

# Periodic Monitoring Guidance

If an emission unit is subject to an applicable requirement that takes the form of an emission limit or standard, and this emission limit or standard does not have associated requirements for periodic testing or instrumental or non-instrumental monitoring (which may consist of recordkeeping designed to serve as monitoring), then the permit writer must develop periodic monitoring conditions for the applicable requirement. These monitoring requirements must ensure the use of terms, test methods, units, averaging periods and other statistical conventions consistent with the applicable requirement. A list of applicable requirements that do not require additional periodic monitoring requirements are contained in Appendix A. Periodic monitoring may consist of recordkeeping, periodic testing, direct or indirect monitoring. The permit writer should consider the size of an emissions unit, the toxicity of the pollutant under consideration, the attainment status of the area where the emission unit is located, the compliance history of the facility, the likelihood of deviations from the emissions standard and other appropriate factors in the evaluating type of periodic monitoring appropriate for an applicable requirement. This guidance is established to provide the permit writer guidance concerning the requirements for a periodic monitoring program. It is not intended that this guidance prohibits the facility from proposing a program that differs from this guidance, or that the permit writer does not have the flexibility and discretion to approve monitoring programs that deviate from the guidance, if reason for the deviations are adequately justified. The tables in the Attachment 1 provide a guide for periodic monitoring. An exception to Attachment 1 may be for Volatile Organic Compounds (VOCs) applicable requirements with no short-term standards. In such a case no periodic testing would be required. Attachment 2 defines the terms used in Attachment 1. Attachment 3 describes factors used in evaluating a reduction in testing predicted by Attachment 1.

## Recordkeeping

Recordkeeping alone is sometimes adequate for periodic monitoring purposes. It is most frequently used in combination with emission factors for verification of annual “tons per year” standards. For instantaneous or hourly standards, the variability of emission factors and the inconvenience of short-term recordkeeping usually disqualifies it as a periodic monitoring method. An example of where recordkeeping alone might be used for monitoring compliance with a short-term emission limit is where records of the quantity of the fuel oil combusted and the oil’s sulfur content are kept at frequencies compatible with a SO<sub>2</sub> short term limit.

## Periodic Testing

The Department will require periodic testing only after determining that recordkeeping is insufficient to assure compliance with the applicable requirement. If the permit writer determines that periodic testing is needed as a permit requirement, then the term or condition requiring testing should clearly specify the time frame in which the testing is to be conducted, along with any notification and reporting requirements. If testing/recertification is conducted pursuant to a direct monitoring requirement on a direct monitoring system, such as a continuous emission monitor requirement due to acid rain program in an electrical utility, that test would be adequate for the periodic testing requirements. If the test is conducted pursuant to an indirect monitoring requirement, then any monitoring parameters to be recorded during testing should be included as a term or condition in the testing. The number of tests outlined in the Attachment 1 is the total number of tests required during the life span of the operating permit. A partial list of reference test methods is contained in Appendix B.

## General Requirements for Direct or Indirect Monitoring

The Department will require monitoring only after determining that recordkeeping and periodic testing are insufficient to assure compliance with the applicable requirement. Consistent with its commitment to protect the health and welfare of Iowans with the minimum regulatory burden, the Department will work with facilities proposing a program that differs from this guidance to determine an appropriate monitoring program.

The permit writer must include the following elements when developing permit conditions for monitoring:

1. Requirements to insure the location and installation of the monitor is sufficient to provide representative data.
2. Requirements that specify verification procedures including installation, calibration and operation of the monitor. These verification procedures are usually done, in most cases, in reference to manufacturer’s

recommendations to ensure that the monitor is in proper operational status.

