San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

AUTHORITY TO CONSTRUCT

PERMIT NO: S-7831-1-0 **ISSUANCE DATE:** 12/22/2010

LEGAL OWNER OR OPERATOR: AGPOWER VISALIA, LLC
MAILING ADDRESS: 6920 SALASHIAN PARKWAY A-102
FERNDALE, WA 98248

LOCATION: 5061 AVE 280 (W CALDWELL AVE)
VISALIA, CA 93277

EQUIPMENT DESCRIPTION:
GHD PLUG FLOW MESOPHILIC ANAEROBIC DIGESTER SYSTEM CONSISTING OF A PRE-DIGESTER SETTLING BASIN, AN IN-GROUND CONCRETE VESSEL (73' X 290 ' X 16'), ONE MECHANICAL SEPARATOR, AND ONE 9.0 MMBTU/HR ANDGAR-8" DIGESTER GAS-FIRED ENCLOSED BACKUP FLARE SERVED BY AN AIR INJECTION H2S REMOVAL SYSTEM (OR EQUIVALENT H2S REMOVAL SYSTEM)

CONDITIONS

1. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rule 2201]
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]
4. The plug flow anaerobic digester system shall be configured and operated in accordance with National Resource Conservation Service (NRCS) California Field Office Technical Guide Code 366: Anaerobic Digester - Controlled Temperature and shall have an average retention time of at least twenty (20) days. [District Rule 2201]
5. The permittee shall maintain records of the design specifications and calculations, including Minimum Treatment Volume (MTV), Hydraulic Retention Time (HRT), and volatile solids loading rate, of the anaerobic digester system in order to demonstrate that each digester has been designed and is operating in accordance with the applicable National Resource Conservation Service (NRCS) technical guide. [District Rules 1070 and 2201]
6. Only digester gas shall be combusted in the flare. [District Rule 2201]
7. No air contaminant shall be discharged into the atmosphere from the flare for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1/4 or 5% opacity. [District Rules 2201 and 4101]

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (661) 392-5500 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director / APCO

DAVID WARNER, Director of Permit Services

S7831-1-0 : Dec 22 2010 11:45AM – NORMANR : Joint Inspection NOT Required

8. The amount of digester combusted in the flare shall neither exceed 0.36 MMscf in any one day nor 13.14 MMscf in any consecutive 365-day period. [District Rule 2201]
9. The flare shall be equipped with an operational, non-resettable, totalizing mass or volumetric fuel flow meter or other District-approved alternative method to measure the amount of gas combusted in the flare. [District Rule 2201]
10. Permittee shall maintain daily and annual records of amount of the quantity of digester gas combusted in the flare in MMscf. [District Rule 1070 and 2201]
11. Emissions from the flare shall not exceed any of the following limits: 0.06 lb-NOx/MMBtu, 0.008 lb-PM10/MMBtu, 0.37 lb-CO/MMBtu, or 0.0051 lb-VOC/MMBtu. [District Rules 2201 and 4311]
12. A flame shall be present at all times whenever combustible gases are vented through the flare. [District Rule 4311]
13. The flare outlet shall be equipped with an automatic ignition system, or shall operate with a pilot flame present at all times when combustible gases are vented through the flare, except during purge periods for automatic-ignition equipped flares. [District Rule 4311]
14. Unless the flare is equipped with a flow (pressure) sensing ignition system, the flare shall be equipped and operated with a heat sensing device such as a thermocouple, ultraviolet beam sensor, infrared sensor, or an equivalent device, capable of continuously detecting at least one pilot flame. [District Rule 4311]
15. Flares that use flow (pressure) sensing automatic ignition systems and which do not use a continuous flame pilot shall use purge gas for purging. [District Rule 4311]
16. Source testing to measure NOx and VOC emissions from the digester-fired flare shall be conducted within 120 days of initial start-up and at least once every twelve (12) months, thereafter. [District Rules 2201 and 4311]
17. For source test purposes, NOx emissions from the flare shall be determined using EPA Method 19 on a heat input basis, or EPA Method 3A, EPA Method 7E, or ARB Method 100 on a ppmv basis. [District Rule 4311]
18. For source test purposes, VOC emissions from the flare shall be determined using EPA Method 25 or 25a. [District Rule 4311]
19. Stack gas oxygen (O2) shall be determined using EPA Method 3A, EPA Method 7E, or ARB Method 100. [District Rule 4311]
20. 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 30 days prior to testing. [District Rules 1081 and 4311]
21. The results of each source test shall be submitted to the District within 45 days of completion of the source test. [District Rules 1081 and 4311]
22. The applicant has requested to install an experimental sulfur removal system that will require a commissioning period prior to achieving steady state operation and optimal removal of sulfur from the digester gas. The owner/operator shall minimize the sulfur content of the gas to the maximum extent possible during commissioning of the sulfur removal system. Conditions #23 through #29 shall apply only during the commissioning period as defined below. Unless otherwise indicated, all other conditions limiting the sulfur content of the digester gas shall apply after the commissioning period has ended. [District Rule 2201]
23. Commissioning period for the sulfur removal system shall commence when the digester begins to produce a continuous flow of gas at a rate of least 1.0 cfm. The commissioning period shall terminate when the sulfur removal system has completed initial performance testing and reached steady operation with a digester gas sulfur concentration not exceeding 200 ppmv as H2S. The duration of the commissioning period shall not exceed 60 days. At the earliest feasible opportunity, the air injection rate of sulfur removal system shall be adjusted to minimize the sulfur content of the digester gas. [District Rule 2201]
24. During commissioning of the sulfur removal system, the sulfur content of the digester gas combusted in this unit shall not exceed 4,000 ppmv during the first 30 days of commissioning, shall not exceed 2,500 ppmv during the next 15 days of commissioning, and shall not exceed 1,000 ppmv during any remaining days of the commissioning period. [District Rules 2201 and 4801]

CONDITIONS CONTINUE ON NEXT PAGE

25. No more than one of permit units S-7831-1, -2, and -3 (digester gas-fired flare and IC engines) shall operate at any one time until the measured sulfur content of the digester gas is 1,000 ppmv or less for at least three consecutive days. [District Rule 2201]

26. During commissioning of the sulfur removal system, SOx (as SO2) from this unit shall not exceed 140.7 lbs in any day. SOx emissions shall be calculated based on the average measured sulfur content of the gas (ppmv) and the total amount of gas (scf) combusted in the unit using the following equation: [average measured sulfur concentration (ppmv)] x [total gas combusted (scf)] x 1.688 x 10E-7. [District Rule 2201]

