

**SAN JOAQUIN VALLEY UNIFIED
AIR POLLUTION CONTROL DISTRICT
COMPLIANCE DEPARTMENT**

COM 2115

APPROVED: _____ **SIGNED** _____ **DATE:** April 26, 2007
Jon Adams
Director of Compliance

TITLE: **RULE 4306 – BOILERS, STEAM GENERATORS, AND
PROCESS HEATERS – PHASE 3**

SUBJECT: **RULE 4306 INSPECTION AND ENFORCEMENT
PROCEDURES**

OBJECTIVE:

Boilers, steam generators, and process heaters are significant sources of air pollution in the valley, especially NOx. It is important to minimize these emissions with uniform and effective enforcement of this rule. District Staff will insure the uniform application of this rule through the use of this policy. The compliance program will include permitting and registration, inspections, and educational outreach.

PURPOSE:

The purpose of this policy is to provide guidance in the application of Rule 4306, Boilers, Steam Generators, and Process Heaters – Phase 3, so that it is applied consistently and effectively throughout the San Joaquin Valley Air Pollution Control District (District).

POLICY STATEMENT:

BACKGROUND

Rule 4306 was enacted to replace Rules 4351 and 4305 with more stringent limits for NOx. The new requirements are phased in over a period of years. All units require an emission control plan (ECP, by June 2004), and during the period from June 2004 through December 1, 2008, almost all units will require some action by the operator to comply with Rule 4306. It may be only increased record-keeping or additional tune-ups or it may be new equipment and control technology. In addition, many of the units will require source testing to verify compliance with new limits or equipment modifications. In the case where a unit does not require equipment modification to

meet the new limit, previous source tests may be used to demonstrate compliance with the new limits.

The required ECP must specify how and when each unit will comply with Rule 4306.

Rule 4306 does not incorporate a significant exemption present in Rule 4305. In 4305, a unit was exempt if no burner was rated above 5 million BTU per hour (MMBTU/Hr) even if the unit had several burners. In 4306, the unit is not exempt if the aggregate rating of all burners exceeds 5 MMBTU/hr.

Specific sources may be permitted with special conditions that restrict emissions to a greater extent than Rule 4306. In that instance the permit conditions provide the enforceable limit.

INSPECTION PROCEDURES

Safety and Inspection Equipment

Hard hat, gloves, steel-toed boots, nomex as required by the source

Hearing protection, H₂S monitor as appropriate

Portable emission monitor for all but limited firing units

Pliers or wrench to gain access to sampling ports

VEE Forms

Thermometer, psychrometer

Copies of permits and inspection forms

Pre-Inspection Activities

Wherever possible, inspections are to be conducted un-announced. Where source coordination is required, contact the source (preferably while en-route) and verify safety requirements and inspection schedule.

Check for any ATC's that may be implemented, check if the source is under variance or breakdown, and review previous inspection reports.

Insure that portable monitor is available and sign up for the unit.

On the day of the inspection, perform the start-up procedures for the portable monitor including the leak check with the equipment as it will be used in the field (refer to Portable Emission Monitor Policy).

Determine the enforceable limits, if any, for each unit. These will be specified in the rule or on the permit or ATC. Rule 4306 provides NO_x limits from 5 ppm to 30 ppm depending on the size and use of the unit. CO limits are set at 400 ppm, but both of these limits may be specified lower by permit condition.

Inspection Activities

Exercise caution around all equipment. Before you approach the unit, look carefully to identify any hazards. Boilers and steam generators are very hot and contain high pressure steam. They are frequently surrounded by wet floors and often require hearing protection. Industrial boilers are often in tight spaces replete with hot pipes to trip on or bump into. Access to the stack may involve climbing or leaning over the boiler to attach a sample line. Oilfield equipment may harbor snakes or other critters you may not wish to touch.

Verify safety number, manufacturer, model number, and company number of unit. Insure that the unit is equipped as required by the permit, including flue gas recirculation (FGR), and burner size, model, and manufacturer.

Record operating parameters specified on the inspection form including fuel type and rate, FGR position or rate, and exhaust temperature, or other data as appropriate.

If the unit is not in operation, determine if it is down temporarily, or out of service. Units that are out of service but not dormant must be source tested in the normal rotation (at least every three years). If the unit is permitted as dormant, verify that it is disabled with the removal of fuel or water supply as specified on the permit or ATC.

For those units equipped with sulfur-dioxide scrubbers, verify that there are no exhaust leaks prior to the scrubber.

