District Rules 2201 and 4201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (559) 230-5950 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director / APCO

  
DAVID WARNER, Director of Permit Services  
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6. If the gas turbine system is not fired on PUC-regulated or FERC regulated natural gas, the sulfur content of each fuel source shall be tested weekly except that if compliance with the fuel sulfur content limit has been demonstrated for 8 consecutive weeks for a fuel source, then the testing frequency shall be quarterly. If a test shows noncompliance with the sulfur content requirement, the source must return to weekly testing until eight consecutive weeks show compliance. [40 CFR 60.334(h)(3)] Federally Enforceable Through Title V Permit
7. HHV and LHV of the fuel shall be determined by using ASTM D3588, ASTM 1826, or ASTM 1945. [40 CFR 60.335(b), District Rule 4703] Federally Enforceable Through Title V Permit
8. During an initial shakedown period, the emissions shall not exceed any of the following limits: 35 ppmvd NO<sub>x</sub> @ 15% O<sub>2</sub> referenced as NO<sub>2</sub>; 53 ppmvd CO @ 15% O<sub>2</sub> when firing both gas turbine and duct burner simultaneously; 63 ppmvd CO @ 15% O<sub>2</sub> when firing gas turbine only; 0.026 lb-PM<sub>10</sub>/MMBtu; 0.026 lb-VOC/MMBtu referenced as methane; and 0.002 lb-SO<sub>x</sub>/MMBtu referenced as SO<sub>2</sub>. The shakedown period shall not exceed 60 calendar days from the initial startup of the unit under this permit. The shakedown period must be concluded prior to the applicable Rule 4703 compliance deadline selected for this unit. The permittee shall maintain a record of the date of initial operation of this unit, fuel combusted (scf/day) on daily basis, and water-to-fuel ratio or results of NO<sub>x</sub> and CO over 3-hour rolling average period from CEMS (if operational). These records shall be made readily available for District inspection upon request. [District Rule 2201]
9. Upon concluding the initial shakedown period, emissions from the gas turbine system, when startup or shutdown or black start do not occur, shall not exceed any of the following limits: 9 ppmvd NO<sub>x</sub> @ 15% O<sub>2</sub> referenced as NO<sub>2</sub>; 53 ppmvd CO @ 15% O<sub>2</sub> when firing both gas turbine and duct burner simultaneously; 63 ppmvd CO @ 15% O<sub>2</sub> when firing gas turbine only; 0.026 lb-PM<sub>10</sub>/MMBtu; 0.026 lb-VOC/MMBtu referenced as methane; and 0.002 lb-SO<sub>x</sub>/MMBtu referenced as SO<sub>2</sub>. NO<sub>x</sub> and CO emission limits are based on 3-hour rolling average period. If unit is in either startup, shutdown, or black start mode during any portion of a clock hour, the unit will not be subject to the ppmvd limits for NO<sub>x</sub> and CO during that clock hour. [District Rules 2201 and 4703]
10. Upon concluding the initial shakedown period, emissions from the gas turbine system, on days when startup, shutdown, or black start occurs, shall not exceed any of the following limits: 67.4 lb-NO<sub>x</sub>/day referenced as NO<sub>2</sub>; 1199.5 lb-CO/day; 3.7 lb-SO<sub>x</sub>/day; 48.2 lb-PM<sub>10</sub>/day; 99.6 lb-VOC/day referenced as methane; and 52.7 lb-NH<sub>3</sub>/day. [District Rule 2201]
11. Upon concluding the initial shakedown period, the emissions from the gas turbine system shall not exceed any of the following limits: 22,343 lb-NO<sub>x</sub>/year; 84,878 lb-CO/year; 1,354 lb-SO<sub>x</sub>/year; 17,606 lb-PM<sub>10</sub>/year; 17,863 lb-VOC/year; 19,239 lb-NH<sub>3</sub>/year. All annual emission limits are based on 12 consecutive month rolling emissions totals. [District Rule 2201]
12. Ammonia (NH<sub>3</sub>) emissions shall not exceed 21 ppmvd @ 15% O<sub>2</sub> over a 24-hour average period. [District Rule 2201]
13. Each three hour rolling average will be compiled from the three most recent one hour periods. Each one hour period shall commence on the hour. Each one hour period in a twenty-four hour average for ammonia slip will commence on the hour. The twenty-four hour average will be calculated starting and ending at twelve-midnight. [District Rule 2201]
14. Daily emissions shall be compiled for a twenty-four hour period starting and ending at twelve-midnight. Each calendar month in a twelve consecutive month rolling emissions total shall commence at the beginning of the first day of the month. The twelve consecutive month rolling emissions totals used to determine compliance with annual emission limits shall be compiled from the twelve most recent calendar months. [District Rule 2201]
15. The exhaust stack shall be equipped with permanent provisions to allow collection of stack gas samples consistent with EPA test methods and shall be equipped with safe permanent provisions to sample stack gases with a portable NO<sub>x</sub>, CO, and O<sub>2</sub> analyzer during District inspections. The sampling ports shall be located in accordance with the CARB regulation titled California Air Resources Board Air Monitoring Quality Assurance Volume VI, Standard Operating Procedures for Stationary Emission Monitoring and Testing. [District Rule 1081]
16. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081] Federally Enforceable Through Title V Permit
17. Source testing shall be witnessed or authorized by District personnel and samples shall be collected by a California Air Resources Board (CARB) certified testing laboratory or a CARB certified source testing firm. [District Rule 1081] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

18. Source testing to measure start-up mass emission rates of NO<sub>x</sub>, CO, and VOC shall be conducted for one of the gas turbine engines (C-311-88, -93, -95 or -97) within 60-days of initial startup under this permit and at least once every seven years thereafter. CEMS relative accuracy shall be determined during source testing in accordance with the procedure listed in 40 CFR Part 60, Appendix F with any necessary changes approved by the District. [District Rule 1081]
19. Source testing to determine compliance with the NO<sub>x</sub>, CO and NH<sub>3</sub> emission rates (ppmvd @ 15% O<sub>2</sub>) during normal operation shall be conducted within 60 days of initial startup under this permit and annually thereafter. [District Rules 2201 and 4703, CFR 60.335(a)]
20. For the purpose of determining compliance with the emissions limits (ppmvd @ 15% O<sub>2</sub>) during normal operation in this permit, the arithmetic mean of three test runs shall apply, unless two of the three results are above an applicable limit. If two of three runs are above the applicable limit the test cannot be used to demonstrate compliance with an applicable limit. [District Rule 1081]
21. The following test methods shall be used: NO<sub>x</sub> - EPA Method 7E or 20 or CARB Method 100; CO - EPA Method 10 or 10B or CARB Method 100; VOC - EPA Method 18 or 25; PM<sub>10</sub> - EPA Method 5 (front half and back half) or 201 and 202a; ammonia - BAAQMD ST-1B; and O<sub>2</sub> - EPA Method 3, 3A, or 20 or CARB Method 100. EPA approved alternative test methods as approved by the District may also be used to address the source testing requirements of this permit. [District Rules 1081 and 4703, 40 CFR 60.335(a), and 40 CFR 60.335(b)(1)] Federally Enforceable Through Title V Permit
22. Source test to demonstrate compliance with NO<sub>x</sub> and CO emission limits shall be conducted with duct burner "on" and "off" configurations. An annual demonstration of compliance with the duct burner in operation is not required in any year in which the duct burner is not operated at all in the preceding 12 months, in such case, the unit shall be compliance source tested within 60 days of resumption of operation of the duct burner. An annual demonstration of compliance with the duct burner not in operation is not required in any year in which the duct burner operated continuously in conjunction with the turbine in the preceding 12 months, in such case, the unit shall be compliance source tested within 60 days of shutdown of operation of the duct burner. [District Rule 2201 and 4703] Federally Enforceable Through Title V Permit
23. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]
24. The owner or operator shall install, certify, maintain, operate, and quality-assure a continuous emission monitor system (CEMS) which continuously measures and records the exhaust gas NO<sub>x</sub>, CO, and O<sub>2</sub> concentrations. Continuous emissions monitors shall be capable of monitoring emissions during normal operating conditions and during startups and shutdowns, provided that CEMS passes the relative accuracy requirements of 40 CFR Part 60, Appendix B, Performance Specification 2 (PS-2) and District approved protocol for startups. If relative accuracy of CEMS cannot be demonstrated during the startup, CEMS results during startup and shutdown events shall be replaced with startup emission rates obtained from the source test conducted by the facility to determine compliance with emission limits contained in this document. [District Rules 1080, 2201 and 4703, 40 CFR 60.334(b)(1)]
25. The CEMS shall complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each 15-minute quadrant of the hour or shall meet equivalent specifications established by mutual agreement of the District, the CARB and the EPA. [District Rule 1080 and 40 CFR 60.334(b)(2)]
26. The NO<sub>x</sub>, CO and O<sub>2</sub> CEMS shall meet the requirements in 40 CFR 60, Appendix F Procedure 1 and Part 60, Appendix B Performance Specification 2 (PS 2), District approved protocol for startups, or shall meet equivalent specifications established by mutual agreement of the District, the CARB, and the EPA. [District Rule 1080 and 40 CFR 60.334(b)(1)]
27. In accordance with 40 CFR Part 60, Appendix F, 5.1, the CEMS must be audited at least once each calendar quarter. The District shall be notified prior to completion of the audits. Audit reports shall be submitted along with quarterly compliance reports to the District. [District Rule 1080]

CONDITIONS CONTINUE ON NEXT PAGE

28. The requirements in 40 CFR 60, Appendix F, shall be met through the following EPA and District approved modified procedures: 1) annual RATA testing of at least one gas turbine engine (C-311-88, -93, -95 or -97), and rotate the unit tested so that all four units are tested over four years, 2) annual RAA testing for the three gas turbine engines for which the annual RATA testing is not performed, 3) if any of the gas turbine engines fail the RAA testing, they must have a RATA test within 60 days, and 4) for every quarter that RATA or RAA testing is not performed, a CGA is to be performed for each gas turbine engine. [District Rules 1080 and 4703, 40 CFR 60.334(b)(1)]
29. APCO or an authorized representative shall be allowed to inspect, as determined to be necessary, the required monitoring devices to ensure that such devices are functioning properly. [District Rule 1080]
30. The CEMS data shall be reduced to hourly averages as specified in 40 CFR 60.13(h), or by other methods deemed equivalent by mutual agreement with the District, the CARB, and the EPA. [District Rule 1080 and 40 CFR 60.334(b)(3)]
31. Upon written notice from the District, the owner or operator shall provide a summary of the data obtained from the CEMS. This summary shall be in the form and the manner prescribed by the District. [District Rule 1080]
32. The facility shall install and maintain equipment, facilities, and systems compatible with the District's CEMS data polling software system, or a District approved alternative polling method, and shall make CEMS data available to the District on a daily basis. Upon notice by the District that the facility's CEMS is not providing polling data, the facility may continue to operate without providing automated data for a maximum of 30 days per calendar year provided the CEMS data is sent to the District by a District-approved alternative method. [District Rule 1080]
33. The permittee shall maintain the following records: the date, time and duration of any malfunction of the continuous monitoring equipment; dates of performance testing; dates of evaluations, calibrations, checks, and adjustments of the continuous monitoring equipment; date and time period which a continuous monitoring system or monitoring device was inoperative. [District Rules 1080 and 2201 and 40 CFR 60.8(d)]
34. The owner or operator shall submit a written report of CEM operations for each calendar quarter to the District. The report is due on the 30th day following the end of the calendar quarter and shall include the following: Time intervals, data and magnitude of excess NO<sub>x</sub> emissions, nature and the cause of excess (if known), corrective actions taken and preventive measures adopted; 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; 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; A negative declaration when no excess emissions occurred. [District Rule 1080 and 40 CFR 60.334(j)(5)]
35. Monitor downtime for NO<sub>x</sub> shall be any unit operating hour in which sufficient data are not obtained to validate the hour for either NO<sub>x</sub> concentration or diluent O<sub>2</sub> (or both). [40 CFR 60.334(j)(1)(iii)(B)]
36. If the gas turbine system is not fired on PUC-regulated or FERC regulated natural gas, then a fuel sample shall be collected during the source test to determine sulfur content of the fuel combusted in the turbine. The fuel sample shall be analyzed for the total sulfur content using ASTM D1072; D3031; D3246; D4084; D4468; D6228; or D6667; or double GC for H<sub>2</sub>S and mercaptans. The applicable ranges of some ASTM methods are not adequate to measure the levels of sulfur in some fuel gases. Dilution of samples before analysis (with verification of dilution ratio) may be used after getting a prior approval from the District. [40 CFR 60.335(b)(10)]
37. Should the applicant decide to conduct performance evaluation of CEMS with the initial performance test, a minimum of 9 reference method runs, with a minimum time per run of 21 minutes, at a single load level, between 90 and 100 percent of peak (or the highest physically achievable) load shall be performed. The test data obtained during these runs can be used to demonstrate compliance with the applicable NO<sub>x</sub> emission limit and to provide reference method data for the RATA of the CEMS. The requirement to test at three additional load levels is waived under this option. [40 CFR 60.335(b)(6)]
38. A totalizing mass or volumetric fuel flow computer shall be utilized and maintained to calculate the amount of natural gas combusted based on measured flow meter parameters (fuel pressure and temperature) and gas composition. [District Rules 2201 and 4703]
39. Except during black start, each startup shall not exceed two hours per event. [District Rules 2201 and 4703]
40. Each shutdown shall not exceed two hours per event. [District Rules 2201 and 4703]

CONDITIONS CONTINUE ON NEXT PAGE

41. The emission control systems shall be in operation and emissions shall be minimized insofar as technologically feasible during startup (black start) and shutdown. [District Rule 4703]
42. Start-up is 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 operation. [District Rule 4703]
43. Shutdown is defined as the period of time during which a unit is taken from an operational to a non-operational status by allowing it to cool down from its operating temperature to ambient temperature as the fuel supply to the unit is completely turned off. [District Rule 4703]
44. Reduced load period is defined as the time during which a gas turbine is operated at less than rated capacity in order to change the position of the exhaust gas diverter gate. Each reduced load period shall not exceed one hour. [District Rule 4703] Federally Enforceable Through Title V Permit
45. A black start event is defined as the startup of a unit while the cogen plant is electrically separated from the utility grid. A black start event shall not exceed 4.0 hours. [District Rules 2201 and 4703]
46. The owner or operator shall submit to the District information correlating the NOx control system operating parameters to the associated measured NOx output. The information must be sufficient to allow the District to determine compliance with the NOx emission limits of this permit when the CEMS is not operating properly. [District Rule 4703]
47. The owner or operator shall maintain a stationary gas turbine system operating log that includes, on a daily basis, the actual local startup and stop time, length and reason for reduced load periods, total hours of operation, the type and quantity of fuel used, duration of each start-up (or black start) and each shutdown time period. [District Rule 4703]
48. The owner or operator shall maintain all records of required monitoring data and support information for a period of five years from the date of data entry and shall make such records available to the District upon request. [District Rules 2201 and 4703] Federally Enforceable Through Title V Permit
49. The requirements of 40 CFR 72.6 (b) do not apply to this source because only non-Title IV sources can qualify to use the applicable template. A permit shield is granted from this requirement. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
50. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following subsumed requirement: 40 CFR 60.332(a), 60.335 (a), (b) and (c) . A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
51. Compliance with the permit conditions in the Title V permit shall be deemed compliance with the following applicable requirements: SJVUAPCD Rule 4703, 6.2.4, 6.3, 6.4.1, 6.4.3 and 6.4.5. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
52. Compliance with permit conditions in the Title V permit shall be deemed compliance with District Rule 4201 (as amended 12/17/92). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit



