

15A NCAC 02D .0542 CONTROL OF PARTICULATE EMISSIONS FROM COTTON GINNING OPERATIONS

(a) Purpose. The purpose of this Rule is to establish control requirements for particulate emissions from cotton ginning operations.

(b) Definitions. For the purposes of this Rule, the following definitions apply:

- (1) "1D-3D cyclone" means any cyclone-type collector of the 1D-3D configuration. This designation refers to the ratio of the cylinder to cone length, where D is the diameter of the cylinder portion. A 1D-3D cyclone has a cylinder length of 1xD and a cone length of 3xD.
- (2) "2D-2D cyclone" means any cyclone-type collector of the 2D-2D configuration. This designation refers to the ratio of the cylinder to cone length, where D is the diameter of the cylinder portion. A 2D-2D cyclone has a cylinder length of 2xD and a cone length of 2xD.
- (3) "Bale" means a compressed and bound package of cotton lint, approximately weighing 500 pounds.
- (4) "Existing facility" means a cotton ginning operation site operating prior to July 1, 2002.
- (5) "Ginning operation" means any facility or plant removing seed, lint, trash, or any combination of these from raw cotton or bales of lint cotton.
- (6) "Ginning season" means the period of time during which the gin is in operation, which is generally from September of the current year through January of the following year.
- (7) "High pressure exhausts" means the exhaust air systems at a cotton gin not defined as "low pressure exhausts."
- (8) "Low pressure exhausts" means the exhaust cotton handling systems located at a cotton gin that handle air from the cotton lint handling system and battery condenser.

(c) Applicability. This rule applies to all new, existing, and modified cotton ginning operations. Existing facilities with a maximum rated capacity of less than 20 bales per hour that do not have cyclones on lint cleaners and battery condensers as of July 1, 2002 are not required to add:

- (1) the emission control devices in Subparagraph (d)(1) of this Rule to lint cleaning exhausts if emissions from the lint cleaning are controlled by fine mesh screens; and
- (2) the emission control devices in Subparagraph (d)(2) of this Rule to battery condenser exhausts if the emissions from the battery condenser are controlled by fine mesh screens.

(d) Emission Control Requirements. The owner or operator of each cotton ginning operation shall control particulate emissions from the facility by controlling:

- (1) all high pressure exhausts and lint cleaning exhausts with an emission control system including:
 - (A) one or more 1D-3D or 2D-2D cyclones to achieve 95 percent efficiency; or
 - (B) a device with a minimum of 95 percent efficiency.
- (2) low pressure exhausts, except lint cleaning exhausts, by an emission control system including:
 - (A) one or more 1D-3D or 2D-2D cyclones to achieve 90 percent efficiency; or
 - (B) a device with at least a 90 percent efficiency.

Efficiency is based on the removal of particulate matter between the cyclone's inlet and outlet; it is measured using test methods in 15A NCAC 02D .2600.

(e) Exhaust Rain Caps. Exhausts from emission points or control devices shall not be equipped with exhaust rain caps or other devices that deflect the emissions downward or outward.

(f) Operation and Maintenance. To ensure optimum control efficiency is maintained, the owner or operator shall establish, based on manufacturers recommendations, an inspection and maintenance schedule for the control devices, other emission processing equipment, and monitoring devices used pursuant to this Rule. The inspection and maintenance schedule shall be followed throughout the ginning season. The results of the inspections and any maintenance performed on the control equipment, emission processing equipment, or monitoring devices shall be recorded in the log book required in Paragraph (k) of this Rule.

(g) Fugitive Emissions. The owner or operator shall minimize fugitive emissions from cotton ginning operations in accordance with this Paragraph:

- (1) The owner or operator of a
 - (A) trash stacker shall:
 - (i) install, maintain, and operate a three-sided enclosure with a roof whose sides are high enough above the opening of the dumping device to prevent wind from dispersing dust or debris; or

