From: Holtom, Jonathan
To: "Zuczek, Jeffrey"
Cc: Arif, Syed; Attalla, Yousry
Subject: revised excess emissions language for Martin.
Date: Thursday, August 01, 2013 5:08:59 PM
Attachments: image002.png

Jeff,

Here is the revised language for a 4-on-1 unit.

For a 4-on-1 GE 7FA system that has both NO_X and CO CEMS:

1. Excess Emissions Allowed. As specified in this condition, excess emissions resulting from startup, shutdown, fuel switches, and documented malfunctions are allowed provided that operators employ the best operational practices to minimize the amount and duration of emissions during such incidents. For each gas turbine/HRSG system, excess emissions of NO_X and CO resulting from startup, shutdown, or malfunction shall be excluded from the CEMS data in any 24-hour period ~~(or shall not exceed eight hours per 4-unit site, with the additional provision of a limit of 2 startup periods per 24 hours per unit~~) for the following conditions (these conditions are considered separate events and each event may occur independently within any 24-hour period):

   a. *Steam Turbine Cold Startup.* For cold startup of the steam turbine system, excluded emissions from any ~~all~~ gas turbine/HRSG systems in the 4-on-1 combined cycle system, ~~combined,~~ shall not exceed eight hours in any 24-hour period. Cold startup of the steam turbine system shall be completed within 12 hours. A cold "startup of the steam turbine" is defined as startup of the 4-on-1 combined cycle system following a shutdown of the steam turbine lasting at least 48 hours.

   {Permitting Note: During a cold startup of the steam turbine, each gas turbine/HRSG system in the 4-on-1 combined cycle system is sequentially brought on line at low load to gradually increase the temperature within the steam-electrical turbine ~~and~~ in order to prevent thermal metal fatigue. Note that shutdowns and documented malfunctions are separately regulated in accordance with the requirements of this condition.}

   b. *Gas Turbine/HRSG System Cold Startup.* For cold startup of an individual gas turbine/HRSG system, excluded emissions shall not exceed four hours in any 24-hour period. "Cold startup of a gas turbine/HRSG system" is defined as a startup after the pressure in the high-pressure (HP) steam drum falls below 450 pounds per square inch gauge (psig) for at least a one-hour period.

   c. *Gas Turbine/HRSG System Warm Startup.* For warm startup of an individual gas turbine/HRSG system, excluded emissions shall not exceed two hours in any 24-hour period ~~**(or shall not exceed 8 hours per 4-unit site, with the additional provision of a limit of 2 startup periods per 24 hours per unit)**~~ (with the additional provision of a limit of 2 warm startup periods per 24 hours per gas turbine/HRSG system, in which case excluded emissions shall not exceed eight hours total for the 4-on-1 combined cycle system). "Warm startup of a gas turbine/HRSG system" is defined as a startup after the pressure in the high-pressure (HP) steam drum is above 450 psig.

   d. *Gas Turbine/HRSG System Shutdown.* For shutdown of the gas turbine/HRSG operation, excluded emissions from any individual gas turbine/HRSG system shall not exceed two hours in any 24-hour period.

   e. *Shutdown Combined Cycle Operation*. For shutdown of the entire 4-on-1 combined cycle system operation, excluded emissions from any ~~all~~ gas turbine/HRSG systems~~, combined,~~ shall not exceed three hours in any 24-hour period.

   f. *Fuel Switching*. For fuel switching, excluded emissions shall not exceed two hours in any 24-hour period for each fuel switch and no more than four hours in any 24-hour period for any gas turbine/HRSG system.

   g. *Documented Malfunction.* For each gas turbine/HRSG system, excess emissions of NO_X and CO resulting from documented malfunctions shall not exceed two hours in any 24-hour period. A "documented malfunction" means a malfunction that is documented within one working day of detection by contacting the Compliance Authority by telephone, facsimile transmittal, or electronic mail.

   The above language reflects the combined intent of changes made in permits 010-AC/PSD-FL-327, 016-AC/PSD-FL-327B, and 020-AC/PSD-FL-327C (I think)

I'm still looking at old versions of modifications to the PSD permit No. 146 for units 3 and 4, but so far, all I can find is the following language that is in the current Title V permit No. 021-AV:

B.15. Cold Starts. The excess emissions authorized under Rule 62-210.700(1), F.A.C., shall be extended an additional two hours (four hours total) for a cold steam turbine start for the first CT of a unit. The second CT of each unit shall comply with established emission limits in accordance with Rule 62-210.700(1), F.A.C. [PSD-FL-146, Specific Condition No. 4.]

Based on this language, if you wish to revise the excess emissions provisions for the 2-on-1 units to be structured similar to the 4-on-1 units, then we need to talk about what the appropriate hours are for each of the different categories.

I'll talk with you tomorrow.

Jon Holtom, P.E., CPM
Florida Department of Environmental Protection
Division of Air Resource Management
Office of Air Permitting and Compliance
(850) 717-9079
FAX: (850) 717-9097
Email: jon.holtom@dep.state.fl.us

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