

SANTA BARBARA COUNTY
AIR POLLUTION CONTROL DISTRICT
POLICIES AND PROCEDURES

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Topic:	<u>Continuous Emission Monitoring (CEM) Enforcement</u>		
Distribution:	<u>Engineering Division and Compliance Division Staff</u>		

This policy and procedure defines enforcement practices associated with continuous emission monitoring systems (CEMS). Consistent with Federal regulation and APCD Rule 328, CEMS are required for affected sources to continuously measure the amount of pollutants, such as NO_x, CO and SO₂, emitted by a facility. This policy will address CEMS enforcement issues, including circumstances which warrant enforcement action, associated with:

1. CEMS audits as required by 40 CFR, Part 60, Appendix F
2. Disposition of CEMS measured emission violations
3. CEMS Data Recovery and CEMS Breakdowns
4. Implementation of facility specific CEMS plans and the APCD's CEMS Protocol (Protocol)

Specific CEMS operation, performance and quality assurance/quality control (QA/QC) procedures and requirements (e.g., allowed calibration drift, audit procedures and accuracy requirements) are defined in 40 CFR 60, Appendices B and F (CFR), and the APCD's CEMS Protocol. In addition, these requirements are included in the facility specific CEMS and/or audit Plan. These documents should be referenced for specifics on these requirements, as this level of detail is beyond the scope of this policy.

ENFORCEMENT ACTION

Actions from a source which warrant documentation of a violation are detailed in the sections that follow. Regardless of the circumstance that constitutes a CEMS related violation, the following procedure should be followed. Violations will generally fall into one of the following categories:

1. Failure to meet a QA/QC requirement (e.g., audit, calibration)
2. Exceedance of a permitted limit as measured by a CEMS

Policies and Procedures Memoranda are intended to provide agency staff, applicants and the public guidance relative to standardized APCD procedures. These policies and procedures shall not be interpreted in conflict with APCD Rules and Regulations or administrative policies, and may be modified or updated periodically without advance notice.

3. Failure to meet a specific CEMS plan or reporting requirement

A violation could be discovered by the source test group, the project manager, or the project inspector. The following data sources could indicate a violation: Breakdown or deviation filings by the source, alarms on the APCD DAS, CEM audit reports, or compliance reports. In all cases the project manager must be informed of the violation. Upon direction from the project manager, the Inspector should process and issue a Notice of Violation (NOV). An Enforcement Supervisor should be consulted in cases in which there are uncertainties about the violation or the appropriate enforcement action. The project manager should ensure that Mutual Settlement enforcement staff are aware of actions by the facility operator which may impact the settlement process.

CEMS AUDITS

A certification audit of CEMS, termed a Relative Accuracy Test Audit (RATA), is performed once a year. The RATA ensures the integrity of the complete CEMS, from the in-stack sampling location through the facility data acquisition system, by comparing CEMS measurement of emissions to those of an independent contractor. A Cylinder Gas Audit (CGA) or Relative Accuracy Audit (RAA) is performed in the other three quarters. These audits are much more limited in scope and can be performed by the facility operator. Reference the CFR or Protocol for specific details of audit procedures.

1. Audit Schedule

The initial RATA must be performed within 60 days of initiation of the Source Compliance Demonstration Period (SCDP), at the facility. In subsequent years, the RATA must be performed in the same calendar quarter as the initial RATA. If requested, the APCD may provide an administrative extension to this requirement if extenuating circumstances exist. Audits in consecutive quarters must be at least two months apart. The audit schedule should be monitored by staff to ensure that facilities are performing their required audits. Any deviation from these requirements, not pre-approved by the APCD, is a violation.

2. Disposition of a Failed Audit

Upon review of audit data, if a CEMS component (e.g., a NOx analyzer) fails an audit, the CEMS is "out-of-control", as defined by the CFR. The Supervisor must be notified by the report reviewer, and the facility should be notified immediately that the facility is subject to enforcement. If applicable, a source may seek enforcement relief through a breakdown or variance. Refer to the breakdown/variance section below for more detail on disposition of a failed audit.

All data collected by the affected CEMS since the time and date that the audit was completed is invalid until a repeat audit is passed. Thus, this data cannot be used for compliance verification with emission limits and is considered invalid data for the purposes of calculating data capture. Note that a failed RATA must be followed by another RATA to recertify the instrument. A failed CGA/RAA may be followed by a CGA/RAA or a RATA.

CEMS RATA AND SOURCE TESTS

In general, equipment which includes CEMS will also be required to perform a compliance source test on an annual basis. Since data obtained for a RATA will also meet some requirements of the annual compliance test, most facilities will elect to perform the RATA and compliance test simultaneously. Due to the accuracy allowance provided for CEMS relative to the source test reference method, it is possible for the source test to indicate noncompliance while the CEMS indicates compliance (or vice versa). In such a circumstance, the source test data takes precedence for determining compliance. If the CEMS reports a violation while the source test indicates compliance, the source should be granted latitude when determining compliance only for the time that the source test is occurring.

