



# CEMS Averaging

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# AQES, Division of Air Enforcement

## EMS CEMS Program



Presented by: Neil Nissim, EMS

## Averaging CEMS Data

**Purpose:** Clarifying NJDEP Policy for Determining CEMS Multi-Hour Rolling and Block Averages. Note that this does not supersede any rule or regulation. Emission exceedance reporting is outside the scope of this policy. Refer to Technical Manual 1005 (TM1005), Appendix B, Instructions (Section 4) and clarifying C&E guidance.

## Averaging CEMS Data

- A.) Three-hour Rolling Averages
- B.) 24-hour Block Averages
- C.) 30-day Rolling Averages (non-ozone season)
- D.) 365-day Rolling Averages

## A.) Three-hour Rolling Averages

### Assumptions:

1. One-hour limits averaged over 3 hours using 1-hour clock block averages.
2. Only source operating hours are included in the average. The 3 hours used in an average are not necessarily consecutive hours if there is a break in operation.
3. 3-hour averages only include valid CEMS hours as defined by TM1005 (Section B.4.b), namely, 45 minutes of valid data. This is further clarified to mean that there must be 45 minutes of source operation to have a valid hour.
4. If the source has a Startup/Shutdown (SU/SD) Operating Scenario, then any hour that includes a Startup/Shutdown would be excluded from the 3-hour average (compliance for the Startup/Shutdown hour will be per the Startup/Shutdown Operating Scenario).
5. If the source does NOT have a Startup/Shutdown Operating Scenario, then any hour that includes a Startup/Shutdown WOULD be included in the 3-hour average.
6. Downtime hours will be assessed as defined in TM1005 (Section B.4.c), counting as 60 minutes of downtime in calculating the total quarterly downtime minutes used to meet the quarterly valid data capture requirement found in TM1005 (Section B.4.d).

### A.) Three-hour Rolling Average Examples

Hour 1	Hour 2	Hour 3	Hour 4	Hour 5	Hour 6
Valid	Valid	Invalid (1,2), SU/SD (3)	Valid	Valid	Valid

- 1) **Process Down:** Compliance based on: Hours 1, 2 and 4; 2, 4 and 5; and 4, 5 and 6. Hour 3 is ignored. There is no downtime.
- 2) **CEMS down:** Compliance based on: Hours 1, 2 and 4; 2, 4 and 5; and 4, 5 and 6. Only 1 hour (Hour 3) of downtime is accrued.
- 3) **Start-up/Shutdown:**
  - a) No Startup/Shutdown Operating Scenario (OS) in Permit: Compliance based on Hours 1, 2 and 3; 2, 3 and 4; 3, 4 and 5; and 4, 5 and 6. There is no downtime.
  - b) Startup/Shutdown Operating Scenario (OS) in Permit:
    - (i) Compliance is based on Hours 1, 2 and 4. For Hour 3, compliance based on Startup/Shutdown Operating Scenario. There is no downtime.
    - (ii) Compliance is based on Hours 2, 4 and 5. For Hour 3, compliance based on Startup/Shutdown Operating Scenario. There is no downtime.
    - (iii) Compliance is based on Hours 4, 5 and 6. There is no downtime.

## B). 24-hour block averages

### Assumptions:

1. Compliance based on *valid* one-hour averages in the units of the standard divided by the number of operating hours in which valid CEMS data is obtained. Quarterly valid data capture assessments follow TM1005 (Section B.4.d). Downtime is on an hourly basis per TM1005 (Section B.4.c).
2. A valid day is any day that has a valid hour of data, as previously defined to mean 45 minutes of data and 45 minutes of source operation.
3. If the only valid hour(s) of data in a 24-hour block is/are a Startup/Shutdown hour(s) AND the facility has a Startup/Shutdown Operating Scenario (OS) in the Permit, then no 24-hour block average is determined. If there is also at least one hour of non-Startup/Shutdown operation, all valid hours, excluding the Startup/Shutdown hour(s) are included in the 24-hour average.
4. If there is no Startup/Shutdown Operating Scenario (OS) in the Permit, then a 24-hour average is determined, even if the only valid hours in a 24-hour block are Startup/Shutdown hours.
5. Notwithstanding Nos. 4 and 5 above, for a turbine showing compliance with Subchapter 19, a valid hour also has at least 45 minutes of net energy output; hours with less than this are excluded from the 24-hour average.

Note 1: The MATS regulation was used as the starting point in the above, as modified by the valid hour definition from TM1005, and including a Startup/Shutdown exemption where applicable from a Permit, rule or regulation.

Note 2: A 24-hour rolling average would follow the same principals of the 3-hour rolling average.

### C. 30-day rolling averages (non-ozone season)

The average is calculated based on 30 *valid* days of operation. The 30-day period could extend until the next non-ozone season. A valid day is determined from “B” above. Downtime is calculated similar to a 3-hour rolling average, on an hourly basis per TM1005.



#### **D. 365-day rolling averages**

The average is calculated based on 365 *valid* days of operation. A valid day is determined from “B” above. Downtime is calculated similar to a 3-hour rolling average, on an hourly basis per TM1005.

# Contact

## Neil Nissim

Environmental Specialist 3

Emission Measurement  
Section



Neil.Nissim@dep.nj.gov



[www.state.nj.us/dep/bts/](http://www.state.nj.us/dep/bts/)



609-984-3443

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