

<b>NORTH CAROLINA DIVISION OF AIR QUALITY</b>  <div style="text-align: center;"><b>Application Review</b></div>	<b>General Title V Permit for New Air Curtain Incinerators</b>
<b>Issue Date:</b> N/A	

This engineering review is applicable to new air curtain incinerators that burn only 100 percent wood waste, 100 percent clean lumber, 100 percent yard waste or 100 percent mixture of only wood waste, clean lumber and/or yard waste.

<div style="text-align: center;"><b>Facility Data</b></div> <b>Applicant (Facility's Name):</b> N/A  <b>Facility Address:</b> N/A  <b>SIC:</b> 4953 / Refuse Systems <b>NAICS:</b> 562213 / Solid Waste Combustors and Incinerators  <b>Facility Classification: Before:</b> N/A <b>After:</b> General Title V <b>Fee Classification: Before:</b> N/A <b>After:</b> General Title V	<div style="text-align: center;"><b>Permit Applicability (this application only)</b></div> <b>SIP:</b> 15A NCAC 02D .1904 <b>NSPS:</b> 15A NCAC 02D .0524 – 40 CFR 60 Subpart CCCC ( <i>only 40 CFR 60.2242 through 60.2260</i> ) <b>NESHAP:</b> N/A <b>PSD:</b> N/A <b>PSD Avoidance:</b> N/A <b>NC Toxics:</b> N/A <b>112(r):</b> N/A <b>Other:</b> 15A NCAC02D .1806, 02Q .0509 (general authority), 02Q .0510 (multiple temporary sites)
--	---

<b>Contact Data</b>			<div style="text-align: center;"><b>Application Data</b></div> <b>Application Number:</b> N/A <b>Date Received:</b> N/A <b>Application Type:</b> Greenfield or Modification <b>Application Schedule:</b> General Title V <div style="text-align: center;"><b>Existing Permit Data</b></div> <b>Existing Permit Number:</b> N/A <b>Existing Permit Issue Date:</b> N/A <b>Existing Permit Expiration Date:</b> N/A
<b>Facility Contact</b>  N/A	<b>Authorized Contact</b>  N/A	<b>Technical Contact</b>  N/A	

<b>Total Actual emissions in TONS/YEAR:</b>							
CY	SO2	NOX	VOC	CO	PM10	Total HAP	Largest HAP
<No Inventory>							

<b>Review Engineer:</b> N/A  <b>Review Engineer's Signature:</b> N/A <b>Date:</b> N/A	<div style="text-align: center;"><b>Comments / Recommendations:</b></div> <b>Issue:</b> N/A <b>Permit Issue Date:</b> N/A <b>Permit Expiration Date:</b> N/A
---	--

**I. Introduction:**

An air curtain incinerator (ACI) means a stationary or portable incinerator that operates by forcefully projecting a curtain of air across an open chamber or pit in which combustion occurs. Incinerators of this type can be constructed above or below ground and with or without refractory walls and floor. Air curtain incinerators are different from conventional combustion devices which typically have enclosed fireboxes and controlled air technology such as mass burn, modular, and fluidized bed combustors.

Section 129 of the Clean Air Act directs the Environmental Protection Agency's (EPA) Administrator to develop regulations under Section 111 of the Act limiting emissions of nine air pollutants (i.e., particulate matter, carbon monoxide, dioxins/furans, sulfur dioxide, nitrogen oxides, hydrogen chloride, lead, mercury, and cadmium) from four categories of solid waste incineration units: municipal solid waste; hospital, medical and infectious solid waste; commercial and industrial solid waste; and other solid waste. EPA promulgated the New Source Performance Standards (NSPS) and Emission Guidelines (EG) to reduce air pollution from commercial and industrial solid waste incineration (CISWI) units, under Subparts CCCC and DDDD, respectively.

Those standards and guidelines apply to incinerators, also known as CISWI units, used by commercial and industrial facilities to burn non-hazardous solid waste. NSPS Subpart CCCC applies to new CISWI units that commenced construction after June 4, 2010, or that commenced reconstruction or modification after August 7, 2013 while NSPS Subpart DDDD applies to existing CISWI units.