27. During commissioning of the sulfur removal system, the permittee shall measure and record the sulfur content of the digester gas at least once per day using the methods approved in this permit. [District Rule 2201]

28. The permittee shall record the total number of days of commissioning of the sulfur removal system, the operating schedule and total amount of time this unit operates during commissioning of the sulfur removal system, and the total amount of gas combusted in permit units S-7831-1, -2, and -3 (digester gas-fired flare and IC engines) each day of the commissioning period. [District Rule 2201]

29. Coincident with the end of the commissioning period for the sulfur removal system, the sulfur content of the digester gas shall comply with the limits specified in conditions #30 and #31 below. [District Rule 2201]

30. The sulfur content of the digester gas combusted in this flare shall not exceed 50 ppmv as H2S except as provided below. [District Rules 2201 and 4801]

31. The applicant has requested to install an experimental sulfur removal system. A six-month test period will be allowed for the experimental sulfur removal system after startup. The six-month test period shall begin with commencement of the commissioning period for the sulfur removal system and any time required for commissioning of the sulfur removal system shall be counted in the six-month test period. During the test period a digester gas sulfur content greater than 50 ppmv but not exceeding 200 ppmv will not constitute a violation of the permit provided that the sulfur removal system is operated to minimize the sulfur content to the maximum extent feasible. [District Rule 2201]

32. If the sulfur content of the digester gas continues to exceed 50 ppmv as H2S by the end of the six-month test period for the experimental sulfur removal system, the permittee shall submit details to the District of an additional polishing scrubber or an alternative sulfur removal system to meet the required 50 ppmv limit within 30 days of the end of the test period. If the District determines that an ATC application is required for the equipment, the applicant shall submit an ATC application within 15 days of the District's determination and the applicant shall request expedited processing of the required ATC permit and shall pay any required fees for expedited processing. The equipment to meet the sulfur content limit shall be installed within 90 days of approval by the District or issuance of the ATC; if the permit units controlled by the sulfur removal system/scrubber are not operating the District may approve an extension of this period. [District Rule 2201]

33. The sulfur content of the digester gas combusted in this flare shall be monitored and recorded monthly. After eight (8) consecutive monthly tests show compliance, the digester gas sulfur content monitoring frequency may be reduced to once every calendar quarter. If quarterly monitoring shows a violation of the digester gas sulfur content limit of this permit, then monthly monitoring shall resume and continue until eight consecutive months of monitoring show compliance with the gas sulfur content limit. Once compliance with the gas sulfur content limit is shown for eight consecutive months, then the monitoring frequency may return to quarterly. Monitoring of the sulfur content of the digester gas shall not be required if the flare does not operate during that period. Records of the results of monitoring of the digester gas sulfur content shall be maintained. [District Rule 2201]

34. Monitoring of the digester gas sulfur content shall be performed using a Testo 350 XL portable emission monitor; District-approved in-line H2S monitors; gas detection tubes calibrated for H2S; District-approved source test methods, including EPA Method 11 or EPA Method 15, ASTM Method D1072, D4084, and D5504; or an alternative method approved by the District. Prior to utilization of in-line monitors to demonstrate compliance with the digester gas sulfur content limit of this permit, the permittee shall submit details of the proposed monitoring system, including the make, model, and detection limits, to the District and obtain District approval for the proposed monitor(s). [District Rule 2201]

35. Prior to installation of the flare, the operator shall submit a flare minimization plan in accordance with District Rule 4311. [District Rule 4311]

CONDITIONS CONTINUE ON NEXT PAGE

36. The flare minimization plan shall include all information required by District Rule 4311, including but not limited to: 1) A description and technical specifications for each flare; 2) Detailed process flow diagrams of all upstream equipment and process units venting to each flare; 3) A description of equipment, processes, or procedures the operator plans to install or implement to eliminate or minimize flaring and planned date of installation or implementation; 4) An evaluation of prevention measures to reduce flaring that has occurred or may be expected to occur during planned major maintenance activities, including startup and shutdown; 5) An evaluation of preventative measures to reduce flaring that may be expected to occur due to issues of gas quantity and quality; 6) An evaluation of preventative measures to reduce flaring caused by the recurrent failure of equipment or a normal operating process; and 7) Any other information requested by the APCO as necessary for determination of compliance with applicable provisions of Rule 4311. [District Rule 4311]

37. The operator shall submit an updated flare minimization plan for each flare to the APCO for approval every five years after the initial submittal and prior to installing any equipment that would require an ATC and would impact the emissions from the flare. [District Rule 4311]

38. Flaring is prohibited unless it is consistent with an approved flare minimization plan, pursuant to Section 6.5 of District Rule 4311. This standard shall not apply if the APCO determines that such flaring is caused by an emergency and is necessary to prevent an accident, hazard, or release of gas directly to the atmosphere. [District Rule 4311]

39. The operator of a flare subject to a flare minimization plan shall notify the APCO of an unplanned flaring event within 24 hours after the start of the next business day or within 24 hours of their discovery, which ever occurs first. The notification shall include the flare source identification, the start date and time, and the end date and time. [District Rule 4311]

40. Copies of approved flare minimization plan shall be made readily available to the APCO, ARB, and EPA upon request for a minimum of 5 years. [District Rule 4311]

41. All records shall be maintained and retained on-site for a period of at least 5 years and shall be made available for District inspection upon request. [District Rules 1070 and 4311]

42. The permittee shall obtain written District approval for the use of any equivalent equipment not specifically approved by this Authority to Construct. Approval of the equivalent equipment shall be made only after the District's determination that the submitted design and performance of the proposed alternate equipment is equivalent to the specifically authorized equipment. [District Rule 2201]

43. The permittee's request for approval of equivalent equipment shall include, as applicable, the make, model, manufacturer's maximum rating, manufacturer's guaranteed emission rates, equipment diagram(s)/drawing(s), and operational characteristics/parameters. [District Rule 2010]

44. Alternate equipment shall be of the same class and category of source as the equipment authorized by the Authority to Construct. [District Rule 2201]

45. No emission factor and no emissions shall be greater for the alternate equipment than for the proposed equipment. No changes in the hours of operation, operating rate, throughput, or firing rate may be authorized for any alternate equipment. [District Rule 2201]

46. The equipment and operations of facility S-5834 and S-7831 are considered the same stationary source for the purposes of determining applicability and requirements of Rule 2201, New and Modified Stationary Source Review. [District Rule 2201]

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AIR POLLUTION CONTROL DISTRICT

