

## **TITLE V OPERATING PERMIT STATEMENT OF BASIS**

**Facility Name:** Escondido Energy Center, LLC

**Title V Application Number:** APCD2017-APP-005203

**Facility ID:** APCD2000-SITE-03769

**Equipment Address:** 1968 Don Lee Place  
Escondido, CA. 92029

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**Permit Engineer:** Doug Erwin

### **1.0 Purpose/Introduction**

This statement of basis describes a renewal Title V permit covering a single stationary natural gas-fired combustion turbine (TVP-978478; District PTO-002082). The 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), which requires a Title V permit.

### **2.0 Facility Description**

The sole emission unit at this facility is a simple cycle natural gas-fired turbine generator, General Electric Model LM-6000, 46.5 MW capacity, 468.8 MMBtu/hr heat input, S/N 191-746, equipped with an inlet air evaporative cooling system (i.e., “fogger”), water injection, a Technip selective catalytic reduction (SCR) system for control of nitrogen oxides (NO<sub>x</sub>), and an automatic ammonia injection control system and oxidation catalyst. Also part of this emission unit are a continuous emission monitoring system (CEMS) which measures NO<sub>x</sub>, carbon monoxide (CO) and oxygen (O<sub>2</sub>), and a data acquisition and recording system (DAS).

The air quality focus for this facility is the emissions of criteria pollutants from the turbine exhaust. 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. Below is an emissions summary for the turbine emission unit.

**Emissions Summary - GE LM6000 Turbine Unit (potential to emit)**

Pollutant	Emissions	Major Source Threshold
	Tons/yr	Tons/yr
NO <sub>x</sub>	13.4	100
CO	16.2	100
VOC	2.8	100
SO <sub>x</sub>	2.4	100
PM <sub>10</sub>	6.6	100

**3.0 Permit History**

Based on District records the original permit application was submitted in February 2000. An ATC was issued in early 2001 and construction commenced in May 2001. Based on District records, the initial PTO was issued in late 2001. The initial Title V application was submitted in 2002, and the title V permit was issued in 2007. The current turbine was installed in 2012 as a replacement.

For the most recent 5 year permit cycle, the following changes were performed under the Title V permit:

Application #	Title V Action	Basis of Change	Effect on Emissions
2785	Significant mod.	Replaced Turbine	Decrease
3400	Minor mod.	Condition changes	None
4120	Operational flexibility under CAA section 502(b)(10)	Condition changes	None
4225	Minor mod.	Addition of turbine exhaust straighteners	Decrease

**4.0 Title IV (Acid Rain) and Title V Permitting**

The facility is subject to the acid rain provisions under Title IV of the Federal CAA as given at 40 Code of Federal Regulation (CFR) § 72.6(a) and District Rule 1412. Under the acid rain program, an *affected source* (a defined term which applies to this facility) is subject to Title V permitting pursuant to District Rule 1401 and 40 CFR § 70.3(a)(4).

It should be recognized that Escondido Energy is well below major source thresholds for all pollutants. The source is subject to Title V solely because it is a requirement of the acid rain program.

**5.0 Applicable Requirements**

The following table summarizes the applicable requirements that account for most of the regulatory authority at this facility, and is followed by a discussion of the most notable of these requirements.

Pollutant/Coverage	Primary Limiting Regulation(s)
NO <sub>x</sub>	Rule 20.2 (NSR); Rule 69.3.1; 40 CFR 60 Subpart KKKK
SO <sub>2</sub>	Rule 20.2; Rule 62; Rule 53; 40 CFR 60 Subpart KKKK
VOC	Rule 20.2
CO	Rule 20.2 (AQIA only)
PM <sub>10</sub>	Rule 20.2; Rule 53 (PM)
Toxic Pollutants	Rule 1200
General	Rule 10 (permits); Rule 20.1 (NSR – General)
Visible Emissions	Rule 50
Nuisance	Rule 51

#### District Rule 20.2 (NSR)

This rule provides for new source review (NSR) at any new, modified, or replacement emission unit. Section (d)(1)(ii) requires any new or modified emission unit that increases its potential to emit and results in a post-project PTE of 10 lb/day to apply best available control technology (BACT) emissions limits for NO<sub>x</sub>, SO<sub>2</sub>, VOC and PM<sub>10</sub>. The District permits of Appendix A include limits for each of these pollutants, which prevent the BACT threshold from being reached. These are the most stringent emission limits cited in the permit.

#### District Rules 53 & 62

Rule 53 limits emissions of PM resulting from the burning of carbon containing material. The rule also limits emissions of gaseous sulfur compounds, but excludes these emissions if they are produced from fuel combustion. The turbine is subject to PM limits under this Rule and such limits are included in the permit.

Rule 62 sets limits on fuel sulfur content. Natural gas combusted in the turbine is required to be California Public Utility Commission grade ( $\leq 5$  grains sulfur per 100 ft<sup>3</sup> of gas), which is more stringent than Rule 62.

#### District Rule 69.3.1

This rule places limits on NO<sub>x</sub> emissions from stationary turbines. The standard of this rule is superseded by the NO<sub>x</sub> limit of 2.5 ppmv established in the permit in accordance with Rule 20.2 as mentioned above.

#### Federal Acid Rain Program (40 CFR Parts 72-78)

As mentioned above, this facility is subject to Title V permitting because it is subject to the federal acid rain program. Hence, both the District permits at Appendix A and the body of the Title V permit include conditions pursuant to acid rain.

#### 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 of 10 MMBtu/hr (HHV of the fuel), which commenced construction, modification, or reconstruction after February 18, 2005. The associated turbine is subject to this rule.

Subpart KKKK limits NO<sub>x</sub> to 25 ppm at 15% excess oxygen and SO<sub>2</sub> to 0.90 lb/MW-hr gross output or 0.060 lb/MMBtu/hr heat input. The originally established limit for NO<sub>x</sub> of 2.5 ppmv, pursuant to District New Source Review, is lower than that of Subpart KKKK. Because the lower limit excludes startups and shutdowns, an additional permit condition cites the 25 ppm limit under Subpart KKKK.

As mentioned above, the permit requires 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 SO<sub>2</sub> standards of Subpart KKKK.

### 6.0 Monitoring, Recordkeeping and Reporting

Compliance Assurance Monitoring (CAM) applicability was considered in accordance with 40 CFR Part 64. Based on the original evaluation, the turbine has the potential for pre-control emissions to exceed the major source threshold for NO<sub>x</sub>, 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<sub>x</sub> and CO pursuant to District Rules 69.3, 69.3.1, and 40 CFR 60 Subpart KKKK.

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

### 7.0 Permit Shield

Pursuant to Rule 1410§(p), a source may request a permit shield which precludes enforcement for certain requirements such as requirements deemed inapplicable or for requirements compliance for which compliance is met by complying with a more

stringent standard. No permit shield was requested for this renewal, therefore none was included in the permit.

#### 8.0 Outside Review

Pursuant to Rule 1415, the District is submitting the proposed draft permit for public notice and review by EPA Region 9 and affected states.

#### 9.0 Conclusions / Recommendations

The source is expected to comply with all applicable requirements. Therefore, the recommendation of this report is for the subject renewal Title V permit to be issued following public notice and EPA review.