Air Quality Permitting Guidelines for Night Operations of Crushing and Screening Plants, Hot Mix Asphalt Plants, and Concrete Batch Plants

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Table of Contents

Introduction and Notes

This document provides guidance to permit specialists processing air quality permits for sources of particulate emissions seeking to operate at night, or requesting a modification to an existing permit for purpose of operating the facility during the night. This guidance was developed to ensure that sources of particulate emissions with opacity limits could be operated at night with a high degree of assurance that those limits will be met and that all conditions for night operations, including opacity limits, are enforceable as a practical matter.

This guidance contains language for control methods and monitoring devices used parametrically as a means for ensuring compliance with opacity limits during night operations and for the corresponding monitoring and record keeping requirements.

The following suggested conditions have been used for crushing and screening operations, hot mix asphalt (HMA) plants, and concrete batch plants (CBP) and may be appropriate for other applications; however, there may be certain situations where some or all of the conditions contained in this document may be inappropriate. In addition, alternative control techniques or methods of compliance demonstration may be used provided they are enforceable as a practical matter. Table 1 summarizes the guidance contained in this document.

For applicants who wish to have night operations as an option, the following language should be added to the permit.

> *The following conditions (Condition **{X.X}** through **{ X.X}**) apply only if the permittee operates the facility during the night as defined in Condition {**X.X**}.*
>
> *The permittee is authorized to operate this facility at night provided all night conditions are met in addition to all other conditions contained in this permit.*

1.1 Definitions

The following language should be added to the permit to identify definitions of key terms.

> *For purposes of this permit the following definitions apply:*
>
> *"Operation at Night" or "Night operation" is operating a source of emissions at night.*
>
> *"Night" is the time period between sunset and sunrise, as defined by the Astronomical Applications Department of the U.S. Naval Observatory. (Data for one day or a table of sunrise/sunset for an entire year can be obtained at http://aa.usno.navy.mil/. Alternatively, these times can be obtained from a Farmers Almanac or from http://www.almanac.com/rise/).*
>
> *"Dust Suppression System" or "DSS" is a system designed to control fugitive particulate emissions from all process equipment and shall consist of a water spray system and data logger(s).*

1.2 Truck Traffic and Haul Roads

These conditions should be added to all permits for facilities with haul roads and truck traffic to require control of the haul roads and truck traffic areas.

Truck Traffic and Haul Roads

During night operations, the control measures used on the truck traffic areas and the haul roads shall be consistent in nature, extent, type, and frequency as performed during the preceding daylight hours.

Monitoring, recordkeeping and reporting for night operations shall be equivalent with daytime conditions and requirements.

1.3 Dust Suppression Systems (DSS) with Data logger (Process Fugitives)

The following are conditions for a water-spray DSS. To demonstrate compliance, the permittee shall operate the DSS using the *water pressure and flow rate* parameters for the previous day's compliance test or the initial compliance test. Monitoring involves tracking and keeping records of the parameters identified in the record keeping conditions of this guidance document.

The following language should be added to the permit for the use of a water spray DSS.

Construction and Operation

Prior to commencing night operations, the permittee shall install a dust suppression system (DSS) or an equivalent system designed to control fugitive particulate emissions from all fugitive emission points of the facility process equipment. The DSS shall be equipped with a data logger(s) that is capable of continuously recording the following parameters for the DSS:

Water pressure (for each emission point);
Water flow rate (for each emission point);
Time and date of on/off periods of equipment;
Time and date of hours of DSS operation.

During night operation, the DSS shall be operated to ensure the {X}% opacity limit at {UNIT(S) X,Y,Z} is met. After installation and initial use of the DSS, the DSS is required to be used on a continued basis during any time the facility is in operation and all data logger monitoring, reporting and recordkeeping requirements apply, whether or not night operations are currently in effect.