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AUTHORITY TO CONSTRUCT

PERMIT NO: S-7831-2-0 **ISSUANCE DATE:** 12/22/2010

LEGAL OWNER OR OPERATOR: AGPOWER VISALIA, LLC
MAILING ADDRESS: 6920 SALASHIAN PARKWAY A-102
FERNDALE, WA 98248

LOCATION: 5061 AVE 280 (W CALDWELL AVE)
VISALIA, CA 93277

EQUIPMENT DESCRIPTION:
675 BHP GUASCOR MODEL SFGLD 360 DIGESTER GAS-FIRED LEAN BURN IC ENGINE WITH A FLORIDA SYNGAS PLASMA ARC REFORMER FOR HYDROGEN/SYNGAS INJECTION SERVED BY AN AIR INJECTION H2S REMOVAL SYSTEM AND AN IRON SPONGE H2S SCRUBBER (OR EQUIVALENT H2S REMOVAL SYSTEM) POWERING AN ELECTRICAL GENERATOR

CONDITIONS

1. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
3. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]
4. The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
5. This engine shall be operated and maintained in proper operating condition per the manufacturer's requirements as specified on the Inspection and Monitoring (I&M) plan submitted to the District. [District Rule 4702]
6. This engine shall be operated within the ranges that the source testing has shown result in pollution concentrations within the emissions limits as specified on this permit. [District Rule 4702]
7. This engine/generation system shall be fired only on digester gas. [District Rules 2201]

CONDITIONS CONTINUE ON NEXT PAGE

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Seyed Sadredin, Executive Director / APCO

DAVID WARNER, Director of Permit Services
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8. The applicant has requested to install an experimental sulfur removal system that will require a commissioning period prior to achieving steady state operation and optimal removal of sulfur from the digester gas. The owner/operator shall minimize the sulfur content of the gas to the maximum extent possible during commissioning of the sulfur removal system. Conditions #9 through #15 shall apply only during the commissioning period as defined below. Unless otherwise indicated, all other conditions limiting the sulfur content of the digester gas shall apply after the commissioning period has ended. [District Rule 2201]

9. Commissioning period for the sulfur removal system shall commence when the digester begins to produce a continuous flow of gas at a rate of least 1.0 cfm. The commissioning period shall terminate when the sulfur removal system has completed initial performance testing and reached steady operation with a digester gas sulfur concentration not exceeding 200 ppmv as H2S. The duration of the commissioning period shall not exceed 60 days. At the earliest feasible opportunity, the air injection rate of sulfur removal system shall be adjusted to minimize the sulfur content of the digester gas. [District Rule 2201]

10. During commissioning of the sulfur removal system, the sulfur content of the digester gas combusted in this unit shall not exceed 4,000 ppmv during the first 30 days of commissioning, shall not exceed 2,500 ppmv during the next 15 days of commissioning, and shall not exceed 1,000 ppmv during any remaining days of the commissioning period. [District Rules 2201 and 4801]

11. No more than one of permit units S-7831-1, -2, and -3 (digester gas-fired flare and IC engines) shall operate at any one time until the measured sulfur content of the digester gas is 1,000 ppmv or less for at least three consecutive days. [District Rule 2201]

12. The sulfur content of the digester gas stream(s) that enter the hydrogen/syngas reformer(s) shall not exceed 200 ppmv. The digester gas stream(s) that enter the hydrogen/syngas reformer(s) shall continue to be scrubbed separately until the sulfur removal system reduces the measured sulfur content of the digester gas to 200 ppmv or less for at least three consecutive days. [District Rule 2201]

13. During commissioning of the sulfur removal system, the permittee shall measure and record the sulfur content of the primary digester gas stream and the separate scrubbed digester gas stream(s) for use in the hydrogen/syngas reformer(s) at least once per day using the methods approved in this permit. [District Rule 2201]

14. The permittee shall record the total number of days of commissioning of the sulfur removal system, the operating schedule and total amount of time this unit operates during commissioning of the sulfur removal system, and the total amount of gas combusted in permit units S-7831-1, -2, and -3 (digester gas-fired flare and IC engines) each day of the commissioning period. [District Rule 2201]

15. Coincident with the end of the commissioning period for the sulfur removal system, the sulfur content of the digester gas shall comply with the limits specified in conditions #16 and #17 below. [District Rule 2201]

16. The sulfur content of the digester gas used as fuel in this engine shall not exceed 50 ppmv as H2S except as provided below. [District Rules 2201 and 4801]

17. The applicant has requested to install an experimental sulfur removal system. A six-month test period will be allowed for the experimental sulfur removal system after startup. The six-month test period shall begin with commencement of the commissioning period for the sulfur removal system and any time required for commissioning of the sulfur removal system shall be counted in the six-month test period. During the test period a digester gas sulfur content greater than 50 ppmv but not exceeding 200 ppmv will not constitute a violation of the permit provided that the sulfur removal system is operated to minimize the sulfur content to the maximum extent feasible. [District Rule 2201]

18. If the sulfur content of the digester gas continues to exceed 50 ppmv as H2S by the end of the six-month test period for the experimental sulfur removal system, the permittee shall submit details to the District of an additional polishing scrubber or an alternative sulfur removal system to meet the required 50 ppmv limit within 30 days of the end of the test period. If the District determines that an ATC application is required for the equipment, the applicant shall submit an ATC application within 15 days of the District's determination and the applicant shall request expedited processing of the required ATC permit and shall pay any required fees for expedited processing. The equipment to meet the sulfur content limit shall be installed within 90 days of approval by the District or issuance of the ATC; if the permit units controlled by the sulfur removal system/scrubber are not operating the District may approve an extension of this period. [District Rule 2201]

19. This engine shall be equipped with an operational non-resettable elapsed time meter. [District Rules 2201 and 4702]

CONDITIONS CONTINUE ON NEXT PAGE

20. This engine shall be equipped with either a positive crankcase ventilation (PCV) system that recirculates crankcase emissions into the air intake system for combustion, or a crankcase emissions control device of at least 90% control efficiency. [District Rule 2201]

21. This engine shall be operated in a lean-burn configuration maintaining an exhaust stream oxygen (O2) concentration of 8% per volume or greater prior to any exhaust stream control device. The District may approve a lower exhaust oxygen concentration if compliance with the BACT requirement for NOx is demonstrated at the lower level. [District Rule 2201]

