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DOCKET
06-AFC-10C
DATE Jan 18 2012
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DATE: January 18, 2012

TO: Interested Parties

FROM: **Eric Veerkamp**, Compliance Project Manager

SUBJECT: Starwood Power Plant Project (06-AFC-10C) CORRECTED ANALYSIS
Staff Analysis of Proposed Modifications to modify air quality conditions specific to the daily and annual limits, and other air quality conditions to maintain consistency with the actual operating mode of the facility

On July 11, 2011, Starwood Power-Midway, LLC filed a petition with the California Energy Commission to amend the Energy Commission Decision for the Starwood Power Plant Project. Staff prepared an analysis of this proposed change, and a copy is enclosed for your information and review.

The Starwood Power Plant project is a 120 MW simple cycle generating station power plant located in unincorporated portion of Fresno County, approximately 15 miles south of the City of Mendota. The project was certified by the Energy Commission on January 16, 2008, and began commercial operation on May 5, 2009.

The proposed modifications will allow Starwood Power-Midway, LLC to utilize an annual limit on NOx emissions of 50,000 lb/year.

Minor modifications to 17 **Air Quality** conditions, and five proposed new **Air Quality** conditions all relate to NOx emission levels. Energy Commission staff reviewed the petition and assessed the impacts of this proposal on environmental quality, public health and safety, and proposes a new condition of certification for **Air Quality (Condition AQ-44),** in addition to the applicant's proposed modifications. All the **Air Quality** conditions have been renumbered as a result. It is staff's opinion that, with the implementation of revised conditions, the project will remain in compliance with applicable laws, ordinances, regulations, and standards and that the proposed modifications will not result in a significant adverse direct or cumulative impact to the environment (Title 20, California Code of Regulations, Section 1769).

The amendment petition and staff's analysis has been posted on the Energy Commission's webpage at www.energy.ca.gov/sitingcases. The Energy Commission's Order (if approved) will also be posted on the webpage. Energy Commission staff intends to recommend approval of the petition at the March 14, 2012 Business Meeting of the Energy Commission. If you have comments on this proposed modification, please submit them to me at the address below prior to February 17, 2012.

Eric W. Veerkamp, Compliance Project Manager
California Energy Commission
1516 9th Street, MS-2000
Sacramento, CA 95814

Comments may be submitted by fax to (916) 654-3882, or by e-mail to eveerkam@energy.state.ca.us. If you have any questions, please contact me at (916) 654-4611.

For further information on how to participate in this proceeding, please contact the Energy Commission Public Adviser's Office, at (916) 654-4489, or toll free in California at (800) 822-6228, or by e-mail at publicadviser@energy.state.ca.us. News media inquiries should be directed to the Energy Commission Media Office at (916) 654-4989, or by e-mail at mediaoffice@energy.state.ca.us.

Enclosure

STARWOOD POWER PLANT (06-AFC-10C)

Petition to Amend Start-up Emissions
Joseph Hughes
January 18, 2012

INTRODUCTION

The Starwood Power-Midway, LLC Peaking Project (Starwood) is an operating simple-cycle electric generating facility consisting of two Pratt & Whitney model FT8-3 Swiftpac, Gas Turbine Generator units. Each Swiftpac unit has two Pratt & Whitney, model FT8-3, natural gas fired turbines that drive opposite ends of a single electric generator. Each turbine has the ability to operate independently. Each electric generator produces electricity at a nominal output of 60 MW. The total facility nominal output is 120 MW.

Each CTG is equipped with water injection into the combustors to reduce production of nitrogen oxides (NOx). The exhaust paths from the two turbines within each Swiftpac merge together into one common exhaust stack that is vented through a selective catalytic reduction (SCR) system with ammonia injection to further reduce NOx emissions, an oxidation catalyst to reduce Carbon Monoxide (CO) emissions, and associated support equipment. Starwood is located on a 5.6 acre site within Fresno County, located adjacent to the Panoche Hills, and adjacent to the Panoche Energy Center (06-AFC-5C) and east of the San Benito County line. It is approximately 50 miles west of the City of Fresno and approximately 2.0 miles east of Interstate 5 (I-5).

Starwood is proposing a modification to **AQ-32** Condition of Certification (COC), regarding startup emissions, which includes an increase in the quantity of NOx emissions during the startup period. Starwood is also proposing modifications to 17 other air quality COCs and the addition of five new COCs. All modified and new COCs are related to the change in the startup emissions and clarifications in averaging periods and testing requirements. All requested modifications have been approved by the San Joaquin Valley Air Pollution Control District (SJVAPCD).

LAWS, ORDINANCES, REGULATION, AND STANDARDS (LORS) - COMPLIANCE

The SJVAPCD issued an Authority to Construct (ATC) permit July 7, 2011 for the requested modifications determining that the project would comply with all laws, ordinances, regulations and standards (LORS). **Air Quality Table 1** summarizes the applicable LORS for the facility. The environmental impacts assessment presented herein shows there will be no significant environmental impacts associated with the requested modifications in the petition to amend, and the project as modified would comply with all applicable LORS. NOx is the only pollutant emission that the owner requested to change.

Air Quality Table 1
Laws, Ordinances, Regulations, and Standards

Applicable LORS	Description
Federal	
42 U.S.C. §7401 et eq.	Federal Clean Air Act: New Source Review
40 CFR 60 Subpart GG	Standards of Performance for Stationary Gas Turbines.
40 CFR 72-78	Acid Rain Program
State	
Health and Safety Code §41700	"... no person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property."
Local Air District	
Rule 1080	Stack Monitoring
Rule 1081	Source Sampling
Rule1100	Equipment Breakdown
Rule 2010	Permits Required
Rule 2201	New and Modified Stationary Review
Rule 2520	Federally Mandated Operating Permits
Rule 2540	Acid Rain Program
Rule 4001	New Source Performance Standards
Rule 4101	Visible Emissions
Rule 4102	Nuisance
Rule 4201	Particulate Matter Concentrations
Rule 4202	Particulate Matter Emission Rate
Rule 4301	Fuel Burning Equipment
Rule 4703	Stationary Gas Turbines
Rule 4801	Sulfur Compounds
Rule 8011	General Requirements
Rule 8021	Construction, Demolition, Excavation and Other Earthmoving Activities
Rule 8031	Bulk Materials
Rule 8041	Carryout and Trackout
Rule 8051	Open Areas
Rule 8061	Paved and Unpaved Roads
Rule 8071	Unpaved Vehicle/Equipment Traffic Areas

SETTING

The project area is currently attainment or unclassified for nitrogen dioxide (NO_2) for both the state and federal standards. Since the original Energy Commission decision, the ambient background levels have decreased for both the State 1-hour and annual NO_2 concentrations around the project site. A comparison of the background levels are provided in **Air Quality Table 2**. A new Federal 1-hour standard has been implemented since the original Commission Decision and the representative concentrations are also provided.

Air Quality Table 2
Ambient Background Levels for Starwood

Pollutant	Averaging Time	Previous Background Levels (µg/m³)	Current Background Levels (µg/m³)	Percent Change (%)
NO_2	State 1-hour	157.9	145.0	-8.17
	Federal 1-hour	NA	107.16[a]	NA
	Annual	32.1	30.4	-5.30

Source: California Air Resource Board (ARB) 2010. Maximum Values shown for 2007-2009 for Fresno Street monitoring station.
a. The 1-hour design value is the 98th percentile concentration averaged over the 3-year period.

ANALYSIS

Background

- Starwood has been operational since May 5, 2009.
- The initial source tests conducted on the operational turbines indicated that the permitted NOx limit of 4.17 lbs/hr was being exceeded during periods of turbine startup.
- Starwood entered into a variance agreement with the SJVAPCD from June 17, 2009 to August 19, 2009.
- On July 27, 2009 the SJVAPCD issued a Notice of Violation (NOV) to Starwood for operating out of compliance (between May 5, 2009 and June 17, 2009).
- On August 14, 2009 Starwood entered into a settlement agreement and general release with the SJVAPCD until the new Authority to Construct (ATC) could be issued.
- On August 19, 2009 the SJVAPCD issued a second NOV to Starwood for installing equipment contrary to that in the original application. This was related to the first NOV. It was determined that a change in the preheat function for the ammonia injection contributed to Starwood's inability to comply with the COC. As opposed to free-standing electric heaters for the ammonia injection the newer system uses internal piping which relies on the gas turbine exhaust to preheat the ammonia. This increases the time required to reach the temperature needed to control NOx emissions.