For each fugitive emission point, the amount of water applied at night using the DSS that ensures compliance with the {X}% opacity limits at {UNIT(S) X,Y,Z} shall be the greater of the water flow rate and water pressure of the DSS at the desired throughput capacity of the plant:

*As recorded from the compliance test performed on the day prior to the night operations that demonstrated compliance with the opacity limit for **{UNITS X,Y,Z}**;*

or

*As recorded at the initial or most recent Department-approved compliance test as required in **{CONDITION X}** that demonstrated compliance with the opacity limit for **{UNITS X,Y,Z}***

Monitoring

During the day immediately preceding night operation and during night operations, the permittee shall:

Once during daylight and once every four hours during night operations, perform a visual inspection of all spray nozzles, sprinklers or equivalent devices of the DSS to ensure the system is operating properly (e.g., there are no clogged spray nozzles, broken lines, etc.) to ensure that the facility meets the opacity standards contained in this permit. The permittee shall not operate the facility during night until all problems are rectified and the DSS is functioning properly.

Recordkeeping

During the compliance test in {CONDITION X } used to establish flow rate and pressure operating parameters for night operation of the DSS, the permittee shall record at a minimum the following operating parameters:

Water pressure (for each emission point);
Water flow rate (for each emission point);
Date and time of on/off periods of equipment;
Name of person recording the information.

When the dust suppression system (DSS) is in operation, the permittee shall record the following records:

Continuously record, by the use of a data logger, the following DSS parameters:
Water pressure(for each emission point);
Water flow rate(for each emission point);
Time and date of on/off periods of equipment;
Time and date of hours of DSS operation;

and

Date, time, and nature of any malfunction of the DSS during night operations, and corrective actions taken to remedy it.

The permittee shall keep all of the above records for both day and night operations, which shall be retained at the plant site for the most recent two (2) year period and shall be made available to Department personnel upon request. Electronic records are acceptable, provided that hard copies can be provided (printed) upon request.

Reporting

Within thirty (30) days after the end of the calendar year the permittee shall create an Annual DSS Summary Report for the DSS containing the following:

Minimum and maximum water pressure for the previous calendar quarter;
Average daily water flow rate;
Date and time of on/off periods of equipment;
List of dates and times of on/off periods of the DSS;
Total hours of DSS operation.

Date, time, and nature of any malfunction of the DSS during night operations, and corrective actions taken to remedy it.

All malfunctions of the DSS during night operations resulting in excess emissions shall be reported in accordance with 20.2.7 NMAC.

The permittee shall provide the Department the results of the initial compliance tests required in {CONDITION X} within fifteen (15) calendar days prior to commencing night operations.

Compliance Tests

Initial compliance tests for particulate matter shall be performed to demonstrate compliance with the opacity limits contained in {CONDITION X}. The initial compliance test shall be conducted with the DSS operating at a plant capacity load allowed by this permit and the water flow rate, water pressure, and the opacity at each crusher, screen, hopper, and conveyor transfer point, including transfers to stockpiles, shall be recorded as the operating parameters. The operating parameters recorded during the compliance test in {CONDITION X} shall be used to establish the operating parameters for operation of the DSS.

The permittee may operate the DSS using the operating parameters determined by the highest throughput capacity, as allowed by this permit, for which compliance is demonstrated. If so desired, multiple separate compliance tests may be conducted and the resulting DSS parameters recorded for different capacities and flow rates for which the permittee elects to demonstrate compliance.

Prior to initiating night operations and on an ongoing daily basis, compliance tests for particulate matter shall be performed to demonstrate compliance with the opacity limits contained in {CONDITION X}. The compliance test shall be conducted with the DSS operating at a plant capacity load allowed by this permit and operating parameters (the water flow rate, water pressure, and the opacity at each crusher, screen, hopper, and conveyor transfer point, including transfers to stockpiles) shall be recorded.

All compliance tests (initial and ongoing) shall be conducted in accordance with EPA test Method 9 and the procedures for opacity in Appendix A of the CFR, Title 40, Part 60.11(b), unless otherwise approved in writing by the Department. The readings shall be taken for 6 minutes (3 minute averaging period).

1.4 Baghouses

Baghouses used for controls (typically for Concrete Batching Plants and Hot Mix Asphalt facilities) should have the following night operation conditions for the installation of data loggers, monitoring, recordkeeping and reporting.

Construction and Operation

The permittee shall install data logger(s) capable of continuously recording differential pressure measured by magnahelic gauges or equivalent differential pressure gauges installed on {UNIT(S) X,Y,Z}.

Monitoring

On the day immediately preceding night operation the permittee shall verify the differential pressure across {UNIT(S) X, Y, Z} is within the manufacturer's specified normal operating range. The reading shall be taken during operation of the baghouse in its normal particulate control function.