Units with enforceable emissions limits will be sampled with a District portable monitor to determine compliance. For companies with 5 or fewer units, all those in operation should be sampled during the inspection. For companies with more than 5 units, sample the emissions from 20% or more of the operating units. The inspector rather than the company representative should choose the units to be sampled, however, emissions are only enforceable if the unit has been operating for longer than the start-up time (2 hours or longer if written in permit) after it was shut down for more than 30 minutes. Of course this must be documented.

For purposes of District compliance tests during an inspection, a five minute test is the minimum length. If *any* of the readings are over the limits during that 5 minute test, continue testing for a total of 15 minutes. Compliance will be determined with the average of oxygen-corrected readings taken during the test.

The District-run tests do not constitute periodic monitoring for the source.

All sampling will be done according to Portable Emission Analyzer Policy COM 1150.

A visible emission evaluation should be done of the operating units. Refer to the visible emission policy for the proper procedure with multiple units.

Post Inspection Activities

Emission Monitor Data

Upon return to the office or between field inspections, download the data recorded on the emission monitor. Make a table of the recorded data including NO_x, CO, O₂, and SO_x if applicable. Utilize the formula in Section 8.1 of the rule to correct the readings to 3% O₂ and then average the corrected readings and compare this to the appropriate limits.

For NO_x,

$$[NO_x]_{corrected} = \frac{17.95\%}{20.95\% - [\%O_2]_{measured}} \times [ppmNO_x]_{measured}$$

For CO,

$$[CO]_{corrected} = \frac{17.95\%}{20.95\% - [\%O_2]_{measured}} \times [ppmCO]_{measured}$$

For emissions data obtained by District monitors average readings up to 115% of the limit will be considered in compliance. For readings over 115% to 125% of the limit, the unit must be adjusted to meet the limit (below or equal to 115%) or source tested. Corrected average readings over 125% of the limit with 15 minutes of data are to be considered in violation of the limit and will be cited.

Record Review

Rule 4306 requires that all records be kept for 5 years.

Alternative Monitoring

Like Rule 4305, Rule 4306 requires sources to monitor emissions or other parameters that provide an indication of compliance with emission limits. Because the rule requires that the monitoring scheme be approved prior to use, the monitoring parameters are often specified on the permit or ATC. Unless the source is using a CEM system (and is probably polled and is submitting quarterly emission reports) you will have to verify that the required data is being captured and kept.

For those facilities that use periodic emission measurements examine their records to determine that they are operating in compliance and that they are recording the data as often as is required by the permit or ATC (typically monthly or quarterly). Rule 4305 did not specify the sampling period for this data but Rule 4306 requires that a contiguous 15 minutes worth of data (a minimum of 5 evenly spaced readings) be recorded at each juncture, and the average of those readings must indicate compliance. Other alternative monitoring schemes include FGR settings, fuel or firing rates, and excess oxygen concentrations. These will have monitoring parameters and periods of

monitoring that are specified on the permit or ATC. In many cases the parameters are determined during source testing and the facility must know the parameters to be able to ascertain if they are operating within limits.

The permit or ATC will specify a time during which the source can return the unit to conformity with the alternative monitoring parameters (typically one hour). If the unit can not be corrected within that time, the source must notify the District and either accept a Notice of Violation for excess emissions or source test the unit (within sixty days) to verify compliance at the new parameters.

The rule allows an extended source test period of 3 years once a unit has two successful annual tests. Unless the alternative monitoring scheme includes periodic emission measurements, these units must be tuned twice per year in non-source test years. All units are subject to alternative monitoring between source tests.

Other Required Records

Operators of units that are permit-limited to less than 9 billion BTU per calendar year are required to tune the units twice per year (at 4 to 8 month intervals according to the method specified in Rule 4304), operate the unit with excess oxygen at 3% or less, or meet the emission limits specified in Table 1 of the rule. They must therefore keep records of tune ups or O₂ concentration or demonstrate that the emission limits are being met (the latter two on a monthly basis). Because these units are exempted from the emissions limits of the rule by virtue of limited operation, the limited operation must be verifiable by a non-resettable totalizing fuel meter for each unit. Other methods of verifying compliance with the exemption threshold may be acceptable, but must be District-approved in writing.

Because the emission limits do not apply during start-up periods (2 hours unless modified in the permit), a facility must keep records of start-ups and shut downs.

Violations

The following will be considered violations of this rule:

Failure to submit ECP as required

Failure to submit ATC's as required

Failure to implement modifications as required

Failure to conduct or failure to record monitoring as required by ECP

Modification of equipment without, or differing from ATC

District emissions test greater than 125% of permit limits

Source tests greater than the permit limits

A District Test < 115% of the limit will be considered in compliance

A District Test > 115% but < 125% of the limit will be considered non-compliant, but no action will be taken if the unit is tuned to < 115% of the limit