- On July 7, 2011 the SJVAPCD issued a new ATC that included an increase in the allowable level of NOx emissions during the startup period, along with modifications to other air quality COCs related to the change in the startup emissions.
- On July 8, 2011 Starwood filed a petition to amend the Energy Commission Decision to make the same requested modifications to the Final Decision that were made to the new ATC permit and create consistency between the two documents.

Project Modifications

The proposed modifications to Starwood would result in an increase in the permitted startup emission limit for NOx from 4.17 lb/hr to 30 lb/hr per turbine. Based on a startup and subsequent operation that occurred June 5, 2009, combined NOx emissions for two turbines (1 Swiftpac) averaged approximately 60 lb/hr over a span of approximately 30 minutes. This equates to 30 pounds of NOx for one Swiftpac or 15 pounds of NOx per turbine per startup event. Although the worst case startup time frame is assumed to be about 30 minutes, actual startups average 10 minutes.

Additionally, Starwood is requesting to change the averaging period for startup and shutdown events from a one hour average to a per event average. Currently, the startup and shutdown emissions are based on clock hour averages. If a startup or shutdown event starts during one clock hour and spans into the next consecutive clock hour, the emissions are averaged in each clock hour separately. Because the emissions profile is not uniform over the duration of the startup or shutdown, the first clock hour could contain higher emissions and potentially not meet the limit, while the second clock hour could contain lower emissions and be well below the limit.

Emissions

The ATC permit issued July 7, 2011assumed a new operating scenario to evaluate estimated project impacts and implement COCs pertaining to emission limits. **Air Quality Table 3** provides the hypothetical operating scenario used to calculate quarterly and annual project impacts. The new scenario decreases the number of startup and shutdown hours of operation and increases the full load number of operational hours, leaving the total annual operating hours unchanged. Starwood believes this hypothetical operating scenario most accurately defines actual operations. Maximum daily emissions for each turbine for NO_X, CO and VOC emissions are estimated assuming 30 minutes operating in startup mode (three 10 minute startup periods), 45 minutes in shutdown mode (three 15 minute shutdown periods) and twenty two hours and 45 minutes (22.75 hours) operating while firing at full load. This operating profile is consistent with actual operation in 2011.

The original license for the project assumed maximum daily emissions based on one hour of operation in startup mode (18 minutes in startup mode and 42 minutes of normal operation), one hour in shut down mode (18 minutes in shutdown mode and 42 minutes normal operations) and 22 hours of operation at full load. Although the new scenario

decreases the hours estimated for startup and shutdown operation, the total number of estimated startup and shutdown events increase for the worst case daily emissions.

Operating profiles for peaking facilities could change in the future as the electricity system is affected by efficiency improvements, increased production of renewable energy, and increased electrification of transportation.

Air Quality Table 3
Hypothetical Operating Scenario

	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Annual
Previous Number of Startup/Shutdown Hours	43.8	43.8	76.65	54.75	219
Revised Number of Startup/Shutdown Hours	30.4	30.4	53.3	37.7	151.8
Net Difference in Startup/Shutdown Hours	**-13.4**	**-13.4**	**-23.35**	**-17.05**	**-67.2**
Previous Number of Full Load Hours	756.2	756.2	1,323.35	945.25	3,781.00
Revised Number of Full Load Hours	769.6	769.6	1,346.70	962.3	3,848.20
Net Difference in Full Load Operation Hours	**13.4**	**13.4**	**23.35**	**17.05**	**67.20**
Total Hours	**800**	**800**	**1,400**	**1,000**	**4,000**

Source: San Joaquin Valley Air Pollution Control District Authority to Construct, July 7, 2011.

The proposed emissions based on the revised operating scenario and the net increase in NOx emissions associated with the requested modification to startup emissions are described in **Air Quality Table 4**.

Although the decrease in startup and shutdown hours of operation would otherwise result in fewer daily and annual emissions of NOx and CO, the requested increase in startup NOx emissions per event causes an overall increase in NOx startup, daily and annual emission limits shown in **Air Quality Table 4**. Also, the new hypothetical operating scenario would result in fewer annual emissions of VOC; however the proposed annual VOC emission limit for the Swiftpac would increase slightly to accommodate an administrative error that was made in the original Commission Decision. In the original Decision an invalid VOC limit was inadvertently inserted into the COC. The proposed value is the annual total of both turbines per Swiftpac and was fully analyzed and offset in the original Commission Decision.

The combined Swiftpac annual NOx emission limit of 50,000 lb/year (new Condition of Certification **AQ-44)** keeps the Starwood Power Plant below the SJVAPCD Major

Modification Threshold and avoids any further major modification calculations per District Rule 2201, Section 3.18.

Air Quality Table 4
Starwood Operational Emission Limits

	NOx	CO	VOC
Startup Emissions			
Original Mass Emission Rate (per turbine, lb/hr)	4.17	12.5	0.83
Proposed Mass Emission Rate (per turbine, lb/hr)	30.0	12.5	0.83
Daily Emissions			
Original Mass Emission Rate (per turbine, lb/day)	67.3	126.0	19.7
Proposed Mass Emission Rate (per turbine, lb/day)	79.8	117.6	19.7
Swiftpac Daily Emissions			
Original Mass Emission Rate (both turbines, lb/day)	134.6	252.0	39.4
Proposed Mass Emission Rate (both turbines, lb/day)	159.6	235.2	39.4
Annual Emissions			
Original Mass Emission Rate (per turbine, lb/year)	11,209	19,546	3,320
Proposed Mass Emission Rate (per turbine, lb/year)	12,736	18,826	3,281
Swiftpac Annual Emissions			
Original Mass Emission Rate (both turbines, lb/year)	22,416	39,096	6,400
Proposed Mass Emission Rate (both turbines, lb/year)	25,742	37,652	6,562[b]
Combined Swifpac Annual Emissions			
Mass Emission Rate (all turbines, lb/year)	50,000[a]	NA	NA

a. Major modification threshold. New Condition of Certification.
b. Fixes an administrative error in the original Final Decision.

Ambient Air Quality Impact Analysis

An ambient air quality impact analysis was performed by the SJVAPCD to ensure that the proposed Starwood modifications would not interfere with the attainment or maintenance of the applicable NO_2 ambient air quality standards. **Air Quality Table 5** summarizes the maximum ambient NO_2 impacts from the Starwood facility. The results show NO_2 impacts are below all applicable NO_2 standards, including the new National 1-hour NO_2 standard. Furthermore, the project would be offsetting the NOx emissions for compliance with CEQA because NOx is a precursor to Ozone, which is classified non-attainment for the project area.

Because the existing project emissions are assumed to be included in the background concentrations, the SJVAPCD modeled the incremental increases for the proposed hourly (25.83 lb/hr) and annual (1,528 lb/year) total emission rates. The modeling approach conservatively assumed that 100% of the NOx converts to NO_2 and determined the 8th highest impact value. The 8th highest impact value was taken from one single turbine and multiplied by four to include a worst case of all four turbines operating from a single stack, adding to the conservative nature of the analysis. The 8th highest worst case impact was then added to the 3 year average 98th percentile

concentration. The total was then compared to the ambient air quality standard, showing compliance.

Air Quality Table 5
Ambient Air Quality Impact Analysis

	Estimated Project Impact	Background Levels[a]	Total	Ambient Air Quality Standards
Gas Turbine NO_2 Impacts				
1-hour Impact - National Standard (µg/m^3)	61.72[b]	107.16[c]	168.88	188
Annual Impact (µg/m^3)	0.009	30.4	30.409	57

a. California Air Resource Board (ARB) 2010. Maximum Values shown for 2007-2009 for Fresno Street monitoring station.
b. 8th highest project impact
c. 98th percentile concentration averaged over the 3-year period.