## AUTHORITY TO CONSTRUCT

PERMIT NO: C-311-95-10

ISSUANCE DATE: 12/23/2009

LEGAL OWNER OR OPERATOR: CHEVRON USA INC  
MAILING ADDRESS: PO BOX 1392  
BAKERSFIELD, CA 93302

LOCATION: HEAVY OIL PRODUCTION  
FRESNO COUNTY, CA

SECTION: 25 TOWNSHIP: 20S RANGE: 14

### EQUIPMENT DESCRIPTION:

MODIFICATION OF 86.4 MMBTU/HR COGENERATION SYSTEM WITH A NOMINAL RATED 40.9 MMBTU/HR SOLAR MODEL CENTAUR 40-4500 TURBINE ENGINE #TG-102, DRIVING A 2.7 MW ELECTRICAL GENERATOR AND INCLUDING A STRUTHERS WASTE HEAT RECOVERY STEAM GENERATOR #SG-202, WITH A 36.4 MMBTU/HR COEN DUCT BURNER: DESIGNATE AS A NON-COMPLIANT DORMANT EMISSIONS UNIT FOR TIER-3 NOX STANDARDS OF RULE 4703

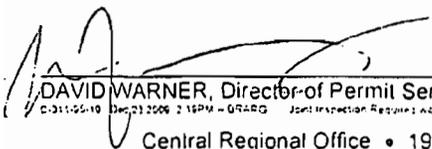
## CONDITIONS

1. The facility shall submit an application to modify the Title V permit in accordance with the timeframes and procedures of District Rule 2520. [District Rule 2520] Federally Enforceable Through Title V Permit
2. No modification to this unit shall be performed without an Authority to Construct for such modification(s), except for changes specified in conditions below. [District Rule 2010]
3. The fuel supply line shall be physically disconnected from this unit. [District Rule 4703]
4. This equipment shall not be operated for any reason until an Authority to Construct permit is issued approving all necessary retrofits required to comply with the applicable requirements of District Rule 4703 and all other applicable District regulations. [District Rule 4703]
5. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201, 3.1] Federally Enforceable Through Title V Permit
6. The Owner/Operator shall maintain a separate fuel meter to the turbine and a fuel meter to the duct burners. [District Rule 2201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (559) 230-5950 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

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DAVID WARNER, Director of Permit Services  
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7. Natural gas consumption by the cogeneration system (turbine and duct burner) shall not exceed 1,812,000 scf/day. Natural gas consumption by the cogeneration system shall not exceed 654 million scf/year. [District Rule 2201]
8. Emissions from the cogeneration system shall not exceed any of the following limits: 233.7 lb-NO<sub>x</sub>/day, 3.6 lb-SO<sub>x</sub>/day, 47.1 lb-PM<sub>10</sub>/day, 257.3 lb-CO/day, or 47.1 lb-VOC/day. [District Rule 2201] Federally Enforceable Through Title V Permit
9. The owner or operator shall not operate the gas turbine under load conditions, excluding the thermal stabilization period or reduced load period, which results in the measured NO<sub>x</sub> emissions concentration exceeding 35 ppmv @ 15% O<sub>2</sub>. [40 CFR 60.332(a)(1), (a)(2) and District Rules 2201 and 4703, 5.1.2.1] Federally Enforceable Through Title V Permit
10. CO emissions from the cogeneration system with the duct burner firing shall not exceed 53 ppmv CO @ 15% O<sub>2</sub> or 0.119 lb-CO/MMBtu, excluding thermal stabilization periods or reduced load periods. [District Rule 4703, 5.2] Federally Enforceable Through Title V Permit
11. CO emissions from the cogeneration system without duct burner firing shall not exceed 63 ppmv CO @ 15% O<sub>2</sub> or 0.142 lb CO/MMBtu, excluding thermal stabilization periods or reduced load periods. [District Rule 4703, 5.2] Federally Enforceable Through Title V Permit
12. Emissions from the cogeneration system (with or without duct burner firing) shall not exceed any of the following limits: 0.002 lb-SO<sub>x</sub>/MMBtu, 0.026 lb-PM<sub>10</sub>/MMBtu, or 0.026 lb-VOC/MMBtu. [District Rule 2201] Federally Enforceable Through Title V Permit
13. Reduced Load Period shall be defined as the time during which the gas turbine is operated at less than rated capacity in order to change the position of the exhaust gas diverter gate, not exceeding one hour. [District Rule 4703, 3.19] Federally Enforceable Through Title V Permit
14. Thermal Stabilization Period shall be defined as the startup or shutdown, as defined in 40 CFR 60.2, time during which the exhaust gas is not within the normal operating temperature range, not to exceed two hours per startup or shutdown event. [District Rule 4703, 3.25] Federally Enforceable Through Title V Permit
15. This unit shall be fired exclusively on natural gas as defined in 40 CFR 60.331(u) and the natural gas shall have a total sulfur content less than or equal to 1.0 gr/100 scf. [40 CFR 60.333(b) and District Rules 2201 and 4201] Federally Enforceable Through Title V Permit
16. The sulfur fuel content of each fuel source shall be: (i) documented in a valid purchase contract, a supplier certification, a tariff sheet or transportation contract or (ii) monitored weekly using ASTM Methods D4084, D5504, D6228, or Gas Processors Association Standard 2377, or double GC for H<sub>2</sub>S and mercaptans. If the sulfur fuel content is less than 1.0 gr/100 scf for eight consecutive weeks, then the monitoring frequency shall be every 6 months. If any six-month monitoring tests result in a sulfur fuel content exceedance, weekly monitoring shall resume. [40 CFR 60.334(h)(3)] Federally Enforceable Through Title V Permit
17. Performance testing shall be conducted annually to measure NO<sub>x</sub> and CO emissions concentrations using the following test methods: EPA Methods 7E or 20 for NO<sub>x</sub> emissions, EPA Methods 10 or 10B for CO emissions, EPA Methods 3, 3A, or 20 for Oxygen content of the exhaust gas. The test will be comprised of three test runs performed at the highest physically achievable load of the gas turbine. The measured NO<sub>x</sub> concentrations shall be averaged over a three hour period, using consecutive 15-minute sampling periods. [40 CFR 60.335(a), (b)(2) and District Rule 4703, 5.1, 6.3.1, 6.3.2, and 6.4] Federally Enforceable Through Title V Permit
18. Any gas turbine with an intermittently operated auxiliary burner shall demonstrate compliance with the auxiliary burner both on and off. Source testing shall not be required with the duct burner on if it has not been in operation during the previous 12 months, i.e. the duct burner need not be started to solely perform source testing. Source testing shall not be required with the duct burner off if it has been in continuous operation during the previous 12 months, i.e. the duct burner need not be shut-down solely to perform source testing. Source testing shall be performed within 60 days of startup or shutdown of the duct burner unless source testing of the duct burner has been performed in the previous 12 months. [40 CFR 60.335(b) and District Rule 4703, 6.3.3] Federally Enforceable Through Title V Permit
19. HHV and LHV of the fuel shall be determined using ASTM D3588, ASTM 1826, or ASTM 1945. [40 CFR 60.335(b) and District Rule 4703, 6.4.5] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

20. The owner or operator shall be required to conform to the sampling facilities and testing procedures described in Rule 1081 (as amended 12/16/93), Sections 3.0 and 6.1. [District Rule 1081] Federally Enforceable Through Title V Permit
21. The District must be notified 30 days prior to any performance testing and a test plan shall be submitted for approval 15 days prior to such testing. [District Rule 1081] Federally Enforceable Through Title V Permit
22. Performance testing shall be witnessed or authorized by District personnel. Test results must be submitted to the District within 60 days of performance testing. [District Rule 1081] Federally Enforceable Through Title V Permit
23. The owner or operator shall operate and maintain in calibration a system which continuously measures and records: control system operating parameters, elapsed time of operation, the fuel consumption and the ratio of water to fuel being fired in the turbine. [40 CFR 60.334(a) and District Rule 4703, 6.2.2] Federally Enforceable Through Title V Permit
24. The owner or operator shall develop and keep on-site a parameter monitoring plan which includes the procedures used to document the proper operation of the NOx emissions controls (water injection). This plan shall include the parameter(s) monitored, such as the water-to-fuel ratio, and the acceptable range(s) of the parameter(s) as well as the basis for designating the parameter(s) and acceptable range(s). Any supplemental data such as engineering analyses, design specifications, manufacturers recommendations and other relevant information shall be included in the monitoring plan. [40 CFR 60.334(g)] Federally Enforceable Through Title V Permit
25. The water to fuel ratio shall not be less than 0.45 on a weight basis. [District Rule 4703, 6.2.5] Federally Enforceable Through Title V Permit
26. The owner or operator shall submit a semi-annual excess NOx emissions and monitor downtime report to the APCO. Excess emissions shall be reported for all periods of operation, including startup, shutdown and malfunction. The report, post marked by the 30th day following the end of every other calendar quarter, shall include the following: Time intervals, average steam or water-to-fuel ratio, turbine load, nature and cause of excess emissions (if known), and corrective actions taken and preventative measures adopted. [40 CFR 60.334(j), (j)(5) and District Rule 2520, 9.3.2]] Federally Enforceable Through Title V Permit
27. Excess emissions shall be defined as any operating hour for which the steam or water to fuel ratio, as measured by the continuous monitoring system, falls below the established steam or water to fuel ratio. Any operating hour in which no steam or water is injected into the turbine shall also be considered as excess emissions. [40 CR 60.334(j)(1)(i)(A)] Federally Enforceable Through Title V Permit
28. Monitor downtime shall be any operating hour in which the water or steam is injected into the turbine, but essential parametric data needed to determine the steam or water to fuel ratio are unavailable or invalid. [40 CFR 60.334(j)(1)(i)(B)] Federally Enforceable Through Title V Permit
29. Fuel consumption and the water-to-fuel ratio shall be monitored continuously with a system that is accurate to within 5 percent. [District Rule 2201] Federally Enforceable Through Title V Permit
30. The cogeneration system shall be equipped with a meter recording the total elapsed operating time. [District NSR Rule] Federally Enforceable Through Title V Permit
31. Permittee shall notify the District of any breakdown condition as soon as reasonably possible, but no later than one hour after its detection, unless the owner or operator demonstrates to the District's satisfaction that the longer reporting period was necessary. [District Rule 1100] Federally Enforceable Through Title V Permit
32. The District shall be notified in writing within ten days following the correction of any breakdown condition. The breakdown notification shall include a description of the equipment malfunction or failure, the date and cause of the initial failure, the estimated emissions in excess of those allowed, and the methods utilized to restore normal operations. [District Rule 1100] Federally Enforceable Through Title V Permit
33. If the water injection system is inoperative when the turbine is running, the operator shall follow procedures pursuant to District Rule 1100 (Equipment Breakdown). [District Rule 1100] Federally Enforceable Through Title V Permit
34. The requirements of 40 CFR 72.6 (b) do not apply to this source because only non-Title IV sources can qualify to use the applicable template. A permit shield is granted from this requirement. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

35. If the turbine is fired on PUC-regulated natural gas, then the operator shall maintain a log describing the source of natural gas and quantity used. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit
36. Records shall be maintained and shall contain: the occurrence and duration of any start-up, shutdown or malfunction, performance testing, evaluations, calibrations, checks, adjustments and emissions measurements. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit
37. The owner or operator shall maintain a record of the cumulative rolling 12 month fuel usage for each turbine. The record shall be updated at the end of each calendar month. [District Rule 2201] Federally Enforceable Through Title V Permit
38. Operator shall maintain a stationary gas turbine operating log that includes, on a daily basis, 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(a),(b) and District Rule 4703, 6.2.4] Federally Enforceable Through Title V Permit
39. 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 Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit
40. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following applicable requirements: 40 CFR 60.332(a)(1), (a)(2), 60.333 (b), (g), (h)(3), (j), (j)(1)(i)(A), (j)(1)(i)(b), and (j)(5); 60.335(a), (b)(2), (b)(3); and District Rule 4703 (as amended 4/25/02), Sections 5.1.2.1, 5.2, 6.2.2, 6.4, and 6.2.6. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
41. Compliance with permit conditions in the Title V permit shall be deemed compliance with District Rule 1081(as amended 12/16/93), Section 3.0, 6.0, 7.1, 7.2, 7.3 and Rule 4201 (as amended 12/17/92). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit



## AUTHORITY TO CONSTRUCT

PERMIT NO: C-311-95-11

ISSUANCE DATE: 12/23/2009

LEGAL OWNER OR OPERATOR: CHEVRON USA INC  
MAILING ADDRESS: PO BOX 1392  
BAKERSFIELD, CA 93302

LOCATION: HEAVY OIL PRODUCTION  
FRESNO COUNTY, CA

SECTION: 25 TOWNSHIP: 20S RANGE: 14

### EQUIPMENT DESCRIPTION:

MODIFICATION OF 86.4 MMBTU/HR COGENERATION SYSTEM WITH A NOMINAL RATED 40.9 MMBTU/HR SOLAR MODEL CENTAUR 40-4500 TURBINE ENGINE #TG-102, DRIVING A 2.7 MW ELECTRICAL GENERATOR AND INCLUDING A STRUTHERS WASTE HEAT RECOVERY STEAM GENERATOR #SG-202, WITH A 36.4 MMBTU/HR COEN DUCT BURNER: REMOVE DAILY HEAT INPUT RATE (MMBTU/DAY); INSTALL A SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM WITH AMMONIA INJECTION TO COMPLY WITH RULE 4703 TIER 3 EMISSION LIMIT OF 9 PPMVD NOX @ 15% O<sub>2</sub>; REPLACE STRUTHERS-WELLS HEAT RECOVERY STEAM GENERATOR (HRSG) WITH ANOTHER HRSG (IF NECESSARY); REPLACE THE EXISTING 36.4 MMBTU/HR DUCT BURNER WITH A NEW 36.4 MMBTU/HR (NOMINAL RATING) DUCT BURNER (IF NECESSARY); AND INSTALL A CONTINUOUS EMISSIONS MONITORING SYSTEM (CEMS) TO MEASURE NOX, CO AND O<sub>2</sub> CONCENTRATIONS

## CONDITIONS

1. The facility shall submit an application to modify the Title V permit in accordance with the timeframes and procedures of District Rule 2520. [District Rule 2520] Federally Enforceable Through Title V Permit
2. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
3. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201, 3.1] Federally Enforceable Through Title V Permit
4. If the gas turbine system is fired on PUC-regulated or FERC regulated natural gas, then maintain on file copies of natural gas bills. [District Rule 2520]
5. This unit shall be fired exclusively on natural gas as defined in 40 CFR 60.331(u) and the natural gas shall have a total sulfur content less than or equal to 1.0 gr/100 scf. [40 CFR 60.333(b) and District Rules 2201 and 4201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (559) 230-5950 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director / APCO