An air curtain incinerator is a CISWI unit that shall meet certain provisions of NSPS Subpart CCCC if the following conditions are met. Pursuant to 40 CFR 60.2020, air curtain incinerators that burn only the materials listed in paragraphs (1) through (3) below are only required to meet the requirements under “Air Curtain Incinerators” (40 CFR 60.2245 through 60.2260).

- (1) 100 percent wood waste: *Wood waste means untreated wood and untreated wood products, including tree stumps (whole or chipped), trees, tree limbs (whole or chipped), bark, sawdust, chips, scraps, slabs, millings, and shavings. Wood waste does not include: Grass, grass clippings, bushes, shrubs, and clippings from bushes and shrubs from residential, commercial/retail, institutional, or industrial sources as part of maintaining yards or other private or public lands, construction, renovation, or demolition wastes, or clean lumber.*
- (2) 100 percent clean lumber: *Clean lumber means wood or wood products that have been cut or shaped and include wet, air-dried, and kiln-dried wood products. Clean lumber does not include wood products that have been painted, pigment-stained, or pressure-treated by compounds such as chromate copper arsenate, pentachlorophenol, and creosote.*
- (3) 100 percent mixture of only wood waste, clean lumber, and/or yard waste: *Yard waste means grass, grass clippings, bushes, shrubs, and clippings from bushes and shrubs. They come from residential, commercial/retail, institutional, or industrial sources as part of maintaining yards or other private or public lands.*

Also, the owner or operator of each CISWI and air curtain incinerator (ACI) shall apply for and obtain a Title V operating permit pursuant to 40 CFR 60.2242 as required by Section 129(e) and Title V of the Clean Air Act.

Therefore, air curtain incinerators shall be subject to Section 15A NCAC 02Q .0500, Title V Procedures. The owner or operator of a new ACI as defined above and in 40 CFR 60.2015 that meets the requirements in 40 CFR 60.2020(i) shall obtain a General Title V Operating Permit pursuant to 15A NCAC 02Q .0509 Permitting of Numerous Similar Facilities. Pursuant to 15A NCAC 02Q .0509, the Director may issue, after notice and opportunity for public participation provided in 15A NCAC 02Q .0521, a permit to cover numerous similar facilities or sources.

## II. Purpose of this Engineering Evaluation:

The purpose of this engineering review is to evaluate the rules and standards applicable to the new commercial air curtain incinerators that burn 100 percent wood waste, 100 percent clean lumber, and 100 percent mixture of only wood waste, clean lumber and/or yard waste.

## III. Regulatory Review:

### A. 15A NCAC 02D .1904: AIR CURTAIN INCINERATORS

1. Air quality permits are required for the following:
  - a. New and existing air curtain incinerators subject to 40 CFR 60.2245 through 60.2265 that combust the following materials:
    - i. 100 percent wood waste;
    - ii. 100 percent clean lumber;
    - iii. 100 percent yard waste; or
    - iv. 100 percent mixture of only wood waste, clean lumber, and yard waste.  
mixture of only wood waste, clean lumber, and yard waste.
  - b. New and existing temporary air curtain incinerators used at industrial, commercial, institutional, or municipal sites where a temporary air curtain incinerator is an air curtain incinerator whose owner or operator moves the air curtain incinerator to another site and operates it for land clearing or right-of-way maintenance at that site at least once during the term of its permit.
2. Temporary-use air curtain incinerators used in disaster recovery are excluded from the requirements of 15A NCAC 02D .1904 if the following conditions are met:
  - a. the air curtain incinerator meets the definition of a temporary-use air curtain incinerators used in disaster recovery as defined in 15A NCAC 02D .1904(b)(7);
  - b. the air curtain incinerator meets all the requirements pursuant to 40 CFR 60.2969 or 60.3061, as applicable; and

