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<b>COMPLIANCE AND ENFORCEMENT BRANCH</b>	<b>AUTHORIZED:</b> <i>Phil Perry</i> , Branch Chief	
<b>SUBJECT:</b> Compliance Monitoring Guidance	<b>SUPERSEDES:</b> Title V Air Permit Compliance Monitoring Guidance May 23, 1996	
	<b>EFFECTIVE:</b>	<b>RENEWED/REVISED:</b>

*Disclaimer: This guidance may be used in conjunction with an IDEM authorized policy, a non-rule policy document, or a standard operating procedure. It is advisory only and may be superseded at any time should conditions warrant. It is intended to provide guidance for IDEM permit reviewers and Compliance and Enforcement Branch staff compliance monitoring requirements, including frequency and situations where exceptions may be granted, for units located at sources obtaining a Title V operating permit, a FESOP (Federally Enforceable State Operating Permit) or a MSOP (Minor Source Operating Permit) It does not replace applicable rules and laws, and if it conflicts with these rules or laws, the rules or laws shall control. While it is IDEM's policy to allow discretion and flexibility at the staff level to afford the best solutions, the use of this guidance is intended to facilitate consistency during the decision making process.*

**Purpose**

The purpose of this guidance is to provide information to IDEM staff, the regulated community, and the public as to the appropriate measures and methods that can be used to satisfy regulatory requirements for compliance monitoring provisions required for permits under 326 IAC 2 of the Indiana Administrative Code. This guidance supersedes previous guidance developed by IDEM dated May 26, 1996. This guidance does not supersede federal guidance concerning units and sources that are subject to federal requirements, such as 40 CFR 64. This guidance also does not address compliance determination requirements that are used to determine actual compliance, such as stack testing.

**Statutory/Regulatory Requirements**

The Clean Air Act (CAA), as amended by Congress In 1990, contains several titles that address compliance monitoring. One of the amendments included provisions for the establishment of the Title V operating permits program. Section 114 – Inspections, monitoring and entry also includes provisions concerning monitoring, record keeping and reporting.

Section 114(a)(1) of the CAA provides the Administrator with the authority to require any owner or operator of any source:

- on a one-time, periodic or continuous basis to -
- (1) establish and maintain such records;
- (2) make such reports;
- (3) install, use, and maintain such monitoring equipment;

- (4) sample such emissions (in accordance with such procedures or methods, at such locations, at such intervals, during such periods and in such manner as the Administrator shall prescribe);
- (5) keep records on control equipment parameters, production variables, or other indirect data when direct monitoring of emissions is impractical;
- (6) submit compliance certifications in accordance with Section 114(a)(3); and
- (7) provide such other information as the Administrator may reasonably require.

Section 114(a)(3) requires U.S. EPA to promulgate rules on enhanced monitoring and compliance certifications. This paragraph provides, in part:

“The Administrator shall in the case of any person which is the owner or operator of a major stationary source, and may, in the case of any other person, require enhanced monitoring and submission of compliance certifications. Compliance certifications shall include (A) identification of the applicable requirement that is the basis of the certification, (B) the method used for determining the compliance status of the source, (C) the compliance status, (D) whether compliance is continuous or intermittent, (E) such other facts as the Administrator may require....”

Title V directs U.S. EPA to implement monitoring and compliance certification requirements through the operating permits program. Section 503(b)(2) requires at least annual certifications of compliance with permit requirements and prompt reporting of deviations from permit requirements.

Section 504(a) mandates that owners or operators submit to the permitting authority the results of any required monitoring at least every six months. This section also requires permits to include "such other conditions as are necessary to assure compliance with applicable requirements" of the Act. Under Section 504(c), each operating permit must "set forth inspection, entry, monitoring, compliance certification, and reporting requirements to assure compliance with the permit terms and conditions." The implementation of Title V, which was carried out with the promulgation of 40 CFR 70 (Part 70) by U.S. EPA in 1992, provided the basis for state permitting authorities to adopt regulations that would meet the requirements outlined in Title V.

In 1994, the Indiana Air Pollution Control Board (APCB) adopted rules developed by IDEM's Office of Air Quality (OAQ) that incorporated the Part 70 requirements in 326 IAC 2-7. At the same time that the APCB adopted the Part 70 rules, the Federally Enforceable State Operating Permit (FESOP) Program was adopted at 326 IAC 2-8. The FESOP program was adopted to provide a program that would allow some sources to limit their potential to emit beneath the Part 70 thresholds. Both of these programs include requirements related to compliance monitoring (the following language is from 2-7-5; however 2-8-4 includes identical language).