  
DAVID WARNER, Director of Permit Services

6. If the gas turbine system is not fired on PUC-regulated or FERC regulated natural gas, the sulfur content of each fuel source shall be tested weekly except that if compliance with the fuel sulfur content limit has been demonstrated for 8 consecutive weeks for a fuel source, then the testing frequency shall be quarterly. If a test shows noncompliance with the sulfur content requirement, the source must return to weekly testing until eight consecutive weeks show compliance. [40 CFR 60.334(h)(3)] Federally Enforceable Through Title V Permit
7. HHV and LHV of the fuel shall be determined by using ASTM D3588, ASTM 1826, or ASTM 1945. [40 CFR 60.335(b), District Rule 4703] Federally Enforceable Through Title V Permit
8. During an initial shakedown period, the emissions shall not exceed any of the following limits: 35 ppmvd NO<sub>x</sub> @ 15% O<sub>2</sub> referenced as NO<sub>2</sub>; 53 ppmvd CO @ 15% O<sub>2</sub> when firing both gas turbine and duct burner simultaneously; 63 ppmvd CO @ 15% O<sub>2</sub> when firing gas turbine only; 0.026 lb-PM<sub>10</sub>/MMBtu; 0.026 lb-VOC/MMBtu referenced as methane; and 0.002 lb-SO<sub>x</sub>/MMBtu referenced as SO<sub>2</sub>. The shakedown period shall not exceed 60 calendar days from the initial startup of the unit under this permit. The shakedown period must be concluded prior to the applicable Rule 4703 compliance deadline selected for this unit. The permittee shall maintain a record of the date of initial operation of this unit, fuel combusted (scf/day) on daily basis, and water-to-fuel ratio or results of NO<sub>x</sub> and CO over 3-hour rolling average period from CEMS (if operational). These records shall be made readily available for District inspection upon request. [District Rule 2201]
9. Upon concluding the initial shakedown period, emissions from the gas turbine system, when startup or shutdown or black start do not occur, shall not exceed any of the following limits: 9 ppmvd NO<sub>x</sub> @ 15% O<sub>2</sub> referenced as NO<sub>2</sub>; 53 ppmvd CO @ 15% O<sub>2</sub> when firing both gas turbine and duct burner simultaneously; 63 ppmvd CO @ 15% O<sub>2</sub> when firing gas turbine only; 0.026 lb-PM<sub>10</sub>/MMBtu; 0.026 lb-VOC/MMBtu referenced as methane; and 0.002 lb-SO<sub>x</sub>/MMBtu referenced as SO<sub>2</sub>. NO<sub>x</sub> and CO emission limits are based on 3-hour rolling average period. If unit is in either startup, shutdown, or black start mode during any portion of a clock hour, the unit will not be subject to the ppmvd limits for NO<sub>x</sub> and CO during that clock hour. [District Rules 2201 and 4703]
10. Upon concluding the initial shakedown period, emissions from the gas turbine system, on days when startup, shutdown, or black start occurs, shall not exceed any of the following limits: 67.4 lb-NO<sub>x</sub>/day referenced as NO<sub>2</sub>; 1199.5 lb-CO/day; 3.7 lb-SO<sub>x</sub>/day; 48.2 lb-PM<sub>10</sub>/day; 99.6 lb-VOC/day referenced as methane; and 52.7 lb-NH<sub>3</sub>/day. [District Rule 2201]
11. Upon concluding the initial shakedown period, the emissions from the gas turbine system shall not exceed any of the following limits: 22,343 lb-NO<sub>x</sub>/year; 84,878 lb-CO/year; 1,354 lb-SO<sub>x</sub>/year; 17,606 lb-PM<sub>10</sub>/year; 17,863 lb-VOC/year; 19,239 lb-NH<sub>3</sub>/year. All annual emission limits are based on 12 consecutive month rolling emissions totals. [District Rule 2201]
12. Ammonia (NH<sub>3</sub>) emissions shall not exceed 21 ppmvd @ 15% O<sub>2</sub> over a 24-hour average period. [District Rule 2201]
13. Each three hour rolling average will be compiled from the three most recent one hour periods. Each one hour period shall commence on the hour. Each one hour period in a twenty-four hour average for ammonia slip will commence on the hour. The twenty-four hour average will be calculated starting and ending at twelve-midnight. [District Rule 2201]
14. Daily emissions shall be compiled for a twenty-four hour period starting and ending at twelve-midnight. Each calendar month in a twelve consecutive month rolling emissions total shall commence at the beginning of the first day of the month. The twelve consecutive month rolling emissions totals used to determine compliance with annual emission limits shall be compiled from the twelve most recent calendar months. [District Rule 2201]
15. The exhaust stack shall be equipped with permanent provisions to allow collection of stack gas samples consistent with EPA test methods and shall be equipped with safe permanent provisions to sample stack gases with a portable NO<sub>x</sub>, CO, and O<sub>2</sub> analyzer during District inspections. The sampling ports shall be located in accordance with the CARB regulation titled California Air Resources Board Air Monitoring Quality Assurance Volume VI, Standard Operating Procedures for Stationary Emission Monitoring and Testing. [District Rule 1081]
16. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081] Federally Enforceable Through Title V Permit
17. Source testing shall be witnessed or authorized by District personnel and samples shall be collected by a California Air Resources Board (CARB) certified testing laboratory or a CARB certified source testing firm. [District Rule 1081] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

18. Source testing to measure start-up mass emission rates of NO<sub>x</sub>, CO, and VOC shall be conducted for one of the gas turbine engines (C-311-88, -93, -95 or -97) within 60-days of initial startup under this permit and at least once every seven years thereafter. CEMS relative accuracy shall be determined during source testing in accordance with the procedure listed in 40 CFR Part 60, Appendix F with any necessary changes approved by the District. [District Rule 1081]
19. Source testing to determine compliance with the NO<sub>x</sub>, CO and NH<sub>3</sub> emission rates (ppmvd @ 15% O<sub>2</sub>) during normal operation shall be conducted within 60 days of initial startup under this permit and annually thereafter. [District Rules 2201 and 4703, CFR 60.335(a)]
20. For the purpose of determining compliance with the emissions limits (ppmvd @ 15% O<sub>2</sub>) during normal operation in this permit, the arithmetic mean of three test runs shall apply, unless two of the three results are above an applicable limit. If two of three runs are above the applicable limit the test cannot be used to demonstrate compliance with an applicable limit. [District Rule 1081]
21. The following test methods shall be used: NO<sub>x</sub> - EPA Method 7E or 20 or CARB Method 100; CO - EPA Method 10 or 10B or CARB Method 100; VOC - EPA Method 18 or 25; PM<sub>10</sub> - EPA Method 5 (front half and back half) or 201 and 202a; ammonia - BAAQMD ST-1B; and O<sub>2</sub> - EPA Method 3, 3A, or 20 or CARB Method 100. EPA approved alternative test methods as approved by the District may also be used to address the source testing requirements of this permit. [District Rules 1081 and 4703, 40 CFR 60.335(a), and 40 CFR 60.335(b)(1)] Federally Enforceable Through Title V Permit
22. Source test to demonstrate compliance with NO<sub>x</sub> and CO emission limits shall be conducted with duct burner "on" and "off" configurations. An annual demonstration of compliance with the duct burner in operation is not required in any year in which the duct burner is not operated at all in the preceding 12 months, in such case, the unit shall be compliance source tested within 60 days of resumption of operation of the duct burner. An annual demonstration of compliance with the duct burner not in operation is not required in any year in which the duct burner operated continuously in conjunction with the turbine in the preceding 12 months, in such case, the unit shall be compliance source tested within 60 days of shutdown of operation of the duct burner. [District Rule 2201 and 4703] Federally Enforceable Through Title V Permit
23. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]
24. The owner or operator shall install, certify, maintain, operate, and quality-assure a continuous emission monitor system (CEMS) which continuously measures and records the exhaust gas NO<sub>x</sub>, CO, and O<sub>2</sub> concentrations. Continuous emissions monitors shall be capable of monitoring emissions during normal operating conditions and during startups and shutdowns, provided that CEMS passes the relative accuracy requirements of 40 CFR Part 60, Appendix B, Performance Specification 2 (PS-2) and District approved protocol for startups. If relative accuracy of CEMS cannot be demonstrated during the startup, CEMS results during startup and shutdown events shall be replaced with startup emission rates obtained from the source test conducted by the facility to determine compliance with emission limits contained in this document. [District Rules 1080, 2201 and 4703, 40 CFR 60.334(b)(1)]
25. The CEMS shall complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each 15-minute quadrant of the hour or shall meet equivalent specifications established by mutual agreement of the District, the CARB and the EPA. [District Rule 1080 and 40 CFR 60.334(b)(2)]
26. The NO<sub>x</sub>, CO and O<sub>2</sub> CEMS shall meet the requirements in 40 CFR 60, Appendix F Procedure 1 and Part 60, Appendix B Performance Specification 2 (PS 2), District approved protocol for startups, or shall meet equivalent specifications established by mutual agreement of the District, the CARB, and the EPA. [District Rule 1080 and 40 CFR 60.334(b)(1)]
27. In accordance with 40 CFR Part 60, Appendix F, 5.1, the CEMS must be audited at least once each calendar quarter. The District shall be notified prior to completion of the audits. Audit reports shall be submitted along with quarterly compliance reports to the District. [District Rule 1080]

CONDITIONS CONTINUE ON NEXT PAGE

28. The requirements in 40 CFR 60, Appendix F, shall be met through the following EPA and District approved modified procedures: 1) annual RATA testing of at least one gas turbine engine (C-311-88, -93, -95 or -97), and rotate the unit tested so that all four units are tested over four years, 2) annual RAA testing for the three gas turbine engines for which the annual RATA testing is not performed, 3) if any of the gas turbine engines fail the RAA testing, they must have a RATA test within 60 days, and 4) for every quarter that RATA or RAA testing is not performed, a CGA is to be performed for each gas turbine engine. [District Rules 1080 and 4703, 40 CFR 60.334(b)(1)]
29. APCO or an authorized representative shall be allowed to inspect, as determined to be necessary, the required monitoring devices to ensure that such devices are functioning properly. [District Rule 1080]
30. The CEMS data shall be reduced to hourly averages as specified in 40 CFR 60.13(h), or by other methods deemed equivalent by mutual agreement with the District, the CARB, and the EPA. [District Rule 1080 and 40 CFR 60.334(b)(3)]
31. Upon written notice from the District, the owner or operator shall provide a summary of the data obtained from the CEMS. This summary shall be in the form and the manner prescribed by the District. [District Rule 1080]
32. The facility shall install and maintain equipment, facilities, and systems compatible with the District's CEMS data polling software system, or a District approved alternative polling method, and shall make CEMS data available to the District on a daily basis. Upon notice by the District that the facility's CEMS is not providing polling data, the facility may continue to operate without providing automated data for a maximum of 30 days per calendar year provided the CEMS data is sent to the District by a District-approved alternative method. [District Rule 1080]
33. The permittee shall maintain the following records: the date, time and duration of any malfunction of the continuous monitoring equipment; dates of performance testing; dates of evaluations, calibrations, checks, and adjustments of the continuous monitoring equipment; date and time period which a continuous monitoring system or monitoring device was inoperative. [District Rules 1080 and 2201 and 40 CFR 60.8(d)]
34. The owner or operator shall submit a written report of CEM operations for each calendar quarter to the District. The report is due on the 30th day following the end of the calendar quarter and shall include the following: Time intervals, data and magnitude of excess NO<sub>x</sub> emissions, nature and the cause of excess (if known), corrective actions taken and preventive measures adopted; 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; 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; A negative declaration when no excess emissions occurred. [District Rule 1080 and 40 CFR 60.334(j)(5)]
35. Monitor downtime for NO<sub>x</sub> shall be any unit operating hour in which sufficient data are not obtained to validate the hour for either NO<sub>x</sub> concentration or diluent O<sub>2</sub> (or both). [40 CFR 60.334(j)(1)(iii)(B)]
36. If the gas turbine system is not fired on PUC-regulated or FERC regulated natural gas, then a fuel sample shall be collected during the source test to determine sulfur content of the fuel combusted in the turbine. The fuel sample shall be analyzed for the total sulfur content using ASTM D1072; D3031; D3246; D4084; D4468; D6228; or D6667; or double GC for H<sub>2</sub>S and mercaptans. The applicable ranges of some ASTM methods are not adequate to measure the levels of sulfur in some fuel gases. Dilution of samples before analysis (with verification of dilution ratio) may be used after getting a prior approval from the District. [40 CFR 60.335(b)(10)]
37. Should the applicant decide to conduct performance evaluation of CEMS with the initial performance test, a minimum of 9 reference method runs, with a minimum time per run of 21 minutes, at a single load level, between 90 and 100 percent of peak (or the highest physically achievable) load shall be performed. The test data obtained during these runs can be used to demonstrate compliance with the applicable NO<sub>x</sub> emission limit and to provide reference method data for the RATA of the CEMS. The requirement to test at three additional load levels is waived under this option. [40 CFR 60.335(b)(6)]
38. A totalizing mass or volumetric fuel flow computer shall be utilized and maintained to calculate the amount of natural gas combusted based on measured flow meter parameters (fuel pressure and temperature) and gas composition. [District Rules 2201 and 4703]
39. Except during black start, each startup shall not exceed two hours per event. [District Rules 2201 and 4703]
40. Each shutdown shall not exceed two hours per event. [District Rules 2201 and 4703]

CONDITIONS CONTINUE ON NEXT PAGE

41. The emission control systems shall be in operation and emissions shall be minimized insofar as technologically feasible during startup (black start) and shutdown. [District Rule 4703]
42. Start-up is 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 operation. [District Rule 4703]
43. Shutdown is defined as the period of time during which a unit is taken from an operational to a non-operational status by allowing it to cool down from its operating temperature to ambient temperature as the fuel supply to the unit is completely turned off. [District Rule 4703]
44. Reduced load period is defined as the time during which a gas turbine is operated at less than rated capacity in order to change the position of the exhaust gas diverter gate. Each reduced load period shall not exceed one hour. [District Rule 4703] Federally Enforceable Through Title V Permit
45. A black start event is defined as the startup of a unit while the cogen plant is electrically separated from the utility grid. A black start event shall not exceed 4.0 hours. [District Rules 2201 and 4703]
46. The owner or operator shall submit to the District information correlating the NO<sub>x</sub> control system operating parameters to the associated measured NO<sub>x</sub> output. The information must be sufficient to allow the District to determine compliance with the NO<sub>x</sub> emission limits of this permit when the CEMS is not operating properly. [District Rule 4703]
47. The owner or operator shall maintain a stationary gas turbine system operating log that includes, on a daily basis, the actual local startup and stop time, length and reason for reduced load periods, total hours of operation, the type and quantity of fuel used, duration of each start-up (or black start) and each shutdown time period. [District Rule 4703]
48. The owner or operator shall maintain all records of required monitoring data and support information for a period of five years from the date of data entry and shall make such records available to the District upon request. [District Rules 2201 and 4703] Federally Enforceable Through Title V Permit
49. The requirements of 40 CFR 72.6 (b) do not apply to this source because only non-Title IV sources can qualify to use the applicable template. A permit shield is granted from this requirement. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
50. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following subsumed requirement: 40 CFR 60.332(a), 60.335 (a), (b) and (c) . A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
51. Compliance with the permit conditions in the Title V permit shall be deemed compliance with the following applicable requirements: SJVUAPCD Rule 4703, 6.2.4, 6.3, 6.4.1, 6.4.3 and 6.4.5. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
52. Compliance with permit conditions in the Title V permit shall be deemed compliance with District Rule 4201 (as amended 12/17/92). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit



