CALPINE

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DEC-L0879
File: 4.1.1.2

October 6, 2003

Sent by Facsimile (415) 928-0338

Mr. Kelly Wee, Director
Compliance and Enforcement
Bay Area Air Quality Management District
939 Ellis Street
San Francisco, CA 94109

Attention: Mr. Richard Lew

Re: Delta Energy Center Notices of Violation # A-45008 - 45011
Request for Additional Tuning Procedure Information

Dear Mr. Wee:

Enclosed please find additional information regarding the procedures for tuning of the combustion turbines at the Delta Energy Center (DEC). The information was provided by Siemens-Westinghouse (SWPC), the Original Equipment Manufacturer for the turbines. It is an excerpt from a SWPC document outlining the basic schedule of load hold points and duration for performing combustion tuning.

The SWPC LTP representative for DEC provided the information to Calpine. The Representative was unable to provide the entire document due to its proprietary nature. He is still looking to see if he can locate a customer version of this document that he can provide to DEC. Regardless, the information provided on combustion tuning is meant to give a general procedure for performing combustion tuning. The procedure is intended to provide a general guideline for tuning to which strict adherence is not necessarily required nor expected.

It should be pointed out that this procedure represented DEC's intent for tuning the combustion turbines following the May 2003 outages. This procedure by no means captures the exact steps that would be followed for all tuning events and/or activities. The load hold points and/or durations at those hold points of this procedure may be deviated from based on the purpose of the combustion tuning (i.e. Combustion Tuning following a Combustion Inspection, ambient changes, abnormal combustion issues, etc.).

I have again included a tuning chronology that identifies when the combustion turbines were tuned. This additional information in conjunction with previously submitted information should provide you with a clearer understanding of the tuning events that occurred following the recent plant outage in May 2003. Hopefully, after review, you will come to the conclusion that there

was no more than one tuning event per combustion turbine and no more than three total tuning events as described in Variance #3426 for which the District issued the NOVs.

If you have any additional questions, do not hesitate to contact Rob Parker, DEC Operations Manager, at (925) 252-2068, or myself at (925) 252-2066.

Sincerely,

C. David Zeiger
Compliance Manager

cc: Rob Parker
Pam Mackey - BAAQMD

Enclosures

Mr. Kelly Wee
Additional Tuning Procedure Information
October 6, 2003

bcc: Barbara McBride
David Williams

Emission Tuning Requirements

The following is a general procedure for emissions tuning of the combustion turbine. Emissions tuning will usually begin at the minimum load for the plant. The plan below assumes the following: The fuel gas heater is in service and at required temperature. Combustor dynamics monitoring equipment is already installed on the engine and validated. Combined cycle operation (ST roll up, BOP chemistry, etc.) time is not included. Emissions monitoring equipment is setup and calibrated.

Tuning steps

- Ignite and accelerate to full speed no load (FSNL)
- Load engine to 50% CT load and begin tuning at that load. Approximately 30 minutes
- Raise load to 60% CT load. Begin emissions/dynamics tuning. Approximately 1 hr
- Raise load to 70% CT load. Begin emissions/dynamics tuning. Approximately 1 hr
- Raise load to 80% CT load. Begin emissions/dynamics tuning. Approximately 1 hr
- Raise load to 90% CT load. Begin emissions/dynamics tuning. Approximately 1 hr
- Raise load to Baseload. Begin emissions/dynamics tuning. Approximately 1 hr
- Reduce to load down to 50% and then raise back to baseload to verify combustor settings are acceptable.
- Tuning complete.

The time required for tuning given above is the requested time for tuning the engine, however this may be reduced depending on the engine behavior.

Source: Siemens-Westinghouse 21T 8517 Commissioning Guidelines – 501FD

Delta Energy Center
Tuning Chronology
Variance #3426

Unit 1	May 3, 2003	1543 – 2055 hrs: start up and tuning and compliance achieved
Unit 2	May 20, 2003	1715 – 1723 hrs: attempted start up, no tuning
		1750 – 1801 hrs: attempted start up, no tuning
		2342 – 0214 hrs: start up and tuning and compliance achieved
Unit 3	May 7, 2003	2021 – 2022 hrs: failed start up, no tuning
		2056 – 2057 hrs: failed start up, no tuning
		2324 – 2326 hrs: failed start up, no tuning
	May 8, 2003	0918 hrs: failed start up, no tuning
		0953 – 0954 hrs: failed start up, no tuning
		1025 – 1026 hrs: failed start up, no tuning
		1118 hrs: failed start up, no tuning
		1725 – 1726 hrs: failed start up, no tuning
		2137 – 2138 hrs: failed start up, no tuning
	May 9, 2003	1110 – 1402 hrs: successful start up and tuning and compliance achieved
	May 12, 2003	1445 – 1606 hrs: routine start with no tuning performed

Note: Only one tuning event was performed for each turbine for a total of three tuning events as limited by Variance Conditions. No tuning occurred during any of the failed start up attempts.