CEMS RECORDED EMISSION VIOLATIONS

1. Compliance Review

Since CEMS data is submitted to the APCD via continuous telemetry and quarterly report submittal, APCD staff involved in the review of such data can include the permit compliance engineers and inspectors. Any valid data as recorded by the CEMS that indicates an exceedance of permitted emission limits is a violation. Upon discovery of any such exceedance, the staff member discovering the apparent violation should notify the Supervisor. Records should be checked to verify that the CEMS was providing valid data at the time of the measured exceedance and not operating under an approved breakdown or variance. If such review indicates that no breakdown or variance protection is in place, staff should initiate appropriate enforcement action. Note that the APCD may suspend enforcement action if the CEMS measured emission violation occurs during SCDP. Refer to Compliance Division P&Ps for guidance on the reviewer's role during SCDP.

If the violation is discovered via telemetered data and is ongoing, staff should contact the facility to:

- A. Discuss the problem
- B. Inform them that the CEMS must remain on line until the facility has regained compliance and the event is over

If after such a warning, a CEMS is taken off-line during an emission limit violation event, the APCD will consider emissions of the affected pollutant in exceedance of the permitted limit for all time off-line. The APCD will take the source's action into consideration during the settlement process.

If the violation is discovered during review of a quarterly report, the reviewer should inform the Supervisor. Upon completion of review of the report, the reviewer should provide the Supervisor with an itemized list of all violations, including process parameters such as water-fuel ratio and ammonia injection rates. For process parameters that are measured and reported, the data should be checked for validity by verifying the process monitor accuracy. The accuracy verification should include review of operator calibration procedures and frequency, operator quality assurance procedures, and manufacturers data on the instrumentation. If data for a process parameter is determined to be invalid, the reviewer should direct this to the attention of

the Compliance Division for potential enforcement action. If the process parameter data is valid, compliance should be evaluated against the applicable limits specified in the PTO, and any violations should be reported to the Supervisor.

2. Emission Limits/Data Averaging

Typically for CEMS reporting, the smallest time increment reviewed is a six-minute average. This six-minute average is determined from the average of a number of data points obtained at smaller time increments. A typical data averaging scheme is to compile one (or ten second) data points to calculate a one-minute average, with six one minute averages used to calculate the six-minute average. Refer to the CEMS Protocol and CEMS Plans for further details and exceptions to this data reduction methodology.

A. Mass Emission Limits

Since permitted mass emission limits are based on a one-hour time increment (e.g., NO_x lbs/hr), compliance with mass emission rates is based on one hour of data. This hourly emission rate is based on ten, six-minute data points (or some other number of "less than one hour" time averages as defined in the CEMS Plan). Permit compliance for lb/hr limits is typically based on sliding hour averages (unless a clock-hour average standard is specified in the permit). A sliding hour average is calculated by averaging the last one hour of data each time the data is updated. For example, with six minute averages as the "base" data point, a new sliding hour average is calculated every six minutes. Since most data on the APCD DAS is formatted as clock-hour averages, specialized post-processing report may have to be run to determine sliding hour lb/hr values from the DAS six-minute data points.

Any confirmed exceedance of a lb/hr limit should be documented as an emissions violation.

B. Concentration Emission Limits

In addition to mass emission limits, permits also frequently include concentration emission limits (e.g., NO_x, dry ppmv @ 15% O₂). Note that concentration emissions must always be reported at a reference condition, which is typically dry, at 15% (or 3%) excess oxygen. Whenever reviewing concentration data for compliance purposes, always ensure that the reported data are at the same reference condition as the permitted limit. Since concentration is not a time dependent parameter, when reviewing concentration data for compliance purposes, the smallest reported time increment is typically used. For CEMs data, the APCD uses a six-minute average as the benchmark for compliance. However, in some cases, permits may specify sliding hourly average concentration standards. Unless some other short-term average concentration standard applies, any six-minute CEMs data point which exceeds the permitted concentration limit should be documented as an emissions violation.

CEMS DATA RECOVERY

Each CEMS or process monitor must achieve a minimum 90% data recovery efficiency (DRE) on a calendar quarter basis. This quarterly 90% DRE applies to each analyzer or process measurement system (e.g., pollutant concentrations, stack flow or temperature, fuel usage rate).

The 90% DRE requirement means that CEM downtime is limited to 10% of the monitored equipment's (i.e., the equipment emitting pollutants) quarterly operating hours. For example, if a turbine with a CEMS operates 1000 hours in a quarter, then downtime for that CEMS is not allowed to exceed 100 hours in that quarter.

