

TITLE V OPERATING PERMIT STATEMENT OF BASIS

Facility Name: El Cajon Energy, LLC

Title V Application Number: APCD2011-APP-001657

Facility ID: APCD2009-SITE-06554

Equipment Address: 222 N. Johnson Ave.

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Permit Engineer: Doug Erwin
Date Completed: 4/2/13

1.0 Purpose/Introduction

This statement of basis describes an initial Title V application and permit covering a single stationary natural gas-fired combustion turbine. The sole basis for submittal under Title V is that the facility is subject to the acid rain program under Title IV of the federal Clean Air Act (CAA).

2.0 Permit History

The facility was issued an Authority to Construct for the turbine in 2009 and subsequently a Permit to Operate, the latter of which remains active under P/O # 987824. This evaluation addresses the initial Title V permit application.

3.0 Facility Description

The sole emission unit at this facility is a simple cycle natural gas-fired turbine generator, General Electric Model LM-6000PC Sprint, 49.95 MW capacity, 472.5 MMBtu/hr heat input (higher heating value, HHV) equipped with an integrated water injection system, a Cormetech selective catalytic reduction (SCR) system for control of nitrogen oxides (NO_x), and an automatic ammonia injection control system and oxidation catalyst. Also a part of this emission unit is a continuous emission monitoring system (CEMS) which measures NO_x, carbon monoxide (CO) and oxygen (O₂), a data acquisition and handling system (DAS), and two (2) Cambridge Engineering industrial process heaters, Model S1600, rated at 1.375 MMBtu/hr each.

The air quality focus for this facility is the emissions of criteria pollutants from the turbine exhaust. Based on District Rule 1200, toxic pollutants have been evaluated as well. For this Title V review, prior evaluations in the course of determining District rule applicability will be summarized. Additional considerations specific to Title V, notably monitoring, record keeping and reporting, are included here.

4.0 Primary Federal Applicability Determination

Rule 1401 - Title V Applicability

Rule 1412 - Title IV (Acid Rain) Applicability

4.1 Site Emissions and Title V Applicability:

The following Table 1 summarizes emissions from this facility, while Table 2 compares these emissions to major source permitting thresholds under Title V of the CAA. Based on the emissions comparison of Table 2, the facility is not a major stationary source under District Rule 1401. The subject facility is, however, subject to Title V permitting as explained in the following section.

Table 1 – Emissions Summary (as reported for 2011)	
Pollutant	ton/year
Criteria Pollutants	
NOx	1.9
VOC	0.2
PM10	0.7
SO2	< 0.1
CO	0.6
Federal HAPs	
Acetaldehyde	8.10
Acrolein	1.29
Benzene	2.42
1,3-Butadiene	0.08
Ethyl benzene	6.47
Formaldehyde	144
Napthalene	0.26
PAH, Unspecified	0.44
Toluene	26.3
Xylenes	13.0
Total HAPs	202 (0.10 tons/yr)

Table 2 - Major Source Thresholds & Emissions (tons/yr)			
Pollutant	Thresholds	Emissions	Major Source
Single Federal HAP	10	0.07	No
Combined Federal HAPs	25	0.10	No

NO _x	100	1.9	No
VOC	100	0.2	No
PM10	100	0.7	No
SO ₂	100	< 0.1	No
CO	100	0.6	No

4.2 Title IV (Acid Rain) Applicability:

The facility is subject to the acid rain provisions under District Rule 1412 and Title IV of the CAA, specifically pursuant to 40 Code of Federal Regulation (CFR) § 72.6(a). Under the acid rain program, an *affected source* (a term specifically defined in Title IV of the CAA, and which applies to this facility) is subject to Title V permitting pursuant to 40 CFR § 70.3(a)(4).

5.0 Monitoring, Record keeping and Reporting

Compliance Assurance Monitoring (CAM) Applicability was considered pursuant to 40 CFR Part 64. The turbine is expected to have pre-control emissions greater than the major source threshold for NO_x, which fulfills one of the three required criteria for applicability under this regulation. However, the turbine is equipped with a continuous emissions monitoring system (CEMS), therefore CAM does not apply based on § 64.2 (b)(vi).