(3) Monitoring and related record keeping and reporting requirements, which assure that all reasonable information is provided to evaluate continuous compliance with the applicable requirements. At a minimum, the following shall be contained in each Part 70 permit:

(A) With respect to monitoring, each Part 70 permit shall contain the following:

(i) All emissions monitoring and analysis procedures or test methods required under the applicable requirements, including any procedures and methods promulgated under Section 504(b) or 114(a)(3) of the CAA.

(ii) Where an applicable requirement does not require periodic testing or instrumental or noninstrumental monitoring (which may consist of record keeping designed to serve as monitoring), such periodic monitoring specifications sufficient to yield reliable data from the relevant time period that are representative of the source's compliance with the Part 70 permit as reported under clause (C).

Such monitoring requirements shall assure use of terms, test methods, units, averaging periods, and other statistical conventions consistent with the applicable requirement. Record keeping provisions may be sufficient to meet the requirements of this item.

(iii) As necessary, requirements concerning the use, maintenance, and, where appropriate, installation of monitoring equipment or methods.

In the spring of 1996, IDEM completed and released compliance monitoring guidance that outlined what the agency expected of Title V operating permit applicants concerning adequate compliance monitoring requirements. The guidance presented a discussion of the expected elements of a compliance monitoring plan and examples of appropriate compliance monitoring plans for selected control devices or processes. The guidance provided a template of the types of permit terms and conditions that would be included in operating permits to meet compliance monitoring requirements.

While IDEM was working on the development of the guidance, U.S. EPA was in the process of developing a rule addressing the enhanced monitoring requirements of the 1990 Clean Air Act Amendments for major sources. U.S. EPA had started this rulemaking in 1993 and revised the draft rules in 1995 and 1996. The rule was originally referred to as "Enhanced Monitoring", but was later changed to "Compliance Assurance Monitoring". On October 22, 1997, U.S. EPA promulgated the final compliance assurance monitoring (CAM) rule that applies to certain emission units at Part 70 sources. In 2006, OAQ adopted the CAM rule by reference at 326 IAC 3-8.

In 1998, the APCB adopted rules that significantly revised the permitting rules under 326 IAC 2. While much of the revision included reorganization of the previous rule language and permitting requirements, there were a couple of notable clarifications that were included in the construction and minor source operating permit content requirements under 326 IAC 5.1-1-3(e) and 326 IAC 2-6.1-1-5(a).

(2) Monitoring, testing, reporting, and record keeping requirements that assure reasonable information is provided to evaluate compliance consistent with the permit terms and conditions, the underlying requirements of this title and the CAA. Such requirements shall be in accordance with 326 IAC 3 and other applicable regulations.

## **Compliance Certifications**

As mentioned previously, Section 114(a)(3) of the CAA required U.S. EPA to promulgate regulations requiring the submittal of an annual compliance certification that outlines the compliance status of a major source over the previous year. U.S. EPA promulgated the submittal requirements for major sources at 40 CFR 70.6.

When adopting Indiana's Title V operating permit program, IDEM included the annual compliance certification requirements under 326 IAC 2-7-6. IDEM also included language under the FESOP rules that requires similar compliance certifications under 326 IAC 2-8-5.

When the permitting rules were revised in 1998, IDEM included provisions under 326 IAC 2-6.1-5(a)(5) that require the owner/operator of a source operating under a Minor Source Operating Permit (MSOP) to submit an annual notification. The annual notification requires the owner/operator to certify as to the compliance status of the source over the previous year.

The statutory and regulatory requirements concerning permit content requirements and annual compliance certifications point to the need for adequate compliance monitoring programs. Properly designed compliance monitoring programs provide the source, IDEM and the public with adequate information to provide a reasonable assurance of compliance with relevant applicable requirements.

### **Compliance Monitoring Principles**

One of the most important elements of air construction and operating permits is the compliance monitoring requirements. Compliance monitoring refers to those activities sources undertake, on a regular basis, to ensure that their operations are meeting all emission limitations and standards including work practice standards. It can include actual measurements of emissions (either continuous or periodic) or what is known as “parametric monitoring,” where the company keeps track of an indicator of process or control device performance, for example the operating temperature of a thermal oxidizer.

