

**STATEMENT OF BASIS
FOR SIGNIFICANT MODIFICATION
OF TITLE V FEDERAL OPERATING PERMIT**

NOTE

Permit processed using SMAQMD Rule 207
Section 404 Enhanced NSR procedure

TITLE V PERMIT NO.: TV2003-07-02
DATE: October 29, 2009
REVIEWING ENGINEER: Bruce Nixon

A. FACILITY INFORMATION:

FACILITY NAME: Central Valley Financing Authority (CVFA)
Carson Cogeneration Project

LOCATION: 8580 Laguna Station Road
Elk Grove, CA

MAILING ADDRESS: PO Box 15830
Sacramento, CA 95852-1830

RESPONSIBLE OFFICIAL: James Shetler
CVFA Representative
(916) 732-6757

CONTACT PERSON: Jeff White
Plant Manager
(916) 394-2930

B. PURPOSE OF THIS STATEMENT OF BASIS:

The Title V Federal Operating Permit is intended to be a document containing only enforceable terms and conditions as well as any additional information, such as the identification of emission units, emission points, emission sources and processes, that makes the terms meaningful. 40 CFR Part 70.7(a)(5) requires that each Title V permit have an accompanying "...statement that sets forth the legal and factual basis for the draft permit conditions". The purpose of this Statement of Basis is to satisfy the above requirement by providing pertinent details regarding the permit/application data and permit conditions in a more easily understandable format. This report will also include background narrative and explanations of regulatory decisions made by the reviewer. It should be emphasized that this Statement of Basis, while based on information contained in the permit, is a separate document and is not itself an enforceable term and condition of the permit.

In addition to this Statement of Basis the relevant information contained in the Statement of

Basis for the 02-01-2005 Title V permit renewal, TV2003-07-01, is also applicable to the facility.

C. PERMIT ACTIONS:

Previous Permit Actions

The following permit actions have occurred since the initial Federal Operating Permit No. TV1996-07-01 was issued:

<u>Permit Action</u>	<u>Date</u>	<u>Permit No.</u>
Initial permit issued:	09-01-1999	TV1996-07-01
1st Minor Modification	07-24-2001	TV1996-07-02
1st Permit Renewal	02-01-2005	TV2003-07-01
1st Administrative Amendment	10-03-2006	TV2003-07-01A

Current Permit Action

This Statement of Basis is for the first Significant Modification of the Title V Federal Operating Permit TV2003-07-01 issued to CVFA Carson on 02-01-2005.

CVFA Carson requested that this permit action be processed under SMAQMD Rule 202 Section 101 PURPOSE and Section 404 ENHANCED NEW SOURCE REVIEW.

SMAQMD Rule 202 Section 101 reads as follows:

... A facility in possession of a valid Title V Operating Permit issued pursuant to Rule 207, TITLE V - FEDERAL OPERATING PERMIT PROGRAM, seeking a permit for a new emissions unit or a modified emissions unit which qualifies as a significant Title V modification, may choose to have their permit reviewed through an Enhanced New Source Review process, thereby meeting all the procedural requirements specified in Sections 401 through 408 of Rule 207, TITLE V - FEDERAL OPERATING PERMIT PROGRAM and the compliance requirements in Section 305 of Rule 207, TITLE V - FEDERAL OPERATING PERMIT PROGRAM. The Title V Operating Permit would then be amended administratively to reflect this permitting action.

SMAQMD Rule 202 Section 404 reads as follows:

ENHANCED NEW SOURCE REVIEW: Applications for which the applicant has requested review pursuant to this Section and Section 101 shall be reviewed in accordance with the procedural requirements specified in Sections 401 through 408 of District Rule 207, TITLE V FEDERAL OPERATING PERMIT PROGRAM, and Sections 70.6(a) through 70.6(g), 70.7(a), and 70.7(b), Part 70, Title 40, Code of Federal Regulations (40 CFR).

CVFA Carson qualifies to use the enhanced new source review permit processing procedure because:

1. They possess a valid Title V permit.
2. They are seeking a permit for a modified emissions unit.
3. The proposed modification is a significant modification.

In accordance with SMAQMD Rule 202 Section 404:

1. The SMAQMD had a 30 day Public Notice published in the Sacramento Bee on 07-03-2009 requesting comments on the preliminary decision to issue Authority to Construct (A/C) Nos. 22021, 22022 and 22066 that are associated with the modifications requested. The public review period ended 08-03-2009 and no comments were received.
2. The draft A/Cs and engineering analysis were emailed to U.S. EPA Region 9 on 06-25-2009 for their 45 day review period. The U.S. EPA Region 9 review period ended 08-14-2009 and no comments were received.

This significant modification of the Title V permit will be assigned the permit number TV2003-07-02.