- c. the air curtain incinerator is operated in a manner consistent with the operations manual for the air curtain incinerator and the charge rate during all periods of operation is less than or equal to the lesser of 35 tons per day or the maximum charge rate specified by the manufacturer of the air curtain incinerator.
3. Air curtain incinerators shall be subject to 15A NCAC 02Q .0500 and the following requirements:
  - a. The owner or operator of a new or existing permanent air curtain incinerator shall obtain a General Title V Operating Permit pursuant to 15A NCAC 02Q .0509.
  - b. The owner or operator of a new or existing temporary air curtain incinerator shall obtain a General Title V Operating Permit pursuant to 15A NCAC 02Q .0510.
  - c. The owner or operator of an existing permanent or temporary air curtain incinerator shall complete and submit a permit application no later than September 1, 2020.
  - d. The owner or operator of a new permanent or temporary air curtain incinerator shall complete and submit a permit application 60 days prior to the date the unit commences operation.
  - e. The owner or operator of an existing permanent or temporary air curtain incinerator that is planning to close rather than obtaining a permit pursuant to 15A NCAC 02Q .0509 or 15A NCAC 02Q .0510 shall submit a closure notification to the Director no later than September 1, 2020.
4. Air curtain incinerators shall comply with the following conditions and stipulations:
  - a. The operation of air curtain incinerators in particulate and ozone nonattainment areas shall cease in a county that the Department or the Forsyth County Office of Environmental Assistance and Protection has forecasted to be an Air Quality Action Day Code "Orange" or above during the 24-hour time period covered by that Air Quality Action Day;
  - b. The wind direction at the time that the burning is initiated and the wind direction as forecasted by the National Weather Service during the time of the burning shall be away from any area, including public roads within 250 feet of the burning as measured from the edge of the pavement or other roadway surface, which may be affected by smoke, ash, or other air pollutants from the burning;
  - c. No fires shall be started or material added to existing fires when the North Carolina Forest Service, Fire Marshal, or other governmental agency has banned burning for that area;
  - d. Burning shall be conducted only between the hours of 8:00 a.m. and 6:00 p.m. No combustible materials shall be added to the air curtain incinerator prior to or after this time period;
  - e. The air curtain incinerator shall not be operated more than the maximum source operating hours-per-day and days-per-week. The maximum source operating hours-per-day and days-per-week shall be set to protect the ambient air quality standard and prevention of significant deterioration (PSD) increment for particulate. The maximum source operating hours-per-day and days-per-week shall be determined using the modeling procedures in 15A NCAC .02D .1106(b), (c), and (f). This Subparagraph shall not apply to temporary air curtain incinerators;
  - f. Air curtain incinerators shall meet manufacturer's specifications for operation and upkeep to ensure complete burning of material charged into the pit. Manufacturer's specifications shall be kept on site and be available for inspection by Division staff;
  - g. The owner or operator of an air curtain incinerator shall allow the ashes to cool and water the ash prior to its removal to prevent the ash from becoming airborne.
  - h. Only distillate oil, kerosene, diesel fuel, natural gas, or liquefied petroleum gas may be used to start the fire; and
  - i. The location of the burning shall be at least 300 feet from any dwelling, group of dwellings, or commercial or institutional establishment, or other occupied structure not located on the property on which the burning is conducted. The regional office supervisor may grant exceptions to the setback requirements if a signed, written statement waiving objections to the air curtain burning is obtained from a resident or an owner of each dwelling, commercial or institutional establishment, or other occupied structure within 300 feet of the burning site. In case of a lease or rental agreement, the lessee or renter, and the property owner shall sign the statement waiving objections to the burning. The statement shall be submitted to and approved by the regional office supervisor before initiation of the burn. Factors that the regional supervisor shall consider in deciding to grant the exception include: all the persons who need to sign the statement waiving the objection have signed it; the location of the burn; and the type, amount, and nature of the combustible substances.

Compliance with 15A NCAC 02D .1904 does not relieve any owner or operator of an air curtain incinerator from the necessity of complying with other air quality rules.