Federal and state law requires that companies comply with emissions limits and standards on a “continuous basis.” Indiana’s Title V and FESOP operating permit regulations under 326 IAC 2-7-5(3) and 326 IAC 2-8-4(3) require that Title V permits include “[m]onitoring.....requirements, which assure all reasonable information is provided to evaluate continuous compliance with the applicable requirements.” In some instances, compliance monitoring requirements are set forth in applicable requirements promulgated by U.S. EPA or IDEM. For example, many of the more recently issued National Emissions Standards for Hazardous Air Pollutants (NESHAPs) include compliance monitoring requirements for the hazardous air pollutants of concern. State rules also provide for monitoring of certain types of facilities. For example, 326 IAC 3 requires continuous emissions monitoring requirements for large utility electric generating units and other specific emission units, and 326 IAC 6.8-8 requires the development of Continuous Compliance Plans for PM10. However, there are cases where the underlying applicable requirements do not establish specific compliance monitoring conditions for the pollutant of concern. In these situations, the Office of Air Quality works with permitted sources and interested parties to establish appropriate compliance monitoring requirements to be included in the construction or operating permit.

There is little guidance from U.S. EPA on what compliance monitoring is sufficient to assure a demonstration of “continuous compliance.” There are many different types of industrial operations and pollution control approaches, and developing a standard set of compliance monitoring requirements to address all possible scenarios would be extremely resource intensive. IDEM has worked successfully with several industry groups to develop a presumptive compliance monitoring program for specific industry types. Many companies may have their own compliance monitoring programs, which may be quite extensive and more elaborate than what would need to be included in their permit to satisfy the compliance monitoring requirements. IDEM will work with permitted sources and interested parties in developing a consistent approach in determining which existing practices should be included in permits to satisfy compliance monitoring requirements.

Following is a set of principles that IDEM will use to develop compliance monitoring requirements that will be included in the permits to comply with regulatory requirements under 326 IAC 2.

#### **Principles**

1. The key starting points in developing an adequate compliance monitoring program should be compliance monitoring provisions required by state or federal rules that are not applicable to the pollutant specific emissions unit, but may be used as the

basis of the compliance monitoring program. Compliance monitoring that is currently being done by the sources themselves should be evaluated to determine the adequacy of the monitoring program. Monitoring that is independently required by an applicable requirement that could be used for the pollutant of concern should be granted greater consideration in selecting the appropriate compliance monitoring provisions.

2. Emission units that have a history of problems (emergency reports, inspections, complaints) should be monitored more frequently than those that have demonstrated reliable ongoing compliance.
3. Direct monitoring of emissions is the preferable form of compliance monitoring. If direct emissions measurements are not feasible or are cost prohibitive, compliance monitoring should focus on the parameter most reflective of the performance of the process or controls. Additional parameters should be monitored only when there is a clear indication that it is necessary.
4. More frequent monitoring should be considered if actions by the operator can adversely affect emissions. More automated processes where the operator has little control over process or control device performance may require less frequent monitoring than those involving a lot of manual operations that could affect emissions.
5. When emissions units vent indoors prior to ultimate exhaustion to the atmosphere, experienced-based judgment should be used to determine the level of compliance monitoring that is needed.
6. The adequacy of the control device can affect the level of monitoring required. If, based on an engineering analysis, the air pollution control device is designed with a sizable margin of "over-control," less frequent monitoring may be appropriate than if the device is considered marginal or just adequate. It may be appropriate to adjust frequency after reviewing an adequate performance history.
7. The existence of a comprehensive preventive maintenance plan or operation and maintenance program may provide a basis for decreased frequency of monitoring.
8. If a source has taken a permit limit to stay under an applicability threshold (for a NESHAP or PSD, for example) and avoid an applicable requirement, more comprehensive or frequent monitoring may be warranted.
9. If a source has a demonstrated history (through stack test results or emissions statements, for example) of emissions below an applicable limit, less comprehensive or frequent monitoring may be warranted. A discussion of the level of emissions and the appropriate frequency is provided under **Compliance Monitoring Frequency**.
10. IDEM will generally defer to compliance monitoring requirements in state and federal rules issued after November 15, 1990 (i.e., NSPS or NESHAP) for those pollutants of concern regulated under those rules, although individual situations may call for variations from those requirements.
11. IDEM supports development of standard compliance monitoring requirements for specific industry types that would provide the default or starting point for sources of

that type. The agency will work with interested parties to develop standard requirements for specific process, controls and pollutants of concern and make those available to the regulated community, interested parties and the public.

12. For units where emissions are uncontrolled, record keeping will be required to satisfy the compliance monitoring requirements based on the applicable requirement.
13. A demonstrated track record of continuous compliance can be the basis for reducing the frequency of monitoring.
14. Other factors that may influence the type or frequency of monitoring include: the type of pollutant emitted; pollutant toxicity; the attainment status of area in which the source is located; the potential variability of emissions/demonstrated margin of compliance; the importance of the emissions unit or its source category in maintaining or attaining ambient air quality standards; local public impacts (including potential nuisances created by the source), taking into account the proximity of source to populations, public resources, and other related factors.