Mitigation Measures

The proposed Petition to Amend would have the potential to increase NOx emissions by 5,168 lb/year and increase permitted VOC emissions by 324 lb/year. Although actual VOC emissions may be decreasing under the revised operating scenario, the requested increase is proposed to fix inconsistencies in the permitted limits and clean up administrative errors. The requested VOC emission limit was fully analyzed and mitigated through offsets in the original Commission Decision. The increased NOx emissions would be fully offset as required by COC **AQ-2** and **AQ-3**. Starwood has stated that the facility plans to use ERC Certificates S-3097-2 and N-820-2 and a portion of ERC Certificate S-3086-2 to offset the increased NO_X emissions.

CONCLUSIONS AND RECOMMENDATIONS

Staff recommends approval of the requested changes for the Starwood Power Plant. With the recommended mitigation measures, all requested project modifications would comply with all applicable LORS.

PROPOSED MODIFICATIONS TO CONDITIONS OF CERTIFICATION

The following conditions of certification would be amended in the Final Commission Decision for the Starwood Power Plant to ensure compliance with all LORS. ~~Strikethrough~~ is used to indicate deleted language and **underline** for new language.

AQ-1 **The Conditions of Certification contained herein reference ATC C-7286-1-1, '-2-1, '-3-1 and '-4-1. [District Rule 2201]**

Verification: **No verification necessary.**

AQ-~~1~~2 Prior to initial operation of C-7286-1-0, C-7286-2-0, C-7286-3-0 or C-7286-4-0, the project owner shall provide NOx (as NO2) emission reduction credits

for the following quantities of emissions: 1st quarter – 8,968 lb; 2nd quarter – 8,968 lb; 3rd quarter – 15,692 lb; and 4th quarter - 11,208 lb. Offsets shall be provided at the appropriate distance ratio specified in Rule 2201. [District Rule 2201]

Verification: At least 60 days prior to commencing CTG first fire, the project owner shall surrender NOx ERC certificates in the amounts shown to the District and provide documentation of that surrender to the CPM.

AQ-3 **Prior to operating under the modifications authorized by Authorities to Construct C-7286-1-1, '-2-1, '-3-1 or '-4-1, permittee shall provide NO_X (as NO_2) emission reduction credits for the following quantities of emissions: 1st quarter – 1,033 lb; 2nd quarter – 1,033 lb; 3rd quarter – 1,807 lb; and 4th quarter – 1,291 lb. Offsets shall be provided at the appropriate distance ratio specified in Rule 2201. [District Rule 2201]**

Verification: **Prior to operating under the modifications authorized by Authorities to Construct C-7286-1-1, '-2-1, '-3-1 or '-4-1, the project owner shall surrender NOx ERC certificates in the amounts shown to the District and provide documentation of that surrender to the CPM.**

AQ-~~2~~4 Prior to initial operation of C-7286-1-0, C-7286-2-0, C-7286-3-0 or C-7286-4-0, the project owner shall provide PM10 emission reduction credits for the following quantities of emissions: 1st quarter – 2,102 lb; 2nd quarter – 2,103 lb; 3rd quarter – 3,679 lb; and 4th quarter – 2,628 lb. Offsets shall be provided at the appropriate distance ratio specified in Rule 2201. SOx ERC's may be used to offset PM10 increases at an interpollutant ratio of 1.867 lb-SOx : 1.0 lb-PM10. [District Rule 2201]

Verification: At least 60 days prior to commencing CTG first fire, the project owner shall surrender PM10 and/or SOx ERC certificates in the amounts shown or based on the SOx interpollutant ratio shown to the District and provide documentation of that surrender to the CPM.

AQ-~~3~~5 ERC certificate numbers (or any splits from these certificates) **N-820-2,** S-2382-2**, S-3086-2, S-3097-2** and **S-2459-5**~~S-2492-5~~ shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this determination of compliance (DOC) shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of the DOC. [District Rule 2201]

Verification: At least 60 days prior to commencing CTG first fire, the project owner shall surrender ERC certificates in the amounts shown to the District and provide documentation of that surrender to the CPM.

AQ-4~~6~~ The project owner shall submit an application to comply with SJVAPCD District Rule 2520 - Federally Mandated Operating Permits within twelve months after commencing operation. [District Rule 2520]

Verification: The project owner shall submit a copy of their Title V – Federal Mandated Operating Permit Application to the CPM within 12 months of commencing operation.

AQ-~~5~~7 The project owner shall submit an application to comply with SJVAPCD District Rule 2540 - Acid Rain Program. [District Rule 2540]

Verification: The project owner shall submit to the CPM copies of the Title IV permit at least fifteen (15) days prior to the initial firing of the CTG, and shall submit proof that necessary Title IV SO_2 emission allotments have been acquired as necessary for compliance with Title IV requirements annually in the first Quarterly Compliance Report (**AQ-SC10**) that is due after the annual SO_2 allotment due date.

AQ-~~6~~8 District facilities C-3811 and C-7286 are the same stationary source for District permitting purposes. [District Rule 2201]

Verification: The project owner shall maintain operation and emissions data for facilities C-3811 and C-7286 available for inspection by representatives of the District, CARB and the Commission.

AQ-~~7~~9 The owner/operator of the Starwood Power-Midway, LLC (Starwood Power) shall minimize the emissions from the gas turbines to the maximum extent possible during the commissioning period. Conditions **AQ-~~7~~9** through **AQ-~~19~~21** shall apply only during the commissioning period as defined below. Unless otherwise indicated, Conditions **AQ-~~20~~22** through **AQ-~~81~~86** shall apply after the commissioning period has ended. [District Rule 2201]

Verification: The project owner shall provide in the monthly commissioning status report (see the verification for Condition **AQ-~~14~~16**) information regarding the types and effectiveness of methods used to minimize commissioning period emissions.

AQ-~~8~~10 Commissioning activities are defined as, but not limited to, all testing, adjustment, tuning, and calibration activities recommended by the equipment manufacturers and the Starwood Power construction contractor to insure safe and reliable steady state operation of the gas turbines and associated electrical delivery systems. [District Rule 2201]

Verification: The project owner shall provide written notification to the APCO and the CPM of the expected date of first turbine roll at least 15 days before the first turbine roll.

AQ-~~9~~11 Commissioning period shall commence when all mechanical, electrical, and control systems are installed and individual system startup has been completed, or when a gas turbine is first fired, whichever occurs first. The commissioning period shall terminate when the plant has completed initial

performance testing and is available for commercial operation. [District Rule 2201]

Verification: The project owner shall provide written notification to the APCO and the CPM of the expected date of first turbine roll at least 15 days before the first turbine roll. The project owner shall provide written notification to the APCO within 5 day after the turbines are available for commercial operation.

AQ-~~10~~12 No more than one Swiftpac Unit (two paired turbines operating under units C-7286-1 and C-7286-2 or C-7286-3 and C-7286-4) shall be operated at any one time during the commissioning period. [District Rule 2201].

Verification: The project owner shall provide operating data to demonstrate compliance with this condition, and that information shall be submitted to the CEC CPM as part of the monthly commissioning status report noted in the verification of Condition **AQ-~~14~~16.**

AQ-~~11~~13 At the earliest feasible opportunity, in accordance with the recommendations of the equipment manufacturer and the construction contractor, the combustors of these units shall be tuned to minimize emissions. [District Rule 2201]

Verification: The project owner shall provide combustor tuning information to demonstrate compliance with this condition, and that information shall be submitted to the CEC CPM as part of the monthly commissioning status report noted in the verification of Condition **AQ-~~14~~16**.