D. FACILITY DESCRIPTION:

1. CVFA Carson is a cogeneration facility that became operational in 1995. The facility generates electricity and provides steam for use by others. There are two gas turbine generator units:
 - a. combined cycle gas turbine with a supplemental exhaust duct burner and heat recovery steam generator.
 - b. peaking gas turbine.
2. This facility provides:
 - a. electricity to the Sacramento Municipal Utility District (SMUD)
 - b. steam heat for digesters at the Sacramento Regional Wastewater Treatment Plant
 - c. steam to power refrigeration compressors at an ice production plant.
3. The cogeneration portion of the facility is based on a combined cycle gas turbine. The major components of the cogeneration portion of the facility include:
 - a. combined cycle gas turbine
 - b. exhaust duct burner
 - c. heat recovery steam generator
 - d. steam turbine
 - e. emission control systems
 - f. exhaust stack
 - g. water treatment systems
 - h. fuel delivery systems
 - i. electrical transmission and interconnection systems.

The combined cycle gas turbine combusts natural gas and/or digester gas (from the Sacramento Regional Wastewater Treatment Plant digesters). The combined cycle gas turbine operates at or near maximum load, producing up to 42 megawatts of electrical power (gross) prior to the combined cycle gas turbine upgrade [50 megawatts of electrical power (gross) after the combined cycle gas turbine upgrade], 24 hours per day, 365 days per year.

The associated duct burner, with a heat input rating of 99.9 MMBtu/hr and a nominal annual

capacity factor of 50%, is also fired with natural gas and/or digester gas. The steam produced by the duct burner and HRSG combination drives a steam turbine, which produces up to 17.2 megawatts of electrical power (gross).

4. The peaking power portion of the facility is based on a simple cycle gas turbine. The major components of the peaking power portion of the facility include:
 - a. peaking gas turbine
 - b. emission control systems
 - c. exhaust stack
 - d. water treatment systems
 - e. fuel delivery systems
 - f. electrical transmission and interconnection systems.

The peaking gas turbine is used to respond to intermittent peak electrical demand that is greater than the electrical power produced by the combined cycle turbine. The peaking gas turbine combusts natural gas and/or digester gas. The peaking gas turbine operates an average of 10 hours per day and 4,500 hours per year. It can provide 42 megawatts of electrical power (gross).

5. An emergency use, diesel fueled, internal combustion (IC) engine is included in the CVFA Carson facility to provide emergency electrical power.

In case of an electric power interruption, the emergency use IC engine and electrical generator will start automatically to provide electrical power for startup of the peaking gas turbine. As soon as the peaking turbine is producing electric power, the emergency use IC engine and generator will shut down. Anticipated operation of the emergency use IC engine during such an incident is less than two hours.

Routine maintenance of the emergency use IC engine and electrical generator is required to ensure its reliable operation when needed. For that purpose, the IC engine is operated approximately 30 hours/year.

E. DESCRIPTION OF TITLE V PERMIT MODIFICATION:

CVFA Carson is requesting to modify their current Title V Permit No. TV2003-07-01A as described below. The revised Title V permit will be numbered sequentially as TV2003-07-02.

Description:

In a Title V permit application dated 08-17-2009 (see Attachment A) CVFA Carson requested:

1. Modify the existing LM6000PA combined cycle gas turbine to a newer model LM6000PC Sprint/EFS gas turbine.
 - a. Increase the combined cycle gas turbine maximum heat input from 450 MMBTU/hour to 500 MMBTU/hour.
 - b. Increase the combined cycle gas turbine nominal electrical output from 42 MW to 50 MW.
 - c. Reduce the NOx concentration emission limit from the post-modification combined cycle gas turbine from 5 ppmvd at 15% O2 to 2.5 ppmvd at 15% O2.
2. Reduce the post-modification NOx concentration emission limit from the existing duct burner from 5 ppmvd at 15% O2 to 2.5 ppmvd at 15% O2.
3. Install an oxidation catalyst air pollution control system to control post-modification CO emissions from the combined cycle gas turbine to be less than or equal to the pre-modification CO emissions of the combined cycle gas turbine.

On 08-11-2009 the SMAQMD issued A/C Nos. 22021, 22022 and 22066 to CVFA Carson to allow the above changes (see Attachment B).

Basis for Requirements:

SMAQMD Rule 201 General Permit Requirements
SMAQMD Rule 202 New Source Review
SMAQMD Rule 207 Title V - Federal Operating Permit Program
SMAQMD Rule 401 Ringelmann Chart
SMAQMD Rule 406 Specific Contaminants
SMAQMD Rule 413 Stationary Gas Turbines
SMAQMD Rule 420 Sulfur Content Of Fuels
40 CFR 60 Subpart A General Provisions
40 CFR 60 Subpart KKKK - Standards of Performance for Stationary Combustion Turbines
40 CFR 72 - 78 Acid Rain program

Compliance Status:

CVFA Carson is expected to comply with the applicable requirements after the existing equipment is modified and the new equipment is installed.