CEMS downtime includes the following: CEMS failures/malfunctions and non-routine calibration and maintenance. Normal calibration activity does not count towards downtime. CEMS downtime hours during facility/equipment downtime, or CEMS downtime hours granted relief by a variance, are not counted towards the 10% CEMS downtime.

If a CEMS does not achieve 90% DRE for a quarter then the source is in violation, unless enforcement relief is provided via Rule 505 (Breakdown Conditions) for the CEM downtime (i.e., the CEMS breakdown meets all applicable criteria of Rule 505, including item A.4., "not a recurrent breakdown of the same equipment").

For CEMS quarterly DRE compliance purposes, multiple breakdowns which result in CEMS downtime in excess of 10% of facility uptime are considered as "recurrent breakdowns". A single breakdown of less than 96 hours duration that results in CEM downtime in excess of 10% is not recurrent, and qualifies for enforcement relief if it satisfies all other APCD Rule 505 criteria.

If the 10% allowable downtime hours is exceeded for a CEMS, relief from enforcement action is available only through a variance granted by the Hearing Board. The Hearing Board will not grant retroactive variances.

During review of a quarterly report, the reviewer must notify the project manager of any DRE violations so that enforcement action can be pursued.

BREAKDOWNS/VARIANCES

If a problem develops at a facility, relief from enforcement action may be possible via a breakdown or variance. APCD Rules 505 and 506 should be referenced for information on applicability. Breakdown or variance coverage is possible for process equipment where failure contributes to a noncompliant event (e.g., breakdown of the ammonia feed system resulting in a CEM measured NO_x exceedance on a turbine with SCR), or CEMS equipment (e.g., failure of a NO_x meter which results in erroneous data). In any event, it is the facility's responsibility to petition for a breakdown or variance consistent with the requirements of Rules 505 or 506, respectively.

1. Process Equipment

If a process equipment breakdown is valid, 24 hours are allowed to remedy the situation. If the problem is not rectified within 24 hours, a variance is required to continue operation of the facility without additional enforcement action. If an emission exceedance is reported and subsequently rationalized based on the breakdown of

process equipment, but the operators did not report a breakdown at the time it occurred, the condition is a violation. The expedience of the resolution to the breakdown and any subsequent variance, especially actions taken by the operator to limit excess emissions, should be considered during the Mutual Settlement process. The reviewer should be sure that the Mutual Settlement enforcement staff are informed of actions by the facility operator which may impact the settlement process.

2. CEMS

For valid Rule 505 CEMS breakdowns, 96 hours are allowed to remedy the situation. If the breakdown is not remedied in the 96-hour period, further operations of the CEM may result in enforcement action unless a Variance has been obtained. If realization of a CEMS breakdown was triggered by a failed audit, and a breakdown was filed and accepted, then the repeat audit must be completed and the audit report submitted within the 96-hour period in order to be granted relief from enforcement action. If the repeat audit is part of a larger overall test program, then the facility must submit, at a minimum, a preliminary report that includes raw audit data and reduced data which indicates that audit accuracy requirements were met for the instrument/analyzer of concern. The data from the remainder of the test program can be submitted at a later date consistent with the test reporting schedule stipulated by the permit. Enforcement action is applicable for a failed audit not covered by a Rule 505 breakdown, and a repeat audit is required to demonstrate the CEM is functioning according to specifications.

The applicability of Rule 505 breakdowns for DRE violations is discussed on the previous page. It should be emphasized that a breakdown filed for quarterly CEM DRE (e.g., monitor downtime) should not be accepted, if at the time of the filing, the current DRE for the quarter (based on parameter downtime and total emission unit operational hours in the quarter to date) is 90% or greater. The filing would not be valid, since no violation of DRE occurred or is projected to occur.

CEMS PLAN/CEMS PROTOCOL

1. CEMS Plan

Staff should be familiar with the facility specific CEMS Plan. The Plan defines maintenance, operation and QA/QC procedures that the source is to follow. If a source fails to meet these obligations, this failure is subject to enforcement action. In some cases, the proper disposition of the "violation" may be a revision to the CEMS Plan to update the procedure apparently violated.

During SCDP, the CEMS Plan should be reviewed within the context of plant operations and CEMS technology. If a deviation from the approved plan is found during SCDP, staff should request the source to revise their CEMS Plan rather than pursue enforcement action. The CEMS Plan should be considered a "living document" in that revisions may be appropriate on occasion to properly reflect CEMS operation. This is especially true of the CEMS Plan approved prior to SCDP.

2. CEMS Protocol

Any new CEMS installations must be required to follow the guidance of the APCD CEMS Protocol. Adherence to the Protocol will ensure that the CEMS design, installation and operation (including interfacing with the APCD's Data Acquisition System) will conform with the CFR and APCD requirements.

Facilities with CEMS installed prior to October 22, 1992 are not required to conform with all facets of the Protocol.