5. **Emission Limitations** [15A NCAC 02D .1904(f)]
  - a. The owner or operator of an existing air curtain incinerators shall meet the following opacity limits:
    - i. Maintain opacity to less than or equal to 35 percent opacity (as determined by the average of 3 1-hour blocks consisting of 10 6-minute average opacity values) during startup of the air curtain incinerator, where startup is defined as the first 30 minutes of operation.
    - ii. Maintain opacity to less than or equal to 10 percent opacity (as determined by the average of 3 1-hour blocks consisting of 10 6-minute average opacity values) at all times, other than during startup or during malfunctions.
  - b. The owner or operator of a new air curtain incinerator shall meet the opacity limits specified above within 60 days after air curtain incinerator reaches the charge rate at which it will operate, but no later than 180 days after its initial startup.
6. **Testing** [15A NCAC 02Q .0508(f)]
  - a. All initial and annual opacity tests shall be conducted using 40 CFR 60 Appendix A-4 Test Method 9 to determine compliance with the opacity limitations specified in A.5.a. above.
  - b. The owner or operator of an existing air curtain incinerator shall conduct an initial performance test for opacity as specified in 40 CFR 60.8 on or before 90 days after the effective date of this Rule.
  - c. The owner or operator of a new air curtain incinerator shall conduct an initial performance test for opacity as specified in 40 CFR 60.8 within 60 days after achieving the maximum charge rate at which the affected air curtain incinerator will be operated, but not later than 180 days after initial startup of the air curtain incinerator.
  - d. After the initial test for opacity, the owner or operator of a new or existing air curtain incinerator subject to 15A NCAC 02D .1904 shall conduct annual opacity tests on the air curtain incinerator no more than 12 calendar months following the date of the previous test.
  - e. The owner or operator of an existing air curtain incinerator that has ceased operations and is restarting after more than 12 months since the previous test shall conduct an opacity test upon startup of the unit.

**Recordkeeping and Reporting** [15A NCAC 02Q .0508(f)]

7. Prior to commencing construction of an air curtain incinerator, the owner or operator of a new air curtain incinerator shall submit the following information to the Director:
  - a. a notification of intent to construct an air curtain incinerator;
  - b. the planned initial startup date of the air curtain incinerator; and
  - c. the materials planned to be combusted in the air curtain incinerator.
8. The owner or operator of a new or existing air curtain incinerator shall do the following:
  - a. keep records of results of all initial and annual opacity tests onsite in either paper copy or electronic format for five years;
  - b. make all records available for submission to the Director or for an inspector's onsite review;
  - c. report the results of the initial and annual opacity tests as the average of 3 1-hour blocks consisting of 10 6-minute average opacity values;
  - d. submit initial opacity test results to the Division no later than 60 days following the initial test and submit annual opacity test results within 12 months following the previous report;
  - e. submit initial and annual opacity test reports to the Division as electronic or paper copy on or before the applicable submittal date; and
  - f. keep a copy of the initial and annual reports onsite for a period of five years.
9. In addition to complying with the requirements of 15A NCAC 02D .1904, an air curtain incinerator subject to 40 CFR Part 60, Subpart CCCC, shall also comply with 40 CFR 60. 2245 through 60.2265.

15A NCAC 02D .1904 requirements will continue to apply unless NSPS 40 CFR Part 60 Subpart CCCC requirements apply as detailed in the rule. Compliance is expected with 02D .1904 assuming the operating, testing and recordkeeping requirements will be met with proper operation of the air curtain incinerator.

**B. 15A NCAC 02D .0524 – New Source Performance Standards (NSPS)**

Air curtain incinerators also classified as Commercial and Industrial Solid Waste Incineration (CISWI) units are subject to 15A NCAC 02D .0524 - NSPS 40 CFR 60 Subpart CCCC for those ACIs that commence construction after June 4, 2010, or for those ACIs units that commence modification or reconstruction on or after August 7, 2013.

**1. 15A NCAC 02D .0524: NSPS 40 CFR PART 60 SUBPART CCCC — Standards of Performance for Commercial and Industrial Solid Waste Incineration Units**