## AUTHORITY TO CONSTRUCT

PERMIT NO: C-311-97-10

ISSUANCE DATE: 12/23/2009

LEGAL OWNER OR OPERATOR: CHEVRON USA INC  
MAILING ADDRESS: PO BOX 1392  
BAKERSFIELD, CA 93302

LOCATION: HEAVY OIL PRODUCTION  
FRESNO COUNTY, CA

SECTION: 25 TOWNSHIP: 20S RANGE: 14E

### EQUIPMENT DESCRIPTION:

MODIFICATION OF 86.4 MMBTU/HR COGENERATION SYSTEM WITH A NOMINAL RATED 40.9 MMBTU/HR SOLAR MODEL CENTAUR 40-4500 TURBINE ENGINE #TG-103, DRIVING A 2.7 MW ELECTRICAL GENERATOR AND INCLUDING A STRUTHERS WASTE HEAT RECOVERY STEAM GENERATOR #SG-203, WITH A 36.4 MMBTU/HR COEN DUCT BURNER: DESIGNATE AS A NON-COMPLIANT DORMANT EMISSIONS UNIT FOR TIER-3 NOX STANDARDS OF RULE 4703

## CONDITIONS

1. The facility shall submit an application to modify the Title V permit in accordance with the timeframes and procedures of District Rule 2520. [District Rule 2520] Federally Enforceable Through Title V Permit
2. No modification to this unit shall be performed without an Authority to Construct for such modification(s), except for changes specified in conditions below. [District Rule 2010]
3. The fuel supply line shall be physically disconnected from this unit. [District Rule 4703]
4. This equipment shall not be operated for any reason until an Authority to Construct permit is issued approving all necessary retrofits required to comply with the applicable requirements of District Rule 4703 and all other applicable District regulations. [District Rule 4703]
5. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201, 3.1] Federally Enforceable Through Title V Permit
6. The Owner/Operator shall maintain a separate fuel meter to the turbine and a fuel meter to the duct burners. [District Rule 2201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

YOU **MUST** NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (559) 230-5950 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director / APCO

DAVID WARNER, Director of Permit Services  
C-311-97-10 12/23/2009 2:16PM - B\*APG Joint Inspection Requires with B\*APG

7. Natural gas consumption by the cogeneration system (turbine and duct burner) shall not exceed 1,812,000 scf/day. Natural gas consumption by the cogeneration system shall not exceed 654 million scf/year. [District Rule 2201]
8. Emissions from the cogeneration system shall not exceed any of the following limits: 233.7 lb-NOx/day, 3.6 lb-SOx/day, 47.1 lb-PM10/day, 257.3 lb-CO/day, or 47.1 lb-VOC/day. [District Rule 2201] Federally Enforceable Through Title V Permit
9. The owner or operator shall not operate the gas turbine under load conditions, excluding the thermal stabilization period or reduced load period, which results in the measured NOx emissions concentration exceeding 35 ppmv @ 15% O2. [40 CFR 60.332(a)(1), (a)(2) and District Rules 2201 and 4703, 5.1.2.1] Federally Enforceable Through Title V Permit
10. CO emissions from the cogeneration system with the duct burner firing shall not exceed 53 ppmv CO @ 15% O2 or 0.119 lb-CO/MMBtu, excluding thermal stabilization periods or reduced load periods. [District Rule 4703, 5.2] Federally Enforceable Through Title V Permit
11. CO emissions from the cogeneration system without duct burner firing shall not exceed 63 ppmv CO @ 15% O2 or 0.142 lb CO/MMBtu, excluding thermal stabilization periods or reduced load periods. [District Rule 4703, 5.2] Federally Enforceable Through Title V Permit
12. Emissions from the cogeneration system (with or without duct burner firing) shall not exceed any of the following limits: 0.002 lb-SOx/MMBtu, 0.026 lb-PM10/MMBtu, or 0.026 lb-VOC/MMBtu. [District Rule 2201] Federally Enforceable Through Title V Permit
13. Reduced Load Period shall be defined as the time during which the gas turbine is operated at less than rated capacity in order to change the position of the exhaust gas diverter gate, not exceeding one hour. [District Rule 4703, 3.19] Federally Enforceable Through Title V Permit
14. Thermal Stabilization Period shall be defined as the startup or shutdown, as defined in 40 CFR 60.2, time during which the exhaust gas is not within the normal operating temperature range, not to exceed two hours per startup or shutdown event. [District Rule 4703, 3.25] Federally Enforceable Through Title V Permit
15. This unit shall be fired exclusively on natural gas as defined in 40 CFR 60.331(u) and the natural gas shall have a total sulfur content less than or equal to 1.0 gr/100 scf. [40 CFR 60.333(b) and District Rules 2201 and 4201] Federally Enforceable Through Title V Permit
16. The sulfur fuel content of each fuel source shall be: (i) documented in a valid purchase contract, a supplier certification, a tariff sheet or transportation contract or (ii) monitored weekly using ASTM Methods D4084, D5504, D6228, or Gas Processors Association Standard 2377, or double GC for H2S and mercaptans. If the sulfur fuel content is less than 1.0 gr/100 scf for eight consecutive weeks, then the monitoring frequency shall be every 6 months. If any six-month monitoring tests result in a sulfur fuel content exceedance, weekly monitoring shall resume. [40 CFR 60.334(h)(3)] Federally Enforceable Through Title V Permit
17. Performance testing shall be conducted annually to measure NOx and CO emissions concentrations using the following test methods: EPA Methods 7E or 20 for NOx emissions, EPA Methods 10 or 10B for CO emissions, EPA Methods 3, 3A, or 20 for Oxygen content of the exhaust gas. The test will be comprised of three test runs performed at the highest physically achievable load of the gas turbine. The measured NOx concentrations shall be averaged over a three hour period, using consecutive 15-minute sampling periods. [40 CFR 60.335(a), (b)(2) and District Rule 4703, 5.1, 6.3.1, 6.3.2, and 6.4] Federally Enforceable Through Title V Permit
18. Any gas turbine with an intermittently operated auxiliary burner shall demonstrate compliance with the auxiliary burner both on and off. Source testing shall not be required with the duct burner on if it has not been in operation during the previous 12 months, i.e. the duct burner need not be started to solely perform source testing. Source testing shall not be required with the duct burner off if it has been in continuous operation during the previous 12 months, i.e. the duct burner need not be shut-down solely to perform source testing. Source testing shall be performed within 60 days of startup or shutdown of the duct burner unless source testing of the duct burner has been performed in the previous 12 months. [40 CFR 60.335(b) and District Rule 4703, 6.3.3] Federally Enforceable Through Title V Permit
19. HHV and LHV of the fuel shall be determined using ASTM D3588, ASTM 1826, or ASTM 1945. [40 CFR 60.335(b) and District Rule 4703, 6.4.5] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

20. The owner or operator shall be required to conform to the sampling facilities and testing procedures described in Rule 1081 (as amended 12/16/93), Sections 3.0 and 6.1. [District Rule 1081] Federally Enforceable Through Title V Permit
21. The District must be notified 30 days prior to any performance testing and a test plan shall be submitted for approval 15 days prior to such testing. [District Rule 1081] Federally Enforceable Through Title V Permit
22. Performance testing shall be witnessed or authorized by District personnel. Test results must be submitted to the District within 60 days of performance testing. [District Rule 1081] Federally Enforceable Through Title V Permit
23. The owner or operator shall operate and maintain in calibration a system which continuously measures and records: control system operating parameters, elapsed time of operation, the fuel consumption and the ratio of water to fuel being fired in the turbine. [40 CFR 60.334(a) and District Rule 4703, 6.2.2] Federally Enforceable Through Title V Permit
24. The owner or operator shall develop and keep on-site a parameter monitoring plan which includes the procedures used to document the proper operation of the NOx emissions controls (water injection). This plan shall include the parameter(s) monitored, such as the water-to-fuel ratio, and the acceptable range(s) of the parameter(s) as well as the basis for designating the parameter(s) and acceptable range(s). Any supplemental data such as engineering analyses, design specifications, manufacturers recommendations and other relevant information shall be included in the monitoring plan. [40 CFR 60.334(g)] Federally Enforceable Through Title V Permit
25. The water to fuel ratio shall not be less than 0.45 on a weight basis. [District Rule 4703, 6.2.5] Federally Enforceable Through Title V Permit
26. The owner or operator shall submit a semi-annual excess NOx emissions and monitor downtime report to the APCO. Excess emissions shall be reported for all periods of operation, including startup, shutdown and malfunction. The report, post marked by the 30th day following the end of every other calendar quarter, shall include the following: Time intervals, average steam or water-to-fuel ratio, turbine load, nature and cause of excess emissions (if known), and corrective actions taken and preventative measures adopted. [40 CFR 60.334(j), (j)(5) and District Rule 2520, 9.3.2)] Federally Enforceable Through Title V Permit
27. Excess emissions shall be defined as any operating hour for which the steam or water to fuel ratio, as measured by the continuous monitoring system, falls below the established steam or water to fuel ratio. Any operating hour in which no steam or water is injected into the turbine shall also be considered as excess emissions. [40 CR 60.334(j)(1)(i)(A)] Federally Enforceable Through Title V Permit
28. Monitor downtime shall be any operating hour in which the water or steam is injected into the turbine, but essential parametric data needed to determine the steam or water to fuel ratio are unavailable or invalid. [40 CFR 60.334(j)(1)(i)(B)] Federally Enforceable Through Title V Permit
29. Fuel consumption and the water-to-fuel ratio shall be monitored continuously with a system that is accurate to within 5 percent. [District Rule 2201] Federally Enforceable Through Title V Permit
30. The cogeneration system shall be equipped with a meter recording the total elapsed operating time. [District NSR Rule] Federally Enforceable Through Title V Permit
31. Permittee shall notify the District of any breakdown condition as soon as reasonably possible, but no later than one hour after its detection, unless the owner or operator demonstrates to the District's satisfaction that the longer reporting period was necessary. [District Rule 1100] Federally Enforceable Through Title V Permit
32. The District shall be notified in writing within ten days following the correction of any breakdown condition. The breakdown notification shall include a description of the equipment malfunction or failure, the date and cause of the initial failure, the estimated emissions in excess of those allowed, and the methods utilized to restore normal operations. [District Rule 1100] Federally Enforceable Through Title V Permit
33. If the water injection system is inoperative when the turbine is running, the operator shall follow procedures pursuant to District Rule 1100 (Equipment Breakdown). [District Rule 1100] Federally Enforceable Through Title V Permit
34. The requirements of 40 CFR 72.6 (b) do not apply to this source because only non-Title IV sources can qualify to use the applicable template. A permit shield is granted from this requirement. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

35. If the turbine is fired on PUC-regulated natural gas, then the operator shall maintain a log describing the source of natural gas and quantity used. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit
36. Records shall be maintained and shall contain: the occurrence and duration of any start-up, shutdown or malfunction, performance testing, evaluations, calibrations, checks, adjustments and emissions measurements. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit
37. The owner or operator shall maintain a record of the cumulative rolling 12 month fuel usage for each turbine. The record shall be updated at the end of each calendar month. [District Rule 2201] Federally Enforceable Through Title V Permit
38. Operator shall maintain a stationary gas turbine operating log that includes, on a daily basis, 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(a),(b) and District Rule 4703, 6.2.4] Federally Enforceable Through Title V Permit
39. 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 Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit
40. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following applicable requirements: 40 CFR 60.332(a)(1), (a)(2), 60.333 (b), (g), (h)(3), (j), (j)(1)(i)(A), (j)(1)(i)(b), and (j)(5); 60.335(a), (b)(2), (b)(3); and District Rule 4703 (as amended 4/25/02), Sections 5.1.2.1, 5.2, 6.2.2, 6.4, and 6.2.6. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
41. Compliance with permit conditions in the Title V permit shall be deemed compliance with District Rule 1081(as amended 12/16/93), Section 3.0, 6.0, 7.1, 7.2, 7.3 and Rule 4201 (as amended 12/17/92). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit



## AUTHORITY TO CONSTRUCT

PERMIT NO: C-311-97-11

ISSUANCE DATE: 12/23/2009

LEGAL OWNER OR OPERATOR: CHEVRON USA INC  
MAILING ADDRESS: PO BOX 1392  
BAKERSFIELD, CA 93302

LOCATION: HEAVY OIL PRODUCTION  
FRESNO COUNTY, CA

SECTION: 25 TOWNSHIP: 20S RANGE: 14E

### EQUIPMENT DESCRIPTION:

MODIFICATION OF 86.4 MMBTU/HR COGENERATION SYSTEM WITH A NOMINAL RATED 40.9 MMBTU/HR SOLAR MODEL CENTAUR 40-4500 TURBINE ENGINE #TG-103, DRIVING A 2.7 MW ELECTRICAL GENERATOR AND INCLUDING A STRUTHERS WASTE HEAT RECOVERY STEAM GENERATOR #SG-203, WITH A 36.4 MMBTU/HR COEN DUCT BURNER: REMOVE DAILY HEAT INPUT RATE (MMBTU/DAY); INSTALL A SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM WITH AMMONIA INJECTION TO COMPLY WITH RULE 4703 TIER 3 EMISSION LIMIT OF 9 PPMVD NOX @ 15% O2; REPLACE STRUTHERS-WELLS HEAT RECOVERY STEAM GENERATOR (HRSG) WITH ANOTHER HRSG (IF NECESSARY); REPLACE THE EXISTING 36.4 MMBTU/HR DUCT BURNER WITH A NEW 36.4 MMBTU/HR (NOMINAL RATING) DUCT BURNER (IF NECESSARY); AND INSTALL A CONTINUOUS EMISSIONS MONITORING SYSTEM (CEMS) TO MEASURE NOX, CO AND O2 CONCENTRATIONS

## CONDITIONS

1. The facility shall submit an application to modify the Title V permit in accordance with the timeframes and procedures of District Rule 2520. [District Rule 2520] Federally Enforceable Through Title V Permit
2. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
3. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201, 3.1] Federally Enforceable Through Title V Permit
4. If the gas turbine system is fired on PUC-regulated or FERC regulated natural gas, then maintain on file copies of natural gas bills. [District Rule 2520]
5. This unit shall be fired exclusively on natural gas as defined in 40 CFR 60.331(u) and the natural gas shall have a total sulfur content less than or equal to 1.0 gr/100 scf. [40 CFR 60.333(b) and District Rules 2201 and 4201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

YOU **MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (559) 230-5950 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT.** This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director / APCO

  
DAVID WARNER, Director of Permit Services  
C-311-97-11 Dec 23 2009 2:19PM - BRARD Joint Inspection Required with BRARD

