

Addendum to Application 2488, Cogen Phase I
Valero Refining Company – California, Plant 12626
September 2004

On November 1, 2001, Valero Refining Co – California was granted an Authority to Construct for their Cogen Phase I project consisting of the following sources:

- S-1030** Combustion Turbine Generator: General Electric, Model LM 6000, 500 MM Btu/hr maximum rated capacity, Refinery Fuel Gas and/or Natural Gas Fired; water injected low NO_x Burners; Abated by A-60 Selective Catalytic Reduction (SCR) System and A-61 CO Oxidizing Catalyst System
- S-1031** Heat Recovery Steam Generator (HRSG): Duct Burner Supplemental Firing System, 310 MM Btu/hr maximum rated capacity; abated by A-60 Selective Catalytic Reduction (SCR) System and A-61 CO Oxidizing Catalyst System

Condition 19177 accompanied this Authority to Construct. As required by Part 21, Valero was required to conduct a source test to demonstrate compliance with the various emission limits included in Parts 18 and 19 for NO_x, CO, POC, PM₁₀, SO₂, SAM and NH₃. The required source tests were performed in January 2003 under four operating conditions:

1. Gas Turbine firing natural gas only
2. Gas Turbine and HRSG firing natural gas only
3. Gas Turbine firing refinery fuel gas only
4. Gas Turbine and HRSG firing refinery fuel gas only.

The required source tests demonstrated compliance with all of the emission limits except for POC emissions under operating condition #1. As a consequence, when the Permit to Operate was granted July 22, 2003, Condition 19177, Part 18d was revised to restrict any natural gas firing of the gas turbine only, as follows:

- 18d. The Owner/Operator shall limit the precursor organic compound (POC) mass emissions (as CH₄) from P-60 or P-62 to no more than 2.0372 pounds per hour or 0.002515 Lb/MM Btu when firing natural gas throughout each gas turbine/HRSG train. At this time, the operation of the gas turbine (S-1030) alone on natural gas is not allowed due to non-demonstration of compliance during the initial source test [Part 21, operating condition #1]. However, if the Owner/Operator demonstrates, in a subsequent source test, compliance with part 18(d) under operating condition #1, the gas turbine (S-1030) shall be permitted to operate on natural gas when the HRSG (S-1031) is idle. The Owner/Operator shall be allowed the following time to obtain the repeat source test to demonstrate compliance with operating condition #1:

Scheduled Events 2 days (48 hours)

Unscheduled Events 5 days (120 hours)
(Basis: BACT for POC when firing natural gas)

The revision of this permit condition was documented in District Office Memorandum, Doug Hall to William de Boisblanc, dated July 21, 2003. A copy of this memorandum is attached, and includes the results of the initial source test.

On December 2, 2003, Valero completed a follow-up source test. This source test demonstrated compliance as shown in the following table:

Emissions of S-1030 Cogen Gas Turbine fired on Natural Gas with Duct Burner off					
Pollutant	Condition	Limit	Jan 03 Results	Dec 03 Results	Source Test Dept. Corrected Results
POC	19177, Part 18d	2.0372 lb/hr	15.06 lb/hr	0.70 lb/hr	0.50 lb/hr

The source test approval report, including the summary of the test results, is attached. The source test report is located in the application file if additional information is required.

In the aforementioned July 21, 2003 District Office Memorandum, the following stipulation was made:

“In the event that compliance is demonstrated in operating mode #1 in the future, the Part 18(d) of Condition # 19177 will revert back to its original form.”

Compliance has been demonstrated, and Permit Condition 19177, Part 18d has been revised as follows:

18d. The Owner/Operator shall limit the precursor organic compound (POC) mass emissions (as CH₄) from P-60 or P-62 to no more than 2.0372 pounds per hour or 0.002515 Lb/MM Btu when firing natural gas throughout each gas turbine/HRSG train. ~~At this time, the operation of the gas turbine (S-1030) alone on natural gas is not allowed due to non-demonstration of compliance during the initial source test [Part 21, operating condition #1]. However, if the Owner/Operator demonstrates, in a subsequent source test, compliance with part 18(d) under operating condition #1, the gas turbine (S-1030) shall be permitted to operate on natural gas when the HRSG (S-1031) is idle. The Owner/Operator shall be allowed the following time to obtain the repeat source test to demonstrate compliance with operating condition #1:~~

~~———— Scheduled Events ——— 2 days (48 hours)~~

~~———— Unscheduled Events ——— 5 days (120 hours)~~

(Basis: BACT for POC when firing natural gas)

Art Valla
23Sep04
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