IDEM encourages the development of new compliance monitoring technologies that could be used to satisfy the compliance monitoring requirements for permits under 326 IAC 2. Nothing in this guidance precludes a permitted source from proposing compliance monitoring activities that may be appropriate for their facilities.

### **Applicability**

Indiana's construction and operating permit rules require that each permit contain conditions related to monitoring, testing, record keeping and reporting. In most, if not all cases, the applicable requirement(s) that apply to a particular emission unit and pollutant will determine the level of monitoring that would be required. However, there are many applicable requirements that do not include periodic monitoring that a company may use to assure that the source is in compliance with the applicable requirement. Therefore, IDEM must work with companies to determine the appropriate compliance monitoring for those emission units that will be required to be monitored.

Pollutant specific emissions units at Title V sources that are subject to CAM will follow the procedures and requirements of 40 CFR 64 in adopting and implementing compliance monitoring provisions.

Units that are exempt from the CAM rule because the emissions unit is subject to a post-1990 NSPS or NESHAP, the Acid Rain Program, CAIR, or has a continuous compliance determination method specified in a permit for the relevant pollutant of concern will not be required to include any monitoring beyond what is included in the applicable requirement. This only applies to the pollutant(s) regulated by the applicable requirement and any other pollutants and associated applicable requirements will have to be addressed separately.

While many of the rules in Indiana's State Implementation Plan (SIP) do not include periodic monitoring provisions, there are a few SIP rules such as 326 IAC 6.8-8 that do include specific compliance monitoring provisions. In those cases where the SIP outlines acceptable compliance monitoring provisions, IDEM will include those compliance monitoring provisions in the permit and will not require any additional compliance monitoring requirements.

### Specific applicability

Compliance monitoring will be required in the following specific situations:

- a) Units and/or control devices that are subject to Best Available Control Technology (BACT) or Lowest Achievable Emission Rate (LAER) emission limitations.
- b) Surface coating operations at Title V and FESOP sources that are subject to 326 IAC 6-3.
- c) Units or a group of units that are subject to an emission limitation or other limitations to avoid a state or federal applicable requirement (synthetic minor limitation). For example, if a unit is limited to less than 15 tons per year of PM10 to avoid PSD requirements.

### General applicability

- a) Potential to emit greater than or equal to 25 tons per year

Compliance monitoring will be generally required for units with a potential to emit before controls equal to or greater than 25 tons per year that are subject to a state or federal applicable requirement. In cases where several units exhaust to a common control device, the applicability will be determined by examining the aggregate potential to emit of the units.

- b) Exempt, insignificant or trivial activities

Notwithstanding the specific and general applicability criteria above, for units classified as exempt from permitting under 326 IAC 2, insignificant activities or trivial activities, IDEM will not require compliance monitoring unless the activity/pollutant are regulated by a specific applicable requirement that includes compliance monitoring provisions or the potential to emit before controls are greater than or equal to 25 tons per year. For example, degreasers may fit into one of these categories where there are specific work practice standards under 326 IAC 8 that would be included in the permit.

- c) Indoor ventilation – Particulate matter emissions

Indoor ventilation refers to those situations where a unit is located within a building that includes sidewalls, a roof and the only exhaust to the atmosphere is through doors and windows. For units that may meet the applicability criteria and emit particulate matter, but vent inside of a building and do not exhaust directly to the atmosphere, IDEM will not require the monitoring of specific indicators for the purpose of assuring compliance. Rather the focus will be on the continued operation of the control equipment and operation and maintenance procedures. Sources will still need to operate the control device when venting indoors and will need to perform semi-annual inspections and maintenance. In some cases, an indicator may still need to be monitored to assure that the control device is operating efficiently.

- d) Uncontrolled units

Monitoring may be required for units without control devices that are subject to a state or federal applicable requirement. The type of monitoring that will be required will depend on the pollutant involved and the state or federal applicable requirement. For example, visible emission notations may be required for an oil-fired boiler to assure compliance with an opacity standard. Sampling/analysis with record keeping may be appropriate for SO<sub>2</sub> limitations and record keeping for VOC limitations.