6. If the gas turbine system is not fired on PUC-regulated or FERC regulated natural gas, the sulfur content of each fuel source shall be tested weekly except that if compliance with the fuel sulfur content limit has been demonstrated for 8 consecutive weeks for a fuel source, then the testing frequency shall be quarterly. If a test shows noncompliance with the sulfur content requirement, the source must return to weekly testing until eight consecutive weeks show compliance. [40 CFR 60.334(h)(3)] Federally Enforceable Through Title V Permit
7. HHV and LHV of the fuel shall be determined by using ASTM D3588, ASTM 1826, or ASTM 1945. [40 CFR 60.335(b), District Rule 4703] Federally Enforceable Through Title V Permit
8. During an initial shakedown period, the emissions shall not exceed any of the following limits: 35 ppmvd NO<sub>x</sub> @ 15% O<sub>2</sub> referenced as NO<sub>2</sub>; 53 ppmvd CO @ 15% O<sub>2</sub> when firing both gas turbine and duct burner simultaneously; 63 ppmvd CO @ 15% O<sub>2</sub> when firing gas turbine only; 0.026 lb-PM<sub>10</sub>/MMBtu; 0.026 lb-VOC/MMBtu referenced as methane; and 0.002 lb-SO<sub>x</sub>/MMBtu referenced as SO<sub>2</sub>. The shakedown period shall not exceed 60 calendar days from the initial startup of the unit under this permit. The shakedown period must be concluded prior to the applicable Rule 4703 compliance deadline selected for this unit. The permittee shall maintain a record of the date of initial operation of this unit, fuel combusted (scf/day) on daily basis, and water-to-fuel ratio or results of NO<sub>x</sub> and CO over 3-hour rolling average period from CEMS (if operational). These records shall be made readily available for District inspection upon request. [District Rule 2201]
9. Upon concluding the initial shakedown period, emissions from the gas turbine system, when startup or shutdown or black start do not occur, shall not exceed any of the following limits: 9 ppmvd NO<sub>x</sub> @ 15% O<sub>2</sub> referenced as NO<sub>2</sub>; 53 ppmvd CO @ 15% O<sub>2</sub> when firing both gas turbine and duct burner simultaneously; 63 ppmvd CO @ 15% O<sub>2</sub> when firing gas turbine only; 0.026 lb-PM<sub>10</sub>/MMBtu; 0.026 lb-VOC/MMBtu referenced as methane; and 0.002 lb-SO<sub>x</sub>/MMBtu referenced as SO<sub>2</sub>. NO<sub>x</sub> and CO emission limits are based on 3-hour rolling average period. If unit is in either startup, shutdown, or black start mode during any portion of a clock hour, the unit will not be subject to the ppmvd limits for NO<sub>x</sub> and CO during that clock hour. [District Rules 2201 and 4703]
10. Upon concluding the initial shakedown period, emissions from the gas turbine system, on days when startup, shutdown, or black start occurs, shall not exceed any of the following limits: 67.4 lb-NO<sub>x</sub>/day referenced as NO<sub>2</sub>; 1199.5 lb-CO/day; 3.7 lb-SO<sub>x</sub>/day; 48.2 lb-PM<sub>10</sub>/day; 99.6 lb-VOC/day referenced as methane; and 52.7 lb-NH<sub>3</sub>/day. [District Rule 2201]
11. Upon concluding the initial shakedown period, the emissions from the gas turbine system shall not exceed any of the following limits: 22,343 lb-NO<sub>x</sub>/year; 84,878 lb-CO/year; 1,354 lb-SO<sub>x</sub>/year; 17,606 lb-PM<sub>10</sub>/year; 17,863 lb-VOC/year; 19,239 lb-NH<sub>3</sub>/year. All annual emission limits are based on 12 consecutive month rolling emissions totals. [District Rule 2201]
12. Ammonia (NH<sub>3</sub>) emissions shall not exceed 21 ppmvd @ 15% O<sub>2</sub> over a 24-hour average period. [District Rule 2201]
13. Each three hour rolling average will be compiled from the three most recent one hour periods. Each one hour period shall commence on the hour. Each one hour period in a twenty-four hour average for ammonia slip will commence on the hour. The twenty-four hour average will be calculated starting and ending at twelve-midnight. [District Rule 2201]
14. Daily emissions shall be compiled for a twenty-four hour period starting and ending at twelve-midnight. Each calendar month in a twelve consecutive month rolling emissions total shall commence at the beginning of the first day of the month. The twelve consecutive month rolling emissions totals used to determine compliance with annual emission limits shall be compiled from the twelve most recent calendar months. [District Rule 2201]
15. The exhaust stack shall be equipped with permanent provisions to allow collection of stack gas samples consistent with EPA test methods and shall be equipped with safe permanent provisions to sample stack gases with a portable NO<sub>x</sub>, CO, and O<sub>2</sub> analyzer during District inspections. The sampling ports shall be located in accordance with the CARB regulation titled California Air Resources Board Air Monitoring Quality Assurance Volume VI, Standard Operating Procedures for Stationary Emission Monitoring and Testing. [District Rule 1081]
16. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081] Federally Enforceable Through Title V Permit
17. Source testing shall be witnessed or authorized by District personnel and samples shall be collected by a California Air Resources Board (CARB) certified testing laboratory or a CARB certified source testing firm. [District Rule 1081] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

18. Source testing to measure start-up mass emission rates of NO<sub>x</sub>, CO, and VOC shall be conducted for one of the gas turbine engines (C-311-88, -93, -95 or -97) within 60-days of initial startup under this permit and at least once every seven years thereafter. CEMS relative accuracy shall be determined during source testing in accordance with the procedure listed in 40 CFR Part 60, Appendix F with any necessary changes approved by the District. [District Rule 1081]
19. Source testing to determine compliance with the NO<sub>x</sub>, CO and NH<sub>3</sub> emission rates (ppmvd @ 15% O<sub>2</sub>) during normal operation shall be conducted within 60 days of initial startup under this permit and annually thereafter. [District Rules 2201 and 4703, CFR 60.335(a)]
20. For the purpose of determining compliance with the emissions limits (ppmvd @ 15% O<sub>2</sub>) during normal operation in this permit, the arithmetic mean of three test runs shall apply, unless two of the three results are above an applicable limit. If two of three runs are above the applicable limit the test cannot be used to demonstrate compliance with an applicable limit. [District Rule 1081]
21. The following test methods shall be used: NO<sub>x</sub> - EPA Method 7E or 20 or CARB Method 100; CO - EPA Method 10 or 10B or CARB Method 100; VOC - EPA Method 18 or 25; PM<sub>10</sub> - EPA Method 5 (front half and back half) or 201 and 202a; ammonia - BAAQMD ST-1B; and O<sub>2</sub> - EPA Method 3, 3A, or 20 or CARB Method 100. EPA approved alternative test methods as approved by the District may also be used to address the source testing requirements of this permit. [District Rules 1081 and 4703, 40 CFR 60.335(a), and 40 CFR 60.335(b)(1)] Federally Enforceable Through Title V Permit
22. Source test to demonstrate compliance with NO<sub>x</sub> and CO emission limits shall be conducted with duct burner "on" and "off" configurations. An annual demonstration of compliance with the duct burner in operation is not required in any year in which the duct burner is not operated at all in the preceding 12 months, in such case, the unit shall be compliance source tested within 60 days of resumption of operation of the duct burner. An annual demonstration of compliance with the duct burner not in operation is not required in any year in which the duct burner operated continuously in conjunction with the turbine in the preceding 12 months, in such case, the unit shall be compliance source tested within 60 days of shutdown of operation of the duct burner. [District Rule 2201 and 4703] Federally Enforceable Through Title V Permit
23. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]
24. The owner or operator shall install, certify, maintain, operate, and quality-assure a continuous emission monitor system (CEMS) which continuously measures and records the exhaust gas NO<sub>x</sub>, CO, and O<sub>2</sub> concentrations. Continuous emissions monitors shall be capable of monitoring emissions during normal operating conditions and during startups and shutdowns, provided that CEMS passes the relative accuracy requirements of 40 CFR Part 60, Appendix B, Performance Specification 2 (PS-2) and District approved protocol for startups. If relative accuracy of CEMS cannot be demonstrated during the startup, CEMS results during startup and shutdown events shall be replaced with startup emission rates obtained from the source test conducted by the facility to determine compliance with emission limits contained in this document. [District Rules 1080, 2201 and 4703, 40 CFR 60.334(b)(1)]
25. The CEMS shall complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each 15-minute quadrant of the hour or shall meet equivalent specifications established by mutual agreement of the District, the CARB and the EPA. [District Rule 1080 and 40 CFR 60.334(b)(2)]
26. The NO<sub>x</sub>, CO and O<sub>2</sub> CEMS shall meet the requirements in 40 CFR 60, Appendix F Procedure I and Part 60, Appendix B Performance Specification 2 (PS 2), District approved protocol for startups, or shall meet equivalent specifications established by mutual agreement of the District, the CARB, and the EPA. [District Rule 1080 and 40 CFR 60.334(b)(1)]
27. In accordance with 40 CFR Part 60, Appendix F, 5.1, the CEMS must be audited at least once each calendar quarter. The District shall be notified prior to completion of the audits. Audit reports shall be submitted along with quarterly compliance reports to the District. [District Rule 1080]

CONDITIONS CONTINUE ON NEXT PAGE

28. The requirements in 40 CFR 60, Appendix F, shall be met through the following EPA and District approved modified procedures: 1) annual RATA testing of at least one gas turbine engine (C-311-88, -93, -95 or -97), and rotate the unit tested so that all four units are tested over four years, 2) annual RAA testing for the three gas turbine engines for which the annual RATA testing is not performed, 3) if any of the gas turbine engines fail the RAA testing, they must have a RATA test within 60 days, and 4) for every quarter that RATA or RAA testing is not performed, a CGA is to be performed for each gas turbine engine. [District Rules 1080 and 4703, 40 CFR 60.334(b)(1)]
29. APCO or an authorized representative shall be allowed to inspect, as determined to be necessary, the required monitoring devices to ensure that such devices are functioning properly. [District Rule 1080]
30. The CEMS data shall be reduced to hourly averages as specified in 40 CFR 60.13(h), or by other methods deemed equivalent by mutual agreement with the District, the CARB, and the EPA. [District Rule 1080 and 40 CFR 60.334(b)(3)]
31. Upon written notice from the District, the owner or operator shall provide a summary of the data obtained from the CEMS. This summary shall be in the form and the manner prescribed by the District. [District Rule 1080]
32. The facility shall install and maintain equipment, facilities, and systems compatible with the District's CEMS data polling software system, or a District approved alternative polling method, and shall make CEMS data available to the District on a daily basis. Upon notice by the District that the facility's CEMS is not providing polling data, the facility may continue to operate without providing automated data for a maximum of 30 days per calendar year provided the CEMS data is sent to the District by a District-approved alternative method. [District Rule 1080]
33. The permittee shall maintain the following records: the date, time and duration of any malfunction of the continuous monitoring equipment; dates of performance testing; dates of evaluations, calibrations, checks, and adjustments of the continuous monitoring equipment; date and time period which a continuous monitoring system or monitoring device was inoperative. [District Rules 1080 and 2201 and 40 CFR 60.8(d)]
34. The owner or operator shall submit a written report of CEM operations for each calendar quarter to the District. The report is due on the 30th day following the end of the calendar quarter and shall include the following: Time intervals, data and magnitude of excess NO<sub>x</sub> emissions, nature and the cause of excess (if known), corrective actions taken and preventive measures adopted; 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; 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; A negative declaration when no excess emissions occurred. [District Rule 1080 and 40 CFR 60.334(j)(5)]
35. Monitor downtime for NO<sub>x</sub> shall be any unit operating hour in which sufficient data are not obtained to validate the hour for either NO<sub>x</sub> concentration or diluent O<sub>2</sub> (or both). [40 CFR 60.334(j)(1)(iii)(B)]
36. If the gas turbine system is not fired on PUC-regulated or FERC regulated natural gas, then a fuel sample shall be collected during the source test to determine sulfur content of the fuel combusted in the turbine. The fuel sample shall be analyzed for the total sulfur content using ASTM D1072; D3031; D3246; D4084; D4468; D6228; or D6667; or double GC for H<sub>2</sub>S and mercaptans. The applicable ranges of some ASTM methods are not adequate to measure the levels of sulfur in some fuel gases. Dilution of samples before analysis (with verification of dilution ratio) may be used after getting a prior approval from the District. [40 CFR 60.335(b)(10)]
37. Should the applicant decide to conduct performance evaluation of CEMS with the initial performance test, a minimum of 9 reference method runs, with a minimum time per run of 21 minutes, at a single load level, between 90 and 100 percent of peak (or the highest physically achievable) load shall be performed. The test data obtained during these runs can be used to demonstrate compliance with the applicable NO<sub>x</sub> emission limit and to provide reference method data for the RATA of the CEMS. The requirement to test at three additional load levels is waived under this option. [40 CFR 60.335(b)(6)]
38. A totalizing mass or volumetric fuel flow computer shall be utilized and maintained to calculate the amount of natural gas combusted based on measured flow meter parameters (fuel pressure and temperature) and gas composition. [District Rules 2201 and 4703]
39. Except during black start, each startup shall not exceed two hours per event. [District Rules 2201 and 4703]
40. Each shutdown shall not exceed two hours per event. [District Rules 2201 and 4703]

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41. The emission control systems shall be in operation and emissions shall be minimized insofar as technologically feasible during startup (black start) and shutdown. [District Rule 4703]
42. Start-up is 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 operation. [District Rule 4703]
43. Shutdown is defined as the period of time during which a unit is taken from an operational to a non-operational status by allowing it to cool down from its operating temperature to ambient temperature as the fuel supply to the unit is completely turned off. [District Rule 4703]
44. Reduced load period is defined as the time during which a gas turbine is operated at less than rated capacity in order to change the position of the exhaust gas diverter gate. Each reduced load period shall not exceed one hour. [District Rule 4703] Federally Enforceable Through Title V Permit
45. A black start event is defined as the startup of a unit while the cogen plant is electrically separated from the utility grid. A black start event shall not exceed 4.0 hours. [District Rules 2201 and 4703]
46. The owner or operator shall submit to the District information correlating the NOx control system operating parameters to the associated measured NOx output. The information must be sufficient to allow the District to determine compliance with the NOx emission limits of this permit when the CEMS is not operating properly. [District Rule 4703]
47. The owner or operator shall maintain a stationary gas turbine system operating log that includes, on a daily basis, the actual local startup and stop time, length and reason for reduced load periods, total hours of operation, the type and quantity of fuel used, duration of each start-up (or black start) and each shutdown time period. [District Rule 4703]
48. The owner or operator shall maintain all records of required monitoring data and support information for a period of five years from the date of data entry and shall make such records available to the District upon request. [District Rules 2201 and 4703] Federally Enforceable Through Title V Permit
49. The requirements of 40 CFR 72.6 (b) do not apply to this source because only non-Title IV sources can qualify to use the applicable template. A permit shield is granted from this requirement. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
50. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following subsumed requirement: 40 CFR 60.332(a), 60.335 (a), (b) and (c) . A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
51. Compliance with the permit conditions in the Title V permit shall be deemed compliance with the following applicable requirements: SJVUAPCD Rule 4703, 6.2.4, 6.3, 6.4.1, 6.4.3 and 6.4.5. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
52. Compliance with permit conditions in the Title V permit shall be deemed compliance with District Rule 4201 (as amended 12/17/92). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