AQ-~~12~~14 At the earliest feasible opportunity, in accordance with the recommendations of the equipment manufacturer and the construction contractor, the Selective Catalytic Reduction (SCR) system and the oxidation catalyst shall be installed, adjusted, and operated to minimize emissions from these units. [District Rule 2201]

Verification: The project owner shall provide emission abatement system information (such as dates of catalyst installation and ammonia grid initial operation) to demonstrate compliance with this condition, and that information shall be submitted to the CEC CPM as part of the monthly commissioning status report noted in the verification of Condition **AQ-~~14~~16**.

AQ-~~13~~15 Coincident with the steady-state operation of the SCR system and the oxidation catalyst, NOx and CO emissions from these units shall comply with the limits specified in Condition **AQ-~~29~~31**. [District Rule 2201]

Verification: The project owner shall provide NOx and CO emissions information for steady-state operations of the SCR system and oxidation catalyst to demonstrate compliance with this condition, and that information shall be submitted to the CEC CPM as part of the monthly commissioning status report noted in the verification of Condition **AQ-~~14~~16**.

AQ-~~14~~16 The project owner shall submit a plan to the District at least four weeks prior to the first firing of these units, describing the procedures to be followed during the commissioning period. The plan shall include a description of each commissioning activity, the anticipated duration of each activity in hours, and the purpose of the activity. The activities described shall include, but not be limited to, the tuning of the combustors, the installation and operation of the SCR systems and the oxidation catalyst, the installation, calibration, and testing of the NOx and CO continuous emissions monitors, and any activities requiring the firing of this unit without abatement by the SCR system or oxidation catalyst. [District Rule 2201]

Verification: The project owner shall submit a single commissioning plan to the District and the CPM at least four weeks prior to the first firing of the combustion turbine, describing in detail the procedures to be followed for the turbines. The project owner shall submit, commencing one month from the time of gas turbine first fire, a monthly commissioning status report throughout the duration of the commissioning phase that demonstrates compliance with the commissioning plan and demonstrates compliance with all other substantive requirements listed in Conditions **AQ-~~7~~9** through **AQ-~~19~~21**. The monthly commissioning status report shall be submitted to the CPM by the 10th of each month for the previous month, for all months with turbine commissioning activities following the turbine first fire date.

AQ-~~15~~17 Emission rates from each CTG, during the commissioning period, shall not exceed any of the following limits: NOx (as NO_2) – 41.65 lb/hr; CO – 21.33 lb/hr; VOC (as methane) – 0.83 lb/hr; PM10 – 1.85 lb/hr; or SOx (as SO_2) – 0.89 lb/hr. [District Rule 2201]

Verification: The project owner shall provide CEM-derived emissions data for NOx and CO and shall provide calculated PM10 and VOC emissions from fuel consumption data and source test results to demonstrate compliance with this condition as part of the quarterly operation report (**AQ-SC10**)..

AQ-~~16~~18 During the commissioning period, the project owner shall demonstrate compliance with the NOx and CO limits specified in Condition **AQ-~~15~~17** through the use of properly operated and maintained continuous emissions monitors and recorders as specified in Conditions **AQ-~~53~~56** and **AQ-~~54~~57**. The monitored parameters for these units shall be recorded at least once every 15 minutes (excluding normal calibration periods or when the monitored source is not in operation). [District Rule 2201]

Verification: The project owner shall provide CEM data to demonstrate compliance with Conditions **AQ-~~13~~15**, **AQ-~~15~~17**, and **AQ-~~29~~31** and that data shall be submitted to the CEC CPM as part of the monthly commissioning phase status report noted in the verification of Condition **AQ-~~14~~16**.

AQ-~~17~~19 The continuous monitors shall be installed, calibrated, and operational prior to the first firing of these units. After first firing, the detection range of the CEMS shall be adjusted as necessary to accurately measure the resulting range of

NOx and CO emission concentrations from each CTG and each Swiftpac unit. [District Rule 2201]

Verification: The project owner shall provide notification to the District and the CPM of the anticipated dates for installation, calibration and testing for the CEMS at least ten (10) days prior to installation. The project owner shall provide a report to the District and CPM for approval demonstrating compliance with CEMS calibration requirements prior to turbine first fire. The project owner shall provide ongoing calibration data in the monthly commissioning status reports (see verification of Condition **AQ-14**).

AQ-~~18~~20 The total number of firing hours of each CTG without abatement of emissions by the SCR system and the oxidation catalyst shall not exceed 100 hours during the commissioning period. Such operation of each CTG without abatement shall be limited to discrete commissioning activities that can only be properly executed without the SCR system and the oxidation catalyst in place. Upon completion of these activities, the project owner shall provide written notice to the District and the unused balance of the 100 firing hours without abatement shall expire. [District Rule 2201]

Verification: The project owner shall provide to the District and the CPM a reporting of the number of firing hours without abatement for the turbine in the monthly commissioning status reports (see verification of Condition **AQ-~~14~~16**).

AQ-~~19~~21 The total mass emissions of NOx, CO, VOC, PM10, and SOx that are emitted during the commissioning period shall accrue towards the consecutive twelve month emission limits specified in Condition **AQ-~~40~~42**. [District Rule 2201]

Verification: The project owner shall provide emissions data to demonstrate compliance with this condition as part of the Quarterly Operation Report (**AQ-SC10**).

AQ-~~20~~22 A selective catalytic reduction (SCR) system and an oxidation catalyst shall serve each Swiftpac unit. Exhaust ducting may be equipped (if required) with a fresh air inlet blower to be used to lower the exhaust temperature prior to inlet of the SCR system catalyst. The project owner shall submit SCR and oxidation catalyst design details to the District at least 30 days prior to commencement of construction. [District Rule 2201]

Verification: The project owner shall submit SCR and oxidation catalyst design details that demonstrate compliance with this condition to the APCO and the CPM 30 days prior to commencement of construction.

AQ-~~21~~23 The project owner shall submit continuous emission monitor design, installation, and operational details to the District at least 30 days prior to commencement of construction. [District Rule 2201]

Verification: The project owner shall submit continuous emission monitor design, installation, and operational details to the APCO and the CPM 30 days prior to commencement of construction.

AQ-~~22~~24 The project owner shall submit to the District before issuance of the Permit to Operate 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 no continuous emission monitoring data for NOx is available or when continuous emission monitoring system is not operating properly. [District Rule 4703]

Verification: The project owner shall compile the required NOx control system and emissions data and submit the information to the CPM and the APCO before issuance of the Permit to Operate.

AQ-~~23~~25 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]

Verification: The project owner shall submit maintenance records for all equipment to the CPM and the APCO in the Quarterly Operation Report (**AQ-SC10**).

AQ-~~24~~26 No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

Verification: The project owner will document any complaints that it has received from the public in the Quarterly Operation Report (**AQ-SC10**). The project owner shall make the site available for inspection by representatives of the District, CARB and the Commission.

AQ-~~25~~27 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]

Verification: The project owner shall document any known opacity violations in the Quarterly Operation Report (**AQ-SC10**). The project owner shall make the site available for inspection by representatives of the District, CARB and the Commission.

AQ-~~26~~28 Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]

Verification: The project owner shall submit the results of the initial and annual source tests per Condition **AQ-~~47~~50**.

AQ-~~27~~29 Combustion turbine generator (CTG) and electrical generator lube oil vents shall be equipped with mist eliminators. Visible emissions from lube oil vents shall not exhibit opacity of 5% or greater, except for up to three minutes in any hour. [District Rules 2201 and 4101]

Verification: The project owner shall make the site available for inspection by representatives of the District, CARB and the Commission to verify the installation and proper operation of the lube oil vent mist eliminators.

AQ-~~28~~30 The CTGs shall be fried exclusively on PUC-regulated natural gas with a sulfur content of no greater than 1.0 grain of sulfur compounds (as S) per 100 dry scf of natural gas. [District Rule 2201 and 40 CFR 60.4330(a)(2)]

Verification: The project owner shall compile the required data on the sulfur content of the natural gas and submit the information to the CPM and the APCO in the Quarterly Operation Report (**AQ-SC10**).