- a. The Permittee shall comply with all applicable provisions, including the notification, testing, monitoring, recordkeeping and reporting requirements contained in Environmental Management Commission Standard 15A NCAC 02D .0524 "New Source Performance Standards (NSPS) as promulgated in 40 CFR Part 60 Subpart CCCC, including Subpart A "General Provisions."
- i. Air curtain incinerators that burn only the materials listed in subparagraphs (a)(i)(1) through (3) below are only required to meet the requirements under "Air Curtain Incinerators" (40 CFR 60.2245 through 60.2260).
- (1) 100 percent wood waste: *Wood waste means untreated wood and untreated wood products, including tree stumps (whole or chipped), trees, tree limbs (whole or chipped), bark, sawdust, chips, scraps, slabs, millings, and shavings. Wood waste does not include: Grass, grass clippings, bushes, shrubs, and clippings from bushes and shrubs from residential, commercial/retail, institutional, or industrial sources as part of maintaining yards or other private or public lands, construction, renovation, or demolition wastes, or clean lumber.*
  - (2) 100 percent clean lumber: *Clean lumber means wood or wood products that have been cut or shaped and include wet, air-dried, and kiln-dried wood products. Clean lumber does not include wood products that have been painted, pigment-stained, or pressure-treated by compounds such as chromate copper arsenate, pentachlorophenol, and creosote.*
  - (3) 100 percent mixture of only wood waste, clean lumber, and/or yard waste: *Yard waste means grass, grass clippings, bushes, shrubs, and clippings from bushes and shrubs. They come from residential, commercial/retail, institutional, or industrial sources as part of maintaining yards or other private or public lands.*  
[15A NCAC 02D .0524, 40 CFR 60.2020]
- ii. An air curtain incinerator operates by forcefully projecting a curtain of air across an open chamber or open pit in which combustion occurs. Incinerators of this type can be constructed above or below ground and with or without refractory walls and floor. (*Air curtain incinerators are not to be confused with conventional combustion devices with enclosed fireboxes and controlled air technology such as mass burn, modular, and fluidized bed combustors.*)  
[15A NCAC 02D .0524, 40 CFR 60.2245]

**Emission Limitations** [15A NCAC 02D .0524, 40 CFR 60.2250]

- b. Visible emissions from the air curtain incinerator shall not be more than 10 percent opacity (as determined by the average of three 1-hour blocks consisting of ten 6-minute average opacity values), except as described in paragraph c. below.
- c. Visible emissions from the air curtain incinerator shall not be more than 35 percent opacity (as determined by the average of three 1-hour blocks consisting of ten 6-minute average opacity values) during the startup period that is within the first 30 minutes of operation.

**Testing** [15A NCAC 02D .0524, 40 CFR 60.2255]

- d. Within 60 days after your air curtain incinerator reaches the charge rate at which it will operate, but no later than 180 days after its initial startup, the Permittee shall conduct the following performance tests:
- i. Use Method 9 of Appendix A of 40 CFR Part 60 and in accordance with General Condition JJ to determine compliance with the opacity limitations.
  - ii. Conduct an initial test for opacity as specified in 40 CFR 60.8.
- e. After the initial test for opacity, the Permittee shall conduct annual tests no more than 12 calendar months following the date of your previous test.  
If the results of these tests are above the limit given in Section B.1.b–c., above, the Permittee shall be deemed in noncompliance with 15A NCAC 02D .0524.

**Recordkeeping/Reporting** [15A NCAC 02D .0524, 40 CFR 60.2260]

- f. The Permittee shall record, maintain and report the following:
- i. Prior to commencing construction on your air curtain incinerator, submit the three items described in subparagraphs (f)(i)(1) through (3) below.
    - (1) Notification of your intent to construct the air curtain incinerator.

- (2) Planned initial startup date.
- (3) Types of materials you plan to burn in your air curtain incinerator.
- ii. Keep records of results of all initial and annual opacity tests onsite in either paper copy or electronic format, unless the Administrator approves another format, for at least 5 years.
- iii. Make all records available for submittal to the Administrator or for an inspector's onsite review.
- iv. Submit the results (as determined by the average of three 1-hour blocks consisting of ten 6-minute average opacity values) of the initial opacity tests no later than 60 days following the initial test. Submit annual opacity test results within 12 months following the previous report.
- v. Submit initial and annual opacity test reports as electronic or paper copy on or before the applicable submittal date.
- vi. Keep a copy of the initial and annual reports onsite for a period of 5 years.

Compliance is expected with 15A NCAC 02D .0524 NSPS Subpart CCCC assuming the opacity limits, testing, recordkeeping and reporting requirements will be met with proper operation of the air curtain incinerator.

**C. 15A NCAC 02D .1806 – Control and Prohibition of Odorous Emissions (State-only Requirement)**

Air curtain incinerators may have some objectionable odors beyond the facility's boundary, and therefore are subject to 15A NCAC 02D .1806 for control and prohibition of odorous emissions. The Permittee shall not operate the facility without implementing management practices or installing and operating odor control equipment sufficient to prevent odorous emissions from the facility from causing or contributing to objectionable odors beyond the facility's boundary. Compliance is expected with 02D .1806 with proper operation of the air curtain incinerator.

