



# Maricopa County

Air Quality Department

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## Operation and Maintenance Plan Guidelines

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This document provides guidance in the preparation of operation and maintenance (O&M) plans required as part of an air quality permit and/or Maricopa County Air Pollution Control Regulations. The goal is to establish acceptable operating parameters and limits, maintenance procedures and schedules, and documentation methods that will demonstrate the control device or equipment is being properly operated and maintained. Please note that some industries may have specific requirements imposed by federal regulations, county rules, or permit conditions such as the chromium electroplating, secondary aluminum processing or cotton gin industries. Each unit that is unique in type, capacity, or use should be contained in a separate O&M plan. Multiple units can be combined in a single O&M plan provided they are substantially similar in type, capacity, and use.

### I) GENERAL INFORMATION

This information provides facility identification and a quick understanding of the facility and equipment that are the basis for the O&M plan.

### II) OPERATION PLAN

Key operating parameters are quantifiable parameters (pressure drops, temperatures, flow rates, etc.) that, once properly defined, are considered indicators that the equipment is functioning as designed. Appropriate operating limits for these parameters are an essential element of the O&M plan.

If changing the location of a measurement device would affect its reading (for example, the location of a thermocouple in a thermal oxidizer), then the location of the device shall be documented either in the text of the O&M plan or through a scaled drawing.

An operations log sheet should be completed for every day the process and/or control device is in operation. Operations log sheets shall, at a minimum, contain the following information: equipment identification; date and time of readings; identification of the individual recording the data; operating parameters to be monitored including units of measure, operating limits (upper and lower limits), and locations for recording measurements; measurement frequency; and room for additional information such as corrective action taken or general comments. It may be useful for facilities with multiple units to record data on a single log sheet. In this case, make

sure that each unit and the corresponding measurements are clearly identified.

All measurements shall be recorded including those outside the operating limits at the time readings are taken. A copy of the actual operations log sheet(s) to be used at the facility shall be included in the O&M plan. Sample operations log sheets are available from the Department for common types of control devices.

The minimum acceptable operating parameters for common control devices are shown below:

Wet Scrubber: Scrubber system pressure drop and water recirculation rate (possibly pH level and conductivity, depending on application).

Thermal Oxidizer: Combustion temperature.

Catalytic Oxidizer: Pre-catalyst temperature, post-catalyst temperature and catalyst pressure drop.

Carbon Adsorption System: Adsorption temperature, desorption temperature, and effluent concentration.

Baghouse: Baghouse pressure drop and visible emissions (possibly inlet temperature, depending on application).

Cyclone: Visible emissions.

### III) MAINTENANCE PLAN

Maintenance procedures (inspections, cleanings, lubrications, adjustments, replacements, instrumentation calibrations, etc.) are performed on a routine basis to ensure the equipment remains in peak operating condition. Maintenance checklists should, at a minimum, contain the following information: equipment identification; date; identification of the individual performing the maintenance check; procedures to be performed including frequency of occurrence; results of inspection (acceptable, nozzle plugged, belt cracked, etc.); corrective action taken (none, cleaned nozzle, replaced belt, etc.); and room for additional information such as observations or general comments. A copy of the actual maintenance checklist(s) to be used at the facility are to be included in the O&M plan. Sample maintenance checklists, containing general preventative maintenance that should be considered, are available from the Department for common types of control devices.

Consult the equipment manufacturer for specific procedures and performance frequencies appropriate for your equipment.

It may be useful to create separate forms for each maintenance period (i.e. weekly, quarterly, etc.) or record multiple sets of procedures on one maintenance checklist (i.e. one month's worth of weekly and monthly procedures on one form).

#### **IV) ADDITIONAL INFORMATION**

Permit conditions may contain additional O&M plan requirements such as training provisions. Supplemental information, such as process diagrams, equipment schematics, etc. may be included only if it would be helpful in understanding the O&M plan. Please do not provide a copy of the O&M plan supplied by the equipment manufacturer.

Sample operations log sheets and preventative maintenance checklists are available for the following control devices: scrubbers, thermal oxidizers, catalytic oxidizers, carbon adsorption systems, baghouses and cyclones. Depending on the particular equipment and its application at your facility, some operating parameters and maintenance procedures may not be applicable or additional items may be necessary. If your equipment is not addressed in the sample forms, follow the Operation and Maintenance Plan Guidelines or contact the Department for assistance.

The Operation and Maintenance Plan Guidelines, sample operations log sheets and preventative maintenance checklists are available electronically on the Maricopa County website. Files in both Microsoft Word format (.doc) and Adobe Acrobat format (.pdf) are available at:

[http://www.maricopa.gov/aq/divisions/permit\\_engineering/technical\\_guidance/policies\\_procedures.aspx](http://www.maricopa.gov/aq/divisions/permit_engineering/technical_guidance/policies_procedures.aspx)

Changes to an existing O&M plan should be made by submitting a complete, revised O&M plan with a cover letter identifying all changes and the reason for such changes.

This document is meant to serve as a general guideline in the preparation of O&M plans. Since unique circumstances may exist, the Department reserves the right to request additional information to ensure compliance with air quality regulations.

**MARICOPA COUNTY AIR QUALITY DEPARTMENT  
OPERATION AND MAINTENANCE (O&M) PLAN**

**I) GENERAL INFORMATION**

Business Name: \_\_\_\_\_

Business Address: \_\_\_\_\_

\_\_\_\_\_

Permit Number: \_\_\_\_\_

Date Of Preparation/Revision: \_\_\_\_\_

General description of overall facility operations: \_\_\_\_\_

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\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Description of process(es) ducted to control device(s) including pollutants controlled:

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\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Complete description of control device(s) covered by the O&M plan including manufacturer, model, rated capacity, total number of identical units, equipment identification number, etc.: \_\_\_\_\_

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\_\_\_\_\_  
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