AQ-~~29~~31 Emission rates from each CTG, except during startup and shutdown periods, shall not exceed any of the following limits: NOx (as NO_2) – 2.8 lb/hr and 2.5 ppmvd @ 15% O_2; CO – 4.19 lb/hr and 6.0 ppmvd @ 15% O_2; VOC (as methane) – 0.82 lb/hr and 2.0 ppmvd @ 15% O_2; PM10 – 1.85 lb/hr; or SOx (as SO_2) – 0.89 lb/hr. NOx (as NO_2) emission rates are one hour rolling averages. All other emission rates are three hour rolling averages. [District Rules 2201 and 4703 and 40 CFR 60.4320(a) & (b)]

Verification: The project owner shall submit to the CPM and APCO CTG emissions data demonstrating compliance with this condition as part of the Quarterly Operation Report (**AQ-SC10**).

AQ-~~30~~32 Combined emission rates from the two Swiftpac unit CTG's operating under permit units C-7286-1 and C-7286-2, and the two Swiftpac unit CTG's operating under permit units C-7286-3 and C-7286-4, except during startup and shutdown periods, shall not exceed any of the following Swiftpac two turbine limits: NOx (as NO_2) – 5.6 lb/hr and 2.5 ppmvd @ 15% O_2; CO – 8.38 lb/hr and 6.0 ppmvd @ 15% O_2; VOC (as methane) – 1.64 lb/hr and 2.0 ppmvd @ 15% O_2; PM10 – 3.70 lb/hr; or SOx (as SO_2) – 1.78 lb/hr. NOx (as NO_2) emission rates are one hour rolling averages. All other emission rates are three hour rolling averages. [District Rules 2201 and 4703 and 40 CFR 60.4320(a) & (b)]

Verification: The project owner shall submit to the CPM and APCO CTG emissions data demonstrating compliance with this condition as part of the Quarterly Operation Report (**AQ-SC10**).

AQ-~~31~~33 The ammonia (NH_3) emissions from each CTG shall not exceed either of the following limits: 4.24 lb/hr or 10 ppmvd @ 15% O_2 over a 24 hour rolling average. [District Rules 2201 and 4102]

Verification: The project owner shall submit to the CPM and APCO CTG emissions data demonstrating compliance with this condition, using approved calculation methods (**AQ-~~44~~47**), as part of the Quarterly Operation Report (**AQ-SC10**).

AQ-~~32~~34 During start-up of each CTG, exhaust emission rates for that CTG shall not exceed any of the following limits: NOx (as NO2) – ~~4.17~~**30.0** lb/hr; CO – 12.5 lb/hr; VOC (as methane) – 0.83 lb/hr; PM10 – 1.85 lb/hr; or SOx (as SO2) – 0.89 lb/hr, based on a ~~one hour~~**per event** average. [District Rules 2201 and 4703]

Verification: The project owner shall submit to the CPM and APCO CEM-derived emissions data for NOx and CO (except when source testing is required for startups) and shall provide calculated PM10 and VOC emission from fuel consumption data and source test results to demonstrate compliance with this condition as part of the Quarterly Operation Report (**AQ-SC10**).

AQ-~~33~~35 During shutdown of each CTG exhaust emission rates for that CTG shall not exceed any of the following limits: NOx (as NO2) – 1.50 lb/hr; CO – 21.33 lb/hr; VOC (as methane) – 0.83 lb/hr; PM10 – 1.85 lb/hr; or SOx (as SO2) – 0.89 lb/hr, based on a ~~one hour~~**per event** average. [District Rules 2201 and 4703]

Verification: The project owner shall submit to the CPM and APCO CEM-derived emissions data for NOx and CO (except when source testing is required for shutdowns) and shall provide calculated PM10 and VOC emission from fuel consumption data and source test results to demonstrate compliance with this condition as part of the Quarterly Operation Report (**AQ-SC10**).

AQ-~~34~~36 Startup shall be defined as the period of time during which a unit is brought from a shutdown status to its SCR operating temperature and pressure, including the time required by the unit's emission control system to reach full operations. Shutdown shall be defined as the period of time during which a unit is taken from an operational to a non-operational status as the fuel supply to the unit is completely turned off. [District Rules 2201 and 4703]

Verification: The project owner shall submit to the CPM and APCO the CTG startup and shutdown event duration data demonstrating compliance with Condition **AQ-~~35~~37** as part of the Quarterly Operation Report (**AQ-SC10**).

AQ-~~35~~37 The duration of each startup or shut down time shall not exceed two hours. Startup and shutdown emissions shall be counted toward all applicable emission limits. [District Rules 2201 and 4703]

Verification: The project owner shall submit to the CPM and APCO the CTG startup and shutdown event duration data demonstrating compliance with this condition as part of the Quarterly Operation Report (**AQ-SC10**).

AQ-~~36~~38 The emission control systems shall be in operation and emissions shall be minimized insofar as technologically feasible during startup and shutdown. [District Rule 4703]

Verification: The project owner shall submit to the CPM and APCO the CTG startup and shutdown emissions data demonstrating compliance with this condition as part of the Quarterly Operation Report (**AQ-SC10**).

AQ-~~37~~39 Daily emissions from each CTG shall not exceed any of the following limits: NOx (as NO2) – ~~67.3~~**79.8** lb/day; CO – ~~126.0~~**117.6** lb/day; VOC – 19.7 lb/day; PM10 – 44.4 lb/day; or SOx (as SO2) – 21.4 lb/day. [District Rule 2201]

Verification: The project owner shall submit to the CPM and APCO CTG emissions data demonstrating compliance with this condition as part of the Quarterly Operation Report (**AQ-SC10**).

AQ-~~38~~40 Combined daily emissions from the two Swiftpac unit CTG's operating under permit units C-7286-1 and C-7286-2, and the two Swiftpac unit CTG's operating under permit units C-7286-3 and C-7286 shall not exceed any of the following Swiftpac two turbine limits: NOx (as NO2) – ~~134.6~~**159.6** lb/day; CO – ~~252.0~~**235.2** lb/day; VOC – 39.4 lb/day; PM10 – 88.8 lb/day; or SOx (as SO2) – 42.8 lb/day. [District Rule 2201]

Verification: The project owner shall submit to the CPM and APCO CTG emissions data demonstrating compliance with this condition as part of the Quarterly Operation Report (**AQ-SC10**).

AQ-~~39~~41 Quarterly hours of operation of each CTG shall not exceed any of the following limits: 1st Quarter – 800 hours, 2nd Quarter – 800 hours, 3rd Quarter – 1,400 hours, or 4th Quarter – 1,000 hours. [District Rule 2201]

Verification: The project owner shall submit to the CPM and APCO CTG operations data demonstrating compliance with this condition as part of the Quarterly Operation Report (**AQ-SC10**).

AQ-~~40~~42 Annual emissions from each CTG, calculated on a twelve month rolling basis, shall not exceed any of the following limits: NOx (as NO2) – ~~11,209~~**12,736** lb/year; CO – ~~19,546~~**18,826** lb/year; VOC – ~~3,320~~**3,281** lb/year; PM10 – 7,400 lb/year; or SOx (as SO2) – 3,560 lb/year. [District Rule 2201]

Verification: The project owner shall submit to the CPM and APCO CTG emissions data demonstrating compliance with this condition as part of the Quarterly Operation Report (**AQ-SC10**).

AQ-~~41~~43 Combined annual emissions from the two Swiftpac unit CTG's operating under permit units C-7286-1 and C-7286-2, and the two Swiftpac unit CTG's operating under permit units C-7286-3 and C-7286 calculated on a twelve consecutive month rolling basis, shall not exceed any of the following Swiftpac two turbine limits: NOx (as NO2) – ~~22,416~~**25,742** lb/year; CO – ~~39,096~~**37,652** lb/year; VOC – ~~6,400~~**6,562** lb/year; PM10 – 14,800 lb/year; or SOx (as SO2) – 7,120 lb/year. [District Rule 2201]

Verification: The project owner shall submit to the CPM and APCO CTG emissions data demonstrating compliance with this condition as part of the Quarterly Operation Report (**AQ-SC10**).

