

Permit No. V-1365  
August XX, 2023

**IMPERIAL COUNTY AIR POLLUTION CONTROL DISTRICT**

150 S. 9<sup>th</sup> St.  
El Centro, CA 92243  
(442) 265-1800

**MAJOR FACILITY PERMIT REVIEW**

Company Name: Imperial Irrigation District  
Facility Name: Rockwood Gas Turbine Plant  
SIC Code: 4911 (Electric Services)  
Applied For: Permit Renewal  
Source Type: Power Plant  
Mailing Address: 333 East Barioni Blvd.  
Imperial, CA 92251  
Location: 4195 Dogwood Rd.  
Brawley, CA 92227  
Responsible Official: Mr. Kraig Strauch,  
Manager of Generation  
Plant Site Contact: Jack Shelnut, t  
Telephone: (760) 427 7447  
Permit Reviewer: Jesus Ramirez

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## **I. Introduction**

Pursuant to Rule 900 of the Imperial County Air Pollution Control District (Air District) Rules and Regulations, the Air District intends to issue a Title V Operating Permit Renewal to Imperial Irrigation District (IID), Rockwood Gas Turbine Plant (Rockwood). The Rockwood Gas Turbine Plant is an electrical generating facility. The gas turbines and auxiliary equipment operate under Title V Operating Permit No. V-1365. This renewal will include permit conditions to ensure the requirements of Air District Rule 400.1 (Stationary Gas Turbines – RACT) are being satisfied. In addition, the Operating Permit will include conditions to ensure that all Federal requirements are satisfied.

## **II. Project Description**

Rockwood consists primarily of two gas turbine generating units. The gas turbine units operate in accordance with the terms and conditions in the existing Permits to Operate (PTO), No. 1365A (Unit 1) and 1386A (Unit 2).

The turbine generator units are rated at approximately 22 Megawatts electrical output. The units are similar in nature and design, manufactured by company Pratt & Whitney. Unit 1 is a dual-fuel gas turbine, having the ability to operate using either natural gas fuel or diesel fuel. The primary fuel for Unit 1 however is natural gas, whereas diesel fuel is used as a backup energy source. Unit 2, unlike Unit 1, is operated exclusively with diesel fuel. Both units are operated by IID as “peaking” units, as they serve to provide additional electricity to the grid during periods of excessive electrical demand, which typically occurs in the summer months. Both Units employ water injection for the control of Nitrogen Oxides (NOx).

The diesel fuel used at Rockwood is stored offsite and is pumped through a pipeline network to the Rockwood day tank. The day tank serves as an onsite fuel reservoir. The unit is a vertical fixed-roof tank model, with a storage capacity of approximately 62,207 gallons.

## **III. Current Emission Status**

IID has submitted a Title V renewal application for Rockwood electrical generating facility located in Brawley, CA. This facility is below the thresholds for a major source, per District Rule 900. However, per the requirements of 40 CFR Part 70.3(a)(2) since the facility is subject to CFR Part 60, Subpart GG, the facility is subject to Title V requirements.

## **IV. Applicable Requirements**

According to the information submitted in the Title V application and the Air District review herein, the following federal requirements apply to Rockwood:

<b>Applicable Requirement</b>	<b>Equipment Affected</b>	<b>Adoption Date</b>
Rule 101, Definitions	Facility Wide	09/11/18
Rule 110, Stack Monitoring	Units 1 and 2	09/14/99
Rule 201, Permits Required	Facility Wide	10/10/06
Rule 207, Standards for Permit to Construct	Facility Wide	09/11/18
Rule 400.1, Stationary Gas Turbine(s) - (RACT)	Units 1 and 2	02/23/10
Rule 401, Opacity of Emissions	Facility Wide	11/19/85
Rule 403, General Limitations on the Discharge of Air Contaminants	Units 1 and 2	05/18/04
Rule 405, Sulfur Compounds Emission Standards, Limitations and Prohibitions	Units 1 and 2	05/18/04
40 CFR Part 60, Subpart GG, Standards of Performance for Stationary Gas Turbines	Units 1 and 2	
40 CFR Part 64, Compliance Assurance Monitoring	Units 1 and 2	
Permit to Operate No. 1365A-1	Unit 1	
Permit to Operate # 1386A-1	Unit 2	
Rule 900 – Operating Permits	Facility Wide	12/20/11

**V. Statements of Basis**

The current permit for Rockwood includes conditions to ensure that all federal requirements will be followed and fulfilled. Additionally, the permit has been designed to have adequate monitoring, record keeping, and reporting requirements to demonstrate continuous compliance with the permit conditions.

The following provides additional clarification regarding certain permit changes and permit conditions.