Classification of Permit Change:

SMAQMD Rule 207 Section 233 defines a Title V permit modification as a "Significant Title V Permit Modification" if any of the following conditions are met:

- 233.1 Involves any modification under Section 112(g) of Title I (42 U.S.C. Section 412(g) of the Federal Clean Air Act, or under EPA regulations promulgated pursuant to Title I of the Federal Clean Air Act, including 40 CFR Part 51, 52, 60, 61 and 63.
- 233.2 Involves relaxation or significant change to existing monitoring, reporting or recordkeeping requirements in the Title V permit.
- 233.3 Involves case-by-case determination of an emission limit or other standard.
- 233.4 Involves a stationary source-specific determination for temporary sources of ambient impacts, or a visibility or increment analysis.
- 233.5 Attempts to set or change a Title V permit term or condition which allows a source to avoid an applicable federal requirement including:
 - a. A federally enforceable emission cap pursuant to Title I of the Federal Clean Air Act, or
 - b. An alternative HAP emission limit pursuant to Section 112(i)(5) (Section 42 U.S.C. Section 7412(j)(5) of the Federal Clean Air Act.
- 233.6 Involves a modification to a major stationary source which results in an increase in the potential to emit greater than: 25 tons per year of nitrogen oxides, 25 tons per year of volatile organic compounds, 40 tons per year of sulfur dioxide, 100 tons per year of carbon monoxide, or 15 tons per year of PM10 when aggregated with all other increases in potential to emit over the period of five consecutive years before the application for modification, and including the calendar year of the most recent application.

The modification of the combined cycle gas turbine makes it subject to 40 CFR 60 Subpart KKKK. The combined cycle gas turbine had been subject to 40 CFR 60 Subpart GG prior to the modification. Therefore, the permit modification is classified as a "Significant Title V Modification" under SMAQMD Rule 207 Section 233.1.

F. PERMIT MODIFICATIONS:

1. EQUIPMENT MODIFICATIONS:

The modifications to the equipment are as specified above.

2. EMISSION MODIFICATIONS:

	<u>Emissions Change</u>	
	NOx lb/quarter	SO2 lb/quarter
Combined cycle gas turbine modification	-5,618	62
Duct burner modification	-1,074	0
Oxidation catalyst new	<u>0</u>	<u>0</u>
Total	-6,692	62

G. APPLICABLE FEDERALLY ENFORCEABLE GENERAL REQUIREMENTS AND EQUIPMENT SPECIFIC REQUIREMENTS:

Except as noted below, the Applicable Federally Enforceable General Requirements and Equipment Specific Requirements will remain the same as those described in the Title V permit Statement of Basis TV2003-07-01. The requirements will not be repeated here (see Title V permit file for Applicable Federally Enforceable General Requirements and Equipment Specific Requirements).

The following Applicable Federally Enforceable Equipment Specific Requirements will be added to the permit as new or modified conditions -

1. Commissioning Requirements
See Condition Nos. CM1 to CM10 on Authority to Construct Nos. 22021, 22022 and 22066 (Attachment C).
2. Emission Limit Requirements
See Condition Nos. 6, 7, 8, 9, 10 and 11 on Authority to Construct Nos. 22021, 22022 and 22066 (Attachment C).
3. Equipment Operation Requirements
See Condition No. 17 on Authority to Construct Nos. 22021, 22022 and 22066 (Attachment C).

H. RECOMMENDATION:

1. Revise the Title V Federal Operating Permit as described in this Statement of Basis.
2. Issue Title V Federal Operating Permit No. TV2003-07-02 for CVFA Carson Cogeneration Project to include the significant modification described in this Statement of Basis.
3. This permit modification was reviewed following the Enhanced NSR procedures in SMAQMD Rule 202 Sections 101 and 404 as discussed above.
 - a. U.S. EPA Region 9 was provided the engineering evaluation and proposed CVFA Carson A/C Nos. 22021, 22022 and 22066 for review during the period from June 25, 1999 to August 14, 2009 (the requirement is a 45 day review period).
 - b. A request for public comments was published in the Sacramento Bee on July 03, 2009.
 - c. There were no comments received from the public or U.S. EPA Region 9.
 - d. There is no requirement for any additional public or U.S. EPA review period prior to issuing the Title V permit.

See Title V Permit No. TV2003-07-02 for equipment descriptions and permit conditions.

Approved by: _____ Date: _____

ATTACHMENT A

**Title V Permit Application
for Significant Permit Modification**

ATTACHMENT B

SMAQMD Rule 201 Authorities to Construct