# ATTACHMENT D

Emissions Increases

**Emissions Increases**

Permit #	EI (lb/yr)			
	NOx	SOx	PM <sub>10</sub>	VOC
C-311-88	0	0	0	0
C-311-93	-29,373	318	4,140	4,397
C-311-95	-32,417	257	3,347	3,604
C-311-97	-34,476	216	2,811	3,068

# ATTACHMENT E

Application

# San Joaquin Valley Air Pollution Control District RECEIVED

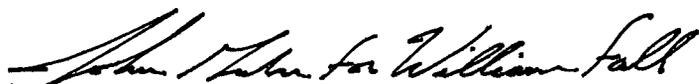
www.valleyair.org

MAR 31 2011

## Permit Application For:

SJVAPCD  
Southern Region

[ ] ADMINISTRATIVE AMENDMENT    [X] MINOR MODIFICATION    [ ] SIGNIFICANT MODIFICATION

1. PERMIT TO BE ISSUED TO: <b>CHEVRON U.S.A INC.</b>		
2. MAILING ADDRESS:		
STREET/P.O. BOX: <b>P.O. BOX 1392</b>		
CITY: <b>Bakersfield</b>	STATE: <b>CA</b>	9-DIGIT ZIP CODE: <b>93302</b>
3. LOCATION WHERE THE EQUIPMENT WILL BE OPERATED:		INSTALLATION DATE:
STREET: <b>Coalinga Oilfield (Facility C-311)</b> CITY: _____		<b>2<sup>nd</sup> - 4<sup>th</sup> Quarter 2011</b>
¼ SECTION <b>25</b> TOWNSHIP <b>20S</b> RANGE <b>14E</b>		
4. GENERAL NATURE OF BUSINESS: <b>Oil and Gas Production</b>		
5. DESCRIPTION OF EQUIPMENT OR MODIFICATION FOR WHICH APPLICATION IS MADE (include Permit #'s if known, and use additional sheets if necessary)		
<p><b>SCR/CEMS Retrofit Authority to Construct (ATC) documents <u>C-311-93-11, C-311-95-11, and C-311-97-11</u> (1<sup>st</sup> page copies attached) issued without Certificate of Conformity. This Title V application has been submitted in accordance with Section 6.2 of District Rule 2520 for the 25D Cogeneration Units.</b></p>		
6. TYPE OR PRINT NAME OF APPLICANT:		TITLE OF APPLICANT:
<b>William Fall</b>		<b>HES Manager</b>
7. SIGNATURE OF APPLICANT:	DATE:	PHONE: <b>(661) 654-7038</b>
	<b>3/31/2011</b>	FAX: <b>(661) 654-7004</b>
		EMAIL: <b>john.gruber@chevron.com</b>

**For APCD Use Only:**

DATE STAMP	FILING FEE RECEIVED: \$ _____ CHECK#: _____  DATE PAID: _____  PROJECT NO: <b>C-1110629</b> FACILITY ID: <b>C-311</b>
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San Joaquin Valley  
Unified Air Pollution Control District

RECEIVED  
MAR 31 2011  
SJVAPCD  
Southern Region

**TITLE V MODIFICATION - COMPLIANCE CERTIFICATION FORM**

**I. TYPE OF PERMIT ACTION (Check appropriate box)**

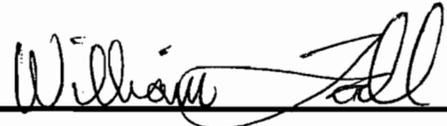
- SIGNIFICANT PERMIT MODIFICATION                       ADMINISTRATIVE  
 MINOR PERMIT MODIFICATION                                       AMENDMENT

COMPANY NAME: <b>CHEVRON U.S.A. INC.</b>	FACILITY ID: <b>C- 311</b>
1. Type of Organization: <input checked="" type="checkbox"/> Corporation <input type="checkbox"/> Sole Ownership <input type="checkbox"/> Government <input type="checkbox"/> Partnership <input type="checkbox"/> Utility	
2. Owner's Name: <b>CHEVRON U.S.A. INC.</b>	
3. Agent to the Owner:	

**II. COMPLIANCE CERTIFICATION (Read each statement carefully and initial all circles for confirmation):**

- Based on information and belief formed after reasonable inquiry, the equipment identified in this application will continue to comply with the applicable federal requirement(s).
- Based on information and belief formed after reasonable inquiry, the equipment identified in this application will comply with applicable federal requirement(s) that will become effective during the permit term, on a timely basis.
- Corrected information will be provided to the District when I become aware that incorrect or incomplete information has been submitted.
- Based on information and belief formed after reasonable inquiry, information and statements in the submitted application package, including all accompanying reports, and required certifications are true accurate and complete.

I declare, under penalty of perjury under the laws of the state of California, that the forgoing is correct and true:

  
\_\_\_\_\_  
Signature of Responsible Official

**March 31, 2011**  
\_\_\_\_\_  
Date

**William Fall**  
\_\_\_\_\_  
Name of Responsible Official (please print)

**SJVBU HES Manager**  
\_\_\_\_\_  
Title of Responsible Official (please print)

# ATTACHMENT F

Previous Title V Operating Permit No.'s  
C-311-88-8, -93-8, -95-8 and -97-8

# San Joaquin Valley Air Pollution Control District

**PERMIT UNIT:** C-311-88-8

**EXPIRATION DATE:** 12/31/2016

**SECTION:** 25 **TOWNSHIP:** 20S **RANGE:** 14E

**EQUIPMENT DESCRIPTION:**

77.3 MMBTU/HR COGENERATION SYSTEM WITH A 40.9 MMBTU/HR SOLAR MODEL CENTAUR 40-4500 TURBINE ENGINE #TG-104, DRIVING A 2.7 MW ELECTRICAL GENERATOR AND INCLUDING A STRUTHERS WASTE HEAT RECOVERY STEAM GENERATOR #SG-204, WITH A 36.4 MMBTU/HR COEN DUCT BURNER.

## PERMIT UNIT REQUIREMENTS

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1. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following subsumed requirements: SJVUAPCD Rule 4703, 6.2.2; Rules 108 (Kings), 108.1 (Fresno, Merced, San Joaquin, Tulare, Kern and Stanislaus), and 110 (Madera); 40 CFR 60.332 (a) and (b); 60.333(a) and (b); 60.334 (a), (b), and (c)(1); 60.335 (a), (b), (c), and (e). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
2. Compliance with the permit conditions in the Title V permit shall be deemed compliance with the following applicable requirements: SJVUAPCD Rule 4703, sections 5.0, 5.1.1, 6.2.1, 6.2.4, 6.3, 6.4.1, 6.4.3, 6.4.5, 6.4.6. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
3. Compliance with permit conditions in the Title V permit shall be deemed in compliance with the following applicable requirements: SJVUAPCD Rule 1081; Rules 406 (Fresno), 407 (Kings, San Joaquin, Stanislaus, Tulare, Merced, and Kern), and 404(Madera); 40 CFR 60.332(c), (d); 60.334 (b), and (c)(2); 60.335(d). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
4. Operator shall be required to conform to the compliance testing procedures described in District Rule 1081. [District Rule 1081; Rule 108.1 (Fresno, Merced, San Joaquin, Tulare, Kern, and Stanislaus), Rule 110 (Madera), and Rule 108 (Kings)] Federally Enforceable Through Title V Permit
5. The water-to-fuel ratio shall not be less than 0.45 on a weight basis. [District NSR Rule] Federally Enforceable Through Title V Permit
6. Natural gas consumption by this turbine system (turbine and associated duct burners combine) shall not exceed 1,812,000 scf/day nor 654 million scf/year. [District NSR Rule] Federally Enforceable Through Title V Permit
7. Natural gas consumption by this turbine shall not exceed 358 million scf/year (equivalent to 358,000 MMBtu/year). [District NSR Rule] Federally Enforceable Through Title V Permit
8. The Owner/Operator shall maintain a separate fuel meter to the turbine and a fuel meter to the duct burners. [District NSR Rule] Federally Enforceable Through Title V Permit
9. The natural gas shall not exceed a nitrogen content of 7.8% by weight. [District NSR Rule] Federally Enforceable Through Title V Permit
10. NOx emissions from turbine system (with or without duct burner firing) shall not exceed 35 ppmv NOx@ 15% O2 or 0.129 lb-NOx/MMBtu at an averaging period of 3 hours. The source test plan shall identify which basis (ppmv or lb/MMBtu) will be used to demonstrate compliance. [District Rule 4701] Federally Enforceable Through Title V Permit

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

11. CO emissions from turbine system with duct burner firing shall not exceed 53 ppmv CO @ 15% O<sub>2</sub> or 0.119 lb CO/MMBtu. The source test plan shall identify which basis (ppmv or lb/MMBtu) will be used to demonstrate compliance. [District Rule 4701] Federally Enforceable Through Title V Permit
12. CO emissions from turbine system without duct burner firing shall not exceed 63 ppmv CO @ 15% O<sub>2</sub> or 0.142 lb CO/MMBtu. The source test plan shall identify which basis (ppmv or lb/MMBtu) will be used to demonstrate compliance. [District Rule 4701] Federally Enforceable Through Title V Permit
13. Emissions from the turbine system (with or without duct burner firing) shall not exceed the following limits: 0.002 lb SO<sub>x</sub>/MMBtu, 0.026 lb PM<sub>10</sub>/MMBtu, or 0.026 lb VOC/MMBtu. [District NSR Rule] Federally Enforceable Through Title V Permit
14. Units shall be fired exclusively on PUC-quality natural gas which has a sulfur content of less than or equal to 0.01% by weight. [40 CFR 60.333(a) & (b);60.332(a); District NSR Rule, Rule 404 (Madera), 406 (Fresno) and 407 (6 remaining counties in the San Joaquin Valley)] Federally Enforceable Through Title V Permit
15. If the turbine is not fired on PUC-regulated natural gas, the sulfur content of each fuel source shall be tested weekly except that if compliance with the fuel sulfur content limit has been demonstrated for 8 consecutive weeks for a fuel source, then the testing frequency shall be quarterly. If a test shows noncompliance with the sulfur content requirement, the source must return to weekly testing until eight consecutive weeks show compliance. [40 CFR 60.334(b)(2)] Federally Enforceable Through Title V Permit
16. 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 3031, D 4084 or D 3246. or grab sample analysis by GC-FPD/TCD performed in the laboratory or double GC for H<sub>2</sub>S and mercaptans. [40 CFR 60.335(d)] Federally Enforceable Through Title V Permit
17. Source testing for NO<sub>x</sub> and CO shall be conducted within 60 days of initial start-up and annually thereafter. [District Rules 1081 and 2201]
18. The operator shall provide source test information annually regarding the exhaust gas NO<sub>x</sub> concentration corrected to 15% O<sub>2</sub> (dry). [40 CFR 60.332(a), (b) and District Rule 4703, 5.1] Federally Enforceable Through Title V Permit
19. Any gas turbine with an intermittently operated auxiliary burner shall demonstrate compliance with the auxiliary burner on and off. [40 CFR 60.335(b) and District Rule 4703, 6.3.2] Federally Enforceable Through Title V Permit
20. The operator shall provide source test information annually regarding the exhaust gas CO concentration corrected to 15% O<sub>2</sub> (dry). [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit
21. HHV and LHV of the fuel shall be determined using ASTM D3588, ASTM 1826, or ASTM 1945. [40 CFR 60.335(b) and District Rule 4703, 6.4.5] Federally Enforceable Through Title V Permit
22. Nitrogen oxides (NO<sub>x</sub>) concentrations shall be determined using EPA Method 7E, 20, or CARB Method 100, and oxygen (O<sub>2</sub>) concentrations shall be determined using EPA Method 3, 3A, 20, or CARB Method 100. [40 CFR 60.335(b) and District Rule 4703, 6.4] Federally Enforceable Through Title V Permit
23. Carbon monoxide emissions for compliance tests shall be determined by using EPA Test Methods 10, 10B, or CARB Method 100. [District Rule 4703, 6.4.2 and District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit
24. Permittee shall install, operate and maintain in calibration a predictive emissions monitoring system which continuously measures and records the water-to-fuel ratio and which correlates the water-to-fuel ratio with the NO<sub>x</sub> concentration in the exhaust by using the method described in 40 CFR 60.335(c). [40 CFR 60.334] Federally Enforceable Through Title V Permit
25. Permittee shall install, operate and maintain in calibration a system which continuously measures and records elapsed time of turbine operation. [40 CFR 60.334 and District Rule 4703, 6.2.1] Federally Enforceable Through Title V Permit
26. Operator shall submit a semiannual report listing any quarterly period during which the sulfur content of the fuel being fired in the gas turbine exceeds 0.8% by weight. [40 CFR 60.334(c)(2)] Federally Enforceable Through Title V Permit

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

27. Permittee shall submit an excess emissions and monitoring systems performance report (excess emissions are defined in applicable subparts) and/or a summary report form to the APCO semiannually, except when more frequent reporting is specifically required by an applicable subpart. All reports shall be postmarked by the 30th day of each calendar half (or quarter, as appropriate). [40 CFR 60.7(c)] Federally Enforceable Through Title V Permit
28. Any one-hour period during which the average water-to-fuel ratio, as measured by the continuous monitoring system, falls below the water-to-fuel ratio determined to demonstrate compliance shall be reported to the APCO. Each report shall include the average water-to-fuel ratio, average fuel consumption, ambient conditions, turbine gas load and nitrogen content of the fuel during the period of excess emissions. [40 CFR 60.334(c)] Federally Enforceable Through Title V Permit
29. Fuel consumption and the water-to-fuel ratio shall be monitored continuously with a system that is accurate to within 5 percent. [District NSR Rule] Federally Enforceable Through Title V Permit
30. The turbine system shall be equipped with a meter recording the total elapsed operating time. [District NSR Rule] Federally Enforceable Through Title V Permit
31. If the water injection system is inoperative when the turbine is running, the operator shall follow procedures pursuant to District Rule 1100 (Equipment Breakdown). [District Rule 1100] Federally Enforceable Through Title V Permit
32. Malfunctions in the monitoring equipment shall be reported to the District. [District Rule 1100, 7.0] Federally Enforceable Through Title V Permit
33. The requirements of 40 CFR 72.6 (b) do not apply to this source because only non-Title IV sources can qualify to use the applicable template. A permit shield is granted from this requirement. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
34. The 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 Rule 2520, 9.5.2] Federally Enforceable Through Title V Permit
35. If the turbine is fired on PUC-regulated natural gas, then the operator shall maintain a log describing the source of natural gas and quantity used. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit
36. Records shall be maintained and shall contain: the occurrence and duration of any start-up, shutdown or malfunction, performance testing, evaluations, calibrations, checks, adjustments and emissions measurements. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit
37. Operator shall maintain a stationary gas turbine operating log that includes, on a daily basis, 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(a),(b) and District Rule 4703, 6.2.4] Federally Enforceable Through Title V Permit

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

# San Joaquin Valley Air Pollution Control District

**PERMIT UNIT:** C-311-93-8

**EXPIRATION DATE:** 12/31/2016

**SECTION:** 25 **TOWNSHIP:** 20S **RANGE:** 14E

**EQUIPMENT DESCRIPTION:**

86.4 MMBTU/HR COGENERATION SYSTEM WITH A NOMINAL RATED 40.9 MMBTU/HR SOLAR MODEL CENTAUR 40-4500 TURBINE ENGINE #TG-101, DRIVING A 2.7 MW ELECTRICAL GENERATOR AND INCLUDING A STRUTHERS WASTE HEAT RECOVERY STEAM GENERATOR #SG-201, WITH A 36.4 MMBTU/HR COEN DUCT BURNER