- (ii) install, maintain, and operate a device to provide wet suppression at the dump area of the trash cyclone and minimize free fall distance of waste material exiting the trash cyclone.
 - (B) trash stacker and composting system shall: install, maintain, and operate a wet suppression system providing dust suppression in the auger box assembly and at the dump area of the trash stacker system. The owner or operator shall keep the trash material wet and compost it in place until the material is removed from the dump area for additional composting or disposal.
 - (2) Gin Yard. The owner or operator shall clean and dispose of accumulations of trash or lint on the non-storage areas of the gin yard daily.
 - (3) Traffic areas. The owner or operator shall clean paved roadways, parking, and other traffic areas at the facility as necessary to prevent re-entrainment of dust or debris. The owner or operator shall treat unpaved roadways, parking, and other traffic areas at the facility with wet or chemical dust suppressant as necessary to prevent dust from leaving the facility's property and shall install and maintain signs limiting vehicle speed to 10 miles per hour where chemical suppression is used and to 15 miles per hour where wet suppression is used.
 - (4) Transport of Trash Material. The owner or operator shall ensure all trucks transporting gin trash material are covered and the trucks are cleaned of over-spill material before trucks leave the trash hopper dump area. The dump area shall be cleaned daily.
- (h) Alternative Control Measures. The owner or operator of a ginning operation may petition for use of alternative control measures to those specified in this Rule. The petition shall include:
- (1) the name and address of the petitioner;
 - (2) the location and description of the ginning operation;
 - (3) a description of the alternative control measure; and
 - (4) a demonstration the alternative control measure's effectiveness is equal to or greater than the control device or method specified in this Rule.
- (i) Approval of Alternative Control Measure. The Director shall approve the alternative control measure if he or she finds:
- (1) all the information required by Paragraph (h) of this Rule has been submitted; and
 - (2) the alternative control measure's effectiveness is equal to or greater than the control device or method specified in this Rule.
- (j) Monitoring.
- (1) The owner or operator of each ginning operation shall install, maintain, and calibrate monitoring devices measuring pressures, rates of flow, and other operating conditions necessary to determine if the control devices function in accordance with the engineering specifications set forth in the permit.
 - (2) Before or during the first week of operation of the 2002-2003 ginning season, the owner or operator of each gin shall conduct a baseline study of the entire dust collection system, without cotton being processed, to ensure air flows stay within the design range for each collection device. For 2D-2D cyclones the air flow design range is 2600 to 3600 feet per minute. For 1D-3D cyclones the design range is 2800 to 3600 feet per minute. For other control devices the air flow design range is that found in the manufacturer's specifications. Gins constructed after the 2002-2003 ginning season shall conduct the baseline study before or during the first week of operation of the first ginning season following construction. During the baseline study the owner or operator shall measure or determine according to the methods specified in this Paragraph and record in a logbook:
 - (A) the calculated inlet velocity for each control device; and
 - (B) the pressure drop across each control device.

The owner or operator shall use Method 1 and Method 2 of 40 CFR Part 60 Appendix A to measure flow and static pressure and determine inlet velocity or the USDA method for determining duct velocity and static pressure in Agricultural Handbook Number 503, Cotton Ginners Handbook, dated December 1994. The Cotton Ginners Handbook method shall only be used where test holes are located a minimum of eight and one-half pipe diameters downstream and one and one-half pipe diameters upstream from elbows, valves, dampers, changes in duct diameter or any other flow disturbances. Where Method 2 is used a standard pitot tube may be used in lieu

of the s-pitot specified in Method 2 subject to the conditions specified in Paragraph 2.1 of Method 2.

- (3) On a monthly basis following the baseline study, the owner or operator shall measure and record in the logbook the static pressure at each port where the static pressure was measured in the baseline study. Measurements shall be made using a manometer, a Magnahelic® gauge, or other device the Director approves as being equivalent to a manometer. If the owner or operator measures a change in static pressure of 20 percent or more from that measured in the baseline study, the owner or operator shall initiate corrective action. Corrective action shall be recorded in the logbook. If corrective action will take more than 48 hours to complete, the owner or operator shall notify the regional supervisor of the region in which the ginning operation is located as soon as possible, but by no later than the end of the day such static pressure is measured.
- (4) When any design changes to the dust control system are made, the owner or operator shall conduct a new baseline study for that portion of the system and shall record the new values in the logbook required in Paragraph (k) of this Rule. Thereafter monthly static pressure readings for that portion of the system shall be compared to the new values.
- (5) During the ginning season, the owner or operator shall daily inspect for structural integrity of the control devices and other emissions processing systems and shall ensure that the control devices and emission processing systems conform to normal and proper operation of the gin. If a problem is found, corrective action shall be taken and recorded in the logbook required in Paragraph (k) of this Rule.
- (6) At the conclusion of the ginning season, the owner or operator shall conduct an inspection of the facility to identify all scheduled maintenance activities and repairs needed relating to the maintenance and proper operation of the air pollution control devices for the next season. Any deficiencies identified through the inspection shall be corrected before beginning operation of the gin for the next season.

(k) Recordkeeping. The owner operator shall establish and maintain on-site a logbook documenting the following items:

- (1) results of the baseline study as specified in Subparagraph (j)(2) of this Rule;
- (2) results of new baseline studies as specified in Subparagraph (j)(4) of this Rule;
- (3) results of monthly static pressure checks and any corrective action taken as specified in Subparagraph (j)(3) of this Rule;
- (4) observations from daily inspections of the facility and any resulting corrective actions taken as required in Subparagraph (j)(5) of this Rule; and
- (5) a copy of the manufacturer's specifications for each type of control device installed.

The logbook shall be maintained on site and made available to Division representatives upon request.

(l) Reporting. The owner or operator shall submit by March 1 of each year a report containing the following:

- (1) the name and location of the cotton gin;
- (2) the number of bales of cotton produced during the previous ginning season;
- (3) a maintenance and repair schedule based on inspection of the facility at the conclusion of the previous cotton ginning season required in Subparagraph (j)(6) of this Rule; and
- (4) signature of the responsible official as identified in 15A NCAC 02Q .0303.

(m) Compliance Schedule. Existing sources shall comply as specified in Paragraph (d) of this Rule. New and modified sources shall be in compliance upon start-up.

(n) Record retention. The owner or operator shall retain all records required to be kept by this Rule for three years from the date of recording.

*History Note: Authority G.S. 143-215.3(a)(1); 143-215.107(a)(5);
Eff. August 1, 2002;
Amended Eff. June 1, 2008;
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