

AIR POLLUTION CONTROL DISTRICT
REGULATORY COMPLIANCE DIVISION

POLICIES AND PROCEDURES

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Topic: Cogeneration Units

Distribution: All Policy Holders

This policy and procedures document provides guidance on the inspection of cogeneration units. Cogeneration units provide sequential electrical and thermal energy (e.g., heat or steam). In Santa Barbara, their current application ranges from oil and gas processing facilities to frozen food processing plants. By State law, the District can only issue permits for cogeneration units with a generating capacity of less than 50 MWe.

The inspection of cogeneration units depends in great part on the specific permit conditions. Consequently, subjects addressed by this policy and procedure document may not be applicable to all cogeneration units. The inspector should, in conjunction with the project manager, thoroughly review the permit and prepare a source-specific check list.

The following items may require inspection:

1. Fugitive I&M Program
 - components tagged
 - "leakers" tagged, repaired and reinspected
 - "delayed" repairs (critical components)
 - logs detailing daily inspection/repair activities
2. Gas Turbine(s)
 - fuel rate (scf/hr)
 - water injection rate (gallons/minute)
 - KWe output
 - water/fuel mass ratio
 - diverter valve status (open/shut)
 - operating limits: number of turbines operating simultaneously, heat input rate/turbine, hours operation/turbine, fuel usage rate (scf/hr)
3. Internal combustion engine(s)
 - fuel rate (scf/hr or gal/hr)
 - KWe output
 - operating limits: number of engines operating, heat input rate/engine, hours of operation/engine
4. Auxiliary Burner(s)
 - fuel feed rate (scf/hr)
 - steam rate (lb/hr)
 - exhaust temperature
 - operating limits: number of burners operating simultaneously, fuel usage rate (scf/hr)

5. SCR and NSCR Unit(s)
 - inlet NO_x (ppm)
 - outlet NH₃ (ppm)
 - outlet O₂ (ppm)
 - ammonia feed rate (scf/hr)
 - inlet temperature
 - outlet temperature
 - burner fuel rate (scf/hr)
 - ammonia/NO_x ratio

6. Stack data
 - NO_x (ppm, lb/hr)
 - CO (ppm, lb/hr)
 - O₂ (ppm)
 - flue gas flow rate (scf/hr)
 - Temperature
 - Visible emissions

7. Operator logs
 - maintenance activities (turbines, CEM)
 - downtime
 - KWe generated
 - total number of cold starts and total hours of operation per turbine

8. Continuous Emission Monitoring--many of the emissions and process parameters listed in Items #2-6 (above) may be continuously monitored at the facility. The inspector should obtain the necessary data from these monitors. If the data are not available, a note should be made of this situation. Additionally, the following CEM logs should be checked:
 - daily and weekly preventive maintenance forms prepared and completed
 - manual calibrations performed and documented
 - record of all down time and reason (maintenance, calibration, repair, power failure)
 - Record of alarms (number, date and time, cause and resolution)

9. Other
 - limitations on standby equipment use (steam boiler, turbines, IC engines)

An inspection report will be prepared after the inspection has been conducted. The report should include an explanation of the reason for the inspection, the results of the inspection and recommendations. If violations of permit conditions or District rules are detected, Policy and Procedures VII.A., "Enforcement Actions - the Notice of Violation", will be followed.