TECHNICAL REVIEW DOCUMENT
OPERATING PERMIT 02OPEP246
to be issued to:

Fountain Valley Power, L.L.C.
Fountain Valley Power Plant

El Paso County
Source ID 0410897

Prepared by Cathy Rhodes
February, 2003

I. Purpose:

This document establishes the basis for decisions made regarding the Applicable Requirements, Emission Factors, Monitoring Plan and Compliance Status of Emission Units covered within the Operating Permit proposed for this site. It is designed for reference during review of the proposed permit by the EPA, the Public and other interested parties. Conclusions made in this report are based on information provided by the applicant in the Title V application submitted June 26, 2002, subsequent additional information submittals, and review of Division files. This narrative is intended only as an adjunct for the reviewer and has no legal standing.

Any revisions made to the underlying construction permits associated with this facility made in conjunction with the processing of this operating permit application have been reviewed in accordance with the requirements of Regulation No. 3, Part B, Construction Permits, and have been found to meet all applicable substantive and procedural requirements. This operating permit incorporates and shall be considered to be a combined construction/operating permit for any such revision, and the permittee shall be allowed to operate under the revised conditions upon issuance of this operating permit without applying for a revision to this permit or for an additional or revised Construction Permit.

II. Source Description:

This facility consists of six combustion turbine generators (CTGs) configured to operate in a simple-cycle mode (exhaust directly to the atmosphere). Each turbine has a nominal design rate of 336.0 mmBtu/hour. There are two natural gas fired inlet air preheaters, rated at 19.0 mmBtu/hour. There are three natural gas fired, 750 HP reciprocating internal combustion engines. The facility is defined under Standard Industrial Classification 4911.

The facility is located at 18693 Boca Raton Heights in El Paso County, just south of Fountain. The area is designated as attainment for all pollutants. The facility is considered to be a synthetic minor source for Prevention of Significant

Deterioration purposes.

Facility wide emissions are as follows:

Pollutant	Facility Potential to Emit (tons/yr)
PM	35.22
PM_{10}	35.22
NO_X	249.33
SO_2	Below APEN de minimis
CO	217.51
VOC	51.48

Potential to Emit is based on permitted emission limits. The facility has not yet commenced normal operation in July, 2001. Actual emissions for a two year period had not yet been established at the time this permit went to public notice. The source is a minor source of HAP emissions.

There are no Federal Class I designated areas within 100 kilometers of this facility. There are no affected states within 50 miles of this facility.

This facility certified within the Title V permit application they are not subject to 112(r), the Accidental Release Requirements.

III. Emission Sources:

The following sources are specifically regulated under terms and conditions of the Operating Permit for this Site:

<u>Units GT001 through GT006</u> - Six (6) General Electric (GE) Sprint Model LM6000 Natural Gas Fired Combustion Turbines, rated at a heat input of 336.0 MMBtu/hr. The turbines are equipped with water injection for NOx emissions control.

<u>Units AP001 and AP002</u> – Two (2) Ajax Natural Gas Fired inlet air preheaters, rated at a heat input of 19.0 MMBtu/hr each. The heaters heat a glycol solution that is piped to heat exchangers in the intake air section of each combustion turbine to enhance performance.

<u>Units GC001, GC002, and GC003</u> – Three Waukesha Natural Gas Reciprocating Internal Combustion Engines, Rated at 750 HP each. The compressors are used to increase the gas pressure supplied to the turbines as needed.

1. **Applicable Requirements –** Initial Approval Construction Permit 00EP0488 was issued for these sources. The due date of the first semi-annual monitoring and deviation report required by this operating permit will be more

than 180 days after the initial approval construction permit 00EP0488 was issued and/or the equipment commenced operation. Therefore, under the provisions of Regulation No. 3, Part B, Section V.A.2, the Division is allowing the initial approval construction permit to continue in full force and effect and will consider the Responsible Official certification submitted with that report to serve as the demonstration required pursuant to Regulation No. 3, Part B, Section IV.H and no final approval construction permit will be issued. The appropriate provisions of the initial approval construction permit have been directly incorporated into this operating permit. The following applicable requirements have been identified for these units:

Construction Permit 00EP0488

- Visible emissions shall not exceed twenty percent (20%) opacity during normal operation of the source. During periods of startup, process modification, or adjustment of control equipment visible emissions shall not exceed 30% opacity for more than six minutes in any sixty consecutive minutes (Condition 4 and Colorado Regulation No. 1, Sections II.a.1 & 4). Note: The operating permit condition reflects the specific Regulation No. 1 language for this applicable requirement.)