3. Requirements that specify QA/QC procedures that ensure the continuing validity of the recorded data.
4. Requirements that specify monitoring frequency, data collection, and averaging period sufficient to yield reliable data commensurate with the time period over which an exceedance or excursion is likely to occur based on the characteristics and variability of the emissions unit.
5. Requirements that specify a percentage of data availability sufficient to satisfy a minimum data availability requirement that is applicable to the monitoring under a separate applicable requirement, or if no such requirement applies, a data availability that is consistent with the monitoring method to be used and at least 90% over all averaging periods.

### **Direct Monitoring**

Direct monitoring of emission rates or standards by use of continuous emission monitors (CEMs), predictive emission monitoring systems (PEMs), or continuous opacity monitoring systems (COMs) is the most straightforward and accurate method of determining compliance with emission limitations or standards. Owing to the expense of these systems, the Department will not require direct monitoring of pollutants in order to meet the periodic monitoring requirements of Title V in most cases. However, if federal, state, or local requirements require the use of these direct monitoring systems to demonstrate compliance with applicable requirements, then these systems must be used for periodic monitoring. If a direct monitoring system is installed for other purposes apart from demonstrating compliance with applicable requirements, this system may be used but is not required for periodic monitoring. If federal, state, or local requirements specify a percentage of data availability sufficient to satisfy a minimum data availability requirement, then that requirement will be sufficient for periodic monitoring. If a direct monitoring device is chosen by the applicant or required by the permit writer, then the Title V permit must contain terms and conditions that require that data gathered is in terms consistent with the applicable requirement, and allow for reporting of exceedances.

### **Indirect Monitoring**

An indirect monitoring program is to be developed through a cooperative effort between the facility and the permitting authority. First, the facility proposes to monitor one or more compliance indicators, and specifies a range of indicator values that assure compliance. An indicator range may be a true range, comprised of upper and lower limits such as 3.0 to 4.0 inches of water column for differential pressure or a single maximum or minimum value such as greater than 1700<sup>0</sup> F for an incinerator. If the emission unit is a significant emitter, then the facility shall also propose to conduct a compliance test in order to verify that the source is in compliance while the monitored parameters are in the indicator range. The facility makes a commitment to take timely corrective action during periods of excursion where the indicators are out of range. A corrective action may include an investigation of the reason for the excursion, evaluation of the situation and necessary follow-up action to return operation within the indicator range. An excursion is determined by the averaged discrete data point over a period of time. An excursion does not necessarily indicate a violation of an applicable requirement. If the corrective action measures fail to return the indicators to the appropriate range, the facility will report the exceedance to the department and conduct source testing within 90 days of the exceedance to demonstrate compliance with applicable requirements. If the test demonstrates compliance with emission limits then new indicator ranges must be set for monitoring and the new ranges must be incorporated in the operating permit. If the test demonstrates noncompliance with emission limits, then the facility, within 60 days, proposes a schedule to implement corrective action to bring the source into compliance and demonstrate compliance.

Next, the permit reviewer must evaluate the facility's proposal for its ability to minimize emissions at least to the levels specified by the applicable requirement. The permit conditions must specify the indicator range, the corrective action measures, and any appropriate recordkeeping and reporting requirements. The permit conditions must clearly indicate the compliance status of the source during implementation of the corrective action measures.

# Attachment 1

## Periodic Monitoring for Non-Hazardous Air Pollutants With Applicable Requirements

### Controlled Sources

	Minor		Significant		Major	
<b>Uncontrolled* Minor</b>	No O&M	No tests				
<b>Uncontrolled* Significant</b>	Facility O&M	No tests	Facility O&M	<sup>+</sup> One test		
<b>Uncontrolled* Major</b>	Facility O&M	<sup>+</sup> One test	<sup>+</sup> Agency O&M	<sup>+</sup> One test	Agency O&M	<sup>+</sup> Two tests

### Uncontrolled Sources

Minor	Significant	Major
No tests	<sup>+</sup> One test	<sup>+</sup> One test

## Periodic Monitoring for HAPs With Applicable Requirements

### Controlled Sources

	Minor		Major	
<b>Uncontrolled* Minor</b>	No O&M	No tests		
<b>Uncontrolled* Major</b>	Facility O&M	<sup>+</sup> One test	Agency O&M	<sup>+</sup> Two tests

### Uncontrolled Sources

Minor	Major
No tests	<sup>+</sup> One test

\* Uncontrolled potential to emit for a controlled source is the pre-control PTE or the PTE of the source with control efficiency set to zero.