AQ-44 **The combined annual NO_X emissions from the CTG's operating under permits C-7286-1, C-7286-2, C-7286-3 and C-7286-4, calculated on a twelve consecutive month rolling basis, shall not exceed 50,000 lb/year. [District Rule 2201]**

Verification: **The project owner shall compile required emission compliance data using these standards and shall submit the information to the CPM and the APCO as part of the Quarterly Operation Report (AQ-SC10).**

AQ-~~42~~45 Each one hour period shall commence on the hour. Each one hour period in a three hour rolling average will commence on the hour. The three hour average will be compiled from the three most recent one hour periods. Each one hour period in a twenty-four hour average for ammonia slip will commence on the hour. [District Rule 2201]

Verification: The project owner shall compile required emission compliance data using these standards and shall submit the information to the CPM and the APCO as part of the Quarterly Operation Report (**AQ-SC10**).

AQ-~~43~~46 Daily emissions will be compiled for a twenty-four hour period starting and ending at twelve-midnight. Each month in the twelve consecutive month rolling average emissions shall commence at the beginning of the first day of the month. The twelve consecutive month rolling average emissions to determine compliance with annual emissions limitations shall be compiled from the twelve most recent calendar months. [District Rule 2201]

Verification: The project owner shall compile required emission compliance data using these standards and submit the information to the CPM and the APCO as part of the Quarterly Operation Report (**AQ-SC10**).

AQ-~~44~~47 Compliance with the ammonia emission limits shall be demonstrated utilizing one of the following procedures: 1) calculate the daily ammonia emissions using the following equation: (ppmvd @ 15% O2) = ((a - (b x c/1,000,000)) x (1,000,000 / b)) x d, where a = ammonia injection rate (lb/hr) / (17 lb/lb mol), b = dry exhaust flow rate (lb/hr) / (29 lb/lb mol), c = change in measured NOx concentration ppmvd @ 15% O2 across the catalyst, and d = correction factor. The correction factor shall be derived annually during compliance testing by comparing the measured and calculated ammonia slip; 2.) Utilize another District-approved calculation method using measured surrogate parameters to determine the daily ammonia emissions in ppmvd @ 15% O2. If this option is chosen, the project owner shall submit a detailed calculation protocol for District approval at least 60 days prior to commencement of operation; 3.) Alternatively, the project owner may utilize a continuous in-stack ammonia monitor to verify compliance with the ammonia emissions limit. If this option is chosen, the project owner shall submit a monitoring plan for District approval at least 60 days prior to commencement of operation. [District Rules 2201 and 4102]

Verification: The project owner shall submit for approval their proposed ammonia calculation procedure using one of the methods identified above to the CPM and the APCO for approval 15 days prior to turbine first fire, and then submit to the CPM and APCO for approval any requested modifications to the calculation procedure, not

including revised source test correction factors, at least 15 days prior to the Quarterly Operation Report (**AQ-SC10**) where the modified calculation procedure is first used.

AQ-45~~48~~ Source testing to measure startup and shutdown NOx, CO, and VOC mass emission rates shall be conducted for one of the gas turbines (C-7286-1, C-7286-2, C-7286-3, or C-7286-4) prior to the end of the commissioning period and at least once every seven years thereafter. CEM relative accuracy shall be determined during startup source testing in accordance with 40 CFR 60, Appendix B. If CEM data is not certifiable to determine compliance with NOx and CO startup emission limits, then source testing to measure startup NOx and CO mass emission rates shall be conducted at least once every 12 months. [District Rules 1081 and 2201]

Verification: The results and field data collected during source tests shall be submitted to the CPM and the District within 60 days of testing. Testing shall be conducted for the CTG upon initial operation, and at least once every seven years.

AQ-46~~49~~ Initial source testing to determine compliance with the NOx, CO and VOC emission rates (lb/hr and ppmvd @ 15% O2) NH3 emission rate (ppmvd @ 15% O2) and PM10 emission rate (lb/hr) shall be conducted within 120 days after initial operation. Initial source testing shall be conducted while unit C-7286-1 is operating independently and while unit C-7286-2 is operating independently and while units C-7286-1 and C-7286-2 are operating simultaneously. [District Rules 1081, 2201 and 4703 and 40 CFR 60.4400(a)]

Verification: The results and field data collected during source tests shall be submitted to the CPM and the District within 60 days of testing.

~~**AQ-47** Source testing to determine compliance with the NOx, CO, VOC and NH3 emission rates (lb/hr and ppmvd @ 15% O2) and PM10 emission rate (lb/hr) shall be conducted at least once every 12 months. Source testing shall be conducted while units C-7286-1 and C-7286-2 and units C-7286-3 and C-7286-4 are operating simultaneously. If any of units C-7286-1, C-7286-2, C-7286-3, or C-7286-4 are operated independently for more than 400 hours during any given calendar year, source testing for those units shall also be conducted while they are operating independently. [District Rules 1081, 2201 and 4703 and 40 CFR 60.4400(a)]~~

~~**Verification:** The results and field data collected during source tests shall be submitted to the CPM and the District within 60 days of testing.~~

AQ-50 **Source testing to determine compliance with NOx, CO, VOC and NH3 emission rates (lb/hr and ppmvd @ 15% O2) and PM10 emission rate (lb/hr) shall be conducted at least once every 12 months. The source testing frequency may be reduced to once every 24 months if the actual operation of both units within a Swiftpac combined is less than 877**

hours during any 12 consecutive month rolling period. [District Rules 1081, 2201 and 4703 and 40 CFR 60.4400(a)]

Verification: **The results and field data collected during source tests shall be submitted to the CPM and the District within 60 days of testing.**

AQ-51 **Source testing shall be conducted while both units within a Swiftpac are operating simultaneously. If one unit operates independently from the other unit within the same Swiftpac for more than 400 hours during any given calendar year, source testing shall also be conducted while that unit is operating independently. [District Rules 1081, 2201 and 4703 and 40 CFR 60.4400(a)]**

Verification: **The results and field data collected during source tests shall be submitted to the CPM and the District within 60 days of testing.**

AQ-48~~52~~ The sulfur 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 within 60 days of the end of the commission period and weekly thereafter. If the sulfur content is demonstrated to be less than 1.0 gr/100 scf for eight consecutive weeks, then the monitoring frequency shall be every six months. If the result of any six month monitoring demonstrates that the fuel does not meet the fuel sulfur content limit, weekly monitoring shall resume. [40 CFR 60.4360, 60.4365(a) and 60.4370(c)]

Verification: The result of the natural gas fuel sulfur monitoring data and other fuel sulfur content source data shall be submitted to the CPM and the APCO in the Quarterly Operation Report (**AQ-SC10**).

AQ-49~~53~~ The following test methods shall be used: NOx - EPA Method 7E or 20; CO - EPA Method 10 or 10B; VOC - EPA Method 18 or 25; PM10 - EPA Method 5/202 (front half and back half) or 201 and 202a; ammonia - BAAQMD ST-1B; and O2 - EPA Method 3, 3A, or 20. 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 and 40 CFR 60.4400(1)(i)]

Verification: The project owner shall notify the CPM and the District 30 days prior to any compliance source test. The project owner shall provide a source test plan to the CPM and District for the CPM and District approval 15 days prior to testing.

AQ-50~~54~~ Fuel sulfur content shall be monitored using one of the following methods: ASTM Methods D1072, D3246, D4084, D4468, D4810, D6228, D6667 or Gas Processors Association Standard 2377. [40 CFR 60.4415(a)(1)(i)]

Verification: The fuel sulfur content data shall be submitted to the CPM and the APCO in the Quarterly Operation Report (**AQ-SC10**).

AQ-51~~55~~ The exhaust stacks 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]

Verification: Prior to construction of the turbine stacks the project owner shall provide to the CPM for approval detailed plan drawings of the turbine stacks that show the sampling ports and demonstrate compliance with the requirements of this condition. The project owner shall make the site available for inspection of the turbine stacks by representatives of the District, CARB and the Commission.