- Limits total criteria pollutant emissions from turbines and air inlet heaters on a quarterly basis for the first twelve months of operation and on a rolling twelve month basis thereafter (Condition 11) (Note: The facility has been in operation for more than a year, therefore the quarterly emission limits no longer apply, and are not included in the Operating Permit)

- Limits total amount of natural gas consumed by all equipment. (Condition 8) The permittee has requested that the specific consumption limit be eliminated. The operating permit contains a revised condition which limits natural gas consumption based on the emission limits

- The turbines are subject to Regulation No. 6 - Standards of Performance for New Stationary Sources, Part A - Federal Register Regulations Adopted by Reference, Subpart GG - Standards of Performance for Stationary Gas Turbines, including but not limited to:
    - $NO_X \leq$ 116 ppmvd at 15% oxygen.
    - $SO_2 \leq$ 150 ppmvd at 15% oxygen.
    - Fuel consumption and water-to-fuel ratio will be continuously monitored and recorded (Note: The operating permit requires the use of the CEM to monitor compliance with the NSPS emission limit, in lieu of this monitoring requirement)
    - Sulfur and nitrogen content of the fuel being fired in the turbines shall be monitored as specified in this Subpart GG (Note: The permittee requested, and received a waiver from nitrogen monitoring, because pipeline quality natural gas will be used as fuel. For sulfur monitoring, if little variability in sulfur content occurs during the first six months of monitoring, then sulfur monitoring can be conducted quarterly. If after at least six quarters there is still little variability in the fuel sulfur content, then sulfur monitoring can be

done semi-annually. The EPA has approved ASTM D 5504-94 as a primary method for sulfur monitoring and ASTM D 5453-93 as a backup method for sulfur analysis rather than the methods set forth in Subpart GG.)
(Condition 6)

- The turbines are also subject to the requirements in 40 CFR Part 60 Subpart A – New Source Performance Standards – General Provisions, as adopted by reference in Colorado Regulation No. 6, Part A, the following will be included in the permit (Condition 6)

- The inlet air preheaters are subject to the requirements of 40 CFR Part 60, Subpart Dc – New Source Performance Standards for Small Industrial-Commercial-Institutional Steam Generating Units, as adopted by reference in Colorado Regulation No. 6, Part A.

  Each unit is a "device that combusts any fuel and…heats water **or any other heat transfer medium.**" The glycol solution is a "heat transfer medium:" "any material that is used to transfer heat from one point to another point." Since the units combust only natural gas, no emission limits apply, however, the permittee must maintain records of daily fuel use.
  (Condition 6)

- The sources are subject to Regulation No. 6 – Standards of Performance for New Stationary Sources, Part B – Specific Facilities and Sources, Non-Federal NSPS, II.C & D – Standards of Performance for New Fuel-Burning Equipment – Standard for Sulfur Dioxide – Combustion Turbines (Condition 6). These are **state-only requirements**.
  - SO_2 emissions shall not exceed 0.35 lbs/mmBtu.
  - Opacity of emissions shall not exceed 20%

  (Condition 6)

- Each turbine will be equipped with CEMs to measure NOx and CO emissions

  (Condition 12)

- Compliance tests for PM, VOC, certain HAPs, CO, SO_2 and NOx. (Condition 13) The permittee had completed the required testing on the turbines, and demonstrated compliance with emission limits. The testing requirement for the turbines is therefore not included in the operating permit. The permittee has not operated the engines, and plans on removing the engines from the site. The operating permit indicates that testing is not required unless the engines are operated at the site.

  Other applicable requirements not included in 00EP0488
- Particulate matter emissions from each turbine or turbine and duct burner combination shall not exceed the limitations in Reg 1, Section III.A.1.b

- Sulfur dioxide emissions shall not exceed 0.35 lbs/mmBtu, on a 3-hour rolling average (Reg 1, Section VI.B.4.c.(ii) and VI.B.2)

- The turbines are subject to the Acid Rain requirements as follows:
    - Allocated SO_2 allowances are listed in 40 CFR Part 73.10(b), however, since these are new units, no allowances were allocated. SO_2 allowances must be obtained per 40 CFR Part 73 to cover SO_2 emissions for the particular calendar year.
    - There are no NO_X emission limitations since these units are not coal-fired boilers.
    - Acid rain permitting requirements per 40 CFR Part 72.
    - Continuous emission monitoring requirements per 40 CFR Part 75.
    - This source is also subject to the sulfur dioxide allowance system (40 CFR Part 73) and excess emissions (40 CFR Part 77).

- Insignificant Activities – Colorado Regulation No. 3, Part C, II.E states that sources may not take any insignificant activity exemptions if exempting the emissions from such activities would avoid any applicable requirement. Because total facility emissions are near major source levels for Prevention of Significant Deterioration purposes, a condition is included in the operating permit to ensure insignificant activity emissions are included in the total facility emission calculations. Division policy requires this recordkeeping for pollutants which are limited to within 10% of the major source level, therefore, for this facility, this recordkeeping is required for NOx emission sources.