22. Emissions from this IC engine shall not exceed any of the following limits (except as provided in conditions 23-26 below): 0.15 g-NOx/bhp-hr (NOx referenced as NO2), 2.20 g-CO/bhp-hr, 0.20 g-VOC/bhp-hr (VOC referenced as methane), 0.07 g-PM10/bhp-hr. [District Rules 2201 and 4702]

23. NOx emissions (as NO2) from the engine in excess of 0.15 g/bhp-hr but not exceeding 0.60 g/bhp-hr shall not constitute a violation of this permit provided that NOx emissions are limited to the lowest achievable emission rate to satisfy BACT. BACT for NOx from this engine shall consist of all other emission limitations and operational and design conditions contained in this permit. The final BACT level for NOx shall be determined to the satisfaction of the Air Pollution Control Officer in accordance with District Rule 2201 and the District's BACT policy, after at least 12 months of operating history and an official compliance source test. [District Rule 2201]

24. If within the first 12 months of operation the applicant decides that continued operation of the hydrogen injection system has proven infeasible, the applicant may provide a written report explaining why continued operation of the hydrogen injection system has proven infeasible and submit a written request to discontinue the BACT determination. If the District agrees that continued operation of the hydrogen injection system has proven infeasible, the BACT determination period may be terminated prior to completing the first 12 months of operation. [District Rule 2201]

25. If NOx emissions from the engine continue to exceed 0.15 g/bhp-hr after the BACT determination period, the permittee shall have 60 days to submit a report containing all monitoring and source test information to the District. The report shall also include an explanation of the steps taken to operate and maintain the engine in such a manner as to minimize NOx emissions and a detailed analysis of all factors that prohibit compliance with the NOx emissions limit. In the report, the permittee may also propose a final BACT emission limit for NOx for inclusion in this permit. The monitoring data and source test information gathered in accordance with this permit may be shared with other technical experts so their input can be considered when determining the final BACT limit for NOx that can be consistently achieved. [District Rule 2201]

26. The District shall establish the final BACT limit for NOx, including any applicable averaging periods, and revise the applicable limit contained in the permit within 60 days of the successful completion of the BACT determination period or receipt of the report from the permittee. Within 30 days of receipt of the District's determination, the permittee shall submit an Authority to Construct application to incorporate the revised emissions limit(s). In no case shall the final BACT NOx emission limitation be higher than 0.60 g-NOx/bhp-hr. The engine shall be allowed to continue to operate after the BACT evaluation period has ended and before the new Authority to Construct permit has been issued provided that NOx (as NO2) emissions from the engine do not exceed either of the following limits: 1) 0.60 g-NOx/bhp-hr and 2) 65 ppmv NOx @ 15% O2. [District Rules 2201 and 4702]

27. If the engine demonstrates reasonably reliable compliance with the 0.15 g/bhp-hr NOx emissions limit during the BACT evaluation period, this limit shall be deemed BACT for the installation. [District Rule 2201]

28. The hydrogen/syngas reformer shall be designed to deliver sufficient hydrogen (H2) to comprise at least 11% of the total engine fuel by volume and shall be operated to deliver sufficient hydrogen to allow stable operation of the engine in a lean burn configuration with at least 8% O2 in the exhaust. [District Rule 2201]

29. The hydrogen/syngas reformer shall be designed to be tolerant of the concentration of the concentration of sulfur and other contaminants in the digester gas that is reformed and shall be maintained and replaced in accordance with the recommendations of the manufacturer or emission control supplier. Records of maintenance and replacement of the reformer shall be maintained. [District Rule 2201]

CONDITIONS CONTINUE ON NEXT PAGE

30. The composition of the fuel gas (i.e. CH4, CO2, H2, CO) that enters the engine after a portion has been reformed into hydrogen shall be sampled and analyzed during times in which NOx emissions are being source tested. The composition of the fuel gas that enters the engine after a portion has been reformed into hydrogen shall be either monitored or sampled and analyzed during times in which NOx emissions are monitored with a portable analyze. Records of the results of the analysis and monitoring of the fuel gas shall be maintained. [District Rule 2201 and 4702]

31. The HHV and LHV of the fuel gas samples taken in conjunction with source tests shall be determined using ASTM D3588, ASTM 1826, ASTM 1945, or an alternative method approved by the District. [District Rule 2201]

32. Air-to-fuel ratio controller(s) shall be maintained and operated appropriately in order to ensure proper operation of the engine and control device to minimize emissions at all times. [District Rule 2201 and 40 CFR 60, Subpart JJJJ]

33. During the 12-month BACT determination period, if requested by the District, source testing to measure NOx and CO emissions from this unit for monitoring purposes shall be conducted using methods and procedures approved by the District. [District Rules 1081, 2201, and 4702]

34. Official source testing to demonstrate compliance with NOx, CO, and VOC emissions limits from this unit shall be conducted within 365 days of initial start-up using the methods specified in this permit. [District Rules 1081, 2201, and 4702 and 40 CFR 60, Subpart JJJJ]

35. Source testing to measure NOx, CO, and VOC emissions from this unit shall be conducted at least once every 8,760 hours of operation or 24 months, whichever comes first. [District Rules 1081, 2201, and 4702 and 40 CFR 60, Subpart JJJJ]

36. Emissions source testing shall be conducted with the engine operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. [District Rule 4702]

37. For official emissions source testing, the arithmetic average of three 60-consecutive-minute test runs shall apply. Each test run shall be conducted within 10 percent of 100 percent peak (or the highest achievable) load. If two of three runs are above an applicable limit, the test cannot be used to demonstrate compliance with an applicable limit. VOC emissions shall be reported as both methane and as propane. VOC, NOx, and CO concentrations shall be reported in ppmv, corrected to 15% oxygen. [District Rule 4702 and 40 CFR 60, Subpart JJJJ]

38. The following methods shall be used for official source testing: NOx (ppmv) - EPA Method 7E, CO (ppmv) - EPA Method 10, VOC (ppmv) - EPA Method 25A or 25B, stack gas oxygen - EPA Method 3 or 3A, stack gas velocity - EPA Method 2 or EPA Method 19, stack gas moisture content - EPA Method 4. Alternative test methods as approved by EPA and the District may also be used to address the source testing requirements of this permit. [District Rules 1081 and 4702 and 40 CFR 60, Subpart JJJJ]

39. 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]

40. The results of each source test shall be submitted to the District and EPA within 60 days after completion of the source test. [District Rule 1081 and 40 CFR 60, Subpart JJJJ]

