

Memorandum of Record of Telephone Call 10/21/10

10:30AM

Participants:

Jim McLucas, Radback Energy

Pete Bukunt, GE

Kathleen Truesdell, BAAQMD

Call-in #: (877)376-1158 Participant code: 94526

Materials:

Letter dated Oct. 20, 2010 from Jim McLucas, Radback Energy, to Kathleen Truesdell, BAAQMD; subject: Contra Costa Generating Station-Startup and Shutdown Durations and Emissions

Summary of Discussion:

- Topic: Manufacturer's emissions
  - Pete confirmed the data in Table 2 of the letter originated from GE and are estimates, not guarantees.

Table 2 is pasted here for reference:

TABLE 2  
GE's Estimated Startup and Shutdown Durations and Emissions

	Hot Start	Warm Start	Cold Start	Shutdown
Duration, min.	14	14	45	30
NO <sub>x</sub> , lbs as NO <sub>2</sub>	22	22	96	39
CO, lbs	85	85	360	140
POC, lbs as CH <sub>4</sub>	31	31	67	17

- Pete confirmed that the data in Table 2 was based on load vs. time, NO<sub>x</sub> vs. load, and CO vs. load curves from GE.
- Pete explained the data in Table 2 include emissions from “combustor light off to minimum emissions compliance load” and do not include any emissions from normal operating conditions. Lb/event numbers are at end time, the accumulated emissions.
- Topic: Other features
  - Jim explained the 14 min hot/warm starts is the time for combustor sequence and 45 min for cold start includes an additional 30 min hold at about 10% load
  - Jim explained OGS will have a specially designed HRSG and GE takes the “whole wrap” meaning GE has control over all components of the system instead of turbine manufacturer guarantees separate from SCR systems manufacturer from control systems, etc.
  - Jim explained the HRSGs have stack dampers to keep heat in HRSG for up to a couple days; therefore the catalysts are warmer to start with

- Jim explained for SCR assumed increased seal inspections would include 3 days for the system to cool down, 1 day for scaffolding up and down – from PG&E
- Jim explained there are 2 ways to pull vacuum in the condenser and ST. One is with a vacuum pump, which is more expensive and less efficient but has a high capacity; there is an electric demand to draw power to run the pump, which increases electricity prices for the plant. The other option is the use of steam jet air ejectors (SJAE), which are more efficient, but require the GT to be held at low load to generate steam to run the SJAE.
  - OGS will use both – vacuum pump for “hogging” due to their high capacity to quickly remove air and SJAE for “holding” to maintain vacuum because they are more efficient.
- Fuel Pre-heating. Jim explained all plants require some pre-heating to about dew point. Pete said around 50 degrees above dew point so there are no condensibles. Other facilities have “performance heating” to increase output of the cycle, but the combustion system must be designed for performance heating, so the fuel will consistently need to be heated.
  - OGS will use an IP feed water (from HRSG) heat exchanger with fuel to pre-heat the fuel. OGS will have a secondary electric heater, which will be used only if the HRSG is cool. OGS will NOT have performance heating.

Call ended 11:10AM.