2. **Emission Factors-** Emissions from the turbines, heaters and engines are produced during the combustion process, and are dependent upon operating conditions and specific properties of the natural gas being burned. The pollutants of concern are Nitrogen Oxides (NO_X), Carbon Monoxide (CO), Volatile Organic Compounds (VOC) and Particulate Matter (PM and PM_{10}). Small quantities of Hazardous Air Pollutants (HAPs) are also emitted dependent upon the makeup of the fuel and combustion efficiency. Emission limits from the turbines, heaters, and engines were established using manufacturers' data. CEMs will be used to monitor compliance with NOx and CO limits.

3. Monitoring Plan- The source shall be required to monitor compliance with the emission limits by monitoring fuel consumption and using emission factors based on heat input. The source shall be required to record fuel consumption and calculate emissions monthly. The Division has developed specific monitoring guidance for Internal Combustion engines located in attainment areas, as shown on the attached grid titled "Compliance/Scenario Summary - Gas Fired IC Engines." Facility emissions are between 200 and 250 ton/year, and the permit contains limits, and controls are used. Therefore, according to the monitoring grid, for the IC engines, the source will be required to: conduct the emission calculations and record fuel use on a rolling twelve month basis; record catalyst

parameters on a monthly basis; and perform quarterly portable monitoring.

The continuous emission monitoring systems shall be used to monitor compliance with the annual NO_X and CO emission limitations for the turbines.

The heat content of the natural gas shall be determined monthly through either sampling and analysis or use of vendor analyses. In the absence of credible evidence to the contrary, compliance with the opacity, particulate matter and Regulation No. 1 and 6 SO_2 limits shall be presumed provided natural gas is used as fuel.

4. Compliance Status- The permittee indicated in their application that they are in compliance with all applicable requirements.

IV. Compliance Assurance Monitoring (CAM) Requirements

The turbines are equipped with enhanced water injection to control NO_X emissions. The turbines are subject to an NSPS GG NO_X limit. Since the turbines are large pollutant specific emission units (i.e. potential controlled emissions exceed 100 tons/year) and since the Title V permit application turbines was not considered complete prior to April 20, 1998, in accordance with the provisions of 40 CFR Part 64 § 64.5(a)(1)(ii), as adopted by reference in Colorado Regulation No. 3, Part C, Section XIV, the CEM turbines are subject to the compliance assurance monitoring (CAM) requirements. A CAM plan was submitted with the Title V permit application. The Division has determined that, since the turbines are required to have NO_X CEMS pursuant to the Acid Rain Program and the construction permit, the NO_X CEMS shall be used to satisfy the CAM requirements as required by 40 CFR Part 64 § 64.3(d)(1), as adopted by reference in Colorado Regulation No. 3, Part C, Section XIV. Therefore, the appropriate CAM requirements have been included in the operating permit.

The Division considers that the CAM requirements apply to the Subpart GG NO_X limits and the annual NO_X limits for the turbines.

Emissions of NOx and CO from the internal combustion engines are controlled using catalytic converters. Precontrolled NOx and CO emissions from the engines are less than 100 tons/year each, therefore the CAM requirements do not apply to the engines.

V. Alternative Operating Scenarios

The permittee requested an Alternative Operating Scenario (AOS) in order to temporarily and permanently replace turbines. The permit contains the Division's AOS for turbine replacement.

VI. Acid Rain Provisions:

Both turbines and duct burners are affected units under the Acid Rain Program which is governed by 40 CFR Parts 72, 73, 75, 76, 77 and 78 and as such the source is required to have provisions for the Acid Rain requirements in its Title V

permit. Units subject to the Acid Rain requirements are required to hold adequate SO_2 allowances and have NO_X limitations. This facility is not listed under 40 CFR 73.10(b)(2) and therefore must obtain SO_2 allowances as needed. Since these units are not coal-fired boilers, they do not have any NO_X limitations under the Acid Rain Program.

Typically, units subject to the Acid Rain requirements are required to continuously measure and record emissions of SO_2, NO_X (with diluent monitor either CO_2 or O_2) and CO_2 as well as opacity and volumetric flow in accordance with the requirements in 40 CFR Part 75. Since these units burn natural gas, these units are not required to have a continuous opacity monitor and can use an alternate monitoring method (Appendix D), in lieu of installing and operating a continuous emission monitor for SO_2.

VII. Maximum Available Control Technology (MACT)

This facility is considered a true minor source for MACT purposes (potential individual HAP emissions <10 TPY and total HAP emissions <25 TPY), therefore the MACT provisions do not apply to this facility.