41. To determine if the measured emissions concentration complies with the g/bhp emissions limits specified in the this permit, the fuel flow rate to the engine and engine load or generator power output shall be monitored and recorded during source testing. If the generator power output is used, the manufacturer's guaranteed efficiency of the generator or 95%, whichever is higher, shall be used to calculate the load of the engine. The emission rate (mass/time) shall be determined by multiplying the measured emissions concentration and stack flow rate determined during source testing. The g/bhp-hr emission factors for NOx, CO, and VOC as propane shall be determined in accordance with the equations given in 40 CFR § 60.4244. The g/bhp-hr emission factors for VOC as methane shall be determined using the following equation: ER = (Cd x 6.667E-4 x Q x T)/(HP-hr); Where: ER = Emission rate of VOC as methane in g/HP-hr, Cd= VOC concentration as methane in ppmv, and other terms are the same as the equations given in 40 CFR § 60.4244. The District may approve other procedures to determine the engine load and pollutant g/bhp-hr emission factors. [District Rule 2201 and 40 CFR 60, Subpart JJJJ]

CONDITIONS CONTINUE ON NEXT PAGE

42. The sulfur content of the digester gas used to fuel the engine shall be monitored and recorded monthly. After eight (8) consecutive monthly tests show compliance, the fuel sulfur content monitoring frequency may be reduced to once every calendar quarter. If quarterly monitoring shows a violation of the fuel sulfur content limit of this permit, then monthly monitoring shall resume and continue until eight consecutive months of monitoring show compliance with the fuel sulfur content limit. Once compliance with the fuel sulfur content limit is shown for eight consecutive months, then the monitoring frequency may return to quarterly. Monitoring of the sulfur content of the digester gas fuel shall not be required if the engine does not operate during that period. Records of the results of monitoring of the digester gas fuel sulfur content shall be maintained. [District Rule 2201]

43. Monitoring of the digester gas sulfur content shall be performed using a Testo 350 XL portable emission monitor; District-approved in-line H2S monitors; gas detection tubes calibrated for H2S; District-approved source test methods, including EPA Method 11 or EPA Method 15, ASTM Method D1072, D4084, and D5504; or an alternative method approved by the District. Prior to utilization of in-line monitors to demonstrate compliance with the digester gas sulfur content limit of this permit, the permittee shall submit details of the proposed monitoring system, including the make, model, and detection limits, to the District and obtain District approval for the proposed monitor(s). [District Rule 2201]

44. 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 NOx, CO, and O2 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]

45. The permittee shall monitor and record the stack concentration of NOx, CO, and O2 at least once every month (in which a source test is not performed) using a portable emission monitor that meets District specifications. [In-stack emission monitors may be allowed if they satisfy the standards required for portable analyzers as specified in District policies and are approved in writing by the APCO.] Monitoring shall not be required if the engine is not in operation, i.e. the engine need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the engine unless monitoring has been performed within the last month. Records must be maintained of the dates of non-operation to validate extended monitoring frequencies. [District Rules 2201 and 4702]

46. If either the NOx or CO concentrations corrected to 15% O2, as measured by the portable analyzer, exceed the allowable emission concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 8 hours after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 8 hours, the permittee shall notify the District within the following 1 hour, and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of performing the notification and testing required by this condition. During the BACT determination period for NOx, NOx emissions neither exceeding 0.60 g-NOx/bhp-hr nor 65 ppmv @ 15% O2 are not subject to the requirements contained in this condition to source test or stipulate that an emissions violation has occurred. [District Rules 2201 and 4702]

47. All alternate monitoring parameter emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the permit-to-operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rule 4702]

48. The permittee shall maintain records of: (1) the date and time of NOx, CO, and O2 measurements, (2) the O2 concentration in percent and the measured NOx and CO concentrations corrected to 15% O2, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, and (5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 2201 and 4702]

CONDITIONS CONTINUE ON NEXT PAGE

49. The permittee shall maintain an engine operating log to demonstrate compliance. The engine operating log shall include, on a monthly basis, the following information: the total hours of operation, type and quantity of fuel used, results of fuel composition monitoring and analysis, maintenance and modifications performed, monitoring data, compliance source test results, and any other information necessary to demonstrate compliance. Quantity of fuel used shall be recorded in standard cubic feet or standard cubic meters using a non-resettable, totalizing mass or volumetric fuel flow meter or other APCO approved-device. [District Rule 4702 and 40 CFR 60, Subpart JJJJ]

50. The permittee shall update the I&M plan for this engine prior to any planned change in operation. The permittee must notify the District no later than seven days after changing the I&M plan and must submit an updated I&M plan to the APCO for approval no later than 14 days after the change. The date and time of the change to the I&M plan shall be recorded in the engine's operating log. For modifications, the revised I&M plan shall be submitted to and approved by the APCO prior to issuance of the Permit to Operate. The permittee may request a change to the I&M plan at any time. [District Rule 4702]

51. Records of any analyzer(s) installed or utilized to monitor methane, hydrogen, oxygen, or hydrogen sulfide of the fuel gas shall be maintained and shall be made available for District inspection upon request. [District Rule 2201]

52. During the BACT determination period, when requested by the District, the permittee shall perform and submit a fuel analysis of the fuel gas combusted in the engine using ASTM methods 1945 and D3588 or other method(s) approved by the District. [District Rules 1081 and 2201]

53. All records shall be maintained and retained for a minimum of five (5) years, and shall be made available for District inspection upon request. All records may be maintained and submitted in an electronic format approved by the District. [District Rules 2201 and 4702]

54. The permittee shall obtain written District approval for the use of any equivalent equipment not specifically approved by this Authority to Construct. Approval of the equivalent equipment shall be made only after the District's determination that the submitted design and performance of the proposed alternate equipment is equivalent to the specifically authorized equipment. [District Rule 2201]

55. The permittee's request for approval of equivalent equipment shall include, as applicable, the make, model, manufacturer's maximum rating, manufacturer's guaranteed emission rates, equipment diagram(s)/drawing(s), and operational characteristics/parameters. [District Rule 2010]

56. Alternate equipment shall be of the same class and category of source as the equipment authorized by the Authority to Construct. [District Rule 2201]

57. No emission factor and no emissions shall be greater for the alternate equipment than for the proposed equipment. No changes in the hours of operation, operating rate, throughput, or firing rate may be authorized for any alternate equipment. [District Rule 2201]

58. The equipment and operations of facility S-5834 and S-7831 are considered the same stationary source for the purposes of determining applicability and requirements of Rule 2201, New and Modified Stationary Source Review. [District Rule 2201]