- e) Voluntary controls

Units with PTE before controls equal or greater than 25 tons/year that have controls that are not subject to a state or federal applicable requirement for the pollutant of concern will not be required to monitor for the pollutant of concern. However, if the control device controls more than one pollutant and is needed to comply with a state or federal applicable requirement, then monitoring for the regulated pollutant will be required.

For all other units that are subject to an applicable requirement, compliance monitoring will be required consistent with the compliance monitoring principles and other provisions set forth in this guidance.

### **Compliance Monitoring Frequency**

There is little guidance concerning what level of monitoring is needed to demonstrate “continuous compliance”. One factor that can determine the frequency of compliance monitoring needed is the level of confidence in the monitoring indicator and the frequency of the monitoring. If IDEM has sufficient confidence that an indicator that is monitored on a specified frequency will provide the information necessary to assure continuous compliance, then that is the indicator and frequency that should be included in the permit.

For those pollutant specific emissions units located at a Title V source that are subject to CAM, IDEM will follow the frequencies required under 40 CFR 64. U.S. EPA has determined that this will be at least four times per hour for those units with post-control PTE greater than the major source threshold under 326 IAC 2-7 and at least once per day for other units subject to CAM.

Unless otherwise noted in this guidance, all units equipped with control devices that are necessary for compliance shall have **at least** one indicator monitored once per day. As stated under the Compliance Monitoring Principles, there may be situations where less frequent monitoring may be appropriate or where additional indicators may need to be monitored to provide an adequate level of confidence in assuring continuous compliance. IDEM would also expect that where continuous data acquisition systems are already in place, the source would continue to use those systems to monitor a specific indicator(s).

For units without control devices, frequency shall be determined by the specific situation and applicable requirement. Some cases may require daily activities (such as visible emission notations, VOC limits, coal sampling and analysis) while others may be weekly or monthly, depending on the frequency in the applicable requirement.

### **Environmental Stewardship Program**

As part of the Environmental Stewardship Program (ESP), IDEM provides an incentive for alternative compliance or monitoring strategies. ESP members that are approved for this incentive can request alternative monitoring frequencies. In some cases, this would allow for less frequent monitoring with IDEM approval. Examples include changing from daily to weekly or weekly to monthly monitoring frequency.

### **Compliance Monitoring Indicators**

As mentioned previously, the type of monitoring may vary based on several factors, including but not limited to, cost, variability of emissions, process and control operation, margin of compliance and the compliance history of the source and unit. Another factor that is associated with cost is the level of confidence in the monitoring methods/indicators. For example, a particulate matter continuous emissions monitoring system would provide a high level of confidence in providing continuous data indicating compliance with a PM10 emission limitation, but would also have a high cost. At the other end, conducting periodic visible emission notations may not have a high cost, but the level of confidence in assuring compliance with a PM10 emission limitation may be low. When preparing and proposing a compliance monitoring plan, sources

should work with IDEM to select compliance monitoring methods and indicators that would not be overly costly, but still provide some level of confidence that the indicators and/or methods provide an adequate assurance of compliance.

Compliance monitoring methods that provide continuous monitoring of emissions of the regulated pollutant will not be required to monitor additional indicators for the pollutant of concern, except for periods of continuous extended monitor downtime (greater than 24 hours). Examples include continuous emissions monitoring (CEMS), continuous opacity monitoring systems (COMS) for opacity limitations, bag leak detection systems (BLDS) and continuous monitoring of temperature for thermal oxidizers. In cases where the continuous monitoring method does not directly measure the emissions of the pollutant of concern, an additional monitoring indicator(s) will be required to be monitored. Examples include the monitoring of control technology or capture system operation when a COM is used in conjunction with a particulate emission limitation or when the destruction efficiency of a thermal oxidizer is dependant on both percent capture and temperature.

The following provides examples of various monitoring methods/indicators that could be used for different pollutant/control device situations. Although there may be several methods/indicators that could be used, the identification of multiple methods/indicators does not imply that multiple methods/indicators are required to be included in the permit. This is simply a list of the options that are available to permitted sources and IDEM in developing the appropriate compliance monitoring program for individual situations. The methods/indicators as not listed in terms of importance or priority.

