

## OPERATION AND MAINTENANCE (O&M) PLANS

### 1. What is an O&M plan?

*An O&M plan specifies key system operating parameters and limits, maintenance procedures and schedules, and documentation methods necessary to demonstrate proper operation and maintenance of an approved emission control device or system.*

### 2. Why is an O&M plan required?

*An O&M plan is an indication that a facility is in continued compliance with applicable regulations and permit conditions.*

### 3. Who needs an O&M plan?

*O&M plans are required for a wide variety of industries and equipment. The most common equipment requiring O&M plans includes scrubbers, catalytic or thermal oxidizers, baghouses, and VOC abatement systems. Other equipment may also require the submittal of an O&M plan. Permit conditions and applicable regulations will provide specific requirements for a facility.*

### 4. What are the benefits of having an O&M plan?

*Besides complying with applicable regulations and permit conditions, the facility is ensured that the equipment is being properly operated and maintained. Early detection of problems may decrease repair and replacements costs, prevent malfunctions and minimize downtime. With proper performance and documentation, an O&M plan may also be used as an affirmative defense in the case of a malfunction.*

### 5. What information is included in an O&M plan?

*An O&M plan is broken up into four sections: general information, operation plan, maintenance plan and additional information. The General Information section contains general information about the facility, the process ducted to the control device, the pollutants controlled and the control device. The Operation Plan section contains information about the operating parameters to be monitored including limits, monitoring frequency and instrumentation. The Maintenance Plan section contains information about the maintenance procedures to be performed and their frequencies. The Additional Information section contains any additional information that may be required by permit conditions, such as training requirements or any supplemental information the facility feels is necessary to help in the understanding of the O&M plan. Copies of all operations log sheets and maintenance checklists are also included with the O&M plan. Certain industries, such as the chrome-plating industry, may have additional requirements specified in the regulations.*

**6. What is the difference between operating parameters and maintenance procedures?**

*Operating parameters are quantifiable parameters that, once properly defined, are considered indicators that a control device is functioning as designed. Examples of operating parameters are pressures and/or pressure drops, temperatures, flow rates, pH level, and visible emissions checks. Operating limits for each parameter may initially be suggested by the equipment manufacturer but may later be modified by the facility based on experience or operation during a performance test.*

*Maintenance procedures are performed on a routine basis to ensure the equipment remains in peak operating condition. Examples of maintenance procedures are inspections, cleanings, lubrications, adjustments, replacements and calibrations. Maintenance procedures may initially be suggested by the equipment manufacturer but may later be modified by the facility based on experience. A weak maintenance plan may not be acceptable as an affirmative defense in the case of a malfunction.*

**7. What if a parameter is outside of the operating limits?**

*Being outside of the operating limits is not a violation unless repeated and ignored. It only requires corrective action such as the adjustment or replacement of a worn part. If a device operates differently until conditioned, such as a baghouse containing newly replaced bags, that should be noted in the O&M plan and on the operations log sheet to explain the lower pressure drop.*

**8. Are O&M plan guidelines available?**

*The Department has prepared O&M plan guidelines and forms and also sample operations log sheets and maintenance checklists to assist in the preparation of the documents. The guidelines and forms are available on the Internet in Microsoft Word and Adobe Acrobat format on the Air Quality WebPage at:*

*[http://www.maricopa.gov/aq/divisions/permit\\_engineering/docs/pdf/OMGuidelines.pdf](http://www.maricopa.gov/aq/divisions/permit_engineering/docs/pdf/OMGuidelines.pdf)*

## EIGHT TIPS FOR PREPARING A GOOD O&M PLAN

**1. Do not submit the manufacturer's O&M plan.**

*The Manufacturer's O&M Plan does not include everything the Department requires and includes much more that we don't require (such as startup and shutdown procedures, spare parts inventory, troubleshooting, etc.)*

**2. Read and follow the O&M Plan Guidelines.**

*The Guidelines should contain all the instructions and samples necessary to complete an O&M plan. The sample operations log sheets and maintenance checklists should also prove to be useful. The Department has tried to simplify the process as much as possible. A facility should not need to hire a consultant to prepare an O&M plan.*

**3. Submit a separate O&M plan for each unique control device that requires an O&M plan.**

*Combining different control devices in one O&M plan just leads to confusion for everyone. Having separate O&M plans allows for changes in one plan without having to resubmit all O&M plans*

**4. Do not submit an O&M plan for equipment that does not require one.**

*This sounds simple but it happens. It involves extra work for both the facility and the Department. If unsure about an O&M plan requirement, ask.*

**5. Check your permit conditions for specific requirements such as parameters, limits, training requirements, etc.**

*Oftentimes, permit conditions may specify particular parameters that shall be monitored, specific limits such as a minimum combustion temperature or training requirements to be included in the O&M plan.*

**6. Be sure that operating parameters have reasonable upper and/or lower limits.**

*Limits that are too restrictive (3.0 to 3.5 inches H<sub>2</sub>O) may be difficult to meet, whereas limits that allow too broad of an operating range (1 to 10 inches H<sub>2</sub>O) aren't going to do anyone any good. Also, zero is not an acceptable lower limit for pressure drop as the unit may not even be operating.*

**7. Include a cover letter with the facility contact information.**

*Any questions that arise during the review of an O&M plan can be addressed to the appropriate person, as can the review letter.*

**8. If an approved O&M plan must be changed, submit the revised O&M plan in its entirety.**

*This will ensure everyone has a complete, up-to-date copy of the plan. The cover letter should identify the changes made and the reason for the changes.*