**D. North Carolina General Statute § 143-215.108: Control of Sources of Air Pollution; Permits Required (State-Enforceable Only)**

Prior to construction and operation of the facility under this permit, the Permittee shall comply with all lawfully adopted local ordinances, including those cited in the determination, that apply to the facility at the time of construction or operation of the facility. The local zoning authority shall have the responsibility of enforcing all lawfully adopted local zoning or subdivision ordinances. [NCGS § 143-215.108(f)]

**E. 15A NCAC 02Q .0509: Permitting of Numerous Similar Facilities**

Air curtain incinerators that burn only 100 percent wood waste, 100 percent clean lumber, and 100 percent mixture of only wood waste, clean lumber and/or yard waste are very similar facilities with regard to operation and resulting emissions, and may be granted a General Title V Permit by the Director in accordance with 15A NCAC 02Q .0509.

**1. 15A NCAC 02Q .0509: Permitting of Numerous Similar Facilities**

- a. The Director may issue, after notice and opportunity for public participation provided in 15A NCAC 02Q .0521 of this Section (Title V Procedures), a permit to cover numerous similar facilities or sources.
- b. The Director shall not issue a permit under this Rule unless the following conditions are met:
  - i. There is no unique difference that would require special permit conditions for any individual facility; and
  - ii. No unique analysis is required for any facility covered under the permit.
- c. A permit issued under this Rule shall comply with all the requirements of this Section.
- d. A permit issued under this Rule shall identify criteria by which facilities or sources may qualify for the permit. To facilities or sources that qualify, the Director shall grant the terms and conditions of the permit.
- e. The facility or source shall be subject to enforcement action for operating without a permit if the facility or source is later determined not to qualify for the terms and conditions of the permit issued under this Rule.
- f. Sources subject to Title IV shall not be eligible for a permit issued under this Rule.
- g. The owner or operator of a facility or source that qualifies for a permit issued under this Rule shall apply for coverage under the terms of the permit issued under this Rule or shall apply for a regular permit under this Section.
- h. The Division need not repeat the public participation procedures required under 15A NCAC 02Q .0521 of this Section (Title V Procedures) when it grants a request by a permit applicant to operate under a permit issued under this Rule.

The air curtain incinerator meets the above criteria, and the Director has granted the terms and conditions for a General Title V Permit for air curtain incinerators that burn only 100 percent wood waste, 100 percent clean lumber, and 100 percent mixture of only wood waste, clean lumber and/or yard waste.

**F. 15A NCAC 02Q .0510: Permitting of Facilities at Multiple Temporary Sites**

Air curtain incinerators that burn only 100 percent wood waste, 100 percent clean lumber, and 100 percent mixture of only wood waste, clean lumber and/or yard waste are similar operations that may operate at multiple temporary locations, and therefore may be issued a single General Title V Permit authorizing emissions at multiple temporary sites by the Director in accordance with 15A NCAC 02Q .0510.

**1. 15A NCAC 02Q .0510: Permitting of Facilities at Multiple Temporary Sources**

- a. The Director may issue a single permit authorizing emissions from similar operations by the same facility owner or operator at multiple temporary sites based on the following factors:
  - i. No facility shall qualify for a permit for multiple temporary sites unless the operation involves at least one change of site during the term of the permit.
  - ii. Sources subject to Title IV shall not be eligible for a permit pursuant to 15A NCAC 02Q .0510.
  - iii. Permits for facilities at multiple temporary sites shall include:
    - (1) identification of each site;
    - (2) conditions that will assure compliance with all applicable requirements at all authorized locations;
    - (3) requirements that the permittee notify the Division at least 10 days in advance of each change of location;
    - (4) conditions that assure compliance with all other provisions of this Section.
- b. The Permittee shall notify the Division in writing at least 10 days in advance of each change of location.

If the air curtain incinerator meets the above criteria, and the Director may issue a General Title V Permit for air curtain incinerators that burn only 100 percent wood waste, 100 percent clean lumber, and 100 percent mixture of only wood waste, clean lumber and/or yard waste at multiple temporary sites.

Therefore, based on anticipated compliance with the above requirements, this engineer recommends issuance of General Title V Permit **XXXXGXX** for this air curtain incinerator.