## PERMIT UNIT REQUIREMENTS

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1. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201, 3.1] Federally Enforceable Through Title V Permit
2. The Owner/Operator shall maintain a separate fuel meter to the turbine and a fuel meter to the duct burners. [District Rule 2201] Federally Enforceable Through Title V Permit
3. Natural gas consumption by the cogeneration system (turbine and duct burner) shall not exceed 1,812,000 scf/day. Natural gas consumption by the cogeneration system shall not exceed 654 million scf/year. [District Rule 2201]
4. Emissions from the cogeneration system shall not exceed any of the following limits: 233.7 lb-NOx/day, 3.6 lb-SOx/day, 47.1 lb-PM10/day, 257.3 lb-CO/day, or 47.1 lb-VOC/day. [District Rule 2201] Federally Enforceable Through Title V Permit
5. The owner or operator shall not operate the gas turbine under load conditions, excluding the thermal stabilization period or reduced load period, which results in the measured NOx emissions concentration exceeding 35 ppmv @ 15% O2. [40 CFR 60.332(a)(1), (a)(2) and District Rules 2201 and 4703, 5.1.2.1] Federally Enforceable Through Title V Permit
6. CO emissions from the cogeneration system with the duct burner firing shall not exceed 53 ppmv CO @ 15% O2 or 0.119 lb-CO/MMBtu, excluding thermal stabilization periods or reduced load periods. [District Rule 4703, 5.2] Federally Enforceable Through Title V Permit
7. CO emissions from the cogeneration system without duct burner firing shall not exceed 63 ppmv CO @ 15% O2 or 0.142 lb CO/MMBtu, excluding thermal stabilization periods or reduced load periods. [District Rule 4703, 5.2] Federally Enforceable Through Title V Permit
8. Emissions from the cogeneration system (with or without duct burner firing) shall not exceed any of the following limits: 0.002 lb-SOx/MMBtu, 0.026 lb-PM10/MMBtu, or 0.026 lb-VOC/MMBtu. [District Rule 2201] Federally Enforceable Through Title V Permit
9. Reduced Load Period shall be defined as the time during which the gas turbine is operated at less than rated capacity in order to change the position of the exhaust gas diverter gate, not exceeding one hour. [District Rule 4703, 3.19] Federally Enforceable Through Title V Permit
10. Thermal Stabilization Period shall be defined as the startup or shutdown, as defined in 40 CFR 60.2, time during which the exhaust gas is not within the normal operating temperature range, not to exceed two hours per startup or shutdown event. [District Rule 4703, 3.25] Federally Enforceable Through Title V Permit

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

11. This unit shall be fired exclusively on natural gas as defined in 40 CFR 60.331(u) and the natural gas shall have a total sulfur content less than or equal to 1.0 gr/100 scf. [40 CFR 60.333(b) and District Rules 2201 and 4201] Federally Enforceable Through Title V Permit
12. The sulfur fuel content of each fuel source shall be: (i) documented in a valid purchase contract, a supplier certification, a tariff sheet or transportation contract or (ii) monitored weekly using ASTM Methods D4084, D5504, D6228, or Gas Processors Association Standard 2377, or double GC for H<sub>2</sub>S and mercaptans. If the sulfur fuel content is less than 1.0 gr/100 scf for eight consecutive weeks, then the monitoring frequency shall be every 6 months. If any six-month monitoring tests result in a sulfur fuel content exceedance, weekly monitoring shall resume. [40 CFR 60.334(h)(3)] Federally Enforceable Through Title V Permit
13. Performance testing shall be conducted annually to measure NO<sub>x</sub> and CO emissions concentrations using the following test methods: EPA Methods 7E, 20, or CARB Method 100 for NO<sub>x</sub> emissions, EPA Methods 10, 10B, or CARB Method 100 for CO emissions, EPA Methods 3, 3A, or 20 for Oxygen content of the exhaust gas. The test will be comprised of three test runs performed at the highest physically achievable load of the gas turbine. The measured NO<sub>x</sub> concentrations shall be averaged over a three hour period, using consecutive 15-minute sampling periods. [40 CFR 60.335(a), (b)(2) and District Rule 4703, 5.1, 6.3.1, 6.3.2, and 6.4] Federally Enforceable Through Title V Permit
14. Any gas turbine with an intermittently operated auxiliary burner shall demonstrate compliance with the auxiliary burner both on and off. Source testing shall not be required with the duct burner on if it has not been in operation during the previous 12 months, i.e. the duct burner need not be started to solely perform source testing. Source testing shall not be required with the duct burner off if it has been in continuous operation during the previous 12 months, i.e. the duct burner need not be shut-down solely to perform source testing. Source testing shall be performed within 60 days of startup or shutdown of the duct burner unless source testing of the duct burner has been performed in the previous 12 months. [40 CFR 60.335(b) and District Rule 4703, 6.3.3] Federally Enforceable Through Title V Permit
15. HHV and LHV of the fuel shall be determined using ASTM D3588, ASTM 1826, or ASTM 1945. [40 CFR 60.335(b) and District Rule 4703, 6.4.5] Federally Enforceable Through Title V Permit
16. The owner or operator shall be required to conform to the sampling facilities and testing procedures described in Rule 1081 (as amended 12/16/93), Sections 3.0 and 6.1. [District Rule 1081] Federally Enforceable Through Title V Permit
17. The District must be notified 30 days prior to any performance testing and a test plan shall be submitted for approval 15 days prior to such testing. [District Rule 1081] Federally Enforceable Through Title V Permit
18. Performance testing shall be witnessed or authorized by District personnel. Test results must be submitted to the District within 60 days of performance testing. [District Rule 1081] Federally Enforceable Through Title V Permit
19. The owner or operator shall operate and maintain in calibration a system which continuously measures and records: control system operating parameters, elapsed time of operation, the fuel consumption and the ratio of water to fuel being fired in the turbine. [40 CFR 60.334(a) and District Rule 4703, 6.2.2] Federally Enforceable Through Title V Permit
20. The owner or operator shall develop and keep on-site a parameter monitoring plan which includes the procedures used to document the proper operation of the NO<sub>x</sub> emissions controls (water injection). This plan shall include the parameter(s) monitored, such as the water-to-fuel ratio, and the acceptable range(s) of the parameter(s) as well as the basis for designating the parameter(s) and acceptable range(s). Any supplemental data such as engineering analyses, design specifications, manufacturers recommendations and other relevant information shall be included in the monitoring plan. [40 CFR 60.334(g)] Federally Enforceable Through Title V Permit
21. The water to fuel ratio shall not be less than 0.45 on a weight basis. [District Rule 4703, 6.2.5] Federally Enforceable Through Title V Permit
22. The owner or operator shall submit a semi-annual excess NO<sub>x</sub> emissions and monitor downtime report to the APCO. Excess emissions shall be reported for all periods of operation, including startup, shutdown and malfunction. The report, post marked by the 30th day following the end of every other calendar quarter, shall include the following: Time intervals, average steam or water-to-fuel ratio, turbine load, nature and cause of excess emissions (if known), and corrective actions taken and preventative measures adopted. [40 CFR 60.334(j), (j)(5) and District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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

23. Excess emissions shall be defined as any operating hour for which the steam or water to fuel ratio, as measured by the continuous monitoring system, falls below the established steam or water to fuel ratio. Any operating hour in which no steam or water is injected into the turbine shall also be considered as excess emissions. [40 CR 60.334(j)(1)(i)(A)] Federally Enforceable Through Title V Permit
24. Monitor downtime shall be any operating hour in which the water or steam is injected into the turbine, but essential parametric data needed to determine the steam or water to fuel ratio are unavailable or invalid. [40 CFR 60.334(j)(1)(i)(B)] Federally Enforceable Through Title V Permit
25. Fuel consumption and the water-to-fuel ratio shall be monitored continuously with a system that is accurate to within 5 percent. [District Rule 2201] Federally Enforceable Through Title V Permit
26. The cogeneration system shall be equipped with a meter recording the total elapsed operating time. [District NSR Rule] Federally Enforceable Through Title V Permit
27. If the water injection system is inoperative when the turbine is running, the operator shall follow procedures pursuant to District Rule 1100 (Equipment Breakdown). [District Rule 1100] Federally Enforceable Through Title V Permit
28. The requirements of 40 CFR 72.6 (b) do not apply to this source because only non-Title IV sources can qualify to use the applicable template. A permit shield is granted from this requirement. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
29. If the turbine is fired on PUC-regulated natural gas, then the operator shall maintain a log describing the source of natural gas and quantity used. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit
30. Records shall be maintained and shall contain: the occurrence and duration of any start-up, shutdown or malfunction, performance testing, evaluations, calibrations, checks, adjustments and emissions measurements. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit
31. The owner or operator shall maintain a record of the cumulative rolling 12 month fuel usage for each turbine. The record shall be updated at the end of each calendar month. [District Rule 2201] Federally Enforceable Through Title V Permit
32. Operator shall maintain a stationary gas turbine operating log that includes, on a daily basis, 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(a),(b) and District Rule 4703, 6.2.4] Federally Enforceable Through Title V Permit
33. 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 Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit
34. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following applicable requirements: 40 CFR 60.332(a)(1), (a)(2), 60.333 (b), (g), (h)(3), (j), (j)(1)(i)(A), (j)(1)(i)(b), and (j)(5); 60.335(a), (b)(2), (b)(3); and District Rule 4703 (as amended 4/25/02), Sections 5.1.2.1, 5.2, 6.2.2, 6.4, and 6.2.6. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
35. Compliance with permit conditions in the Title V permit shall be deemed compliance with District Rule 1081(as amended 12/16/93), Section 3.0, 6.0, 7.1, 7.2, 7.3 and Rule 4201 (as amended 12/17/92). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

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

# San Joaquin Valley Air Pollution Control District

**PERMIT UNIT:** C-311-95-8

**EXPIRATION DATE:** 12/31/2016

**SECTION:** 25 **TOWNSHIP:** 20S **RANGE:** 14

## **EQUIPMENT DESCRIPTION:**

86.4 MMBTU/HR COGENERATION SYSTEM WITH A NOMINAL RATED 40.9 MMBTU/HR SOLAR MODEL CENTAUR 40-4500 TURBINE ENGINE #TG-102, DRIVING A 2.7 MW ELECTRICAL GENERATOR AND INCLUDING A STRUTHERS WASTE HEAT RECOVERY STEAM GENERATOR #SG-202, WITH A 36.4 MMBTU/HR COEN DUCT BURNER

## **PERMIT UNIT REQUIREMENTS**

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1. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201, 3.1] Federally Enforceable Through Title V Permit
2. The Owner/Operator shall maintain a separate fuel meter to the turbine and a fuel meter to the duct burners. [District Rule 2201] Federally Enforceable Through Title V Permit
3. Natural gas consumption by the cogeneration system (turbine and duct burner) shall not exceed 1,812,000 scf/day. Natural gas consumption by the cogeneration system shall not exceed 654 million scf/year. [District Rule 2201]
4. Emissions from the cogeneration system shall not exceed any of the following limits: 233.7 lb-NOx/day, 3.6 lb-SOx/day, 47.1 lb-PM10/day, 257.3 lb-CO/day, or 47.1 lb-VOC/day. [District Rule 2201] Federally Enforceable Through Title V Permit
5. The owner or operator shall not operate the gas turbine under load conditions, excluding the thermal stabilization period or reduced load period, which results in the measured NOx emissions concentration exceeding 35 ppmv @ 15% O2. [40 CFR 60.332(a)(1), (a)(2) and District Rules 2201 and 4703, 5.1.2.1] Federally Enforceable Through Title V Permit
6. CO emissions from the cogeneration system with the duct burner firing shall not exceed 53 ppmv CO @ 15% O2 or 0.119 lb-CO/MMBtu, excluding thermal stabilization periods or reduced load periods. [District Rule 4703, 5.2] Federally Enforceable Through Title V Permit
7. CO emissions from the cogeneration system without duct burner firing shall not exceed 63 ppmv CO @ 15% O2 or 0.142 lb CO/MMBtu, excluding thermal stabilization periods or reduced load periods. [District Rule 4703, 5.2] Federally Enforceable Through Title V Permit
8. Emissions from the cogeneration system (with or without duct burner firing) shall not exceed any of the following limits: 0.002 lb-SOx/MMBtu, 0.026 lb-PM10/MMBtu, or 0.026 lb-VOC/MMBtu. [District Rule 2201] Federally Enforceable Through Title V Permit
9. Reduced Load Period shall be defined as the time during which the gas turbine is operated at less than rated capacity in order to change the position of the exhaust gas diverter gate, not exceeding one hour. [District Rule 4703, 3.19] Federally Enforceable Through Title V Permit
10. Thermal Stabilization Period shall be defined as the startup or shutdown, as defined in 40 CFR 60.2, time during which the exhaust gas is not within the normal operating temperature range, not to exceed two hours per startup or shutdown event. [District Rule 4703, 3.25] Federally Enforceable Through Title V Permit