As a requirement of New Source Review (NSR) the turbine is required to operate and maintain the CEMS to measure NO_x, CO, and NH₃, also pursuant to District Rules 69.3, 69.3.1, and 40 CFR 60 Subpart KKKK. No additional monitoring is required at this time.

Monitoring and testing are required in the existing District permit. For the related Title V permit draft, additional record keeping and reporting are required pursuant to District Rule 1421.

6.0 Applicable Requirements

From the District's evaluation for Authority to Construct (ATC), the following rules apply to this facility and are incorporated in the District and Title V permits accordingly: District Rules 50 (visible emissions), 51 (nuisance), 53 (sulfur compounds), 68 (NO_x emissions - supplanted and exempted due to applicability of Rule 69.3.1), 69.3 (Reasonably Available Control Technology, RACT), 69.3.1 (Best Available Retrofit Control Technology, BARCT), 98 (emergency variance), 20.2 (new source review, NSR), 1200 (toxic new source review), 1412 (federal acid rain program), 1414 (Title V permitting required for Title IV sources), Regulation X (adopts new source performance standards (NSPS) by reference), and 40 CFR 60 Subpart KKKK – *Standards of Performance for Stationary Combustion Turbines*.

As given above, the requirements from each listed rule are incorporated into the District and Title V permits accordingly. In some cases, a requirement may be “subsumed” by another, more stringent, requirement. Because this does not eliminate applicability of the less stringent requirement, this report endeavors to state clearly those connections between multiple rules where compliance is accomplished through adherence to the most stringent requirement. Following is further discussion on requirements falling into this category and other notable requirements.

District Rule 53

El Cajon Energy is subject to Rule 53, which limits emissions of sulfur compounds (as SO₂) and particulate matter. Estimated emissions for each of these pollutants at the time of ATC issuance showed that the facility would comply with Rule 53 through the use of Public Utility Commission quality natural gas.

District Rule 68

In accordance with Rules 69.3(a) and 69.3.1(a) and , the subject equipment is exempt from Rule 68.

District Rules 69.3 and 69.3.1

Rules 69.3 (RACT) and 69.3.1 (BARCT) both limit NO_x emissions from gas turbines above certain power thresholds. Both provide similar standards for compliance determination, monitoring and record keeping. The NO_x limit given in the District permit is 2.5 ppmvd, which is based on NSR under Rule 20.2, is more stringent than the emissions standard under either of these rules. The means of required compliance determination given in the permit equals or exceeds in stringency that given by either of these rules.

District Rules 20.2 and 1200

Rule 20.2(d)(1)(i) applies to any new or modified emission unit that results in an increase in potential to emit of 10 pounds per day or more of particulate matter (PM₁₀), volatile organic compounds (VOC), nitrogen oxides (NO_x) or sulfur oxides (SO₂). For each pollutant that triggers this threshold, BACT is required. At the time that the ATC was issued, emissions determinations showed BACT was required and a BACT limit was incorporated into the District permit for each of these pollutants. Also at the time of ATC issuance, an air quality impact analysis (AQIA) was performed for NO_x and CO in accordance with Rule 20.2(d)(2) based on emissions during operating conditions presented in the original permit application (which includes a permit limit on annual hours of operation). No adverse impacts were indicated from the analysis, however, permit conditions remain for both of these pollutants which ensure emissions remain within the framework of the original AQAI.

Rule 1200 requires a health risk assessment (HRA) for any increase in toxic air contaminants. Toxic Best Available Control Technology (TBACT) is required if the HRA indicates a cancer risk greater than one in one million. A HRA was performed at the time of ATC issuance, which indicated the risks to be below those under Rule 1200 requiring further action. The HRA was reviewed by the District and found to be acceptable.

It should be noted that an annual limit of 2,500 hours of turbine operation is included as a permit condition, which relates to the subject analyses as well as permitted annual emissions limits.

40 CFR 60 Subpart KKKK

40 CFR 60 Subpart KKKK – *Standards of Performance for Stationary Combustion Turbines* (adopted by reference in District Regulation X) applies to stationary combustion turbines with a heat input at peak load 10 MMBtu/hr (HHV of the fuel), which commenced construction, modification, or reconstruction after February 18, 2005. The turbine in question falls within these criteria and is subject to this rule.