<p>Ambient Temperature Baghouse (PM/PM-10/PM-2.5)</p>	<ul style="list-style-type: none"> <li>• Continuous PM CEMs</li> <li style="text-align: center;"><b>or</b></li> <li>• Continuous COM</li> <li style="text-align: center;"><b>or</b></li> <li>• Continuous BLDS</li> <li style="text-align: center;"><b>or</b></li> <li>• Daily visible emission notations <b>or</b> daily pressure drop (only while unit is exhausted to the outdoors)</li> </ul>
<p>Elevated Temperature Baghouse (PM/PM-10/PM-2.5)</p>	<ul style="list-style-type: none"> <li>• Continuous PM CEMs</li> <li style="text-align: center;"><b>or</b></li> <li>• Daily baghouse inlet temperature <b>and one of the following</b></li> <li>• Continuous COM</li> <li style="text-align: center;"><b>or</b></li> <li>• Continuous BLDS</li> <li style="text-align: center;"><b>or</b></li> <li>• Daily visible emission notations <b>or</b> daily pressure drop (only while unit is exhausted to the outdoors)</li> </ul>
<p>Dry filters for Surface Coating Units (PM/PM-10/PM-2.5) (for FESOP/TV)</p>	<ul style="list-style-type: none"> <li>• Daily filter checks,</li> <li>• <b>and</b> Weekly observations of the overspray,</li> <li>• <b>and</b> Monthly observations of the stack exhausts,</li> <li>• <b>and</b> 326 IAC 6-3-2(d)(1) language <i>(if applicable)</i> (do not include 326 IAC 6-3-2(d)(2) language)</li> </ul> <p>(Note: 326 IAC 6-3-2 is not applicable to dip, roll, flow, or brush application, or if PM &lt; 0.551 lb/hr, or if paint usage &lt; 5 gallons/day, or for minor touchup using aerosol coatings)</p>

Dry filters for Surface Coating Units (PM/PM-10/PM-2.5) (for MSOP, Registration, Exemption)	<ul style="list-style-type: none"> <li>• 326 IAC 6-3-2(d)(1) and 326 IAC 6-3-2(d)(2) language (<i>if applicable</i>)</li> </ul> <p>(Note: 326 IAC 6-3-2 is not applicable to dip, roll, flow, or brush application, or if PM &lt; 0.551 lb/hr, or if paint usage &lt; 5 gallons/day, or for minor touchup using aerosol coatings)</p>
Baghouses for Woodworking Units (PM/PM-10/PM-2.5)	<ul style="list-style-type: none"> <li>• Daily visible emissions notations of the stack (only while unit is exhausted to the outdoors)</li> <li><b>or</b></li> <li>• Daily pressure drop readings of the baghouse (only while unit is exhausted to the outdoors),</li> <li><b>or</b></li> <li>• Quarterly baghouse/cyclone inspections</li> </ul>
Coal, Limestone, Gypsum Handling Units (PM/PM-10/PM-2.5)	<p>For coal, limestone, and gypsum transfer points, unloading points, and drop points:</p> <ul style="list-style-type: none"> <li>• Once per week visible emissions notations (only while unit is exhausted to the outdoors)</li> </ul>
Wet scrubber for PM/PM-10/PM-2.5 control	<ul style="list-style-type: none"> <li>• Daily visible emission notations <b>or</b> daily pressure drop (only while unit is exhausted to the outdoors)</li> <li>• <b>and</b> Daily pump discharge pressure <b>or</b> liquor flowrate</li> </ul>
ESP for PM/PM-10/PM-2.5 control	<ul style="list-style-type: none"> <li>• Continuous PM CEMs</li> <li><b>or</b></li> <li>• Continuous COM</li> <li><b>or</b></li> <li>• Daily number of fields in service</li> <li>• <b>and</b> Daily spark rate</li> <li>• <b>and</b> Daily primary and secondary voltage</li> <li>• <b>and</b> Daily primary and secondary current</li> </ul>
Bin Vent for PM/PM-10/PM-2.5 control	<ul style="list-style-type: none"> <li>• Daily visible emission notations (only while unit is exhausted to the outdoors)</li> </ul>
Cyclone or Multiclone for PM/PM-10/PM-2.5 control	<ul style="list-style-type: none"> <li>• Continuous PM CEMs</li> <li><b>or</b></li> <li>• Continuous COM</li> <li><b>or</b></li> <li>• Daily visible emission notations <b>or</b> daily pressure drop (only while unit is exhausted to the outdoors)</li> </ul>
uncontrolled PM/PM-10/PM-2.5 Units	<ul style="list-style-type: none"> <li>• Daily visible emissions notations of the stack (only while unit is exhausted to the outdoors)</li> </ul>
<u>SCR for NOx</u>	<ul style="list-style-type: none"> <li>• Continuous NOx CEMs</li> <li><b>or</b></li> <li>• Continuous ammonia slip</li> </ul>
<u>SNCR for NOx</u>	<ul style="list-style-type: none"> <li>• Continuous NOx CEMs</li> <li><b>or</b></li> <li>• Continuous ammonia slip</li> </ul>