<sup>+</sup>The number of tests outlined in the Attachment 1 is the number of tests required during the life span of the operating permit.

## Attachment 2

### Periodic Monitoring Definitions

1. **Non-Hazardous Air Pollutants:** These include the criteria pollutants for which National Ambient Air Quality (NAAQ) standards exist which are particulate matter (PM<sub>10</sub>), sulfur oxides (SO<sub>x</sub>), nitrogen oxides (NO<sub>x</sub>), carbon monoxide (CO), ozone (O<sub>3</sub>), and lead (Pb). Other Non-Hazardous Air Pollutants include volatile organic compounds (VOCs), particulate matter (PM), fluorides, sulfuric acid mist, total reduced sulfur compounds (TRS).
2. **HAPs or Hazardous Air Pollutants:** These are any of the 188 pollutants listed in the section 112 of the Clean Air Act Amendments (CAAA) which are known or suspected of being toxic or carcinogenic.
3. **Major:** If the unit's potential emissions are at or above the Title V major source threshold (100 Tons Per Year (TPY) of any regulated air pollutant or 10 TPY of any single HAP or 25 TPY of combined HAPs).
4. **Significant:** If the unit's potential emissions are at or above the PSD significance threshold which are 40 TPY of SO<sub>x</sub>, NO<sub>x</sub>, and VOCs, 100 TPY of CO, 25 TPY of PM, 15 TPY of PM<sub>10</sub> and 0.6 TPY of Pb. (HAPs have no PSD significance threshold; if emissions are above the Title V threshold then the unit is major, if not then the unit is minor).
5. **Minor:** If a unit emits below the significance threshold then it is minor.
6. **Controlled Source:** Emission units with control equipment with \*allowable emission rate to be used to determine the minor, significant or major threshold.
7. **Uncontrolled Source:** Emission units with no control equipment with \*allowable emission rate to be used to determine the minor, significant or major threshold.
8. **Uncontrolled\*:** Emission units with control equipment where the control efficiency of the control equipment is set at zero. Federally enforceable limits on hours of operation or quantity of materials handled are to be used in calculating Uncontrolled\* potential to emit.
9. **Agency O&M:** An O&M plan that the facility proposes and the agency reviews that requires monitoring plan with enforceable corrective action provisions and source testing if corrective action fails. As a minimum the O&M plan is required for the last emissions control device prior to emitting to the ambient air.
10. **Facility O&M:** An O&M plan developed and implemented by the facility. As a minimum the O&M plan is required for the last emissions control device prior to emitting to the ambient air.
11. **Applicable Requirement:** The term "applicable requirement" is defined in rule 567 IAC 22.100. that includes the following:
  - a. Any standard or other requirement provided for in the applicable implementation plan approved or promulgated by EPA through rule making under Title I of the Act that implements the relevant requirements of the Act, including any revisions to that plan promulgated in 40 CFR 52 as amended through August 4, 1994;
  - b. Any term or condition of any preconstruction permits issued pursuant to regulations approved or promulgated through rule making under Title I, including Parts C and D, of the Act;
  - c. Any standard or other requirement under section 111 of the Act (subrule 23.1(2)), including section 111(d);
  - d. Any standard or other requirement under section 112 of the Act, including any requirement concerning accident prevention under 112(r)(7) of the Act;
  - e. Any standard or other requirement of the acid rain program under Title IV of the Act or the regulations promulgated thereunder;
  - f. Any requirements established pursuant to section 504(b) or section 114(a)(3) of the Act;
  - g. Any standard or other requirement governing solid waste incineration, under section 129 of the Act;
  - h. Any standard or other requirement for consumer and commercial products, under section 183(e) of the Act;
  - i. Any standard or other requirement for tank vessels under section 183(f) of the Act;
  - j. Any standard or other requirement of the program to control air pollution from outer continental shelf sources, under section 328 of the Act;
  - k. Any standard or other requirement of the regulations promulgated to protect stratospheric ozone under Title VI of the Act, unless the administrator has determined that such requirements need not be contained in a Title V permit; and
  - l. Any national ambient air quality standard or increment or visibility requirement under part C of Title I of the Act, but only as it would apply to temporary sources permitted pursuant to section 504(e) of the Act.