AQ-~~52~~56 Compliance demonstration (source testing) shall be District witnessed, or authorized and samples shall be collected by a California Air Resources Board certified testing laboratory. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified 30 days prior to any compliance source test, and a source test plan must be submitted for approval 15 days prior to testing. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081 and 40 CFR 60.4375(b)]

Verification: The project owner shall notify the CPM and the District 30 days prior to any compliance source test. The project owner shall provide a source test plan to the CPM and District for approval 15 days prior to testing. The results and field data collected during source tests shall be submitted to the CPM and the District within 60 days of testing.

AQ-~~53~~57 Each CTG shall be equipped with a continuous monitoring system to measure and record fuel consumption. [District Rules 2201 and 4703]

Verification: The project owner shall make the site available for inspection by representatives of the District, CARB and the Commission to verify the continuous monitoring system is properly installed and operational.

AQ-~~54~~58 The owner or operator shall install, certify, maintain, operate and quality-assure a Continuous Emission Monitoring System (CEMS) which continuously measures and records the exhaust gas NOx, CO and O2 concentrations. Continuous emissions monitor(s) shall be capable of monitoring emissions during normal operating conditions, and during startups and shutdowns, provided the CEMS passes the relative accuracy requirement for startups and shutdowns specified herein. If relative accuracy of CEMS cannot be demonstrated during startup conditions, CEMS results during startup and shutdown events shall be replaced with startup emission rates obtained from source testing to determine compliance with emission limits contained in this document. [District Rules 1080 and 4703 and 40 CFR 60.4335(b)(1)]

Verification: The project owner shall make the site available for inspection by representatives of the District, CARB and the Commission to verify the continuous monitoring system is properly installed and operational.

AQ-~~55~~59 The CEMS shall complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period or shall meet equivalent specifications established by mutual agreement of the District, the ARB and the EPA. [District Rule 1080 and 40 CFR 60.4345(b)]

Verification: The project owner shall submit to the CPM and APCO CEMS audits demonstrating compliance with this condition as part of the Quarterly Operation Report (**AQ-SC10**).

AQ-~~56~~60 The NOx, CO and O2 CEMS shall meet the requirements in 40 CFR **75, Appendix A,**~~60, Appendix F Procedure 1 and Part 60, Appendix B Performance Specification 2 (PS 2),~~ or shall meet equivalent specifications established by mutual agreement of the District, the ARB, and the EPA. [District Rule 1080 and 40 CFR 60.4345(a)]

Verification: The project owner shall submit to the CPM and APCO CEMS audits demonstrating compliance with this condition as part of the Quarterly Operation Report (**AQ-SC10**).

AQ-~~57~~61 **The owner/operator shall perform audits of the CEMS as specified by 40 CFR Part 75, Appendices A and B, at least once every Quality Assurance (QA) operating quarter, except during quarters in which relative accuracy and total accuracy testing is performed, in accordance with EPA guidelines. A calendar quarter that does not qualify as a QA operating quarter shall be excluded in determining the deadline for the next audit. No more than four successive calendar quarters shall elapse after the quarter in which an audit was last performed without a subsequent audit having been conducted. 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 Rules 1080 and 4703, 6.2.3, 40 CFR 60.4345(e) and 40 CFR 75, Appendix B]**~~Audits of continuous emission monitors shall be conducted quarterly, except during quarters in which relative accuracy and compliance source testing are both performed, in accordance with EPA guidelines. 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]~~

Verification: The project owner shall submit to the CPM and APCO the CEMS audits demonstrating compliance with this condition as part of the Quarterly Operation Report (**AQ-SC10**).

AQ-~~58~~62 The owner/operator shall perform a relative accuracy test audit (RATA) for the NOx, CO and O2 CEMS as specified by 40 CFR Part **75, Appendices A and B, at least once every two Quality Assurance (QA) operating quarters. The RATA frequency may be reduced to at least once every four QA**

operating quarters if the incentive criteria of 40 CFR 75, Appendix B, Section 2.3.1.2 have been met. A calendar quarter that does not qualify as a QA operating quarter shall be excluded in determining the deadline for the next RATA. No more than eight successive calendar quarters shall elapse after the quarter in which a RATA was last performed without a subsequent RATA having been conducted.~~60, Appendix F, 5.11, at least once every four calendar quarters~~. The project owner shall comply with the applicable requirements for quality assurance testing and maintenance of the continuous emission monitor equipment in accordance with the procedures and guidance specified in 40 CFR Part **75, Appendices A and B**~~60, Appendix F~~. [District Rule 1080**, 40 CFR 60.4345(a) and 40 CFR 75, Appendices A and B**]

Verification: The project owner shall submit to the CPM and APCO CEMS audits demonstrating compliance with this condition as part of the Quarterly Operation Report (**AQ-SC10**).

AQ-63 **For the purposes of performing quarterly audits and RATA on the CEMS, a Quality Assurance (QA) operating quarter shall be defined as a calendar quarter in which there are at least 168 unit operating hours, or, for a common stack or bypass stack, a calendar quarter in which there are at least 168 stack operating hours. An operating hour is defined as a clock hour during which a unit combusts any fuel, either for part of the hour or for the entire hour. [40 CFR 72]**

Verification: The project owner shall submit to the CPM and APCO emission data required in the Quarterly Operation Reports (AQ-SC10) that follows the definitions of this condition.

AQ-~~59~~64 Results of the CEM system shall be averaged over a one hour period for NOx emissions and a three hour period for CO emissions using consecutive 15-minute sampling periods in accordance with all applicable requirements of CFR 60.13. [District Rule 4703 and 40 CFR 60.13]

Verification: The project owner shall submit to the CPM and APCO emission data required in the Quarterly Operation Reports (**AQ-SC10**) that follows the definitions of this condition.

AQ-~~60~~65 Excess **NOx** emissions shall be defined as any operating hour in which the **1-hour**~~4 hour or 30-day~~ rolling average NOx concentration exceeds applicable emissions limit and a period of monitor downtime shall be any unit operating hour in which sufficient data are not obtained to validate the hour for either NOx or O2 (or both). [40 CFR **60.4350(g)**~~60.4380(b)(1)~~]

Verification: The project owner shall submit to the CPM and APCO emission data and monitor downtime data in the Quarterly Operation Reports (**AQ-SC10**) that follows the definitions of this condition.

AQ-~~61~~66 Results of continuous emissions monitoring shall be reduced according to the procedures established in 40 CFR, Part 51, Appendix P, paragraphs 5.0 through 5.3.3, or by other methods deemed equivalent by mutual agreement with the District, the ARB, and the EPA. [District Rule 1080]

Verification: The project owner shall submit to the CPM and APCO emission data required in the Quarterly Operation Reports (**AQ-SC10**) that follows the definitions of this condition.

AQ-~~62~~67 The facility shall install and maintain equipment, facilities, and systems compatible with the District's CEM data polling software system and shall make CEM data available to the District's automated polling system on a daily basis. [District Rule 1080]

Verification: The project owner shall provide a Continuous Emission Monitoring System (CEMS) protocol for approval by the CPM and the APCO at least 60 days prior to installation of the CEMS. The project owner shall make the site available for inspection of the CEMS by representatives of the District, CARB and the Commission.

AQ-~~63~~68 Upon notice by the District that the facility's CEM system 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 CEM data is sent to the District by a District-approved alternative method. [District Rule 1080]

Verification: The project owner shall provide required non-polled CEM data to the District by a District-approved alternative method.

AQ-~~64~~69 The owner or operator shall, upon written notice from the APCO, provide a summary of the data obtained from the CEM systems. This summary shall be in the form and the manner prescribed by the APCO. [District Rule 1080]

Verification: The project owner shall submit to the CPM and APCO CEMS summary data upon written notice from the APCO.