1. The original Authority to Construct (ATC) permit No. 1365 for Unit 1 was issued on April 9, 1979 and the Permit to Operate (PTO) was issued on July 6, 1979. PTO No. 1365 was amended on March 3, 2000 to incorporate new recordkeeping and monitoring conditions. The PTO number was changed to 1365A.

The permittee is requesting to modify Permit to Operate # 1365A, Condition B.1 which allows 1000 hours per year of operation for the gas turbine, to a Permit to Operate Condition which restricts hours of operation to 400 hours per calendar year. The Permit to Operate #1365A will be amended following the District's NSR procedures. Public notice of this amendment will be published along with the Title V Operating Permit. The amended Permit to Operate #1365A-1 will

become federally enforceable; therefore, the Permit to Operate conditions will be incorporated into the Title V Operating Permit.

2. The original ATC permit No. 1386 for Unit 2 was issued on June 6, 1979 and the PTO was issued on May 14, 1980. PTO No. 1386 was amended on March 3, 2000 to incorporate new recordkeeping and monitoring conditions. The PTO No. was changed to 1386A.

The permittee is requesting to modify Permit to Operate # 1386A, Condition B.1 which allows 1000 hours per year of operation for the gas turbine, to a Permit to Operate Condition which restricts hours of operation to 400 hours per calendar year. The Permit to Operate #1386A will be amended following the District's NSR procedures. Public notice of this amendment will be published along with the Title V Operating Permit. The amended Permit to Operate #1386A-1 will become federally enforceable; therefore, the Permit to Operate conditions will be incorporated into the Title V Operating Permit.

3. 40 CFR Part 60, Subpart GG, set limits for the operation of stationary gas turbines with a heat input at peak load equal or greater than 10 MMBtu/hr which were constructed, modified or reconstructed after 10/03/77. The gas turbine generating units 1 and 2 were constructed in 1979 and both units are above the 10 MMBtu/hr limit. Consequently, the Rockwood gas turbine generating units are subject to the requirements of Subpart GG.
4. Unit 1 is required to comply with 40 CFR Part 60, Subpart GG, for NO<sub>x</sub> and SO<sub>2</sub> standards. The standard for NO<sub>x</sub> for the stationary gas turbine is calculated according to the guidelines in 40 CFR Part 60.332. Nitrogen oxide emissions are calculated using the following equation:

$$\text{STD} = 0.0075 * [14.4/Y] + F$$

where:

STD = allowable NO<sub>x</sub> emissions (percent by volume at 15 percent oxygen on a dry basis).

Y = manufacturers' rated heat rate at manufacturers' rated load (kilojoules per watt hour) or, actual measured heat rate based on lower heating value of fuel as measured at actual peak loads for the facility. The value of Y will not exceed 14.4 kilojoules per watt hour.

F = NO<sub>x</sub> emission allowance for fuel-bound nitrogen as defined in 60.332(a)(1).

The following design and operational parameters were obtained from data submitted with the original application. The NO<sub>x</sub> standards for operation of the stationary gas turbine for natural gas and No. 2 diesel fuel were calculated using the above equation. According to Subpart GG, these standards will be incorporated in the Title V permit conditions to regulate the NO<sub>x</sub> emissions from the stationary gas turbines.

	Unit 1	
	Natural Gas	Diesel
Rating (MW Gross)	22.0	22.0
Fuel Input, HHV (MMBtu/hr)	308.6	280.5
Fuel Input, HHV (Gigajoules/hr)	325.5	295.9
(Y) Heat Rate, (KJ/W-hr)	14.4	13.45
F Natural Gas	0.00	--
F No. 2 Fuel Oil	--	0.00
NO <sub>x</sub> – (% by volume @ 15% O <sub>2</sub> )	0.0075	0.0080

- The requirements of 40 CFR Part 60, Subpart GG for NO<sub>x</sub> will be subsumed under the NSR requirements in Permit to Operate No. 1365A-1. Unit 1 shall comply with the NO<sub>x</sub> emission limit of 0.080% (15% O<sub>2</sub>, dry basis) or 80 ppmv when firing No. 2 diesel fuel. The NO<sub>x</sub> emission limit for Unit 1 was set at 75 ppmv (15% O<sub>2</sub>, dry basis) when firing No. 2 diesel fuel. This value is below the Subpart GG limit. This is appropriate as the NSR permit requirements for NO<sub>x</sub> are more stringent than the requirements of 40 CFR Part 60, Subpart GG. All of these requirements are currently federally enforceable, and by streamlining these conditions, there is no creation of new federally enforceable requirements.
- Unit 2 is required to comply with 40 CFR Part 60, Subpart GG, for NO<sub>x</sub> and SO<sub>2</sub> standards. The standard for NO<sub>x</sub> for the stationary gas turbine will be calculated according to the guidelines in 40 CFR Part 60.332. Nitrogen oxide emissions will be calculated using the following equation:

$$STD = 0.0075 * [14.4/Y] + F$$

where:

STD = allowable NO<sub>x</sub> emissions (percent by volume at 15 percent oxygen on a dry basis).