\*If a facility has proper documentation to support that a source has operated less than 876 hours per year for the past two consecutive years, then actual emissions may be used to determine the appropriate threshold.

## **Attachment 3**

### **Factors Used in Evaluating A Reduction in Testing Predicted by Attachment 1**

The Department may consider the following factors in evaluating a reduction in testing predicted by Attachment 1. The Department retains its discretion to adopt approaches on a case-by-case basis that differs from this guidance where appropriate.

1. Sources which have been tested in compliance within the past year and for which the results have been accepted by the DNR.
2. Sources which have been tested in compliance by a significant margin and are equipped with a level of control that can easily achieve the allowable emission rate (example is a bagfilter on a source subject to 0.1 grain/dscf).
3. Identical or similar sources at a facility that meet the criteria of 1 or 2.
4. Sources where the company is willing to take a “no visible emission” action level on a well-controlled source with a lenient allowable emission rate.
5. A controlled source required by permit condition to pre-clean or oil material being handled and subject to a lenient standard (0.1 grain/dscf).
6. Sources for which testing is determined to create a safety hazard or for which significant modifications would be required to accommodate testing.
7. Sources with enforceable restrictions on hours of operation to less than 876 hours per year.
8. Sources where, on a case-by-case basis, the judgement of the Department is that specific information or circumstances warrant waiving testing that the Attachment #1 matrix would otherwise require. Such additional information or circumstances might include (but are not limited to):
  - a. Industry specific emission factors and control efficiencies,
  - b. Stack tests that are more than one year old,
  - c. Stack tests on similar sources at other facilities, and
  - d. Sources that have no EPA Reference Method for stack testing.

## **Appendix A-Exemptions from Periodic Monitoring Requirements**

### **Exempted Emission Limitations or Standards**

NSPS or NESHAP standards proposed after 11/15/90.

Stratospheric ozone protection requirements.

Acid Rain Program requirements.

### **Exempted Emission Units**

Backup utility power units that are exempt from all part 75 monitoring requirements, are operated solely for providing electricity during peak periods or emergency situations, and for which actual emissions for the previous 3 years are less than 50% of the major source cutoff.

## Appendix B-Partial List of Reference Test Methods

[PM<sub>2.5</sub>-40 CFR Part 51 App. M, Methods 201A and 202](#)

PM<sub>10</sub>-40 CFR Part 51 App. M, Methods 201A and 202

SO<sub>x</sub>-40 CFR Part 60 App. A, Method 6C

NO<sub>x</sub>-40 CFR Part 60 App. A, Method 7E

CO-40 CFR Part 60 App.A, Method 10

Pb-40 CFR Part 60 App A, Method 12

Stack Opacity-40 CFR Part 60 App A, Method 9

Fugitive Opacity-40 CFR Part 60 App A, Method 22

[PM \(federal\)-40 CFR Part 60 App. A, Method 5](#)

[PM \(state\)-40 CFR Part 60 App. A, Method 5 and 40 CFR Part 51 App. M, Method 202](#)

40 CFR Part 60 App. A, Method 5 and

40 CFR Part 51 App. M, Method 202