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

11. This unit shall be fired exclusively on natural gas as defined in 40 CFR 60.331(u) and the natural gas shall have a total sulfur content less than or equal to 1.0 gr/100 scf. [40 CFR 60.333(b) and District Rules 2201 and 4201] Federally Enforceable Through Title V Permit
12. The sulfur fuel content of each fuel source shall be: (i) documented in a valid purchase contract, a supplier certification, a tariff sheet or transportation contract or (ii) monitored weekly using ASTM Methods D4084, D5504, D6228, or Gas Processors Association Standard 2377, or double GC for H<sub>2</sub>S and mercaptans. If the sulfur fuel content is less than 1.0 gr/100 scf for eight consecutive weeks, then the monitoring frequency shall be every 6 months. If any six-month monitoring tests result in a sulfur fuel content exceedance, weekly monitoring shall resume. [40 CFR 60.334(h)(3)] Federally Enforceable Through Title V Permit
13. Performance testing shall be conducted annually to measure NO<sub>x</sub> and CO emissions concentrations using the following test methods: EPA Methods 7E, 20, or CARB Method 100 for NO<sub>x</sub> emissions, EPA Methods 10, 10B, or CARB Method 100 for CO emissions, EPA Methods 3, 3A, or 20 for Oxygen content of the exhaust gas. The test will be comprised of three test runs performed at the highest physically achievable load of the gas turbine. The measured NO<sub>x</sub> concentrations shall be averaged over a three hour period, using consecutive 15-minute sampling periods. [40 CFR 60.335(a), (b)(2) and District Rule 4703, 5.1, 6.3.1, 6.3.2, and 6.4] Federally Enforceable Through Title V Permit
14. Any gas turbine with an intermittently operated auxiliary burner shall demonstrate compliance with the auxiliary burner both on and off. Source testing shall not be required with the duct burner on if it has not been in operation during the previous 12 months, i.e. the duct burner need not be started to solely perform source testing. Source testing shall not be required with the duct burner off if it has been in continuous operation during the previous 12 months, i.e. the duct burner need not be shut-down solely to perform source testing. Source testing shall be performed within 60 days of startup or shutdown of the duct burner unless source testing of the duct burner has been performed in the previous 12 months. [40 CFR 60.335(b) and District Rule 4703, 6.3.3] Federally Enforceable Through Title V Permit
15. HHV and LHV of the fuel shall be determined using ASTM D3588, ASTM 1826, or ASTM 1945. [40 CFR 60.335(b) and District Rule 4703, 6.4.5] Federally Enforceable Through Title V Permit
16. The owner or operator shall be required to conform to the sampling facilities and testing procedures described in Rule 1081 (as amended 12/16/93), Sections 3.0 and 6.1. [District Rule 1081] Federally Enforceable Through Title V Permit
17. The District must be notified 30 days prior to any performance testing and a test plan shall be submitted for approval 15 days prior to such testing. [District Rule 1081] Federally Enforceable Through Title V Permit
18. Performance testing shall be witnessed or authorized by District personnel. Test results must be submitted to the District within 60 days of completion of testing. [District Rule 1081] Federally Enforceable Through Title V Permit
19. The owner or operator shall operate and maintain in calibration a system which continuously measures and records: control system operating parameters, elapsed time of operation, the fuel consumption and the ratio of water to fuel being fired in the turbine. [40 CFR 60.334(a) and District Rule 4703, 6.2.2] Federally Enforceable Through Title V Permit
20. The owner or operator shall develop and keep on-site a parameter monitoring plan which includes the procedures used to document the proper operation of the NO<sub>x</sub> emissions controls (water injection). This plan shall include the parameter(s) monitored, such as the water-to-fuel ratio, and the acceptable range(s) of the parameter(s) as well as the basis for designating the parameter(s) and acceptable range(s). Any supplemental data such as engineering analyses, design specifications, manufacturers recommendations and other relevant information shall be included in the monitoring plan. [40 CFR 60.334(g)] Federally Enforceable Through Title V Permit
21. The water to fuel ratio shall not be less than 0.45 on a weight basis. [District Rule 4703, 6.2.5] Federally Enforceable Through Title V Permit
22. The owner or operator shall submit a semi-annual excess NO<sub>x</sub> emissions and monitor downtime report to the APCO. Excess emissions shall be reported for all periods of operation, including startup, shutdown and malfunction. The report, post marked by the 30th day following the end of every other calendar quarter, shall include the following: Time intervals, average steam or water-to-fuel ratio, turbine load, nature and cause of excess emissions (if known), and corrective actions taken and preventative measures adopted. [40 CFR 60.334(j), (j)(5) and District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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

23. Excess emissions shall be defined as any operating hour for which the steam or water to fuel ratio, as measured by the continuous monitoring system, falls below the established steam or water to fuel ratio. Any operating hour in which no steam or water is injected into the turbine shall also be considered as excess emissions. [40 CR 60.334(j)(1)(i)(A)] Federally Enforceable Through Title V Permit
24. Monitor downtime shall be any operating hour in which the water or steam is injected into the turbine, but essential parametric data needed to determine the steam or water to fuel ratio are unavailable or invalid. [40 CFR 60.334(j)(1)(i)(B)] Federally Enforceable Through Title V Permit
25. Fuel consumption and the water-to-fuel ratio shall be monitored continuously with a system that is accurate to within 5 percent. [District Rule 2201] Federally Enforceable Through Title V Permit
26. The cogeneration system shall be equipped with a meter recording the total elapsed operating time. [District NSR Rule] Federally Enforceable Through Title V Permit
27. The requirements of 40 CFR 72.6 (b) do not apply to this source because only non-Title IV sources can qualify to use the applicable template. A permit shield is granted from this requirement. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
28. If the turbine is fired on PUC-regulated natural gas, then the operator shall maintain a log describing the source of natural gas and quantity used. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit
29. Records shall be maintained and shall contain: the occurrence and duration of any start-up, shutdown or malfunction, performance testing, evaluations, calibrations, checks, adjustments and emissions measurements. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit
30. The owner or operator shall maintain a record of the cumulative rolling 12 month fuel usage for each turbine. The record shall be updated at the end of each calendar month. [District Rule 2201] Federally Enforceable Through Title V Permit
31. Operator shall maintain a stationary gas turbine operating log that includes, on a daily basis, 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(a),(b) and District Rule 4703, 6.2.4] Federally Enforceable Through Title V Permit
32. 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 Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit
33. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following applicable requirements: 40 CFR 60.332(a)(1), (a)(2), 60.333 (b), (g), (h)(3), (j), (j)(1)(i)(A), (j)(1)(i)(b), and (j)(5); 60.335(a), (b)(2), (b)(3); and District Rule 4703 (as amended 4/25/02), Sections 5.1.2.1, 5.2, 6.2.2, 6.4, and 6.2.6. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
34. Compliance with permit conditions in the Title V permit shall be deemed compliance with District Rule 1081(as amended 12/16/93), Section 3.0, 6.0, 7.1, 7.2, 7.3 and Rule 4201 (as amended 12/17/92). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

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

# San Joaquin Valley Air Pollution Control District

**PERMIT UNIT:** C-311-97-8

**EXPIRATION DATE:** 12/31/2016

**SECTION:** 25 **TOWNSHIP:** 20S **RANGE:** 14E

**EQUIPMENT DESCRIPTION:**

86.4 MMBTU/HR COGENERATION SYSTEM WITH A NOMINAL RATED 40.9 MMBTU/HR SOLAR MODEL CENTAUR 40-4500 TURBINE ENGINE #TG-103, DRIVING A 2.7 MW ELECTRICAL GENERATOR AND INCLUDING A STRUTHERS WASTE HEAT RECOVERY STEAM GENERATOR #SG-203, WITH A 36.4 MMBTU/HR COEN DUCT BURNER

## PERMIT UNIT REQUIREMENTS

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1. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201, 3.1] Federally Enforceable Through Title V Permit
2. The Owner/Operator shall maintain a separate fuel meter to the turbine and a fuel meter to the duct burners. [District Rule 2201] Federally Enforceable Through Title V Permit
3. Natural gas consumption by the cogeneration system (turbine and duct burner) shall not exceed 1,812,000 scf/day. Natural gas consumption by the cogeneration system shall not exceed 654 million scf/year. [District Rule 2201]
4. Emissions from the cogeneration system shall not exceed any of the following limits: 233.7 lb-NOx/day, 3.6 lb-SOx/day, 47.1 lb-PM10/day, 257.3 lb-CO/day, or 47.1 lb-VOC/day. [District Rule 2201] Federally Enforceable Through Title V Permit
5. The owner or operator shall not operate the gas turbine under load conditions, excluding the thermal stabilization period or reduced load period, which results in the measured NOx emissions concentration exceeding 35 ppmv @ 15% O2. [40 CFR 60.332(a)(1), (a)(2) and District Rules 2201 and 4703, 5.1.2.1] Federally Enforceable Through Title V Permit
6. CO emissions from the cogeneration system with the duct burner firing shall not exceed 53 ppmv CO @ 15% O2 or 0.119 lb-CO/MMBtu, excluding thermal stabilization periods or reduced load periods. [District Rule 4703, 5.2] Federally Enforceable Through Title V Permit
7. CO emissions from the cogeneration system without duct burner firing shall not exceed 63 ppmv CO @ 15% O2 or 0.142 lb CO/MMBtu, excluding thermal stabilization periods or reduced load periods. [District Rule 4703, 5.2] Federally Enforceable Through Title V Permit
8. Emissions from the cogeneration system (with or without duct burner firing) shall not exceed any of the following limits: 0.002 lb-SOx/MMBtu, 0.026 lb-PM10/MMBtu, or 0.026 lb-VOC/MMBtu. [District Rule 2201] Federally Enforceable Through Title V Permit
9. Reduced Load Period shall be defined as the time during which the gas turbine is operated at less than rated capacity in order to change the position of the exhaust gas diverter gate, not exceeding one hour. [District Rule 4703, 3.19] Federally Enforceable Through Title V Permit
10. Thermal Stabilization Period shall be defined as the startup or shutdown, as defined in 40 CFR 60.2, time during which the exhaust gas is not within the normal operating temperature range, not to exceed two hours per startup or shutdown event. [District Rule 4703, 3.25] Federally Enforceable Through Title V Permit

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

11. This unit shall be fired exclusively on natural gas as defined in 40 CFR 60.331(u) and the natural gas shall have a total sulfur content less than or equal to 1.0 gr/100 scf. [40 CFR 60.333(b) and District Rules 2201 and 4201] Federally Enforceable Through Title V Permit
12. The sulfur fuel content of each fuel source shall be: (i) documented in a valid purchase contract, a supplier certification, a tariff sheet or transportation contract or (ii) monitored weekly using ASTM Methods D4084, D5504, D6228, or Gas Processors Association Standard 2377, or double GC for H<sub>2</sub>S and mercaptans. If the sulfur fuel content is less than 1.0 gr/100 scf for eight consecutive weeks, then the monitoring frequency shall be every 6 months. If any six-month monitoring tests result in a sulfur fuel content exceedance, weekly monitoring shall resume. [40 CFR 60.334(h)(3)] Federally Enforceable Through Title V Permit
13. Performance testing shall be conducted annually to measure NO<sub>x</sub> and CO emissions concentrations using the following test methods: EPA Methods 7E, 20, or CARB Method 100 for NO<sub>x</sub> emissions, EPA Methods 10, 10B, or CARB Method 100 for CO emissions, EPA Methods 3, 3A, or 20 for Oxygen content of the exhaust gas. The test will be comprised of three test runs performed at the highest physically achievable load of the gas turbine. The measured NO<sub>x</sub> concentrations shall be averaged over a three hour period, using consecutive 15-minute sampling periods. [40 CFR 60.335(a), (b)(2) and District Rule 4703, 5.1, 6.3.1, 6.3.2, and 6.4] Federally Enforceable Through Title V Permit
14. Any gas turbine with an intermittently operated auxiliary burner shall demonstrate compliance with the auxiliary burner both on and off. Source testing shall not be required with the duct burner on if it has not been in operation during the previous 12 months, i.e. the duct burner need not be started to solely perform source testing. Source testing shall not be required with the duct burner off if it has been in continuous operation during the previous 12 months, i.e. the duct burner need not be shut-down solely to perform source testing. Source testing shall be performed within 60 days of startup or shutdown of the duct burner unless source testing of the duct burner has been performed in the previous 12 months. [40 CFR 60.335(b) and District Rule 4703, 6.3.3] Federally Enforceable Through Title V Permit
15. HHV and LHV of the fuel shall be determined using ASTM D3588, ASTM 1826, or ASTM 1945. [40 CFR 60.335(b) and District Rule 4703, 6.4.5] Federally Enforceable Through Title V Permit
16. The owner or operator shall be required to conform to the sampling facilities and testing procedures described in Rule 1081 (as amended 12/16/93), Sections 3.0 and 6.1. [District Rule 1081] Federally Enforceable Through Title V Permit
17. The District must be notified 30 days prior to any performance testing and a test plan shall be submitted for approval 15 days prior to such testing. [District Rule 1081] Federally Enforceable Through Title V Permit
18. Performance testing shall be witnessed or authorized by District personnel. Test results must be submitted to the District within 60 days of performance testing. [District Rule 1081] Federally Enforceable Through Title V Permit
19. The owner or operator shall operate and maintain in calibration a system which continuously measures and records: control system operating parameters, elapsed time of operation, the fuel consumption and the ratio of water to fuel being fired in the turbine. [40 CFR 60.334(a) and District Rule 4703, 6.2.2] Federally Enforceable Through Title V Permit
20. The owner or operator shall develop and keep on-site a parameter monitoring plan which includes the procedures used to document the proper operation of the NO<sub>x</sub> emissions controls (water injection). This plan shall include the parameter(s) monitored, such as the water-to-fuel ratio, and the acceptable range(s) of the parameter(s) as well as the basis for designating the parameter(s) and acceptable range(s). Any supplemental data such as engineering analyses, design specifications, manufacturers recommendations and other relevant information shall be included in the monitoring plan. [40 CFR 60.334(g)] Federally Enforceable Through Title V Permit
21. The water to fuel ratio shall not be less than 0.45 on a weight basis. [District Rule 4703, 6.2.5] Federally Enforceable Through Title V Permit
22. The owner or operator shall submit a semi-annual excess NO<sub>x</sub> emissions and monitor downtime report to the APCO. Excess emissions shall be reported for all periods of operation, including startup, shutdown and malfunction. The report, post marked by the 30th day following the end of every other calendar quarter, shall include the following: Time intervals, average steam or water-to-fuel ratio, turbine load, nature and cause of excess emissions (if known), and corrective actions taken and preventative measures adopted. [40 CFR 60.334(j), (j)(5) and District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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

23. Excess emissions shall be defined as any operating hour for which the steam or water to fuel ratio, as measured by the continuous monitoring system, falls below the established steam or water to fuel ratio. Any operating hour in which no steam or water is injected into the turbine shall also be considered as excess emissions. [40 CR 60.334(j)(1)(i)(A)] Federally Enforceable Through Title V Permit
24. Monitor downtime shall be any operating hour in which the water or steam is injected into the turbine, but essential parametric data needed to determine the steam or water to fuel ratio are unavailable or invalid. [40 CFR 60.334(j)(1)(i)(B)] Federally Enforceable Through Title V Permit
25. Fuel consumption and the water-to-fuel ratio shall be monitored continuously with a system that is accurate to within 5 percent. [District Rule 2201] Federally Enforceable Through Title V Permit
26. The cogeneration system shall be equipped with a meter recording the total elapsed operating time. [District NSR Rule] Federally Enforceable Through Title V Permit
27. If the water injection system is inoperative when the turbine is running, the operator shall follow procedures pursuant to District Rule 1100 (Equipment Breakdown). [District Rule 1100] Federally Enforceable Through Title V Permit
28. The requirements of 40 CFR 72.6 (b) do not apply to this source because only non-Title IV sources can qualify to use the applicable template. A permit shield is granted from this requirement. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
29. If the turbine is fired on PUC-regulated natural gas, then the operator shall maintain a log describing the source of natural gas and quantity used. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit
30. Records shall be maintained and shall contain: the occurrence and duration of any start-up, shutdown or malfunction, performance testing, evaluations, calibrations, checks, adjustments and emissions measurements. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit
31. The owner or operator shall maintain a record of the cumulative rolling 12 month fuel usage for each turbine. The record shall be updated at the end of each calendar month. [District Rule 2201] Federally Enforceable Through Title V Permit
32. Operator shall maintain a stationary gas turbine operating log that includes, on a daily basis, 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(a),(b) and District Rule 4703, 6.2.4] Federally Enforceable Through Title V Permit
33. 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 Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit
34. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following applicable requirements: 40 CFR 60.332(a)(1), (a)(2), 60.333 (b), (g), (h)(3), (j), (j)(1)(i)(A), (j)(1)(i)(b), and (j)(5); 60.335(a), (b)(2), (b)(3); and District Rule 4703 (as amended 4/25/02), Sections 5.1.2.1, 5.2, 6.2.2, 6.4, and 6.2.6. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
35. Compliance with permit conditions in the Title V permit shall be deemed compliance with District Rule 1081(as amended 12/16/93), Section 3.0, 6.0, 7.1, 7.2, 7.3 and Rule 4201 (as amended 12/17/92). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

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