<u>Wet Scrubber for SO2 control</u>	<ul style="list-style-type: none"> <li>• Continuous SO2 CEMs</li> <li><b>or</b></li> <li>• Daily Pressure Drop</li> <li>• <b>and</b> Daily liquor pH</li> <li>• <b>and</b> Daily pump discharge pressure <b>or</b> liquor flowrate</li> </ul>
<u>Spray Dryer for SO2 control</u>	<ul style="list-style-type: none"> <li>• Continuous SO2 CEMs</li> <li><b>or</b></li> <li>• Daily alkali solution concentration</li> <li>• <b>and</b> Daily pressure drop</li> </ul>
<u>Thermal Oxidizer for VOC</u>	<ul style="list-style-type: none"> <li>• Continuous VOC CEMs</li> <li><b>or</b></li> <li>• Continuous combustion chamber temperature,</li> <li>• <b>and</b> Daily duct pressure or fan amperage</li> </ul>
<u>Catalytic Oxidizer for VOC</u>	<ul style="list-style-type: none"> <li>• Continuous VOC CEMs</li> <li><b>or</b></li> <li>• Continuous catalyst inlet and outlet temperature</li> <li>• <b>and</b> Daily duct pressure or fan amperage</li> </ul>
<u>flare for VOC</u>	<ul style="list-style-type: none"> <li>• Daily presence of pilot flame,</li> <li><b>or</b></li> <li>• Daily visible emission readings</li> </ul>
<u>condenser for VOC</u>	<ul style="list-style-type: none"> <li>• Continuous VOC CEMs</li> <li><b>or</b></li> <li>• Daily outlet gas temperature,</li> <li>• <b>and</b> Daily outlet coolant temperature</li> </ul>
<u>Carbon Adsorber for VOC</u>	<ul style="list-style-type: none"> <li>• Continuous VOC CEMs</li> <li><b>or</b></li> <li>• Daily outlet VOC concentration</li> </ul>
<u>Thermal Oxidizer for CO</u>	<ul style="list-style-type: none"> <li>• Continuous CO CEMs</li> <li><b>or</b></li> <li>• Daily combustion chamber temperature</li> </ul>

\* In many cases, when using a COM and opacity as an indicator of compliance with a particulate limit, the opacity indicator may be different than the applicable opacity standard.

Emissions units with controls that are needed for compliance with emission limitations or standards should have at least one indicator that is monitored to provide a reasonable assurance of compliance. It is in the best interests of the owner/operator to propose an indicator that best fits their situation as part of a compliance monitoring plan. Since the permitting regulations require that permits include some type of monitoring to be included in the permit, IDEM will have to include monitoring conditions based on the agency's best judgment, if a source does not propose its own monitoring plan.

In cases of uncontrolled emissions units that are subject to an applicable requirement, visible emission notations, sampling/analysis and/or record keeping will be required depending on the applicable requirement in question. Examples include fuel sampling and analysis records, VOC content or throughput records.

## **Quality Assurance/Quality Control**

The purpose of compliance monitoring is to provide the source and IDEM with information that can be used to provide a reasonable assurance of compliance with applicable requirements. This requires that the compliance monitoring equipment must be kept in good condition so that quality, representative data is obtained. In cases where instrumentation is needed for monitoring an indicator, the source should ensure that proper QA/QC procedures are in place to assure that quality, representative data is maintained. Normally this would be specified in manufacturer's recommendations that would be followed by the owner/operator, however if this is not the case, the owner/operator is responsible for maintaining the equipment and would have to develop adequate QA/QC procedures.

## **Compliance Monitoring Plans – Putting It All Together**

As mentioned previously, IDEM expects source owner/operators to propose compliance monitoring plans that are best suited to their situation. The compliance monitoring plan should provide sufficient detail concerning the emissions unit, applicable requirements, control devices, monitoring methods and indicators to be monitored. The first step would be to review what may already be in place that can be used for compliance monitoring.

For new units that have yet to be constructed, there are several sources of information that can be used to determine the appropriate compliance monitoring plan. Besides this guidance document, USEPA has prepared the Technical Reference Guidance Document for the CAM rule that also includes examples of compliance monitoring plans. In addition to the examples, the CAM guidance document also includes a list of presumptively acceptable monitoring plans that can be used for various scenarios. Another source of information may be rules that are exempt from CAM applicability. For example, a post-1990 NESHAP or NSPS may provide monitoring methods that could be used for a pollutant that is not subject to the rule, but would be amenable to the pollutant in question.