Subpart KKKK limits NO_x to 25 ppm at 15% excess oxygen and SO₂ to 0.90 lb/MW-hr gross output or 0.060 lb/MMBtu/hr heat input. The originally established limit for NO_x of 2.5 ppmv is lower than that of Subpart KKKK. Therefore, the facility complies with the NO_x limit of Subpart KKKK by complying with the latter limit.

A condition is included in the permit requiring the exclusive use of Public Utility Commission (PUC) quality natural gas, which is limited in sulfur content to 5 grains per 100 standard cubic feet by California PUC General Order 58-A. By complying with this fuel sulfur standard, the source will comply with the SO₂ standards of Subpart KKKK as well as District Rule 62.

Monitoring, record keeping and reporting requirements were considered for this review. Some conditions are included for this initial Title V permit pursuant to District Rule 1421. Some conditions have been added to the District permit to ensure inclusion of key requirements under Subpart KKKK. The bulk of existing conditions in the District permit are of equal or greater stringency than the requirements of Subpart KKKK.

7.0 Summary of Applicable Requirements

7.1 Applicable Requirements – by Pollutant

Pollutant	Primary Regulation(s)
NO _x	Rule 20.2 (NSR); 40 CFR 60 Subpart KKKK
SO ₂	Rule 20.2; Rule 62; Rule 53; 40 CFR 60 Subpart KKKK
VOC	Rule 20.2
CO	Rule 20.2 (AQIA only)
PM ₁₀	Rule 20.2; Rule 53
All Toxic Pollutants	Rule 1200

7.2 Applicable Requirements – by Regulation

Facility-wide Requirements		
Regulation	Rule Citation	Title
SDCAPCD Reg. II	10(a)	Permits Required – (a) Authority to Construct
SDCAPCD Reg. II	10(b)	Permits Required – (b) Permit to Operate
SDCAPCD Reg. II	19	Provision of Sampling & Testing Facilities
SDCAPCD Reg. II	19.2	Continuous Emission Monitoring Requirements
SDCAPCD Reg. II	19.3	Emission Information
SDCAPCD Reg. II	20.2	New Source Review
SDCAPCD Reg. II	21	Permit Conditions
SDCAPCD Reg. IV	60	Circumvention
SDCAPCD Reg. IV	68	Fuel Burning Equipment - NO _x
SDCAPCD Reg. IV	69.3	Stationary Gas Turbine Engines - RACT
SDCAPCD Reg. IV	69.3.1	Stationary Gas Turbine Engines - BARCT
SDCAPCD Reg. IV	71	Abrasive Blasting
SDCAPCD Reg. V	98	Breakdown Conditions: Emergency Variance
SDCAPCD Reg. VI	101	Burning Control
Emission Unit Specific Requirements		
SDCAPCD Reg. IV	50	Visible Emissions
SDCAPCD Reg. IV	51	Nuisance
SDCAPCD Reg. IV	53	Specific Contaminants
SDCAPCD Reg. IV	62	Sulfur Content of Fuels
SDCAPCD Reg. X NSPS	260.7 260.13	Notification and Record keeping; Monitoring; General Provisions of 40 CFR 60 Subpart A
SDCAPCD Reg. X NSPS	Appendix C	40 CFR § 60 Subpart KKKK – <i>Standards of Performance for Stationary Combustion Turbines</i> (limits for NO _x & SO ₂)
SDCAPCD Reg. XII	1200	Toxic Air Contaminants – New Source Review

SDCAPCD Reg. XIV	1401	Title V Permitting – General Provisions
SDCAPCD Reg. XIV	1412	40 CFR Part 72 – Acid Rain Program
SDCAPCD Reg. XIV	1415	Title V Permitting - Public Notification
SDCAPCD Reg. XIV	1421	Title V Permit Content

8.0 Outside Review

In accordance with District Rule 1415, the District will provide notice to the public and notice to the Environmental Protection Agency Region 9.

9.0 Conclusions / Recommendations

The source is expected to comply with all applicable requirements including those cited in the current District permit as well as those under District Rule 1401 and Title V. Therefore, the recommendation of this report is for the subject initial Title V permit to be issued following public notice and EPA review.