Y = manufacturers' rated heat rate at manufacturers' rated load (kilojoules per watt hour) or, actual measured heat rate based on lower heating value of fuel as measured at actual peak loads for the facility. The value of Y will not exceed 14.4 kilojoules per watt hour.

F = NO<sub>x</sub> emission allowance for fuel-bound nitrogen as defined in 60.332(a)(1).

The following design and operational parameters were obtained from data submitted with the Authority to Construct application. The NO<sub>x</sub> standard for operation of the stationary gas turbine for No. 2 diesel fuel was calculated using the above equation. According to Subpart GG, this standard will be incorporated in the Title V permit conditions to regulate the NO<sub>x</sub> emissions from the stationary gas turbine.

	Unit 2
	No. 2 Diesel
Rating (MW Gross)	22.0

Fuel Input, HHV (MMBtu/hr)	280.9
Fuel Input, HHV (Gigajoules/hr)	296.3
(Y) Heat Rate, (KJ/W-hr)	13.47
F No. 2 Fuel Oil	0.00
NO <sub>x</sub> – (% by volume at 15% O <sub>2</sub> )	0.0080

7. The requirements of 40 CFR Part 60, Subpart GG for NO<sub>x</sub> will be subsumed under the NSR Permit to Operate No. 1386A-1 requirements. Unit 2 shall comply with the NO<sub>x</sub> emission limit of 0.080% (15% O<sub>2</sub>, dry basis) or 80 ppmv when firing No. 2 diesel fuel. The NO<sub>x</sub> emission limit for Unit 2 was set at 75 ppmv (15% O<sub>2</sub>, dry basis) when firing No. 2 diesel fuel. This value is below the Subpart GG limit. This is an appropriate action, due to the fact that the NSR permit requirements for nitrogen oxides are more stringent than the requirements of 40 CFR Part 60, Subpart GG. All of these requirements are currently federally enforceable; therefore, by streamlining these conditions we are not creating new federally enforceable requirements
8. Units 1 and 2 are subject to the requirements of 40 CFR Part 60.334, Monitoring of Operations, which requires monitoring of sulfur and nitrogen content of the fuel being fired in the turbines. The source will demonstrate compliance with these requirements through the following conditions:
  - a. Monitoring of nitrogen content in pipeline natural gas will be waived since there is no fuel-bound nitrogen and since the free nitrogen does not contribute appreciably to NO<sub>x</sub> emissions, U.S.EPA memorandum of August 14, 1987, Authority for Approval of Custom Fuel Monitoring Schedules Under NSPS Subpart GG.
  - b. Monitoring of sulfur content in pipeline natural gas will be bimonthly, followed by quarterly, then semiannual, given at least six months of data demonstrating little variability in sulfur content, U.S.EPA memorandum of August 14, 1987, Authority for Approval of Custom Fuel Monitoring Schedules Under NSPS Subpart GG.
  - c. Unit 1 is capable of burning No. 2 diesel-fuel. Unit 2 burns No. 2 fuel oil exclusively. The permittee will develop custom schedules for determination of sulfur content in the fuel based on the design and operation of the facility and the characteristics of the fuel supply. These custom schedules shall be substantiated with data and must be approved by the Administrator before they can be used.
9. In accordance with 40 CFR Part 60.333(b), Units 1 and 2 are restricted to burn liquid fuel with a sulfur concentration up to 0.8 percent by weight. Also, Units 1 and 2 are limited to burn liquid fuel with a sulfur concentration up to 0.5 percent by weight per SIP Rule 405.B.5.b. The sulfur concentration in liquid fuel for Units 1 and 2 will be subsumed under the NSR permit requirements.

Compliance with these sulfur concentration limits is assumed due to the worst case limit contained in the NSR Permit to Operate No. 1365A-1, Condition B.2 and Permit to Operate No. 1386A-1, Condition B.2, of 0.5 percent by weight for No. 2 Diesel fuel.

This is an appropriate action, due to the fact that the NSR permits requirement for sulfur concentration in liquid fuels is more stringent than the requirements of 40 CFR Part 60, Subpart GG, and equivalent to the SIP Rule 405. These requirements are currently federally enforceable; therefore, by streamlining these conditions, we are not creating new federally enforceable requirements.

10. The requirements of the Compliance Assurance Monitoring Rule apply to a pollutant-specific emission unit at a major source that is required to obtain a part 70 (Title V Operating Permit) or part 71 (Acid Rain Permit) if the unit satisfies all of the following criteria: a) The unit is subject to an emission limitation or standard for the applicable regulated air pollutant; b) the unit uses a control device to achieve compliance with any such emission limitation or standard; and c) The unit has potential pre-control device emissions of the applicable regulated air pollutant that are equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source.