Operation of {UNIT(S) X, Y, Z} shall cease if the pressure drop across {UNIT (S) X, Y, Z} is not within the manufacturer's specified normal operating range. Once the cause of the deviation has been determined and rectified, operation may continue.

{For Silos: Concrete Batching//HMA add where appropriate}

The permittee shall, prior to loading of the {FLYASH/LIME/CEMENT/STORAGE SILO /} during night, monitor the differential pressure across the fiber filters of the dust collector by the use of a differential pressure gauge to ensure it is within the manufacture's specified operating range. The reading shall be taken during the silo loading operation.

{For Truck Loading: Concrete Batching add where appropriate}

The permittee shall, prior to concrete batch mixing during night, monitor the differential pressure drop across the fiber filters of the dust collector for the truck loading system to ensure it is within the manufacturer's specified normal operating range. The reading shall be taken during the truck loading operation.

Recordkeeping

For each baghouse, the manufacturer's specified normal operating range shall be recorded.

During night operation the permittee shall record, by the use of a data logger, a continuous record of the differential pressure across {UNIT(S) X,Y,Z}.

The permittee shall record the results of the compliance tests required by {CONDITION(S) X,Y,Z}.

The permittee shall record the following records for the baghouse(s):

Date, time, and nature of any malfunction of baghouse (Units X,Y,Z) during night operations and the corrective actions taken to remedy it.

Reporting

Within thirty (30) calendar days following the end of the calendar year the permittee shall create an Annual Baghouse Summary Report of the compliance tests required in {CONDITION X}.

Compliance with {CONDITION X} will be based on Department inspections of the facility and of its records and logs; testing conducted in accordance with EPA test Method 9 and 22 (if applicable), and the procedures for opacity in Appendix A of the CFR, Title 40, Part 60.11(b), unless otherwise approved in writing by the Department; and timely submittal of the required reports.

Within thirty (30) days after the end of the calendar year the permittee shall create and retain an Annual Baghouse Malfunction Summary report containing the following:

Date, time, and nature of any malfunction of the baghouse(s) (Units X,Y,Z), and corrective actions taken to remedy it.

Electronic records are acceptable, provided that hard copies can be provided (printed) upon request.

All malfunctions resulting in excess emissions during night operations shall be reported in accordance with 20.2.7 NMAC.

Compliance Tests

For baghouses without a manufacturer's specified normal operating range, the normal operating range (pressure drop range) shall be determined and recorded. For purposes of this permit, this pressure range shall be considered equivalent to the manufacturer's specified normal operating range.

Table 1: Summary of Requirements/Conditions for Night Operations

Source Type	Monitored Emission Point//Control	Device	Device Monitoring	Recordkeeping	Reporting	Compliance Tests
All facility types	Truck traffic areas//haul roads	Water/base course/surfactant/paving	Control measures consistent with daytime operations	Same as daytime recordkeeping	As per general conditions	
Crushing and Screening CBP	Conveyors, Crushers, Screens, Grizzlies.	Dust Suppression System (DSS) [1]	Data logger for continuous monitoring of DSS Daily visual inspections	Records of compliance tests; Water flow and water pressure at each fugitive emission point; On/off times of equipment/DSS; Malfunctions of DSS	Annual DSS Summary Report Annual DSS Malfunction Summary Report	Initial and periodic compliance tests Day prior to night operations.
CBP HMA Crushing and Screening [2]	Baghouses for drum mixers/dryers; silos; and truck loading operations	Differential Pressure Gauge	Data Logger for Differential Pressure Gauge	Malfunctions Continuously record pressure during silo/truck loading and drum/dryer operations. Monitor/reconcile delta P prior to silo loading.	Annual Baghouse Summary Report Annual Baghouse Malfunction Summary Report	Manufacturer's specified normal operating range. For baghouses without manufacturer pressure drop specifications, initial compliance test to establish and record a differential pressure range for compliance

Notes:

CPB = Concrete Batch Plant; HMA = Hot Mix Asphalt Plant; DSS = Dust Suppression System

[1] If a DSS is used as a compliance practice for night operations then a corresponding data logger must be used on all aggregate handling equipment.

[2] Some crushing and screening utilize baghouses/cyclones (E.g., zeolite processing, bagging, etc.)