59. Notification of the date construction of this engine commenced shall be submitted to the District and EPA and shall be postmarked no later than 30 days after such date as construction commenced. The notification shall contain the following information: 1) Name and address of the owner or operator; 2) The address of the affected source; 3) Engine information including make, model, engine family, serial number, model year, maximum engine power, and engine displacement; 4) Emission control equipment; and 5) Fuel used. Notification of construction and copies of source test results shall be submitted to EPA at the following address: Director, Air Division, U.S. Environmental Protection Agency, 75 Hawthorne Street, San Francisco, CA 94105. [40 CFR 60, Subpart JJJJ]

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

AUTHORITY TO CONSTRUCT

PERMIT NO: S-7831-3-0 **ISSUANCE DATE:** 12/22/2010

LEGAL OWNER OR OPERATOR: AGPOWER VISALIA, LLC
MAILING ADDRESS: 6920 SALASHIAN PARKWAY A-102
FERNDALE, WA 98248

LOCATION: 5061 AVE 280 (W CALDWELL AVE)
VISALIA, CA 93277

EQUIPMENT DESCRIPTION:
675 BHP GUASCOR MODEL SFGLD 360 DIGESTER GAS-FIRED LEAN BURN IC ENGINE WITH A FLORIDA SYNGAS PLASMA ARC REFORMER FOR HYDROGEN/SYNGAS INJECTION SERVED BY AN AIR INJECTION H2S REMOVAL SYSTEM AND AN IRON SPONGE H2S SCRUBBER (OR EQUIVALENT H2S REMOVAL SYSTEM) POWERING AN ELECTRICAL GENERATOR

CONDITIONS

1. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
3. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]
4. The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
5. This engine shall be operated and maintained in proper operating condition per the manufacturer's requirements as specified on the Inspection and Monitoring (I&M) plan submitted to the District. [District Rule 4702]
6. This engine shall be operated within the ranges that the source testing has shown result in pollution concentrations within the emissions limits as specified on this permit. [District Rule 4702]
7. This engine/generation system shall be fired only on digester gas. [District Rules 2201]

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (661) 392-5500 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director / APCO

DAVID WARNER, Director of Permit Services
S-7831-3-0: Dec 22 2010 11:45AM – NORMANR : Joint Inspection NOT Required

8. The applicant has requested to install an experimental sulfur removal system that will require a commissioning period prior to achieving steady state operation and optimal removal of sulfur from the digester gas. The owner/operator shall minimize the sulfur content of the gas to the maximum extent possible during commissioning of the sulfur removal system. Conditions #9 through #15 shall apply only during the commissioning period as defined below. Unless otherwise indicated, all other conditions limiting the sulfur content of the digester gas shall apply after the commissioning period has ended. [District Rule 2201]

9. Commissioning period for the sulfur removal system shall commence when the digester begins to produce a continuous flow of gas at a rate of least 1.0 cfm. The commissioning period shall terminate when the sulfur removal system has completed initial performance testing and reached steady operation with a digester gas sulfur concentration not exceeding 200 ppmv as H2S. The duration of the commissioning period shall not exceed 60 days. At the earliest feasible opportunity, the air injection rate of sulfur removal system shall be adjusted to minimize the sulfur content of the digester gas. [District Rule 2201]

10. During commissioning of the sulfur removal system, the sulfur content of the digester gas combusted in this unit shall not exceed 4,000 ppmv during the first 30 days of commissioning, shall not exceed 2,500 ppmv during the next 15 days of commissioning, and shall not exceed 1,000 ppmv during any remaining days of the commissioning period. [District Rules 2201 and 4801]

11. No more than one of permit units S-7831-1, -2, and -3 (digester gas-fired flare and IC engines) shall operate at any one time until the measured sulfur content of the digester gas is 1,000 ppmv or less for at least three consecutive days. [District Rule 2201]

12. The sulfur content of the digester gas stream(s) that enter the hydrogen/syngas reformer(s) shall not exceed 200 ppmv. The digester gas stream(s) that enter the hydrogen/syngas reformer(s) shall continue to be scrubbed separately until the sulfur removal system reduces the measured sulfur content of the digester gas to 200 ppmv or less for at least three consecutive days. [District Rule 2201]

13. During commissioning of the sulfur removal system, the permittee shall measure and record the sulfur content of the primary digester gas stream and the separate scrubbed digester gas stream(s) for use in the hydrogen/syngas reformer(s) at least once per day using the methods approved in this permit. [District Rule 2201]

14. The permittee shall record the total number of days of commissioning of the sulfur removal system, the operating schedule and total amount of time this unit operates during commissioning of the sulfur removal system, and the total amount of gas combusted in permit units S-7831-1, -2, and -3 (digester gas-fired flare and IC engines) each day of the commissioning period. [District Rule 2201]

15. Coincident with the end of the commissioning period for the sulfur removal system, the sulfur content of the digester gas shall comply with the limits specified in conditions #16 and #17 below. [District Rule 2201]

16. The sulfur content of the digester gas used as fuel in this engine shall not exceed 50 ppmv as H2S except as provided below. [District Rules 2201 and 4801]

17. The applicant has requested to install an experimental sulfur removal system. A six-month test period will be allowed for the experimental sulfur removal system after startup. The six-month test period shall begin with commencement of the commissioning period for the sulfur removal system and any time required for commissioning of the sulfur removal system shall be counted in the six-month test period. During the test period a digester gas sulfur content greater than 50 ppmv but not exceeding 200 ppmv will not constitute a violation of the permit provided that the sulfur removal system is operated to minimize the sulfur content to the maximum extent feasible. [District Rule 2201]

18. If the sulfur content of the digester gas continues to exceed 50 ppmv as H2S by the end of the six-month test period for the experimental sulfur removal system, the permittee shall submit details to the District of an additional polishing scrubber or an alternative sulfur removal system to meet the required 50 ppmv limit within 30 days of the end of the test period. If the District determines that an ATC application is required for the equipment, the applicant shall submit an ATC application within 15 days of the District's determination and the applicant shall request expedited processing of the required ATC permit and shall pay any required fees for expedited processing. The equipment to meet the sulfur content limit shall be installed within 90 days of approval by the District or issuance of the ATC; if the permit units controlled by the sulfur removal system/scrubber are not operating the District may approve an extension of this period. [District Rule 2201]

19. This engine shall be equipped with an operational non-resettable elapsed time meter. [District Rules 2201 and 4702]

CONDITIONS CONTINUE ON NEXT PAGE

20. This engine shall be equipped with either a positive crankcase ventilation (PCV) system that recirculates crankcase emissions into the air intake system for combustion, or a crankcase emissions control device of at least 90% control efficiency. [District Rule 2201]