Once a decision has been made concerning the appropriate compliance monitoring program, the owner/operator should compile the information in a compliance monitoring plan to be submitted to IDEM in a permit application. The information should identify the emissions unit and associated control device, if applicable. The compliance monitoring plan should also specify the applicable requirement, the indicator that will be monitored, the monitoring method that will be used for monitoring the proposed indicator and the monitoring frequency. As mentioned previously, at least one indicator will be required to be monitored as part of the compliance monitoring program, except in those situations where additional indicators to be monitored.

In addition to specifying the monitoring method and indicator that will be monitored, the compliance monitoring plan should also specify the indicator range that will be used to define when an excursion has occurred and corrective action may be required. The indicator range is to be used to determine when operations are not normal. The indicator range can be in various forms depending on the process and/or control device. If a unit has a baghouse to maintain compliance with a particulate standard and the source proposes to use pressure drop across the baghouse as the indicator, the range could be a minimum and maximum pressure drop. For an emissions unit emitting VOCs and using a thermal oxidizer to control emissions, the range could be a minimum temperature that must be maintained to demonstrate compliance. In the case of visible emissions, the indicator range could be normal versus abnormal, no visible emissions or in the case of a COM, a percent opacity.

IDEM currently has two forms that could be used to provide this information as part of a permit application. Form CD-02 can be used in situations where several emissions units equipped with the same control devices are subject to the same applicable requirement. For example, where a source has three coal fired boilers equipped with baghouses that are subject to a particulate limitation. All of the boilers and associated baghouses could be listed on the form with the same compliance monitoring methods and frequency. The other form is CD-03. This form could be used if an emissions unit is subject to several applicable requirements. The source could use this form to specify the proposed compliance monitoring method and frequency for each applicable requirement.

IDEM will use the information provided in the compliance monitoring plan to draft permit terms and conditions that will incorporate the monitoring, record keeping and reporting requirements into the permit. As stated previously, where a compliance monitoring plan has not been submitted, IDEM will incorporate terms and conditions based on best judgment.

### **Excursions and Corrective Action**

As part of a good compliance monitoring program, owners/operators need to use the information provided by the monitoring to determine when corrective action needs to be taken. Because the monitoring program is not meant to make a determination as to the actual compliance with an applicable requirement, the information will only indicate when a process or control device is not operating effectively. However, if the information indicates that the process and/or controls are operating in the same fashion as during the last compliance determination, it can be reasonably assumed that the emissions unit is in compliance with the applicable requirements.

IDEM will include language concerning the need to respond to excursions or exceedances from indicator ranges in the operating permit. This language is patterned from the language in 40 CFR 64 that requires owner/operators to respond to excursions or exceedances under the CAM rule. In general, the language requires the owner/operator to investigate the cause of the excursion or exceedances and based on that investigation, taking necessary corrective actions to return the process/control device to normal operations. The language will also include record keeping requirements to allow IDEM to determine whether the response was adequate for the situation.

### **Preventative Maintenance Plans**

While preventative maintenance plans are not required to be included in construction and operating permits, proper maintenance of process equipment and control devices can assist in maintaining compliance with emission limitations and standards. Sources operating under a Title V or FESOP permit are required to maintain a preventative maintenance plan in accordance with 2-7-4(c)(10) and 2-8-3(c)(6). Sources operating under a MSOP permit are subject to 326 IAC 1-6 [Malfunctions] which includes a requirement to prepare and maintain a preventative maintenance plan in accordance with 326 IAC 1-6-3.

When developing a compliance monitoring plan, it may be useful for sources to evaluate the preventative maintenance or operation and maintenance plans to assist in identifying indicators or other procedures that could be incorporated into an effective compliance monitoring plan. As with monitoring that a source may already have implemented, there may be preventative maintenance activities that would be suitable for compliance monitoring. IDEM does not suggest that a preventative maintenance plan would be a substitute for an acceptable compliance monitoring program, but there may be certain activities that would be suitable. In addition, the

implementation of a comprehensive preventative maintenance plan may provide additional confidence to IDEM that a specific compliance monitoring proposal would be sufficient to assure compliance.

**Further Information**

U.S. EPA Compliance Monitoring Guidance - <http://www.epa.gov/ttn/emc/cam.html>

IDEM Permit Guide - <http://www.in.gov/idem/5884.htm>

Permit Reviewer of the Day - Contact the Permit Reviewer of the Day by calling toll-free 1-800-451-6027, press 0 and ask for extension 3-0178; or dial (317) 233-0178, then ask for the Permit Reviewer of the Day.