AQ-~~65~~70 The owner or operator shall submit a written report of CEM operations for each calendar quarter to the APCO. 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 NOx emissions, nature and the cause of excess (if known), corrective actions taken and preventative 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 (monitor downtime), 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 60.4375(a) and 60.4395]

Verification: The project owner shall submit to the CPM and APCO the CEMS audits demonstrating compliance with this condition as part of the Quarterly Operation Report required by this condition and condition **AQ-SC10**.

AQ-~~66~~71 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]

Verification: The project owner shall make the site available for inspection by representatives of the District, CARB and the Commission to verify monitoring devices are functioning properly.

AQ-~~67~~72 The project owner 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, 6.1]

Verification: The project owner shall comply with the notification requirements of the District and submit written copies of these notification reports to the CPM and the APCO as part of the Quarterly Operation Report (**AQ-SC10**).

AQ-~~68~~73 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, 7.0]

Verification: The project owner shall comply with the notification requirements of the District and submit written copies of these notification reports to the CPM and the APCO as part of the Quarterly Operation Report (**AQ-SC10**).

AQ-~~69~~74 The project owner shall maintain the following records: date and time, duration, and type of any startup, shutdown, or malfunction; performance testing, evaluations, calibrations, checks, adjustments, any period during which a continuous monitoring system or monitoring device was inoperative, and maintenance of any continuous emission monitor. [District Rules 1080, 2201, and 4703 and 40 CFR 60.8(d)]

Verification: The project owner shall make the site available for inspection of records by representatives of the District, CARB and the Commission.

AQ-~~70~~75 The project owner shall maintain the following records: hours of operation, fuel consumption (scf/hr and scf/rolling twelve month period), continuous emission monitor measurements, calculated ammonia slip, and calculated NOx mass emission rates (lb/hr, lb/qtr and lb/twelve month rolling period). [District Rules 2201 and 4703]

Verification: The project owner shall make the site available for inspection of records by representatives of the District, CARB and the Commission.

AQ-~~71~~76 All records shall be maintained and retained on-site for a period of at least five years and shall be made available for District inspection upon request. [District Rules 1070, 2201, and 4703]

Verification: The project owner shall make the site available for inspection of records by representatives of the District, CARB and the Commission.

AQ-~~72~~77 Disturbances of soil related to any construction, demolition, excavation, extraction, or other earthmoving activities shall comply with the requirements for fugitive dust control in District Rule 8021 unless specifically exempted under Section 4.0 of Rule 8021 or Rule 8011. [District Rules 8011 and 8021]

Verification: The project owner shall document compliance with Rule 8021 in the Monthly Compliance Report (**AQ-SC3**), and as necessary after construction is complete in the Quarterly Operation Report (**AQ-SC10**).

AQ-~~73~~78 An owner/operator shall submit a Dust Control Plan to the APCO prior to the start of any construction activity on any site that will include 10 acres or more of disturbed surface area for residential developments, or 5 acres or more of disturbed surface area for non-residential development, or will include moving, depositing, or relocating more than 2,500 cubic yards per day of bulk materials on at least three days. [District Rules 8011 and 8021]

Verification: The project owner shall submit a Dust Control Plan to the CPM and APCO at least 30 days prior to the start of any construction activities to show compliance with this condition and Condition **AQ-SC2**.

AQ-~~74~~79 An owner/operator shall prevent or cleanup any carryout or trackout in accordance with the requirements of District Rule 8041 Section 5.0, unless specifically exempted under Section 4.0 of Rule 8041 (8/19/04) or Rule 8011(8/19/04). [District Rules 8011 and 8021]

Verification: The project owner shall document compliance with Rule 8041 in the Monthly Compliance Report (**AQ-SC3)**, and as necessary after construction is complete in the Quarterly Operation Report (**AQ-SC10**).

AQ-~~75~~80 Whenever open areas are disturbed, or vehicles are used in open areas, the facility shall comply with the requirements of Section 5.0 of District Rule 8051, unless specifically exempted under Section 4.0 of Rule 8051 or Rule 8011. [District Rules 8011 and 8051]

Verification: The project owner shall document compliance with Rule 8051 in the Monthly Compliance Report (**AQ-SC3)**, and as necessary after construction is complete in the Quarterly Operation Report (**AQ-SC10**).

AQ-~~76~~81 Any paved road or unpaved road shall comply with the requirements of District Rule 8061 unless specifically exempted under Section 4.0 of Rule 8061 or Rule 8011. [District Rules 8011 and 8061]

Verification: The project owner shall document compliance with Rule 8061 in the Monthly Compliance Report (**AQ-SC3)**, and as necessary after construction is complete in the Quarterly Operation Report (**AQ-SC10**).

AQ-~~77~~82 Water, gravel, roadmix, or chemical/organic dust stabilizers/suppressants, vegetative materials, or other District-approved control measure shall be applied to unpaved vehicle travel areas as required to limit Visible Dust Emissions to 20% opacity and comply with the requirements for a stabilized unpaved road as defined in Section 3.59 of District Rule 8011. [District Rule 8011 and 8071]

Verification: The project owner shall document compliance with Rule 8071 in the Monthly Compliance Report (**AQ-SC3)**, and as necessary after construction is complete in the Quarterly Operation Report (**AQ-SC10**).

AQ-~~78~~83 Where dusting materials are allowed to accumulate on paved surfaces, the accumulation shall be removed daily or water and/or chemical/organic dust stabilizers/suppressants shall be applied to the paved surface as required to maintain continuous compliance with the requirements for a stabilized unpaved road as defined in Section 3.59 of District Rule 8011 and limit Visible Dust Emissions (VDE) to 20% opacity. [District Rule 8011 and 8071]

Verification: The project owner shall document compliance with Rule 8071 in the Monthly Compliance Report (**AQ-SC3)**, and as necessary after construction is complete in the Quarterly Operation Report (**AQ-SC10**).

AQ-~~79~~84 On each day that 50 or more Vehicle Daily Trips or 25 or more Vehicle Daily Trips with 3 axles or more will occur on an unpaved vehicle/equipment traffic area, the project owner shall apply water, gravel, roadmix, or chemical/organic dust stabilizers/suppressants, vegetative materials, or other District-approved control measure as required to limit Visible Dust Emissions to 20% opacity and comply with the requirements for a stabilized unpaved road as defined in Section 3.59 of District Rule 8011. [District Rule 8011 and 8071]

Verification: The project owner shall document compliance with Rule 8071 in the Monthly Compliance Report (**AQ-SC3)**, and as necessary after construction is complete in the Quarterly Operation Report (**AQ-SC10**).

AQ-~~80~~85 Whenever any portion of the site becomes inactive, the project owner shall restrict access and periodically stabilize any disturbed surface to comply with the conditions for a stabilized surface as defined in Section 3.58 of District Rule 8011. [District Rules 8011 and 8071]

Verification: The project owner shall document compliance with Rules 8011 and 8071 in the Monthly Compliance Report (**AQ-SC3)**, and as necessary after construction is complete in the Quarterly Operation Report (**AQ-SC10**).

AQ-~~81~~86 Records and other supporting documentation shall be maintained as required to demonstrate compliance with the requirements of the rules under Regulation VIII only for those days that a control measure was implemented. Such records shall include the type of control measure(s) used, the location and extent of coverage, and the date, amount, and frequency of application of dust suppressant, manufacturer's dust suppressant product information sheet that identifies the name of the dust suppressant and application instructions. Records shall be kept for one year following project completion that results in the termination of all dust generating activities. [District Rules 8011, 8031, and 8071]

Verification: The project owner shall document compliance with Regulation VIII rules in the Monthly Compliance Report (**AQ-SC3)**, and as necessary after construction is complete in the Quarterly Operation Report (**AQ-SC10**).

REFERENCES

CEC – California Energy Commission, Final Decision (06-AFC-10C), January 16, 2008.

Starwood2011 - Starwood Power Plant, Petition to Amend (06-AFC-10C), July 8, 2011.

SJVAPCD2011 - San Joaquin Valley Air Pollution Control District, Authority to Construct, July 7, 2011.