21. This engine shall be operated in a lean-burn configuration maintaining an exhaust stream oxygen (O2) concentration of 8% per volume or greater prior to any exhaust stream control device. The District may approve a lower exhaust oxygen concentration if compliance with the BACT requirement for NOx is demonstrated at the lower level. [District Rule 2201]

22. Emissions from this IC engine shall not exceed any of the following limits (except as provided in conditions 23-26 below): 0.15 g-NOx/bhp-hr (NOx referenced as NO2), 2.20 g-CO/bhp-hr, 0.20 g-VOC/bhp-hr (VOC referenced as methane), 0.07 g-PM10/bhp-hr. [District Rules 2201 and 4702]

23. NOx emissions (as NO2) from the engine in excess of 0.15 g/bhp-hr but not exceeding 0.60 g/bhp-hr shall not constitute a violation of this permit provided that NOx emissions are limited to the lowest achievable emission rate to satisfy BACT. BACT for NOx from this engine shall consist of all other emission limitations and operational and design conditions contained in this permit. The final BACT level for NOx shall be determined to the satisfaction of the Air Pollution Control Officer in accordance with District Rule 2201 and the District's BACT policy, after at least 12 months of operating history and an official compliance source test. [District Rule 2201]

24. If within the first 12 months of operation the applicant decides that continued operation of the hydrogen injection system has proven infeasible, the applicant may provide a written report explaining why continued operation of the hydrogen injection system has proven infeasible and submit a written request to discontinue the BACT determination. If the District agrees that continued operation of the hydrogen injection system has proven infeasible, the BACT determination period may be terminated prior to completing the first 12 months of operation. [District Rule 2201]

25. If NOx emissions from the engine continue to exceed 0.15 g/bhp-hr after the BACT determination period, the permittee shall have 60 days to submit a report containing all monitoring and source test information to the District. The report shall also include an explanation of the steps taken to operate and maintain the engine in such a manner as to minimize NOx emissions and a detailed analysis of all factors that prohibit compliance with the NOx emissions limit. In the report, the permittee may also propose a final BACT emission limit for NOx for inclusion in this permit. The monitoring data and source test information gathered in accordance with this permit may be shared with other technical experts so their input can be considered when determining the final BACT limit for NOx that can be consistently achieved. [District Rule 2201]

26. The District shall establish the final BACT limit for NOx, including any applicable averaging periods, and revise the applicable limit contained in the permit within 60 days of the successful completion of the BACT determination period or receipt of the report from the permittee. Within 30 days of receipt of the District's determination, the permittee shall submit an Authority to Construct application to incorporate the revised emissions limit(s). In no case shall the final BACT NOx emission limitation be higher than 0.60 g-NOx/bhp-hr. The engine shall be allowed to continue to operate after the BACT evaluation period has ended and before the new Authority to Construct permit has been issued provided that NOx (as NO2) emissions from the engine do not exceed either of the following limits: 1) 0.60 g-NOx/bhp-hr and 2) 65 ppmv NOx @ 15% O2. [District Rules 2201 and 4702]

27. If the engine demonstrates reasonably reliable compliance with the 0.15 g/bhp-hr NOx emissions limit during the BACT evaluation period, this limit shall be deemed BACT for the installation. [District Rule 2201]

28. The hydrogen/syngas reformer shall be designed to deliver sufficient hydrogen (H2) to comprise at least 11% of the total engine fuel by volume and shall be operated to deliver sufficient hydrogen to allow stable operation of the engine in a lean burn configuration with at least 8% O2 in the exhaust. [District Rule 2201]

29. The hydrogen/syngas reformer shall be designed to be tolerant of the concentration of the concentration of sulfur and other contaminants in the digester gas that is reformed and shall be maintained and replaced in accordance with the recommendations of the manufacturer or emission control supplier. Records of maintenance and replacement of the reformer shall be maintained. [District Rule 2201]

CONDITIONS CONTINUE ON NEXT PAGE

30. The composition of the fuel gas (i.e. CH4, CO2, H2, CO) that enters the engine after a portion has been reformed into hydrogen shall be sampled and analyzed during times in which NOx emissions are being source tested. The composition of the fuel gas that enters the engine after a portion has been reformed into hydrogen shall be either monitored or sampled and analyzed during times in which NOx emissions are monitored with a portable analyze. Records of the results of the analysis and monitoring of the fuel gas shall be maintained. [District Rule 2201 and 4702]

31. The HHV and LHV of the fuel gas samples taken in conjunction with source tests shall be determined using ASTM D3588, ASTM 1826, ASTM 1945, or an alternative method approved by the District. [District Rule 2201]

32. Air-to-fuel ratio controller(s) shall be maintained and operated appropriately in order to ensure proper operation of the engine and control device to minimize emissions at all times. [District Rule 2201 and 40 CFR 60, Subpart JJJJ]

33. During the 12-month BACT determination period, if requested by the District, source testing to measure NOx and CO emissions from this unit for monitoring purposes shall be conducted using methods and procedures approved by the District. [District Rules 1081, 2201, and 4702]

34. Official source testing to demonstrate compliance with NOx, CO, and VOC emissions limits from this unit shall be conducted within 365 days of initial start-up using the methods specified in this permit. [District Rules 1081, 2201, and 4702 and 40 CFR 60, Subpart JJJJ]

35. Source testing to measure NOx, CO, and VOC emissions from this unit shall be conducted at least once every 8,760 hours of operation or 24 months, whichever comes first. [District Rules 1081, 2201, and 4702 and 40 CFR 60, Subpart JJJJ]

36. Emissions source testing shall be conducted with the engine operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. [District Rule 4702]

37. For official emissions source testing, the arithmetic average of three 60-consecutive-minute test runs shall apply. Each test run shall be conducted within 10 percent of 100 percent peak (or the highest achievable) load. If two of three runs are above an applicable limit, the test cannot be used to demonstrate compliance with an applicable limit. VOC emissions shall be reported as both methane and as propane. VOC, NOx, and CO concentrations shall be reported in ppmv, corrected to 15% oxygen. [District Rule 4702 and 40 CFR 60, Subpart JJJJ]

38. The following methods shall be used for official source testing: NOx (ppmv) - EPA Method 7E, CO (ppmv) - EPA Method 10, VOC (ppmv) - EPA Method 25A or 25B, stack gas oxygen - EPA Method 3 or 3A, stack gas velocity - EPA Method 2 or EPA Method 19, stack gas moisture content - EPA Method 4. Alternative test methods as approved by EPA and the District may also be used to address the source testing requirements of this permit. [District Rules 1081 and 4702 and 40 CFR 60, Subpart JJJJ]