Units 1 and 2 must be in Compliance with requirements of 40 CFR Part 64, Compliance Assurance Monitoring. Units 1 and 2 employ water-injection for the control of nitrogen oxides (NO<sub>x</sub>); no other control device is used for this emission unit. 40 CFR Part 64 applies only to emission units which use a control device to achieve compliance with an emission limit. Due to the potential to emit for nitrogen oxides from Units 1 and 2 being lower than 100 tons per year for each emission unit, Units 1 and 2 are not considered large pollutant-specific emission units for nitrogen oxides. Therefore, Units 1 and 2 are not required to comply with 40 CFR Part 64.3, Monitoring Design Criteria.

11. The requirements within 40 CFR Part 60 Subpart KKKK, which set additional emission standards and compliance schedules for stationary combustion turbines that commenced construction, modification or reconstruction after February 18, 2005., does not apply to Rockwood due to the fact that the facility was constructed prior to the aforementioned date. Furthermore, the facility was not modified or reconstructed at any point after February 18, 2005.
12. The requirements within 40 CFR Part 63 Subpart YYYY, which establish national emission limitations and operating limitations for hazardous air pollutants (HAP) emissions from stationary combustion turbines located at major sources of HAP emissions, does not apply to Rockwood due to the fact that the facility is not classified as a major source of HAP emissions. The source does not emit or have the potential to emit any single HAP at a rate of 10 tons or more per year, or any combination of HAP at a rate of 25 tons or more per year.



13. The permittee operates several emission units and activities that are not included in the Title V permit due to the fact the air emissions from these units or activities are considered insignificant. These emissions units and activities are still required to comply with all federal requirements, as applicable. The Title V exclusion was granted following the guidance of CAPCOA Model List of Insignificant Activities for Title V Permit Programs, dated June 28, 2000. The emission units exempt, and the basis for their exemption, are listed in the Insignificant Activities Section which follows.
14. On February of 2010, the Air District adopted SIP Rule 400.1, Stationary Gas Turbine(s) – Reasonable Available Control Technology (RACT). Rule 400.1 imposes NOx limits on Stationary Gas Turbines of 42 ppmv (15% O2, dry basis) when operated on gaseous fuel and 65 ppmv (15% O2, dry basis) when operated on a liquid fuel. Section D.2a of rule 400.1, exempts a unit from the specified NOx limits on Stationary Gas Turbines which operate less than 400 hours per year. The applicant has requested to comply with Rule 400.1 by limiting the operation of Unit 1 and Unit 2 to less than 400 hours per year. The NOx limits for the units will remain unchanged at 75 ppmv (15% O2, dry basis). Permit conditions have been added to the Title V permit to ensure this regulation is satisfied.

## **VI. Insignificant Activities**

The following types of activities and emission units will not be included in the Title V permit:

1. Diesel fuel storage day tank. No. 2 Diesel fuel storage tank, vertical fixed roof storage tank, 62,207 gallon capacity. Unheated residual fuel oil storage tanks will be excluded due to the low volatility of residual fuel oil, vapor pressure < 0.1 psia. Exclusion is based on the CAPCOA Model List of Insignificant Activities for Title V Permit Programs, dated June 28, 2000.

## **VII. Supplemental Annual Fee**

The supplemental annual fee for the facilities will be determined according to the guidelines of Rule 900.G. The supplemental annual fee will be calculated according to the following equation:

$$s = [ \$58.55 \text{ per ton (CPI adjusted)} \times e ] - f$$

where:

s = supplemental annual fee in dollars

e = fee-based emissions in tons per year

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2021 Actual emission inventory for which fee-based emission schedule applies:

Nitrogen Oxides = 12.5  
 Sulfur Dioxide = 18.6  
 Particulate Matter (PM-10) = 0.1  
 Total = 32.1

f = sum (in dollars) of annual fees under Regulation III:

Equipment	Permit #	Fee Paid
Unit 1 Combustion turbine	1365A-1	\$ 5,111.50
Unit 2 Combustion turbine	1386A-1	\$ 5,111.50
TOTAL		\$ 10,223.00

Total Emissions of Fee Pollutants	32.1 tons/yr
Emissions of Fee Pollutants x \$58.55/ton	\$1,879.45
Annual Fees under Reg. III	\$10,223.00
Estimated supplemental Title V Program Fee	\$1,879.45 - \$10,879.45 = \$0.00

These calculations indicate that the annual fee paid by the facilities under Regulation III exceeds the emission fee pollutant schedule under Rule 900 therefore no supplemental fee is required.