39. 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]

40. The results of each source test shall be submitted to the District and EPA within 60 days after completion of the source test. [District Rule 1081 and 40 CFR 60, Subpart JJJJ]

41. To determine if the measured emissions concentration complies with the g/bhp emissions limits specified in the this permit, the fuel flow rate to the engine and engine load or generator power output shall be monitored and recorded during source testing. If the generator power output is used, the manufacturer's guaranteed efficiency of the generator or 95%, whichever is higher, shall be used to calculate the load of the engine. The emission rate (mass/time) shall be determined by multiplying the measured emissions concentration and stack flow rate determined during source testing. The g/bhp-hr emission factors for NOx, CO, and VOC as propane shall be determined in accordance with the equations given in 40 CFR § 60.4244. The g/bhp-hr emission factors for VOC as methane shall be determined using the following equation: ER = (Cd x 6.667E-4 x Q x T)/(HP-hr); Where: ER = Emission rate of VOC as methane in g/HP-hr, Cd= VOC concentration as methane in ppmv, and other terms are the same as the equations given in 40 CFR § 60.4244. The District may approve other procedures to determine the engine load and pollutant g/bhp-hr emission factors. [District Rule 2201 and 40 CFR 60, Subpart JJJJ]

CONDITIONS CONTINUE ON NEXT PAGE

42. The sulfur content of the digester gas used to fuel the engine shall be monitored and recorded monthly. After eight (8) consecutive monthly tests show compliance, the fuel sulfur content monitoring frequency may be reduced to once every calendar quarter. If quarterly monitoring shows a violation of the fuel sulfur content limit of this permit, then monthly monitoring shall resume and continue until eight consecutive months of monitoring show compliance with the fuel sulfur content limit. Once compliance with the fuel sulfur content limit is shown for eight consecutive months, then the monitoring frequency may return to quarterly. Monitoring of the sulfur content of the digester gas fuel shall not be required if the engine does not operate during that period. Records of the results of monitoring of the digester gas fuel sulfur content shall be maintained. [District Rule 2201]

43. Monitoring of the digester gas sulfur content shall be performed using a Testo 350 XL portable emission monitor; District-approved in-line H2S monitors; gas detection tubes calibrated for H2S; District-approved source test methods, including EPA Method 11 or EPA Method 15, ASTM Method D1072, D4084, and D5504; or an alternative method approved by the District. Prior to utilization of in-line monitors to demonstrate compliance with the digester gas sulfur content limit of this permit, the permittee shall submit details of the proposed monitoring system, including the make, model, and detection limits, to the District and obtain District approval for the proposed monitor(s). [District Rule 2201]

44. 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 NOx, CO, and O2 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]

45. The permittee shall monitor and record the stack concentration of NOx, CO, and O2 at least once every month (in which a source test is not performed) using a portable emission monitor that meets District specifications. [In-stack emission monitors may be allowed if they satisfy the standards required for portable analyzers as specified in District policies and are approved in writing by the APCO.] Monitoring shall not be required if the engine is not in operation, i.e. the engine need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the engine unless monitoring has been performed within the last month. Records must be maintained of the dates of non-operation to validate extended monitoring frequencies. [District Rules 2201 and 4702]

46. If either the NOx or CO concentrations corrected to 15% O2, as measured by the portable analyzer, exceed the allowable emission concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 8 hours after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 8 hours, the permittee shall notify the District within the following 1 hour, and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of performing the notification and testing required by this condition. During the BACT determination period for NOx, NOx emissions neither exceeding 0.60 g-NOx/bhp-hr nor 65 ppmv @ 15% O2 are not subject to the requirements contained in this condition to source test or stipulate that an emissions violation has occurred. [District Rules 2201 and 4702]

47. All alternate monitoring parameter emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the permit-to-operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rule 4702]

48. The permittee shall maintain records of: (1) the date and time of NOx, CO, and O2 measurements, (2) the O2 concentration in percent and the measured NOx and CO concentrations corrected to 15% O2, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, and (5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 2201 and 4702]

CONDITIONS CONTINUE ON NEXT PAGE

49. The permittee shall maintain an engine operating log to demonstrate compliance. The engine operating log shall include, on a monthly basis, the following information: the total hours of operation, type and quantity of fuel used, results of fuel composition monitoring and analysis, maintenance and modifications performed, monitoring data, compliance source test results, and any other information necessary to demonstrate compliance. Quantity of fuel used shall be recorded in standard cubic feet or standard cubic meters using a non-resettable, totalizing mass or volumetric fuel flow meter or other APCO approved-device. [District Rule 4702 and 40 CFR 60, Subpart JJJJ]

50. The permittee shall update the I&M plan for this engine prior to any planned change in operation. The permittee must notify the District no later than seven days after changing the I&M plan and must submit an updated I&M plan to the APCO for approval no later than 14 days after the change. The date and time of the change to the I&M plan shall be recorded in the engine's operating log. For modifications, the revised I&M plan shall be submitted to and approved by the APCO prior to issuance of the Permit to Operate. The permittee may request a change to the I&M plan at any time. [District Rule 4702]

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53. All records shall be maintained and retained for a minimum of five (5) years, and shall be made available for District inspection upon request. All records may be maintained and submitted in an electronic format approved by the District. [District Rules 2201 and 4702]

54. The permittee shall obtain written District approval for the use of any equivalent equipment not specifically approved by this Authority to Construct. Approval of the equivalent equipment shall be made only after the District's determination that the submitted design and performance of the proposed alternate equipment is equivalent to the specifically authorized equipment. [District Rule 2201]

55. The permittee's request for approval of equivalent equipment shall include, as applicable, the make, model, manufacturer's maximum rating, manufacturer's guaranteed emission rates, equipment diagram(s)/drawing(s), and operational characteristics/parameters. [District Rule 2010]

56. Alternate equipment shall be of the same class and category of source as the equipment authorized by the Authority to Construct. [District Rule 2201]

57. No emission factor and no emissions shall be greater for the alternate equipment than for the proposed equipment. No changes in the hours of operation, operating rate, throughput, or firing rate may be authorized for any alternate equipment. [District Rule 2201]

58. The equipment and operations of facility S-5834 and S-7831 are considered the same stationary source for the purposes of determining applicability and requirements of Rule 2201, New and Modified Stationary Source Review. [District Rule 2201]

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